

# WIZARD FALLS HATCHERY



## PROGRAM MANAGEMENT PLAN 2018

# Wizard Falls Hatchery

## INTRODUCTION

Wizard Falls Hatchery is located on the Metolius River near Camp Sherman, about 20 miles west of the town of Sisters. The site is at an elevation of approximately 2,760 feet above sea level at latitude 44.5233 and longitude -121.6314. The hatchery land area is 35 acres.

The hatchery water supply is obtained from two sets of springs. Water rights are for 13.5 cfs.

The facility is staffed with 5.5 FTE's.

### Rearing Facilities at Wizard Falls Hatchery

Unit Type	Unit Length (ft)	Unit Width (ft)	Unit Depth (ft)	Unit Volume (ft <sup>3</sup> )	Number Units	Total Volume (ft <sup>3</sup> )	Construction Material	Age	Condition	Comment
Raceways	100	20	6	12,000	10	120,000	concrete	1979	fair	
Raceways	100	20	6	12,000	3	36,000	concrete	1959	poor	
Raceways	30	6	2.3	414	6	2,484	concrete	1947	poor	Repaired to poor condition
Starter Ponds	40	4	5	667	16	10,672	concrete	2012	good	
Starter Ponds	40	8	5	1,333	4	5,332	concrete	2016	good	
Circular Tanks		6	2.5	87	2	522	plastic		good	
Canadian Troughs	21	3	1.5	95	1	95	fiberglass	1970	good	
Deep rearing troughs	16	3.3	2.7	143	3	429	fiberglass			
Vertical Incubators					352		fiberglass	unknown		22 stacks of 16 trays

## PURPOSE

Wizard Falls Hatchery was constructed in 1947. The hatchery currently receives 75% funding from Federal sources through the Sport Fish Restoration Program, and 25% from license fees.

The hatchery is used for incubation and rearing of kokanee and rainbow trout to provide for recreational fishing program objectives, holding of brook trout and cutthroat for air stocking, and the incubation and rearing of spring Chinook and summer steelhead as part of a reintroduction program in the upper Deschutes Basin.

## 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.

Wizard Falls Hatchery resident fish programs are harvest programs, used for the augmentation of fishing and harvest opportunities. The Deschutes River (66) summer Steelhead and spring Chinook programs are conservation programs for the reintroduction of spring Chinook and summer Steelhead in the upper Deschutes Basin.

## **GOALS**

### Spring Chinook:

Deschutes River (66H) Stock: to provide fish for the Portland General Electric Reintroduction Program in the Deschutes Basin above Round Butte Dam.

### Summer Steelhead:

Deschutes River (66H) Stock: to provide fish for the Portland General Electric Reintroduction Program in the Deschutes Basin above Round Butte Dam.

Brook Trout, Cutthroat and Kokanee: to produce fingerlings to meet statewide trout management program objectives and provide variety for sport anglers.

Rainbow Trout: to produce fingerlings and legal-size rainbow trout to meet statewide trout management program objectives and to produce captive brood stock to meet 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:

#### Wyoming Triploid (74T) Stock:

Receive 300,000 eggs from Story Hatchery in Wyoming.

Produce 210,000 unfed fry for transfer to Fall River Hatchery.

Receive 29,000 fingerlings (116 pounds) from Fall River Hatchery and hold for high lakes air stocking (odd years only).

### Spring Chinook:

#### Deschutes (66H) stock

Rear 50,000 smolts (2,813 pounds) for release into the Metolius and Crooked rivers and Wychus Creek.

Cutthroat Trout

Hackleman Creek (119H) stock

Receive 10,000 fingerlings (50 pounds) from Fall River Hatchery and hold for high lakes air stocking (odd years only).

Kokanee:

Paulina Lake (67H) stock

Produce 246,000 fingerlings (4,460 pounds) for release into various standing waterbodies.

Rainbow Trout:

Oak Springs (53H) stock

Produce 125,250 fingerlings (1,791 pounds) for release into various waterbodies throughout the state.

Oak Springs (53T) triploid stock:

Produce 235,000 fingerlings (2,921 pounds) for release into various waterbodies.

Crane Prairie Reservoir (127H) stock

Provide 4,600 eyed eggs to High Desert STEP.

