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MEMORANDUM

TO: Tracy Hauser, BPA

FROM: *Michele DeHart*
Michele DeHart

DATE: August 31, 2021

SUBJECT: Comparative Survival Study Budget Proposal for 2022 and Smolt Monitoring Program budget for 2022

Attached is the budget proposal for the regional Comparative Survival Study (CSS) for the contract period December 1, 2021 through November 30, 2022. This budget reflects the proposal first submitted to Bonneville Power Administration (BPA) on July 14, 2021 and updated to reflect current pass through and indirect rates and increased PIT tag costs (attached).

The proposal developed, agreed upon and submitted by the state, federal and tribal fishery managers is based upon a portfolio management approach, in which the regional Smolt Monitoring Program (SMP) and the Comparative Survival Study are combined in one portfolio. The total funding level for the portfolio is the combination of the SMP, the CSS flat funding levels and negotiated increases in funding for specific ODFW elements of these projects. The negotiated increases between BPA and ODFW increase the flat funding level for these projects.

The BPA flat funding policy which has been in place since 2017 has necessitated the proposed portfolio approach. Under the BPA flat funding policy, over the years, the fishery managers are forced to prioritize activities and data collection. The agencies and tribes' proposal reduces the Smolt Monitoring Program by eliminating the SMP at Lower Monumental, John Day and Rock Island projects. The funds from this reduction are transferred to the CSS project. Following are the key elements of the proposal.

- Flat funding level for the SMP in 2021 is \$2,699,861 for PSMFC project 1987-127-00. In addition, the SMP has a budget of \$80,077 for annual PIT tag costs.
- Flat funding level for the CSS in 2021 is \$1,531,950. This budget includes the cost of PIT tags
- Flat funding level for the CSS for 2022, prior to implementing the proposed action is increased to \$1,534,935 after negotiations and agreement between BPA and ODFW, for

ODFW participation in the CSS Oversight Committee. This is an increase of \$2,985 in the flat funding level planned for 2022 prior to implementing the proposed action.

- The portfolio proposal reduces the Smolt Monitoring Program, PSMFC, project number 1987-127-00 to a flat funding level for 2022, to \$2,086,937. A decrease of \$612,924.
- The portfolio proposal increases the flat funding level for the CSS, PSMFC project 1996-020-00 by \$612,924 transferred from the SMP plus the negotiated increase (\$2,985) by ODFW to a total project funding level of \$2,147,859.
- This proposal does not change the \$80,027 budget for purchase of PIT tags associated with the SMP project. We propose that the \$80,027 SMP, PIT Tag budget be included in the CSS/SMP portfolio to cover increases in PIT tag costs for both the SMP and CSS projects.

The objectives of this proposal and the rationale and the need for the portfolio management approach are included in the attached revised proposal first submitted to BPA on July 14, 2021. Years of flat funding are eroding the effectiveness of Fish and Wildlife Program projects. The proposed portfolio approach is designed to enhance the effectiveness of the Fish and Wildlife Program projects by prioritizing activities that address prevailing management questions and reduce handling and sampling.

Many documents have been prepared and analyses conducted to support this proposal and respond to questions and issues raised by the state, federal and tribal fishery managers. They are listed in the attached, revised July 14, 2021 document and are not repeated in this transmittal memo. The proposal for CSS for 2022 implements the same work elements but strives to improve population coverage and migration data. The proposal will reduce mainstem handling and sampling, largely encouraged by NOAA Fisheries. The project will improve juvenile migration data in the Upper Columbia and improve juvenile wild fall chinook data in the Clearwater River. In addition, one objective of this proposal is to stabilize funding for long term CSS mark groups. Since 2017 the cost of PIT tags has been increased three times, without increases in the flat funding level for the projects utilizing PIT tags. The project also increases the budget for USFWS marking component of the CSS. USFWS marking activities, require the use of pre-loaded tags to increase marking efficiency and facilitate marking activities under COVID restrictions of social distancing.

The following tables illustrate the funding modifications for SMP and CSS agreed upon by the fishery managers agreed in the portfolio approach of the PSMFC SMP project 1987-127-00 and the PSMFC, CSS project, 1996-020-00 for 2022 and the future.

