

HATCHERY AND GENETIC MANAGEMENT PLAN (HGMP)

Hatchery Program:

**Rainbow Trout Program : Lyons Ferry
Complex – Lyons Ferry and Tucannon
Hatchery**

**Species or
Hatchery Stock:**

Rainbow Trout – Spokane Stock
Kamloops Trout – Kamloops Stock

Agency/Operator:

Washington Department of Fish and Wildlife

Watershed and Region:

Snake River Basin, Southeast Washington Lakes

Date Submitted:

Date Last Updated:

July 31, 2002

SECTION 1. GENERAL PROGRAM DESCRIPTION

1.1) Name of hatchery or program.

Hatchery: Lyons Ferry Complex (LFC).

Program: Rainbow Trout Program

1.2) Species and population (or stocks) under propagation, and ESA status.

Rainbow Trout (*O. Mykiss*), (not-listed)

1.3) Responsible organization and individuals

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Other agencies, tribes, co-operators, or organizations involved, including contractors, and extent of involvement in the program:

1. U. S. Fish and Wildlife Service – Lower Snake River Compensation Plan (LSRCP)
– Provides Program funding/oversight, provides coordination responsibility between all LSRCP cooperators.
2. Nez Perce Tribe (NPT) – Co-manager.
3. Confederated Tribes of the Umatilla Indian Reservation – Co-manager.

4. Idaho Department of Fish and Game - Contractor

1.4) Funding source, staffing level, and annual hatchery program operational costs.

The Lower Snake River Compensation Plan (LSRCP – US Fish and Wildlife Service) presently funds production of these compensation fish. The LSRCP program was established as compensation for lost fish resources and fisheries resulting from operation and construction of hydroelectric projects in the lower Snake River. The LSRCP in Washington also has programs for spring and fall chinook salmon, and summer steelhead. Currently, rainbow trout management under the LSRCP in the Snake River Basin for Washington is mandated to provide 79,900 pounds of fish (237,500 total fish). In addition, WDFW rears Kamloops Stock trout for Idaho. The current Idaho mitigation goal from LFC are to provide 50,000 fingerlings (~3,333 lbs) of Kamloops Stock. Both Operational and Evaluation costs are presently covered by LSRCP.

The LFC staff includes the Hatchery Complex Manager, and 11 permanent fish hatchery specialists, 1 plant mechanic, and seasonal workers. Not all hatchery staff are needed for the rainbow trout program on an annual basis, as other programs require staff time. Annual operation and maintenance costs for the program (Spokane Stock only) is estimated at \$521,935. Evaluations do not currently occur for the rainbow trout program at LFC, but should periodically.

1.5) Location(s) of hatchery and associated facilities.

Broodstock/Spawning/Incubation

Rainbow Trout – Spokane Stock - Spokane Hatchery – Spokane County, Washington (See Sherman Creek Hatchery or Colville Hatchery HGMP's for specifics on stock origin), or “The origin of Washington’s Trout Broodsstocks” (Crawford 1980).

Kamloops Trout – Kamloops Stock – Haspur Hatchery - Idaho

Rearing - Lyons Ferry Hatchery (LFH) (– along the lower Snake River in Franklin County, Washington (RM 58) - Rearing provided for both Spokane and Kamloop Stocks.

Tucannon Fish Hatchery (TFH) – along the Tucannon River at RM35 – rearing provided for Spokane Stock.

Releases – An assortment of man-made ponds and lakes throughout SE Washington. Currently all releases occur in non-anadromous bodies of water (Spokane Stock only). Kamloops stock fish are transferred back to Idaho.

1.6) Type of program.

Mitigation – To produce and stock rainbow trout that will provide 67,500 anglers days

of recreation. Current production (see 1.4 above) is estimated from evaluation work conducted in 1986 to meet that mitigation goal.

1.7) Purpose (Goal) of program (based on priority).

1. **Mitigation:** Continue to provide compensation as specified under the LSRCP program (USACE 1975). This includes stocking of rainbow trout at ~3 fish/lb, and a jumbo trout program to provide recreational opportunity in lieu of the foregone brown trout program.

1.8) Justification for the program.

The Lower Snake River Project was authorized by Congress on March 2, 1945 by Public Law 14, 79th Congress, First Session. The project was authorized under the Rivers and Harbors Act of 1945. It consists of Ice Harbor Dam (IHR), completed in 1962; Lower Monumental Dam, 1969; Little Goose Dam, 1970 and Lower Granite Dam, 1975. The project affected over 140 miles of the Snake River and tributaries from Pasco, Washington to upstream of Lewiston, Idaho. The authorized purposes of the project were primarily navigation and hydroelectric power production. The original authorizing legislation for the project made no mention of fish and wildlife measures needed to avoid or otherwise compensate for the losses or damage to these important resources.

The Fish and Wildlife Coordination Act (FWCAR) of 1958 (48 Stat. 401, 16 U.S.C. 661 et seq. as amended) requires an analysis of fish and wildlife impacts associated with federal water projects as well as compensation measures to avoid and/or mitigate for loss of or damage to wildlife resources (refer to Section 662 (b) of the Act). The U. S. Fish and Wildlife Service (USFWS) and NMFS provided the U.S. Army Corps of Engineers with a FWCAR on the Lower Snake River Project in 1972. Using the FWCAR, the U.S. Army Corps of Engineers (COE) wrote a report to Congress in 1975 (USACE 1975) detailing losses of fish and wildlife attributable to the Project. Congress authorized the LSRCP as part of the Water Resources Development Act of 1976 (Public Law 94-587).

The LSRCP is funded by the USFWS through the LSRCP with power production revenues provided by the Bonneville Power Administration. The WDFW administers and implements the Washington portion of the program. Specific mitigation goals include “in-place” and “in-kind” replacement of adult salmon and steelhead, and for 93,000 pounds of trout stocked into area lakes and rivers (to provide 67,500 anglers days of recreation). The LSRCP program for steelhead and trout in Washington was begun in 1982. The LSRCP program in Washington has been guided by the following objectives: 1) Establish broodstock(s) capable of meeting egg needs, 2) Maintain and enhance natural populations of native salmonids, 3) Return adults to the LSRCP area which meet designated goals, and 4) Improve or re-establish sport and tribal fisheries.

. Indicate how the hatchery program will be operated to provide fish for harvest while minimizing adverse effects on listed fish (integrated or isolated harvest programs).

The rainbow trout program provides recreational harvest fisheries in small lakes and ponds within the LSRCP compensation area. Eyed eggs are provided annually at no charge by Spokane Hatchery to LFC for rearing. Fish are reared at LFH and TFH and released into area lakes. Interaction between ESA listed salmonid populations of the Snake or Columbia River Basins, and stocked rainbow trout is not likely unless inlet or outlet screens fail at area lakes or at the hatcheries. **Under emergency situations where rainbow trout would be released into anadromous water with listed species, WDFW has decided not to release the rainbow trout. Fish would remain in the holding ponds/raceways until the problem could be solved, or all fish were dead.**

In addition, LFH is used to rear Kamloops Stock rainbow trout from Idaho's Haspur Hatchery. Eggs are received from Idaho, reared to the fingerling stage, and returned to Idaho Fish and Game for release into Idaho waters. **Since Kamloops stock fish are not released into Washington waters, this HGMP does not cover that program, but will concentrate on the Spokane Stock only.**

1.9) List of program "Performance Standards".

(From NMFS *Performance Standards and Indicators for the Use of Artificial Production for Anadromous and Resident Fish Populations in the Pacific Northwest*, January 17, 2001)

The following factors should be considered in artificial production programs as described within this HGMP. Since no listed populations are directly "taken" or impacted by the proposed rainbow trout program, risks associated with the program are minimal. However, some Performance Standard and Indicators could apply if extreme circumstances occurred that would call for the immediate release of rainbow trout into anadromous waters. Because the circumstances requiring such a release are highly unlikely, WDFW feels that only benefits need be fully addressed in the PS&I Section. Further, because of the nature of the program, little monitoring/evaluation is planned to address benefits or risks. Creel surveys and angler satisfaction surveys may be conducted periodically in the future to document performance in meeting mitigation goals.

