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Northwest Power and Conservation Council

February 5, 2019

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Oregon

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Idaho

Vacant
Idaho

MEMORANDUM

TO: Council Members

FROM: Tony Grover, Director, Fish and Wildlife Division

SUBJECT: Columbia River System Flexible Spill Agreement

BACKGROUND: Participants in the flexible spill agreement will discuss the terms of the agreement, the underlying analysis around conditions for fish and power costs and their perspective on the process, including next steps. Bonneville Administrator Elliot Mainzer will introduce the panel and also share some of his thoughts about the agreement and what it means for BPA and the region.

Presenters: Elliot Mainzer, Administrator, Bonneville Power Administration,
Rob Lothrop, Columbia River Intertribal Fish Commission
Tim Dykstra, US Army Corps of Engineers
Lesa Stark, Bureau of Reclamation (tentative)
Dave Johnson, Nez Perce Tribe
Jay Hesse, Nez Perce Tribe
Ed Bowles, Oregon Department of Fish and Wildlife
Michael Garrity, Washington Department of Fish and Wildlife
Ben Zelinsky, BPA
Jason Sweet, BPA

Summary: Conversations started in early 2018 between federal agencies, CRITFC, Oregon, Washington and the Nez Perce Tribe about a new way to manage spill in the spring, now referred to as 'flexible spill.' It started with the basic question: is there a way to increase spill for fish without raising costs for BPA customers? The conversation evolved and, after considerable trust building, numerous affirmations of shared objectives, and regular check-ins with Governors, Federal Executives, Tribal

Councils, etc. the group entered into formal negotiations and ultimately developed a three-year agreement. In the short term, it will test improving conditions for fish through increasing spill while also protecting BPA customers from rate increases by considering and accommodating power system needs. Longer term, it has the strong potential to redefine the working relationships among the different parties when it comes to future river operations and spill. It was a tremendous amount of work under some tight deadlines, but the group persevered through many legal, technical and even historical challenges to achieve an innovative and exciting outcome.

More Info: Attached are a copy of the flexible spill agreement and a copy of the joint statement issued by the parties and with support from the states of Idaho and Montana, which did not sign the agreement, but did review it and indicated support.

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UNITED STATES DISTRICT COURT
DISTRICT OF OREGON
PORTLAND DIVISION

NATIONAL WILDLIFE FEDERATION, et al.,

Plaintiffs,

v.

**NATIONAL MARINE FISHERIES SERVICE,
et al.,**

Defendants.

Case No.: 3:01-CV-00640-SI

**STATUS REPORT RE: 2019-
2021 SPILL OPERATIONS
AGREEMENT DURING THE
NEPA REMAND PERIOD**

Federal Defendants, Oregon, Washington, and the Nez Perce Tribe submit this status report to notify the Court that the U.S. Army Corps of Engineers, the Bonneville Power Administration, the U.S. Bureau of Reclamation, Oregon, Washington, and the Nez Perce Tribe (“signatory parties”) have reached an agreement on fish passage spill operations and related matters during the remainder of the National Environmental Policy Act (NEPA) remand period. For context and informational purposes only,¹ the agreement is attached as Exhibit 1 (“Agreement”). The Agreement reflects the intent of the signatory parties to set aside differing positions and work collaboratively on fish passage spill operations during the NEPA remand period. *See generally* Exhibit 1. The Agreement has two other effects that relate to this litigation:

1. The U.S. Army Corps of Engineers, Bonneville Power Administration, and the U.S. Bureau of Reclamation (Action Agencies) will modify their proposed action that is the subject of an ongoing Section 7(a)(2) Endangered Species Act (ESA) consultation with the National Marine Fisheries Service (NMFS). The modified proposed action will identify the fish passage spill operations documented in the Agreement, and NMFS intends to complete an ESA consultation before spring fish passage spill operations begin in April 2019.² In the interim, the Action Agencies and NMFS will take any necessary administrative steps to address incidental take occurring between the expiration of the 2008/2014 biological opinion and NMFS’s completion of consultation in April

¹ As the signatory parties provided in the Agreement, the Agreement is not intended to constitute a consent decree, be entered as a Court order, or be enforceable in this action. Exhibit 1 at IX.C.2, X.C. If the Court enters any of the provisions of the Agreement as a Court order, the Agreement automatically terminates. *Id.* Federal Defendants, moreover, object to the entry of an order adopting or modifying any of the provisions of the Agreement, and Federal Defendants request an opportunity to be heard if the Court considers entering an order adopting or modifying any of the terms of the Agreement.

² The agencies previously anticipated completing the ESA consultation process by the end of December 2018. *See* ECF 2271 (discussing the ongoing ESA consultation and Federal Defendants’ intent to complete that consultation on or before December 31, 2018).

2019. The signatory parties believe these procedural adjustments are compatible with the Court's April 17, 2018, Order that removed the December 31, 2018, consultation deadline. *See* ECF 2288.

2. While this Agreement is in effect, the signatory parties agree not to engage in any litigation—including filing supplemental complaints or seeking declaratory or injunctive relief—during the NEPA remand period as described in Exhibit 1 at X.A. The undersigned parties conferred with the other parties consistent with LR 7-1(a). The National Wildlife Federation, *et al.*, Plaintiffs represented that they also do not intend to engage in any litigation in the above-captioned case during the NEPA remand period—including filing supplemental complaints or seeking declaratory or injunctive relief—while this Agreement is in effect.³

In sum, the Agreement reflects that the signatory parties are working collaboratively on fish passage spill operations and related matters during the NEPA remand period. While this Agreement is in effect, the signatory parties and the National Wildlife Federation, *et al.*, Plaintiffs do not intend to engage in any litigation. If these circumstances change (*e.g.*, the Agreement terminates), the signatory parties will notify the Court.

Dated: December 18, 2018

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³ The Confederated Tribes of the Umatilla Reservation, the Confederated Tribes of the Warm Springs, and the State of Idaho indicated that they support the Agreement. The Confederated Salish and Kootenai Tribes, the Kootenai Tribe of Idaho, and the State of Montana collectively do not oppose the Agreement so long as its implementation does not adversely affect or preclude the improvement of the Montana Operations. The remaining defendant-intervenors or amici indicated that they do not oppose/take no position (Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Colville Reservation, Northwest RiverPartners, Inland Ports and Navigation Group) or did not respond.

