



Fish Hatchery Management Policy

December 3, 2010
Oregon Department of Fish and Wildlife





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FISH HATCHERY MANAGEMENT POLICY

635-007-0542

Purpose of the Hatchery Management Policy

- (1) The purpose of the Hatchery Management Policy is to describe the hatchery tool and its range of applications. The Hatchery Management Policy also provides general fish culture and facility guidelines and measures to maintain genetic resources of native fish populations spawned or reared in captivity. This policy applies to all Department hatchery operations and programs including Salmon and Trout Enhancement Program (STEP) fish propagation projects (OAR 635-009-0090 through 635-009-0240) and Cooperative Salmon Hatchery Programs (OAR 635-009-0400 through 635-009-0455).
- (2) This policy describes best management practices that are intended to help ensure the conservation of both naturally produced native fish and hatchery produced fish in Oregon through the responsible use of hatcheries. The conservation of hatchery produced fish is important to maintain opportunities for fisheries and aid conservation of naturally produced native fish.
- (3) The Hatchery Management Policy complements and supports the Native Fish Conservation Policy OAR 635-007-0502 through 635-007-0506 and will be implemented through conservation plans developed for individual species management units, hatchery program management plans, or other formal agreements with management partners. The Hatchery Management Policy provides a foundation for the management and reform of hatcheries in Oregon, whereas the Native Fish Conservation Policy establishes the process for defining the specific use of the hatchery tool in specific watersheds.

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Stats. Implemented: ORS 496.171, 496.172, 496.176, 496.182, 496.430, 496.435, 496.445, 496.450 & 496.455

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Hatchery Management Policy Goals

- (1) Foster and sustain opportunities for sport, commercial and tribal fishers consistent with the conservation of naturally produced native fish.
- (2) Contribute toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish.
- (3) Maintain genetic resources of native fish populations spawned or reared in captivity.
- (4) Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.

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Operating Principles for Hatchery Management

- (1) Hatchery management and reform will generally proceed from the following hatchery premise: The ideal hatchery removes as many random mortality effects as possible without having any other influence on the natural life or experience of native fish and their habitats. The hatchery premise has five main components that managers shall strive to incorporate into hatchery programs:
 - (a) Removing random mortality occurring in the natural environment;
 - (b) simulating selective mortality operating in the natural environment;
 - (c) minimizing artificial selection;
 - (d) providing fish rearing and training experiences to reduce unnatural behaviors; and
 - (e) minimizing ecological impacts associated with hatchery operations (e.g., competition and predation associated with release location and number, pathogen transfer and amplification, pollutants, passage barriers, overharvest of weak stocks in mixed stock fisheries).
- (2) Success moving toward the premise in subsection (1) will be largely dependent on funding, research, program type, and facility or operating flexibility.
- (3) Hatchery program management plans shall be developed and implemented in consultation and cooperation with management partners and the public, and in coordination with native fish conservation policy plans at local and regional scales.



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- (4) Hatchery programs shall be managed to provide optimum fishery and conservation benefits, based on the best available scientific information. Most programs will contribute toward fish management objectives primarily by raising fish for harvest while minimizing the impact on, or benefiting, fish that spawn naturally.
- (5) Hatchery facilities shall be operated to maximize fish quality and minimize adverse impacts to watersheds, consistent with fish management objectives, applicable permits and agreements.
- (6) Monitoring and evaluation shall be adequate to measure progress toward fish management and hatchery program objectives, contain risks within acceptable limits, and provide feedback for adaptive management.

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Hatchery Program Management Plans

(1) The Department shall develop hatchery program management plans for all hatchery programs. Clear management objectives that describe the role and expectations for hatchery programs relative to species conservation, watershed health and fisheries shall be the foundation for all hatchery program management plans. A hatchery program management plan may be a Hatchery and Genetic Management Plan, a Lower Snake River Compensation Plan annual operating plan, an aspect of a conservation plan developed under the Native Fish Conservation Policy (OAR 635-007-0502 through -0506) or similar document which describes the program's objectives, fish culture operations, facilities operations, and monitoring and evaluation, as more fully detailed in subsections (2) through (24) of this rule.