- 3.1 Legal Mandates
- 3.2 Harvest
- 3.3 Conservation of Wild/Naturally Spawning Populations
- 3.4 Life History Characteristics
- 3.5 Genetic Characteristics
- 3.6 Research Activities
- 3.7 Operation of Artificial Production Facilities
- 3.8 Socio-economic Effectiveness

1.10) List of program "Performance Indicators", designated by "benefits" and "risks."

1.10.1) "Performance Indicators" addressing benefits.

3.1.2 **Standard:** Program contributes to mitigation requirements.

Indicator 3.1.2a: Number of fish released by program, returning, or caught, as applicable to given mitigation requirements.

- Original program has been reduced to current levels to fulfill mitigation requirements.

3.1.3 **Standard:** Program addresses ESA responsibilities.

Indicator 3.1.3a: ESA consultation(s) under Section 7 have been completed, Section 10 permits have been issued, or HGMP has been determined sufficient under Section 4(d), as applicable.

- Program has addressed ESA responsibilities by removing all trout releases from anadromous waters, or those waters containing listed species.

3.2.1 **Standard:** Fish produced for harvest are produced and released in a manner enabling effective harvest, as described in all applicable fisheries management plans, while avoiding over harvest of non-target species.

Indicator 3.2.1a: Recreational angler days, by fishery.

- Current program can be assessed for angler days provided by each fishery.

3.4.2 **Standard:** Broodstock collection does not significantly reduce potential juvenile production in natural rearing areas.

Indicator 3.4.2a: Number of eggs or juveniles placed in natural rearing areas.

- Juveniles stocked into area waters (lakes) are not allowed access to natural rearing areas.

3.5.2 **Standard:** Collection of broodstock does not adversely impact the genetic diversity of the naturally spawning population.

- Broodstock for this program are not collected from any natural trout populations.

3.7.1 **Standard:** Artificial production facilities are operated in compliance with all applicable fish health guidelines and facility operation standards and protocols such as those described by IHOT, PNFHPC, the Co-Managers of Washington Fish Health Policy, INAD, and MDFWP.

Indicator 3.7.1a: Annual reports indicating level of compliance with applicable standards and criteria.

- Annual and quarterly reports are submitted by hatchery staff regarding fish health issues and facility operational protocols are in place.

3.8.1 **Standard:** Cost of program operation does not exceed the net economic value of fisheries in dollars per fish for all fisheries targeting this population.

Indicator 3.8.1a: Total cost of program operation.

- Estimated cost of trout production program has been well below the estimated economic value of the put-take fisheries provided to the SE region of Washington State.

3.8.3 **Standard:** Non-monetary societal benefits for which the program is designed are achieved.

Indicator 3.8.3a: Recreational fishery angler days, length of seasons, and number of licenses purchased.

- Benefits from this program promote fishing opportunities to the elderly, youth, and disabled. Promotes family togetherness activities, and an appreciation of and better understanding of fish management.

WDFW will use the above indicators to determine whether the program has provided expected benefits, or is causing unacceptable risks to the listed natural populations within the Snake River Basin. The ability of the evaluation staff to estimate hatchery and natural proportions in SE Washington will be determined by implementation plans, budgets, and assessment priorities.

1.10.2) “Performance Indicators” addressing risks.

3.7.2 **Standard:** Effluent from artificial production facility will not detrimentally affect natural populations.

Indicator 3.7.2a: Discharge water quality compared to applicable water quality standards and guidelines, such as those described or required by NPDES, IHOT, PNFHPC, and Co-Managers of Washington Fish Health Policy tribal water quality plans, including those relating to temperature, nutrient loading, chemicals, etc.

- Effluent from the hatcheries is monitored and reported on a monthly basis. Area lakes are not monitored since stocked fish are not fed following release.

3.7.3 Standard: Water withdrawals and instream water diversion structures for artificial production facility operation will not prevent access to natural spawning areas, affect spawning behavior of natural populations, or impact juvenile rearing environment.

Indicator 3.7.3a: Water withdrawals compared to NMFS, USFWS, and WDFW juvenile screening criteria

- Where applicable, water withdrawals are monitored and intake screens have been upgraded to the most recent standards to protect listed species present.

3.7.4 Standard: Releases do not introduce pathogens not already existing in the local populations, and do not significantly increase the levels of existing pathogens.

Indicator 3.7.4a: Certification of juvenile fish health immediately prior to release, including pathogens present and their virulence.

- Program protocols allow the release of only disease free fish into a particular watershed or body of water.

WDFW will use the above indicators to determine whether the program has provided expected benefits, or is causing unacceptable risks to the listed natural populations within the Snake River Basin. The ability of the evaluation staff to estimate hatchery and natural proportions in SE Washington will be determined by implementation plans, budgets, and assessment priorities.

1.11) Expected size of program.

1.11.1) Proposed annual broodstock collection level (maximum number of adult fish).

Broodstock are not collected at LFC. Eyed eggs (~545,000 eggs) are provided on an annual basis from WDFW's Spokane Hatchery.

1.11.2) Proposed annual fish release levels (maximum number) by life stage and location.

Historical production of rainbow trout under the LSRCP was set at 93,000 pounds annually, to provide 67,500 angler days of fishing. Reductions were negotiated during construction of LFH, and production goals were reduced to 86,000 lbs annually. Evaluations studies in the 1980's indicated the angler day fishing goal could likely be obtained by a release of 70,000 pounds of rainbow trout (Schuck and Mendel 1987). Current production levels are reflected by those studies. Between 1999-2001, the WDFW LSRCP trout program has averaged 282,382 fish or 84,120 pounds of rainbow trout that were stocked into local waters (Table 1). The current production goal is to produce approximately 79,100 pounds or 237,500 fish. As part of that production, WDFW initiated a "jumbo" trout program to replace lost production of brown trout due to ESA concerns. The "jumbo" trout program produced fish between 1-3 pounds on average, and provides extra enticement to anglers for fishing. Positive comments have been received by the public from the "jumbo" trout program.

1.12) Current program performance, including estimated smolt-to-adult survival rates, adult production levels, and escapement levels. Indicate the source of these data.

Not Applicable for rainbow trout

1.13) Date program started (years in operation), or is expected to start.

Releases of rainbow trout into SE Washington from LFC first occurred in 1982, and have occurred annually since.

1.14) Expected duration of program.

Indefinitely continue compensation under the LSCRCP.

1.15) Watersheds targeted by program.

Watersheds currently targeted by the rainbow trout program include landlocked or screened lakes that have no access for anadromous salmon or steelhead. These waters are primarily located in the Walla Walla, Snake, and Tucannon rivers, and Asotin Creek Watersheds.

1.16) Indicate alternative actions considered for attaining program goals, and reasons why those actions are not being proposed.

In order to obtain original program goals of the LSRCP, the only alternative is to continue trout releases as currently being conducted. Current release strategies eliminate any negative interaction of the rainbow trout program on listed salmon and steelhead within the LSRCP area.

Put-take fisheries are an efficient means of providing recreational opportunity. Historically these fisheries were conducted in SE Washington rivers, as well as in its lakes. This production was curtailed to protect anadromous populations. No other alternatives are available to provide legal compensation while protecting ESA listed salmonids.

SECTION 2. PROGRAM EFFECTS ON ESA-LISTED SALMONID POPULATIONS.

2.1) List all ESA permits or authorizations in hand for the hatchery program.

For the Lyons Ferry LSRCP program, WDFW currently has Section 10 Permits #1126 (research activities on the Tucannon and Asotin Creek), and #1129 (hatchery supplementation for Tucannon River spring chinook); USFWS Consultation with NMFS for LSRCP actions and the NMFS Biological Opinion; and a statewide Section 6 Consultation with USFWS (Bull Trout). In addition, HGMP's have been developed for the Tucannon and Touchet River Endemic Broodstock programs (Touchet River is still under

review). Concurrent with this HGMP to satisfy Section 7 consultations, WDFW is writing HGMP's to cover all other programs at LFC (Snake River Fall Chinook (Snake River Stock), Tucannon River Spring Chinook (Tucannon Stock), Tucannon Summer Steelhead (LFH Stock), Walla Walla Basin Summer Steelhead (LFH Stock), Snake River Summer Steelhead (LFH Stock), and Grande Ronde River Summer Steelhead (Wallowa Stock).

