OFFICIAL MEMO of COORDINATION (MOC) FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE- 18 LGS 09 Boat Barrier Debris Spill
COORDINATION DATE- June 4, 2018
PROJECT- Little Goose Lock and Dam
RESPONSE DATE- June 7, 2018

1. **Description of problem:** Little Goose Lock and Dam is requesting a short-term spill outage on June 11 to facilitate disconnecting the boat barrier in order to spill accumulated debris built up on the newly installed boat barrier (Picture 1). In order to conduct the work, Little Goose would need to cease spill for approximately 5 hours and would also like to take unit 6 out of service for a short period.

   To begin the spillway outage, operators would close all spillbays, including the adjustable spillway weir (ASW). Once all spillbays are closed, operators and maintenance crews will complete lockout/tagout procedures in accordance with Walla Walla District HECP and Little Goose standard operating procedure for entering the boat restricted zone (BRZ). Then, two boat crews will enter the boat restricted zone (BRZ) from the North shore boat entrance, maneuver across the forebay just upstream of the spillway and open the boat barrier utilizing the boat barrier release mechanism (Picture 2). While crews are opening the boat barrier, Little Goose would like to also utilize the coordinated unit outage for trash raking and take unit 6 out of service. Little Goose expects that having the units closest to the ASW out of service while releasing debris will help move debris in the appropriate direction. Once the boat barrier is open, crews will exit the BRZ utilizing the same route used to enter the BRZ. When crews have safely exited the BRZ and lockout/tagout procedures are complete, the spillway will return to service beginning with the ASW and spillbay 2. Opening the ASW and spillbay 2 prior to the remaining spillways as well as having unit 5, which is already out of service for overhaul, and unit 6 out of service will allow debris to travel downriver through the ASW and spillbay 2. Removing this debris is expected to help mitigate recent debris issues within the juvenile collection system.

   Little Goose discussed various other options to remove debris caught on the boat barrier. These options included using USACE owned boats to relocate debris or using a contractor to physically remove debris. Both of these other options required longer duration including extended spillway outages for safety purposes and could potentially create prolonged debris issues while debris mats are disturbed and relocated. Both of these options likely would had greater impacts to fish passage than the method described above.

2. **Type of outage required:** Spillways 1-8 closure for duration of work, unit 6 outage during debris spill and potential for exceeding minimum operating pool for a short duration. Spillway outages are outside of the scope of operations outlined in Appendix E, section 6, Table 2 of the 2018 Fish Passage Plan. Unit 6 outage will impact unit priority (FPP 2018, Table LGS-5), however Little Goose has scheduled two units at a time out of service for trash raking June 11-14. Minimum operating pool may be exceeded for a short duration during the spill outage (Water Management Plan, 6.10.1 Reservoir Operations).

3. Dates of impacts/repairs: June 11, 2018.

4. Length of time for repairs: Little Goose is requesting 5 hours to complete the work. This includes the process of closing all spillways, completing all lockout/tagout procedures, opening the boat barrier and returning spillways to service.

5. Impact on fish facility operation: The juvenile fish facility will operate as normal, but could potentially see a higher than normal collection due to the spillway outage.

6. Impact on project operations: All spillbays will be closed for the duration of the work and unit 6 would be taken out of service during the debris spill. Additionally, Little Goose forebay will likely exceed minimum operating pool for a short duration.

7. Analysis of potential impacts to fish. Include:

a. Currently, Little Goose adult passage is predominately composed of spring Chinook. The 10-year average adult count (2008-2017) on June 11 consisted of 956 adult spring Chinook (Table 1). Juvenile passage for the same 10-year average consists mainly of subyearling Chinook, but we also expect to see yearling Chinook, sockeye, Coho salmon and steelhead (Table 2).

Table 1: Average adult passage at Little Goose Dam on June 11, 2008-2017.

Species	2008-2017 Adult Count	5 hr interval
Chinook	956	199
Jack Chinook	215	45
Steelhead	3	1
Wild Steelhead	1	0
Coho	0	0
Sockeye	0	0
Lamprey	0	0

Table 2: Smolt index at Little Goose Dam on June 11, 2008-2017.

Species	2008-2017 Smolt Index	5 hr interval
Subyearling Chinook	36577	7620
Yearling Chinook	2164	451
Steelhead	4833	1007
Sockeye	85	18
Coho	139	29

b. The adult spring Chinook run is later and is anticipated to be much lower than the 10-year average (Table 3).

Table 3: Bonneville and Little Goose spring Chinook daily passage, 2018 and 10-year average.

