

HATCHERY AND GENETICS MANAGEMENT PLAN (HGMP)

Hatchery Program:	SAFE Spring Chinook
Species or Hatchery Stock:	Spring Chinook, Stocks 19, 21, 22, 23, 24
Agency/Operator:	Oregon Department of Fish and Wildlife
Watershed and Region:	Lower Columbia, North Coast
Date Submitted:	September 28, 2005 Mar 2, 2016 February 24, 2025
Date Last Updated:	February 24, 2025

Section 1. GENERAL PROGRAM DESCRIPTION

1.1. Name of hatchery or program.

SAFE spring Chinook program (Stocks 19, 21, 22, 23 and 24)

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

SAFE spring Chinook (*Oncorhynchus tshawytscha*)
Not Listed

1.3. Responsible organization and individuals

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

The facilities utilized for this program are funded at various levels by the State of Oregon and BPA.

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

Youngs Bay Net Pens – Columbia River Estuary, RM 11 (46.178753 N, -123.856682 W)
Columbia Watershed, Oregon

This program shall be implemented according to the Incidental Take Statement, Terms and Conditions, and Hatchery Operation Framework of the NMFS SAFE Biological Opinion. Any deviation from the biological opinion must be approved by NMFS.

Tongue Point Net Pens – Columbia River Estuary, RM 18 (46.189772 N, 123.745794 W)

Columbia Watershed, Oregon

Blind Slough Net Pens – Columbia River Estuary, RM 27 (46.202949 N, -123.544389 W)

Columbia Watershed, Oregon

Klaskanine Hatchery – North Fork Klaskanine, RM 2.25 (46.0890, -123.7174)
North Fork Klaskanine Watershed, Oregon

Big Creek Hatchery – Big Creek, RM 3.3 (46.1460, -123.5806)
Big Creek Watershed, Oregon

Gnat Creek Hatchery – Gnat Creek, RM 2.25 (46.18056, -123.5328)
Gnat Creek Watershed, Oregon

1.6. Type of program.

Isolated Harvest

1.7. Purpose (Goal) of program.

Mitigation – The goal of this program is to mitigate for the loss of fisheries due to the construction and operation of the hydropower dams on the Columbia River.

1.8. Justification for the program.

This program release fin-marked juveniles to produce hatchery adults for harvest.

1.9. List of program “Performance Standards”.

Please refer to sections 1.10.1 and 1.10.2 below.

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

1.10.1. “Performance Indicators” addressing benefits.

Table 1.10.1. Performance Indicators addressing benefits.

Performance Standard	Performance Indicator	Monitoring and Evaluation
Program provides harvest opportunity	Increased harvest	Estimate annual harvest
Satisfy legal harvest while eliminating impacts on wild populations	Developed harvest management plan	Adhere to FMEP

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Achieve within-hatchery performance standards	Achievement of IHOT standards	Adhere to IHOT standards
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1.10.2. “Performance Indicators” addressing risks.

Table 1.10.2 Performance indicators addressing risks

Performance Standard	Performance Indicator	Monitoring and Evaluation
Not achieving within-hatchery performance standards	Achievement of IHOT standards	Adhere to IHOT standards.
Avoid disease transfer from hatchery to wild fish and vice versa.	Application of fish health standards	Adhere to fish health standards and policies

1.11. Expected size of program.

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

This program does not collect broodstock.

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

Life Stage	Release Location	Annual Release Level
Yearling	Youngs Bay, Tongue Point, Blind Slough, NF Klaskanine, Big Creek, Gnat Creek	3,450,000 ¹

¹The program may exceed the authorized goal by 10% annually (3,795,000) and 2% over any 5-year period (3,519,000) to account for variation during rearing.

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

Due to program objectives, only SAR and total harvest are included below.

Table 1.12. Smolt to adult survival (SAR) rates and total harvest rate¹.