JEAN E. WILLIAMS
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SETH M. BARSKY, Section Chief

/s/ Michael R. Eitel

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Senior Counsel
Attorneys for Intervenor-Defendant State of
Washington

CERTIFICATE OF SERVICE

I certify that on December 18, 2018, the foregoing was electronically filed through the Court's electronic filing system, which will generate automatic service on all Parties enrolled to receive such notice. I also certify that the following will be manually served via overnight mail:

Dr. Howard F. Horton, Ph.D.
Professor Emeritus of Fisheries
Department of Fisheries and Wildlife
104 Nash Hall
Corvallis, Oregon, 97331-3803
Tel: (541) 737-1974

/s/ Michael R. Eitel

Michael R. Eitel
Trial Attorney, U.S. Department of Justice

2019-2021 Spill Operation Agreement

December 2018

I. PARTIES

For purposes of this 2019-2021 Spill Operation Agreement (Agreement), the “Parties” means the State of Oregon, the State of Washington, the Nez Perce Tribe, the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Reclamation (Reclamation), and the Bonneville Power Administration (Bonneville).

II. PURPOSE

This Agreement describes planned 2019-2021 spring fish passage spill operations, using the flexible spill and power principle and objectives described below, and is intended to avoid litigation until the National Environmental Policy Act remand process (commonly referred to as the Columbia River System Operations Environmental Impact Statement and associated Records of Decision) ordered by the United States District Court for the District of Oregon in *National Wildlife Federation v. National Marine Fisheries Service*, Case No. 3:01-cv-00640, (*NWF et al v. NMFS*) is completed.

The Parties have entered into this Agreement in the spirit of regional collaboration with the shared goal of meeting the principles and objectives described below. In order for this collaboration to be possible, the Parties emphasize that, when this Agreement is not in effect, this Agreement is not intended to be used in any litigation or other forum as precedent for, or an endorsement of, any operation, and this Agreement does not represent an endorsement of any biological opinion NOAA Fisheries issues regarding the Columbia River System.

III. FLEXIBLE SPILL AND POWER PRINCIPLE AND OBJECTIVES

- A. The principle central to this Agreement is implementing a flexible approach to providing spill to benefit juvenile spring fish passage in concert with managing the Columbia River System for multiple congressionally-authorized purposes, including power generation to assure the Pacific Northwest of an adequate, efficient, economical, and reliable power supply.
- B. To fulfill this principle, and solely for purposes of this Agreement, the Parties have adhered, and will continue to adhere, to the following objectives in establishing the planned fish passage spill operations described in this Agreement:
 - 1. Provide fish benefits, with the understanding that (i) in 2019, overall juvenile fish benefits associated with dam and reservoir passage through the lower Snake and Columbia rivers during the spring fish passage season must be at least equal to 2018 spring fish passage spill operations ordered by the Court, and (ii) in 2020 and 2021, these fish benefits are improved further (as estimated through indices of

improved smolt-to-adult returns, e.g., PITPH, reservoir reach survival, fish travel time); and

2. Provide federal power system benefits as determined by Bonneville, with the understanding that Bonneville must, at a minimum, be no worse financially compared to the 2018 spring fish passage spill operations ordered by the Court;¹ and
3. Provide operational feasibility for the Corps implementation that will allow the Corps to make appropriate modifications to planned spring fish passage spill operations.²

IV. DEFINITIONS

- A. “Action Agencies” means the Corps, Reclamation, and Bonneville. These agencies jointly manage Columbia River System operations.
- B. “Columbia River System” refers to the fourteen federal dam and reservoir projects within the Federal Columbia River Power System that are operated as a coordinated water management system for multiple congressionally-authorized project purposes.
- C. “Fish” means salmon and steelhead species listed under the Endangered Species Act.
- D. “Gas cap” refers to the applicable state Total Dissolved Gas (TDG) water quality standards (in percent TDG).
- E. “Gas cap spill” means spill to the maximum spill level that meets, but does not exceed, the TDG criteria allowed under the applicable state water quality standard at the four Lower Snake River and four Lower Columbia River projects.
- F. “Lower Columbia River projects” refers to McNary, John Day, The Dalles, and Bonneville dams.
- G. “Lower Snake River projects” refers to Lower Granite, Little Goose, Lower Monumental and Ice Harbor dams.
- H. “NEPA Remand Process” refers to development of the Columbia River System Operations Environmental Impact Statement. This Process will conclude upon the signature of Records of Decision by the Action Agencies.

¹ Bonneville shall have sole discretion over how it conducts its financial analysis. Bonneville measured the financial cost of the 2018 Court-ordered operations using the methodology in Bonneville’s rate proceedings for calculating the estimated average annual cost of additional planned spring fish passage spill in excess of planned spill levels in the Corps’ 2017 Fish Operations Plan.

² As described in Section VI.A.

- I. “PITPH” is the calculated probability, based on Passive Integrated Transponder (PIT) tag detections, that a juvenile fish will pass through one or more powerhouse routes on its outmigration. A PITPH of 0 signifies the fish is projected to pass through 0 of 8 turbines/bypasses and a PITPH of 8 signifies the fish passed through 8 of 8 turbines/bypasses.
- J. “Spill cap” means the spill level (flow through the spillway measured in kcfs) at each project that the Corps estimates will maximize spill to a level that meets, but does not exceed, the Gas cap.
- K. “120% TDG spill” means planned juvenile fish passage spill targeting the maximum level that meets, but does not exceed, the Gas cap for 120% TDG in the tailrace, with Spill caps derived by the Corps using the procedures referenced in Section VI.A, below.
- L. “125% TDG spill” means planned juvenile fish passage spill targeting the maximum level that meets, but does not exceed, the Gas cap for 125% TDG in the tailrace, with Spill caps derived by the Corps using the procedures referenced in Section VI.A, below.

V. STATE WATER QUALITY STANDARDS

- A. The TDG standard for the states of Washington and Oregon is 110%. Both states have provided exceptions to the TDG standard for juvenile fish passage spill operations on the lower Snake River and lower Columbia River. Oregon and Washington intend to work to harmonize their respective methodologies for measuring TDG for the duration of this Agreement. To the extent standards and/or methodologies differ between the two states, the Corps will apply the more stringent standard and/or methodology when operating under all applicable state TDG water quality standards. Oregon and Washington are responsible for any modifications to water quality standards that result from the processes contemplated below.
- B. Washington:
 - 1. Washington’s current criteria adjustment standard provides that TDG must not exceed an average of 115% as measured in the forebays of the next downstream dams and must not exceed an average of 120% as measured in the tailraces of each dam (these averages are measured as an average of the 12 highest consecutive hourly readings in any one day, relative to atmospheric pressure); and a maximum TDG one hour average of 125% must not be exceeded during spillage for fish passage. WAC § 173-201A-200(l)(f)(ii).
 - 2. Washington Department of Ecology (Ecology) is in the process of considering a short-term modification that eliminates Washington’s current forebay TDG standard at the Lower Snake River projects and Lower Columbia River projects

and aligns Washington's calculation methodology with Oregon's current methodology. Ecology acknowledges that there is a desire for this short-term modification to be in effect on or before April 3, 2019, and will work to render a timely decision.

