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MEMORANDUM

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FROM: Michele DeHart

DATE: September 24, 2015

RE: Proposal for 2016 Smolt Monitoring Program

On June 29, 2015, Fish Passage Center (FPC) staff met with managers from Washington Department of Fish and Wildlife (WDFW), Idaho Department of Fish and Game (IDFG), Oregon Department of Fish and Wildlife (ODFW), the Columbia River Inter-Tribal Fish Commission (CRITFC), the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (NOAA), and Pacific States Marine Fisheries Commission (PSMFC) to discuss the future of the Smolt Monitoring Program (SMP). The focus of the meeting was to discuss how sampling for the SMP may be modified to reduce the handling of listed salmonids (per the request of NOAA Fisheries) while still maintaining the data needs of the various fisheries management agencies. Following these discussions, the FPC was tasked with preparing a proposal for the 2016 SMP that addresses these concerns. After careful consideration of the managers needs and concerns regarding data from the SMP we offer the following proposal for 2016. The primary objectives of this proposal are efficiency in both fish handling and expenditure of funds. Appendix A is provided at the end of this document as a brief summary of the proposal outlined below.

Condition Monitoring at FCRPS Bypass Facilities

RPA 53.3 of the Biological Opinion specifies that the COE must monitor and document smolt condition (e.g., descaling and injury) at dams with Juvenile Bypass Systems (JBS), identify potential problems, and evaluate implemented solutions. Prior to 2015, SMP personnel at all FCRPS bypass facilities collected fish condition data on a subsample of the overall SMP sample. The tasks associated with condition monitoring (and transportation barge loading, where applicable) were funded by a separate contract between the COE and PSMFC. The SMP barge loading and condition monitoring tasks were carried out by SMP personnel to maximize cost effectiveness and to reduce handling. These cooperative and consolidated activities have been in place for the past several decades. However, the COE Walla Walla District awarded a separate contract to Blue Leaf Environmental in 2015 to cover condition monitoring and/or barge loading activities at Lower Granite, Little Goose, Lower Monumental, Ice Harbor, and McNary dams. This created the potential for double-handling at these facilities and redundancy in staffing between SMP and Blue Leaf personnel, at an increased cost.

A system was implemented for 2015 that is working to avoid double-handling. However, there is staff redundancy, additional expense, and less efficiency. A key component of the following draft SMP proposal for 2016 is the inclusion of condition monitoring in the SMP. Incorporating condition monitoring into the SMP would not only be the most cost effective, but also would be the best way to ensure that condition data are collected under the regionally developed protocol and are made available to managers and the public, real-time.

SMP Bypass Facilities

Bonneville Dam

No changes are proposed to the SMP at Bonneville Dam (BON). BON would remain an “index site.” The FPC will continue estimating a passage index for this site, which will maintain the long-term data set and allow managers to assess juvenile timing and relative magnitude of the out-migrating juvenile population as the season progresses.

Sampling for the SMP would begin in early March and run through the end of October. Sampling would be every day, with a target sample size of 300–500 fish per day. If the high temperature protocol is initiated, sampling will be reduced to every other day until temperatures decrease to levels outlined in the Fish Passage Plan (FPP). BON would continue condition monitoring as they have in recent years, including examining a subsample of lamprey juveniles for condition. Monitoring for Gas Bubble Trauma (GBT) would continue at BON, under the same protocols and frequency as has been conducted in recent years (Appendix A)

John Day Dam

SMP sampling at John Day Dam (JDA) will be reduced to an every-other-day schedule, similar to what currently occurs at McNary Dam (MCN). The FPC will continue estimating a passage index for this site, which will enable managers to assess juvenile timing and relative magnitude of the out-migrating juvenile population as the season progresses. In addition, taking this stepwise approach will allow managers to evaluate whether estimates of timing are affected by every-other-day sampling. We also suggest that sample days at JDA and MCN should be staggered.

Under this proposal, sampling at JDA would continue to run from early April to mid-September. Sampling would be every other day, for 24-hours, unless the high temperature protocol is initiated. Under the high temperature protocol, sampling would occur twice per week (for a limited duration) until temperatures decrease to levels outlined in the FPP. The target sample size would remain at 300–500 fish per sample day. JDA would continue condition monitoring as they have in recent years, including examining a subsample of lamprey juveniles for condition.

The proposed reduction in sampling frequency should reduce handling of listed stocks by approximately half of what is currently being handled at this site. However, this level of sampling will maintain lamprey data collection at the site of highest and most consistent lamprey abundance.

