



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232-1274

February 26, 2015

Michele DeHart
Fish Passage Center
847 NE 19th Ave, Suite 250
Portland, OR 97232

RE: Determination of Take for Research Purposes (11-15-FPC47)

Dear Ms. DeHart:

National Marine Fisheries Service (NMFS) Interior Columbia Basin Office's Columbia Hydropower branch has determined that take associated with the study, "Smolt Monitoring Program and Comparative Survival Study" is permitted in 2015 under the 2014 Federal Columbia River Power System (FCRPS) Supplemental Biological Opinion (2014 Opinion). If this research continues beyond 2015, the take allowed under the determination process must be updated annually. The estimated numbers of listed salmonids needed to complete this study in 2015 are given in Table 1 below.

Project Justification, Description, and Methods

Justification

The Smolt Monitoring Program (SMP) is part of the Research Monitoring and Evaluation (RME) described in the Biological Opinion. The SMP activities are described in the updated proposed action under Research Monitoring and Evaluation (RM&E) sub strategy 1.3. The Comparative Survival Study objectives and products are described in the RM&E section of the Biological Opinion in strategy 3, critical uncertainties research.

Description

The SMP provides daily data on movement of smolts out of major river drainages and past the dams on the Snake and Columbia Rivers. Indices of migration strength and migration timing result for the run-at-large at key monitoring sites. In addition, marked smolts from hatcheries, traps, and dams provide measures of smolt speed and in-river survival through key index reaches. Fish quality, descaling, and GBT measures are taken on samples of fish collected at each monitoring site supplying indicators of the health of the run. The SMP affords real-time fish passage data to fishery management entities and the hydroelectric power system managers, which they utilize in day-to-day river operations decisions. The SMP provides a continuous long-term fish passage database which is utilized in year-to-year comparisons of smolt travel time, passage timing, passage duration, dissolved gas bubble trauma (GBT) symptoms, juvenile survival estimates, relative to annual fish passage conditions and hydrosystem operations. The SMP will furnish data useful in the development of future long-term mitigation measures. There are no other viable alternatives to accomplish the goals of this project.

Methodology

The SMP samples fish at several sites in the Columbia Basin including five traps and eight dams. Field work is carried out by various agencies, including the United States Fish and Wildlife Services (USFWS), Washington Department of Fish and Wildlife (WDFW), Nez Perce Tribe, Oregon Department of Fish and Wildlife (ODFW), and Pacific States Marine Fisheries Commission (PSMFC). Traps and dams operate to collect active migrant juvenile salmonids. A wide range of activities occur in association with monitoring including species-specific passage timing, mark information in migrants, external injury and disease information, mortality and descaling information. And finally Passive Integrated Transponder (PIT)-tag marking is carried out at some SMP sites to aid in gathering longer-term data such as travel time, passage timing, and survival for specific mark groups.

Whether fish are captured at traps or at juvenile bypass systems, the overall goal is to minimize handling effects on fish. To do this, wet capture, anesthetic before handling, and recovery before release is emphasized. The FPC data entry program manual provides detailed descriptions of data collected on individual fish and overall sample statistics, such as mortality rate. After fish are examined they are routed to a recovery tank. Typically, fish sampled at transportation sites are ultimately routed to a raceway for transportation. If fish are to be returned to river, a minimum of 1-hour recovery time prior to release is recommended.

Daily sample rates for the SMP are based on the previous days' sample, and are designed to sample the least number of fish, while providing a statistically significant sample.

Terms, Conditions, and Requirements

Fish listed under the Endangered Species Act (ESA) must be handled with extreme care and kept in water to the maximum extent possible during sampling and processing. Adequate circulation and replenishment of water in holding units is required. When using gear that captures a mix of species, ESA-listed fish must be processed first, to the extent possible, to minimize the duration of handling stress. Endangered Species Act listed fish must be transferred using a sanctuary net (which holds water during transfer) whenever practical to prevent the added stress of being out of water. Should NMFS determine that a researcher's procedure is no longer acceptable; the researcher must immediately cease such activity until an acceptable alternative procedure can be developed with NMFS. To implement the Hydro RM&E reasonable and prudent alternatives (RPAs), the Applicant shall ensure that all of the following conditions are met:

1. Researchers must not intentionally kill or cause to be killed any listed species unless a specific monitoring or evaluation proposal, approved by NMFS, specifically allows intentional lethal take.
2. Each ESA-listed fish handled out of water must be anesthetized to prevent injury or mortality.
3. Anesthetized fish must be allowed to recover (e.g., in a recovery tank) before being released. Fish that are simply counted but not handled must remain in water, but do not have to be anesthetized. Whenever possible, unintentional or indirect mortalities of ESA-listed fish that

occur during scientific research and monitoring activities shall be used in place of intentional lethal take, if applicable.