Rear 8,300 fingerlings (42 pounds) for airstocking in the Deschutes District (odd years only).

Rear 89,000 fingerlings (3710 pounds), 800 legals (320 pounds) and 1,700 retired broodstock (8,500 pounds) for release into various waterbodies in the Deschutes district

Crane Prairie Reservoir Triploid (127T) stock

Provide 130,000 eyed eggs to Willamette Hatchery.

Produce 70,000 fingerlings (280 pounds) for transfer to Fall River Hatchery for airstocking (odd years only).

Produce 19,200 fingerlings (77 pounds) for transfer to Marion Forks Hatchery.

Produce 22,400 fingerlings (108 pounds) for high lakes air stocking (odd years only).

Produce 59,000 legals (16,857 pounds) for transfer to Fall River Hatchery.

Produce 311,100 fingerlings (13,562 pounds) and 18,300 legals (6,420 pounds) for release into various standing water bodies.

Summer Steelhead:

Deschutes River (66H) stock:

Receive 55,000 eyed eggs from Round Butte Hatchery.

Rear 50,000 smolts (7,778 pounds) for release into Wychus Creek and the Crooked River.

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

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

Objective 4: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.

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

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

## **CURRENT PRACTICES TO ACHIEVE OBJECTIVES**

The sections that follow describe the current hatchery practices associated with fish production at this facility. Because ODFW hatcheries are managed to maximize use of the hatchery rearing space, hatchery operations are dynamic and subject to annual change depending upon statewide program needs.

The Native Fish Conservation Policy, the Fish Hatchery Management Policy, the Fish Health Management Policy and Hatchery Genetic Management Plans provide guidelines for the management of wild and hatchery fish in Oregon. These policies describe the brood collection, rearing, release, and health management strategies currently used at this facility.

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

#### ***Adult Collection***

##### Brook Trout:

Wyoming (74T) stock: No broodstock are maintained at this facility.

##### Spring Chinook

Deschutes River (66H) stock: Broodstock are collected and spawned at Round Butte Hatchery; see Round Butte Hatchery Plan for details.

##### Cutthroat Trout

Hackleman Creek (119H) stock: Broodstock are maintained at Oak Springs Hatchery; see Oak Springs Hatchery Plan for details.

##### Kokanee

Paulina Lake (67H) stock: Broodstock are collected and spawned at Paulina Lake in October, and the eggs are returned to the hatchery for incubation.

##### Rainbow Trout:

Oak Springs (53H and 53T) stock: No broodstock are maintained at the hatchery. Eggs are received from Oak Springs Hatchery in early October.

Crane Prairie Reservoir (127H and 127T) stock: Broodstock are reared at Wizard Falls Hatchery.

Summer Steelhead:

Deschutes River (66H) stock: Broodstock are collected and spawned at Round Butte Hatchery; see Round Butte Hatchery Plan for details.

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

***Rearing and Release Strategies***

Rearing and release strategies are designed to limit the amount of ecological interactions occurring between hatchery and naturally produced fish. Fish are reared to sufficient size that smoltification occurs within nearly the entire population, which will reduce the retention time in downstream migration. Rearing on parent river water, or acclimation to parent river water for several weeks, is used to ensure strong homing to the hatchery, thus reducing the stray rate to natural populations. Various release strategies are used to ensure that fish migrate from the hatchery with least amount of interaction with native populations. The specific rearing and release strategies used at this hatchery are outlined below.

Brook Trout:

Wyoming (74T) stock:

Produce 210,000 unfed fry for transfer to Fall River Hatchery in late June.

Hold 14,800 fingerlings at 200 fpp for high lakes air stocking in July (odd years only)

Spring Chinook:

Deschutes (66H) stock:

Rear 50,000 smolts to a size of 18 fpp for release into the Metolius River (15,000), Crooked River (20,000), and Wychus Creek (15,000) in mid-March.

Cutthroat Trout

Hackleman Creek (119H) stock:

Hold 10,000 fish at a size of 250 fpp for high lakes air stocking (odd years only).

Kokanee

Paulina Lake (67H) stock:

Produce 121,000 fish at a size of 100 fpp for release into various lakes from May to July.

Produce 100,000 fish at a size of 50 fpp for release into Crescent Lake in July.

