AGENDA
2013 Fish Passage Plan Change Form Review
January 24, 2013 (0900-1530)
CRITFC, Columbia Room

Web Meeting Access Information:
Web Meeting Address: https://www.webmeeting.att.com
Meeting Number(s): 888-675-2535
Access Code: 4849586

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2.	**NWW**		
2.01.	Page 21	13MCN001	2.3.2.2. Lamprey Entrance SFE2. ***FPOM 7/12/12 - Approved***
2.02.	Page 23	13MCN002	2.3.1.2. Spill Patterns TSW Removal. ***FPOM 7/12/12-Approved***
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3. All Projects

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4. Pending Change Forms

4.01.	Page 70	Appendix D	(new section) Operations for Non-Listed Species (Lamprey, etc.)

FPP Change Request Form

Change Request Number & Title: 13BON001 – 2.5.1. PH2 and BI Dredging
Date Submitted: 04/18/12
Project: BON
Requester Name, Agency: NWP Fish Section

Location of Change - FPP Project and Section:

BON 2.5.1. (Adult Fish Passage Facilities - Operating Criteria) – add paragraphs 1.n and 2.k

Proposed Changes (*in track changes to existing section*):

Add the following paragraphs:

2.5.1.1. (Winter Maintenance Season)

n. In the appropriate year (when the fishway is out of service for winter maintenance) dredge AWS intakes to maintain the following elevations:

1. -22' to -24' msl at PH2 Fish Unit intake;
2. +63' msl at BI exit, FV3-7 and FV3-9.

2.5.1.2. (Fish Passage Season)

k. Every August, during mid-season fishway ROV inspections, take soundings at the PH2 Fish Unit intake and the BI exit/AWS intake to determine sediment accumulation and plan for the appropriate dredging need.

Justification for Change:

The addition is to formalize the routine dredging needed to maintain the Powerhouse 2 Washington Shore (WS) fish ladder auxiliary water supply (AWS) intake and the Bradford Island (BI) fish ladder exit and AWS intakes. Maintenance dredging is believed to reduce the likelihood of emergency dewaterings after high flow years, due to sediment build-up in the AWSs. Maintenance dredging will also assist in maintaining the BI fishway exit and reduce the opportunity for aquatic vegetation to take hold and clog fishway picket leads.

Comments from others:

Record of Final Action:

FPOM 11/08/2012: Ok w/ dredging of PH2 Fish Units for 2013.

FPOM 01/24/2013:

FPP Change Request Form

Change Request Number & Title: 13BON002 **-** ITS Chain Gates 1A and 1B
Date Submitted: 11/14/12
Project: BON
Requester Name, Agency: BON Project Fisheries

Location of Change - FPP Project and Section:

BON 2.4.1. (Juvenile Fish Passage Facilities – PH1 Operating Criteria)
BON 2.5.1. (Adult Fish Passage Facilities – All Adult Fish Passage Facilities Operating Criteria)

Proposed Changes (*in track changes to existing section*):

2.4.1.2. (Juvenile Fish Passage Season)
d. At the ITS, set chain gate 1A and 1B at 701' msl ~~and 1B at 73' msl~~. Ensure gates 3B, 6C, and 10B are operating according to **Table BON-6**.

2.5.1.1. (Winter Maintenance Season)
m. Except when closed to facilitate maintenance activities, the PH1 ITS gates 1A, 1B, 3B, 6C, and 10B should remain open from December 01 through the end of February. This operation is intended to facilitate steelhead kelt passage.

1. Set chain gate 1A and 1B at 701**'** msl ~~and 1B at 73' msl~~. Ensure gates 3B, 6C, and 10B are operating according to **Table BON-6**.

Justification for Change:
Due to common forebay elevations, the previous ice & trash sluiceway (ITS) fixed chain gate elevations would not allow sufficient water to pass over the chain gates. Discussion among regional biologists and managers generated agreement that a fixed elevation of 70' msl was optimal for gates 1A and 1B.

Comments from others:

Record of Final Action:

FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13BON003 – 2.5.1.2.h Fish Count Window
Date Submitted: 11/14/12
Project: BON
Requester Name, Agency: NWP Fisheries Section

Location of Change - FPP Project and Section:

BON 2.5.1.2 (Adult Fish Passage Facilities – Operating Criteria – Fish Passage Season) – paragraphs h.1 and h.3.

Proposed Changes (*in track changes to existing section*):

2.5.1.2.

h. The current fish counting program is conducted 16 hours per day, year around (see **Table BON-3**). Count station crowders shall remain in the operating position while visual counting and/or videotaping is being conducted. All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility.

1. The crowder will be closed so that the count slot width is no less than 18 inches. This will usually occur during high turbidity conditions to maintain count accuracy. All equipment will be maintained in good condition. The counting window and backboard will be cleaned as needed to maintain good visibility. The crowder ranges are as follows: WS = 22.8–38.4"; CI = currently out of service (maximum opening is approximately 36"); BI = 20.4–36.0"

2. If passage is impaired by this condition, the count slot may be widened until proper passage conditions are achieved, even though count accuracy may be compromised to some degree.

3. Project biologists, FFU, and the ~~WDFW~~ fish count supervisor shall coordinate to achieve optimum count slot passage and/or count accuracy conditions.

Justification for Change:

FPOM requested the crowder range information. WDFW is no longer the sole source for fish counting.

Comments from others:

Record of Final Action:

FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13BON004 – 6.3.1.1. Orifice Flow
Date Submitted: 11/14/12
Project: BON
Requester Name, Agency: NWP Fisheries Section

Location of Change - FPP Project and Section:

BON 6.3.1.1 (Dewatering Plans – Adult Fish Ladder – Routine Maintenance)

Proposed Changes (*in track changes to existing section*):

6.3.1.1. When possible operate the ladder to be dewatered at ~~a reduced~~ orifice flow for at least 24 hours, and up to 96 hours, prior to dewatering. ~~Reduced flow is defined as less than criterion operation, but more than orifice flow.~~ This operation shall not be initiated prior to 1800 hours on November 30 if a ladder outage is scheduled for December 1.

Justification for Change:

FPOM requested clarification on reduced flow v. orifice flow. They are the same.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13BON005 – 6. 1. Dewatering Plans
Date Submitted: 11/14/12
Project: BON
Requester Name, Agency: NWP Fisheries Section

Location of Change - FPP Project and Section:

BON 6.1 (Dewatering Plans - Guidelines) and 6.2 (Dewatering Plans – Juvenile Bypass System)

Proposed Changes (*in track changes to existing section*):

6.1. Guidelines for any dewatering. Guidelines for Dewatering and Fish Handling Plans (**Appendix F**) have been developed and are followed for most project facilities dewaterings. These plans include consideration for fish safety and are consistent with the following general guidance. The appropriate plans are reviewed by participants before each salvage operation. Dewatering Plans are also available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010.

6.1.4. The fish agencies and tribes will be notified of ~~invited to assist in~~ any dewaterings and may be invited if additional help is deemed necessary and all safety considerations can be met~~, at a minimum, are invited to participate in all ladder dewaterings~~.

6.1.5. A best effort will be made to release ~~A~~adult fish ~~will be released~~ into the forebay and juvenile fish ~~will be released~~ into the tailrace. If a ladder is dewatered in the spring or summer, steelhead kelts will be released into the tailrace. If large numbers of sturgeon are present, it may be necessary to release them into either the forebay or the tailrace, depending on the location of the recovery operation.

6.2. Juvenile Bypass Systems. See Guidelines for Dewatering and Fish Handling Plans (**Appendix F**) and the Dewatering ~~Fish Recovery~~ Plans available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010~~in the Project Fisheries office~~.

Justification for Change:

6.1, 6.2: Provides location of the dewatering plans. **6.1.4**: Due to current clearance and safety regulations, it may not always be possible for outside personnel to assist with dewatering activities. **6.1.5**: Reflects current constraints and practices.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13BON006 **–** Table BON-15 PH1 Operating Range
Date Submitted: 12/17/12
Project: BON
Requester Name, Agency: NWP Fisheries Section

Location of Change - FPP Project and Section:

Table BON-15. Turbine Operating Ranges for B1 updated to include Best Operating Point

Proposed Changes (*in track changes to existing section*):

See table next page…

Justification for Change:

The 2012 Fish Passage Plan provides operating conditions for lower and upper 1% operating conditions for Bonneville Powerhouse 1. In addition, this year's plan incorporates suggested operating conditions that have been analyzed and found to be improved fish passage conditions at a specified head. The Best Operating Point columns are to be utilized when it is possible to improve fish passage mortality through turbines while also maintaining required power requirements. The best operating point conditions are based on extensive research from the Turbine Survival Program (TSP) that incorporates observational model analysis from ERDC and a relative efficiency analysis for each head developed by HDC based off of these results. For additional information regarding the work performed by ERDC, see the draft report: "Bonneville First Powerhouse ERDC Turbine Model BIT Report". The operation of PH1 up to the Best Operating Point is to be utilized under the guidance of the FPOM when it becomes necessary to increase the capacity of PH1 to reduce flow through PH2 in order to maintain good gatewell fish passage conditions or to maintain spill flow at a level that reduces high dissolved gas levels below the project.

Comments from others:

Record of Final Action:

FPOM 01/24/13:

Table BON- 1. Bonneville Dam Powerhouse One MGR Turbine Units 1-10 Output (MW) and Discharge (cfs) at the Upper and Lower Limits of the 1% of Peak Efficiency Operating Range and at the Best Operating Point for Head Elevations of 35-70 feet. [i]

Head (ft)	Powerhouse One (Units 1-10)					
	Lower Limit (1%)		Upper Limit (1%)		Best Operating Point [ii]	
	(MW)	(cfs)	(MW)	(cfs)	(MW)	(cfs)
35	18.9	7,203	23.6	9,019	27.3	10,527
36	19.5	7,205	24.3	8,985	28.3	10,564
37	20.1	7,205	25.0	8,951	29.2	10,598
38	20.7	7,204	25.6	8,918	30.2	10,627
39	21.3	7,202	26.3	8,886	31.2	10,654
40	21.9	7,199	26.9	8,854	32.1	10,677
41	22.5	7,201	28.0	8,969	33.2	10,759
42	23.1	7,202	29.1	9,077	34.3	10,837
43	23.6	7,203	30.1	9,180	35.4	10,910
44	24.2	7,203	31.2	9,278	36.5	10,979
45	24.8	7,203	32.3	9,370	37.6	11,045
46	25.4	7,210	33.2	9,416	38.8	11,109
47	26.0	7,217	34.1	9,459	39.9	11,170
48	26.6	7,223	35.0	9,500	41.0	11,227
49	27.3	7,229	36.0	9,539	42.1	11,282
50	27.9	7,234	36.9	9,575	43.2	11,333
51	28.5	7,241	37.8	9,618	44.2	11,356
52	29.1	7,248	38.4	9,577	45.2	11,378
53	29.7	7,254	39.0	9,537	46.2	11,398
54	30.3	7,260	39.7	9,499	47.2	11,418
55	30.9	7,266	41.6	9,768	48.2	11,465
56	31.5	7,269	42.5	9,808	49.2	11,478
57	32.1	7,272	43.4	9,846	50.3	11,518
58	32.7	7,274	44.4	9,883	51.4	11,557
59	33.3	7,277	45.3	9,918	52.4	11,594
60	33.8	7,279	46.3	9,952	53.5	11,630
61	34.5	7296	46.9	9,930	54.3	11,610
62	35.1	7311	47.6	9,909	55.1	11,591
63	35.8	7326	48.3	9,889	56.0	11,572
64	36.5	7340	49.0	9,868	56.6	11,519
65	37.1	7354	49.7	9,849		
66	37.6	7341	50.6	9,876		
67	38.1	7329	51.4	9,902		
68	38.6	7317	52.3	9,928		
69	39.0	7305	53.2	9,954		
70	39.5	7294	54.1	9,979		

i. Table based on data provided by HDC, June 2000. Revised 2009 to remove reference to STSs only. Revised December 2012 to include Best Operating Point.

ii. Best operating point (also referred to as best geometry) occurs when turbine wicket gates and stay vanes are aligned to provide the maximum water discharge at any operating head (i.e., flow entering the turbine runner encounters the least amount of cross-sectional area of the combined wicket gate and stay vane profiles). The best operating point is often above the existing upper limit of the 1% operating range.

FPP Change Request Form

Change Request Number & Title: 13TDA001 **–** 3.1.2. Third Inspection
Date Submitted: 11/02/12
Project: TDA
Requester Name, Agency: Bob Cordie, TDA Project Fisheries

Location of Change - FPP Project and Section:

TDA 3.1.2 (Facility Monitoring & Reporting – Inspections)

Proposed Changes (*in track changes to existing section*):

3.1.2. During fish passage season, fish passage facilities will be inspected at least twice per day/seven days a week to assure operation according to established criteria. A third inspection will be performed using the data logging system. Entrance conditions for the previous 24 hours will be checked daily for entrance criteria.

Justification for Change:

This allows for better coverage of entrance conditions in addition to the 2x-daily visual checks.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13TDA002 **–** 2.5.1.2.c. TDA-N Entrance Weirs
Date Submitted: 11/02/12
Project: TDA
Requester Name, Agency: Bob Cordie, TDA Project Fisheries

Location of Change - FPP Project and Section:

TDA 2.5.1.2.c. (Adult Fish Passage Facilities – Operating Criteria – Fish Passage Season – North Fishway Entrance)

Proposed Changes (*in track changes to existing section*):

2.5.1.2.

c. Operate one entrance weir, N1~~ or N2~~. Project biologists and Wasco Co. will work in conjunction to maintain fishway entrances within established criteria.

Justification for Change:

Clarification that we only operate one entrance weir and we only have the water supply capacity to operate one entrance in criteria. Presently, N2 does not have a weir and has a bulkhead installed. We do not have the immediate ability to operate either one. Therefore it should state 'operate N1 weir only'.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13TDA003 **–** 2.5.1.2.a.8. Fish Count Window
Date Submitted: 11/14/12
Project: JDA
Requester Name, Agency: NWP Project Fisheries

Location of Change - FPP Project and Section:

TDA 2.5.1.2.a.8 (Adult Fish Passage Facilities – Operating Criteria – Fish Passage Season – All Adult Facilities) – paragraphs A and C.