4. Each researcher must ensure that the ESA-listed species are taken only by the means, in the areas, and for the purposes set forth in the research proposal, as limited by the terms and conditions.
5. Each researcher, in effecting the take authorized by the incidental take statement (ITS) (Chapter 14, 2008 Opinion – incorporated into the 2014 Opinion) and through NMFS' Take Determination Letters, is considered to have accepted the terms and conditions of the ITS and any additional terms or conditions required by NMFS' Take Determination Letters, and must be prepared to comply with the provisions of these two documents, and the applicable NMFS' regulations and the ESA.
6. Each researcher is responsible for the actions of any individual operating under the authority of the researcher's designated take authorization within the ITS of the 2014 Opinion and NMFS' Take Determination Letters.
7. Each researcher, staff member, or designated agent acting on the researcher's behalf must possess a copy of the ITS in the 2014 Opinion and the NMFS authorizing Take Determination letter when conducting the activities for which a take of ESA-listed species or other exception to ESA prohibitions is authorized herein.
8. Researchers may not transfer or assign a take authorization included within this determination to any other person(s), as person is defined in Section 3(12) of the ESA. The take authorization ceases to be in force or effective if transferred or assigned to any other person without prior authorization from NMFS.
9. Each researcher must obtain any other Federal, State, and local permits or authorizations necessary to conduct the activities provided for in this ITS.
10. Each researcher must coordinate with other applicable co-managers and researchers to ensure that no unnecessary duplication or adverse cumulative effects occur as a result of the researcher's activities.
11. National Marine Fisheries Service reserves the right to inspect research activities as they occur. This may include observation or review of research activities, facilities, records, etc., pertaining to ESA-listed species covered by this determination.
12. Under the terms of NMFS' regulations, a violation of any of the terms and conditions of this ITS will subject the offending researcher and/or any individual who is operating under the authority of this ITS to penalties as provided for in the ESA for authorized take.

13. Each researcher is responsible for biological samples collected from ESA-listed species as long as they are useful for research purposes. The terms and conditions concerning any samples collected remain in effect as long as the researcher maintains authority over and responsibility for the material taken. A researcher may not transfer biological samples to anyone not listed in the research proposal without obtaining prior written approval from NMFS. Any such transfer will be subject to such conditions, as NMFS deems appropriate.
14. NMFS may amend a take authorization identified in this determination, or adjust specific take levels after reasonable notice to the applicable researcher.
15. NMFS may revoke a take authorization identified in this ITS if the activities for which it provides are not carried out. If the activities are not carried out in accordance with the conditions of this ITS and the purposes and requirements of the ESA, or if NMFS otherwise determines that the continuation of activities would operate to the disadvantage of ESA-listed species.

Annual Reporting and Authorization Requirements

The conduct of scientific research and monitoring activities each year is contingent on submission and approval of a report on each proceeding year's research and monitoring activities. Researchers are providing annual reports summarizing the take of ESA-listed salmon and steelhead associated with their activity. These annual reports are to be provided to NMFS' designated Take Determination Coordinator by December 1 of each year unless this date is otherwise modified by NMFS' authorizing Take Determination letter. The report must include the following:

1. A detailed description of scientific research and monitoring activities, including the total number of fish taken at each location, an estimate of the number of ESA-listed fish taken at each location, the manner of take, and the dates and locations of the take.
2. Measures taken to minimize disturbances to ESA-listed fish and the effectiveness of these measures, the condition of ESA-listed fish taken and used for research and monitoring, a description of the effects of research and monitoring activities on the subject species, the disposition of ESA-listed fish in the event of mortality, and a brief narrative of the circumstances surrounding fish injuries or mortalities to ESA-listed fish.
3. Any problems that arose during research and monitoring activities, and a statement as to whether the activities had any unforeseen effects.
4. Descriptions of how all take estimates were derived.
5. Steps that have been and will be taken to coordinate research and monitoring activities with those of other researchers.
6. Projects which employ blocking weirs must include a log of delay monitoring in their annual report. This log must include daily trap catches and numbers of fish observed below the weir (as

per the methodology described in the projects weir operation plan). Any changes in weir operation or configuration will also be noted with the dates that they are in effect. Any periods when the weir was not in operation will also be noted.