Project 1987-127-00, Smolt Monitoring CR-325170; Contract # 78040 REL March 1, 2021 - February 28, 2022	2021 budget	Proposed 2022 SMP Budget March 1, 2022 - February 28, 2022	
1. Pacific State Marine Fisheries Commission	Contract Total	Contract Total	
LOWER MONUMENTAL DAM	\$215,138	\$0	
JOHN DAY & BONNEVILLE DAMS	\$485,949	\$319,972	
LOWER GRANITE DAM	\$216,353	\$216,353	
BONNEVILLE SEPARATOR MONITORING	\$131,543	\$131,543	
McNARY DAM	\$185,273	\$185,273	
HQ ADMINISTRATION	\$29,486	\$29,486	
TOTAL PSMFC	\$1,263,741	\$882,627	
2. Chelan County Public Utility District			
ROCK ISLAND DAM			
TOTAL CHELAN	\$204,760	\$0	
*PIT TAG COSTS	\$27,216	\$0	
3. Washington Department of Fish & Wildlife			
LOWER GRANITE DAM	\$83,704	\$83,704	
M McNARY DAM/ LOWER MONUMENTAL DAM	\$89,193	\$44,597	
TOTAL WDFW	\$172,897	\$128,301	
4. Oregon Department of Fish & Wildlife			
LITTLE GOOSE DAM	\$273,468	\$273,468	
LGS/LWM GBT in 2022		\$27,219	
GRANDE RONDE TRAP	\$401,082	\$401,082	
TOTAL ODFW	\$674,550	\$701,769	
* PIT TAG COSTS	\$14,670	\$15,120	
5. Idaho Department of Fish & Game			
HEAD OF LOWER GRANITE RESERVOIR & DAM	\$354,925		
TOTAL IDFG	\$354,925	\$354,925	
* PIT TAG COSTS	\$38,142	\$39,312	
6. PSMFC Administrative pass-thru (2.06% of items 2-5 2021)(1.63% of items 2-5 2022)	\$28,987	\$19,315	\$9,672
TOTAL PSMFC 2019-20 SMP CONTRACT	\$2,699,861	\$2,086,937	\$612,924
TOTAL WITH PIT TAGS	\$2,779,888	\$2,141,369	\$638,519
	\$80,027	\$54,432	\$25,595
Transfer to PSMFC CSS 1996-020-00 project in 2022	\$612,924		
From PSMFC SMP 1987-127-00 project in 2022			

	SMP	CSS	total portfolio
Flat funding 2021 SMP and CSS	\$2,699,861	\$1,531,950	\$4,231,811
Proposed 2022 SMP and CSS	\$2,086,937	\$2,144,874	\$4,231,811
2022 CSS funding plus ODFW increase (\$2,985)		\$2,147,859	

USFWS CSS	2021 Program	2022 Program	2021 Tags	2022 Tags
	\$214,881	\$214,881	\$89,712	\$108,936

Proposal for the Comparative Survival Study and the Smolt Monitoring Program for 2022 and the future

Introduction

The primary objectives of the Smolt Monitoring Program (SMP) and the Comparative Survival Study (CSS) are to generate juvenile and adult fish passage characteristics data and analyses to support fish passage management decisions by the federal, state and tribal fishery managers and the operations agencies. These monitoring programs have developed long term data sets to assist the fishery managers in management of fish passage and understanding the environmental variables that effect smolt to adult return rates. These monitoring programs are designed to support adaptive management and address the prevailing hydro system management questions in regard to juvenile and adult fish passage. Over time the prevailing fish passage management questions in the Columbia Basin have evolved as additional data and analyses have become available and passage monitoring has evolved accordingly to meet current passage management concerns. The objectives of this proposal are to increase the value of monitoring to current management issues, within significant budget constraints and reduce take be reducing handling and sampling.