Proposed Changes (*in track changes to existing section*):

2.5.1.2.a.8.

A. The crowder shall be closed to allow the count slot width to be no less than 18 inches. This will usually occur during high turbidity conditions to allow count accuracy criteria to be achieved. Crowder ranges at TDA are as follows: TDA-E = 20–34"; TDA-N = 18–38".

C. Project biologists, FFU, and the ~~WDFW~~ fish count supervisor shall coordinate to achieve optimum count slot passage and/or count accuracy conditions.

Justification for Change:

FPOM requested the crowder range information. WDFW is no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13TDA004 – 6.1. Dewatering Plans
Date Submitted: 11/14/12
Project: TDA
Requester Name, Agency: NWP Fisheries Section

Location of Change - FPP Project and Section:

TDA 6.1 (Dewatering Plans).

Proposed Changes (*in track changes to existing section*):

6. Dewatering Plans.

6.1. Guidelines for Dewatering and Fish Handling Plans **(Appendix F)** have been developed by the projects and approved by FPOM, and are followed for most project facilities dewaterings. These plans include consideration for fish safety and are consistent with the following general guidance. The appropriate plans are reviewed by participants before each salvage operation. Dewatering Plans are available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010

6.1.2. The project fish biologist and/or alternate Corps fish personnel will attend all project activities involving fish handling.

6.1.3. The fish agencies and tribes are encouraged to participate in all ladder dewaterings. ~~Agency fish count supervisor required, per contract, to attend.~~

Justification for Change:

Provides website address for online versions of the Dewatering Plans.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13TDA005 – 4.3.2.1.b. Fish Units OOS
Date Submitted: 11/15/12
Project: TDA
Requester Name, Agency: Bob Cordie, Project Fisheries

Location of Change - FPP Project and Section:

TDA 4.3.2.1.b. (Fish Facilities Maintenance – Adult Facilities – Non-Routine Maintenance – Fishway AWS) – add new paragraphs 4 and 5.

Proposed Changes (*in track changes to existing section*):

4.3.2.1.
b. If both of the fishway auxiliary water turbines fail or malfunction, regardless of fish passage season, the adult fish passage facility will be operated as follows:

1. Raise the south entrance weirs to elevation 81'msl (closed position).

2. Close west entrance.

3. Close entrance weir E1 and E2 and keep E3 at 6' depth.

4. During spill season, modify spill pattern to reduce north entrance turbulence to allow fish to enter more efficiently

5. Operate PUD and north backup system and open both N1 and N2 to improve attraction to the north entrance.

Justification for Change:

With a 2 fish unit failure, there will be very little passage for the east ladder. We'll need to improve passage attraction conditions to the north fishway.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13TDA006 Adult Count Hours
Date Submitted: 01/04/13
Project: TDA
Requester Name, Agency: RCC, NWP

Location of Change - FPP Project and Section:

Table TDA-1. Adult Fish Counting Schedule. Change in winter count hours and add footnote re: DST.

Proposed Changes (*in track changes to existing section*):

Table TDA-1. Adult Fish Counting Schedule at The Dalles Dam.

Count Period	Counting Method and Hours [1]
~~March 01 – March 31~~	~~Video 0600–1800 hours (PST)~~
April 01 – October 31	Visual 0500–2100 hours (DST)
July 01 – September 30	Night Video (Lamprey) 2100–0500 hours (DST)
~~November 01 – end of February~~	~~Video 0500–2100 hours (PST)~~

1. In 2013, daylight saving time (DST) is in effect from March 10 – November 3, and hours are adjusted forward one hour from Pacific Standard Time (PST). DST = PST+1.

Justification for Change:

- Winter counts shift on a 5-year schedule. This year, winter counts will shift from TDA to JDA (see also 13JDA005).
- Add footnote to all NWP projects to clarify the count hours during daylight saving time (DST), when Pacific Standard Time (PST) is shifted forward one hour. DST = PST+1.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13JDA001 – 2.4.1.2.b Trashrack Raking
Date Submitted: 11/14/12
Project: JDA
Requester Name, Agency: NWP Project Fisheries

Location of Change - FPP Project and Section:

JDA 2.4.1.2.b. (Juvenile Fish Passage Facilities–Operating Criteria–Fish Passage Season)

Proposed Changes (*in track changes to existing section*):

2.4.1.2.

b. Units 1 through 5 will be raked~~, if necessary as determined by ROV inspection,~~ monthly between April 1 and August~~July~~ 1. Units 6 through 10 or units 11 through 16 will be alternately raked with units 1 through 5 from April 1 through August~~July~~ 1. After August~~July~~ 1, units will be raked as necessary as determined by ROV inspection, or as needed to avoid exceeding gatewell drawdown criterion.

Justification for Change:

It takes as much time to ROV the trashrack as it does to rake it, so Project Fisheries recommends monthly raking through most of fish passage season. With the wet July weather we've had in recent years, extending the monthly raking through July seems like a reasonable fish protection measure.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13JDA002 **–** 2.5.1.2.a.8 Fish Count Window
Date Submitted: 11/14/12
Project: JDA
Requester Name, Agency: NWP Project Fisheries

Location of Change - FPP Project and Section:

JDA 2.5.1.2.a. (Adult Fish Passage Facilities – Operating Criteria – Fish Passage Season – All Adult Facilities)

Proposed Changes (*in track changes to existing section*):

2.5.1.2.a

8. The current fish counting program is conducted 16 hours per day from April through October (**Table JDA-3**). Count station crowders shall remain in the operating position while visual counting and/or videotaping is being conducted.

A. Count station crowders shall be at maximum width that allows count or video tape accuracy. The minimum count slot width shall be no less than 18 inches. Crowder ranges are as follows: JDA-N = 18–28"; JDA-S = 18–30".

B. If passage is impaired by narrow count slot conditions, the count slot will be widened until proper passage conditions are achieved, despite count accuracy.

C. Project biologists, FFU, and ~~WDFW~~ fish counters shall coordinate to achieve optimum count slot passage and/or count accuracy conditions.

D. If counting is temporarily discontinued due to unscheduled events, the crowder shall be fully opened.

E. The crowder shall remain in operating position during the counters' hourly ten minute break periods.

Justification for Change:
FPOM requested the crowder range information. WDFW is no longer the sole source for fish counting. Formatted to match TDA and BON.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13JDA003 – 6. Dewatering Plans
Date Submitted: 11/14/12
Project: JDA
Requester Name, Agency: NWP Project Fisheries

Location of Change - FPP Project and Section:

JDA 6. (Dewatering Plans)

Proposed Changes (*in track changes to existing section*):

6. Dewatering Plans. Guidelines for dewatering and fish handling plans (Appendix F) have been developed and are followed for dewatering project facilities. Dewatering Plans are available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/FPOM/2010/. These plans include consideration for fish safety and are consistent with the following general guidance. The appropriate plans are reviewed by participants before each salvage operation. The project fish biologist and/or alternate Corps fish personnel will attend all project activities involving fish handling. The fish agencies and tribes will be encouraged to participate in all ladder dewaterings. During the pumping or draining operation to dewater a portion or all, the water level will not be allowed to drop so low it strands fish. Personnel shall remain present onsite during pumping operations to ensure stranding does not occur or a water level sensor that deactivates the dewatering process will be used.

Justification for Change:
Provides website address for online versions of the Dewatering Plans.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13JDA004 **–** 2.4.1.2.g. Orifice Position for Dewatered Units
Date Submitted: 11/14/12
Project: JDA
Requester Name, Agency: NWP Project Fisheries

Location of Change - FPP Project and Section:

JDA 2.4.1.2.g (Juvenile Fish Passage Facilities – Operating Criteria – Fish Passage Season)

Proposed Changes (*in track changes to existing section*):

2.4.1.2.

g. Open all gatewell orifices April 1 – December 15. Inspect orifice lights daily to assure that the orifice lights are operating. Replace all burned out orifice lights within 24 hours. Close and open each orifice three times daily, or more frequently, to be determined by the project biologist, as necessary due to heavy debris accumulations in gatewells. If a unit goes out of service, orifices are to remain open in associated gatewells unless that gatewell is dewatered. ~~for a 24-hour period afterward to allow fish to escape the gatewells into the DSM.~~

Justification for Change:

If an orifice does not need to be closed to facilitate maintenance, it should be left open to allow fish to exit the gatewells.

Comments from others:

Record of Final Action:

FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13JDA005 Adult Count Hours
Date Submitted: 01/04/13
Project: JDA
Requester Name, Agency: RCC, NWP

Location of Change - FPP Project and Section:

Table JDA-3. Adult Fish Counting Schedule. Change in winter count hours and add footnote re: DST.

Proposed Changes (*in track changes to existing section*):

Table JDA-1. Adult Fish Counting Schedule at John Day Dam.

Count Period	Counting Method and Hours [1]
April 01 – October 31	Visual 0500–2100 hours (DST)
July 01 – September 30	Night Video (Lamprey) 2100–0500 hours (DST)
November 01 – February 28	Video 0400–2000 hours (PST)

1. In 2013, daylight saving time (DST) is in effect from March 10 – November 3, and hours are adjusted forward one hour from Pacific Standard Time (PST). DST = PST+1.

Justification for Change:

- Winter counts shift on a 5-year schedule. This year, winter counts will shift from TDA to JDA (see also 13TDA006).
- Add footnote to all NWP projects to clarify the count hours during daylight saving time (DST), when Pacific Standard Time (PST) is shifted forward one hour. DST = PST+1.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN001 – 2.3.2.2. Lamprey Entrance Weir ***APPROVED FPOM 07/12/12***
Date Submitted: 06/18/12
Project: MCN
Requester Name, Agency: Greg Moody, NWW Fisheries

Location of Change - FPP Project and Section:

MCN 2.3.2.2.j (Operating Criteria – Adult Fish Passage Facilities – Fish Passage Period)

Proposed Changes (*in track changes to existing section*):

j. Lamprey passage season June 15 to September 30 modifications with removal of the stationary section of the segmental gate.

1. Implement the following nighttime segmental gate operations between 2100 hours to 0400 hours:

i. Lower the SFE 1 ~~& 2~~ entrance weir to the lowest elevation (243 fmsl).

Justification for Change:
We can't lower the SFE 2 entrance weir even close to that level due to the "lamprey stilts" that were installed a few months ago. Instead, the stilts catch on the upper sill, and prevent both weir gates from dropping down below that sill. Trying to lower them would slacken and endanger the cable control system. SFE 1 continues to operate normally.
The purpose of the stilts on the SFE 2 telescoping weirs is to provide a 16" gap or "deep slot" attraction flow for adult lamprey. This condition was modeled at ERDC as an interim operation while the prototype lamprey entrance structure is under design. The 16" deep slot height was chosen to accommodate salmon passage if they are attracted to this location. This operation will be monitored as part of the lamprey program. Monitoring will include optical cameras and DIDSON cameras monitoring the approach and passage of lamprey through the deep slot. This alternate operation of SFE 2 was presented and discussed at several Walla Walla FFDRWG meetings. No objections were noted.

Comments from others:
06/27/12: Carl Dugger (MCN Project Fisheries) response to email from Greg Moody:

-----Original Message-----
From: Moody, Gregory P NWW
Sent: Wednesday, June 27, 2012 2:01 PM
To: Dugger, Carl R NWW; Goodrich, Daniel K NWW
Cc: Douthitt, Shane A NWW; Roberts, Timothy J NWW; Johnson, Bobby NWW; Wanderscheid, Kenneth M NWW; Setter, Ann L NWW
Subject: RE: SFEW2

Are you going to stay within the guidelines of the FPP? DAY TIME. ON THE WASHINGTON SIDE YES. AT THE NORTH ENTRANCES AS BEST AS SPILL TURBULENCE ALLOWS. AT THE SOUTH ENTRANCES, PROBABLY NOT ON WEIR DEPTH DUE TO THE STILTS ON SFEW2. POOL DIFFERENTIALS YES. NIGHT LAMPREY: THAT'S WHAT WE ARE TRYING TO WORK THROUGH WITH THE FPP CHANGE FOR THE SOUTH WEIRS.

Weir depth: 9' or > 9' DIFFICULT WITH SPILL TURBULENCE. WASHINGTON AND NORTH WILL BE OKAY. I THINK THE STILTS HAVE ALREADY DONE IN THE SOUTH ENTRANCES DEPTH.

Maintain channel velocity: 1.5 to 4' per sec. NO PROBLEM WITH NEW METER.

Head differential: 1 - 2' NO PROBLEM. THE PROGRAM IS SET FOR POOL DIFFERENTIAL. WE WILL SACRIFICE WEIR DEPTH FOR POOL DIFFERENTIAL AS WE NEED THAT ATTRACTION FLOW.

Isn't there a problem at low tailwaters? HAVE NOT HAD LOW WATER YET. Have the lamprey changes and stilts become a problem? I BELIEVE WE HAD LOST WEIR DEPTH AT THE SOUTH ENTRANCES DUE TO THE STILTS. WE NEED TO BE CAREFUL WITH FUTURE CHANGES.

Record of Final Action:
FPOM 07/12/13: Approved.

FPP Change Request Form

Change Request Number & Title: 13MCN002 Spill Patterns for TSW Operations
APPROVED FPOM 07/12/12
Date Submitted: 07/06/2012
Project: MCN
Requester Name, Agency: MCN Project Fisheries

Location of Change - FPP Project and Section:

MCN Section 2.3.1.2.h. (Operating Criteria – Juvenile Fish Passage Facilities – Fish Passage Season – TSW Operation).

