

Integrated Hatchery Operations Team

Policies and Procedures for Columbia Basin Anadromous Salmonid Hatcheries

Executive Summary

Draft – July 1994

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Introduction

There are over 90 hatchery facilities in the Columbia River Basin currently used to produce salmon and steelhead. These facilities are funded, co-managed, and operated by several different entities for many different purposes. Most of these hatcheries were originally authorized and built to mitigate for fish habitat losses caused by construction and operation of dams and other water projects. Today, these facilities produce fish for many different management objectives, including supplementation, restoration, harvest, egg banking, and research.

Because hatcheries are operated by several entities and for different management purposes, these facilities have often used different operating guidelines. The need to improve the coordination and operation of these facilities was formally recognized in the Northwest Power Planning Council's *Strategy for Salmon*. The salmon strategy is a regional effort to double Columbia River Basin adult salmon populations without losing biological diversity.

As part of the salmon strategy, the Council called for the creation of an Integrated Hatchery Operations Team (IHOT). This multi-agency group was given several duties related to hatchery operations. In particular, IHOT was asked to develop regionally integrated hatchery policies for operating all Columbia Basin anadromous salmonid hatcheries.

One of the key products from this IHOT effort is a new manual entitled *Policies and Procedures for Columbia Basin Anadromous Salmonid Hatcheries*. This manual outlines a series of policies designed to both improve hatchery practices and make them consistent throughout the Columbia Basin. Its purpose is to help ensure that hatchery operations

will be consistent with the regional goal of rebuilding wild and naturally spawning fish runs.

The policy and procedures manual is organized into chapters that address the following policy categories identified by the Northwest Power Planning Council:

- Hatchery coordination
- Hatchery performance standards
- Fish health
- Ecological interactions
- Genetics

Within each policy chapter, IHOT identifies a policy statement and goals, performance standards and performance measures. The *policy statements* and *goals* reflects an overall policy direction that IHOT has agreed to pursue in operating the region's fish hatcheries. The actual procedures and guidelines that will be used to operate the hatchery facilities are identified as *performance standards*. The *performance measures* describe the types of information that will be used to evaluate the hatchery's compliance with the standards. Most chapters conclude with an *implementation plan* detailing actions that will be used to implement the individual policies and procedures.

The hatchery policies only provide guidance for the technical operation of hatcheries. They are not intended to include setting specific production priorities. These priorities are developed by the fisheries co-managers to meet specific fish management objectives, such as mixed-stock or terminal-area fisheries, supplementation of weak stocks, or in-river recreational or net fisheries. Production priorities may also be established to meet rebuilding schedules as called for in the Council's *Strategy for Salmon* or Endangered Species Act recovery plans. The production decisions must be provided by fishery co-managers through a comprehensive plan that addresses both natural and hatchery production. These plans are developed through negotiations, primarily under the Columbia River Fish Management Plan's Production Advisory Committee (PAC).

What follows is a summary of key elements from the policies and procedures manual. This summary includes the policy statements and goals, as well as an overview of the performance standards and measures.

Regional Hatchery Coordination Policy

Basinwide resource needs can be most effectively addressed when hatchery operations are coordinated throughout the region. This coordination can be within an individual agency or between several agencies and co-managers. Coordination can also be used at different levels to meet various organizational needs. For example, staffing or equipment needs can be coordinated to meet a common goal. Coordination can also occur at the programmatic or administrative levels to achieve broader regional goals.

Policy Statement

It shall be the policy of the management entities of the anadromous salmonid resources in the Columbia Basin to coordinate the operation of fish hatchery programs to meet basinwide resource management needs.

Goals

1. Coordinate the operation of salmonid hatchery programs to meet basinwide resource management goals and objectives.
2. Develop administrative agreements for improved sharing of facilities, manpower, equipment and/or supplies to meet basinwide management program goals and objectives.
3. Foster open and frequent communication between managing entities to coordinate and jointly resolve technical issues relating to artificial production.
4. Operate hatchery programs in compliance with regionally adopted hatchery performance standards, fish health, ecological interactions, and genetics policies.

Performance Standards

The performance standards in this section reflect the need for both operational and programmatic coordination. On an operational level, coordination involves establishing a common forum to share information, facilities, manpower and equipment. The programmatic coordination includes a review of hatchery operations to meet goals

expressed in legal agreements, hatchery operational plans, regional policies, and agency/tribal programs. The performance standards also call for regular IHOT meetings to discuss programmatic and administrative matters, including the hatchery audit reviews.

Performance Measures

Several reports and operational procedures will be needed to measure the effectiveness of the regional hatchery coordination standards.