The Problem

The problem facing these projects is that they have been flat funded by the Bonneville Power Administration (BPA) Fish and Wildlife Program, since 2017 and as a result of increasing base costs, such as cost of tags and overhead rates, funding for these projects has in reality been reduced since 2017. As costs for rent, utilities, agencies overhead rates and other costs have increased, project funding has not. In addition, since 2017 BPA has agreed to two separate increased cost for PIT tags in their negotiation with the vendor, but have not increased the funding for projects that use PIT tags, to reflect these agreed upon increases by BPA. Further BPA has agreed to a 3% increase in the cost of PIT tags for 2022. This equates to an actual funding decrease for these projects since the cost of PIT tags is increased but the budget for the projects remains at the 2017 funding level. Over the past decade the CSS has increasingly provided data and analyses to the region to support management decisions including in-season management questions and decisions. There have been several recommendations from state, and tribal fishery managers to expand CSS coverage in the Upper Columbia River to additional population groups to meet present and future salmon and steelhead population survival questions. The challenge is how to meet the operations agencies and fisheries agencies and tribe's data and analytical needs for Columbia Basin mainstem river monitoring and passage management within the present BPA flat funding policy.

The Solution

The solution in this limited funding environment in the Columbia Basin at this time, is to prioritize the activities that provide the most valuable data to address the highest priority prevailing juvenile and adult salmon and steelhead management questions. The heart of this proposal is a portfolio management approach in which the annual budget for the SMP and the annual budget for the CSS are considered as a combined total. The combined total for the SMP and the CSS, PSMFC projects together at the flat funding level including the cost of CSS PIT tags is \$4,231,811. In this proposal, the 2017 flat funded level is not exceeded for the two monitoring projects combined. The SMP PIT tag budget is added to the portfolio for SMP and CSS marking activities. The SMP activities are reduced and the savings from reduction in the SMP are transferred to the CSS project, but the flat funding level for the two projects together are not exceeded. The “take” in terms of handling and sampling is reduced.

The Proposal

The proposal, agreed upon by the state, federal and tribal fishery managers, is to eliminate John Day, Lower Monumental and Rock Island from the Smolt Monitoring Program and transfer the funds from reducing the Smolt Monitoring Program to the Comparative Survival Study Project beginning in 2022. A considerable amount of data analyses was completed to consider the impact of this proposal on the ability to generate improved fish passage metrics and data objectives of the SMP and the CSS. Those analyses are identified in this document in Appendix A, titled, “Supporting Analyses”. All of these analyses are available on the FPC website at www.fpc.org.

The following table presents the 2021 budget summary for the PSMFC project Smolt Monitoring by non-federal agencies, (SMP) #1987-127-00 and the proposed transfer of funds to the PSMFC Comparative Survival Study project # 1996-020-00. This table includes PIT tag cost and the increased PIT tag costs for 2022 as well as updated indirect and pass-through rates. The elimination of Rock Island, Lower Monumental and John Day from the PSMFC SMP will transfer \$612,924 to the PSMFC Comparative Survival Study in 2022. The transferred funds from the SMP in 2022 to the CSS will be applied to the following fishery managers SMP and CSS priorities.

- Stabilize the remaining SMP
 - bring funding levels up to match increases in agencies overhead and increases in other costs
 - Provide for the increase cost in PIT tags for 2022 for the SMP tagging sites.
 - Funding Gas Bubble Monitoring at Little Goose and Lower Monumental projects by Little Goose SMP staff
- Stabilize the CSS
 - Restore funding to mark groups that have been reduced because of increased PIT tag costs. To maintain these mark groups since 2017, unused tags from past years

have been used, which is not a long-term viable strategy. This includes restoring tags for Wenatchee/Entiat/Methow wild Chinook and steelhead marking and tags for Springfield Hatchery sockeye releases.

- Update agencies overhead to present levels in CSS Oversight Committee and program costs
- Incorporate 3% increase in tag costs for 2022 and use of pre-loaded tags for some mark groups
- Implement the WDFW- CSS plan to improve passage data in the Upper Columbia River
 - Install and operate additional smolt trap at the Entiat River. The WDFW proposal includes one additional smolt trap in the Entiat River which is estimated to provide tagging for 500-1500 UCR spring Chinook smolts and 500-3000 UCR steelhead (depending on escapement) in any given year. The WDFW proposal for this second trap on the Entiat River is to only tag out-migrating smolts in the spring.
 - An additional 10,000 PIT-tags are proposed for marking steelhead parr in Peshastin Creek, immediately upstream of RIS in the Wenatchee River.
 - Operation and maintenance of a detection barge at the mouth of the Wenatchee River and a detection barge at the mouth of the Methow River. The detection barges are purchased under WDFW funds and US Bureau of Reclamation funds. This represents a CSS collaboration among CSS, WDFW and USBR. The detection barges will provide detection data throughout the juvenile outmigration, to capture the full passage duration. Appendix B
- Increase Upper Columbia sockeye mark groups
 - Provide 24, 000 PIT Tags for Okanagan Nation Alliance increase sockeye tagging for NOAA-Fisheries generation of juvenile sockeye survival estimates through the FCRPS
- Address under represented population groups in the Snake River, specifically Clearwater fall Chinook, with smolt trapping and marking in the Clearwater River.