2.2) Provide descriptions, status, and projected take actions and levels for ESA-listed natural populations in the target area.

2.2.1) Description of ESA-listed salmonid population(s) affected by the program.

Washington Department of Fish and Wildlife has documented natural salmon, steelhead and bull trout populations (all ESA listed) in SE Washington watersheds. However, current rainbow trout production is limited to non-anadromous man-made lakes or ponds and interactions between listed populations and this program are negligible.

- Identify the ESA-listed population(s) that will be directly affected by the program.

No ESA Listed populations within the Snake River are directly effected by this program.

- Identify the ESA-listed population(s) that may be incidentally affected by the program.

The rainbow trout production program may incidentally affect listed populations of summer steelhead, chinook and bull trout by being placed in close proximity to waters that contain the listed species. Listed species could be affected if intake or outlet screens on area lakes fail, or through disease transmission from lakes to streams or from the hatcheries. **WDFW will not intentionally release rainbow trout into anadromous water with ESA listed species, even under emergency situations at the hatchery (water supply failure) where all rainbow production would be sacrificed.**

- Provide the most recent 12-year (e.g. 1988-present) progeny-to-parent ratios, survival data by life-stage, or other measures of productivity for the listed population. Indicate the source of these data.

Not applicable, rainbow trout are not listed.

- Provide the most recent 12-year (e.g. 1988-1999) annual spawning abundance estimates, or any other abundance information. Indicate the source of these data.

Not applicable, rainbow trout are not listed.

- Provide the most recent 12 year (e.g. 1988-2000) estimates of annual proportions of direct hatchery-origin and listed natural-origin fish on natural spawning grounds, if known.

Not applicable, rainbow trout not released onto spawning grounds.

2.2.3) Describe hatchery activities, including associated monitoring and evaluation and research programs, that may lead to the take of listed fish in the target area, and provide estimated annual levels of take.

Rearing: Rainbow trout production (Spokane Stock) rearing occurs at Lyons Ferry and Tucannon Fish hatcheries. Water system failure at either hatchery could cause the release of rainbow trout into the Snake River, or Tucannon River under emergency situations. WDFW will not intentionally release rainbow trout into anadromous water with ESA listed species, even under emergency situations at the hatchery (water supply failure) where all rainbow production would be sacrificed.

Release: During transport to area lakes, system failure in the transport truck could occur forcing the emergency release of fish into anadromous waters. Under such a situation, WDFW will not intentionally release rainbow trout into anadromous water with ESA listed species. All fish in the transport truck would be allowed to perish, or they would be released into another lake with non-listed species.

- Describe hatchery activities that may lead to the take of listed salmonid populations in the target area, including how, where, and when the takes may occur, the risk potential for their occurrence, and the likely effects of the take.

Failure of water supply system (either at LFH, TFH, or during transport) forcing an immediate release of rainbow trout into anadromous waters to mix with listed populations is extremely unlikely. Backup systems and alarms at LFH and TFH have prevented any such occurrence at the hatcheries over the last 20 years. During the same period, only one emergency release of trout from a truck into the Tucannon River occurred. Should such an incident occur, effects to listed populations could be in the form of displacement/competition for rearing space in the rivers, competition for food, potential spread of diseases, and predation by trout on smaller ESA listed salmonids.

- Provide information regarding past takes associated with the hatchery program, (if known) including numbers taken, and observed injury or mortality levels for listed fish.

Hatchery trout used to be stocked in nearly all SE Washington waters with ESA listed fish. Take levels from past releases are unknown. Current “takes” are not applicable because trout are no longer released into streams and rivers.

-Provide projected annual take levels for listed fish by life stage (juvenile and adult) quantified (to the extent feasible) by the type of take resulting from the hatchery program (e.g. capture, handling, tagging, injury, or lethal take).

Not Applicable

- Indicate contingency plans for addressing situations where take levels within a given year have exceeded, or are projected to exceed, take levels described in this plan for the program.

Direct Takes associated with this program are not expected to occur.
Indirect Takes are not expected to occur, and cannot be estimated.

SECTION 3. RELATIONSHIP OF PROGRAM TO OTHER MANAGEMENT OBJECTIVES

- 3.1) Describe alignment of the hatchery program with any ESU-wide hatchery or other regionally accepted policies (e.g. the NPPC *Annual Production Review Report and Recommendations* - NPPC document 99-15). Explain any proposed deviations from the plan or policies.**

LFC and the resulting production of rainbow trout is part of the compensation provided to Washington under the LSRCP Program. According to the Artificial Production Review (APR-1999), the Council stated “Management objectives such as harvest opportunities, or for in-kind, in-place mitigation, or for protection of specific natural populations are all equally important.” As such, managers will have to identify their legal mandates, and do their best to provide fish for harvest, while protecting naturally spawning populations. WDFW believes they have taken such actions with the current rainbow trout program outlined in this HGMP, and believe it to be consistent with the Policy Recommendations in the APR. Since all rainbow trout are currently stocked into non-anadromous water, interaction with listed species is negligible.

- 3.2) List all existing cooperative agreements, memoranda of understanding, memoranda of agreement, or other management plans or court orders under which program operates.**

This HGMP is consistent with the following cooperative and legal management agreements. Where changes to agreements are likely to occur over the life of this HGMP, WDFW is committed to amending this plan to be consistent with the prevailing legal mandates.

- Lower Snake River Compensation Plan – LSRCP goals as authorized by Congress direct actions to mitigate for losses that resulted from construction of the four Lower Snake River hydropower projects. Current rainbow trout production levels are lower than the original LSRCP goal, but meet the mitigation goals intent to provide a fishery.
- WDFW Wild Salmonid Policy. Fish and Wildlife is directed by State and Departmental management guidelines to conserve and protect fish and wildlife populations within Washington. This program fulfills that requirement by releasing rainbow trout into non-anadromous waters.

3.3) Relationship to harvest objectives.

As a Mitigation Program, the use of the Spokane Stock rainbow trout in SE Washington is intended to fulfill mitigation goals as outlined under the LSRCP and compensate for termination of the brown trout program.

3.3.1) Describe fisheries benefiting from the program, and indicate harvest levels and rates for program-origin fish for the last twelve years (1988-99), if available.

Multiple small put-take fisheries (See Table 4) benefit from the rainbow trout program in SE Washington. In the mid-1980's extensive creel surveys where rainbow trout were stocked indicated that with just a release of 70,000 pounds of fish, more than 80,000 angler days of fishing were achieved. These put-take fisheries provide large economic value to the region. Furthermore, by concentrating all rainbow trout releases into non-anadromous waters, interaction between trout anglers and listed populations within local rivers have been nearly eliminated. Utilization of stocked lakes has been estimated at >85% by early July.

3.4) Relationship to habitat protection and recovery strategies.

Not Applicable

3.5) Ecological interactions.

Predation - Predation requires opportunity, physical ability and predilection on the part of the predator. Opportunity only occurs when the distribution of predator and prey overlap. This overlap must occur not only in broad sense but at a microhabitat level as well. Since all rainbow trout production is currently restricted to non-anadromous waters, overlap of predator and prey does not occur. Predation could only occur under special circumstances as previously described (screen failure).

Competition – Interaction between listed populations and rainbow trout are eliminated by current release strategies.

Disease - Hatchery operations potentially amplify and concentrate fish pathogens that could affect listed chinook, steelhead, and bull trout growth and survival. Fish Health requirements only allows the releases of healthy fish. Therefore, the chance of disease transfer to listed populations are greatly reduced.

SECTION 4. WATER SOURCE

4.1) Provide a quantitative and narrative description of the water source (spring, well, surface), water quality profile, and natural limitations to production attributable to

the water source.