Operational Reporting & Notification Requirements

1. Researchers must obtain NMFS' approval prior to implementing research protocols (e.g., changes in sampling locations or fish handling protocols) that differ from those considered in the Take Determination Letters, unless immediate deviation from these same protocols are necessary to reduce impacts to fish in hand. In this case, researchers must contact NMFS' designated Take Determination Coordinator or other designated staff as soon as possible to report on the situation (including reporting any resultant unexpected take), the actions taken by the research to minimize impacts to research fish, and coordination of additional actions that are necessary before the research can continue.
2. Each researcher must alert NMFS whenever the authorized level of take is exceeded, or if circumstances indicate that such an event is imminent. Notification should be made as soon as possible, but no later than 2 days after the authorized level of take is exceeded. The researcher must then submit a detailed written report to NMFS. Pending a review of the circumstances, NMFS may suspend the research and monitoring activities or implement reasonable measures and/or alternatives to allow research and monitoring activities to continue.
3. Each researcher must alert NMFS when a take of any ESA-listed species not included in the research proposal is killed, injured, or collected during the course of research and monitoring activities. Notification should be made as soon as possible, but no later than 2 days after the unauthorized take. The researcher must then submit a detailed written report to NMFS. Pending a review of the circumstances, NMFS may suspend research and monitoring activities or implement reasonable measures and/or alternatives to allow research and monitoring activities to continue.
4. In the case of ongoing studies, a report of actual take will be submitted to NMFS no less than 30 days before the request for take for the next year is submitted. For studies which only last 1 year, or upon termination of a multi-year study, a report of actual take will be submitted no less than 30 days after the activities described in the take determination letter cease. Take reports will include the numbers, life stage, species, and evolutionarily significant unit (ESU) of fish taken; the type of take (harass, handle, kill); and levels of incidental mortality. The reports will also include the location of the take (geographical names and Hydrologic Unit Code (HUC), and summarize take into blocks no larger than one month (i.e., take for April, May, etc.). Any of the incidents described in items 2 and 3 above (exceeded take limits, or incidental mortality not covered by the take determination) will also be described in this report. The report will also include an

evaluation if methodology can be improved to reduce take (especially incidental mortality).

Take Estimates

The following tables list the total authorized take of listed salmon species.

Table 1. Total number of all potentially listed salmon species taken by the study. These numbers do not include numbers of fish carcass (no limit) which may be handled or sampled in the course of this project. Take levels: 1-harass or disturb, 2-capture and handle, 3-collect sample or tag, 4-lethal sampling. Locations: Salmon River Trap at Whitebird, WhT, Lewiston Trap, Snake River, LeT, Grande Ronde Trap, GrT, Lower Granite Dam, LGR, Little Goose Dam, LGS, Lower Monumental Dam, LMN, McNary Dam, MCN, John Day Dam, JDA, Bonneville Dam, BON

Species	Clip status	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Chinook	unk	Yearling		capture, measure, release	2	59600	842	WhT	Mar-Oct
Chinook	unk	Yearling		Tag	3	9400	188	WhT	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	32300	546	GrT	Mar-Oct
Chinook	unk	Yearling		Tag	3	5700	94	GrT	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	26000	320	LeT	Mar-Oct
Chinook	unk	Yearling		Tag	3	6000	120	LeT	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	24000	480	LGR	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	23000	460	LGO	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	20000	400	LMN	Mar-Oct

Species	Clip status	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Chinook	unk	Yearling		capture, measure, release	2	21420	428	MCN	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	25900	518	JDA	Mar-Oct
Chinook	unk	Yearling		capture, measure, release	2	19900	402	BVL	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	5000	7	WhT	Mar-Oct
Steelhead	unk	Yearling		Tag	3	4800	96	WhT	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	9800	196	GrT	Mar-Oct
Steelhead	unk	Yearling		Tag	3	1200	24	GrT	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	13000	260	LeT	Mar-Oct
Steelhead	unk	Yearling		Tag	3	5000	100	LeT	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	26700	534	LGR	Mar-Oct