Proposed Changes (*in track changes to existing section*):

2.3.1.2 h. TSW Operation. A temporary spillway weir (TSW) will be installed in spillbays 19 and 20, available for the start of the spring spill operations. During spring spill operations when TSWs are in service, implement the Spill Pattern for Fish Passage (Table MCN-7). Both TSWs will be removed from service on June 8 or the next available work day. To allow crews to safely remove the TSWs from service, temporarily implement the Spill Pattern During TSW Removal (Table MCN-10) throughout the TSW removal process. Upon completion of the TSW removal process when both TSWs have been removed from service, implement the Spill Pattern After Both TSWs Removed (Table MCN-9) for the remainder of the fish passage season.

Justification for Change:

The current McNary TSW operation description does not contain a narrative describing which spill patterns are to be used during the weir removal process.

Clarifies which spill patterns to be utilized due weir removals and which spill table patterns are to be used during the transition between spring and summer spill. This change will also make the McNary Fish Passage Section consistent with the the Fish Operations Plan in Appendix E of the Fish Passage Plan.

More background details can be found in Coordination Form **12MCN008**.

Comments from others:

Record of Final Action:

FPOM 07/12/2012: Approved.

FPP Change Request Form

Change Request Number & Title: 13MCN003 4.1. Turbine Warm Weather Ops
Date Submitted: 10/24/2012
Project: MCN
Requester Name, Agency: Carl Dugger, MCN Project Fisheries

Location of Change - FPP Project and Section:

MCN Section 4.1. (Turbine Operations)

Proposed Changes (*in track changes to existing section*):

MCN 4.1. Turbine Units Operation
When in operation, turbine units will be operated to enhance adult and juvenile fish passage and juvenile bypass from March 1 through November 30 as in Table MCN -5. During this time period turbine units will be operated as needed to meet generation requirements in the following order: 1, then 14 through 2 in descending order when units are available for operation. Unit operating priority may be coordinated differently to allow for fish research, construction, or project maintenance activities. ~~During the summer, (when all collected fish are transported) turbine operating priority will change to north powerhouse loading to improve juvenile egress conditions, when recorded forebay temperatures reach 70 degrees Fahrenheit (F). Under north powerhouse loading, turbine units shall be loaded consecutively from unit 14 back towards unit 1. Turbine unit 1 may also be taken off-line during parts of the summer to avoid adding warmer water to the juvenile fish collection channel.~~ Refer to Appendix B section 4.g.(3). for warm water operations. Starting and stopping of units, two or more at a time, should be avoided if possible during periods of warm water, especially between 1000 and 2400 hours. During times of elevated forebay temperatures (>70°F measured in the forebay) the project biologist may coordinate through CENWW-OD-T to designate up to 5 turbine units to a higher priority of operation to even out water temperature differences within the juvenile collection channel and to spread out the tailrace flow to reduce back eddies for safer smolt egress and safer fish barge docking conditions.

Justification for Change:

See also change form 13AppB003. The existing pattern risks shocking fish by creating sudden temperature changes as fish travel down the juvenile channel. Staggering the input flow evens out the temperature within the channel, thereby reducing the risk of temperature shock. In 2009, McNary successfully used this method and ended a temperature-related fish kill, even though temperatures continued to climb over the next week. The McNary temperature model, developed by Mike Schneider, USACE, also suggests this pattern.

Generally a serious condition that induces noticeable fish mortality only occurs when weather patterns, with no wind, occur for several days consecutively. The “no wind” condition does not allow for mixing of the stratified temperature layers within the forebay, and, depending on

project operation, can selectively withdraw extremely different temperatures up the gatewells into the collection channel.

The shortened, daily sampling would also still let the project know when to stop primary bypass and resume secondary bypass or transportation. Without sampling, the project would not be able to detect mortality resulting from unrelated factors, such as a sharp piece of metal stuck in the intake pipe to the JFF.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN004 2.3.2.2. Ladder Depth Criteria
Date Submitted: 11/02/2012
Project: MCN
Requester Name, Agency: NWW Lamprey PDT, MCN Project Fisheries

Location of Change - FPP Project and Section:

MCN Section 2.3.2.2. (Operating Criteria – Adult Fish Passage Facilities – Fish Passage Period)

Proposed Changes (*in track changes to existing section*):

f. North Powerhouse Entrances (NFE 2 & 3)

1. Operate 2 downstream gates.

2. Weir depth: ~~9~~8' or greater below tailwater.

h. South Shore Entrances (SFE 1 & 2)

1. Operate 2 ~~entrances~~downstream gates.

2. Weir depth: ~~9~~8' or greater below tailwater.

Justification for Change:

The McNary Oregon Fish Ladder entrance weir depth criterion for adult salmonids was originally a minimum of 6' below tailwater. The criterion was increased to a minimum of 8' depth in 1985 or earlier, at the request of the fishery agencies and Tribes. The depth criterion was further increased to 9' or greater in 1988 or 1989, presumably at the request of the McNary Project Fishery Biologist, under the rationale that at 9' or greater it was assured that the entrance head differential criterion (1.0'-1.5' back then) would be met almost all the time. The minimum 9' depth criterion was also regularly met with full fish pump capacity and efficiency at that time. However, partly due to long-term auxiliary water supply pump outages and operating inefficiencies caused by wear and tear of aging equipment, the current criteria of 1'-2' head differentials and 9' depths are no longer all routinely met at one or more of the entrances, as shown in the following table.

McNary Oregon Fish Ladder Entrances – Percent of Time in Criteria

	2008	**2009**	**2010**	**2011**
SFE 1 Weir Depth	29.3	57.1	81.8	88.6
SFE 2 Weir Depth	28.6	88.0	80.2	89.4
South Shore head differential	88.0	85.0	94.2	90.2
NFE 2 Weir Depth	55.6	87.9	96.7	66.7
NFE 3 Weir Depth	62.4	91.7	96.7	66.7
North Powerhouse head differential	75.9	63.9	43.0	74.2

Data from annual McNary Adult and Juvenile Fish Facility Monitoring Reports

The entrance weir depths are almost always 8’ to over 9’. By changing the depth criterion back to 8’ or greater, the saved water will be available in the fishway channel to more consistently meet the entrance head criterion. A depth criterion of 8’ or greater is currently being used at the McNary Washington Fish Ladder entrances as well as most other ladder entrances at Lower Columbia and Snake River Projects.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN005 2.3.1.2. Emergency Bypass
Date Submitted: 12/04/2012
Project: MCN
Requester Name, Agency: Carl Dugger, MCN Project Fisheries

Location of Change - FPP Project and Section:

MCN Section 2.3.1.2. (Operating Criteria – Juvenile Fish Passage Facilities – Fish Passage Period) – add new paragraph j.

Proposed Changes (*in track changes to existing section*):

j. Emergency Bypass During Late Season Mechanical Failure. After November 30, if a mechanical failure forces the McNary JFF juvenile channel into emergency bypass mode, the McNary Fisheries staff may leave the juvenile channel in emergency bypass mode until the beginning of the winter maintenance season when the juvenile channel is fully dewatered.

Justification for Change:

This type of exception is already approved for staying in emergency bypass following freezing conditions (**Section 2.3.1.2.i., Emergency Bypass During Freezing Conditions**). It would expand this exemption to address mechanical problems as well. The current situation requires McNary, if possible, to operate the juvenile channel until the last of the fish screens are removed after December 15. Under existing requirements, if mechanical repairs are completed a few days before the channel is due to be dewatered for the season, the McNary Fisheries staff are be required to go out of Emergency bypass, go back into primary bypass, and then go back out of primary bypass in order to dewater the facility for the maintenance season. That creates a lot of extra work and expense for staff, for the sole purpose of collecting a few PIT tag counts of steelhead fallbacks and the few juvenile salmonids that may be moving through the system that time of year. The very limited amount of data that would be gathered is probably not worth the time, expense and the hassle of having to go back into primary bypass for just a few more days.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN006 Adult Count Hours
Date Submitted: 01/04/13
Project: MCN
Requester Name, Agency: RCC, NWW

Location of Change - FPP Project and Section:

Table MCN-3. Adult Fish Counting Schedule. Change in winter count hours and add footnote re: DST.

Proposed Changes (*in track changes to existing section*):

Table MCN-1. Adult Fish Counting Schedule at McNary Dam.

Count Period	Counting Method and Hours [1]
~~March 01 – March 31~~	~~Video 0600–1800 hours (PST)~~
April 01 – October 31	Visual 0400–2000 hours (PST)
July 01 – September 30	Night Video ~~(Lamprey)~~ 2000–0400 hours (PST)
~~November 01 – end of February~~	~~Video 0600–1800 hours (PST)~~

1. All count hours are shown in Pacific Standard Time (PST). Note that during daylight saving time (DST) from March 10 – November 3, 2013, count hours will be adjusted forward one hour (DST = PST+1).

Justification for Change:

- Winter counts shift on a 5-year schedule. This year, winter counts will shift from MCN to IHR (see also 13IHR003).
- Add a footnote to all NWW project tables to clarify the count hours during daylight saving time (DST), when Pacific Standard Time (PST) is shifted forward one hour. DST = PST+1.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN007 – Transport Operations
Date Submitted: 01/11/2013
Project: McNary
Requester Name, Agency: Tom Lorz, CRITFC

Location of Change - FPP Project and Section:

MCN, section 2.3.1. (Operating Criteria – Juvenile Fish Passage Facilities)

See also change form "13AppB004 MCN Transport".

Proposed Changes (*in track changes to existing section*):

2.3.1. Juvenile Fish Passage Facilities. Operate from April 1 through September 30 for juvenile fish bypass and~~,~~ collection, ~~and transportation~~ and from October 1 through December 15 for bypassing adult fallbacks. ~~Operate according to the criteria listed below and in Appendix B (Corps' Juvenile Fish Transportation Program Operating Criteria) for the bypassing, collection, and transportation of juvenile salmonids. The transportation program may be revised in accordance with the ESA Section 10 permit and the NOAA Fisheries biological opinion.~~

Justification for Change:
Note: maintain transportation facility for near term needs until final Transport COP recommendations have been finalized.

The most recent data on McNary transport is from the years 2001 and 2002. That data indicated a transport to inriver benefit ranging from 1.2 to 1.5 could occur during the mid-July to mid-August timeframe. Substantial improvements have been made to the McNary project and the projects down river which has resulted in increased survival at the projects as well as likely increases in reach survivals for inriver migrants which would reduce the transport benefit observed in those years. List of Improvements since 2002:

McNary Dam:
24 hours spill
Relocated bypass outfall
John Day Dam:
Top spill weirs
Improved spill patterns
Improved avian wire array
24 hours spill
The Dalles Dam:
Spillway wall and associated improved spill patterns
Improved ice and trash sluiceway chain gate opening patterns
Improved avian wire arrays
Bonneville Dam:
Second Powerhouse corner collector (surface bypass)

Improved spill patterns (increased minimum openings)
Increased spill volume
Finished minimum gap runners at the First Powerhouse
Improved ice and trash sluiceway flow, gate pattern and gate operation
System:
Heavy-up on Pikeminnow program

In past years, the Region has maintained summer transport at McNary Dam primarily because of poor bypass performance at this project. However, in 2012 a new juvenile outfall was constructed at the McNary project that has improved survival at this project. Subyearling Chinook bypass survival was estimated at 94.6% single release which is a significant improvement over past years bypass survival (which ranged from….to…). This estimate was achieved despite high avian presence early in the subyearling migration season.

There is a risk to the outfall if there is a problem with a barge operating in the relatively high flow velocity conditions below this project. Eliminating summer transport would also eliminate this risk. Also, current interruptions in spill and changes in the spill pattern required for the barge to dock at the juvenile facility (that do not favor fish passage) would be eliminated.

From the Draft Transport COP
"A new outfall pipe was completed and operating at MCN for the 2012 juvenile outmigration season and it is important to note that no survival data are available at this time to evaluate how this new outfall may influence MCN-BON reach survival for yearling migrants *(refer to above)*. Another important caveat to the data above is that reach survival is influenced by numerous factors and therefore a lower average survival in recent years relative to more historic data does not mean that FCRPS improvements and modifications over the last decade have not been beneficial."

"While not strong, there do appear to be some benefits to transporting late in the season (late July-early August). However, for the last 4 years (2008-2011) an average 85% of subyearlings have passed McNary Dam by July 30 indicating only a small portion of the population would benefit from late season transport. Furthermore, the majority of the subyearlings passing McNary dam are from the Hanford reach and are not listed under the ESA."

At the COP meeting the regional group was polled to determine if there was concern with terminating summer transport. No one had issue with ceasing summer transport.

Given this information from the COP as well as the previous justification we see little reason to continue summer transport at McNary. There would also be a significant O&M budget savings by not transporting from McNary that could be used for other critical measures at the projects.

Comments from others:

-----Original Message-----
From: Morrill, Charles (DFW) [mailto:Charles.Morrill@dfw.wa.gov]
Sent: Tuesday, January 22, 2013 3:37 PM
To: Tom Lorz; Mackey, Tammy M NWP

Cc: Tweit, William M (DFW); Norman, Guy R (DFW); Roler, Ronald (DFW); Wills, Dave; Statler, Dave; Wills, Dave; Russ Kiefer; Paul Wagner; Kruger, Rick; Morrill, Charles (DFW)
Subject: FPP Change forms for McNary transport, 13MCN007 and 13AppB004

Hi Tom, Tammy, et al.

WDFW supports the adoption and implementation of both FPP change forms, 13MCN007 – Transport Operations and 13AppB004 – MCN Transport.

I would attend however the Annual Pit Tag Steering Committee meets the 24th and I serve as co-chair.

So : One suggested edit, One question:

In 007
2.3.1. Add McNary to sentence

Note: maintain McNary transportation facility for near term needs until final Transport COP recommendations have been finalized.

In both ... Heavy-up ??? would not emphasis be a better word choice ??