Species	Bonneville	Little Goose
Chinook 2018	86804	15803
Chinook 10YearAvg	152254	51368
Jack Chinook 2018	6377	1143
Jack Chinook 10YearAvg	25782	8095

c. Adult impacts are expected to be minimal. Although we expect to see a fair number of Chinook, turbine units 1-4 will remain in service for attraction flow and there will not be any changes to the adult fish ladder.

d. Juvenile passage through spillways, including the ASW will be reduced. During the spillway outage, we expect an increased number of juveniles will be routed through the juvenile bypass system and/or turbine unit. Although these routes survival rate is less than surface spill, the duration of the outage is expected to be short.

8. Final judgement on scale of expected impacts (negligible, minor, significant) on:

a. Increased number of juveniles collected in the juvenile bypass system and transported downriver during the duration of the proposed work.

b. Adult impacts are expected to be very minimal.

c. No lamprey impacts are anticipated.

9. Comments from agencies.

-----Original Message-----
From: Morrill, Charles (DFW) [mailto:Charles.Morrill@dfw.wa.gov]
Sent: Monday, June 4, 2018 3:30 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)
Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Hi Eric,

thanks for the heads up ...

the latest STP is not out yet, however looking at last week's STP, Lgr inflow was projected to be about 125, RCC inflow appears to be about 115 for Lgr Project data shows an average of 107 at Lgr so far today and 102 at lgo ...

WIth the continued forecast decline in flows, virtually no precipitation forecast above Lgo and generally warmer, one would anticipate flows to continue to decline ... I would not be suprised to inflows by the 11 of less than 80 kcfs by June 11

ahhh... the latest STP is out .. and based on the above, likely an overestimate for June 11th ...

Powerhouse capacity ... all six units is ~ 90 Kcfs

at 90 kcfs and 30 % spill ...spill could be 27 kcfs or a bit higher pending gas cap ... So ...my question is: Instead of putting more water through the powerhouse, pond whatever the volume of water being spilled, once the debris boom is opened to allow the debris mass to drift below it, then resume spill at a slightly higer % with the goal of reducing it to the desired target by 0500 the following morning ...

Charlie

-----Original Message-----
From: Kiefer,Russell [mailto:russ.kiefer@idfg.idaho.gov]
Sent: Monday, June 4, 2018 3:15 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US) Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Eric,

IDFG supports conducting this debris spill on the 11th.

However, if the LMO forebay TDG monitor is setting the gas cap spill level at LGO on the 11th, we should be able to provide the total spill amount we would normally over 24 hrs in the remaining 19 hrs of that day, provide the planned gas cap spill amount for the day, and likely not route more smolts through the powerhouse than we would without this operation.

Russ

-----Original Message-----
From: Erick VanDyke [mailto:Erick.S.VanDyke@state.or.us]
Sent: Monday, June 4, 2018 3:12 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US) Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Using your normalized 10-year average, reducing fish passage impacts are more probable if the date is shifted to after June 20. Debris accumulated on the boat barrier is being characterized as impacting what passage route? The five hours of powerhouse only flow should attract 100% of a things to the powerhouse route, which could serve to magnify the debris issue in the orifices and possibly more. None of the justification includes the boat barriers ability to sustain the floating mass that is against it now. I continue to wonder how the FFDRWG operational changes are functioning to pass debris over the boat barrier and out the usual debris passage route (the ASW). As flow subsides the amount of debris should be less so waiting roughly nine days should not amount to more being piled on. With summer flow and spill operations being reduced this should benefit a safer operation too. Lower total river discharge after June 20 should only serve to reduce safety concerns as well.

-----Original Message-----
From: Trevor Conder - NOAA Federal
[mailto:trevor.conder@noaa.gov]
Sent: Monday, June 4, 2018 2:08 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)
Subject: [Non-DoD Source] Re: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Eric,

Noaa supports the operation to reduce debris accumulation on the trash racks and in the bypass system.

Trevor Conder
NOAA Fisheries

-----Original Message-----
From: Hockersmith, Eric E CIV USARMY CENWW (US)
Sent: Monday, June 4, 2018 3:17 PM
To: 'Swank, David' <david_swank@fws.gov>
Subject: RE: [Non-DoD Source] Re: [EXTERNAL] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Dave,

At this time the project is planning to leave the boat barrier open so they would not need a second spillway outage to reconnect the boat barrier.

Eric Hockersmith
Fishery Biologist
U.S. Army Corps of Engineers
Walla Walla District
201 N 3rd Ave.
Walla Walla, WA 99362
Phone: 509-527-7122
Cell: 509-520-4350

-----Original Message-----
From: Swank, David [mailto:david_swank@fws.gov]
Sent: Monday, June 4, 2018 3:02 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)
Subject: [Non-DoD Source] Re: [EXTERNAL] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Hi Eric,

While I'm not crazy about the spill reduction I'll support the MOC given all the mortalities we've had at LGS due to debris. One question: after the debris spill has been completed, is the boat barrier going to be reconnected or left open? I would assume they need to reconnect it, but the MOC doesn't specify. If so, how much time will that take?