McNary Dam

There are no proposed changes to the SMP at McNary Dam (MCN). MCN would remain an “index site.” The FPC will continue estimating a passage index for this site, which will maintain the long-term data set and allow managers to assess juvenile timing and relative magnitude of the out-migrating juvenile population as the season progresses. As mentioned above, we suggest that sample days at JDA and MCN should be staggered.

Sampling for the SMP would begin in early April and run through the beginning of October. Sampling would be every other day, with a target sample size of 300–500 fish per sample day. If the high temperature protocol is initiated, sampling will remain every other day, but the target sample size will be reduced to approximately 100 fish per day, as is outlined in the FPP. MCN would continue condition monitoring as they have in recent years, including examining a subsample of lamprey juveniles for condition. Monitoring for GBT would continue at MCN, under the same protocols and frequency as has been conducted in recent years (Appendix A)

Lower Monumental and Little Goose Dams

Given that Lower Monumental (LMN) and Little Goose (LGS) dams are currently transportation projects, there are no proposed changes to the SMP for these sites at this time. Sampling for the SMP would begin in early April and run through the beginning of October for LMN and the end of October for LGS. Prior to the start of transportation, sampling at LMN and LGS would occur every other day for 24 hours, for condition monitoring only. This means that SMP personnel will set a sample rate that will target approximately 100 of the predominant species over a 24-hour period. This means that the target sample during this pre-transportation period would be approximately 200 fish, 100 yearling Chinook and 100 steelhead. All salmonids collected during these samples will be examined for condition. After transportation is initiated, sampling will change to every day, for 24 hours. Once every day sampling is initiated, the target sample size will be 300–500 fish per day and only a subsample of the salmonids will be examined for condition, as is currently being done. Monitoring for GBT would continue at LMN and LGS, under the same protocols and frequency as has been conducted in recent years (Appendix A).

There have been discussions as to whether data from LMN and LGS should be collected in the same manner as other “index sites” (i.e., every day with target sample size of 300–500 fish). However, it is our understanding that the target sample of 300–500 fish is tied to transportation requirements. If the COE does not need this level of sampling to inform barge

loading, or if LMN and/or LGS are eliminated as a transportation projects, sampling at these sites could be reduced to condition only in future years. A reduction in the target sample size at these sites would reduce overall handling under the SMP.

Lower Granite Dam

There are no proposed changes to the SMP at Lower Granite Dam (LGR). LGR would remain an “index site.” The FPC will continue estimating a passage index for this site, which will maintain the long-term data set and allow managers to assess juvenile timing and relative magnitude of the out-migrating juvenile population as the season progresses.

Sampling for the SMP would begin in late March and run through the end of October. Sampling would be every day, with a target sample size of 300–500 fish per day. LGR would continue condition monitoring as they have in recent years. Monitoring for GBT would continue at LGR, under the same protocols and frequency as has been conducted in recent years (Appendix A)

Rock Island Dam

There are no proposed changes to the SMP at Rock Island Dam (RIS). RIS would remain an “index site.” The FPC will continue estimating a passage index for this site, which will maintain the long-term data set and allow managers to assess juvenile timing and relative magnitude of the out-migrating juvenile population as the season progresses.

Sampling for the SMP would begin in early April and run through the end of August. Sampling would be every day. Unlike other bypass facilities, RIS does not have the ability to set a sample rate to control how many fish come into the sample. Therefore, the only way to reduce handling at RIS would be to reduce the number of hours that sampling occurs. However, given our concerns with samples of limited duration, we would not advise this. Since RIS is not an FCRPS project, there is no condition monitoring program at this site. Finally, monitoring for GBT would continue at RIS, under the same protocols and frequency as has been conducted in recent years (Appendix A)

SMP Traps

The need to change operations at the SMP traps to reduce handling and to mark fish throughout the passage distribution has been recognized. In 2015, experimental protocols for operation were tested. Testing modifications to trap operations will continue in 2016, to work toward reduced handling and better temporal representation of the marked fish.

Salmon River Trap

We are proposing to use the same trapping protocol for this trap that was initiated in 2015, with a few modifications. The goal of the 2015 modifications was to reduce the handling of listed hatchery yearling Chinook at the trap. An additional goal was to facilitate an extended marking period to increase the representativeness of the PIT-tagged wild Chinook as well as increase the marking of wild steelhead.