The proposal reduces the total budget for the PSMFC project #1987-127-00, Smolt Monitoring by Non-Federal Agencies by \$612,924 and increases the PSMFC project # 1996-020-00 Comparative Survival Study by \$612,924. The flat funded total of these two projects together in 2022, will not exceed the total of the two projects for 2021 plus separate BPA agreements with ODFW. The Federal USFWS components of the Smolt Monitoring Program and the Comparative Survival Study program costs are unchanged, the total USFWS component increase reflects the increased cost of PIT tags and necessity for pre-loaded tags.

This proposal is revised and updated from the previous proposal submitted to BPA on July 14, 2021. This revised proposal includes updated, indirect rate charges and updated pass-through rate charges and updated PIT tag costs.

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The Rationale

The SMP was established by the first NPCC Fish and Wildlife Program in 1982. The same Fish and Wildlife Program established the Water Budget, which was a limited volume of water that the fishery management agencies and tribes would manage to benefit downstream migrating salmonids for the spring out-migration. The fishery managers would decide the timing and amount of water releases from that water volume. At the time, the management of the water budget relied on passage index data collected in the SMP. There has been very little change in the SMP since that time.

The CSS was established in 1996, when PIT-tags became available for monitoring both the juvenile life stage and adult life stage. Currently about 87% of the CSS project funding goes to purchase and application of tags at upstream sites and tributaries. The remaining 13% of the CSS funding goes to the agencies and tribes analytical work and representation on the CSS Oversight Committee.

- In 1992 with the Endangered Species Act Listings, the passage management arena was transformed. Dates for provision of flow targets and reservoir operations targets were set in NOAA Fisheries Biological Opinions. The Water Budget concept ended.
- As changes occurred the SMP monitoring program supporting management deliberations was modified to meet the changing needs of the managers. Gas bubble trauma monitoring was added.
- As PIT-tag detection sites have been expanded, more and more emphasis for management decisions have been based on PIT-tagged fish. The reliance on and importance of SMP passage index data relative to management decisions has declined.
- At the present time, the managers rely heavily on the PIT- tagged juvenile and adult fish to assess and analyze multiple aspects of adult and juvenile survival, travel time, and migration characteristics.
- Over time the CSS mark groups and analyses have formed the basis for passage management considerations.
- There has been a growing need to improve the fish passage data for the Upper Columbia River.
- There is a growing need to improve fish passage data for summer migrating Snake River fall chinook

The Process

The process to modify the SMP and the CSS began in the fall of 2019. In 2020 this proposal was developed and presented to the fishery managers for implementation in 2021. The fishery managers decided to delay implementation of the proposal until 2022, to provide additional time to address concerns and to provide time for staff adjustments in the long tenure SMP. The fishery managers agreed to schedule a final decision in June of 2021 for

implementation in 2022. Throughout 2020 the rationale for the proposal and response to specific concerns were developed.

The Resolved Concerns

1. **Will there be enough marks to generate SMP data without the Rock Island mark groups? The answer is Yes. The answer is yes even in the absence of added marking from WDFW that is in this proposal.**

We have shown that Rock Island mark groups comprise a very small component of all of the mark groups available for SMP objectives and analyses. Appendix A of the FPC memorandum number 50-20 (dated November 6, 2020) was provided to all of the agencies and tribes. The FPC and CSS have been using the PIT tag detections at Rocky Reach to develop SMP and CSS data for 10 years. FPC memorandum number 8-21 dated February 19, 2021 was provided to all of the agencies and tribal fishery managers. Those analyses showed that RIS tagging represents between 4-8% of yearly steelhead, and 1-5% of yearly Chinook PIT-tag deployments at or above Rock Island Dam. The SMP does not need Rock Island mark groups to meet the objectives of the SMP or the CSS. The Fish Passage Center memorandum dated February 19, 2021 (FPC 2021), addresses all of the CRITFC comments and concerns regarding the adequacy and availability of mark groups to support analyses, when Rock Island mark groups are eliminated from the SMP.