Species	Clip status	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Steelhead	unk	Yearling		capture, measure, release	2	17500	350	LGO	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	10000	200	LMN	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	13500	270	MCN	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	32000	630	JDA	Mar-Oct
Steelhead	unk	Yearling		capture, measure, release	2	14500	280	BVL	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	150	3	WhT	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	1500	30	GrT	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	4000	80	LeT	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	75000	1500	LGR	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	75000	1410	LGO	Mar-Oct

Species	Clip status	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Chinook	unk	subyearling		capture, measure, release	2	35000	700	LMN	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	60500	1210	MCN	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	55500	1110	JDA	Mar-Oct
Chinook	unk	subyearling		capture, measure, release	2	53500	1080	BVL	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	550	10	WhT	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	1450	28	LeT	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	4500	90	LGR	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	3300	46	LGO	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	1500	22	LMN	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	13000	260	MCN	Mar-Oct

Species	Clip status	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Sockeye	unk	Yearling		capture, measure, release	2	11000	220	JDA	Mar-Oct
Sockeye	unk	Yearling		capture, measure, release	2	6000	120	BVL	Mar-Oct
Chum	unk	subyearling		capture, measure, release	2	500	10	BVL	Mar-Oct
Coho	unk	Yearling		capture, measure, release	2	12000	240	BVL	Mar-Oct

Species Summary	Age	Take	Incidental Mortality
Chinook	Juvenile	633370	11921
Steelhead	Juvenile	153000	2947
Coho	Juvenile	12000	240
Chum	Juvenile	500	10
Sockeye	Juvenile	41300	796

Table 2. Estimated 2015 take activities for potentially ESA-listed salmonids authorized to be taken during the study. These numbers do not include numbers of fish carcass (no limit) which may be handled or sampled in the course of this project. Take levels: 1-harass or disturb, 2-capture and handle, 3-collect sample or tag, 4-lethal sampling. Locations: Salmon River Trap at Whitebird, WhT, Lewiston Trap, Snake River, LeT, Grande Ronde Trap, GrT, Lower Granite Dam, LGR, Little Goose Dam, LGS, Lower Monumental Dam, LMN, McNary Dam, MCN, John Day Dam, JDA, Bonneville Dam, BON