Planning and Coordination of Hatchery Programs

- (2) When developing hatchery program management plans, the Department shall use the most up to date and reliable scientific information and seek the input and involvement of appropriate tribal, state and federal management partners, university programs and the public.
- (3) The Native Fish Conservation Policy (OAR 635-007-0502 through -0506) provides the primary process for planning and coordinating hatchery programs, but these programs shall also be coordinated with obligations arising in other forums (e.g., *U.S. v. Oregon*, Lower Snake River Compensation Plan, Pacific Salmon Treaty) to avoid inconsistency and duplication.
- (4) Coordination objectives include:
- (a) Efficient use of resources (including sharing of facilities, staff, equipment and supplies);
 - (b) improved communication among managing entities to share information and experience, jointly resolve issues, and promote common objectives pursued at local and regional scales.
- (5) Hatchery program management plans shall be submitted to and approved (or modified) by the Fish Division. The Fish Division may waive the requirement to include specific elements of a hatchery program management plan upon a determination that the requirement would provide no appreciable benefit to hatchery management or native fish conservation.
- (6) The Department shall continue to operate a hatchery program according to existing statutes, administrative rules, Commission directives, and binding agreements until that program's plan is approved.

Hatchery Program Objectives and Types

- (7) Hatchery program objectives and types shall be based on fish management objectives established via conservation plans (OAR 635-007-0505) or other binding agreements. Until conservation plans or other agreements are in place, hatchery program objectives and types will be based on existing statutes, rules, Commission directives and current management direction.
- (8) Hatchery program management plans shall include measurable criteria relating to the following general objectives:
- (a) Conservation and/or fishery benefits;
 - (b) a net survival advantage (egg to adult) over naturally produced fish;
 - (c) minimal adverse interactions (e.g., competition, predation, genetic introgression, and disease amplification) of hatchery programs with naturally produced native fish populations;
 - (d) minimal adverse effects (e.g., water quality and quantity, solid and chemical wastes and fish passage) of hatchery facility operations on watershed health and native fish populations; and



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(e) sustainability of hatchery programs over time.

(9) Department hatchery programs will generally be distinguished as harvest or conservation hatchery programs. A single hatchery may have both harvest and conservation hatchery programs. If harvest and conservation programs are not distinguished, the Department shall clarify harvest and conservation objectives and their relative priorities.

(10) Harvest hatchery programs operate to enhance or maintain fisheries without impairing naturally reproducing populations. Operations shall integrate hatchery and natural production systems (e.g., locally-derived hatchery broodstocks, rearing containers simulating natural characteristics) if necessary for conservation, within funding and facility constraints and consistent with fishery management objectives. Harvest hatchery programs shall also separate (e.g., temporally, spatially, visually) hatchery produced and naturally produced native fish in fisheries and on spawning grounds as necessary for conservation. The hatchery program management plan may be designated as one of the following harvest hatchery program types:

(a) Harvest augmentation, which is used to increase fishing and harvest opportunities where there is no mitigation program in place;

(b) mitigation, which is used pursuant to an agreement to provide fishing and harvest opportunities lost as a result of habitat deterioration, destruction or migration blockage.

(11) Conservation hatchery programs operate to maintain or increase the number of naturally produced native fish without reducing the productivity (e.g., survival) of naturally produced fish populations. Conservation hatchery programs shall integrate hatchery and natural production systems to provide a survival advantage with minimal impact on genetic, behavioral and ecological characteristics of targeted populations. Implementation shall proceed with caution and include monitoring and evaluation to gauge success in meeting goals and control risks. Long-term conservation success shall be tied to remediating causes of the decline that resulted in the need for hatchery intervention. Once goals are met then the hatchery program will be discontinued. The hatchery program management plan may be designated as one of the following conservation hatchery program types:

(a) Supplementation, which routes a portion of an imperiled wild population through a hatchery for part of its life cycle to gain a temporary survival boost, or brings in suitable hatchery produced fish or naturally produced native fish from outside the target river basin to supplement the imperiled local population;