Brood Year	Smolt-to-Adult Survival (%)	Total Harvest Rate (%)
2008	1.56	95.5
2009	2.59	95.2
2010	1.91	94.5
2011	0.33	95.5

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2012	0.95	90.3
2013	0.44	92.7
2014	1.32	88.5
2015	1.56	96.2
2016	1.59	87.8
2017	0.34	82.0
2018	1.96	86.3
2019	0.12	91.5

¹ Oregon Select Area sites only

Data Source: HMS and Staff Records

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

Start dates vary by location with releases from the Youngs Bay area starting in 1989.

1.14. Expected duration of program.

Indefinite

1.15. Watersheds targeted by program.

Youngs Bay, Gnat Creek Watershed, and the Columbia River Estuary.

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

Alternative 1 – Increase program size (Not preferred)

Increased yearling releases could potentially increase fisheries, financial commitment, and impacts to listed species. This alternative is not preferred due to the increased cost and negative impact to listed species.

Alternative 2 – Reduce program size (Not preferred)

Decreased yearling releases could potentially decrease fisheries, financial commitment, and impacts to listed species. This alternative is not preferred due to the negative impact to fisheries.

Section 2. PROGRAM EFFECTS ON NMFS ESA-LISTED SALMONID POPULATIONS. (USFWS ESA-LISTED SALMONID SPECIES AND NON-SALMONID SPECIES ARE ADDRESSED IN ADDENDUM A)

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

This program was evaluated under the SAFE Biological Opinion signed on 5/3/2021. This 2025 version is intended as re-submission for reinitiation of consultation.

This program shall be implemented according to the Incidental Take Statement, Terms and Conditions, and Hatchery Operation Framework of the NMFS SAFE Biological Opinion. Any deviation from the biological opinion must be approved by NMFS.

Programs that provide juveniles for release under the SAFE program are authorized by the Mitchell Act Biological Opinion signed on 12/30/2024.

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

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

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

There are no NMFS ESA-listed salmonid populations directly affected by the program.

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

Table 2.2.1 NMFS ESA-listed populations incidentally affected by the program.

Life Stage	Activity	Affected NMFS ESA-listed Population
Juvenile	Ecological Competition	Columbia River Chum Salmon
		Lower Columbia Chinook Salmon
		Lower Columbia River Coho Salmon
		Lower Columbia River Steelhead
		Middle Columbia River Steelhead
		Upper Columbia River Spring-run Chinook
		Upper Columbia River Steelhead
		Upper Willamette Chinook Salmon
		Upper Willamette Steelhead
		Snake River Spring/Summer-run Chinook Salmon
		Snake River Fall-run Chinook Salmon
		Snake River Sockeye Salmon
		Snake River Basin Steelhead

2.2.2. Status of NMFS ESA-listed salmonid population(s) affected by the program.

Due to the low likelihood that listed populations will be affected through ecological competition, lack of direct take, and independent authorizations for source programs, no assessments are presented here.

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

This program only results in take through immeasurable ecological competition. Therefore, no descriptions or incidental take tables are provided here.

Section 3. RELATIONSHIP OF PROGRAM TO OTHER MANAGEMENT OBJECTIVES

3.1. Describe alignment of the hatchery program with any ESU-wide hatchery plan (e.g. *Hood Canal Summer Chum Conservation Initiative*) 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.
The hatchery program will be operated consistent with the Lower Columbia River Conservation and Recovery Plan for Oregon Populations of Salmon and Steelhead, ODFW's Native Fish Conservation Policy, and ODFW's Hatchery Management Policy.

3.2. List all existing cooperative agreements, memoranda of understanding, memoranda of agreement, or other management plans or court orders under which program operates.
N/A

3.3. Relationship to harvest objectives.
Juveniles released by this program are mass marked to facilitate selective harvest of hatchery fish.

3.3.1. Describe fisheries benefitting from the program, and indicate harvest levels and rates for program-origin fish for the last twelve years (1988-99), if available.
This program supports fisheries in the ocean and the lower Columbia River with a harvest level described in Table 1.12.

3.4. Relationship to habitat protection and recovery strategies.
Assumption regarding habitat conditions related to this program are that freshwater habitat is at capacity, production is not limited in other habitat for different life stages, and artificially produced populations can coexist without jeopardizing the fitness of natural populations. Considering these assumptions, this program rears juveniles from egg to yearling in a hatchery setting to avoid impacting freshwater habitat availability. Those juveniles are then released at optimized times to emigrate and utilize more available habitat, ultimately minimizing impacts to habitat.