Currently, LFH and TFH are the main rearing sites for the rainbow trout program. Eyed eggs are transferred from WDFW's Spokane Hatchery to each facility. All trout are reared for approximately one year prior to release in to area lakes. Lyons Ferry has eight wells that produce up to 150 cfs or 68,000 gpm of nearly constant 52⁰ F, well water. Discharge from LFH complies with all NPDES standards and enters the Snake River.

Water for Tucannon Fish Hatchery (TFH) is provided by springs, wells and from the Tucannon River. Water withdrawals for hatchery use do not significantly reduce natural production capabilities nor affect adult upstream or downstream passage within the 0.75 miles of affected river reach (hatchery withdrawal to hatchery outfall). Tucannon Hatchery complies with all NPDES standards for pollution discharge.

4.2) Indicate risk aversion measures that will be applied to minimize the likelihood for the take of listed natural fish as a result of hatchery water withdrawal, screening, or effluent discharge.

Water withdrawal intakes for area lakes are all screened to avoid the take of listed species. Water effluent discharged from the area lakes is in compliance with NPDES standards since fish are not fed in the lakes after release. The TFH production water right is limited to 12 cfs river water prevent channel dewatering.

SECTION 5. FACILITIES

For the described program, rearing and release occurs from LFH and TFH. The Spokane Stock broodstock are maintained, spawned and gametes incubated at WDFW's Spokane Hatchery. Reference will be made in the following sections as to which WDFW Hatchery applies.

5.1) Broodstock collection facilities (or methods).

Broodstock are maintained at WDFW's Spokane Hatchery.

5.2) Fish transportation equipment (description of pen, tank truck, or container used).

Eyed eggs are transported from WDFW's Spokane Hatchery in shipping boxes in the back end of a truck. Eyed eggs are place in containers with ice following transportation protocols developed by over 100 years of trout production. Standard disinfection procedures are followed prior to and after transfer of eggs to LFC.

5.3) Broodstock holding and spawning facilities.

Not Applicable

5.4) Incubation facilities.

Eyed eggs are received at TFH or LFH and incubation occurs in baskets, shallow troughs, or hatching jars. Eggs are isolated from other groups of rearing fish to control disease transmission.

5.5) Rearing facilities.

Tucannon Hatchery: Once the fish have hatched and are at the swim-up stage, fish are moved to outside circular ponds for rearing, and then eventually placed into a large earthen rearing pond. Fish are hand fed or by demand or automatic feeders

Lyons Ferry Hatchery: Once the fish have hatched they are fed in shallow troughs until they are 500 fpp and then fish are moved to intermediate inside troughs for initial rearing. Both the shallow and deep troughs are located inside at LFH. Once the fish reach approximately 100/lb, they are moved outside to standard size raceways. Four intermediate indoor rearing troughs and 47 outside raceways are available for rearing. Water supply is from wells as previously described. Feeding is by hand.

a. Acclimation/release facilities.

Not Applicable

5.7) Describe operational difficulties or disasters that led to significant fish mortality.

Most fish mortalities have been associated with Bacterial Cold Water Disease and have been effectively controlled by florfenicol top coated fish pills recently. In 1989, transmission of IHNV from the LFH required the complete destruction of all rainbow on station.

At Tucannon Hatchery during the spring of 2001, a major loss of rainbow trout occurred when an epizootic occurred from *Trichodina*. Approximately 57% of the fish were lost before they disease was under control. Other significant mortality has not occurred in the program, though yearly losses have been attributed to Columnaris, Bacterial Cold Water Disease, and *Ichthyophthirius* (“Ich”). Mortalities due to the diseases experienced have been kept to a minimum due to quick diagnosis and proper treatments.

5.8) Indicate available back-up systems, and risk aversion measures that will be applied, that minimize the likelihood for the take of listed natural fish that may result from equipment failure, water loss, flooding, disease transmission, or other events that could lead to injury or mortality.

Strict operational procedures as laid out by Integrated Hatchery Operation Team (IHOT 1993) are followed at LFH and TFH. Where possible, remedial actions identified in a 1996 IHOT compliance audit are implemented. Staff are available to respond to critical

operational problems at all times. Water flow and low water alarm systems, and emergency generator power supply systems to provide rearing water to the facilities are installed at LFH and TFH. Fish health monitoring occurs monthly, or more often, as required in cases of disease epizootics. Fish health practices follow PNWFHPC (1989) protocol.

Under emergency situations where rainbow trout would be released into anadromous water with listed species, WDFW has decided not to release the rainbow trout. Fish would remain in the holding ponds/raceways until the problem could be solved, or all fish were dead.

SECTION 6. BROODSTOCK ORIGIN AND IDENTITY

Describe the origin and identity of broodstock used in the program, its ESA-listing status, annual collection goals, and relationship to wild fish of the same species/population.

6.1) Source.

Spokane Stock (not listed)

6.2) Supporting information.

6.2.1) History.

The Spokane Rainbow Stock steelhead was originally started by receiving eggs from Cape Cod Hatchery in Massachusetts. The Cape Cod Stock was itself originally derived from the McCloud River in northern California in the late 1800's. Genetic characterization has verified that the Spokane Stock is similar or identical to West Coast rainbow populations of current day.

6.2.2) Annual size.

Currently, the total annual production of Spokane Stock rainbow trout at Spokane Hatchery is 10,000,000 eyed eggs. Spokane Stock trout are shared among many hatcheries within WDFW and among other agencies as well. The LSRCP trout compensation program receives ~545,000 eggs annually for production at no cost to the program.

6.2.3) Past and proposed level of natural fish in broodstock.

Not Applicable. No natural fish are collected for broodstock at Spokane Hatchery.

6.2.4) Genetic or ecological differences.

Not Applicable

6.2.5) Reasons for choosing.

The Spokane Stock rainbow trout have been successfully reared for many generations at WDFW facilities. The Stock performance indicates that it is highly successful in producing harvestable fish for the program.

6.3) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic or ecological effects to listed natural fish that may occur as a result of broodstock selection practices.

Not Applicable

SECTION 7. BROODSTOCK COLLECTION

7.1) Life-history stage to be collected (adults, eggs, or juveniles).

Not Applicable for LFH or TFH

7.2) Collection or sampling design.

Not Applicable at LFH or TFH

7.3) Identity.

Not Applicable

7.4) Proposed number to be collected:

7.4.1) Program adult broodstock goal :

See Spokane Hatchery HGMP

7.4.2) Broodstock collection levels for the last twelve years (e.g. 1988-99), or for most recent years available: See Table 7.

See Spokane Hatchery HGMP

7.5) Disposition of hatchery-origin fish collected in surplus of broodstock needs.

See Spokane Hatchery HGMP

7.6) Fish transportation and holding methods.

See Spokane Hatchery HGMP

7.7) Describe fish health maintenance and sanitation procedures applied.

See Spokane Hatchery HGMP

7.8) Disposition of carcasses.

See Spokane Hatchery HGMP

7.9) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic or ecological effects to listed natural fish resulting from the broodstock collection program.

See Spokane Hatchery HGMP

SECTION 8. MATING

Describe fish mating procedures that will be used, including those applied to meet performance indicators identified previously.

8.1) Selection method.

See Spokane Hatchery HGMP. In short, spawned broodstock consists of only Age 3 and Age 4 fish. Spawning takes place from mid-November to mid-January.

8.2) Matings.

See Spokane Hatchery HGMP. In short, one male is spawned to one female. Pooled matings are used with generally 5 males (pooled semen) and 5 females mixed together in a single lot.

8.3) Fertilization.

See Spokane Hatchery HGMP, or see above

8.4) Cryopreserved gametes.

Currently, no semen from rainbow trout males has been preserved for use in the program, and is not planned for the future

8.5) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic or ecological effects to listed natural fish resulting from the mating scheme.

See Spokane Hatchery HGMP

SECTION 9. INCUBATION AND REARING

Specify any management *goals* (e.g. “egg to smolt survival”) that the hatchery is currently operating under for the hatchery stock in the appropriate sections below. Provide data on the success of meeting the desired hatchery goals.

