Appendix H: Hatchery and Genetic Management Plan – Resident Fish Version (HGMP-RF)

SECTION 1. GENERAL PROGRAM DESCRIPTION

1.1) Name of hatchery or program.

Nez Perce Tribe Resident Fish Substitution Program

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

Note: This project does not operate a hatchery, nor does it propagate species or populations in a hatchery. Hatchery products are used in the execution of the project, however, and it is within that context that this information is submitted.

ongoing - Rainbow trout, *Oncorhynchus mykiss* (non-native)
proposed – [Largemouth bass *Micropterus salmoides, s*mallmouth bass *Micropterus dolomieui, c*hannel catfish *Ictalurus punctatus,* bluegill sunfish *Lepomis macrochirus*](non-native)

Responsible organization and individuals

	Lead Contact:	*On-site Contact:*
Name (and title):	Jaime Pinkham (Dept. Mgr.)	Tod Sween (Project Leader)
Agency or Tribe:	Nez Perce Tribe	Nez Perce Tribe
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Other agencies, Tribes, co-operators, or organizations involved, including contractors, and extent of involvement in the program:

Dworshak National Fish Hatchery, U.S.Fish & Wildlife Service, 1000-2500 kg trout provided to project annually.
1. Sweetwater Aquaculture Inc, 1000 kg trout sold to project annually.

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

FY01 - Bonneville Power Administration, 3.5 FTEs, $259,640.

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

Note: Source fish facilities and stocking sites listed below are located within the Clearwater Subbasin on the Mountain Snake Province.

1. Location designation by regional mark center code was obtained from: Stein, C., D. Marvin, J. Tenney, and K Shimojima. 2001. *2001 Pit Tag Specification Document.* Pacific States Marine Fisheries Commission.
2. Dworshak National Fish Hatchery, North Fork Clearwater River (River KM 522.224.065), Ahsakha, Clearwater Basin, Idaho.
3. Sweetwater Aquaculture Inc., Lapwai Creek/Webb Creek (River KM 522.224.012.002), Clearwater Basin, Idaho.
4. Talmaks Pond, Lawyer Creek (River KM 522.224.109.065), NP Tribal Unit 14, Clearwater Basin, Idaho.
5. Mud Springs Pond, Lapwai Creek (River Km 522.224.012.048), NP Tribal Unit 11, Clearwater Basin, Idaho.
6. Tunnel Pond, Clearwater River (River KM 522.224.073), NP Tribal Unit 46, Clearwater Basin, Idaho.

1.6) Type of program(s).

Isolated harvest.

1.7) Purpose (Goal) of program(s).

The goal of this program is to substitute resident fisheries in confined ponds as partial mitigation for loss of anadromous fisheries resulting from construction of Dworshak Dam.

1.8) Justification for the program.

Provide intensive resident fish harvest opportunities to mitigate, in part, for loss of anadromous fish and associated harvest opportunities in the irrevocably blocked area behind at Dworshak Dam. Intensive fisheries in confined localized pond systems minimizes genetic risk, competition, and harvest demands on weak anadromous and native resident fish populations. The opportunity to incorporate cool and warm-water fish species provides flexibility needed to maximize fisheries based on prevailing environmental conditions at individual facilities.

1.9) List of program "Performance Standards."

"Performance Standards" are designed to achieve the program goal/purpose, and are generally measurable, realistic, and time specific. The NPPC "Artificial Production Review" document attached with the instructions for completing the HGMP presents a list of draft "Performance Standards" as examples of standards that could be applied for a hatchery program. If a subbasin plan including your hatchery program is available, use the performance standard list already compiled.

(1) Provide increased opportunity for harvest of resident fish to partially offset lost anadromous fish harvest opportunities caused by the permanent blockage at Dworshak Dam.
(2) Provide fish to satisfy harvest goal in a manner that eliminates impacts on weak hatchery and broodstock wild populations.
(3) Stock fish to fulfill legal/policy obligations of the Northwest Power and Planning Act
a. "Complement the existing and future activities of the Federal and the region's State fish and wildlife agencies and appropriate Indian tribes and to B) be consistent with the legal rights of appropriate Indian tribes in the region."
(4) Do not exceed carrying capacity of pond habitat.
(5) Avoid disease transfer from hatchery to wild fish and vice versa.

1.10) List of program "Performance Indicators", designated by "benefits" and "risks."
Example: " (1) Conserve the genetic and life history diversity of westslope cutthroat trout populations in the Coeur d'Alene Basin through a x-year duration captive broodstock program; (2) Augment, restore and create viable naturally spawning populations using supplementation and reintroduction strategies; (3) Provide fish to satisfy legally mandated harvest in a manner which minimizes the risk of adverse effects to listed wild populations; (4)...."