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3.5. Ecological interactions. [Please review Addendum A before completing this section. If it is necessary to complete Addendum A, then limit this section to NMFS jurisdictional species. Otherwise complete this section as is.]

Listed fish have potential to both negatively impact and be negatively impacted by the program through competition for resources and attraction of predators. Listed fish in the area may positively impact and be positively impacted by the program through increased nutrient cycling and the subsequent increase in production potential of surrounding habitats.

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.

Klaskanine Hatchery – 50 cfs are authorized from North Fork Klaskanine and the North Fork of North Fork Klaskanine. Operation and discharge are authorized under a NPDES permit.

Big Creek Hatchery – 80.53 cfs are authorized from Big Creek, Mill Creek, and an upper and lower natural spring. Operation and discharge are authorized under a NPDES permit.

Gnat Creek Hatchery – 46.92 cfs are authorized from Gnat Creek. Operation and discharge are authorized under a NPDES permit.

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.

Hatcheries adhere to water right and NPDES permit.

Section 5. FACILITIES

5.1. Broodstock collection facilities (or methods).

This program does not collect broodstock.

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

Juvenile and adult transportation is performed by liberation trucks or portable liberation tanks. Liberation trucks are typically 1,000–2,500-gallon capacity units, either mounted on a large flatbed or tanker style truck. The trucks are equipped with oxygen diffusing systems, water re-circulation pumps, and dissolved oxygen meters. Portable liberation tanks have a capacity of 300 gallons and are equipped with oxygen diffusion systems.

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The transfer of juvenile fish on station is performed using a distribution box, irrigation pipe and a gas-powered water pump. Eggs and milt are transported via passenger vehicles in small, covered containers.

5.3. Broodstock holding and spawning facilities.

This program does not hold or spawn broodstock.

5.4. Incubation facilities.

Eyed eggs are incubated at Gnat Creek Hatchery.

5.5. Eyed eggs are incubated at Gnat Creek Hatchery. Rearing facilities.

Juveniles are reared at Gnat Creek Hatchery.

5.6. Acclimation/release facilities.

Juveniles are acclimated at Klaskanine, Gnat Creek, and Big Creek hatcheries as well as the Youngs Bay, Tongue Point, and Blind Slough net pens.

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

Significant fish mortality could occur due to human error, disease outbreaks, intake failure, high stream flows, drought, high temperatures, low temperatures, wildfire, or various other natural disasters.

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.

Hatchery juveniles in this program are not listed, therefore rearing and acclimation are not expected to result in the take of listed natural fish.

Section 6. BROODSTOCK ORIGIN AND IDENTITY

This program does not collect or spawn broodstock. Source programs are authorized under the Mitchell Act and Upper Willamette Biological Opinions.

Section 7. BROODSTOCK COLLECTION

This program does not collect or spawn broodstock. Source programs are authorized under the Mitchell Act and Upper Willamette Biological Opinions.

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Section 8. MATING

This program does not collect or spawn broodstock. Source programs are authorized under the Mitchell Act and Upper Willamette Biological Opinions.

Section 9. INCUBATION AND REARING

9.1. Incubation:

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

No egg take occurs under the SAFE program.

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

No egg take occurs under the SAFE program.

9.1.3. Loading densities applied during incubation.

Egg loading density is 8,000 eggs/tray, flow 5 gpm.

9.1.4. Incubation conditions.

Water inflow is maintained at approximately ~5.0 gpm per stack. The IHOT species-specific incubation recommendations are followed for water quality, flows, and incubator capacities. Temperature is monitored via a HOBO temperature recorder at the water source. The hatchery has not had issues with siltation during incubation.

9.1.5. Ponding.

Swim-up fry are typically ponded in January at 1,250-1,350 fish per pound (fpp). At Gnat Creek, fry are ponded to indoor cement troughs. Temperature units are monitored, but ponding is based on visual inspection of yolk-sac absorption.