Produce 25,000 fish at a size of 20 fpp for release into Detroit Reservoir in September.

Rainbow Trout:

Oak Springs (53H) stock:

Rear 119,250 fish to a size of 80 fpp for release into various lakes in May.

Rear 6,000 fish to a size of 20 fpp for release into Antelope Flat Reservoir in May.

Oak Springs (53T) triploid stock:

Rear 2,000 fish to a size of 250 fpp for release into Poison Creek Reservoir in May.

Rear 233,000 fish to a size of 80 fpp for release into various standing water bodies in May.

Crane Prairie Reservoir (127H) stock:

Raise 8,300 fingerlings to a size of 200 fpp for airstocking into various waterbodies in July.

Raise 74,000 fingerlings to a size of 25 fpp for release into various waterbodies in late May – early June.

Rear 15,000 fingerlings to a size of 20 fpp for release into Chickahominy Reservoir in May.

Rear 20,000 fingerlings to a size of 15 fpp and 20,000 to a size of 10 fpp for release into East Lake and Paulina Lake in July.

Rear 800 legals to a size of 2.5 fpp for released into the S. Fork Crooked River in May.

Raise 1,800 fish to a size of 2.5 fpp for future broodstock.

Provide 1,700 retired broodstock at a size of 0.2 fpp for release into various waterbodies in May.

Crane Prairie Reservoir Triploid (127T) stock:

Produce 26,800 fingerlings at a size of 300 fpp for release into various standing waterbodies in May.

Produce 19,200 fingerlings at a size of 250 fpp for transfer to Marion Forks Hatchery in June.

Produce 4,100 fingerlings at a size of 250 fpp for airstocking into various high lakes in the South Willamette District in July.

Produce 70,000 fingerlings at a size of 200 fpp for transfer to Fall River Hatchery in July for airstocking.

Produce 18,300 fingerlings at a size of 200 fpp for airstocking into various high lakes in the Mid-Willamette and Deschutes districts in July.

Produce 4,000 fingerlings at a size of 200 fpp for release into Lost Lake in July.

Raise 5,300 fingerlings to a size of 60 fpp for release into various waterbodies in July.

Raise 140,000 fingerlings to a size of 25 fpp for release into various waterbodies in July.

Raise 20,000 fingerlings to a size of 20 fpp for release into various waterbodies in May.

Raise 115,000 fingerlings to a size of 17 fpp for release into Crane Prairie Reservoir and Big Cultus Lake in June.

Produce 59,000 legal fish for transfer to Fall River Hatchery in February.

Produce 13,500 legal fish at a size of 3 fpp for release into various waterbodies in May.

Produce 4,800 legal fish at a size of 2.5 fpp for release into various waterbodies in March through June.

Summer Steelhead:

Deschutes River (66H) stock:

Produce 50,000 smolts at a size of 6.5 fpp for release into Wychus Creek (20,000) and Crooked River (30,000) in late April.

**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 Wizard Falls Hatchery:

Brook Trout:

Wyoming (74T) stock: No broodstock are spawned at this facility.

Spring Chinook:

Deschutes River (66H) stock: No broodstock are collected at the hatchery. Spawning takes place at Round Butte Hatchery. Adults are collected throughout the entire run and spawned at a 1:1 male to female spawning ratio.

Cutthroat Trout:

Hackleman Lake (119H) stock: No broodstock are maintained at the hatchery. Spawning takes place at Oak Springs Hatchery.

Kokanee

Paulina Lake (67H) stock: Spawning ratios are five females per three males. Typically 1,500 females and 900 males are collected.



Rainbow Trout:

Oak Springs (53H and 53T) stock: No broodstock are maintained at the hatchery. Spawning takes place at Oak Springs Hatchery.

Crane Prairie Reservoir (127H) stock: Broodstock originated from wild fish spawned from Crane Prairie Reservoir.

Summer Steelhead:

Deschutes River (66) stock: No broodstock are collected at the hatchery. Spawning takes place at Round Butte Hatchery. Adults are collected throughout the run in three groups. Only Deschutes stock summer steelhead is 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 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 Wizard Falls 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.
- 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 (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.