2. **What is the benefit of dropping Rock Island from the SMP?**

Dropping Rock Island from the SMP will improve the juvenile and adult passage data for the Upper Columbia River. By using Rocky Reach PIT tag detections, more reliable estimates of population specific survival and passage characteristics will be generated. We have shown by analyses that the Rock Island mark groups are biased downward. (FPC memorandum 50-20 dated November 6, 2020) and therefore are not useful for the SMP or the CSS objectives. In addition, the FPC provided the agencies and tribal fishery managers detailed analyses of the effects of at dam tagging, in memorandum number 23-21 dated March 17, 2021. The recommendation to drop Rock Island from the SMP is based on the conclusions from these analyses. We are confident that the dropping Rock Island from the SMP will benefit the SMP and CSS overall.

3. **Will eliminating Rock Island mark groups from the SMP reduce the ability of NOAA Fisheries to estimate sockeye passage characteristics through the FCRPS?**

In order to address the NOAA concern regarding adequate sockeye mark groups, the FPC initiated discussions with the Okanagan Nation Alliance (ONA). In collaboration with the CSS, the ONA will increase their marking in the Okanagan Basin. Okanagan Basin sockeye comprise roughly 80% of the sockeye population in the Upper Columbia. This action will be implemented in 2022. In the future as funds are available, the CSS can pursue additional marking in the Wenatchee River by WDFW. With the ONA staff, on the basis of the ONA estimated survival of their own parr marks to Rocky Reach, we have estimated that provision of 24,000 PIT tags to the ONA through CSS will result in 3,300 to 4,900 marked sockeye at Rocky Reach, which will meet or exceed the NOAA target below Rock Island.

4. **Does eliminating Rock Island from the SMP comprise, switching mark groups midstream?**

No, it does not. The CSS and SMP have been utilizing PIT tag detections at Rocky Reach for the past ten years. The proposal to drop Rock Island from the SMP, and the Washington proposal to add PIT tag detections and additional marks upstream of Rocky Reach will improve juvenile and adult passage data. It does not represent switching mark groups mid-stream in any way.

5. Agreement with the proposal to drop Rock Island from the SMP.

WDFW, ODFW, IDFG, Yakama Nation, Nez Perce Tribe and NOAA Fisheries have all agreed to going forward with the proposal to BPA to drop Rock Island, John Day and Lower Monumental from the SMP and transfer those funds to the CSS, staying within the combined flat funding budget level established by BPA in 2017. We have addressed all of the concerns and questions that have been raised by the state, federal and tribal fishery managers regarding this proposal in eight memorandums providing analyses of these concerns to the fishery managers.

6. Does dropping Rock Island from the SMP eliminate marking at Rock Island for avian predation work?

Avian predation monitoring is not an objective of the SMP. This is a separate task directed by the Priest Rapids Coordinating Committee and funded by Grant County PUD. After analyzing the Rock Island mark groups, the FPC described alternative analyses for avian predation monitoring that does not require marking at Rock Island (see supporting analyses in Appendix A).

7. Does dropping Rock Island from the SMP affect the ability of the Action Agencies to implement Measure (1)(B)(i) of the Incidental Take Statement of the Biological Opinion.

No, it does not. The additional tributary marking, the additional sockeye marking by the Okanogan Nation Alliance and the additional parr marking of steelhead and chinook upstream of Rock Island should adequately offset the elimination of Rock Island mark groups.

8. Does elimination of the SMP from John Day and Lower Monumental affect facility fish condition monitoring?

Facility fish condition monitoring is not a work element or objective of the SMP Fish and Wildlife Program budget. Facility fish condition monitoring is a responsibility of the USACOE operations budget. The requirements and frequency for facility fish condition monitoring are determined by NOAA and the USACOE with the objective of balancing the need to reduce handling with the need to monitor for fish injury in the facility. Eliminating the SMP from these projects will require the USACOE to fund this obligation from their operations budget at John Day. At Lower Monumental the USACOE funds facility condition monitoring through a consulting contract that is separate from the SMP Fish and Wildlife Program budget.