1. Within one year of ratification, IHOT will create a memorandum of understanding between members for the sharing of facilities, manpower, and equipment.
2. IHOT will prepare an annual report that details shared resources.
3. The IHOT facilitator will serve as a central distribution point for reports pertaining to fish hatchery operations.
4. Meetings of the full IHOT membership will occur regularly to discuss programmatic and administrative matters. The meeting schedule will be established by IHOT chairperson.
5. The IHOT facilitator will maintain an electronic bulletin board for sharing the future and current brood documents, and for the free distribution of information among members.
6. The IHOT facilitator will provide the means for timely reporting of fish escapement, transfer, and release goals and the progress being made to meet the objectives. The coordination of personnel and equipment sharing will be recorded and records maintained through the IHOT facilitator.
7. Agencies will update hatchery operation plans yearly.
8. Co-managers that operate fish rearing facilities will adopt common formats for reports developed within the basin (e.g., Annual Brood Planning Report, *U.S. v. Oregon*, etc.).
9. IHOT members will present a yearly report of all fish culture research proposed, in progress, or completed.
10. IHOT members will present annual updates of current fish survival information.

Hatchery Performance Standards Policy

Hatchery operations must be consistent with fishery management goals as well as the regional policies established for hatchery coordination, fish health, ecological interactions, and genetics. This requires a review of each hatchery's purpose, goals, and objectives in light of these regional policies. It also requires a process for monitoring and evaluating hatchery compliance with the regional standards.

Policy Statement

It shall be the policy of the management entities of the anadromous salmonid resources in the Columbia Basin to ensure that all hatchery practices are based on regional standards.

Goals

1. All fish produced and released are consistent with management goals.
2. Physical facilities and equipment are operated consistent with standards to maximize fish quality.
3. Ensure compliance with hatchery coordination, fish health, ecological interactions, and genetics policies.
4. Ensure the use of an audit framework to evaluate the compliance of hatchery operations with regional standards.

Performance Standards

This section addresses performance standards in three categories: program objectives, facility requirements, and hatchery operations. Performance standards for program objectives reflect the need to ensure that hatchery production programs meet the specific and collective requirements of existing programs and statutes.

Under the category of facility requirements, the performance standards address the physical components that play an important role in hatchery operations. These include water quality; adult collection,

holding and spawning facilities; incubation, rearing and release facilities; predator control measures; and food storage and quality control. Performance standards for hatchery operations address major hatchery activities, such fish rearing, maintenance of fish health, fish transportation, and staff training.

Performance Measures

Compliance with hatchery performance standards will be measured through an independent hatchery audit. This audit will compare the hatchery's performance against standards specified in the policies and procedures manual or those identified in the hatchery's operational plan.

Fish Health Policy

Fishery resources must be protected from the adverse effects of disease. Fish populations, whether cultured or free-swimming, are exposed to bacteria and viruses. Under certain conditions, these pathogens can cause disease outbreaks that lead to fish mortality. This can ultimately result in a significant impact on the fishery resource. Consequently, it is important that managers of a watershed, river, or hatchery facility be constantly aware of potential disease problems.

Policy Statement

It shall be the policy of the management entities of the anadromous salmonid resources in the Columbia Basin to protect those resources by restricting the importation, dissemination, and amplification of pathogens and diseases known to adversely affect fish.

Goals

1. Strive to produce healthy fish for release or transfer.
2. Ensure that all fish produced are under a specific fish health management program.
3. Monitor and evaluate the health of wild, natural, and cultured fish populations.
4. Foster open and frequent communications among managing entities to jointly resolve fish health related issues.

Performance Standards

Health care standards must be followed in order to prevent the introduction or spread of fish diseases. These standards include hatchery monitoring visits by fish health specialists; a fish health inspection program; hatchery sanitation procedures; water quality parameters; general cultural practices; and egg/fish transfer and release requirements.

Performance Measures

Compliance can be monitored by answering the following questions:

1. Are monthly hatchery monitoring visits conducted by a qualified fish health specialist?
2. Are annual broodstock inspections conducted for *Renibacterium salmoninarum* and reportable viral pathogens?
3. Is the hatchery following accepted sanitation procedures?
4. Are water quality parameters outlined in the Hatchery Performance Standards Policy being followed?
5. Are rearing standards outlined in the Hatchery Performance Standards Policy being followed?
6. Are egg and fish transfer/release requirements met?
7. Is there a fish health monitoring and evaluation program in place?

Ecological Interactions Policy

Hatchery facilities and programs should avoid adverse interactions between wild, natural, and hatchery fish populations. These interactions could involve predation, or competition for food and habitat. Hatcheries should also maximize the post-release survival of hatchery fish by using appropriate rearing and release strategies.