1.10.1) "Performance Indicators"addressing benefits.

- Achieve a target annual harvest goal of 4750 kg of resident fish from the confined pond fisheries.

- Consistently achieve target resident fish harvest goal in 4 of 5 years.

- Maintain, operate and develop up to 12 ponds for intensive isolated resident fisheries that avoid interaction with native stocks.

- Apply fishery monitoring plan to measure success towards achieving the harvest annual harvest goal of 4750 kg and annual frequency of achieving the goal.

1.10.2) "Performance Indicators" addressing risks.

- Apply fishery monitoring plan to measure success towards achieving the harvest annual harvest goal of 4750 kg and annual frequency of achieving the goal.

- Apply RM&E plan for pond environment and fish to address the potential risk of exceeding carrying capacity of individual pond habitats.

- Apply disease standards to resident fish suppliers and stocking activities.

1.11) Expected size of program.

In responding to the two elements below, take into account the potential for increased fish production that may result from increased fish survival rates effected by improvements in hatchery rearing methods, or in the productivity of fish habitat.

Proposed annual broodstock need (maximum number of fish).

Not Applicable (This project does not spawn fish). Suppliers use domesticated hatchery broods.

1.11.2) Proposed annual fish release levels (maximum number) by life stage and location. (*Use standardized life stage definitions by species presented in* Attachment 2.)

Planned releases are into confined pond systems.

Life Stage	Release Location	Annual Release Level
Eyed Eggs		
Unfed Fry		
Fry		
Fingerling		
Yearling	Talmaks Pond, Mud Springs Pond, Tunnel Pond (All three existing facilities)	Fish numbers: 1800 Talmaks, 1150 Mud Springs, 1800 Tunnel Pond

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

In 2000, an estimated total of 5306 fish were harvested during 6611 hours of effort for a harvest rate of .80 fish/hour. Estimated total weight harvested was 2774kg. The overall estimated return to creel was 53.2 %. The highest estimated return to creel was 85.6% at Tunnel Pond.

All data are from:
Sween, Tod. 2001 (in process). Nez Perce Tribe Resident Trout Ponds Annual Report: 2000. Annual Report to Bonneville Power Administration, Contract # 00000333-00040. Portland, OR.

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

Program initiated in 1995 and has operated for six years.

1.14) Expected duration of program.

Permanent for the foreseeable future. There is no prospect to correct the blockage to

anadromous fish at Dworshak Dam, at least not in other than long-term .

1.15) Watersheds targeted by program.

Clearwater HUC 17060306 (USGS Cataloging Unit).

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

The area behind Dworshak Dam is irrevocably blocked to anadromous, preventing like kind mitigation in the blocked area. Intensive resident fisheries in isolated pond systems offer the best chance to provide substantive mitigative harvest opportunities in the near-term, while minimizing impacts to weak native stocks listed under ESA (e.g., chinook salmon, steelhead and bull trout).

SECTION 2. RELATIONSHIP OF PROGRAM TO OTHER MANAGEMENT OBJECTIVES

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

This is a mitigation project that is aligned with the concepts and policies contained in the NPPC 99-15 relative to this type of project.

More specifically, this is a resident fish substitution project. NPPC 99-15 states that Some artificial production programs above blocked areas, such as Hells Canyon and Chief Joseph dams (and including Dworshak Reservoir), mitigate for salmon losses with resident fish species. Production of resident native, and in some instances non-native, species that are adapted to the existing altered environment may be preferable to species that inhabited the basin before development. For resident fish substitution programs, the habitat available must meet the needs of the substituted species of resident fish. The degree the artificial production program can compensate for lost habitat will depend in part on the quality of the habitat outside the hatchery in which the fish will spend the remainder of its lifecycle, and on the overall biological fitness of the propagated species in the habitat outside the hatchery.

This project strives to match the resident species stocked, and the quantity stocked, and the timing of stocking according to the isolated pond environment in which it is placed and targeted harvest activity.

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

None known.

2.3) Relationship to harvest objectives.

Not applicable.

2.3.1) Describe fisheries benefiting from the program, and indicate harvest levels and rates for program-origin fish for the last 12 years (1988-99), if available. Fisheries benefiting from the program include a public fishery at Tunnel Pond and Tribal fisheries at Talmacks and Mud Springs Ponds. In 2000, an estimated total of 5306 fish were harvested during 6611 hours of effort for a harvest rate of .80 fish/hour. Estimated total weight harvested was 2774kg. The overall estimated return to creel was 53.2 %. The highest estimated return to creel was 85.6% at Tunnel Pond.