9.1) Incubation:

9.1.1) Number of eggs taken and survival rates to eye-up and/or ponding.

See Spokane Hatchery HGMP, or Table 2 Below.

Table 2. History of eyed-egg to outplant survival for the Spokane Stock rainbow trout at LFH from 1986-2000 Brood Years.						
Brood Year	Eggs Received	Fry Produced	Egg-to-fry Survival	Fry Planted	Catachables Planted	% Fry-to-outplant Survival
1986	464,500	377,393	81.2	100,289	136,045	62.6
1987	501,500	446,694	89.1	147,993	266,360	92.8
1988	530,700	426,153	80.3	207,186	226,690	100.0
1989	758,090	652,535	86.1	272,164	264,974	82.3
1990	618,000	596,670	96.5	257,780	218,917	79.9
1991	696,220	637,285	91.5	269,387	271,052	84.8
1992	603,200	648,731	90.9	242,366	286,604	96.4
1993	615,600	600,308	97.5	276,602	263,521	89.9
1994	690,200	660,944	95.7	319,125	216,837	81.1
1995	685,610	656,301	95.7	209,905	291,028	76.3
1996	677,420	626,030	92.4	266,626	248,254	82.4
1997	570,000	568,362	99.7	189,961	393,776	100.0
1998	545,000	543,801	99.8	160,900	239,767	73.7
1999	545,000	515,070	94.5	189,788	191,065	73.9
2000	545,000	475,348	87.2	205,091	243,803	70.0

Note: The precision of the hatchery methods at times measure survival between life stages as >100%; 100% is reported as a maximum in these situations.

9.1.2) Cause for, and disposition of surplus egg takes.

See Spokane Hatchery HGMP

9.1.3) Loading densities applied during incubation.

See Spokane Hatchery HGMP

9.1.4) Incubation conditions.

See Spokane Hatchery HGMP

9.1.5) Ponding.

See Section 5.5 for previous discussion at both LFH and TFH. In short, eyed eggs received from Spokane Hatchery hatch from baskets at LFH or TFH and drop into troughs where they remain for 4-8 weeks after feeding commences. Fish are fed after most are buttoned up (usually 1-3 days post swimup). Fish are then moved to intermediate inside tanks at LFH (usually at about 800 fish/lb). Fish rear in intermediate tanks until July or when fish reach 100/lb, at which time they are transferred to outside raceways.

9.1.6) Fish health maintenance and monitoring.

Eyed eggs, fry, and larger juveniles are examined daily by hatchery personnel. Prophylactic treatment of eggs for the control of fungus is prescribed by a WDFW fish health specialist, and may include treatment with formalin or other accepted fungicides. Non-viable eggs and sac-fry are removed by bulb-syringe and the loss documented. Fry and larger juveniles are monitored throughout rearing, with necessary treatments based on mortality rates.

9.1.7) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic and ecological effects to listed fish during incubation.

Not Applicable.

9.2) Rearing:

9.2.1) Provide survival rate data by hatchery life stage for the most recent twelve years (1988-99), or for years where dependable data are available.

See Table 2 Above.

9.2.2) Density and loading criteria (goals and actual levels).

LFH raceway rearing density index criteria for rainbow trout will not exceed 0.26 lbs fish/ft³.

9.2.3) Fish rearing conditions

Raceways are supplied with oxygenated water from the hatchery's central degassing building. Approximately 1,000-gpm (23 minute exchange rate) of water enters each north side raceway through secondary degassing cans. The north side of the hatchery have historically been used to raise steelhead. The south side raceways will likely be included for steelhead rearing in the future due to program changes. South side raceways receive about 650 gpm (33.5 minute exchange rate) and enters the raceway through a manifold. Oxygen levels range between 10-12 ppm entering, to 8-10 ppm leaving the raceway, depending on ambient air temperature and number of fish in the raceway. Similar data are expected in the 2.1 acre rearing ponds (17.5 hour water exchange rate), but dissolved oxygen may be different upon exit due to lower densities, slower exchange rate, and greater

amounts of algae in lake compared to raceways. Flow index (FLI) is monitored monthly at all facilities and rarely exceeds 80% of the allowable loading. Raceways are cleaned three times a week by brushing to remove accumulated uneaten feed and fecal material. Feeding is by hand presentation.

9.2.4) Indicate biweekly or monthly fish growth information (*average program performance*), including length, weight, and condition factor data collected during rearing, if available. See Table 3.

Table 3. Growth and size of Spokane Stock rainbow trout at LFH for the 1998-2000 Brood Years.								
	1998 Brood Year			1999 Brood Year			2000 Brood Year	
Month/Year	FPP	G/fish	Month/Year	FPP	G/fish	Month/Year	FPP	G/fish
1/99	2,100	0.2	1/00	1,700	0.3	1/01	2,500	0.2
2/99	1,180	0.4	2/00	600.0	0.8	2/01	1,194	0.4
3/99	314.2	1.4	3/00	189.2	2.4	3/01	214.0	2.1
4/99	98.0	4.6	4/00	60.6	7.5	4/01	89.0	5.1
5/99	50.7	8.9	5/00	42.8	10.6	5/01	48.0	9.5
6/99	24.8	18.2	6/00	23.0	19.7	6/01	27.0	16.8
7/99	16.7	27.2	7/00	13.5	33.6	7/01	16.5	27.5
8/99	10.5	43.2	8/00	9.3	48.8	8/01	10.9	41.6
9/99	8.3	54.7	9/00	7.1	63.9	9/01	7.7	58.9
10/99	6.2	73.2	10/00	5.3	85.6	10/01	6.0	75.6
11/99	5.1	88.9	11/00	3.9	116.3	11/01	4.8	94.5
12/99	4.4	103.1	12/00	3.1	146.3	12/01	3.8	119.4
1/00	3.5	129.6	1/01	2.6	174.5	½	3.1	146.3
2/00	3.1	146.3	2/01	2.3	197.2	2/02	3.3	137.5
3/00	2.3	197.2	3/01	2.9	156.4	3/02	2.7	168.0

9.2.5) Indicate monthly fish growth rate and energy reserve data (*average program performance*), if available.

See above table or NA.

9.2.6) Indicate food type used, daily application schedule, feeding rate range (e.g. % B.W./day and lbs/gpm inflow), and estimates of total food conversion efficiency during rearing .

Fry/fingerling will be fed an appropriate commercial dry or moist steelhead/salmon diet. Fry feeding starts at ~8 times daily and is reduced as the fish increase in size. Range of feeding varies between 0.5 – 2.8% B.W./day. Feed conversion is expected to fall in a range of 1.1:1 (dry feed)– 1.4:1 (moist feed) pounds fed to pounds produced. Feeding frequency, percent BWD and feed size are adjusted as fish increase in size in accordance with good fish husbandry and program goals.

9.2.7) Fish health monitoring, disease treatment, and sanitation procedures.

A WDFW fish health specialist monitors fish health as least monthly. More frequent care is provided as needed if disease is noted. Treatment for disease is provided by Hatchery Specialists under the direction of the Fish Health Specialist. Sanitation consists of raceway cleaning three times each week by brushing, and disinfecting equipment between raceways and/or between species on the hatchery site.

9.2.8) Smolt development indices (e.g. gill ATPase activity), if applicable.

Not Applicable

9.2.9) Indicate the use of "natural" rearing methods as applied in the program.

“NATURES” rearing concepts will not directly be applied to the Spokane Stock rainbow program. However, certain aspects of the “NATURES” techniques are used by default at LFH and TFH. For instance, the concrete rearing raceways are old enough that the walls and bottoms are of nearly natural coloration and texture, and promote natural looking fish. Further, the use of the earthen rearing pond at Tucannon Fish Hatchery provides a very “natural” rearing environment with a rock bottom, shading from nearby trees, and avian predators. However, it is not the goal of the rainbow program to be concerned with “NATURES” rearing since all the fish are destined for put-take fisheries.