Dave

-----Original Message-----
From: Tom Lorz [mailto:lort@critfc.org]
Sent: Monday, June 4, 2018 2:43 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)
<Eric.E.Hockersmith@usace.army.mil>
Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Ok thanks so do they think it is more likely 3 hours. Also anything they can do to speed up the process.

-----Original Message-----
From: Hockersmith, Eric E CIV USARMY CENWW (US)
Sent: Monday, June 4, 2018 2:28 PM
To: 'Tom Lorz' <lort@critfc.org>; Subject: RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Tom,

The project plans to have as much of the preparations done in advance to minimize the outage duration but felt they should request up to a 5 hour outage to provide for unanticipated issues as a contingency.

Eric Hockersmith
Fishery Biologist
U.S. Army Corps of Engineers
Walla Walla District
201 N 3rd Ave.
Walla Walla, WA 99362
Phone: 509-527-7122
Cell: 509-520-4350

-----Original Message-----
From: Tom Lorz [mailto:lort@critfc.org]
Sent: Monday, June 4, 2018 2:09 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)

While we do support the operation on closer inspection I was surprised to see the 5 hour process get this all done, could not most of the clearance be ready ahead of time and once the spillway is closed verify and move forward to shorten the time of no spill? Anything to reduce the time would be appreciated.

Thanks

Tom Lorz
CRITFC

-----Original Message-----
From: Tom Lorz [mailto:lort@critfc.org]
Sent: Monday, June 4, 2018 1:54 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US)
Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

I support the operation, this should help with debris and orifice issue we have had at LGS.

-----Original Message-----
From: Hockersmith, Eric E CIV USARMY CENWW (US)
Sent: Monday, June 4, 2018 2:23 PM
To: 'Jay Hesse' <jayh@nezperce.org>
Subject: RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Jay,

In response to your questions and concerns:

Question 1. - These are water management related questions and thus should be discussed in the water management forum at the TMT meeting.

Question 2. - A portion of the spilled debris at Little Goose is likely to sink in the reservoir or be stranded on shorelines in the Lower Monumental pool due to decreasing Snake River flows. Some of the spilled debris may reach Lower Monumental Dam, however, the amount and impacts are unknown. If a large amount of the Little Goose debris spill were to accumulate on the boat barrier at Lower Monumental Dam a similar operation may be needed. However, the timing of the action with decreasing flows after the spring freshet will reduce the amount likely to arrive in the forebay of Lower Monumental Dam and may not cause juvenile passage issues at that project.

Question 3. - If performed on June 11th the number of juvenile salmonids likely impacted would be 9,125 smolts based on the 10-yer average passage index. If delayed until June 21 the number of juvenile salmonids likely impacted would be 4,491 smolts based on the 10-yer average passage index. Waiting from June 11th until after June 20th would expose approximately 296,085 smolts to impacts of the accumulated debris based on the 10-yer average passage index.

Eric Hockersmith
Fishery Biologist
U.S. Army Corps of Engineers
Walla Walla District
201 N 3rd Ave.
Walla Walla, WA 99362
Phone: 509-527-7122
Cell: 509-520-4350

-----Original Message-----
From: Jay Hesse [mailto:jayh@nezperce.org]
Sent: Monday, June 4, 2018 12:54 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US) Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

Eric - I have several questions.
1) How would the pooled water from shut off spill be evacuated, via powerhouse or spillway? If spillway, how will TDG be managed relative to water quality standards? If powerhouse, what is the full duration and scope of reduced spill percentage relative to static court order conditions?
2) What impacts will the passed debris have on downstream project operations? Specifically, will it require special operations deviating from the court order conditions and/or degrade fish condition in juvenile bypass systems?
3) Can this operation be rescheduled to after June 20th? Would rescheduling impact more or less fish?

Thank you,

jay

"Knowledge is a tool, and like all tools, its impact is in the hands of the user(s)" -- Dan Brown, The Lost Symbol

Jay Hesse
Research Division Director
(208) 843-7145

-----Original Message-----
From: Hockersmith, Eric E CIV USARMY CENWW (US)
Sent: Monday, June 4, 2018 2:16 PM

To: 'Erick VanDyke' <Erick.S.VanDyke@state.or.us>;
Subject: RE: 18 LGS 09 MOC Boat Barrier Debris Spill
CLASSIFICATION: UNCLASSIFIED

Erick,

If delayed until June 21 the number of juvenile salmonids likely impacted would be slightly lower (4,491 versus 9,125 smolts based on the 10-yer average passage index). However, waiting from June 11th until after June 20th would expose approximately 296,085 additional smolts to impacts of the accumulated debris based on the 10-yer average passage index.