9.1.6. Fish health maintenance and monitoring.

The fish health monitoring plan is based on the Integrated Hatchery Operations Team for the Columbia Basin Anadromous Salmonid Hatcheries (see Policies and Procedures for the Columbia Basin Anadromous Salmonid Hatcheries, Annual Report 1994. Bonneville Power Administration) and the ODFW Fish Health Management Policy (OAR 635-007-0960 to 635-007-0995). Other resources are used to guide the program and management of diseases such as American Fisheries Society Fish Health Section Blue Book and the World Organization for Animal Health Manual of Diagnostic tests for Aquatic Animals.

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

Eggs are incubated on well water or treated river water to prevent exposure to disease and kept isolated by family group. Water supplies and the power supply are alarmed to notify hatchery personnel if a failure occurs and hooked up to a back-up generator, in case of a

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power failure. Hatchery staff are available 24 hr/day for immediate response to any emergency situation.

9.2 Rearing:

9.2.1. Provide survival rate data (average program performance) by hatchery life stage (fry to fingerling; fingerling to smolt) for the most recent twelve years, or for years dependable data are available.

Table 9.2.1 Rearing survival rates.

Brood Year	Number of Fry Poned	Percent Survival to Marking
2012	988,034	99.3%
2013	964,331	99.8%
2014	948,129	99.7%
2015	961,362	99.7%
2016	969,093	99.7%
2017	953,720	99.1%
2018	974,069	98.8%
2019	969,168	98.5%
2020	948,421	99.7%
2021	952,381	98.3%
2022	965,629	99.0%

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

The juvenile rearing density and loading guidelines used at Gnat Creek Hatchery are based on standardized agency guidelines, life-stage specific survival studies conducted at other facilities, staff experience (e.g. trial and error) and other criteria. The IHOT standards are followed for water quality, predator control measures to provide the necessary security for the cultured stock, loading, and density. Fry are initially ponded at 1.0 pounds/ft³. Once fish are moved to the rearing pond, rearing densities do not exceed 0.5 pounds/ft³.

9.2.3. Fish rearing conditions

Ponds are monitored at Gnat Creek Hatchery daily by crew. The crew is watching for signs of stress, disease, water quality, and general fish health behavior. Pond mortality is picked and recorded daily. Dead fish are frozen and disposed of. Water quality is monitored under the prescribed 300J general NPDES permit. Fish are reared February through October. Temperature is monitored via a HOBO temperature recorder at the water source. Averages of monthly water temperatures (minimum, average, and maximum) are recorded. Difficulties with low dissolved oxygen levels or super-saturation have never been an issue at Gnat Creek Hatchery.

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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.

Table 9.2.4. Average fish growth information for spring Chinook reared at Gnat Creek Hatchery for SAFE spring Chinook program (2009-2014).

Month	Size (fpp)
December	-
January	1,131
February	702
March	390
April	202
May	129
June	86
July	62
August	42
September	27
October	20
November	18
December	18
January	16
February	15
March	-

Data source: HMS

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

See Table 9.2.4 above for fish growth. No energy reserve data is available.

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 (average program performance).

Fish are fed according to the feed manufacturer’s guidance and ODFW’s growth program tool.

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

The fish health monitoring plan is based on the Integrated Hatchery Operations Team for the Columbia Basin Anadromous Salmonid Hatcheries (see Policies and Procedures for the Columbia Basin Anadromous Salmonid Hatcheries, Annual Report 1994. Bonneville Power

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Administration) and the ODFW Fish Health Management Policy (OAR 635-007-0960 to 635-007-0995). Other resources are used to guide the program and management of diseases such as American Fisheries Society Fish Health Section Blue Book and the World Organisation for Animal Health Manual of Diagnostic tests for Aquatic Animals.

9.2.8. Smolt development indices, if applicable.

Weight samples of the fish are taken monthly to ensure proper growth rate.

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

“Natural” rearing methods are not utilized by this program.

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

Rearing ponds are cleaned on weekly basis or as necessary through visual observation of solid wastes on pond bottom.

Section 10. RELEASE

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

10.1. Proposed fish release levels.

Table 10.1 Proposed spring Chinook release levels for Oregon Select Area sites.