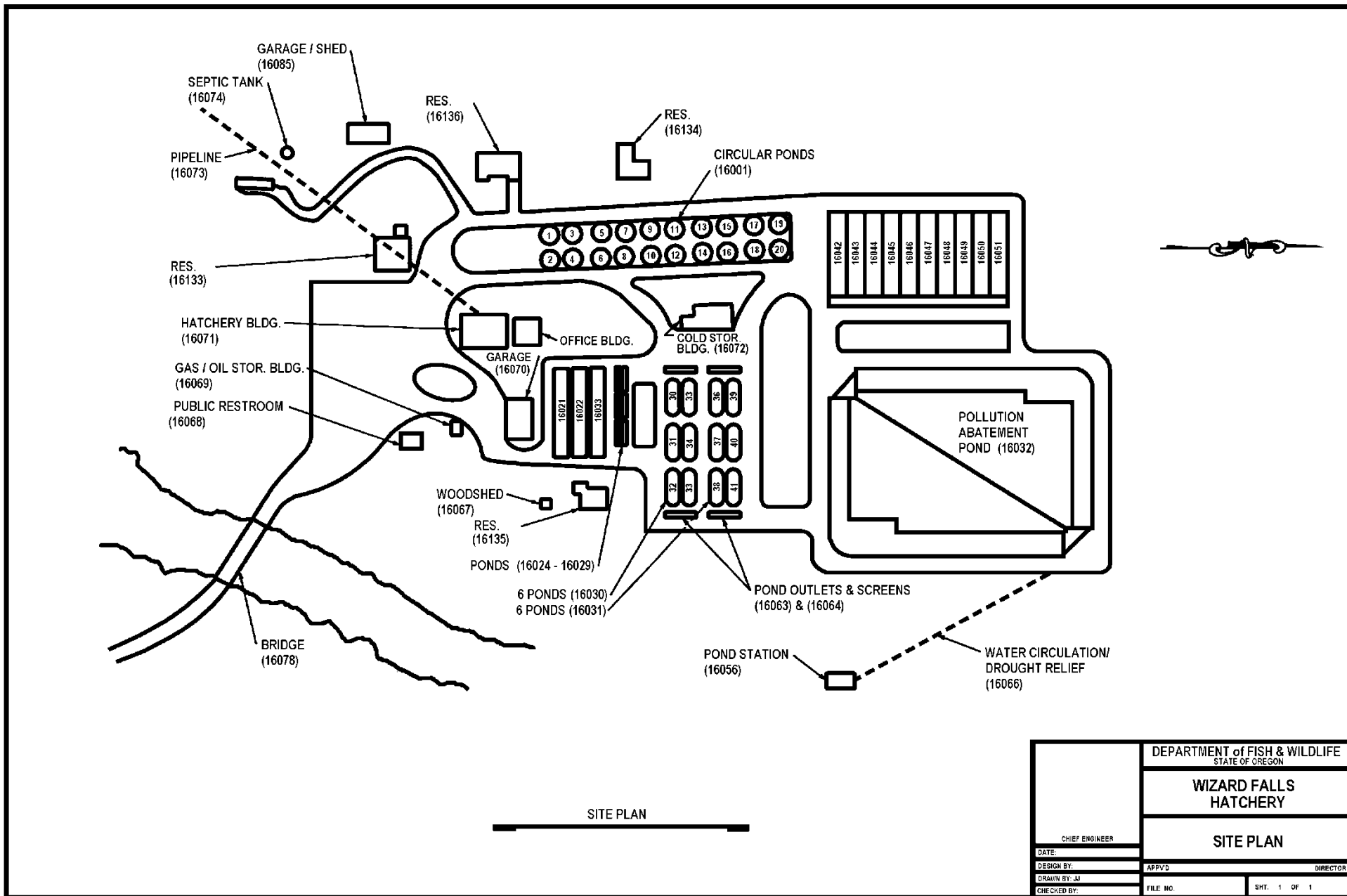
Record Keeping: The following records are kept at all ODFW hatcheries:

- 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.).
- 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.