3. Ecology also intends to consider whether to allow spring juvenile fish passage spill up to 125% TDG (as read in the tailrace) under certain conditions. Ecology expects to make a decision on the modification up to 125% TDG prior to the beginning of the 2020 spring juvenile fish passage spill season.

C. Oregon:

1. Oregon's current standard modification provides that spill must be reduced when the average TDG concentration of the 12 highest hourly measurements per calendar day exceeds 120% of saturation at monitoring stations in the tailraces of McNary, John Day, The Dalles, and Bonneville dams, and spill must be reduced when instantaneous TDG levels exceed 125% of saturation for any 2 hours during the 12 highest hourly measurements per calendar day at monitoring stations in the tailraces of McNary, John Day, The Dalles, and Bonneville dams. OR. ADMIN. R. 340-041-0031 and 340-041-104(3).
2. The Oregon Department of Environmental Quality (ODEQ) will ask the Oregon Environmental Quality Commission (EQC) to consider changing the current standard modification to allow spring juvenile fish passage spill up to 125% TDG (as read in the tailrace) at the four Lower Columbia River dams. This issue will be presented to the EQC in time for any potential modification to be in effect for the 2020 spring juvenile fish passage spill season.

VI. SPILL OPERATION

A. General Provisions for Implementing Planned Fish Passage Spill Operations

1. In implementing the planned fish passage spill operations, the Corps will use the process and procedures set forth in the annual Fish Operations Plan and Current Procedures for Setting Spill Caps to establish Spill caps and target spill levels.
2. In-Season Adjustments: In managing the Columbia River System for multiple congressionally-authorized project purposes, the Corps may adjust the planned fish passage spill operations to address conditions set forth in the section of the annual Fish Operations Plan entitled "Modifications to Planned Operations and In-Season Management."

B. 2019 Fish Passage Spill Operations

1. Spring Operations

- a. To meet the flexible spill and power principle and objectives in Section III above, and if the conditions in Section IX.A and Section X are met, the Action Agencies will implement planned juvenile fish passage spring spill operations targeting the spill levels and times provided in **Attachment Table 1.1** in a manner consistent with the general spill implementation provisions in Section VI.A, above.
- b. The Parties acknowledge that the 2019 spring spill operations set forth in this Agreement are contingent upon securing a modification to Washington's water quality standard as described in Section V.B, above.

2. Summer Operations

- a. After implementing the juvenile fish passage spring spill operations in **Attachment Table 1.1**, the Action Agencies will then implement the 2019 planned juvenile fish passage summer operation shown in **Attachment Table 1.2**.

C. 2020 and 2021 Fish Passage Spill Operations

1. If the conditions in Sections V.B.3, V.C.2, IX.A, and X are met, and consistent with Section III, the Parties agree that 2020 and 2021 operations will incorporate spill up to and including 125% TDG as a tool for spring fish passage spill season. Collaborative technical work performed to date has identified representative spring spill operation scenarios. Preliminary analyses indicate these scenarios, which incorporate 125% TDG spill as a tool, meet the Section III principle and objectives (see **Attachment Tables 1.3a-b**).³

Building on further analysis of these representative scenarios and in consideration of 2019 results, the Parties will continue in good faith to evaluate the effect of different variables, such as project-specific spill levels and duration (both daily and seasonal), to refine 2020-2021 spring operations, and complete a final specific operations plan by September 1, 2019. If the Parties cannot agree on a refined operation, one of the two representative spring spill operations shown in **Attachment Tables 1.3.a-b** will be implemented in the 2020-2021 spill seasons

³ Bonneville's analysis, in particular, is especially preliminary and has a high level of uncertainty. Bonneville's financial models were not designed to handle the data associated with daily changes in spill at 125% TDG spill. As a result, Bonneville does not yet have full confidence in the results of the models. Accordingly, the Parties recognize Bonneville will continue to revise its evaluation of the financial implications of any 125% TDG scenarios.

for such time as this Agreement remains in effect, or until the Parties can agree on refinements.

The representative operations shown in Attachment Tables 1.3.a-b do not incorporate 125% TDG spill on a 24-hour, 7-day basis simultaneously at all Lower Columbia River projects and Lower Snake River projects. Such an operation would be inconsistent with the flexible spill and power objectives that are central to this Agreement.

2. The Parties presume that adjustments to summer spill operations in 2020-2021 will likely be necessary to meet the power-cost objective in Section III.B.2. To that end, the Parties have developed the operation reflected in **Attachment Table 1.4**. This operation is designed to meet the power-cost objective, while limiting potential reductions in spill to the last two weeks of August. The Parties agree that, subject to the iterative process specified in Section VI.C.1 above, this operation represents the maximum reduction in summer spill that is compatible with the Section III principle and objectives.
3. The Parties commit to ensuring their analyses are transparent and collaborative. For example, the Parties will continue to share and explain the assumptions and outputs of the biological and financial models, as well as information on any structural or operational constraints that may affect implementation of this Agreement.
4. The Parties acknowledge that implementation of 2020-2021 spring spill operations is contingent upon securing a modification to Washington and Oregon's water quality standards to allow for spill up to 125% TDG as described in Section V above.

VII. MONITORING

With regard to monitoring associated with this Agreement, the Parties agree that:

- A. Monitoring activities for juvenile and adult salmon and steelhead relative to mainstem hydrosystem operations and conditions are generally in place. In addition, the Parties support the installation of a PIT tag detection array on the Lower Granite Removable Spillway Weir as soon as feasible, currently anticipated for use in 2020.
- B. No additional PIT tagging is needed for analyses for spring/summer Chinook and steelhead. Additional PIT tagging, above current levels, may be desired for summer migrating fall Chinook and sockeye.
- C. Enhanced sampling of resident fish, invertebrates, and amphibians may be desirable in 2019. Enhanced sampling activities that meet monitoring needs may be required in 2020-

2021. Existing monitoring of TDG and Gas Bubble Trauma in salmonids will continue. TDG and Gas Bubble Trauma monitoring may be enhanced if deemed necessary and funded.