In 2016, the trap will operate 5 days per week, with sampling starting out at 24 hours per day. The operation will target 1,500 wild Chinook per week, with a target of PIT-tagging 300 wild Chinook per day for the first 3 days and the opportunity to back fill if this per day quota is

not met. In addition, we will likely implement hatchery Chinook criteria that will be used to determine whether and/or when to modify sampling. Modifications may include moving the trap to a less efficient location/position, reducing sampling to less than a 24-hour period, or reducing sampling to fewer days per week, or any combination of the above. The FPC will work with IDFG personnel to determine what these criteria will be prior to the start of the 2016 season.

Snake River Trap

We are proposing to use the same trapping protocol for this trap that was initiated in 2015. The goal of these modifications was to reduce the handling of listed hatchery steelhead at the trap while allowing for an extended marking period. As with the Salmon River Trap, this should increase the representativeness of the PIT-tagged wild Chinook and steelhead.

In 2016, the trap will operate 7 days per week, 24 hours per day. During peak passage of hatchery steelhead (approximately mid-April) sampling may be reduced to the 8-hour work day in an effort to reduce the handling of listed hatchery steelhead at the trap. Once hatchery steelhead numbers begin to decrease, 24-hour sampling will resume. The FPC will work with IDFG personnel to determine when peak hatchery steelhead has begun and, thus, when reduced sampling may be necessary.

Grande Ronde River Trap

We are proposing to use the same trapping protocol for this trap that was initiated in 2015. Trapping positions were monitored more closely in 2015 and modified at times to reduce the handling of listed hatchery yearling Chinook and subyearling fall Chinook fry. We propose to monitor trapping positions to this same effect in 2016. In 2016, the trap will operate 7 days per week, 24 hours per day. The FPC will work with ODFW personnel to determine when modifications are warranted.

Imnaha River Trap

Since the Nez Perce Tribe obtains handling permits for this site, we are not proposing any changes for this site. The FPC will continue to work closely with the Nez Perce Tribe in their monitoring efforts for both SMP and other projects.

Appendix A

Site by site overview of Smolt Monitoring Program under current proposal for 2016

Site	When	Data Collected	Comments
Lower Granite Dam (LGR) Personnel: PSMFC Oversight: WDFW/PSMFC Separator Monitoring: COE	<ul style="list-style-type: none"> • 3/26-10/31 (24-hour sample, every day) 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality • Daily sample of incidentals • Daily condition monitoring subsample (salmonids only) • Once-per-week GBT sample (CH and ST) 	<ul style="list-style-type: none"> • Collection estimates used for barge loading and determining summer spill termination date • LGR remains “Index Site” • Index Site designation means passage index will be generated by FPC to assess migration timing and relative magnitude of population • Long-term data set to evaluate changes in project operations will remain. • Passage index data used by CSS for SAR estimation • Daily collections used to generate population index for CH1, ST, and CH0. • SMP personnel often asked to collect additional fish for research purposes

Site	When	Data Collected	Comments
Little Goose Dam (LGS) Personnel: ODFW Oversight: ODFW Separator Monitoring: COE	<ul style="list-style-type: none"> • 4/1-Transport (24-hour sample every other day) • Transport.-10/31 (24-hour sample, every day) 	<p>Non-Transport Period</p> <ul style="list-style-type: none"> • Every-other-day condition monitoring subsample (salmonids only) • Every-other-day descaling and mortality • Every-other-day sample of incidentals • Once-per-week GBT sample (CH and ST) <p>Transport Period</p> <ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality • Daily sample of incidentals • Daily condition monitoring subsample (salmonids only) • Once-per-week GBT sample (CH and ST) 	<ul style="list-style-type: none"> • Collection estimates used for barge loading and determining summer spill termination date. • Daily collections used to generate population index for CH1 and ST.
Lower Monumental Dam (LMN) Personnel: PSMFC Oversight: WDFW/PSMFC Separator Monitoring: COE	<ul style="list-style-type: none"> • 4/1-Transport (24-hour sample every-other-day) • Transport.-10/1 (24-hour sample, every day) 	<p>Non-Transport Period</p> <ul style="list-style-type: none"> • Every-other-day condition monitoring subsample (salmonids only) • Every-other-day descaling and mortality • Every-other-day sample of incidentals • Once-per-week GBT sample (CH and ST) <p>Transport Period</p> <ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality • Daily sample of incidentals • Daily condition monitoring subsample (salmonids only) • Once-per-week GBT sample (CH and ST) 	<ul style="list-style-type: none"> • Collection estimates used for barge loading and determining summer spill termination date • LMN is often used to collect fish for research purposes (e.g., performance standards testing). If research is expected, sampling may need to be increased to accommodate research needs. Increased sampling will have to be accounted for by researcher's permits, not SMP.