(b) restoration, which outplants suitable non-local hatchery produced or naturally produced native fish to establish a population in habitat currently vacant for that native species using the best available broodstock;

(c) captive brood, which takes a portion or all of an imperiled wild population into a protective hatchery environment for the entire life cycle to maximize survival and the number of progeny produced;

(d) captive rearing, which takes a portion of an imperiled wild population into a protective hatchery environment for only that part of its life cycle that cannot be sustained in the wild;

(e) egg banking, which temporarily removes a naturally produced native fish population from habitats that cannot sustain it and relocates the population to another natural or artificial area that can support the population;

(f) cryopreservation, which freezes sperm from naturally produced native fish for later use in conservation hatchery programs;

(g) experimental, which investigates and resolves uncertainties relating to the responsible use of hatcheries as a management tool for fish conservation and use.

Fish Culture Operations

(12) Fish culture operations shall comply with fish health requirements of OAR 635-007-0549.

(13) Broodstock selection and collection. Hatchery program management plans shall identify the broodstock best able to meet the objectives of the type of program in which the broodstock will be used.

(a) For harvest hatchery programs, broodstock shall be used that best meet fishery objectives, consistent with conservation objectives to ensure risk to naturally produced native fish and their watersheds is within acceptable and clearly defined limits.

(A) For some harvest hatchery programs, fishery and conservation objectives will be best met using existing hatchery broodstocks and managing for minimal spatial or temporal overlap of hatchery produced and naturally produced native fish in spawning areas.

(B) For other harvest hatchery programs, fishery and conservation objectives will be best met using broodstocks derived from, or transitioning to, naturally produced native fish from the local watershed. This approach shall not be used if available data indicates the donor wild population will be impaired, or if conservation objectives are better met with existing hatchery broodstocks, or if hatchery programs are located in areas with too few naturally produced native fish to supply the hatchery broodstock;



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(b) For conservation hatchery programs, broodstock shall be derived from the wild population targeted for hatchery intervention, or from nearby wild or hatchery populations with desired characteristics if the targeted wild population is extirpated or too depressed to provide brood fish;

(c) Broodstock maintenance shall be consistent with the fishery and conservation objectives established for the hatchery program.

(A) Hatchery program management plans shall identify effective population size targets and other strategies to reduce risk of inbreeding depression, genetic drift and domestication for broodstocks developed under subsection (13)(a)(A).

(B) Hatchery program management plans shall identify target and allowable proportions of hatchery produced and naturally produced native fish incorporated into broodstocks developed under subsections (13)(a)(B) and (13)(b), consistent with conservation plan objectives.

(d) Broodstock collected shall represent the genetic variability of the donor stock by taking an unbiased representative sample with respect to run timing, size, gender, age and other traits important for long-term fitness of the population. The Fish Division may approve a deviation from this subsection if necessary to shift run timing and other characteristics of long-term hatchery broodstocks to better coincide with characteristics of wild populations in the watershed or to meet fish management goals. Hatchery program management plans shall explain the reason for any deviations;

(e) Facilities and methods used to collect broodstock shall minimize stress and maximize survival of fish to spawning, consistent with management objectives.

(14) Disposition of adult hatchery produced fish returning to hatchery facilities. Adult hatchery produced fish returning to collection facilities shall be used to meet program objectives and, if available, provide other ecological, societal and program benefits, consistent with objectives for watershed health and native fish conservation.

(a) Hatchery programs will be managed to meet, but not exceed, program objectives for returning adult fish. Environmental variation and other factors outside of management control may result in significantly less or more fish than planned.

(b) Consistent with subsection (7) of this rule, the numbers of returning adults to be collected and held for spawning shall be determined for each facility as part of the annual production planning process in coordination with hatchery managers, hatchery coordinators, district biologists, Fish Division staff, and co-managers where appropriate.

(c) Adult hatchery produced fish returning to hatchery facilities shall be allocated among the categories of uses described in order of preference in subsections (14)(d) and (14)(e). The Department need not satisfy all potential uses within a category before providing fish to uses in lower categories. The Fish Division may approve additional uses or deviations from the stated order of preference to satisfy agreements with management partners, respond to unique situations or respond to unforeseen circumstances. The final disposition of all surplus adult hatchery fish shall be reported on in the Fish Propagation Annual Report.