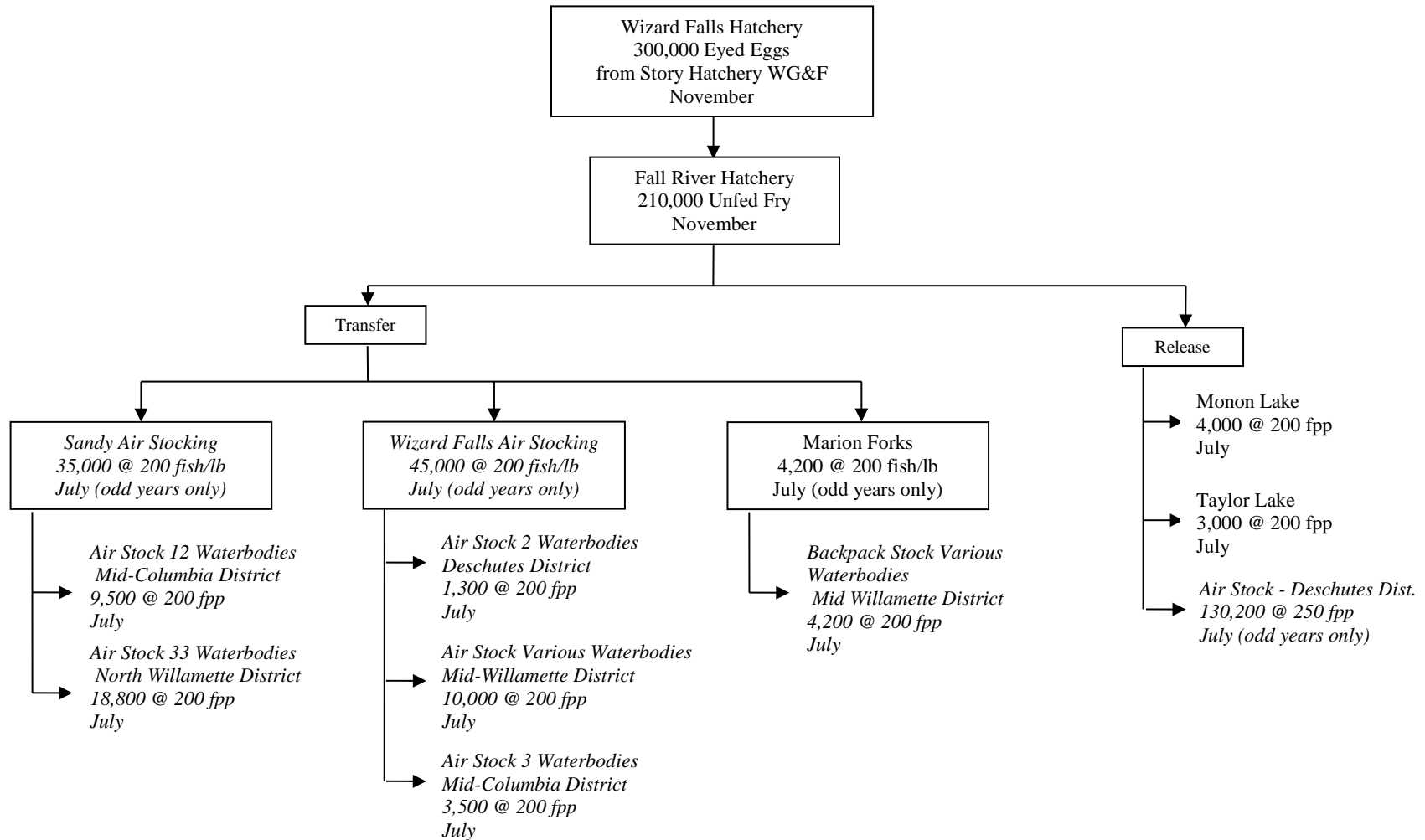
Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

### ***Communication with the General Public***

Wizard Falls Hatchery receives approximately 60,000 visitors each year.