- D. Validation of fish behavior assumptions inherent in the modeled fish benefits relative to Spill Passage Efficiency are important and may require additional evaluation.
- E. Possible approaches, study designs and funding sources of any new monitoring activities discussed in this Section VII are being explored and discussed, but any additional monitoring Bonneville agrees to fund for the purposes of this Agreement must be within Bonneville's existing overall Fish and Wildlife Program budget. The Corps will continue current monitoring commitments in furtherance of this Agreement.

VIII. REPORTING

- A. The Fish Operations Plans for 2019, 2020 and 2021 will include the same reporting provisions as those set forth in the 2018 Fish Operations Plans. The Corps will provide status updates at the regularly scheduled Technical Management Team (TMT) meetings about the spring fish passage spill operations including review of the project Spill caps and resultant TDG level during the relevant time period. The Corps will address clarifying questions of the status update at the TMT meeting. In the event that a dispute results from the Corps' status update of the project Spill caps and resultant TDG level, that dispute should be expeditiously elevated by the Party seeking resolution of the dispute to the Regional Implementation Oversight Group (RIOG) in accordance with the established Regional Forum process.
- B. Parties to this Agreement agree to participate in the Regional Forum process in a manner that is consistent with the established processes of those groups and is respectful to all participants.

IX. EFFECTIVE DATE, WITHDRAWAL AND TERMINATION

- A. Effective Date.

This Agreement shall become effective where the following two conditions are met:

1. Signatures by the Parties to this Agreement, and
2. The filing of a notice with the U.S. District Court for the District of Oregon in *NWF et al v. NMFS*, that contains representations by the Parties to this Agreement and the National Wildlife Federation, et al., plaintiffs that they do not intend to file or engage in any litigation in *NWF et al v. NMFS* while this Agreement is in effect.

B. Withdrawal.

Any Party may withdraw following conferral and notice pursuant to Section XI below, upon the occurrence of any of the following:

1. The Action Agencies do not continue to implement habitat, hatchery, and monitoring and evaluation actions that provide an equivalent level of protection to fish and wildlife as they are currently implementing under the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision for the Columbia River System, as supplemented in 2010 and 2014, to the satisfaction of Oregon, Washington or the Nez Perce Tribe.
2. Failure to satisfy any of the conditions or commitments set forth in this Agreement.
3. A Reasonable and Prudent Alternative action providing a fish passage spill operation inconsistent with the provisions of this Agreement, which either U.S. Fish and Wildlife Service or NOAA Fisheries issues following an ESA consultation.
4. While this Agreement is in effect, the filing of any complaint or motion for declaratory, injunctive, or other relief in *NWF et al v. NMFS*, or the initiation of any new action in any court that relates to actions or operations addressed in NOAA Fisheries' 2008 Columbia River System biological opinion and the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision, as supplemented in 2010 and 2014.

C. Termination.

1. The Agreement terminates automatically upon the completion of the NEPA Remand Process.
2. The Agreement terminates automatically should the Court in *NWF et al v. NMFS* modify the terms of this Agreement in any manner, including adopting some or all of the terms of the Agreement as a court order.
3. If modification of Washington or Oregon's water quality standards does not occur, any Party may terminate this Agreement.
4. If any Party withdraws from this Agreement pursuant to Section IX.B., above, the Agreement may be terminated by any Party following conferral and notice of termination pursuant to Section XI below.

X. FORBEARANCE, RESERVATION OF RIGHTS, NO PRECEDENTIAL EFFECT

- A. While this Agreement is in effect, the State of Oregon and Nez Perce Tribe agree to forbear from filing motions or seeking relief (including declaratory or injunctive relief) in *NWF et al v. NMFS*, and from filing any new action in any court that relates to actions or operations addressed in NOAA Fisheries' 2008 Columbia River System biological opinion and the Action Agencies' 2008 Records of Decision or Record of Consultation and Statement of Decision, as supplemented in 2010 and 2014.
- B. Nothing in this Agreement alters or modifies the Parties' rights (including any claims or defenses) in *NWF et al v. NMFS* or any other forum, and no Party makes any concessions regarding the legal validity, scientific validity, or economic cost/benefit of the spill operations contemplated in this Agreement, the Columbia River System Operations Environmental Impact Statement, or any biological opinion NOAA Fisheries issues on the Columbia River System.
- C. The Parties agree that this Agreement is not intended to be construed as a consent decree enforceable as a court order in *NWF et al v. NMFS*, or otherwise cited or used as precedential on any legal or factual matter in *NWF et al v. NMFS*. The sole and exclusive remedy for any alleged breach or unresolved dispute under this Agreement (following good faith efforts by the Parties to resolve the dispute pursuant to Section XI below) is to withdraw from the Agreement.
- D. Nothing in this Agreement shall be interpreted as or constitutes a commitment or requirement that Reclamation, the Corps, or Bonneville pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341.
- E. Nothing in this Agreement shall be interpreted as limiting the authority granted to, or retained by, the State of Oregon or the State of Washington under the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. §§ 1251-1387).
- F. Nothing in this Agreement shall be construed as a waiver of any Party's sovereign immunity.

XI. MEET AND CONFER

- A. The Parties agree to communicate the provisions of the Agreement to appropriate staff and work in good faith through existing RIOG coordination and adaptive management processes to implement the terms of this Agreement.
- B. The Parties agree that a Party may exercise its withdrawal or termination options only after: (1) informing the Parties in writing of the issue to be addressed; (2) working in good faith with the Parties to resolve the issue; and (3), where the issue cannot be

resolved, provide written notice to the Parties that the Party is withdrawing from or terminating the Agreement.

- C. As detailed in Section VIII, any disputes arising out of the Corps' status updates on project spill caps and resultant TDG level from spring fish passage spill operations at the regularly scheduled TMT meetings should be immediately elevated to the RIOG in accordance with the established Regional Forum process by the Party seeking resolution of a dispute. RIOG meetings to resolve any disputes will be conducted as appropriate under that established process.

XII. SIGNATURES

By signing below, the Parties represent they affirmatively support this Agreement and its implementation.

The signatures of the State of Oregon, the State of Washington, the Nez Perce Tribe, Reclamation, the Corps, and Bonneville appear on the following pages 11-16.

A handwritten signature in black ink that reads "Kate Brown" followed by a horizontal flourish.