(d) Order of preference for disposition of adult hatchery produced fish returning to or collected at harvest hatchery program facilities:

(A) meet broodstock needs for the program;

(B) release live, spawned fish back into the wild if specified in management plans for species able to spawn more than once;

(C) provide fish for tribal ceremonial and subsistence use;

(D) provide additional fishing opportunities consistent with management plans (e.g., Fishery Management and Evaluation Plans);

(E) allow hatchery produced fish to spawn naturally at locations and in numbers identified in existing fish management plans or conservation plans developed through the process outlined in the Native Fish Conservation Policy (OAR 635-007-0505);

(F) place carcasses in natural spawning and rearing areas to enhance nutrient recycling, consistent with Department of Environmental Quality requirements, management plans and pathology constraints identified in OAR 635-007-0549;

(G) provide for experimental, scientific or educational uses identified in conservation plans, management plans or other Department agreements;

(H) sell eggs and carcasses from selected facilities to provide revenues to support hatchery programs and facilities;

(I) provide fish to charitable food share programs benefiting needy Oregonians;

(J) provide fish for animal feed to animal rehabilitation shelters, zoos, or other such operations;

(K) dispose of fish in a landfill or at a rendering plant.

(e) Order of preference for disposition of adult hatchery produced fish returning to or collected at conservation hatchery program facilities:



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- (A) Meet natural spawning objectives of the specific hatchery program as identified in conservation plans;
- (B) meet hatchery broodstock needs for the specified conservation hatchery program management plan;
- (C) release live, spawned fish back into the wild if specified in conservation plans for species able to spawn more than once;
- (D) place carcasses in natural spawning and rearing areas to enhance nutrient recycling, consistent with Department of Environmental Quality requirements, management plans and pathology constraints identified in OAR 635-007-0549;
- (E) provide fish for tribal ceremonial and subsistence use;
- (F) provide additional fishing opportunities consistent with fishery management plans (e.g., Fishery Management and Evaluation Plans).
- (G) provide for experimental, scientific or educational uses identified in conservation plans, management plans or other Department agreements;
- (H) sell eggs and carcasses to provide revenues to support hatchery programs and facilities;
- (I) provide fish to charitable food share programs benefiting needy Oregonians;
- (J) provide fish for animal feed to animal rehabilitation shelters, zoos, or other such operations;
- (K) dispose of fish in a landfill or at a rendering plant.

(f) Department staff shall use standard, professionally accepted practices (such as sharp blow to head, electrical current or anesthetic overdose) to kill fish at hatchery facilities.

(15) Spawning protocols.

(a) Hatchery program management plans shall include a description of the abundance, size, age structure, gender ratios, fecundity, fertility, and spawning pairings of the broodstock.

(b) A 1:1 male-to-female spawning ratio (single pair mating, unpooled gametes) is preferred, although for harvest hatchery programs with large spawning populations (greater than 300 females) a 1:3 spawning ratio is acceptable.

(c) For critically small populations, a matrix spawning strategy shall be used to enhance effective population size and reduce variability of survival among family units.

(d) Conservation hatchery programs may use natural spawning within natural or engineered spawning channels in an attempt to mimic natural mate selection, gender ratio, age structure, spawn timing and preferred spawning area characteristics of wild populations.

(e) Consistent with subsection (7) of this rule, the number of eggs to be collected during spawning operations shall be determined for each facility as part of the department's annual production planning process. The following guidelines shall be used to set egg collection requirements to meet individual hatchery program objectives:

(A) Preliminary egg numbers to be collected to meet hatchery program objectives shall be determined for each facility as part of the department's annual production planning process in coordination with hatchery managers, hatchery coordinators, district biologists, Fish Division staff and co-managers where appropriate.

(B) Additional eggs to be collected to compensate for predicted egg and fish losses during the hatchery rearing cycle will be developed from survival estimates compiled by the ODFW Fish Health section and approved during the annual production Planning process.