All data are from:
Sween, Tod. 2001 (in process). Nez Perce Tribe Resident Trout Ponds Annual Report: 2000. Annual Report to Bonneville Power Administration, Contract # 00000333-00040. Portland, OR.

2.4) Relationship to habitat protection and purposes of artificial production.

Natural reproduction as related to recovery strategies is not a purpose of this project. Watershed health does influence the quality of pond habitat. Measures have been applied to improve and maintain desirable conditions. The project includes monitoring of pond environmental conditions and using species best adapted to pond environmental attributes.

2.5) Ecological interactions.
Describe all species that could (1) negatively impact program; (2) be negatively impacted by program; (3) positively impact program; and (4) be positively impacted by program.

1. Species potentially negatively impacting program: river Otters (*Lutra canadensis*), bald eagles (*Haliaeetus leucocephalus*), ospreys (*Pandion haliaetus*), beavers (*Castor canadensis*), hooded mergansers (*Lophodytes cucullatus*), great blue heron (*Ardea herodias*)
2. Species that may be negatively impacted by the program: white-tail deer(*Odocoileus virginianus*), long-toed salamanders (*Ambystoma macrodactylum*), bullfrogs (*Rana catesbeiana*)
3. Species that may positively impact the program: long-toed salamanders (*Ambystoma macrodactylum*), bullfrogs (*Rana catesbeiana*)
4. Species that may be positively impacted by the program: river otters(*Lutra canadensis*), bald eagles (*Haliaeetus leucocephalus*), ospreys (*Pandion haliaetus*), common ravens (*Corvus corax*), Canadian geese (*Branta canadensis*), wood ducks (*Aix sponsa*),

bufflehead ducks (*Bucephala albeola*), hooded mergansers (*Lophodytes cucullatus*), mallard ducks (*Anas platyrhnchos*), raccoons (*Procyon lotor*), wild turkeys (*Meleagris gallopavo*), long-toed salamanders (*Ambystoma macrodactylum*), bullfrogs (*Rana catesbeiana*), great blue herons (*Ardea herodias*), muskrat (*Ondatra zibethicus*)

SECTION 3. WATER SOURCE

3.1) 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.

For integrated programs, identify any differences between hatchery water and source, and "natal" water used by the naturally spawning population. Also, describe any methods applied in the hatchery that affect water temperature regimes or quality.

1. Mud Springs Pond: watershed runoff, springs.
2. Talmaks Pond: watershed runoff.
3. Tunnel Pond: watershed runoff, springs, river water subterranean infiltration.

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

Not applicable.

SECTION 4. FACILITIES

For each item, provide descriptions of the hatchery facilities that are to be included in this plan (see "Guidelines for Providing Responses" Item E), including dimensions of trapping, holding incubation, and rearing facilities. Indicate the fish life stage held or reared in each. Also describe any instance where operation of the hatchery facilities, or new construction, results in adverse effects to habitat for listed species (habitat effects must be considered even if critical habitat is not designated).

4.1) Broodstock collection, holding, and spawning facilities .

Not applicable.

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

One-ton flatbed trucks with single 400 gallon fish tanks and compressed oxygen bottles (loaned from NPT DFRM Production Division).

43) Incubation facilities.

Not applicable.

4.4) Rearing facilities.

Not applicable.

4.5) Acclimation/release facilities.

Not applicable.

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

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

Not applicable.

4.6.2) Indicate needed back-up systems and risk aversion measures that minimize the likelihood for the take of listed species that may result from equipment failure, water loss, flooding, disease transmission, or other events that could lead to injury or mortality.

Not applicable.

SECTION 5. BROODSTOCK ORIGIN AND IDENTITY

5.1) Source

Not applicable. This project does not spawn fish. Suppliers use domesticated rainbow trout hatchery broods (see Section 5.2.1).

5.2) Supporting information.

5.2.1) History

1. Dworshak National Fish Hatchery: Rainbow trout from eggs originating from Ennis National Fish Hatchery (Ennis, MT) from Shasta strain rainbow trout

broodstock (Ennis NFH also maintains Arlee rainbow trout broodstock).

2. Sweetwater Aquaculture, Inc (Lapwai, ID): Rainbow trout are from two sources;
   a. Fingerlings obtained from College of Southern Idaho Fish Hatchery (Twin Falls, ID) of the House Creek strain.
   b. Eggs obtained from Troutlodge Inc (Moses Lake, WA) of the domesticated Kamloops strain.

5.2.2) Annual size.

Not applicable.

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

Not applicable.

5.2.4) Genetic or ecological differences.