OREGON

December 13, 2018

Kate Brown
Governor
State of Oregon

Date

NEZ PERCE TRIBE



Shannon F. Wheeler
Chairman
Nez Perce Tribe

12-14-18

Date

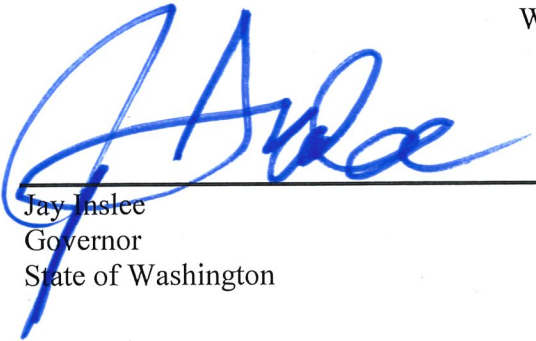


Casey L. Mitchell
Secretary
Nez Perce Tribe

12-14-18

Date

WASHINGTON



Jay Inslee
Governor
State of Washington

Dec 12, 2018

Date

BUREAU OF RECLAMATION



Lorri Gray
Regional Director
Bureau of Reclamation

12/18/18
Date

U.S. ARMY CORPS OF ENGINEERS



12 DEC 2018

Brigadier General D. Peter Helmlinger
Commander, Northwestern Division
U.S. Army Corps of Engineers

Date

BONNEVILLE POWER ADMINISTRATION



12/14/18

Elliot Mainzer
Administrator
Bonneville Power Administration

Date

Attachment

Table 1.1.

Planned 2019 spring spill operation, applying estimated 120% mean total dissolved gas spill caps and performance standard spill⁴ flex operations.

Location	COE Estimated Mean 120% Total Dissolved Gas Spill Cap (16 hours)	Performance Standard Spill (8 hours)
Lower Granite	45 kcfs	20 kcfs
Little Goose	52 kcfs	30%
Lower Monumental	44 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor	87 kcfs	30%
McNary	180 kcfs	48%
John Day	146 kcfs	32%
The Dalles	135 kcfs	40%
Bonneville	122 kcfs	100 kcfs

Key points:

- Spring spill operations would be initiated April 3 and April 10th and transition to summer spill operations on June 21 and June 16 at Lower Snake River projects and at Lower Columbia River projects, respectively.
- The 8 hours of performance standard spill would occur with some flexibility. Only Little Goose would be set to at least 4 hours in the a.m. (beginning near dawn and not to exceed 5 hours in the a.m.) and no more than 4 hours in the p.m. (generally near dusk) to help with adult passage issues. All other projects could spill either 3 or 4 hours for the performance standard spill a.m. time period and then up to a max of 5 hours in the performance standard spill p.m. period (not to exceed 8 hours in the day).
- No ponding above current MOP assumptions: Snake River - MOP+1.5 ft (to provide 1 ft. of useable space); John Day - MIP+2 ft (to provide 1.5 ft. of useable space).
- Controlled spill at Bonneville Dam capped at 150 kcfs due to erosion concerns.
- Controlled spill at The Dalles contained between the walls (Bays 1-8) unless river flows were over 350 kcfs then spill outside the walls would be permitted.
- Existing adaptive management processes will be employed to help address any unintended consequences that may arise in-season as a result of implementing these proposed spill operations.
- Spill may be temporarily reduced at any project if necessary to ensure navigation safety or transmission reliability.

⁴ “Performance standard” spill is a NOAA Fisheries term and refers to spill levels intended to meet NOAA’s performance standard testing, as described in the 2008 Biological Opinion and accompanying administrative record.

Table 1.2.

Planned summer spill operations, starting June 21 at Lower Snake River projects and June 16 at the Lower Columbia River projects through August 31, 2019; no spill curtailment criteria. Table 1.1 key points apply.

Location	Summer Spill Operation: Volume/Percent of Total Flow Routed to Spillway (June 21/16 – Aug 31)
Lower Granite	18 kcfs
Little Goose	30%
Lower Monumental	17 kcfs
Ice Harbor	30%
McNary	57%
John Day	35%
The Dalles	40%
Bonneville	95 kcfs

Table 1.3.a.

Representative spring spill alternative one, for implementation in 2020 and 2021. Six projects using 125% TDG flexible spill, John Day (JDD) using 120% TDG flexible spill and The Dalles (TDA) using 24 hour performance standard spill. Table 1.1 key points apply.

Location	COE Estimated mean 125% Total Dissolved Gas Spill Cap (16 hours), with alternative operation at JDD and TDA.	Performance Standard Spill (8 hours).
Lower Granite (125 flex)	72 kcfs	20 kcfs
Little Goose (125 flex)	79 kcfs	30%
Lower Monumental (125 flex)	98 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor (125 flex)	119 kcfs	30%
McNary (125 flex)	265 kcfs	48%
John Day (120 flex)	146 kcfs	32%
The Dalles (Performance Standard)	40%	40%
Bonneville (125 flex)	150 kcfs	100 kcfs

Table 1.3.b.

Representative spring spill alternative two, for implementation in 2020 and 2021. Six projects using 125% TDG flexible spill with JDD and TDA using 24-hour performance standard spill. Table 1.1 key points apply.

Location	COE Estimated mean 125% Total Dissolved Gas Spill Cap (16 hours), with alternative operation at JDD and TDA.	Performance Standard Spill (8 hours)
Lower Granite (125 flex)	72 kcfs	20 kcfs
Little Goose (125 flex)	79 kcfs	30%
Lower Monumental (125 flex)	98 kcfs	30 kcfs (bulk spill pattern)
Ice Harbor (125 flex)	119 kcfs	30%
McNary (125 flex)	265 kcfs	48%
John Day (Performance Standard)	32%	32%
The Dalles (Performance Standard)	40%	40%
Bonneville (125 flex)	150 kcfs	100 kcfs

Table 1.4.

Planned summer spill operations for 2020 and 2021. Cessation of juvenile transportation June 21 through August 14 with allowance for Technical Management Team adaptive management adjustments.

Location	Initial Summer Spill Operation: Volume/Percent of Total Flow Routed to Spillway (June 21/16 – August 14)	Late Summer Transitional Spill Operation: Volume/Percent of Total Flow Routed to Spillway (August 15 – August 31)
Lower Granite	18 kcfs	RSW or 7 kcfs
Little Goose	30%	ASW or 7 kcfs
Lower Monumental	17 kcfs	RSW or 7 kcfs
Ice Harbor	30%	RSW or 8.5 kcfs
McNary	57%	20 kcfs
John Day	35%	20 kcfs
The Dalles	40%	30%
Bonneville	95 kcfs	55 kcfs - includes 5k corner collector

**State of Oregon – State of Washington – Nez Perce Tribe
Bonneville Power Administration – U.S. Army Corps of Engineers
Bureau of Reclamation**

Flexible spill agreement aims to benefit salmon and hydropower

Federal, State and Tribal partners have come together to develop an agreement on a key component of operating federal dams in the Columbia River Basin. Parties to the agreement have aligned on a flexible spring spill operation premised on achieving improved salmon survival while also managing costs in hydropower generation. Key supporters of the agreement are jointly issuing this statement:

“Collaboration is key to this new approach to Columbia River system management. Working together, the region’s states, tribes, and federal agencies have developed an approach that demonstrates environmental stewardship and affordable sustainable energy are not mutually exclusive.”