(C) Surplus eggs from harvest hatchery stocks will be removed from production and disposed of immediately. Disposition of surplus eggs from conservation hatchery stocks shall be determined through the department's annual production planning process, consistent with direction in the Native Fish Conservation Policy and the Hatchery Management Policy regarding the use of conservation hatcheries. Disposition of surplus resident eggs shall be determined based on statewide fish management needs. The final disposition of all surplus eggs shall be reported on in the Fish Propagation Annual Report.

(16) Incubation protocols.

(a) Incubation methods shall be selected to best meet program objectives, consistent with facility and funding constraints. These methods may include single bucket incubation (for isolation of a single female's eggs), multiple vertical incubators, in-stream hatchboxes, or other methods suited to the available facilities. The Integrated Hatcheries Operations Team Policies and Procedures (IHOT 1995) provide acceptable, but not exclusive, guidance on water flows and egg-to-fry capacities for incubation systems. The hatchery program management plan shall include a description of and explanation for the incubation system identified in the plan.

(b) The Department shall continue providing eggs for educational classroom incubators and in-stream incubators (e.g., hatch boxes) for selected stocks in selected watersheds associated with the Salmon and Trout Enhancement Program (STEP). All STEP incubator programs shall be consistent with existing management plans or new conservation plans and hatchery program management plans.

(17) Rearing protocols.

(a) Hatchery program management plans shall describe rearing facilities and methods selected for the program and specific rearing standards used to gauge success meeting program objectives.



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(b) Rearing capacity of hatchery programs shall be based on the number of fish that can be produced without adversely affecting fish growth and survivability necessary to meet program objectives.

(c) Best management practices may dictate that, based on known and anticipated disease or predation losses, fish in excess of planned production goals be reared well past the initial ponding date. Hatchery managers, in coordination with hatchery coordinators and Fish Division staff, will establish these numbers for each facility based on survival estimates compiled by ODFW Fish Health section. Surpluses held to meet production goals should be disposed of at the earliest point in the rearing cycle. At the point in rearing cycle that the risk of these known hazards is past, these surpluses should be removed from the production cycle. Consistent with subsection (7), disposition of surplus fish from harvest hatchery programs shall be determined by Regional and Fish Division staff on an individual basis, with emphasis on minimizing conservation risks while providing angling opportunities where possible (e.g., stocked in closed water bodies). For conservation hatchery programs, disposition of surplus fish shall be determined through the department's annual production planning process, consistent with direction in the Native Fish Conservation Policy and the Hatchery Management Policy regarding the use of conservation hatcheries. Disposition of resident fish shall be determined based on statewide fish management needs. The final disposition of all surplus fish shall be reported on in the Fish Propagation Annual Report.

(d) Water replacement time and velocity shall be managed to provide adequate levels of dissolved oxygen and the reduction of metabolic waste products that are harmful to fish.

(e) Experimental rearing techniques may be investigated at some hatcheries, particularly for conservation hatchery programs, to simulate natural rearing characteristics and fish behavior traits while ensuring adequate fish health, survival and production numbers to meet program objectives.

(f) Fish food and feeding shall be managed to meet production objectives (e.g., fish number, size, growth rate, health and condition), minimize waste and maintain water quality.

(g) The Department shall purchase the best fish feed products available for the best price while considering service delivery, maintenance of competition and innovation among fish feed vendors, and state preferences for recycled products. Qualifying feed manufacturers must monitor the accumulation of toxins in the fish feed they provide, and comply with standards specified by the Department.

(h) The Department shall have standardized procedures for conducting feed trials comparing feed types and coordinate results among fish hatchery managers and STEP facility managers. The Department shall maintain a centralized database of fish feed purchases and fish feed trial results.

(i) Hatchery programs may include an experimental feeding regime designed to simulate natural diets and feeding behavior (such as sub-surface feeding techniques) to align growth, physiology and maturity with natural schedules.

(18) Fish marking.

(a) Hatchery produced fish shall be marked as required to facilitate mixed stock fisheries, research, distinction of hatchery produced and naturally produced native fish throughout their life cycle as necessary for conservation, and evaluation of program objectives.