9.2.10) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic and ecological effects to listed fish under propagation.

Not Applicable.

SECTION 10. RELEASE

Describe fish release levels, and release practices applied through the hatchery program.

10.1) Proposed fish release levels

The following (Table 4) shows releases of Spokane Stock rainbow trout into SE Washington waters between 1999-2001. Notice that in 2000, releases into anadromous waters (i.e. Tucannon River, Asotin Creek) were stopped. The exception was the Touchet River where a study to assess the impacts of fishing on listed steelhead trout was

conducted. The hatchery rainbow trout were used as a mark group to assess the harvest of various groups of trout/steelhead present in the river and taken by anglers. By 2001, all trout stocking into waters with listed salmonids was stopped.

Table 4. Releases of Spokane Stock rainbow trout into SE Washington Waters between 1999-2001.				
County	Location	1999 Release	2000 Release	2001 Release
Asotin	Asotin Creek	2,002	0	0
	Golf Course Pond	22,477	18,741	14,980
	Headgate Pond	1,999	2,000	2,054
	Silcott Pond	4,001	3,976	2,994
	West Evans Pond	21,532	19,947	15,262
Columbia	Beaver Lake	2,016	1,555	1,493
	Big Four	2,000	2,040	2,463
	Blue Lake	18,780	18,990	40,035
	Curl Lake	8,697	12,151	8,557
	Dam Pond	2,025	2,649	994
	Dayton Jv. Pond	2,552	3,245	3,009
	Deer Lake	4,593	3,038	2,101
	Donnie Lake	0	423	401
	Orchard Pond	2,002	2,038	1,504
	Rainbow Lake	21,588	19,602	18,220
	Spring Lake	28,827	2,604	11,845
	Touchet R.	2,014	2,000	0
	Tucannon R.	2,976	0	0
Watson	11,104	3,136	12,786	
Franklin	Dalton Lake	20,155	20,117	46,465
	Marmes Pond	1,502	2,633	2,001
Garfield	Baker's Pond	1,664	2,082	870
	Casey Pond	510	524	500
	Pataha Creek	1,000	0	0
Walla Walla	Bennington Lake	24,054	22,612	18,103
	College Place Pond	4,312	3,768	3,242
	Fishhook Pk. Pond	6,188	5,192	4,954
	Jefferson Park Pond	2,009	1,998	2,014
	Mill Creek	2,015	0	0
	Quarry Pond	24,655	21,726	33,961
Whitman	Garfield Pond	2,070	1,921	1,499
	Gilcrest Pond	3,020	2,835	3,498
	Pampa Pond	5,000	5,214	4,012
	Riparia Pond	2,400	2,000	1,001
	Union Flat Creek	1,520	1,560	1,560
Adams	Sprague Lake	0	47,818	0
Grand Totals		331,145	260,085	255,917

10.2) Specific location(s) of proposed release(s).

See Table 4 above that shows release points on an annual basis. Slight variations could occur due to over production of trout, or steelhead (LFH or Wallowa Stock programs)

10.3) Actual numbers and sizes of fish released by age class through the program.

See Table 4 from above for general release numbers into area lakes. Variations are expected to occur on an annual basis because of under or over production of trout, or steelhead LFH or Wallowa Stock programs). Fish size has varied but most fry are planted between 200 and 300 fish/lb, while catchable trout are generally released between 2.5 and 3.5 fish/lb.

10.4) Actual dates of release and description of release protocols.

Most of the rainbow trout stocking into area lakes occurs between February and June each year. Other releases have occurred during late summer or early fall for special release of various interest groups. Release protocols follow standards set by WDFW for releasing fish into state waters.

10.5) Fish transportation procedures, if applicable.

Fish are transported from LFH or TFH to area lakes using a variety of transport trucks. Transportation time can vary between a few minutes to 2 hours depending on release location. Trucks are loaded at appropriate density levels based on capacity. Each truck is equipped with oxygen and aeration systems.

10.6) Acclimation procedures.

Not Applicable

10.7) Marks applied, and proportions of the total hatchery population marked, to identify hatchery adults.

Not Applicable

10.8) Disposition plans for fish identified at the time of release as surplus to programmed or approved levels.

Any excess fish identified during the rearing stage may be released into LSRCP or other eastern Washington area lakes to provide greater harvest opportunities to local anglers. Depending on when identified, fish may be released as fry or fingerlings, so as not to create shortfalls in rearing space that may affect other programs (spring chinook, fall chinook or summer steelhead) at LFC

10.0) Fish health certification procedures applied pre-release.

Fish will be examined by a WDFW fish health specialist and certified for release as required under the PNWFHPC (1989) guidelines.

10.10) Emergency release procedures in response to flooding or water system failure.

Under conditions requiring release of fish, actions will be taken that are suitable for the incident point. Under emergency situations where rainbow trout would be released into anadromous water with listed species, WDFW has decided not to release the rainbow trout. Fish would remain in the holding ponds/raceways until the problem could be solved, or all fish were dead. If fish were in transport, and failure occurred near another body of water (lake or pond) without anadromous fish, the rainbow trout could be planted even if it exceeded the allotment programmed for that body of water.

10.11) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic and ecological effects to listed fish resulting from juvenile fish releases.

Not Applicable.

SECTION 11. MONITORING AND EVALUATION OF PERFORMANCE INDICATORS

11.1) Monitoring and evaluation of “Performance Indicators” presented in Section 1.10.

11.1.1) Describe plans and methods proposed to collect data necessary to respond to each “Performance Indicator” identified for the program.

- Conduct statistically valid creel studies in SE Washington to determine harvest and exploitation rates for hatchery rainbow trout in determining success meeting mitigation goals and ESA responsibilities, in addition to estimating economic and social values.
 - (Indicators: 3.1.2a, 3.1.3a, 3.2.1a, 3.4.2a, 3.8.1a, 3.8.3a,)
- Monitor discharge water quality and water withdrawals and report annually on compliance with related permits and criteria, i.e., screening and fish passage criteria.
 - (Indicators: 3.7.1a, 3.7.2a, 3.7.3a)
- Monitor health of juvenile trout associated with hatchery production.
 - (Indicators: 3.7.1a, 3.7.4a)

11.1.2) Indicate whether funding, staffing, and other support logistics are available or committed to allow implementation of the monitoring and evaluation program.

Current operational funding covers disease and discharge monitoring at the LFH or TFH. However, current evaluation monitoring has focused on anadromous listed populations, rather than the trout program. Creel surveys in the past determined that we were meeting the mitigation goals for the trout program at a lower production level than currently produced. The ISRP identified the need to re-evaluate the economic and social importance

of the trout program in relation to the current ESA environment, and to assess the need to continue the program. In order to accomplish this task, additional funds will be required.

11.2) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic and ecological effects to listed fish resulting from monitoring and evaluation activities.

Risk to the natural populations will be non-existent should a creel census be desired for the trout program evaluation.

SECTION 12. RESEARCH

12.1) Objective or purpose.

The ongoing LSRCP program research is designed to:

- Document hatchery rearing and release activities and subsequent adult returns of salmon and steelhead.
- Determine success of the program in meeting salmon and steelhead mitigation goals and adult returns to Lower Granite Dam or the Snake River Basin.
- Provide management recommendations aimed at improving program effectiveness and efficiency.
- Provide management recommendations aimed at reducing program impacts on ESA listed fish, and promoting their recovery and eventual de-listing.

As stated earlier, rainbow trout program effects to listed population is minimal. However, additional monitoring effects may determine that mitigation goals could be achieved with reduced production of rainbow trout.

12.2) Cooperating and funding agencies.

Lower Snake River Compensation Program
Nez Perce Tribe
Confederated Tribes of the Umatilla Indian Reservation
Idaho Department of Fish and Game

12.3) Principle investigator or project supervisor and staff.

Mark Schuck Glen Mendel Joe Bumgarner

12.4) Status of stock, particularly the group affected by project, if different than the stock(s) described in Section 2.

Same as described in Section 2.

12.5) Techniques: include capture methods, drugs, samples collected, tags applied.