The agreement Parties are the states of Oregon and Washington, the Nez Perce Tribe, the Bonneville Power Administration, U.S. Army Corps of Engineers and the Bureau of Reclamation. In addition, the states of Idaho and Montana reviewed the agreement and are supportive of the flexible operation.

The agreement covers up to three years of fish passage spill operations at eight lower Columbia and Snake River dams. During this time, the agreement avoids litigation while the co-lead agencies complete the Columbia River System Operations Environmental Impact Statement Records of Decision.

The agreement calls for flexible spill operations that meet three objectives: provide additional fish benefits by increasing spill; manage power system costs and preserve hydro system flexibility; and retain operational feasibility. Specifically, these operations involve increased spill during certain times of the day for fish migration and lesser amounts for the hours when hydropower production is needed most.

The parties have agreed to engage in a transparent and collaborative manner to implement this agreement. This agreement is an important step forward for the parties and the region. Rather than focusing on our differences, we are working together on our shared objectives of improving salmon passage and providing affordable hydropower for the region’s electricity consumers.

To contact parties/supporters for their own perspective please see below:

Oregon contact: Nikki Fisher, 503-373-7486 or nikki.fisher@oregon.gov

Washington contact: Tara Lee, 360-902-4136 or Tara.Lee@gov.wa.gov

Nez Perce Tribe contact: Kayeloni Scott, 208-621-4772 or kayelonis@nezperce.org

**State of Oregon – State of Washington – Nez Perce Tribe
Bonneville Power Administration – U.S. Army Corps of Engineers
Bureau of Reclamation**

Montana contact: Jennifer Anders, 406-603-4013 or janders@NWcouncil.org

Idaho contact: Jim Yost, 208-340-9911 or jyost@NWcouncil.org

BPA contact: David Wilson, 503-230-5608 or dbwilson@bpa.gov

Corps contact: Matt Rabe, 503-808-3710 or J.Matt.Rabe@usace.army.mil

Reclamation contact: Michael Coffey, 208-378-5020 or mcoffey@usbr.gov

The Columbia River System Flexible Spill and Power Agreement

1

PREPARED FOR THE NORTHWEST POWER AND CONSERVATION
COUNCIL, 2.13.19

Topics

2

- ▶ Intro – Elliot Mainzer (Bonneville)
- ▶ Overview of the Agreement - Rob Lothrop (CRITFC) and Ed Bowles (ODFW)
- ▶ Fish Considerations – Dave Johnson and Jay Hesse (Nez Perce)
- ▶ Power Considerations – Jason Sweet (Bonneville)
- ▶ Operational Considerations – Tim Dykstra (Corps)
- ▶ Water Quality Standard Adjustments – Michael Garrity (WDFW)
- ▶ Next Steps – Ben Zelinsky (Bonneville)

Disclaimer:

- ▶ For purposes of the 2019-2021 Flexible Spill Operation Agreement, the parties agree to the principle of the flexible spill operation and the “three pillars”:
 - ▶ Provide fish benefits
 - ▶ Provide federal power system benefits
 - ▶ Provide operational feasibility
- ▶ Because the parties support this principle and the pillars solely for the purposes of the Agreement, the views and conclusions in this presentation are representative of the collaborative relationship that led to the Agreement.
- ▶ The agreement term is through the issuance of the CRSO EIS ROD. This was originally planned for 2021 but is now scheduled for 2020.