Eric Hockersmith
Fishery Biologist
U.S. Army Corps of Engineers
Walla Walla District
201 N 3rd Ave.
Walla Walla, WA 99362

Phone: 509-527-7122
Cell: 509-520-4350

-----Original Message-----
From: Erick VanDyke [mailto:Erick.S.VanDyke@state.or.us]
Sent: Monday, June 4, 2018 12:12 PM
To: Hockersmith, Eric E CIV USARMY CENWW (US) Subject: [Non-DoD Source] RE: 18 LGS 09 MOC Boat Barrier Debris Spill (UNCLASSIFIED)

I would recommend this operation be delayed until after the 2018 injunction period which is scheduled to go through June 20. I am not supportive of reducing benefits of spill operation during the proposed time.

Erick S. Van Dyke
Oregon Dept of Fish & Wildlife
Fish Passage/Mitigation Technical Analyst
17330 SE Evelyn Street
Clackamas, OR 97015
971-673-6068 Office

10. Final coordination results.

MOC WITHDRAWN

From: Hockersmith, Eric E CIV USARMY CENWW (US)
Sent: Monday, June 4, 2018 4:12 PM
To: FPOM

Subject: Little Goose Dam Boat Barrier Debris update (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

FPOM,

This afternoon a change in local winds at Little Goose Dam shifted the accumulated boat barrier debris providing safe access to reach the release catch from the upstream side of the boat barrier. Project personnel took advantage of the changing conditions using a work boat to release the boat barrier catch while a safety boat was present to assist if needed. The barrier is now separated into two sections and is freely allowing debris to move toward the spillway for passage downstream. No change in operation was needed thanks to

cooperating winds. Lower Monumental project was informed of the Little Goose Dam accumulated debris release. 18 LGS 09 MOC Boat Barrier Debris Spill has been withdrawn and the associated request for a change in project operations on June 11, 2018 is no longer needed.

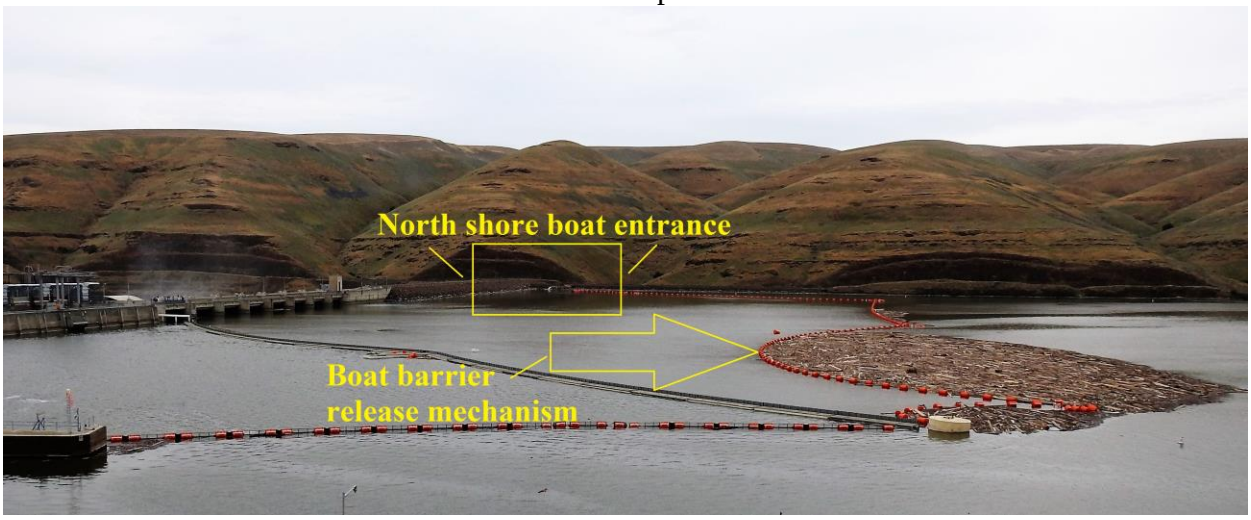
Eric Hockersmith
Fishery Biologist
U.S. Army Corps of Engineers
Walla Walla District
201 N 3rd Ave.
Walla Walla, WA 99362
Phone: 509-527-7122
Cell: 509-520-4350

11. After Action update.

None.

Picture 1: Little Goose boat barrier debris; May 31, 2018.

Picture 2: Little Goose boat barrier debris removal plan.



Please email or call with questions or concerns.

Thank you,

Scott St. John
Little Goose Lock and Dam
Project Fisheries Biologist
Scott.St.John@usace.army.mil