Policy Statement

It shall be the policy of the management entities of the anadromous salmonid resources in the Columbia Basin that artificial propagation programs will be designed and implemented to minimize ecological interactions that adversely affect the productivity of aquatic ecosystems.

Goals

1. Ensure that all fishes produced and released are under a specific management program.
2. Consider the ecological effects attributable to the specific hatchery products following release.
3. Consider how specific release strategies affect aquatic ecosystems.
4. Monitor and evaluate implementation of ecological interactions guidelines and ecological effects of artificially propagated fish on wild, natural, and cultured fish populations.
5. Foster open and frequent communications among managing entities to jointly resolve related issues.

Performance Standards

Performance standards will vary between hatcheries, depending upon each hatchery's unique program objectives. Consequently, all existing hatchery programs will need to be reviewed in light of the policy statement and goals previously identified. Hatchery operations that can influence ecological interactions include (1) the location of fish releases, (2) fish size and age at release, (3) release density, (4) imprinting strategies, and (5) hatchery rearing conditions. Achieving the policy goals may require operational changes to hatchery programs, as well as structural changes to hatchery facilities.

Performance Measures

The performance measures outlined in this section address operational procedures that the hatchery directly controls, while also reflecting the importance of meeting management plan goals. The performance standards are measured by answering the following questions:

1. Is the hatchery's program outlined in a subbasin management plan (e.g., Umatilla Basin Artificial Production Plan or Lower Snake River Compensation Plan)?
2. Is the hatchery operating under a current hatchery operational plan?
3. Is a hatchery monitoring and evaluation plan in place?
4. Does the hatchery program meet requirements established in the regional hatchery policies and subbasin planning documents in the following areas: species, stock, broodstock collection location, broodstock numbers, broodstock collection strategy, and spawning and egg-take protocols?
5. Does the hatchery's performance meet requirements outlined in the regional hatchery policies and in subbasin and hatchery plans for the following areas: percent smoltification, rearing density, disease condition, and the number, size, date(s), and location at release?
6. Are fish reared in the subbasin or acclimated in the subbasin?
7. Is the release strategy appropriate for the program?

Genetics Policy

Maintaining genetic diversity in fishery populations is important for the conservation of existing genetic traits needed for long-term sustainability. Therefore, hatchery facilities should use operational procedures that avoid adverse genetic effects on wild, natural and hatchery fish populations.

Policy Statement

It shall be the policy of the management entities of the anadromous salmonid resources in the Columbia Basin to operate artificial propagation programs that maintain adequate genetic variation and fitness in populations and protect the biological diversity of wild, natural, and cultured anadromous salmonid populations.

Goals

1. All fish produced and released meet identified management objectives for specific artificial production programs and follow genetic guidelines.
2. Monitor and evaluate implementation of genetic guidelines and genetic effects of artificially propagated fish on wild, natural, and cultured populations.
3. Foster open and frequent communications among managing entities to jointly resolve related issues.

Performance Standards

Genetic performance standards are designed to protect the capacity of a fish population to evolve, and thus persist in the face of environmental variability. Hatchery operations that can affect genetic diversity include (1) donor stock selection, (2) adult collection procedures, and (3) spawning strategies. The guidelines in this section address broodstock collection and spawning practices.

Performance Measures

Compliance with genetics performance standards can be monitored by answering the following questions:

1. For new programs, has a broodstock collection plan been developed?
2. For new programs, was the donor selection outline followed in selecting the hatchery broodstock?
3. For existing programs, were broodstock collection procedures followed?
4. Were the appropriate number of spawners, male/female ratios, and fertilization protocols used?
5. Is there a genetic monitoring and evaluation program in place?

IHOT Members

IHOT is comprised of representatives from the fisheries co-managers and cooperating entities listed below.

Fisheries Co-Managers

Confederated Tribes of the Colville Reservation
Confederated Tribes of the Umatilla Indian Reservation
Confederated Tribes of the Warm Springs Reservation of Oregon
Confederated Tribes and Bands of the Yakama Indian Nation
Idaho Department of Fish and Game
National Marine Fisheries Service
Nez Perce Tribe of Idaho
Oregon Department of Fish and Wildlife
Shoshone-Bannock Tribes of Fort Hall
U.S. Fish and Wildlife Service
Washington Department of Fish and Wildlife

Cooperating Entities

Bonneville Power Administration
Mid-Columbia Public Utility Districts
U.S. Army Corps of Engineers
Northwest Power Planning Council
Pacific Northwest Utilities Conference Committee
Columbia River Inter-Tribal Fish Commission
Columbia Basin Fish and Wildlife Authority