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	250	5	WhT	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	700	14	LeT	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	4500	90	LGR	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	3300	66	LGO	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	1500	30	LMN	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	500	10	MCN	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	500	10	JDA	Mar-Oct
Snake River sockeye	unknown	Juvenile	Yearling	capture, measure, release	2	500	10	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	13000	220	WhT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	7000	140	GrT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	5000	100	LeT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	9000	180	LGR	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	7000	140	LGO	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	6000	120	LMN	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	1100	22	MCN	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	1300	26	JDA	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	800	16	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	23000	460	WhT	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	24000	480	GrT	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	7000	140	LeT	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	6000	120	LGR	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	6000	120	LGO	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	4000	80	LMN	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	3000	60	MCN	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	2000	40	JDA	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	1000	20	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	50	1	WhT	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	GrT	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	LeT	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	25000	500	LGR	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	20000	400	LGO	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	10000	200	LMN	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	MCN	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	JDA	Mar-Oct
Snake River Fall Chinook	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	100	2	WhT	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	1000	20	GrT	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	3000	60	LeT	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	50000	1000	LGR	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	50000	1000	LGO	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	25000	500	LMN	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	5000	100	MCN	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	5000	100	JDA	Mar-Oct
Snake River Fall Chinook	hatchery	Juvenile	Subyearling	capture, measure, release	2	3500	70	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	800	16	WhT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	3000	60	GrT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	3000	60	LeT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	5700	114	LGR	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	4000	80	LGO	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	2500	50	LMN	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	1000	20	MCN	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	3000	60	JDA	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	500	10	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	3500	67	WhT	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	0	0	GrT	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	5000	100	LeT	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	10000	200	LGR	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	7500	150	LGO	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	3500	70	LMN	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	1500	30	MCN	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	3000	40	JDA	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	1000	10	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Upper Columbia Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	4000	80	MCN	Mar-Oct
Upper Columbia Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	3600	72	JDA	Mar-Oct
Upper Columbia Spring Chinook	hatchery	Juvenile	Yearling	capture, measure, release	2	2000	40	BVL	Mar-Oct
Upper Columbia Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	3320	66	MCN	Mar-Oct
Upper Columbia Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	4000	80	JDA	Mar-Oct
Upper Columbia Spring Chinook	wild	Juvenile	Yearling	capture, measure, release	2	1300	26	BVL	Mar-Oct
Upper Columbia Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	4000	80	MCN	Mar-Oct
Upper Columbia Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	6000	120	JDA	Mar-Oct
Upper Columbia Steelhead	hatchery	Juvenile	Yearling	capture, measure, release	2	1500	30	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Upper Columbia Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	1000	20	MCN	Mar-Oct
Upper Columbia Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	4500	90	JDA	Mar-Oct
Upper Columbia Steelhead	wild	Juvenile	Yearling	capture, measure, release	2	1500	30	BVL	Mar-Oct
Middle Columbia Steelhead	unknown	Juvenile	Yearling	capture, measure, release	2	1000	20	MCN	Mar-Oct
Middle Columbia Steelhead	unknown	Juvenile	Yearling	capture, measure, release	2	6000	120	JDA	Mar-Oct
Middle Columbia Steelhead	unknown	Juvenile	Yearling	capture, measure, release	2	5000	100	BVL	Mar-Oct
Lower Columbia Chinook	unknown	Juvenile	Yearling	capture, measure, release	2	800	16	BVL	Mar-Oct
Lower Columbia Steelhead	unknown	Juvenile	Yearling	capture, measure, release	2	1000	20	BVL	Mar-Oct
Lower Columbia Chinook	unknown	Juvenile	Subyearling	capture, measure, release	2	22000	440	BVL	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Lower Columbia Coho	wild	Juvenile	Yearling	capture, measure, release	2	2000	40	BVL	Mar-Oct
Columbia River Chum	wild	Juvenile	Subyearling	capture, measure, release	2	500	10	BVL	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	Tag	3	1200	24	WhT	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	Tag	3	1400	28	GrT	Mar-Oct
Snake River Spring Chinook	hatchery	Juvenile	Yearling	Tag	3	1200	24	LeT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	3200	64	WhT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	2800	36	GrT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	2800	56	LeT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	Tag	3	1400	28	WhT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	Tag	3	1200	24	GrT	Mar-Oct
Snake River Steelhead	wild	Juvenile	Yearling	Tag	3	1400	28	LeT	Mar-Oct

ESU	Hatchery or Wild	Age	Age detail	Activity	Take Level	Take	Incidental mortality	Location	Dates
Snake River Steelhead	hatchery	Juvenile	Yearling	Tag	3	3400	68	WhT	Mar-Oct
Snake River Steelhead	hatchery	Juvenile	Yearling	Tag	3	3600	72	LeT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	5000	100	WhT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	1500	30	GrT	Mar-Oct
Snake River Spring Chinook	wild	Juvenile	Yearling	Tag	3	2000	40	LeT	Mar-Oct

Totals by ESU	Age	Take	Incidental Mortality
Columbia River Chum	Juvenile	500	10
Lower Columbia Chinook	Juvenile	22800	456
Lower Columbia Coho	Juvenile	2000	40
Lower Columbia Steelhead	Juvenile	1000	20
Middle Columbia Steelhead	Juvenile	12000	240
Snake River sockeye	Juvenile	11750	235
Upper Columbia Steelhead	Juvenile	18500	370
Upper Columbia Spring Chinook	Juvenile	18220	364
Snake River Fall Chinook	Juvenile	200150	4003
Snake River Steelhead	Juvenile	69500	1357
Snake River Spring Chinook	Juvenile	147300	2886

Determinations by the FCRPS Branch for this research during the 2015 fish passage season and beyond will be made on an annual basis. The annual determination will depend upon information submitted in the research study's annual report, other new information, the annual anticipated status of fisheries stocks, and any subsequent review through regional review processes.

Please notify Paul Wagner, (503) 231-2316, Paul.Wagner@NOAA.gov as soon as possible of any deviation from the terms and conditions in this determination. Please include the study's official title and the number (from the subject line) of the current Take Determination Letter in all communications regarding this study. Please provide the FCRPS Branch's Take Determination Coordinator, Blane Bellerud (503-231-2238, Blane.Bellerud@noaa.gov), with the annual report for this research study.

Sincerely,



Ritchie J. Graves, Chief
Columbia Hydropower Branch
Interior Columbia Basin Office
NOAA Fisheries, West Coast Region

cc:

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