Heavy-up (emphasis) on Pikeminnow program

Charlie

Charles Morrill
Fish Biologist
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WA Dept Fish & Wildlife
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Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13MCN008 Fish Count Window
Date Submitted: 15 Jan 2013
Project: McNary
Requester Name, Agency: NWW

Location of Change - FPP Project and Section:

2.3.2.2.b. Operating Criteria – Adult Fish Passage Facilities - Fish Passage Period – Counting Windows

Proposed Changes (*in track changes to existing section*):

b. Counting Windows. The minimum counting slot width should be 18". The Washington shore window has a fixed width at $19^{3}/_{16}$" (not adjustable). The Oregon shore downstream window has a width range of $13^{1}/_{8}$" - $17^{5}/_{8}$", and the upstream window has a range of $13^{1}/_{2}$" - $17^{1}/_{8}$". All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility.

Justification for Change:
FPOM requested the crowder range information. Also, removed reference to WDFW fish counters, as they are no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13IHR001 – 2.3.1.2.d. PDS. ***APPROVED FPOM 05/10/12***
Date Submitted: 04/10/12; Revised for May 2012 FPOM
Project: IHR
Requester Name, Agency: Mark Plummer, IHR Fisheries

Location of Change - FPP Project and Section:

IHR 2.3.1.2.d. (Operating Criteria – Juvenile Fish Passage Facilities – Fish Passage Period – Dewatering Structure)

Proposed Changes (*in track changes to existing section*):

d. Dewatering Structure.

1. Trash sweep operating correctly. The Project Fisheries Biologist shall determine ~~T~~the frequency of sweep. It should be set as necessary to maintain a clean screen, with a minimum operation of at least once ~~per~~ every 4 hours. If automated cleaning system problems occur, operate manually at least once per work shift, or more as necessary, to maintain a clean screen.

Justification for Change:
The current FPP criterion minimum frequency setting of once per hour cycle is causing excessive and unnecessary wear on the trash sweep leading to early failure. Frequent failures of the cleaner travel cable and brush lifting cable are due to exceeding normal expected cable wear when operated at a once per hour setting. Routine manual cleaning of the downstream area, where the screen cleaner does not reach, provides an indication of debris build up on the screen and can be used to set cleaner frequency. Currently, the cleaner is operating when little or no debris is present. The possibility of large amounts of debris in the river that could cause plugging of the screen or descaling of fish occurs during the spring run off. Typically, this is when sweeping of the screen needs to be more frequent, but not every hour. During the summer months, debris movement in the river usually follows a significant rain occurrence. The frequency of the screen cleaner should be adjusted during the times of low debris to cycle fewer times to maintain a clean screen. This will reduce the amount of wear on the equipment and prolong the need for unscheduled maintenance and outages. In addition, this change will put Ice Harbor more in agreement with what is in the 2012 FPP for Little Goose and McNary facilities who receive much more debris in river than Ice Harbor.

Added justification from Project Fishery Biologist, as requested at April 2012 FPOM:

When the facility was built in 1995/96 the primary dewatering unit screen cleaner was designed and constructed with a tractor drive system. This system was essentially two small tires that would move the cleaner upstream and downstream by their contact with a common rail in the center of the collection channel over the dewatering screen. This method of movement was soon found to have problems as the screen cleaner would be found mid travel with the brush down or at one of the ends of its travel with the wheels spinning with no movement. The screen cleaner was then modified to a cable

system similar to Lower Monumental's (which was modified for the same reason) that would pull the cleaner upstream and downstream by a motor and a drum mounted on the screen cleaner with a cable spanning the length of travel. The cable is wrapped around the drum so that as the motor turns, the screen cleaner is pulled along the cable. This cable system worked better than the tractor drive system, but still has faults due to the need to replace the cable during the fish season requiring either work over the water (which is kinda scary when there is 300 cfs of water below your feet) or unwatering the collection channel and handling fish. The system also has a bubbler under part of the screen to remove debris and several "fail safe" devices that sense the water level to initiate an automatic cleaning until the water elevation in the channel is restored and or close off all of the orifices but those in unit 1 which will provide enough water down the bypass, but will not overflow the flume by design. None of these safety features were built into Lower Monumental which soon after start up, had a problem with screen plugging and overflowing of the primary dewatering unit and the separator.

The next major problem was the electrical supply to the screen cleaner. Originally it was a festoon system that would slide along a rail. This became problematic due to dirt and such getting onto the slide section and would cause it to hang up and pull the wires either out of the motor or out of the electrical box at its source. It was then modified to a cable system with a series of eyes suspending the electrical cable. This worked for a while, but then as it would become dirty it also would hang up and pull the electrical cable. In addition, the cable would become frayed from constant travel back and forth even though the cable was lubricated. A few years ago we replaced this system with a track style similar to McNary's which once we got the right track put in (the contractor provided us with the wrong track for the application) seems to be performing well so far. It is worth mentioning that since the facility was constructed, the dewatering screens themselves (Johnson bar screen) have been changed to orient perpendicular to the flow of the water. This orientation appears to keep the screen cleaner than the original.

Currently, the configuration of the screen cleaner is with the cable system and motor system to provide the travel upstream and downstream. The electrical power is provided by the track system I mention before. There is also a cable system that lifts and lowers the screen cleaner brush powered by a separate motor. The problems we are experiencing now and in the past few years is that although the cable system seems to work pretty well, the constant travel, on an hourly basis, wears the cables out. It becomes frayed and or breaks requiring replacement during the juvenile season. We have tried several modifications to alleviate this situation such as: guide rollers, rollers to keep the cables from rubbing on each other, different cable diameters, different cable materials, various tensions on the cables, adjusting timing of the retraction or travel of the cleaner, different drum diameters, and I am sure I am forgetting a few others. We at the fish facility clean the primary dewatering area downstream of the screen cleaners reach daily(when we are here), with a squeegee type device not only to keep this area clean, but also to give us an idea of how much debris we are seeing.

Requiring this device to cycle once an hour the entire fish passage season (April - December) is wearing the cables out requiring frequent replacement. We typically see the majority of our small debris during the spring runoff. During this time, I have often set the screen cleaner cycle to less than 1 hour depending on what we are seeing. However, there are several times when a 1 hour cycle is doing nothing more than wearing out the cables causing more down time and repairs when it is needed. What I am asking for is more flexibility to increase the time between cycles depending on the need to keep the screen clean. I have noticed that the FPP provides that flexibility at Little Goose and McNary.

"Some" related outages in the past:

8/2/10 replace screen cleaner cable
8/5/10 adjust screen cleaner cable
8/12/10 repair screen cleaner cable
9/9/10 screen cleaner overload tripping
12/02/10 screen cleaner overload tripping
3/24/11 repair screen cleaner brush cable
10/3/11 repair screen cleaner cable
10/25/11 screen cleaner cable spooled off
12/16/11 screen cleaner brush found in water
3/19/11 screen cleaner cable jumped pulley

Mark F. Plummer
Ice Harbor Dam
Project Fisheries Biologist
voice 509-543-3208 fax 509-543-3209
Mark.F.Plummer@USACE.ARMY.MIL

Comments from others:

FPOM 04/12/12: Hevlin suggested having a minimum of every three hours instead of every hour. Spurgeon noted that there is not a way to physically see the amount of debris. The only way is to base the need on the amount of debris coming through.

FPOM 05/10/12: Plummer provided background information. Lorz asked for an upper limit for waiting to clean screens. This has been approved with the upper limit included (Hevlin prefers four hours).

Record of Final Action:

FPOM 05/10/12: Approved.

FPP Change Request Form

Change Request Number & Title: 13IHR002 – 4.1 Unit 6 Priority
Date Submitted: 10/19/12
Project: IHR
Requester Name, Agency: Mark Plummer, IHR Fisheries

Location of Change - FPP Project and Section:

IHR 4.1. (Turbine Unit Operation)

Proposed Changes (*in track changes to existing section*):

4.1. Turbine Unit Operation. When in operation, Units will be operated to enhance adult and juvenile fish passage from March 1 through November 30. During this time period, ~~U~~units will be operated as needed to meet generation requirements in the priority order shown in **Table IHR-4**. Model studies of Ice Harbor Dam show that spilling at lower river flows can cause eddyingies in front of the powerhouse. To provide the best fish passage conditions during periods of spill, it is important that the ~~U~~units operate in a specific operating order to minimize eddying conditions. The original and desired unit prioritization is 1, 3, 6, 4, 2, 5. ~~Unit 6 transformer has an internal fault and is generating gases that are indications of arcing and the levels are increasing with time, so it is desired to run this unit in a "last on, first off" basis.~~

With ~~T~~the new Sacajawea 500/115kV transformer in service, which is connected to the Ice Harbor-Franklin No. 2 115kV line, ~~and Ice Harbor should not operate a single unit on the Ice Harbor-Franklin No. 2 115 kV line. The operation of a single unit on the Ice Harbor-Franklin No. 2 115kV line jeopardizes BPA system reliability.~~ IHR should not be run as a single or two unit project if that unit(s) is unit 3 and/or 4 without switching those units to the Ice Harbor-Franklin No. 3 115kV line, disconnecting the Ice Harbor-Franklin No. 2 115kV line from Ice Harbor and disabling the transfer trip for the Ice Harbor-Franklin No. 2 115kV line at Ice Harbor. This switching is necessary to prevent the loss of all Ice Harbor generation and the Sacajawea transformer if there is an outage of the Ice Harbor-Franklin No. 2 115kV line.

If single unit operation is necessary and switching has not occurred in the yard, run unit 1, 2, 5, 6. Running units 3 and 4 alone on the Ice Harbor-Franklin No. 2 115kV line can only occur if the powerhouse operator can accomplish the needed switching. ~~If unit 1 is out of service and switching has not occurred, then operate the following unit priority when operating more than one unit: 2, 3, 4, 5, 6.~~

In order to provide BPA system reliability Ice Harbor is operationally restricted to single unit operation on Ice Harbor-Franklin No. 1 115kV line and the Ice Harbor-Franklin No. 3 115kV line only. Ice Harbor cannot operate a single unit on Ice Harbor-Franklin No. 2 115kV line. The operation of a single unit on Ice Harbor-Franklin No. 2 115kV line jeopardizes BPA system reliability. If single unit operation is necessary and switching has not occurred in the yard run unit 1, 2, 6, and 5. Running units 3 and 4 alone on the Ice Harbor-Franklin No. 2 115kV line can only occur if the powerhouse operator can accomplish the needed switching. If unit 1 is out of

service then unit priority will be 2, 3, 6, 5, 4, in order to limit the number of units out of service due to switching.

Table IHR- 1. Unit Operating Priority for Ice Harbor Dam.

Season	Duration	Unit Priority (see Section 4.1)
~~January 01 – December 31 (y~~Year-R~~r~~ound~~)~~ Single unit operation w/ NO switching. (Switching must occur to return to normal operating priority defined below.)	24 hours/day	1,2,6,5,~~6~~
March 01 - November 30 Fish Passage Season Multiple unit operation	24 hours/day	1,3,6,4,2,5 ~~and 6~~
		2,3,6,4,5 (if Unit 1 is OOS and switching has not occurred)
December 01 – end of February Winter Maintenance Period Multiple unit operation	24 hours/day	Any order

Justification for Change:
It is anticipated that the unit #6 transformer will be repaired by November 2012. This change will return the original and desired turbine priority.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13IHR003 Adult Count Hours
Date Submitted: 01/04/13
Project: IHR
Requester Name, Agency: RCC, NWW

Location of Change - FPP Project and Section:

Table IHR-2. Adult Fish Counting Schedule. Change in winter count hours and add footnote re: DST.

Proposed Changes (*in track changes to existing section*):

Table IHR-1. Adult Fish Counting Schedule at Ice Harbor Dam.

Count Period	Counting Method and Hours [1]
April 01 – October 31	Visual 0400–2000 hours (PST)
November 01 – March 31	Video 0400–2000 hours (PST)

1. All count hours are shown in Pacific Standard Time (PST). Note that during daylight saving time (DST) from March 10 – November 3, 2013, count hours will be adjusted forward one hour (DST = PST+1).

Justification for Change:

- Winter counts shift on a 5-year schedule. This year, winter counts will shift from MCN to IHR (see also 13MCN006).
- Add a footnote to all NWW project tables to clarify the count hours during daylight saving time (DST), when Pacific Standard Time (PST) is shifted forward one hour. DST = PST+1.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13IHR004 Fish Count Window
Date Submitted: 15 Jan 2013
Project: Ice Harbor Dam
Requester Name, Agency: NWW

Location of Change - FPP Project and Section:

2.3.2.2.b. Operating Criteria – Adult Fish Passage Facilities - Fish Passage Period – Counting Windows

Proposed Changes (*in track changes to existing section*):

b. Counting Windows. ~~The minimum counting slot width should be 18".~~ All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility. The minimum counting slot width should be 18". Both the North and South ladder counting slots have fixed widths of 19.5".

Justification for Change:

FPOM requested the crowder range information. Also, removed reference to WDFW fish counters, as they are no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LMN001 – 3.2.1. AWS Maintenance
Date Submitted: 06/28/12
Project: LMN
Requester Name, Agency: Greg Moody, NWW Fisheries

Location of Change - FPP Project and Section:

LMN 3.2.1. (Project Maintenance – Adult Fish Passage Facilities – Scheduled Maintenance) – add new paragraph 3.2.1.1.

Proposed Changes (*in track changes to existing section*):

3.2.1. Scheduled Maintenance. Scheduled maintenance of a facility that must be dewatered to work on or whose maintenance will have a significant effect on fish passage will be done during the January and February winter maintenance period. Maintenance of facilities that will have no effect on fish passage may be conducted at any time. Maintenance is normally conducted on one fish ladder at a time during the winter to provide some fish passage at the project at all times. When facilities are not being maintained during the winter maintenance period, they will be operated according to normal criteria unless otherwise coordinated with NOAA Fisheries and other FPOM participants.

3.2.1.1 Auxiliary Water Supply System. The auxiliary water for the fish ladders and the collection systems is supplied by three turbine-driven pumps on the north shore, with at least two pumps being required for normal operation. On a monthly basis, each pump, one pump at a time, may be taken out of service for up to 2 days to perform maintenance. The maintenance performed during this outage is routine monthly and quarterly maintenance as defined within the COE maintenance program. In the event that 3 pump fish ladder operating criteria cannot be met, the system will be operated under the 2 pump operating criteria and the deviation shall be reported in the weekly reports defined in paragraph 2.3.3.1 of the FPP.