(b) The Department shall use precise fish marking methods consistent with industry standards and management needs. Mark quality (e.g., fin excision, tag placement, tag retention) shall be monitored during the marking process and prior to fish releases.

(19) Fish transfers and releases.

(a) Hatchery program management plans shall specify targets for the number, size, quality, timing, location and release strategy of fish released, based on fish management objectives established for that program (e.g., native fish conservation plans, brood source objectives, production agreements, harvest management plans, mitigation agreements).

(b) Hatchery program management plans shall include protocols to minimize stress and direct or delayed mortality associated with collecting, handling, loading, transporting and releasing fish.

(c) The Fish Division may approve emergency contingency release plans in the event of unforeseen catastrophic events at a facility.

(d) Transfer and release of any life stage of fish shall meet fish health requirements of OAR 635-007-0549.

(20) Predator control at hatchery facilities.

(a) Hatchery operations shall include strategies to reduce excessive loss of fish to predation and limit opportunities for predators to introduce pathogens to the rearing environment, within funding, facility and permit constraints.

(b) Some hatchery programs, particularly conservation hatchery programs, may experiment with using natural predators to help avoid domestication, reduce deleterious traits and train hatchery produced fish to improve post-release survival and reduce behavioral differences between hatchery produced and naturally produced native fish.



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Hatchery Facilities Operations

- (21) Hatchery facility operations shall comply with fish health requirements of OAR 635-007-0549.
- (22) Hatchery program management plans shall describe hatchery facilities and operations to optimize fish culture operations, comply with fish health requirements described in OAR 635-007-0549, and comply with legal obligations concerning water rights, water use reporting, chemical use and reporting, fish passage and water quality standards.
- (23) Reliable hatchery alarm and security systems shall be required as necessary to minimize risk of egg and fish mortalities caused by loss of water supplies or risk of vandalism and poaching. All hatchery incubation systems, rearing containers and adult fish facilities at Department hatcheries shall have alarm systems. Fish Division may grant exceptions for STEP hatch-box facilities or other temporary or remote facilities.
- (24) Hatchery water intakes and outfalls shall be screened to minimize the risk of unintended fish entering or escaping from the facility. Outfalls of fish rearing containers shall be double screened if used for fish from outside the basin that could jeopardize endemic stocks if escapes occurred.
- (25) The Department shall identify hatchery facility maintenance, modifications and upgrades necessary to comply with program objectives and other legal requirements.
- (26) Hatcheries shall provide informational signs and literature, guided tours as allowed by staffing constraints and other programs to educate the public about fish and wildlife stewardship.
- (27) Additional provisions specific to hatchery trout programs.
- (a) The Department shall continue hatchery production of nonanadromous rainbow trout for consumptive recreational fisheries as an important and popular fish management tool.
- (b) The Department shall reduce potential impacts to wild trout, char and steelhead in streams and maximize returns to the creel such as by rearing and releasing trout for target fisheries in standing water bodies (i.e., lakes, ponds, and reservoirs) and marking trout for targeted fisheries.
- (c) All trout the Department purchases for harvest augmentation from private sources must be genetically triploid, sterile rainbow trout.