Creel Surveys and Effort Counts to estimate fishery utilization.

12.6) Dates or time period in which research activity occurs.

March - June

12.7) Care and maintenance of live fish or eggs, holding duration, transport methods.

Not Applicable

12.8) Expected type and effects of take and potential for injury or mortality.

Not Applicable

12.9) Level of take of listed fish: number or range of fish handled, injured, or killed by sex, age, or size, if not already indicated in Section 2 and the attached “take table”.

Not Applicable

12.10) Alternative methods to achieve project objectives.

None

12.11) List species similar or related to the threatened species; provide number and causes of mortality related to this research project.

None

12.12) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse ecological effects, injury, or mortality to listed fish as a result of the proposed research activities.

None

SECTION 13. ATTACHMENTS AND CITATIONS

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National Marine Fisheries Service. 1999. Biological Opinion on Artificial Propagation in the Columbia Basin – Section 7 Consultation. NOAA/NMFS, March 29, 1999. 175 pp.

National Marine Fisheries Service. 2001. Performance Standards and Indicators for the Use of Artificial Production for Anadromous and Resident Fish Populations in the Pacific Northwest. 19pp.

Northwest Power Planning Council (NPPC). 1994. Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council, Portland, Oregon.

Northwest Power Planning Council. 1999. Artificial Production Review – Report and Recommendation of the Northwest Power Planning Council. Council Document 99-15. 30pp.

PNWFHPC (Pacific Northwest Fish Health Protection Committee). 1989. Model comprehensive fish health protection program.

Schuck, M. L., and G. W. Mendel. 1987. Lyons Ferry Evaluation Study, Part II: 1985-86 Annual Report to USFWS LSRCP Office, Boise Idaho. Report # FRI/LSR-87-8 WDW – Fish Management Division #88-4

U.S. Army Corps of Engineers District, Walla Walla Washington. 1975. Special Report: Lower Snake River Fish and Wildlife Compensation Plan. 95 p.

Washington Department of Fisheries (WDF), Washington Department of Wildlife (WDW), and Western Washington Treaty Indian Tribes (WWTIT). 1993. 1992 Washington State salmon and steelhead stock inventory (SASSI). Wash. Dept. Fish Wildlife, Olympia, 212 p. and 5 regional volumes. Washington Dept. Fish and Wildlife, 600 Capitol Way N, Olympia, WA. 98501-1091.

Washington Department of Fish and Wildlife. 1999. Unpublished data from the files of the Snake River Lab.

SECTION 14. CERTIFICATION LANGUAGE AND SIGNATURE OF RESPONSIBLE PARTY

“I hereby certify that the foregoing information is complete, true and correct to the best of my knowledge and belief. I understand that the information provided in this HGMP is submitted for the purpose of receiving limits from take prohibitions specified under the Endangered Species Act of 1973 (16 U.S.C.1531-1543) and regulations promulgated thereafter for the proposed hatchery program, and that any false statement may subject me to the criminal penalties of 18 U.S.C. 1001, or penalties provided under the Endangered Species Act of 1973.”

Name, Title, and Signature of Applicant:

Certified by _____ Date: _____

SECTION 15. PROGRAM EFFECTS ON OTHER (NON-ANADROMOUS SALMONID) ESA-LISTED POPULATIONS. Species List Attached (Anadromous salmonid effects are addressed in Section 2)

Currently, there are 40 separate listings of Federal Status endangered/threatened species within the State of Washington. In the list below (Table 12), are all non-salmonid listed species and their current status ratings. Of the following species listed, only the bald eagle, and the plant species Spalding's Catchfly are confirmed to be found in the area where the rainbow trout production program occurs (i.e. Lyons Ferry Hatchery, and area lakes). Species such as the Gray Wolf, the Grizzly Bear, the Canadian Lynx, and the northern spotted owl were once likely found in the Snake River corridor, but their current existence is not verified. The geographic distributions of the other listed species were generally limited to the Cascade Mountain Range, the Selkirk Mountains in NE Washington, the Willamette Valley (Oregon), Puget Sound and Coastal areas.

Table 12. List of current ESA listed species (animal and plant) within the State of Washington.	
Status Rating	Species
ANIMALS	
Endangered	Albatross, short-tailed (<i>Phoebastria (=Diomedea) albatrus</i>)
Threatened	Bear, grizzly (<i>Ursus arctos horribilis</i>)
Threatened	Butterfly, Oregon silverspot (<i>Speyeria zerene hippolyta</i>)
Endangered	Caribou, woodland (ID, WA, B.C.) (<i>Rangifer tarandus caribou</i>)
Endangered	Deer, Columbian white-tailed (<i>Odocoileus virginianus leucurus</i>)
Threatened	Eagle, bald (lower 48 States) (<i>Haliaeetus leucocephalus</i>)
Threatened	Lynx, Canada (lower 48 States DPS) (<i>Lynx canadensis</i>)
Threatened	Murrelet, marbled (CA, OR, WA) (<i>Brachyramphus marmoratus marmoratus</i>)
Threatened	Owl, northern spotted (<i>Strix occidentalis caurina</i>)
Endangered	Pelican, brown (<i>Pelecanus occidentalis</i>)
Threatened	Plover, western snowy (Pacific coastal pop.) (<i>Charadrius alexandrinus nivosus</i>)
Threatened	Sea turtle, green (<i>Chelonia mydas</i>)
Endangered	Sea turtle, leatherback (<i>Dermochelys coriacea</i>)
Threatened	Sea-lion, Steller (eastern pop.) (<i>Eumetopias jubatus</i>)
Endangered	Whale, humpback (<i>Megaptera novaeangliae</i>)
Endangered	Wolf, gray (<i>Canis lupus</i>)
PLANTS	
Endangered	Sandwort, Marsh (<i>Arenaria paludicola</i>)
Threatened	Paintbrush, golden (<i>Castilleja levisecta</i>)
Endangered	Stickseed, showy (<i>Hackelia venusta</i>)
Threatened	Howellia, water (<i>Howellia aquatilis</i>)
Endangered	Desert-parsley, Bradshaw's (<i>Lomatium bradshawii</i>)
Threatened	Lupine, Kincaid's (<i>Lupinus sulphureus (=oreganus) ssp. Kincaidii (=var. kincaidii)</i>)
Threatened	Checker-mallow, Nelson's (<i>Sidalcea nelsoniana</i>)
Endangered	Checkermallow, Wenatchee Mountains (<i>Sidalcea oregana var. calva</i>)
Threatened	Catchfly, Spalding's (<i>Silene spaldingii</i>)
Threatened	Ladies'-tresses, Ute (<i>Spiranthes diluvialis</i>)

15.1) List all ESA permits or authorizations for all non-anadromous salmonid programs associated with the hatchery program.

Section 10 permits, 4(d) rules, etc. for other programs associated with hatchery program.
Section 7 biological opinions for other programs associated with hatchery program.

See Section 2.1

15.2) Description of non-anadromous salmonid species and habitat that may be affected by hatchery program.

Bald Eagle (Much of following has been compiled from: Watson, J.W., and E.A Rodrick. 2001. Bald Eagle (*Haliaeetus leucocephalus*) – Washington Department of Fish and Wildlife – Birds (Vol #4, Chapter 8) 18pp.)

General species description and habitat requirements (citations).

Bald eagles are one of the worlds larger predatory birds, ranging from 7-14 pounds, with wingspans up to 8 feet. They mate for life and are believed to live 30 years or longer in the wild. Habitat requirements generally consist of a moderate forested area with large trees that are generally located nears rivers, lakes, marshes, or other wetlands. Bald eagles have few natural enemies, and in general need an environment of quiet isolation, a condition that has changed dramatically over the last 100 years.

Major wintering concentrations are often located along rivers with salmon runs. Primary food sources have been marine or freshwater fish, waterfowl and seabirds, with secondary sources including mammals, mollusks and crustations (Retfalvi 1970, Knight et al. 1990, Watson et al. 1991, Watson and Pierce 1998).

Local population status and habitat use (citations).