Age Class	Maximum Number	Size (fpp)	Release Date	Location
Yearling	3,450,000 ¹	12 – 18	February - April	Youngs Bay, Tongue Point, Blind Slough, NF Klaskanine, Big Creek, Gnat Creek

¹The program may exceed the authorized goal by 10% annually (3,795,000) and 2% over any 5-year period (3,519,000) to account for variation during rearing.

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

Stream, river, or watercourse: Youngs Bay

Release point: Net Pens

Major watershed: RM 11

Basin or Region: Lower Columbia River/Estuary

Stream, river, or watercourse: Tongue Point

Release point: Net Pens

Major watershed: RM 18

Basin or Region: Lower Columbia River/Estuary

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Stream, river, or watercourse: Blind Slough
Release point: Net Pens
Major watershed: RM 27
Basin or Region: Lower Columbia River/Estuary

Stream, river, or watercourse: North Fork Klaskanine River
Release point: North Fork Klaskanine River and tributaries
Major watershed: RM 2.25
Basin or Region: Lower Columbia

Stream, river, or watercourse: Big Creek
Release point: Big Creek and tributaries
Major watershed: Big Creek
Basin or Region: Lower Columbia

Stream, river, or watercourse: Gnat Creek
Release point: Gnat Creek and tributaries
Major watershed: Gnat Creek
Basin or Region: Lower Columbia

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

Table 10.3. Program releases¹.

Release Year	Juveniles	Average Size (fpp)
2012	1,124,255	12.7
2013	1,509,159	11.9
2014	1,645,737	12.1
2015	1,606,482	12.9
2016	1,850,963	12.4
2017	1,805,731	12.9
2018	2,135,114	13.1
2019	2,282,833	14.2
2020	2,805,530	12.4
2021	3,520,445	14.7
2022	3,276,156	14.1
2023	3,294,747	14.8
2024	3,364,797	13.7
Average	2,324,765	13.2

¹ Oregon Select Area sites only
 Data Source: HMS

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

Table 10.4. Annual release dates¹.

Release Year	Release Date Range
2012	3/8 – 3/29
2013	3/11– 4/8
2014	3/14 – 4/23
2015	3/13 – 4/9
2016	2/22 – 3/23
2017	2/13 – 4/6
2018	2/28 – 4/12
2019	1/2 - 4/16
2020	3/4 – 4/28
2021	3/18 – 5/3
2022	3/2 – 4/21
2023	3/4 - 4/12
2024	3/1 – 4/17

¹ Oregon Select Area sites only

Data Source: HMS

10.5. Fish transportation procedures, if applicable.

All juveniles are transported in liberation equipment described above.

10.6. Acclimation procedures (methods applied and length of time).

Juveniles are acclimated for a period of two weeks to six months, depending on the location and release group.

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

The program goal is to mass mark 100% of juveniles with an adipose fin clip and majority of the juveniles retain their marks. A portion of the juveniles will receive coded-wire tags. Alternative marking may be used if necessary.

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

Under current policy, surplus juveniles are destroyed or marked and released into a closed water system such as a lake, reservoir or pond where they contribute to angling opportunities. In general, OAR 635-007-0545 directs disposition of surplus hatchery juveniles.

This program shall be implemented according to the Incidental Take Statement, Terms and Conditions, and Hatchery Operation Framework of the NMFS SAFE Biological Opinion. Any deviation from the biological opinion must be approved by NMFS.

10.9. Fish health certification procedures applied pre-release.

The fish health monitoring plan is based on the Integrated Hatchery Operations Team for the Columbia Basin Anadromous Salmonid Hatcheries (see Policies and Procedures for the Columbia Basin Anadromous Salmonid Hatcheries, Annual Report 1994. Bonneville Power Administration) and the ODFW Fish Health Management Policy (OAR 635-007-0960 to 635-007-0995). Other resources are used to guide the program and management of diseases such as American Fisheries Society Fish Health Section Blue Book and the World Organisation for Animal Health Manual of Diagnostic tests for Aquatic Animals.