BALANCING FISH AND POWER

LONGSTANDING DEBATE AND LITIGATION

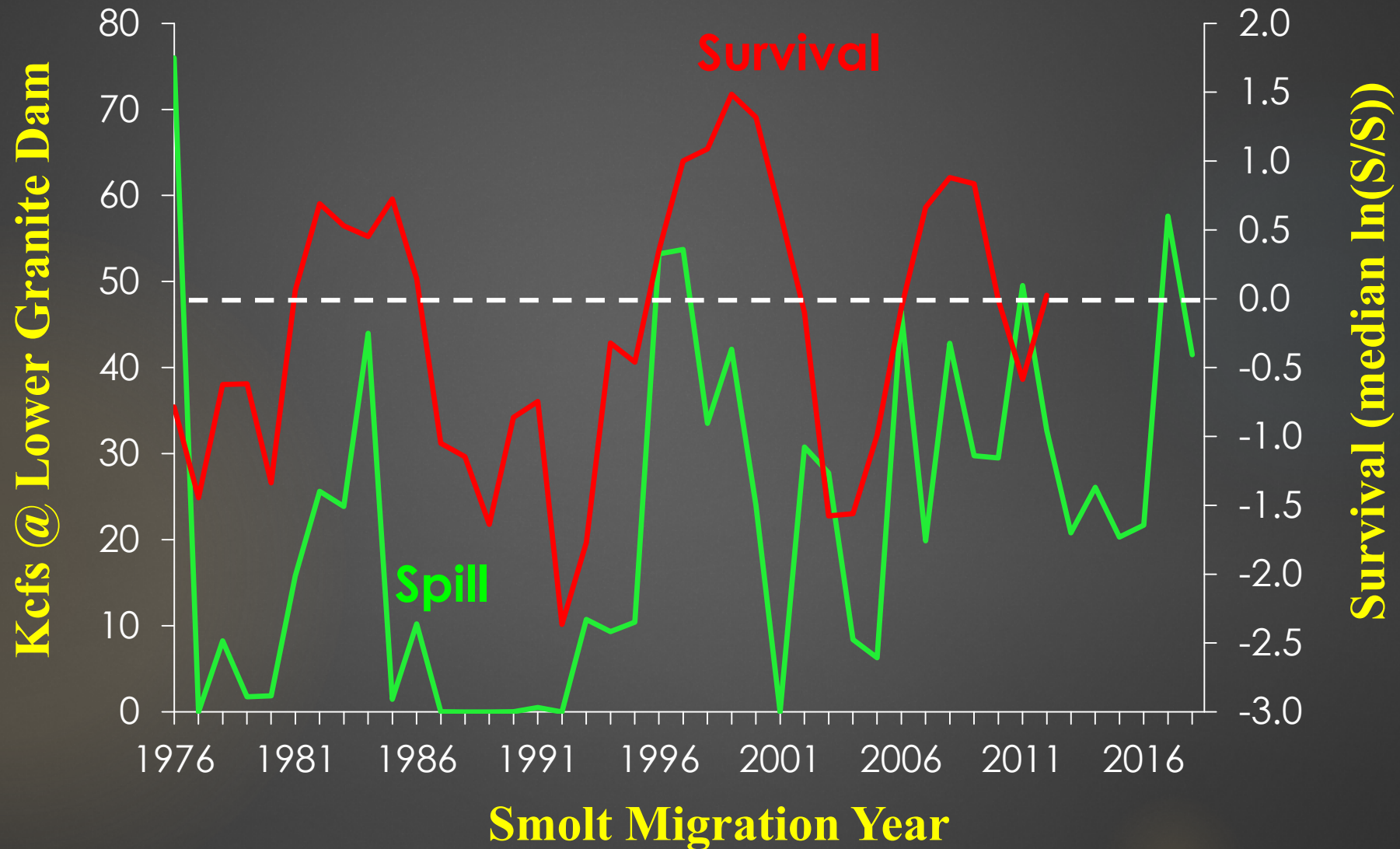


Flexible spill agreement aims to benefit salmon and hydropower, while avoiding litigation

- Parties:
OR/NPT/WA/BPA/COE/BOR
- Support:
States/Tribes/Feds

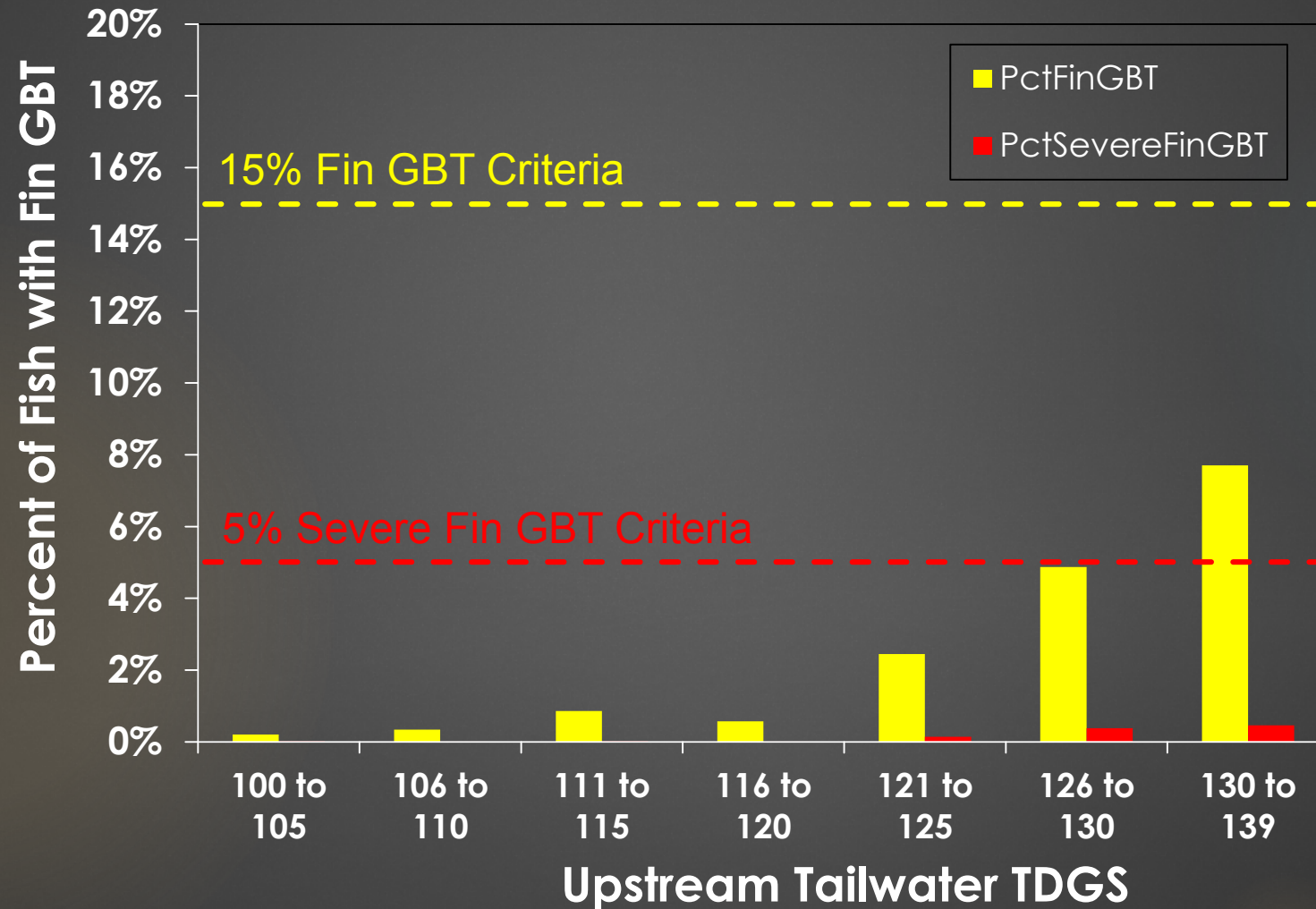
Snake River Wild Spring/Summer Chinook

5



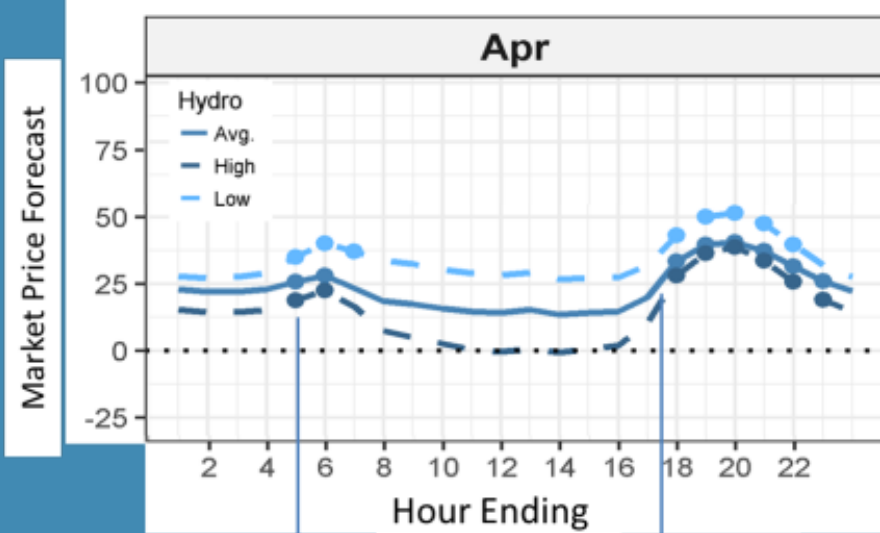
Summary of GBT Samples (1995-2012) as a function of TDG