Not applicable. The target area in which fish are stocked consists of ponds isolated from natural stocks.

5.2.5) Reasons for choosing Broodstock traits

Not applicable. The project does not spawn fish. Fish for stocking are obtained from suppliers based on factors including logistics, cost, size and suitability for prevailing pond conditions.

5.2.6) ESA-Listing status

No listed species/stocks involved.

5.3) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic or ecological effects that may occur as a result of using the broodstock source.

Stocking program fish into confined pond systems minimizes the risk of interaction (genetic, competition) with native stocks. Stocked fish are from certified disease-free sources.

SECTION 6. BROODSTOCK COLLECTION

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

Not applicable.

6.2) Collection or sampling design.

Not applicable.

6.3) Identity.

Not applicable.

6.4) Proposed number to be collected:

6.4.1) Program goal (assuming 1:1 sex ratio for adults):

Not applicable.

6.4.2) Broodstock collection levels for the last 12 years (e.g., 1988-99), or for most recent years available:

Not applicable.

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

Not applicable.

6.6) Fish transportation and holding methods.

Transport in 1500 liter tanks aboard one-ton trucks using compressed oxygen diffusing through airstones to maintain high dissolved oxygen levels (>5.0 mg/l). Ice sometimes used to cool water temperature in tank down to slow fish metabolism and to moderate temperature differences between transport water and pond water.

6.7) Describe fish health maintenance and sanitation procedures applied.

Testing of sample specimens at Dworshak Fish Pathology Lab when disease is suspected. Population densities may be reduced if warranted.

6.8) Disposition of carcasses.

Not applicable.

6.9) Indicate risk aversion measures that will be applied to minimize the likelihood for adverse genetic or ecological effects to listed species resulting from the broodstock

collection program.

Not applicable.

SECTION 7. MATING

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

7.1) Selection method.

Not applicable.

7.2) Fertilization.

Not applicable.

7.3) Cryopreserved gametes.

Not applicable.

7.4) 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.

Not applicable.

SECTION 8. INCUBATION AND REARING

8.1) Incubation:

8.1.1) Number of eggs taken/received and survival rate at stages of egg development

Not applicable.

8.1.2) Loading densities applied during incubation.

Not applicable.

8.1.3) Incubation conditions.

Not applicable.

8.1.4) Ponding.

Not applicable.

8.1.5) Fish health maintenance and monitoring.

Not applicable.

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

Not applicable.

8.2) <u>Rearing</u>:

8.2.1) Provide survival rate data (*average program performance*) by hatchery life stage (fry to fingerling; fingerling to release) for the most recent twelve years (1988-99), or for years dependable data are available.
Not applicable.

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

Not applicable.

8.2.3) Fish rearing conditions

Not applicable.

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

Not applicable.

8.2.5) 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 (*average program performance*).

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

SECTION 9. RELEASE

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

9.1) Proposed fish release levels.

Fish released for put-and-take fisheries.
Mud Springs: 1150 trout
Talmaks: 1800 trout
Tunnel: 1800 trout

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

1. Mud Springs Pond, Lapwai Creek (River Km 522.224.012.048), NP Tribal Unit 11, Clearwater Basin, Idaho, Mountain Snake Province (17060306).
2. Talmaks Pond, Lawyer Creek (River Km 522.224.109.065), NP Tribal Unit 14, Clearwater Basin, Idaho, Mountain Snake Province (17060306).
3. Tunnel Pond, Clearwater River (River KM 522.224.073), NP Tibal Unit 46, Clearwater Basin, Idaho, Mountain Snake Province (17060306).

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

Not applicable.

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

Not applicable.

9.5) Fish transportation procedures, if applicable.

Not applicable.

9.6) Acclimation procedures (*methods applied and length of time***).**

Not applicable.

9.7) Marks applied, and proportions of the total hatchery population marked, to identify hatchery component.

Not applicable.

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

Not applicable.

9.9) Fish health certification procedures applied pre-release.

Fish obtained from certified disease-free sources (certification on file).

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

Not applicable.

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

Fish stocked in confined pond systems.

SECTION 10. PROGRAM EFFECTS ON ALL ESA-LISTED, PROPOSED, AND CANDIDATE SPECIES (FISH AND WILDLIFE)

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

10.2)

Not applicable.

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

Not applicable.

10.2.1) Description of ESA-listed, proposed, and candidate species affected by the program.

Not applicable.

- **Identify the ESA-listed population(s) that will be <u>directly</u> affected by the program.**

Not applicable.

- **Identify the ESA-listed population(s) that may be <u>incidentally</u> affected by the program.**

  Not applicable.