Monitoring and Evaluation

- (28) The purpose of hatchery monitoring and evaluation programs shall be to gauge success meeting hatchery program and fish management objectives, improve understanding of the reasons for success or failure, contain risks within acceptable limits, and provide feedback to modify operations through time (adaptive management). Clear management objectives that describe the role and expectations for hatcheries relative to species conservation, watershed health and fisheries shall be the foundation for all hatchery monitoring and evaluation programs.
- (29) Each hatchery program need not have its own individual monitoring and evaluation program if monitoring and evaluation on a landscape perspective provides adequate information to manage potential risks. The greater the uncertainty of the risks or results of a hatchery program, the greater the specificity of the monitoring and evaluation program must be. Each hatchery program management plan shall describe how the plan's operations and objectives will be monitored and evaluated.
- (30) Monitoring and evaluation programs shall use generally accepted scientific procedures and gather multi-generational information to evaluate hatchery programs relative to measurable criteria developed through OAR 635-007-0545.
- (31) Monitoring hatchery produced fish and their performance may include, but is not limited to:
- (a) Broodstock selection including but not limited to source, number, size, fecundity, life history, timing as percent of entire run, disease history, and disease treatment;
- (b) pre-release performance (e.g., survival, growth, disease) by life stage;
- (c) post-release survival to the adult life stage, catch distribution, fishery contributions, straying, and characteristics of adult fish (e.g., age structure, gender ratio, size, health).
- (d) production advantage provided by the hatchery relative to natural production;
- (e) water quality, flow and other physical conditions in the hatchery through the production cycle;
- (f) impacts of operation of the hatchery facilities on the adjacent habitats;
- (g) success of the hatchery program in meeting harvest and/or conservation program objectives.
- (h) cost-benefit analysis of hatchery performance.
- (32) Monitoring and evaluation to assess impacts of the hatchery program on naturally produced native fish may include, but is not limited to:
- (a) Impacts of broodstock selection on wild populations;



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- (b) ecological interactions of hatchery produced and naturally produced native fish resulting in changes to phenotypic, genotypic, behavioral and survival characteristics;
 - (c) timing, location and relative number of hatchery produced fish spawning naturally;
 - (d) success of maintaining long-term fitness of wild populations;
 - (e) reproductive success and fitness of hatchery produced fish in the natural environment; and
 - (f) success maintaining or enhancing natural genetic variation and life history characteristics within and among wild populations.
- (33) Results and evaluation of hatchery monitoring programs shall be compiled at intervals adequate to track success, contain risks and provide feedback for adaptive management. Monitoring results shall be made available to management partners and the public.
- (34) Hatchery monitoring and evaluation programs shall complement and coordinate with specific research addressing key uncertainties about hatchery operations, uses and consequences. Research priorities shall focus on developing hatchery strategies that minimize the risk or maximize the benefit of hatchery actions to naturally produced native fish populations.

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Fish Hatchery Record Keeping

- (1) Hatchery managers shall provide the following records for their operations:
- (a) All Adult Transaction (AAT) records for all adults handled at the facility.
 - (b) hatchery Mark Recovery Sampling forms to record adult fish sampled for coded-wire tags;
 - (c) Egg and Fry Records (EFR) for all eggs and fry handled at each facility;
 - (d) Monthly Poned Fish Reports (MPR) for all fish being reared at each facility;
 - (e) Fish Loss Report/Investigation when 1,000 or more juvenile fish or 10 or more adult fish are accidentally lost in a single incident;
 - (f) Predator Mortality Report to document any fish predators that may die at the hatchery facility;
 - (g) Fish Liberation Reports (FLR) for all juvenile fish released or transported into or out of all Department fish hatchery facilities;
 - (h) Coded-Wire Tag Release Reports for all juvenile fish released with coded-wire tags;
 - (i) chemical use, waste discharge monitoring, purchasing, budgets, hazardous materials, safety, vehicles, equipment, maintenance and alarm logs.
- (2) Hatchery records will be stored in retrievable databases.
- (3) The Fish Division may add to or waive the requirements of subsection (1) as necessary to avoid paperwork yet assure proper documentation of hatchery programs.
- (4) Fish health documentation shall be maintained by the fish health section.
- (5) Each hatchery manager will write a monthly report describing program-specific hatchery activities, either in the form of a hatchery monthly progress report or in the district monthly report for STEP activities.
- (6) The Department will produce annual reports, from the data collected with the above records and reports, summarizing all the information regarding adult fish transactions, fish eggs transactions and fish releases.
- (7) The Department shall make hatchery operating costs information available on a fiscal year or biennium basis.

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Training of Fish Hatchery Personnel

- (1) Fish Division, regional managers, or hatchery managers shall develop training programs for staff to assure awareness of and compliance with hatchery program management plans, to keep staff abreast of new scientific and technological developments and to encourage and support staff career development.
- (2) Each hatchery shall establish a training schedule for its staff and maintain training records.



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