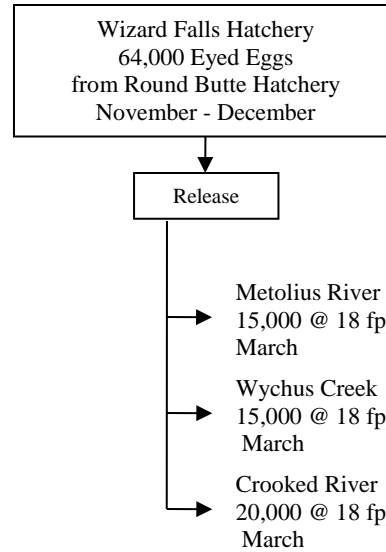


## Wizard Falls Hatchery Brook Trout – Stock 74T (Wyoming triploid)

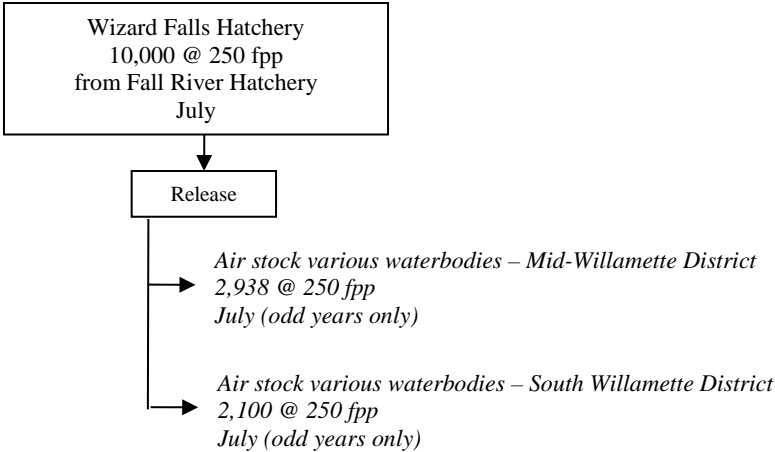




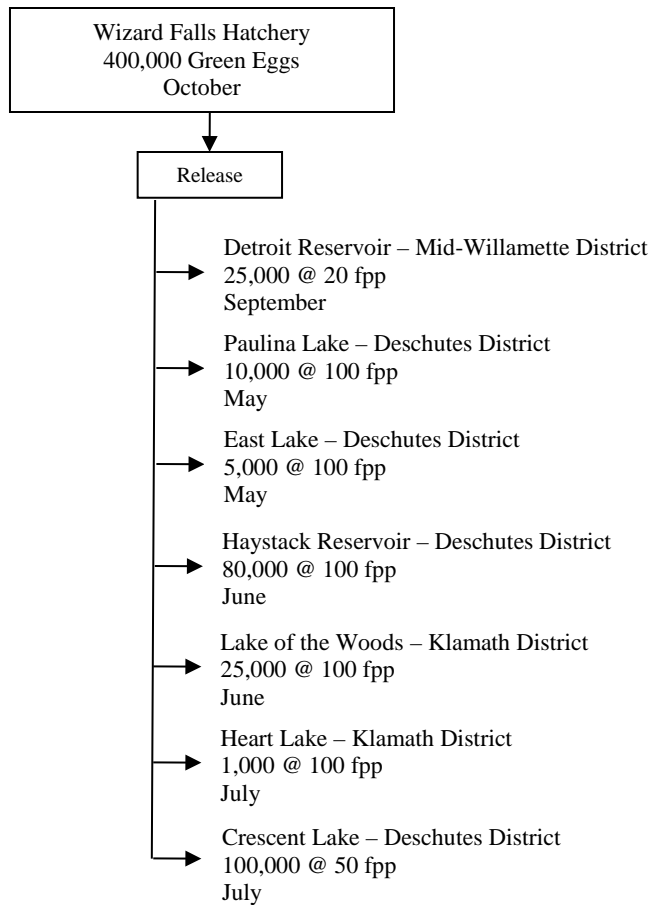
## Wizard Falls Hatchery Spring Chinook Salmon – Stock 66H (Deschutes)



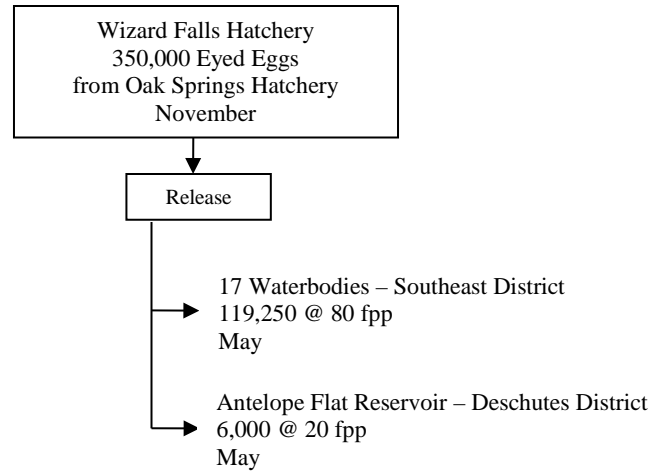
**Wizard Falls Hatchery**  
**Cutthroat Trout – Stock 119H (Hackleman Creek)**  
*Airstock Years Only*