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

Emergency releases may occur at any size or point in time during rearing in response water system failure, disease, drought, wildfire, flood, rising air/water temperatures, or any other adverse environmental conditions that may pose a threat to hatchery staff and/or hatchery fish.

Emergency releases will occur after the hatchery crew has exhausted all possibilities for retaining the fish and consulted with the ODFW District Biologist. Emergency releases will be limited to the Columbia basin, or into a closed water body per OAR 635-007-0545.

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

Juveniles are generally released at times and sizes that minimize potential interactions in the estuary.

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.

Table 11.1.1. Methods for evaluating program indicators.

Performance Indicator M&E	Methods
Estimate annual harvest	Query harvest card and ELS data
Adhere to IHOT standards	N/A
Adhere to fish health standards and policies	N/A

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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 funding is sufficient to implement the activities identified in 11.1.1. Any additional monitoring or evaluations would require additional funding/staffing.

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

Please see Section 12.

Section 12. RESEARCH

This program does not currently have a research nexus.

Section 13. ATTACHMENTS AND CITATIONS

AFS-FHS (American Fisheries Society-Fish Health Section). 2014. FHS blue book: suggested procedures for the detection and identification of certain finfish and shellfish pathogens, 2020 edition. Accessible at: <https://units.fisheries.org/fhs/fish-health-section-blue-book-2020/>

IHOT (Integrated Hatchery Operations Team). 1996. Operation Plans for Anadromous Fish Production Facilities in the Columbia River Basin. Volume II-Oregon. Annual Report 1995. Portland, OR. Project Number 92-043, Contract Number DE-BJ79-91BP60629.

NMFS. 2019. Endangered Species Act Section 7(a)(2) Reinitiated Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation. Evaluation of Hatchery Program for Spring Chinook Salmon, Summer Steelhead, and Rainbow Trout in the Upper Willamette River Basin. May 17, 2019. NMFS Consultation No.: WCRO-2018-9781. 248p.

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This program shall be implemented according to the Incidental Take Statement, Terms and Conditions, and Hatchery Operation Framework of the NMFS SAFE Biological Opinion. Any deviation from the biological opinion must be approved by NMFS.

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Section 14. CERTIFICATION LANGUAGE AND SIGNATURE OF RESPONSIBLE PARTY

“I hereby certify that the information provided 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: _____

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Attachment 1. Age class designations by fish size and species for salmonids released from hatchery facilities.

(generally from Washington Department of Fish and Wildlife, November 1999)

	Species/Age Class	Size Criteria	
		Number of fish/pound	Grams/fish
X	Chinook Yearling	<=20	>=23
X	Chinook (Zero) Fingerling	>20 to 150	3 to <23
X	Chinook Fry	>150 to 900	0.5 to <3
X	Chinook Unfed Fry	>900	<0.5
X	Coho Yearling ¹	<20	>=23
X	Coho Fingerling	>20 to 200	2.3 to <23
X	Coho Fry	>200 to 900	0.5 to <2.3
X	Coho Unfed Fry	>900	<0.5
X	Chum Fed Fry	<=1000	>=0.45
X	Chum Unfed Fry	>1000	<0.45
X	Sockeye Yearling ²	<=20	>=23
X	Sockeye Fingerling	>20 to 800	0.6 to <23
X	Sockeye Fall Releases	<150	>2.9
X	Sockeye Fry	> 800 to 1500	0.3 to <0.6
X	Sockeye Unfed Fry	>1500	<0.3
X	Pink Fed Fry	<=1000	>=0.45
X	Pink Unfed Fry	>1000	<0.45
X	Steelhead Smolt	<=10	>=45
X	Steelhead Yearling	<=20	>=23
X	Steelhead Fingerling	>20 to 150	3 to <23
X	Steelhead Fry	>150	<3
X	Cutthroat Trout Yearling	<=20	>=23
X	Cutthroat Trout Fingerling	>20 to 150	3 to <23
X	Cutthroat Trout Fry	>150	<3
X	Trout Legals	<=10	>=45
X	Trout Fry	>10	<45

¹ Coho yearlings defined as meeting size criteria and 1 year old at release, and released prior to June 1st.

² Sockeye yearlings defined as meeting size criteria and 1 year old.

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