Justification for Change:

Under section **3.2.1 Scheduled Maintenance** and **3.2.2 Unscheduled Maintenance** of the LMN FPP there is not adequate provision for maintenance of Adult Fish Passage Facilities.

The AWS pumps require monthly maintenance. This work requires that the three AWS pumps be shut down so that monthly and quarterly checks can be made. FEM will issue two monthly PMs and a quarterly PM. For example; fish pump 1 and 2 will be issued a monthly pm on the given month while fish pump 3 will get the quarterly.

To adequately accomplish the work, the pumps need to be taken OOS for 2 days each, one at a time. Under section 3.2.2.2 LoMo can achieve criteria under most flows with 2 pump operation. However, during spring runoff and times of higher flows, criteria cannot be fully held to perform the maintenance. The project has coordinated this issue when the conditions were necessary to perform maintenance and not achieve criteria.

AWS Fish Pump outage for a duration of 2 days a month per fish pump for service.
Each pump will be OOS for 2 days per month, one at a time, in the time frame of March to December,

Adjustments will be made as needed and 2 pump operational criteria will be maintained if 3 pump operational criteria is not possible.

Length of time for maintenance:
AWS Fish Pump 1: 2 days per month
AWS Fish Pump 2: 2 days per month
AWS Fish Pump 3: 2 days per month

Minimal impacts are expected on fish attraction, as 2 of the 3 pumps will be in service with additional water contributed by the fish bypass system.

Operational history at Lower Monumental demonstrates that all criteria points can be met while in 2 pump operation when tailwater levels have dropped after spring runoff. During spring runoff the criteria for 2 pump operation can easily be met with 2 pumps operating.

Comments from others:
FPOM 07/12/12: Presented and no comments. Minutes do not have a record of final action. On 08/16/12, Ann Setter confirmed that this change form was on the July agenda and FPOM had no comments. Setter will confirm at the September FPOM meeting.

FPOM 09/13/13: Gale noted this made the July FPOM agenda but did not make the meeting minutes. He would like to add back into the FPP that the fish pumps may be taken out of service two days out of the month for maintenance. NWW was asked if other projects also need this requirement. NWW will make sure similar language is included for all NWW Projects.

Record of Final Action:
FPOM 09/13/12: Those present at FPOM were comfortable with it but a response will be delayed until Hevlin can comment. In addition, NWW will make sure similar language is included for all NWW Projects.

FPP Change Request Form

Change Request Number & Title: 13LMN002 – 4.3. 6-Year Overhaul
Date Submitted: 10/25/12
Project: LMN
Requester Name, Agency: James Gale, LMN

Location of Change - FPP Project and Section:
LMN 4.3. (Turbine Unit Maintenance) – add new paragraph 4.3.4.

Proposed Changes (*in track changes to existing section*):

4.3.4 One unit per year will be selected for 6-year overhaul at Lower Monumental. A 6-year maintenance outage requires unwatering the unit and performing a more in-depth maintenance program than the annual checks. This level of maintenance requires additional consideration before the outage (pre-outage) and after the work is complete (post-outage). During the course of this work, many systems and sub-systems of the unit may be disassembled, replaced or repaired.

a. Scheduling: One unit per year will be selected for 6-year overhaul at Lower Monumental. To minimize impacts to fish, the unit selected for overhaul will be the first unit of the serviced. The work will start as recommended in paragraph **4.3 Turbine Unit Maintenance**, above.

b. Pre-Outage Run Time: Prior to the unit coming out of service for 6-year overhaul, the selected unit may need to be run continuously for 48 hours. Running the unit will require a deviation from unit priority in table LMN-5. Scheduling the unit first in line for maintenance should allow for ample water to accommodate a 48-hour run time to finalize pre-maintenance checks. If the unit selected is unit 4, 5 or 6, more water (kcfs) will be required to run at this time. This will require a deviation from Minimum Generation paragraph in the Fish Operations Plan (FOP), included in the FPP as **Appendix E**.

c. Post-Outage Run Time: Following a 6-year overhaul, it is necessary to run the unit for 48 hours continuous to make certain the unit is ready for service. Following the 48 hours of continuous run time, a second period of 48 hours of intermittent testing may be required to fix minor items that were detected in the 48 hour continuous run time. This post-outage run will require a deviation from the Unit Priority table LMN-5. The post-outage run will require a deviation from paragraph 4.3.1 to allow the unit to run with the headgate cylinder in place and the headgate in the lower position. If the unit selected for 6-year overhaul is unit 4, 5 or 6, a deviation from Minimum Generation as defined in the FOP will be necessary as units 4-6 require an additional 2-3 KCFS at the lower ranges of operation. The constraint of running the unit within the best 1% efficiency guideline will remain in place.

Justification for Change:
In 2012 we performed this operation on Main unit 4. We put forward a coordination request to perform the work. Lessons learned from the unit 4 have been incorporated into the paragraph. Unit 5 is selected for 2013 as the first unit. Another lesson learned was the pre outage run time.

The intent is to gather pre run information in the spring. This year we were unable to do so due to large cap work at LoMo. Due to timing conflicts, we were unable to perform the post outage run when we first wanted it. We rescheduled the post outage run on Main unit 4 this year to eliminate a conflict with a major adult fish run.

Further justification for this is as follows. Over the last year, we have added several key staff members to aid in planning and execution in the maintenance program. These key people have helped maximize the efficiency of the work. Therefore, we are able to get more work done in the same timeframe. The additional work allows us to dig further into the aging units to take care of issues that we have not been able to address. The schedule for 2013 is as aggressive as the schedule for 2012, but with gained efficiencies.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LMN003 **–** 2.3.1.2.h RSW Maintenance
Date Submitted: 10/25/12
Project: LMN
Requester Name, Agency: James Gale, LMN

Location of Change - FPP Project and Section:
LMN 2.3.1.2.h. (Operating Criteria – Juvenile Fish Passage Facilities – Fish Passage Period – RSW Maintenance)

Proposed Changes (*in track changes to existing section*):

h. Removable Spillway Weir (RSW) Maintenance (September 1 through April 1).

1. Forebay debris removal; Prior to the onset of the inspections listed below in paragraphs 2-4, if a debris raft is present in the forebay and will interfered with the defined operations, a debris spill will be coordinated in accordance with paragraph 5.1. Debris entrapment in the RSW seals or between the transition plate and ogee will adversely affect the operation of the RSW.

2. Transition Plate Inspection will be performed annually to validate that the transition from the RSW to the ogee is intact. The primary means of inspection will be done with either a ROV or divers.

i. If divers are used, Powerhouse Units 5&6 will be removed from service as well as Spillbays 7&8. Units 5&6 outage will require a deviation from the Unit Priority listed in Paragraph 4.1. Coordination of the units being out of service will follow normal outage notification guidelines. ~~The morning of the inspection~~Up to a week before the inspection, bay 8 will need to be opened 1 or 2 stops to facilitate the clearing of debris and silt from the transition plates. The spilling of water through bay 8 will be coordinated with RCC following normal guidelines.

ii. If an ROV is used for the inspection, spillbay 8 will be out of service for the inspection. The morning of the inspection, bay 8 will need to be opened 1 or 2 stops to facilitate the clearing of debris and silt from the transition plates. The spilling of water through bay 8 will be coordinated with RCC following normal guidelines.

3. Transition Plate bolts, umbilical and seal inspection. To facilitate this level of inspection, the RSW will need to be disengaged from the face of the dam and tipped back to the pierce point. Prior to moving the RSW, bay 8 will need to be opened 1 or 2 stops to remove and debris or silt that has accumulated on the transition plates or beak region. This debris or silt will slide off and land on the ogee, thus causing problems when the RSW is stowed. The spill of water through bay 8 will be coordinated through normal guidelines with RCC. The spill will occur up to a week before the inspection. This level

of inspection will also require that bays 7&8 be out of serve, as well as Powerhouse Main units 5&6. Units 5&6 being out of service will require a deviation in unit priority as listed in paragraph 4.1. Coordination of the units out of service will follow normal outage notification guidelines. This level of inspection will be done with divers. Upon completion of the dive, prior to stowing the RSW, bay 8 will need to be opened up to 3 stops, to clean any debris from the ogee. The anticipated duration of this inspection is 1 to 3 days of effort. Reports of the inspection will be relayed back to the district biological staff.

Justification for Change:

Typically the operators at Lower Monumental have been moving the RSW over the weekend before the dives occur. This allows the divers to get started right away when they get onsite. The flushing of debris needs to take place before we move the RSW. To spill the morning of the dive and then move the RSW takes too much time.

Comments from others:

Record of Final Action:

FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LMN004 Fish Count Window
Date Submitted: 15 Jan 2013
Project: McNary
Requester Name, Agency: NWW

Location of Change - FPP Project and Section:

2.3.2.2.b. Operating Criteria – Adult Fish Passage Facilities - Fish Passage Period – Counting Windows

Proposed Changes (*in track changes to existing section*):

b. Counting Windows. The minimum counting slot width should be 18". The counting slots at Lower Monumental are fixed at a width of 19". All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility.

Justification for Change:
FPOM requested the crowder range information. Also, removed reference to WDFW fish counters, as they are no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LGS001 Fish Count Window
Date Submitted: 15 Jan 2013
Project: Little Goose Dam
Requester Name, Agency: NWW

Location of Change - FPP Project and Section:

2.3.2.2.b. Operating Criteria – Adult Fish Passage Facilities - Fish Passage Period – Counting Windows

Proposed Changes (*in track changes to existing section*):

2.3.2.2. Fish Passage Period (March 1 through December 31).

b. Counting Window. The minimum counting slot width should be 18". The slot is currently fixed at 15". This can be moved out of season to 35", and a minimum of 9". During winter of 2012 to 2013 the slot will be fixed at 18". All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility.

Justification for Change:

FPOM requested the crowder range information. Also, removed reference to WDFW fish counters, as they are no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LWG001 New Orifice Operations
Date Submitted: 11/01/2012
Project: LWG
Requester Name, Agency: Mike Halter, LWG; David Trachtenbarg, NWW

Location of Change - FPP Project and Section:

LWG Section 2.3.1.1.c (Operating Criteria – Juvenile Fish Passage Facilities – Winter Maintenance Period – Collection Channel)

LWG Section 2.3.1.2.c (Operating Criteria – Juvenile Fish Passage Facilities – Fish Passage Period – Collection Channel)

LWG Section 3.1.2.2. (Project Maintenance – Juvenile Fish Passage Facilities – Unscheduled Maintenance – Gatewell Orifices)

Proposed Changes (*in track changes to existing section*):

PROPOSED CHANGE #1
2.3.1.1.
c. Collection Channel.

1. Makeup water valves and float control equipment maintained and ready for operation.

2. Orifice and overflow weir lights are operational.

3. Orifices and overflow weirs clean and valves operating correctly.

4. Orifice cycling and air backflush system works correctly.

5. Overflow weir systems ready to operate with gatewell elevation below 735' msl and flow setpoint as desired. Overflow weir operating manuals contain specific operating, repair and maintenance instructions.

PROPOSED CHANGE #2
2.3.1.2.
c. Collection Channel.

1. Orifices and overflow weirs clean and operating. Operate at least one orifice or overflow weir (where applicable) per gatewell slot ~~(preferably the north orifice)~~ unless a unit is scheduled out of service with non-operational fish screens. ~~Only~~At least one orifice or overflow weir is to be in operation per gatewell slot. In gatewell slots that only have 10" orifices, the north orifice should be operated when possible. In gatewell slots 5A and 6A that contain multiple gatewell egress structures, the preferred order of operations is as follows: overflow weir, 14" orifice, 10" orifice. Overflow weirs -are designed to operate up to a gatewell elevation of 735.5 fmsl. The automatic operating system for the overflow weirs are designed to automatically close the structures if

gatewell elevation exceeds 735.5 fmsl. Closure of an overflow weir will alert the Operator via an alarm in the control room at which time an orifice shall be opened (14" preferred) by the Operator or JFF personnel until gatewell elevations drop below at least 735 fmsl and the overflow weir can be safely returned to service. If there is an emergency with an overflow weir, the weir may be shut and orifice opened (14" preferred) until the weir can be repaired and returned to service. Any issues with the overflow weirs and 14" orifices shall be closely coordinated with the NWW District office to ensure structures are operated safely, research activities are coordinated appropriately, and any repairs are made in a timely fashion. If the project is operating at MOP, additional orifices may be operated to maintain a full collection channel. If orifices must be closed to repair any part of the facility, do not close orifices or weirs in operating turbine units with ESBSs in place for longer than 5 hours. If possible, keep to less than 3 hours. Reduce turbine unit loading to the lower end of the 1% efficiency range if deemed necessary by the project biologist. Monitor fish conditions in gatewells hourly or more frequently during orifice closure periods.

2. Orifice and overflow weir lights operational and operating on open orifices/weirs. Orifice lights and area lights may be turned off the evening before the channel is dewatered at the end of the season (dewatering occurs on December 16 or later) to encourage fish to exit the channel volitionally. Area lights can be turned on briefly for personnel access if necessary.

3. Replace all burned out orifice and overflow weir lights within 24 hours of notification. Orifice and overflow weir lights shall remain lighted 24 hours/day.

4. Orifice jets hitting no closer than 3' from back wall, collection channel full.

5. Rotate orifices in fish screens slots weekly (6 open).

6. Orifice valves are either fully open or closed.

7. Backflush orifices in the bulkhead slots every four hours and more frequently if required. During periods of high fish and debris passage, April 1 through August 15, orifices should be inspected and backflushed more frequently as determined by the project biologist, to keep orifices clean. If debris is causing continual orifice plugging problems in a particular turbine unit gatewell, the respective turbine unit generation may be restricted to the lower end of the 1% turbine efficiency range to minimize orifice plugging problems.