10.2.2) Status of ESA-listed species affected by the program.

- Describe the status of the listed natural population(s) relative to "critical" and "viable" population thresholds (*see definitions in "Attachment 1").*

Not applicable.

- 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.

- 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. *(Include estimates of juvenile habitat seeding relative to capacity or natural fish densities, if available).*
Not applicable.

- Provide the most recent 12 year (e.g. 1988 - 1999) estimates of annual proportions of direct hatchery-origin and listed natural-origin fish on natural spawning grounds, if known.

Not applicable.

10.2.2) Describe hatchery activities, including associated monitoring and evaluation and research programs, that may lead to the take of listed species in the target area, and provide estimated annual levels of take *(see "Attachment 1" for definition of "take")***. Provide the rationale for deriving the estimate.**

Not applicable.

- Describe hatchery activities that may lead to the take of listed species 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.

Not applicable.

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

Not applicable.

- Provide projected annual take levels for listed species 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.

Not applicable.

SECTION 11. MONITORING AND EVALUATION OF PERFORMANCE INDICATORS

This section describes how "Performance Indicators" listed in Section 1.10 will be monitored. Results of "Performance Indicator" monitoring will be evaluated annually and used to adaptively manage the hatchery program, as needed, to meet "Performance Standards".

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

11.1.1) Describe the proposed plans and methods necessary to respond to the appropriate "Performance Indicators" that have been identified for the program.

Not applicable.

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 project funding is for O&M and M&E of three existing ponds.

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

Not applicable.

SECTION 12. RESEARCH

Provide the following information for any research programs conducted in direct association with the hatchery program described in this HGMP. Provide sufficient detail to allow for the independent assessment of the effects of the research program on listed fish. Attach a copy of any formal research proposal addressing activities covered in this section. Include estimated take levels for the research program with take levels provided for the associated hatchery program in Table 1.

12.1) Objective or purpose.

Not applicable.

12.2) Cooperating and funding agencies.

Not applicable.

12.3) Principle investigator or project supervisor and staff.

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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 species: number or range of individuals handled, injured, or killed by sex, age, or size, if not already indicated in Section 2 and the attached "take table" (Table 1).

Not applicable.

12.10) Alternative methods to achieve project objectives.

Not applicable.

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

Not applicable.

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

Not applicable.

SECTION 13. ATTACHMENTS AND CITATIONS

Include all references cited in the HGMP. In particular, indicate hatchery databases used to provide data for each section. Include electronic links to the hatchery databases used (if feasible), or to the staff person responsible for maintaining the hatchery database referenced (indicate email address). Attach or cite (where commonly available) relevant reports that describe the hatchery operation and impacts on the listed species or its critical habitat. Include any EISs, EAs, Biological Assessments, benefit/risk assessments, or other analysis or plans that provide pertinent background information to facilitate evaluation of the HGMP.

Not applicable.

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: May 8, 2001
Tod Sween, Project Leader

Table 1. Estimated listed species take levels by hatchery activity.

Listed species affected: _____ ESU/Population: _____ Activity: _____				
Location of hatchery activity: _____ Dates of activity: _____ Hatchery program operator: _____				
Type of Take	Annual Take of Listed Fish By Life Stage *(Number of Fish)*			
	Egg/Fry	Juvenile/Smolt	Adult	Carcass
Observe or harass a)				
Collect for transport b)				
Capture, handle, and release c)				
Capture, handle, tag/mark/tissue sample, and release d)				
Removal (e.g. broodstock) e)				
Intentional lethal take f)				
Unintentional lethal take g)				
Other Take (specify) h)				

a. Contact with listed fish through stream surveys, carcass and mark recovery projects, or migrational delay at weirs.
b. Take associated with weir or trapping operations where listed fish are captured and transported for release.
c. Take associated with weir or trapping operations where listed fish are captured, handled and released upstream or downstream.
d. Take occurring due to tagging and/or bio-sampling of fish collected through trapping operations prior to upstream or downstream release, or through carcass recovery programs.
e. Listed fish removed from the wild and collected for use as broodstock.
f. Intentional mortality of listed fish, usually as a result of spawning as broodstock.
g. Unintentional mortality of listed fish, including loss of fish during transport or holding prior to spawning or prior to release into the wild, or, for integrated programs, mortalities during incubation and rearing.
h. Other takes not identified above as a category.

Instructions:

1. *An entry for a fish to be taken should be in the take category that describes the greatest impact.*
2. *Each take to be entered in the table should be in one take category only (there should not be more than one entry for the same sampling event).*
3. *If an individual fish is to be taken more than once on separate occasions, each take must be entered in the take tabl*