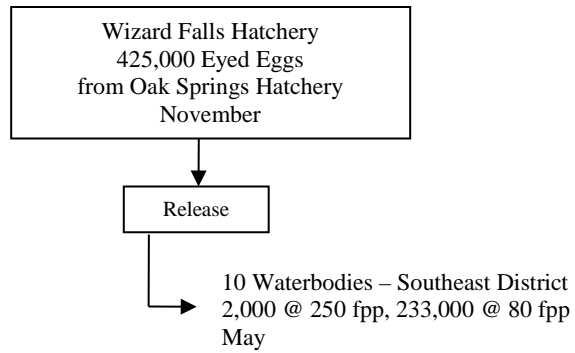
**Wizard Falls Hatchery**  
**Kokanee – Stock 67H (Paulina Lake)**  
(Adults collected and spawned at Paulina Lake)



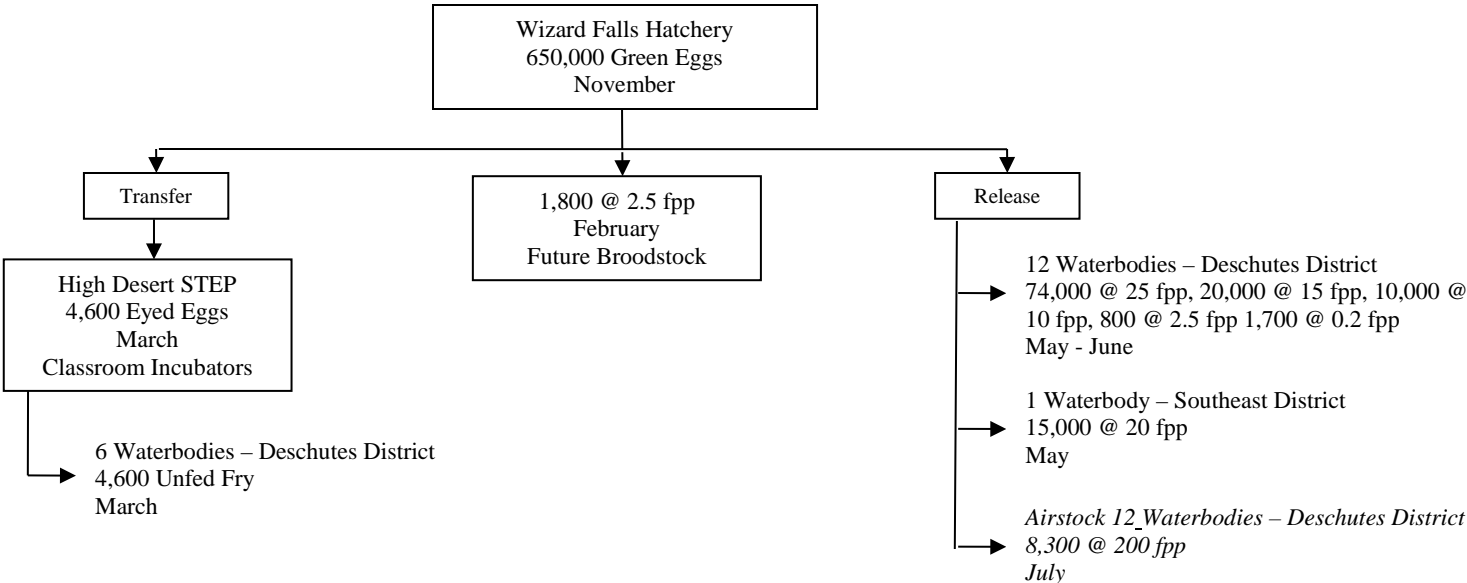
## Wizard Falls Hatchery Rainbow Trout – Stock 53H (Oak Springs)