8. If utilizing the automatic orifice backflush system, inspect as determined by the project biologist (but at least once per 8-hour shift unless coordinated differently) to ensure that the orifices are opening and closing correctly and are clear of debris. The project biologist will determine the frequency of automatic orifice cycling and backflushing to maintain clear orifices.

9. Overflow weirs should be inspected frequently, as determined by the project biologist, to keep overflow weirs clean and operated in accordance with the respective overflow weir operating manual. If debris is causing continual overflow weir plugging problems in a particular turbine unit gatewell, the respective overflow weir may be shutdown with an adjacent orifice operated instead and/or turbine unit generation may be restricted to the lower end of the 1% turbine efficiency range to minimize orifice plugging problems. Additionally adjustments can be made to the weir setpoints to alter the flow entering the juvenile collection channel from the gatewell. Changes to overflow weir operation shall be closed coordinated with NWW District office to ensure weirs are operated as designed and any biological studies occurring at the time are aware of operational changes.

~~9~~**10**. Makeup water valves and associated float controls operational and maintaining stable channel flow.

PROPOSED CHANGE #3

3.1.2.2. Gatewell Orifices. Each standard turbine intake has four orifices, two 10" orifices with air operated valves in the bulkhead slot and two 8" orifices with manually operated slide gates in the fish screen slot, for allowing the fish to exit the slots. In addition, turbine intake gatewell slots 5A and 6A each have had the respective south 10" orifice replaced with a 14" orifice and an overflow weir installed between the south 14" and north 10" orifices. Under normal operation, 18 bulkhead slot orifices or weirs (one per gatewell slot) and fish screen slot orifice 5B South shall be operated. ~~a total of 24 orifices are operated with 18 being bulkhead slot orifices and 6 being fish screen slot orifices. At least one orifice is open in each bulkhead slot with the fish screen slot orifices rotated.~~ Additional bulkhead slot orifices may be operated to hasten fish departure and/or allow debris to exit gatewells as the hydraulic capacity of the gallery will allow. If high flow conditions in the collection gallery prevent the operation of all ~~24~~19 previously mentioned orifices/weirs, priority shall be given to operating the 18 bulkhead slot orifices and/or weirs (as appropriate). With the exception of the condition where a turbine unit is out of service for an indefinite period of time (with fish screens non-operational and no fish being diverted into bulkhead slots), fish screen slot 5B South ~~the six fish screen slot orifices~~ shall be closed (as needed) prior to closing any bulkhead slot orifices. If an orifice or weir becomes blocked with debris it will normally be cleaned and remain in operation. If an orifice or weir is damaged, it will be closed and the alternate orifice for that gatewell operated until repairs can be made. If both orifices and overflow weir (where applicable) are blocked with debris, damaged, or must be kept closed, the turbine unit will be taken out of service until repairs can be made. If repairs are to take longer than 48 hours, juvenile fish will be dipped from the gatewell with a gatewell dip basket. If there is an emergency with an overflow weir, the weir may be shut and orifice opened (14 inch (preferred) or 10 inch) and emergency operating instructions followed per respective operating manuals.

Justification for Change:

Changes to gatewell orifice operations are necessary to incorporate operational requirements of the prototype overflow weirs and enlarged 14" orifices being installed into turbine gatewell intakes 5A and 6A during the 2012/13 winter work period.

Changes to fish screen slot orifices operations are intended to improve overall fish passage into the Juvenile Collection Channel. Gatewell dipping records and direct observation over the past several seasons have indicated that the only fish screen slot that is not sufficiently sealed to prevent fish from entering is slot 5B. The other fish screen slots have been effectively sealed from fish entrance. It make little sense to operate an additional five fish screen slots (and loose that much potential hydraulic capacity in the fish collection galley) with no gain in fish passage. It would be much better for fish passage to retain that capacity and open additional bulkhead slots (as needed) to allow fish to exit bulkhead slots during periods of high fish passage and to help eliminate debris when orifice clogging issues develop.

Comments from others:

11/14/12 Mike Halter, LWG:

-----Original Message-----
From: Halter, Mike J NWW
Sent: Wednesday, November 14, 2012 3:17 PM
To: Trachtenbarg, David A NWW; Moody, Gregory P NWW
Cc: Brooks, Francis C NWW; Heller, Stanley G NWW; Hilt, Richard NWW
Subject: RE: (UNCLASSIFIED)

Dave & Others,

I took a look at the suggested revisions you provided to the FPP today. Things seem straightforward enough to me. I believe that some sort of simple recording system (even just a chart on a clipboards) needs to be set up in slots 5A and 6A to make sure that changes in overflow weir and orifice operations are readily noted by date and time.

Perhaps my biggest concern is that in the event a weir automatically closes (due to a gatewell elevation over 735.5 fmsl and the alarm sounds) a powerhouse shift operator might not be present to open an orifice. Shift operators (especially at night) can get spread very thin with lockages and such and might not be around to catch this. Fish could be stranded in a gatewell for some time. Chances are this won't happen with forebay levels drawn down in the spring but it could later in the season if we are still testing.

My other concern is that (as I have previously mentioned) LGR separator techs in the spring are spread quite thin with barge loading, raceway loading, kelt routing, debris removal, hourly samples, bird counts, and such. Expecting someone to take care of a problem overflow weir is asking too much if they are running into problems with these other items. It remains to be seen but we could need additional help especially if this is a bad debris year.

Mike

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LWG002 - Table LWG-5 Unit Priority
Date Submitted: 11/12/2012
Project: LWG
Requester Name, Agency: David Trachtenbarg, NWW

Location of Change - FPP Project and Section:

LWG Section 4. Turbine Unit Operation and Maintenance

Proposed Changes (*in track changes to existing section*):

Table LWG- 1. Turbine unit operating priority for Lower Granite Dam.

Season	Duration	Unit Priority
March 1 – December 15 (except during 2013 Test Periods below)	Start Units - 24 hours/day	2, 3, then 4-6 any order, then 1 [i]
	Stop Units - 24 hours/day	4-6 any order, then 3, 2, 1 [i] Stop Units in reverse Start Unit order, except run Unit 1 as long
April 13 – June 30 During 2013 Test Periods [ii]	Start Units - 24 hours/day	2, 5, 6, 3, 4, then 1
	Stop Units - 24 hours/day	4, 3, 1, 5 or 6, then 2
December 16 – February 28	24 hours/day	Any Order

i. Unit 1 has fixed Kaplan blades and can only run at 130 megawatts. The Unit Priority order in Table LWG-5 minimizes starts and stops of Unit 1 and allows for the longest runtime once Unit 1 is started.

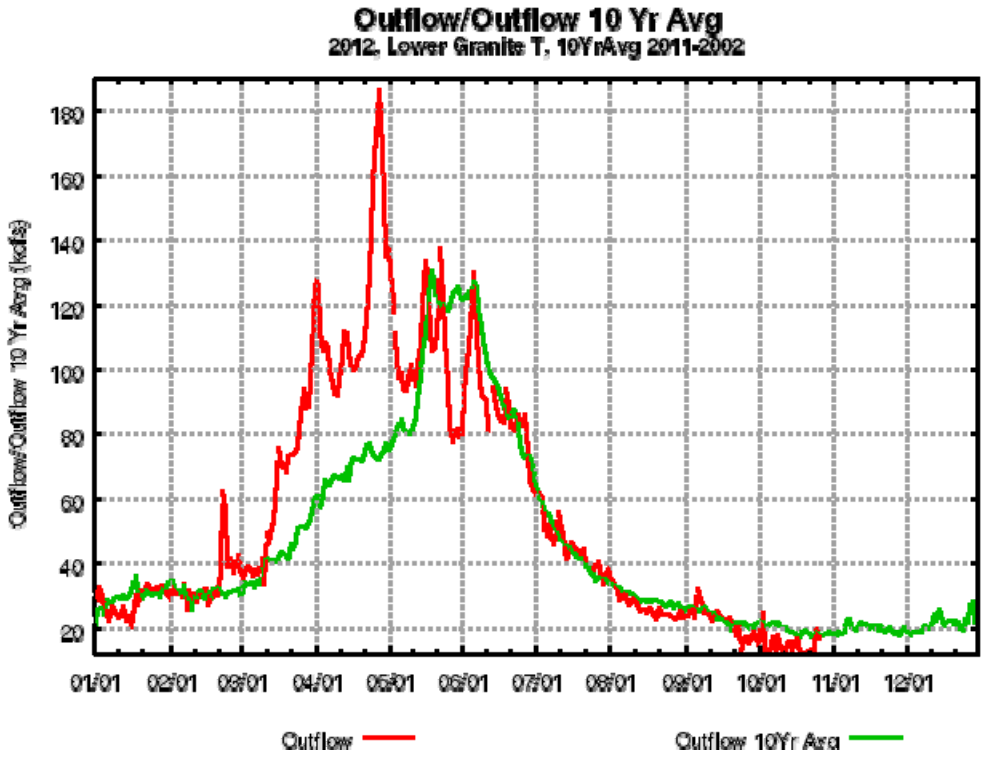
ii. In 2013, modifications to turbine unit priorities are only needed during testing of the prototype overflow weirs and enlarged 14" orifices. Unit priority operations during the test period are currently anticipated to be 24 hours per day, 6 days per week. Implementation of final study plans will be coordinated with RCC and Lower Granite Dam project staff.

Justification for Change:

Prototype overflow weirs and enlarged 14" orifices are being installed into intake gatewells 5A and 6A during the winter of 2012/13 and are expected to be ready for biological testing during the 2013 fish passage season. Biological testing will be conducted from 13 April 2013 through 30 June 2013 to coincide with peak fish migration periods and accommodate cavitation repairs to turbine units 5 and 6. Final study plans during the test period are still being developed and will be coordinated with RCC and Lower Granite project staff for implementation. In order to conduct the necessary biological testing, deviations from the standard turbine priorities (Figure 1) will be necessary to operate Units 5 and 6 during the testing periods (Figure 2).

To provide adult salmonid passage, Unit 2 will be first priority during the test period for adult attraction flow. To comply with other portions of the FPP and regional agreements, no changes to spill pattern changes will be made for this study. Turbine Units 5 and 6, when operated from 13 April 2013 to 30 June 2013, will be operated at the upper end of 1% best efficiency or an alternative fixed discharge, if possible, during each test block in order to provide consistent testing conditions. Based on historical river flows (See below), it is anticipated that sufficient

inflows will permit operation of units 5 and 6 for this test through June 30th. Final turbine operations will be dictated by final study plans (i.e., days per week) and will be coordinated with RCC and Lower Granite Dam project staff.



Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LWG003 Adult Count Hours
Date Submitted: 01/04/13
Project: LWG
Requester Name, Agency: RCC, NWW

Location of Change - FPP Project and Section:

Table LWG-3. Adult Fish Counting Schedule. Change in March count hours and add footnote re: DST.

Proposed Changes (*in track changes to existing section*):

Table LWG-1. Adult Fish Counting Schedule at Lower Granite Dam.

Count Period	Counting Method and Hours [1]
March 01 – March 31	Video 0~~6~~400–~~16~~2000 hours (PST)
April 01 – October 31	Visual 0400–2000 hours (PST)
June 15 – ~~August 31~~September 30	Night Video ~~(Sockeye)~~ 2000–0400 hours (PST)
~~July 01 – September 30~~	~~Night Video (Lamprey) 2000–0400 hours (PST)~~
November 01 – December 30	Video 0~~6~~400–~~16~~2000 hours (PST)

1. All count hours are shown in Pacific Standard Time (PST). Note that during daylight saving time (DST) from March 10 – November 3, 2013, count hours will be adjusted forward one hour (DST = PST+1).

Justification for Change:

- LWG video count hours March 1-31 changed from "0600-1600" to "0400-2000".
- Add a footnote to all NWW project tables to clarify the count hours during daylight saving time (DST), when Pacific Standard Time (PST) is shifted forward one hour. DST = PST+1.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13LWG004 Fish Count Window
Date Submitted: 15 Jan 2013
Project: Lower Granite Dam
Requester Name, Agency: NWW

Location of Change - FPP Project and Section:

2.3.2.2.b. Operating Criteria – Adult Fish Passage Facilities - Fish Passage Period – Counting Windows

Proposed Changes (*in track changes to existing section*):

b. Counting Window. The minimum counting slot width should be 18". The slot may move from 12-30"; the normal operating range is 12-16". All equipment should be maintained and in good condition. The counting window and backboard should be cleaned as needed to maintain good visibility.

Justification for Change:
FPOM requested the crowder range information. Also, removed reference to WDFW fish counters, as they are no longer the sole source for fish counting.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13AppB001 **–** Lamprey Tailscreens
Date Submitted: 10/25/12
Project: Appendix B
Requester Name, Agency: Dave Wills, US Fish & Wildlife Service

Location of Change - FPP Project and Section:

Appendix B (Juvenile Fish Transportation Plan) – section 4.d. add new paragraph (6)

Proposed Changes (*in track changes to existing section*):

4.d. Collection Facility Operations:

(6) At Little Goose, Lower Monumental, and McNary dams, lamprey-friendly tailscreens will be installed for the entire fish collection season. At Lower Granite Dam, lamprey-friendly tailscreens will be installed as needed at the discretion of Project Biologists based on the presence of lamprey in the raceways or the risk of impingement of other small fish species. Project biologists may switch back to salmon criteria screens when lamprey are not present and there is no risk of impingement of other small fish.

(~~6~~7) Juvenile lamprey are sometimes found in dewatered raceways after truck/barge loading operations. If debris is not a problem, lamprey should be promptly and safely flushed or otherwise returned to the river. If debris is a problem, and when practicable, lamprey should be removed by hand or by placing debris in a container that allows lamprey to access water where they can later be returned to the river.

Justification for Change:
Currently no coverage within FPP.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13AppB002 **–** Truck Release Sites
Date Submitted: 11/02/12
Project: Appendix B
Requester Name, Agency: John Bailey, NWW

Location of Change - FPP Project and Section:

Appendix B (Juvenile Fish Transportation Plan) – section 5.a.(1).