9. Does elimination of the SMP from John Day affect the Lamprey study agreement between the tribal fishery managers and the USACOE?

The SMP staff at John Day have collected tissue samples from lamprey juveniles collected in the Smolt Monitoring Program and provided them to the researchers working on the lamprey study. There have never been adjustments to sample rates or sample schedule to target collection of lamprey in the Smolt Monitoring Program. The remaining SMP sites at McNary and Bonneville can provide tissue samples from lamprey collected in the Smolt Monitoring Program to the lamprey researchers. If necessary, collection of lamprey samples at John Day Dam for the lamprey study would be funded by and designed to facilitate the

lamprey study specifically. It is likely that this sampling could be coordinated with USACOE condition monitoring requirements and could be scheduled to enhance lamprey sampling.

2022 Proposal for CSS and SMP

The Smolt Monitoring Program

The John Day, Lower Monumental and Rock Island Smolt Monitoring sites will be eliminated from the Smolt Monitoring by Non-Federal Agencies Project # 1987-127-00 starting on March 1, 2022. The work elements and tasks for the remaining monitoring sites, Bonneville Dam, McNary Dam, Lower Granite Dam will remain unchanged, from the 2021 work elements and tasks. One change will occur at the Little Goose project SMP site. Gas Bubble Trauma monitoring at Lower Monumental Dam and at Little Goose Dam will be conducted by the SMP crew at the Little Goose project. Previously, the SMP staff at Lower Monumental conducted GBT sampling at Lower Monumental and Little Goose. The Smolt Monitoring tasks conducted by USFWS will not be changed.

The Comparative Survival Study

The savings from budget reductions in the SMP are transferred to the CSS to first stabilize the present PSMFC CSS project #1996-020-00 and mark groups, and second to expand the CSS in the Upper Columbia and Snake River fall chinook.

Transfer of funding from the CSS will allow CSS mark groups to be funded at the original level. As costs of PIT tags increased, there was not adequate funding to maintain CSS mark groups. These mark groups were maintained by utilizing left over tags from both CSS and SMP marking from previous years. Springfield Hatchery sockeye mark groups were reduced from 39,800 to 9,800. Wenatchee/Entiat/Methow wild chinook mark groups were reduced by 3,000 tags from the original 30,000-mark group size. Funds transferred from the SMP will restore these mark groups. In addition, transferred funds will be applied to meet current CSS participating agencies overhead charges. In response to NOAA-Fisheries concerns, the CSS will provide 24, 000 PIT tags to the Okanagan Nation Alliance to increase the number of marked sockeyes for NOAA-Fisheries development of survival estimates through the FCRPS.

The transfer of funds to the CSS from the SMP will be applied to improving juvenile migration data through the Upper Columbia, including a second trap on the Entiat River, for smolt marking and increase parr marking on Peshastin Creek. Two detection barges, one at the mouth of the Methow River and one at the mouth of the Wenatchee River will increase juvenile chinook and steelhead detections.

Appendix A

Supporting Analyses

The following supporting analyses were completed to address regional questions and concerns regarding the elimination of Rock Island, John Day and Lower Monumental from the Smolt Monitoring Program and transferring saved funds to the Comparative Survival Study. All of these documents are available to the public on the FPC website.

https://www.fpc.org/documents/FPC_memos.html

August 25, 2020 - The future Smolt Monitoring Program (SMP), Comparative Survival Study (CSS), Fish Passage Center (FPC) projects - Document #37-20

November 6, 2020 - Planning for the future Smolt Monitoring Program and Comparative Survival Study - Document # 50-20

February 19, 2021 - Eliminating Rock Island from the regional Smolt Monitoring Program - Document # 08-21

February 25, 2021 - Future Smolt Monitoring Program (SMP) and future Comparative Survival Study (CSS), response to comments regarding elimination of Rock Island from the SMP - Document #09-21

March 17, 2021 - Effect of at-dam tagging at Rock Island and Lower Granite Dams Document # 23-21

March 25, 2021 - Review of Real Time Research memo and additional RIS tagging analysis Document # 25-21

April 2, 2021 - Monitoring Avian Predation for the Upper Columbia River – An alternative to marking fish at Rock Island Dam Document # 29-21