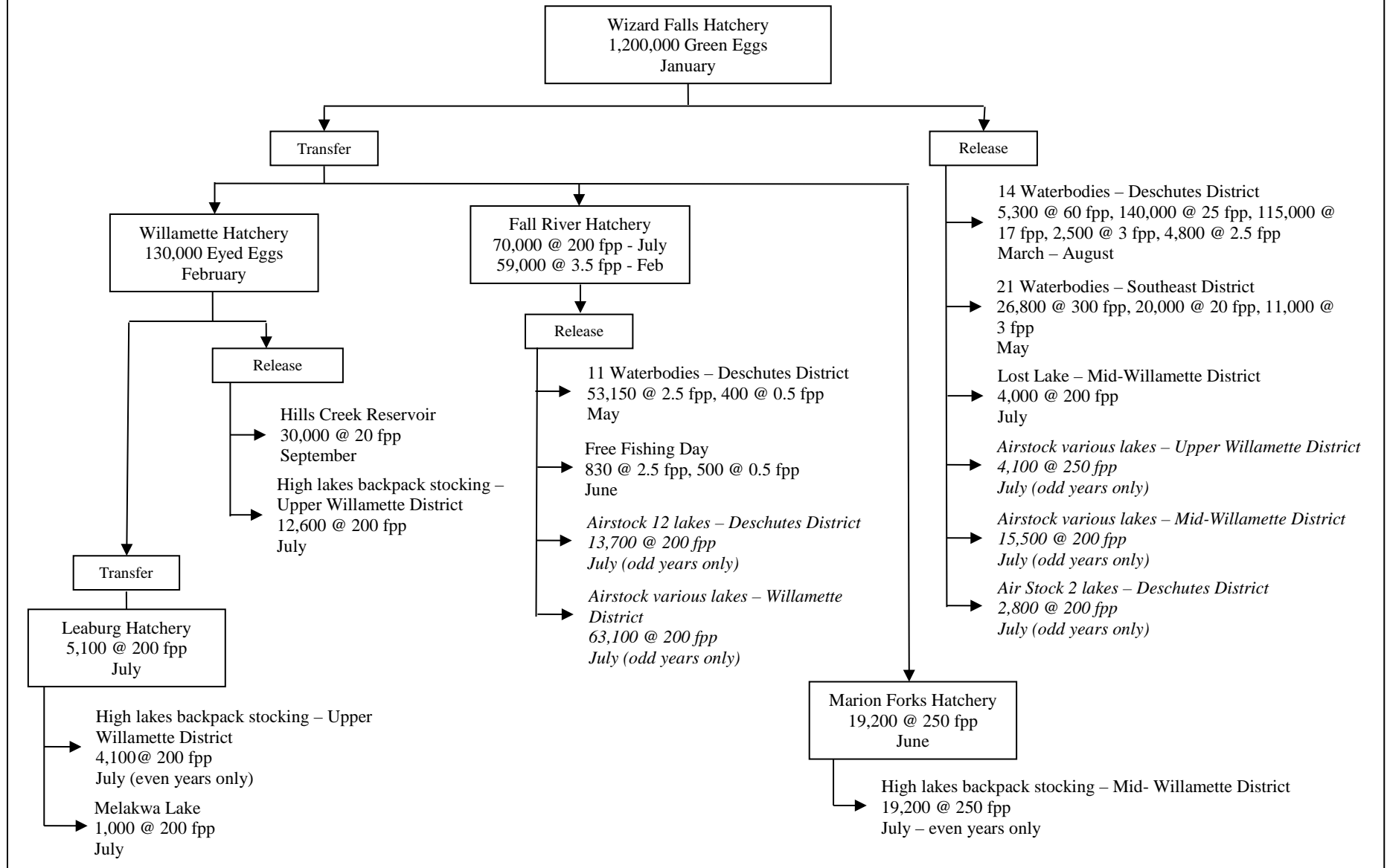
**Wizard Falls Hatchery  
Rainbow Trout – Stock 53T (Oak Springs Triploid)**



**Wizard Falls Hatchery  
Rainbow Trout – Stock 127H (Crane Prairie Reservoir)**



## Wizard Falls Hatchery Rainbow Trout – Stock 127T (Crane Prairie Reservoir Triploid)



## Wizard Falls Hatchery Summer Steelhead – Stock 66H (Deschutes River)