Proposed Changes (*in track changes to existing section*):

5.1.1. Truck Release Sites: The normal early spring release site for trucked fish will be a truck pad behind the Bonneville Dam Smolt Monitoring Facility (SMF). Fish released from the truck pad pass through the SMF outfall into the Columbia River~~.~~. From August 15 through the end of the transport season, trucks, midi-tanks and mini-tanks will also release fish into the Bonneville SMF outfall flume. Dalton Point or the Hamilton Island boat ramp will be utilized as an alternate release site in the case of an emergency or if unsafe conditions exist at the Bonneville facility.

Justification for Change:

Piscivorous birds were feeding on trucked fish at the Bonneville SMF site at times during late season truck releases in 2012. Predatory birds were roosting on the low flow outfall. The water cannons mounted on the high flow outfall proved to be ineffective. The low outfall did have sprinklers at one time, but spring river flows damaged this equipment. The nearby Hamilton Island boat ramp provides ample room for trucks and fish would be released into fast current. Predatory birds were not observed at this location. The Dalton Point site is an excellent spring release site, but a relatively slow and shallow location in late summer and fall. The Dalton Point ramp ends short of the river during low flows and trucks risk getting stranded in sand or gravel during releases. Truck drivers did not observe birds feeding on fish at Dalton Point in 2012.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13AppB003 MCN Warm Weather Ops
Date Submitted: 10/24/2012
Project: MCN
Requester Name, Agency: Carl Dugger, MCN Project Fisheries

Location of Change - FPP Project and Section:

Appendix B Section 4.g. (Operating Criteria – Summer Transport Operations)

Proposed Changes (*in track changes to existing section*):

Appendix B
4.g. Summer Transport Operations
(3) During summer months at McNary Dam, from June 15 through August 31, water temperatures will be measured along the face of the powerhouse, in B-slot gatewells, and within the collection channel on a daily basis. These temperature measurements will be used for management of project operations per criteria contained in the Fish Passage Plan. During warm water periods, collected fish may be transported by truck or barge on a daily basis to minimize stress and mortality from warm water conditions. Other special operations may be required at McNary Dam during summer months to minimize impacts of project operations on juvenile fish collection during warm water temperature periods (see Fish Passage Plan, section 4.1., Turbine Unit Loading).

a. General. The McNary Project will implement the following protocols during warm water operations, in order to minimize loss of sensitive salmonid species. The project and CENWW will coordinate these protocols with fish agencies and tribes through the Fish Passage Operation and Maintenance Coordination Team (FPOM) and other entities as necessary. The purpose of these protocols is to provide precautionary measures to limit delayed mortality resulting from stress when managing juvenile salmonid fishes.

b. Operation in Secondary Bypass or Transport & Sample Mode. When any of the following occur, the project will begin to operate turbine units in a staggered priority fashion, operating every other unit starting with Unit 2, and ascending as necessary to avoid temperature shocks within the juvenile channel (i.e., shutting down Units 2, 4, 6, 8, 10, 12 and 14 as necessary), when any of the following occur:

i. Water temperatures in the McNary Juvenile Fish Facility (JFF) laboratory exceed 68^{o} Fahrenheit (F), or
ii. Water temperatures elsewhere at the project (e.g., gatewells) are believed to be high enough to threaten juvenile salmonid fishes, or
iii. Temperature gradients > 5°F, or
iv. Sample mortality is > 3%, or
v. System mortality > 6%.

If possible, Unit 1 shall be left in operation in order to provide attraction flow to the two entrances of the Oregon shore fish ladder. The Project Biologist, after coordinating with

CENWW, may modify this sequence as necessary to provide equal or better levels of protection to salmonid fishes.

c. Continued Mortality. If juvenile salmonid populations continue to experience high mortality after implementing the above procedures, fish collection for transport shall cease, but collection for fish condition sampling by smolt monitoring staff should continue for up to 8 hours a day. The project shall switch to primary bypass, routing fish past the JFF and through the outfall bypass line, except for such daily monitoring, for the duration of the event.

Justification for Change:

See also change form 13MCN003. The existing pattern risks shocking fish by creating sudden temperature changes as fish travel down the juvenile channel. Staggering the input flow evens out the temperature within the channel, thereby reducing the risk of temperature shock. In 2009, McNary successfully used this method and ended a temperature-related fish kill, even though temperatures continued to climb over the next week. The McNary temperature model, developed by Mike Schneider, USACE, also suggests this pattern.

Generally a serious condition that induces noticeable fish mortality only occurs when weather patterns, with no wind, occur for several days consecutively. The "no wind" condition does not allow for mixing of the stratified temperature layers within the forebay, and, depending on project operation, can selectively withdraw extremely different temperatures up the gatewells into the collection channel.

The shortened, daily sampling would also still let the project know when to stop primary bypass and resume secondary bypass or transportation. Without sampling, the project would not be able to detect mortality resulting from unrelated factors, such as a sharp piece of metal stuck in the intake pipe to the JFF.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13AppB004 – MCN Transport
Date Submitted: 01/11/2013
Project: Appendix B
Requester Name, Agency: Tom Lorz, CRITFC

Location of Change - FPP Project and Section:

Appendix B – Juvenile Fish Transportation Program, sections re: MCN Transport

See also change form "13MCN007 Transport".

Proposed Changes (*in track changes to existing section*):

1. INTRODUCTION

The Juvenile Fish Transportation Plan (JFTP) describes operations and establishes criteria for the collection and transportation of juvenile salmon and steelhead from Lower Granite, Little Goose, and Lower Monumental~~, and McNary~~ dams (collector dams) to release areas below Bonneville Dam. This work plan supplements normal operating criteria for the collector dams presented in the Fish Passage Plan (FPP), Sections 5, 7, 8, and 9, available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/fpp/2012/.

3. PROGRAM DURATION

3.1. Starting Operations: Consistent with the Fish Operations Plan (FOP), which is included with the Fish Passage Plan as Appendix E, and guidance provided by TMT, the juvenile fish transportation program allows for a variable start date, based on expected river flow. During years when the spring seasonal average river flows in the Snake River are expected to equal or exceed 65 kcfs, transport operations will begin between April 21 and May 1 at Lower Granite as determined by TMT. In these years, transportation will begin at Little Goose and Lower Monumental dams in a staggered fashion, with the start dates being determined at TMT. Prior to the start of transportation at a given collector project all collected fish will be bypassed directly to the river unless needed for a regionally approved study. In years when the spring seasonal average river flows are expected to be below 65 kcfs, transport operations will start on April 3 at Lower Granite, Little Goose, and Lower Monumental dams. McNary Dam will begin sampling for PIT tags, monitoring facility operations, and the Smolt Monitoring Program (SMP) on April 17. ~~Transport operations at McNary Dam will not begin until conditions specified under paragraph 4.b. (2) in coordination and discussions with TMT are met.~~

3.2. Summer Transport Operations: ~~At McNary Dam, summer operations will begin when in-river migration conditions are no longer spring-like (see 4.b.(2) below).~~ At Lower Granite, Little Goose, and Lower Monumental dams, summer operations will begin in coordination and discussions with TMT. Fish collected during summer operations will be held in shaded raceways or holding tanks. Sampling may convert to 100% when fish numbers at Snake River projects are below 500 fish per day (per PSMFC sampling guidelines) and smaller pickup mounted transport tanks may be used. Steelhead, which state biologists determine are in poor condition or are reverting to the parr stage, may be bypassed to the river.

3.3. Ending Operations: Transport operations are anticipated to continue through approximately September 30 at Lower Monumental ~~and McNary~~ dam~~s~~, and through October 31 at Lower Granite and Little Goose dams. ~~However, the presence of factors such as excess shad, algae, bryozoans that can clog screens and flumes may result in discontinuing transport operations at McNary before September 30.~~

4.2. Collection and Transportation:

4.2.1. Lower Granite, Little Goose, and Lower Monumental**:** All juvenile fish collected, with the exception of those marked for in-river studies, shall be transported once transport operations begin (paragraph 3.a.). The default dates for fish collection and barging operations to begin are April 6 during low flow years (first barge departs April 8)and on April 21 in higher flow years (first barge departs April 22 or 23), continuing through approximately August 15 of each year.

~~**4.2.2.** McNary**:** Fish collected during the spring shall be bypassed back to the river either through the main bypass pipe and full flow PIT tag detection system or through the transportation facilities in order to collect fish for research, fish condition information, and to obtain PIT tag data. The preferred operation when not collecting spring fish for research is full flow bypass to the river. Full flow bypass may be alternated with every other day bypass through the transportation facilities to allow sampling of fish under the SMP. Transportation operations at McNary Dam will be adjusted if the projected seasonal average flows at McNary Dam are greater than 125 kcfs, juvenile fish will be bypassed to the river at McNary Dam from April 10 through July 14. The Corps will adaptively manage starting July 15 through July 30. (2008 Biological Opinion Table – RPA 30, Table 4). The term "adaptive" in this table refers to a transition between (Spill and Bypass) and (Spill and Transport). The decision for each option would be made based on RM&E and in-season data in coordination and discussions with TMT. Transportation operations may be adjusted for research purposes, due to conditions at the collection facilities, or as a result of the adaptive management process (to better match juvenile outmigration timing and/or to achieve or maintain performance standards). If new information indicates that modifying or eliminating transportation operations at McNary Dam is warranted, adaptive management will be used to make appropriate adjustments. In August (spill and transport) and September (transport and no voluntary spill), transportation operations will occur. Transportation of juvenile fish from McNary will be via barges through August 16. After August 16, trucks will be used for transporting juvenile fish from McNary on an every-other-day basis through September 30, 2009.When transport operations begin, fish will be collected and held for transportation with all fish collected being transported, with the exception of those marked for in-river studies. During the spring, juvenile fish may be periodically sampled for the SMP and for monitoring facility operations.~~

5.2.1. Barge Scheduling: Barges with 75,000 pound capacity will operate from Lower Granite Dam. It takes approximately 79 hours to make a trip from Lower Granite Dam to the release area near the Skamania light buoy below Bonneville Dam and return. One

barge will leave Lower Granite Dam every-other-day beginning on about the second day after the initiation of collection. The FOP (Appendix E) specifies the date collection will start for transportation in coordination and discussion with TMT. When fish numbers increase, barging operations will switch to one barge leaving Lower Granite daily. When fish numbers decline in late spring, operations will change back to every-other-day barging from Lower Granite Dam, with barging operations continuing through August 15. During spring operations, barges will take on additional fish at Little Goose, and Lower Monumental dams as barge capacity allows. The two medium and two small barges may also be used from Lower Granite Dam for additional barging capacity or they will be used for direct loading of fish at Little Goose Dam. When daily collection exceeds barge capacity, juvenile fish may be spilled per 4.d.(4) above or will be bypassed to the river until collection numbers drop to where juvenile fish can be barged within barge carrying capacity criteria. ~~During the summer, barges traveling from the Snake River projects may stop at McNary Dam to load fish collected there. Barging from McNary Dam may continue after Snake River barging ceases, past August 15, on an every-other-day basis if fish numbers warrant it. Summer barge operations at McNary after August 15 will continue while collection exceeds 3,500 pounds of fish per day (the capacity of two trucks) or trends indicate numbers will exceed the 3,500 pound trigger number.~~

Justification for Change:

Note: maintain transportation facility for near term needs until final Transport COP recommendations have been finalized.

The most recent data on McNary transport is from the years 2001 and 2002. That data indicated a transport to inriver benefit ranging from 1.2 to 1.5 could occur during the mid-July to mid-August timeframe. Substantial improvements have been made to the McNary project and the projects down river which has resulted in increased survival at the projects as well as likely increases in reach survivals for inriver migrants which would reduce the transport benefit observed in those years. List of Improvements since 2002:

McNary Dam:
24 hours spill
Relocated bypass outfall
John Day Dam:
Top spill weirs
Improved spill patterns
Improved avian wire array
24 hours spill
The Dalles Dam:
Spillway wall and associated improved spill patterns
Improved ice and trash sluiceway chain gate opening patterns
Improved avian wire arrays
Bonneville Dam:
Second Powerhouse corner collector (surface bypass)

Improved spill patterns (increased minimum openings)
Increased spill volume
Finished minimum gap runners at the First Powerhouse
Improved ice and trash sluiceway flow, gate pattern and gate operation
System:
Heavy-up on Pikeminnow program

In past years, the Region has maintained summer transport at McNary Dam primarily because of poor bypass performance at this project. However, in 2012 a new juvenile outfall was constructed at the McNary project that has improved survival at this project. Subyearling Chinook bypass survival was estimated at 94.6% single release which is a significant improvement over past years bypass survival (which ranged from….to…). This estimate was achieved despite high avian presence early in the subyearling migration season.

There is a risk to the outfall if there is a problem with a barge operating in the relatively high flow velocity conditions below this project. Eliminating summer transport would also eliminate this risk. Also, current interruptions in spill and changes in the spill pattern required for the barge to dock at the juvenile facility (that do not favor fish passage) would be eliminated.

From the Draft Transport COP
"A new outfall pipe was completed and operating at MCN for the 2012 juvenile outmigration season and it is important to note that no survival data are available at this time to evaluate how this new outfall may influence MCN-BON reach survival for yearling migrants *(refer to above)*. Another important caveat to the data above is that reach survival is influenced by numerous factors and therefore a lower average survival in recent years relative to more historic data does not mean that FCRPS improvements and modifications over the last decade have not been beneficial."

"While not strong, there do appear to be some benefits to transporting late in the season (late July-early August). However, for the last 4 years (2008-2011) an average 85% of subyearlings have passed McNary Dam by July 30 indicating only a small portion of the population would benefit from late season transport. Furthermore, the majority of the subyearlings passing McNary dam are from the Hanford reach and are not listed under the ESA."

At the COP meeting the regional group was polled to determine if there was concern with terminating summer transport. No one had issue with ceasing summer transport.

Given this information from the COP as well as the previous justification we see little reason to continue summer transport at McNary. There would also be a significant O&M budget savings by not transporting from McNary that could be used for other critical measures at the projects.