April 23, 2021 - Upper Columbia Sockeye survival estimation in the McNary Dam to Bonneville Dam reach without Rock Island marks – Document # 33-21

July 8, 2021 - Eliminating Rock Island from the Smolt Monitoring Program in 2022 relative to NOAA Biological Opinion, Incidental Take Statement Measure 1B – Document # 52-21

Appendix B

Washington Department of Fish and Wildlife



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 3515 Chelan Highway 97A, Wenatchee

August 25, 2021

To: Michele Dehart, FPC Manager

From: Andrew Murdoch, Eastern WA Science Manager, Fish Program

Subject: Additional CSS Opportunities in the Upper Columbia River

Per your request, I have identified current (C) and proposed (P) locations within each subbasin for the purposes of increasing the number of PIT tagged actively migrating smolts to improve life stage/reach specific survival estimates.

Wenatchee Subbasin

Wild spring Chinook Salmon (subyearling and yearling) are currently tagged at all active smolt traps. However, the majority of fish tagged are subyearling Chinook in natal streams. The most efficient way to increase wild yearling tag groups and to a lesser extent wild steelhead is to operate a PIT tag barge in the lower Wenatchee River (rkm 0.5) and detect fish tagged the previous fall emigrating in the spring. A PIT barge will also provide a means to directly estimate overwinter survival in the Wenatchee Basin as part of CSS LCM efforts.

Wild steelhead from natal streams in the lower basin are also underrepresented in the current tagging scheme. Peshastin Creek is the major wild steelhead spawning tributary in the lower basin and would be a good source for additional PIT tagged spring smolts.

Additionally, both hatchery yearling Chinook and steelhead can be tagged throughout the release period (mid-April to May) at the lower Wenatchee traps if deemed necessary.

Location	Yearling Chinook		Steelhead		Sockeye
	Wild	Hatchery	Wild	Hatchery	Wild
Lower Wenatchee smolt trap (spring/summer)	C	P	C	P	C
Chiwawa River smolt trap (spring/fall)	C		C		
Nason Creek smolt trap (spring/fall)	C		C		
White River smolt trap (spring/fall)	C		C		
Peshastin Creek trap (spring)	P		P		
Lower Wenatchee PIT barge (all year)	P	P	P	P	

C = Current; P = Proposed

Entiat Subbasin

All wild yearling Chinook and steelhead are tagged at the lower Entiat trap. However, under the ISEMP an additional trap was operated successfully a few kilometers upstream and could double the number of smolts PIT tagged.

Additionally, hatchery summer yearling Chinook for Entiat NFH could be tagged during the release periods if deemed necessary.

Location	Yearling Chinook		Steelhead	
	Wild	Hatchery	Wild	Hatchery
Lower Entiat smolt trap (rkm 2; spring/fall)	C	P	C	
Lower Entiat smolt trap (rkm 8; spring)	P	P	P	

C = Current; P = Proposed

Methow Subbasin

Like the Wenatchee Subbasin, wild spring Chinook Salmon (subyearling and yearling) are currently tagged at all active smolt traps. New smolts traps in the Chewuch and upper Methow, funded by BOR, could be added to the CSS. However, the majority of fish tagged are subyearling Chinook in natal streams. The most efficient way to increase the size of PIT tag groups is to operate a PIT tag barge in the lower Methow River (rkm 0.2) and detect fish tagged the previous fall emigrating in the spring. A PIT barge will also provide a means to directly estimate overwinter survival in the Methow Basin as part of the CSS LCM efforts.

All major tributaries in the Methow Subbasin currently have smolt traps operating downstream of major spawning areas. Additional spring trapping in the lower river is not being proposed at this time.

Additionally, both hatchery yearling Chinook and steelhead can be tagged throughout the release period (mid-April to May) at the lower Methow traps if deemed necessary.

Location	Yearling Chinook		Steelhead	
	Wild	Hatchery	Wild	Hatchery
Lower Methow River smolt trap (spring/fall)	C	P	C	P
Twisp River smolt trap (spring/fall)	C		C	
Chewuch River smolt trap (spring/fall)	C		C	
Upper Methow River smolt trap (spring/fall)	C		C	
Lower Methow PIT barge (all year)	P	P	P	P

C = Current; P = Proposed