Site	When	Data Collected	Comments
McNary Dam (MCN) Personnel: PSMFC Oversight: WDFW/PSMFC Separator Monitoring: COE	<ul style="list-style-type: none"> • 4/6-10/1 (24-hour sample, every other day) 	<ul style="list-style-type: none"> • Every-other-day samples of target salmonids and lamprey • Every-other-day descaling and mortality • Every-other-day sample of incidentals • Every-other-day condition monitoring subsample (salmonids and lamprey) • Twice-per-week GBT sample (CH and ST) 	<ul style="list-style-type: none"> • MCN remains “Index Site” • Index Site designation means passage index will be generated by FPC to assess migration timing and relative magnitude of population • Long-term data set to evaluate changes in project operations will remain.
John Day Dam (JDA) Personnel: PSMFC Oversight: PSMFC Separator Monitoring: COE	<ul style="list-style-type: none"> • 4/1-9/15 (24-hour sample, every other day) • High Temps – 6-hour sample, twice per week 	<ul style="list-style-type: none"> • Every-other-day samples of target salmonids and lamprey • Every-other-day descaling and mortality • Every-other-day sample of incidentals • Every-other-day condition monitoring sample (salmonids and lamprey) 	<ul style="list-style-type: none"> • JDA is often asked to collect fish for research purposes (e.g., performance standards testing). If research is expected, sampling frequency may need to be increased to accommodate research needs. Increased sampling will have to be accounted for by researcher’s permits, not SMP.
Bonneville Dam (BON) Personnel: PSMFC Oversight: PSMFC Separator Monitoring: PSMFC	<ul style="list-style-type: none"> • ~3/5-10/31 (24-hour sample, every day) • High Temps – 24-hour sample, every other day 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality • Daily sample of incidentals • Daily condition monitoring subsample (salmonids and lamprey) • Twice-per-week GBT sample (CH and ST) 	<ul style="list-style-type: none"> • BON remains “Index Site” • Index Site designation means passage index will be generated by FPC to assess migration timing and relative magnitude of population • Long-term data set to evaluate changes in project operations will remain.
Rock Island Dam (RIS) Personnel: Chelan PUD Oversight: Chelan PUD Separator Monitoring: N/A	<ul style="list-style-type: none"> • 4/1-8/31 (24-hour sample, every day) 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality • Daily sample of incidentals • Twice-per-week GBT sample (CH and ST) • PIT-tagging: 1,200 WST, 2,800 HST, 4,000 CH1, 4,800 CH0, 3,400 SO 	<ul style="list-style-type: none"> • BON remains “Index Site” • Index Site designation means passage index will be generated by FPC to assess migration timing and relative magnitude of population • Long-term data set to evaluate changes in project operations will remain. • PIT-tags used by both SMP and CSS

Site	When	Data Collected	Comments
Snake River Trap at Lewiston (LEW) Personnel: IDFG Oversight: IDFG	<ul style="list-style-type: none"> • ~3/5--5/26 (24-hour sample, every day) • Reduced to 8-hour sample during peak HST passage 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality on target species • Daily sample of incidentals • PIT-tagging: 4,800 WCH, 3,600 HCH, 3,600 WST, 1,400 HST 	<ul style="list-style-type: none"> • PIT-tags used by both SMP and CSS
Salmon River Trap at Whitebird (WTB) Personnel: IDFG Oversight: IDFG	<ul style="list-style-type: none"> • ~3/5--5/26 (24-hour sample, 5 days per week) • Sampling may be reduced further during peak HCH passage 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality on target species • Daily sample of incidentals • PIT-tagging: 6,700 WCH, 4,000 HCH, 2,150 WST, 3,400 HST 	<ul style="list-style-type: none"> • PIT-tags used by both SMP and CSS
Grande Ronde River Trap (GRN) Personnel: ODFW Oversight: ODFW	<ul style="list-style-type: none"> • ~3/5--5/26 (24-hour sample, very day) • Sampling may be modified during peak HCH passage 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality on target species • Daily sample of incidentals • PIT-tagging: 4,200 WCH, 1,400 HCH, 1,200 WST, 3,600 HST 	<ul style="list-style-type: none"> • PIT-tags used by both SMP and CSS
Imnaha River Trap (IMN) Personnel: NEZP Oversight: NEZP	<ul style="list-style-type: none"> • Year Round (SMP received data from ~March through June) 	<ul style="list-style-type: none"> • Daily samples of target salmonids and lamprey • Daily descaling and mortality on target species • Daily sample of incidentals • PIT-tagging 	<ul style="list-style-type: none"> • PIT-tags used by both SMP and CSS