Comments from others:

-----Original Message-----
From: Morrill, Charles (DFW) [mailto:Charles.Morrill@dfw.wa.gov]
Sent: Tuesday, January 22, 2013 3:37 PM
To: Tom Lorz; Mackey, Tammy M NWP

Cc: Tweit, William M (DFW); Norman, Guy R (DFW); Roler, Ronald (DFW); Wills, Dave; Statler, Dave; Wills, Dave; Russ Kiefer; Paul Wagner; Kruger, Rick; Morrill, Charles (DFW)
Subject: FPP Change forms for McNary transport, 13MCN007 and 13AppB004

Hi Tom, Tammy, et al.

WDFW supports the adoption and implementation of both FPP change forms, 13MCN007 – Transport Operations and 13AppB004 – MCN Transport.

I would attend however the Annual Pit Tag Steering Committee meets the 24th and I serve as co-chair.

So : One suggested edit, One question:

In 007
2.3.1. Add McNary to sentence

Note: maintain McNary transportation facility for near term needs until final Transport COP recommendations have been finalized.

In both ... Heavy-up ??? would not emphasis be a better word choice ??

Heavy-up (emphasis) on Pikeminnow program

Charlie

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Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13AppG001 – IHR Protocols
Date Submitted: 12/19/12
Project: Appendix G - IHR
Requester Name, Agency: David Trachtenbarg, NWW

Location of Change - FPP Project and Section:

Appendix G (Adult Trapping Protocols) – IHR

Proposed Changes (*in track changes to existing section*):

3. Trapping Protocols during Fish Passage Season (March 1 - December 15) when Fish Ladder Water Temperatures are < 70°F.

Since the trap is operated manually, personnel conducting research are required to be present at the facility to divert desired fish.

A. The trap will be tested for proper operation before trapping begins. After each day's use the trap will be promptly removed from the water by ~~suspending it in its guides, or by~~ completely removing it from the fish ladder.

B. Trapping operations can take place between 0600 and 1200 hours, for up to 4 hours per day or until the designated number of desired fish are obtained, whichever occurs first. During the summer months, the period from 0600 to 1000 hours is preferred. The trap shall not be in the water for more than 4 hours. Trapping operations shall limit the number fish lifted from the trap to the powerhouse deck to two per lifting cycle.

C. Netting of fish is not recommended. If transfer of fish is necessary, fish should stay in water at all times through the use of a water-filled bag, sanctuary net, or other means. The device used should be large enough to safely handle the largest fish.

D. Non-target fish will be released to the ladder.

E. Oxygen levels in fish handling tanks will be maintained at saturation by replacing the water and providing aeration as necessary.

F. Water temperatures in fish handling tanks will be maintained within 2°F of the fish ladder water temperature but less than 70°F.

G. Personnel shall sample fish as quickly as possible. It should require no longer than 25 minutes to transition the fish from entry into the anesthetic tank to release back into the ladder or transportation tank. River water shall be cycled through recovery and/or transportation tanks while holding fish at the dam until transported to the river for release or returned to the ladder.

H. Fish must be adequately recovered from anesthetization prior to the next step in the handling process, whether placed in the ladder or transported.

4. Trapping Protocols during Fish Passage Season (March 1 - December 15) when Fish Ladder Water Temperatures are ≥70°F and ≤ 72°F.

The trap may be operated when water temperatures are within the range of 70°F to 72°F, provided that researchers closely adhere to the restrictions below. Trapping operations will not be allowed, and trapping must cease immediately, if fish ladder water temperatures exceed 72°F. Due to the narrow temperature range involved, researchers must use reliable digital thermometers.

A. Researchers must notify the Corps project biologist in advance when trapping is to occur in this temperature range. The project biologist will occasionally monitor trapping operations.

B. The trap will be tested for proper operation before trapping begins. After each day's use, the trap will be promptly removed from the ~~water by suspending it in its guides, or by completely removing it from the~~ fish ladder.

C. Trapping operations can take place between 0600 and 1200 hours, for up to 4 hours per day or until the designated number of desired fish are obtained, whichever occurs first. During the summer months, the period from 0600 to 1000 hours is preferred. The trap shall not be in the water for more than 4 hours. Trapping operations shall limit the number fish lifted from the trap to the powerhouse deck to two per lifting cycle.

D. Trapping operations may take place up to 4 days per week.

E. Netting of fish is not recommended. If transfer of fish is necessary, fish should stay in water at all times through the use of a water-filled bag, sanctuary net, or other means. The device used should be large enough to safely handle the largest fish.

F. Non-target fish will be released to ladder.

G. **Oxygen levels** in fish handling tanks will be maintained at saturation by replacing the water and providing aeration as necessary.

H. **Water temperature** in the anesthetic tank will be maintained 1-2°F lower than the ladder water temperature. If ice is used, the ice should be from river water or from an un-chlorinated water source. If practical, water temperature in the recovery tank should also be maintained 1-2°F lower than the ladder water temperature; otherwise flow-through water should be running continuously.

I. Personnel shall sample fish as quickly as possible. It should require no longer than 25 minutes to transition the fish from entry into the anesthetic tank to release back into the ladder or transportation tank. As noted above, water temperature in the recovery tank should be maintained 1-2°F lower than the ladder water temperature or flow-through water should be running continuously.

J. Fish must be adequately recovered from anesthetization prior to the next step in the handling process, whether placed in the ladder or transported.

Justification for Change:
Changes to the Ice Harbor Dam adult trapping protocols are necessary as part of the rehabilitating the existing trap.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

FPP Change Request Form

Change Request Number & Title: 13ALL001 TDG Monitoring Plan
Date Submitted: 12/31/2012
Project: All
Requester Name, Agency: RCC

Location of Change - FPP Project and Section:

All Projects – section **2.3. Total Dissolved Gas (TDG) Management and Control.**

Proposed Changes (*in track changes to existing section*):

2.3. Total Dissolved Gas (TDG) Management and Control. Total dissolved gas (TDG) levels at ~~Bonneville~~ all projects are monitored in accordance with the ~~Dissolved Gas~~TDG Monitoring Plan~~rogram~~, included in the Water Management Plan as Appendix ~~4D~~, and available online at: http://www.nwd-wc.usace.army.mil/tmt/documents/wmp/2013/**.**

Justification for Change:

The TDG Monitoring and TDG Management Plans have been combined and included in the Water Management Plan as Appendix 4.

Comments from others:

Record of Final Action:
FPOM 01/24/13:

Appendix D Project Operations for Non-ESA Listed Fish Species (Lamprey, etc.)

This appendix is intended to define FPOM-recommended special operations for species other than salmonids (e.g., lamprey) that may pass a project via the juvenile or adult passage facilities.

1. Lamprey

Below are project-specific changes to support improving lamprey survival that have been implemented annually since approved regionally through FPOM or FFDRWG.

1.1. Bonneville Dam

When adult lamprey are recovered during dewaterings, they will be transported and released into the BON forebay whenever possible. No fish, including lamprey, will be held for other uses when recovered during dewaterings.

Several adult lamprey passage improvements have been made to fish ladders at BON. In 2004, a Lamprey Passage System (LPS) was added at the Bradford Island ladder to the FV 3-9 AWS channel, and received an expansion and PIT-tag detection in 2006. Counting improvements, including video verification at the exit flume, were added in 2001. Also in 2011, one-inch picket lead spacers were added, and in 2012 these spacers were upgraded and improved to insure sufficient lamprey passage while not interfering with adult salmonid passage.

At Cascades Island, half-duplex PIT-tag detectors were installed along the picket leads to help track lamprey in 2006. A LPS, complete with a bollard floor guidance path and a variable width entrance weir, were installed in 2009. This LPS is currently being expanded to allow fully volitional passage to the forebay.

The Washington Shore fish ladder received guidance plates installed over the diffuser grates in 2001. A lamprey ramp and trap box were installed at the North Downstream Entrance (NDE) in 2005. In 2008, a LPS was added to the FV 6-9 AWS channel, similar to the LPS at the Bradford Island FV 3-9 AWS. One-inch picket lead spacers were installed in 2010 for passage under leads, and in 2011, NOAA Fisheries installed a picket lead sill ramp. NOAA Fisheries also installed ¾-inch crowder picket leads at the count station. Improvements to the picket lead spacers are planned for 2013. Additionally, the NDE lamprey trap will be removed and replaced with a complete LPS and entrance guidance system in 2013.

During nighttime spill hours, Fish Unit output is reduced to operate the Washington Shore fish ladder entrances at 0.5 feet of head to encourage lamprey to enter the fish ladder. This operation occurs from June 01 –August 31.

1.1.1. **Adult Lamprey Passage - Facilities Description**:

1.1.1.1. **Powerhouse One:** At the Bradford Island ladder, the FV 3-9 AWS channel is equipped with a LPS that allows lamprey to bypass the serpentine section of the fish

ladder and exit directly into the forebay, adjacent to the fish ladder exit. The picket leads that block passage of adult salmonids into the AWS channel are raised off the floor of the ladder 1", allowing lamprey to pass under the leads and into the AWS channel.

1.1.1.2. **Spillway**. The Cascades Island fish ladder entrance is equipped with a variable width weir entrance gate. This entrance is coupled with a bollard field on the floor of the ladder, leading to a LPS located in the entrance bay. This LPS bypasses the overflow weirs and provides a direct route to the forebay. This LPS is currently being converted into a fully volitional passage route with an exit directly into the forebay, adjacent to the Cascades Island fish ladder exit**.**

1.1.1.3. **Powerhouse Two**. At the Washington Shore ladder, the FV 6-9 AWS channel is equipped with a LPS that allows lamprey to bypass the serpentine section of the fish ladder and exit directly into the exit channel of the fish ladder. The picket leads that block passage of adult salmonids into the AWS channel are raised off the floor of the ladder 1.5", allowing lamprey to pass under the leads and into the AWS channel.

1.1.2. **Adult Migration Timing and Counting**

1.1.2.1. Adult lamprey migration season occurs from March 1 through November 30 with the majority of the run passing BON in June and July. Maintenance of the LPSs is scheduled for December 1 through the end of February.

1.1.2.2. Adult lamprey counting is conducted in conjunction with other adult fish counting. Counting hours and visual/video counting periods are shown in **Table BON-1.** In addition to count window operations, each volitional passage LPS is equipped with a mechanical counting system and video verification in the exit sections.

1.1.3. **Lamprey Passage System (LPS) Operation & Maintenance**

1.1.3.1. **General**. Maintain adequate water depth for lamprey passage in all LPS flumes.

1.1.3.2. **Cleaning criteria**. When water levels in an LPS flume drop below the required level, the water supply pump intakes must be cleaned and debris removed.

1.1.3.3. **Trapping**. All LPSs are designed for volitional passage; however while new potential locations are tested for usage by fish, LPSs may be temporarily set-up with a trap box at the terminus. These trap boxes are operated solely by research groups who are responsible for monitoring, handling, and transportation of lamprey from the boxes.

1.1.3.4. **Water temperature**. Temperatures will be measured in each LPS. When water temperature reaches 70° F, all fish handling activities will be coordinated through FPOM prior to any action to verify protocols that will be followed. Fish handling activities in the Adult Fish Facility (AFF) will implement protocols in **Appendix G**.

1.1.3.5. **Winter maintenance season.** The water supply pumps should be removed and winterized. The pumps should be inspected for damage and replaced if necessary. The

flumes and rest boxes should be power sprayed to remove excessive algal growth and any debris should be removed. All joints should be inspected and re-caulked if necessary.

1.2. The Dalles Dam

1.2.1. **Adult lamprey.** Passage improvements were made in the east fish ladder by installing 4 orifice ramps to eliminate 90° edges. Additional ramps are under planning. Several concrete 90°s were also rounded with 2" radius. Picket leads were raised 1.5" for both north and east count stations.

1.2.2. **Juvenile lamprey.** Data are being collected in the powerhouse turbine cooling water strainers for informational purposes. These data will not be available as the strainers are now being replaced with self-cleaning mechanisms.

1.2.3. **Dewatering collections.** Lamprey are collected and returned to the forebay during fishway dewaterings. Tribal restocking efforts collect lamprey from some dewaterings. These lamprey are held for no more than 12 hours.

1.3. NWW Projects

1.3.1. **Raceway tailscreens**. Juvenile fish facilities that are collector projects for transportation have implemented lamprey-friendly raceway tailscreens to allow collected lamprey to be returned to the river rather than transported. The new tailscreen has wire mesh with .063-inch diameter and 0.337 open width/height . The open diagonal dimension of the wire mesh is ~$^{7}/_{16}$" with an overall screen open area of 71.0%. Lower Monumental is testing an oblong perforated plate tailrace screen that can be cleaned with brushes without entangling lamprey. FFDRWG has approved the replacement of the remaining mesh screens at Lower Monumental with the new tested perforated plate screens. This work is scheduled for 2012-2013 winter maintenance season.

1.3.2. **McNary Dam.** Trash racks are raked prior to January 15 to minimize the potential for lamprey entanglement in built-up debris when river flows increase. Nighttime (2100-0400 hours) velocities are reduced at adult fishway entrances SFE and NFE by lowering the entrance weir depth to sill to encourage lamprey entrance into the fish ladder. This operation occurs to coincide with lamprey passage season, June 15–September 30. ESBS screens are placed into operation prior to April 16 (two weeks later than other NWW projects) to allow for juvenile lamprey passage directly through turbines without any bypass system collection.

1.3.3. **Adult lamprey.** Adult lamprey passage improvements were made to upper fish ladder weirs at Ice Harbor Dam during the winter of 2011 and Lower Monumental Dam during the winter 2012. These included cutting horizontal slots in weirs at the floor to allow adult lamprey attachment through a level pathway through the weir. Additionally, ramps were installed from the fish ladder floor to the bottom of vertical slots (water control slots) of upper ladder weirs to assist lamprey in maintaining attachment as they maneuver through these areas. Adult lamprey collected at Little Goose and Lower Monumental Fish Facilities are transported for release into the forebay above the dams rather than being routed via bypass outfall back into the tailrace or transported downstream.