Bald Eagles breed throughout most of the United States and Canada, with the highest concentrations occurring along the marine shorelines of Alaska and Canada. They winter throughout most of the breeding range, primarily south of souther Alaska and Canada (U.S. Fish and Wildlife Service 1986, Stinson et al. 2000). Within Washington, bald eagles nest primarily west of the Cascade Mountains, with scattered breeding areas along major rivers in the eastern part of the state. The bald eagle is a State Threatened species in Washington, and a Federally listed species. Early declines in populations in the lower 48 states were caused by habitat destruction and degradation, illegal shooting, and contamination of its' food source from the pesticide DDT. It is currently vulnerable to loss of nesting and winter roost habitat and is sensitive to human disturbance, primarily from development and timber harvest along shorelines. Territories are generally defined by 1) nearness of water and availability of food, 2) the availability of suitable nesting, perching, and roosting trees, and 3) the number of breeding eagles the area (Stalmaster 1987).

Site-specific inventories, surveys, etc. (citations).

Site specific inventories (abundance/status) on bald eagles in the Snake River near hatchery production activities is unknown. Sightings have been documented in the area (Tucannon River). No nesting or nest trees are known to exist in the area affected by the program.

Spalding's Catchfly

General species description and habitat requirements (citations).

Citation: Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1964. Vascular Plants of the Pacific Northwest, Part 2: *Salicaceae to Saxifragaceae*. University of Washington Press, Seattle. 597 pp.

The Spalding's Catchfly is a long-lived, herbaceous perennial, 8-24 inches tall, typically with one stem, but can have several. Each stem bears 4-7 pairs of lance shaped leaves 2 to 3 inches in length. The light green foliage and stem are lightly to more typically densely covered with sticky hairs. The cream-colored flowers are arranged in a spiral at that top of the stem. The outer, green portion of the flower forms a tube, ~1/2 inch long with ten distinct veins running it's length. The flower consists of 5 petals, each with a long narrow "claw" that is largely concealed by the calyx tube and a very short "blade", or flared portion at the summit of the claw. Four (sometimes as many as 6) short petal-like appendages are attached inside and just below each blade.

The species begins to flower in mid- to late July, with some individuals still flowering by early September. Most other forbs within it's habitat have finished flowering when *S. spaldingii* is just hitting its peak. A majority of individuals have developed young fruits by mid- to late August.

S. spaldingii occurs primarily within open grasslands with a minor shrub component and occasionally with in a mosaic of grassland and ponderosa pines. It is most commonly found at elevations of 1900-3050 feet, near lower treeline, with a preference for northerly-facing aspects. The species is primarily restricted to mesic (not extremely wet nor extremely dry) prairie or steppe vegetation that makes up the Palouse Region in SE Washington.

Local population status and habitat use (citations).

Within the State of Washington, *S. spaldingii*, is found in Asotin, Lincoln, Spokane and Whitman counties, with a status listing of 'threatened'. A total of 28 populations have been identified (FR# 1018-AF79, Vol 66, No. 196, p. 51598). This plant is threatened by a variety of factors including habitat destruction and fragmentation resulting from agricultural and urban development, grazing and trampling by domestic livestock and native herbivores, herbicide treatment and competition from nonnative plant species (Gamon 1991; Schassberger 1988). It is currently estimated that 98% of the original

Palouse prairie habitat has been lost to the mentioned activities (Gamon 1991). Each of the populations documented are generally very small, and are currently quite fragmented, raising questions about their long-term viability.

Site-specific inventories, surveys, etc. (citations).

Species does generally not occur in location where trout are raised or where stocking occurs. It has been found in Asotin County, but is generally believed to be located away from areas where stocking occurs.

15.3) Analysis of effects.

Bald Eagle

Identify potential direct, indirect, and cumulative effects of hatchery program on species and habitat (immediate and future effects).

To the best of our knowledge, the program as described in this HGMP will not directly have any negative effects on the listed species. Providing juveniles to the system, even within the short term, will provide a potential prey item, that would likely benefit the listed species. However, the current put-take fisheries associated with harvest on the rainbow trout could potentially disturb the behavior (territory, nesting, etc..) of the eagles. The surrounding habitat associated with this hatchery compensation program will not be altered, which would be the only source of negative “take” possible to the listed species.

Identify potential level of take (past and projected future).

Disturbance to listed species from people fishing in the area. A take estimate is not possible for this potential disturbance in the past or in the future. Eagle sightings in the area near the fishery are uncommon.

Hatchery operations - water withdrawals, effluent, trapping, releases, routine operations and maintenance activities, non-routine operations and maintenance activities (e.g. intake excavation, construction, emergency operations, etc.)

Activities at Lyons Ferry all take place on existing hatchery grounds. No new construction activities are planned for the program in either location that could impact the listed species. Effluent from the lakes are assumed to meet state water quality standards and is therefore not a concern.

Fish health - pathogen transmission, therapeutics, chemicals.

Not expected to be a problem. The two species have co-existed for thousands of years, the rainbow trout being the prey of the eagle. Eagles are likely immune to any potential pathogens that hatchery fish might be carrying. Therapeutics and chemicals when applied (at Lyons Ferry) would follow label directions for proper use, eliminating any potential

“take” to the eagles.

Ecological/biological - *competition, behavioral, etc.*

As stated earlier, behavioral disturbances could occur if fishing pressure and eagle abundance overlap. Generally the density of fisherman is relatively low, and should not greatly disturb the species. Camping is limited within the area where the main fishery occurs, so disturbance from campers will be limited.

Predation -

A positive benefit (adult or juveniles) for the listed species in this case.

Monitoring and evaluations - *surveys (trap, seine, electrofish, snorkel, spawning, carcass, boat, etc.).*

When/If creel surveys occur, little to no negative impact to bald eagles should be expected as surveys will be conducted at the same time that anglers are within the area. Disturbances could occur if an eagle nest is nearby a put-take fishery.

Habitat - *modifications, impacts, quality, blockage, de-watering, etc.*

Modifications to the surrounding hatchery areas are not planned at this time, so no loss of potential habitat to the listed species is expected.

Spalding's Catchfly

Identify potential direct, indirect, and cumulative effects of hatchery program on species and habitat (immediate and future effects).

To the best of our knowledge, the program as described in this HGMP will not have direct, indirect, or cumulative effects on the listed species. The surrounding habitat associated with this hatchery compensation program will not be altered, which would be the only source of “take” possible to the listed species. Interactions with the summer steelhead will not occur.

Identify potential level of take (past and projected future).

None (past or projected future)

Hatchery operations - *water withdrawals, effluent, trapping, releases, routine operations and maintenance activities, non-routine operations and maintenance activities (e.g. intake excavation, construction, emergency operations, etc.)*

Habitat requirements for the species do not apply at Lyons Ferry or area lakes. Activities at Lyons Ferry all take place on existing hatchery grounds. No new construction activities

are planned for the program that could impact the listed species. Effluent from the hatchery and area lakes falls below state water quality standards guidelines, and is therefore not a concern.

Fish health - pathogen transmission, therapeutics, chemicals.

Not Applicable – pathogens would not be transmitted between the species, therapeutics and chemicals are not used.

Ecological/biological - competition, behavioral, etc.

Not Applicable - Non-overlapping habitats between the rainbow trout and the flower.

Predation -

Not Applicable - Hatchery rainbow trout do not prey on the flower.

Monitoring and evaluations - surveys (trap, seine, electrofish, snorkel, spawning, carcass, boat, etc.).

When/If creel surveys occur, little to no impact should be expected as survey areas will most likely be out of the range of the listed species.

Habitat - modifications, impacts, quality, blockage, de-watering, etc.

Modifications to the surrounding hatchery areas are not planned at this time, so no loss of potential habitat to the listed species is expected.

15.4 Actions taken to mitigate for potential effects.

Identify actions taken to mitigate for potential effects to listed species and their habitat.

No actions are considered necessary at this time. Disturbance to Bald Eagles will be minimal in the area, and land disturbance where Spalding's Catchfly may habitat will not occur over the course of the program.

15.5 References

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