6



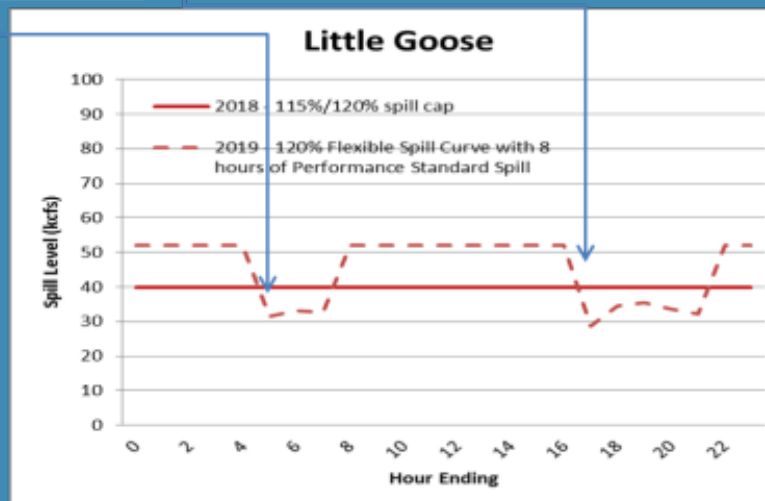
“Flex”ible Spill and Power Concepts

7



**Hypothetical
April Market
Shape***

**Hypothetical Spill
Shape Comparison
between 2018 Spill
Injunction and 2019
flex operation**



- Spring operation focus
- Increase spill when hydropower demand and value is lower
- Reduce spill when hydropower demand and value is higher
- For “flex” to work, need optimal spill during spill priority times and places (e.g., 16 hrs) in order to reduce spill during power priority times and places (e.g., 8 hrs)
 - Agreement dependent on increased TDG allowances for flex operations

Agreement "Pillars"

Result: Avoid Litigation on 2019 Columbia River System BiOp

FISH

2019 ~ \geq 2018
2020 > 2018

POWER

2019/20 ~ \geq 2018

OPERATIONS
Feasible

PITPH, Reach Survival, Travel Time, Power Flexibility, Resource Integration, Revenue Requirements,
Collaboration, Adaptive Implementation, Navigation, Safety, Structural Integrity

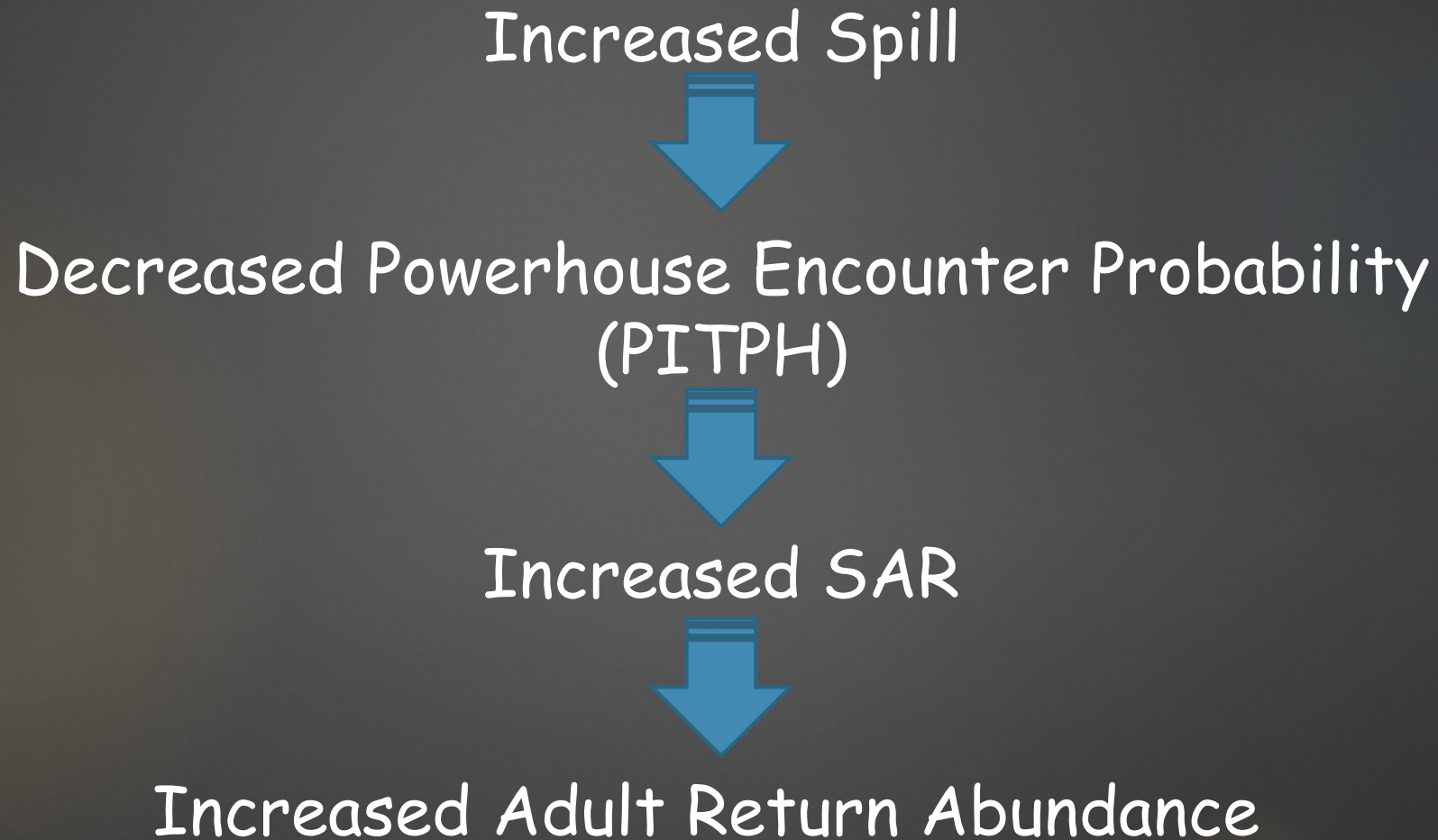
From Concept to Agreement

9

- Technical Team collaborations
 - Fish analyses
 - Power analyses
 - Operational feasibility
- Policy check-ins and support
- Legal assistance and craftsmanship

Spill Operations Agreement Fish Benefit Logic Path

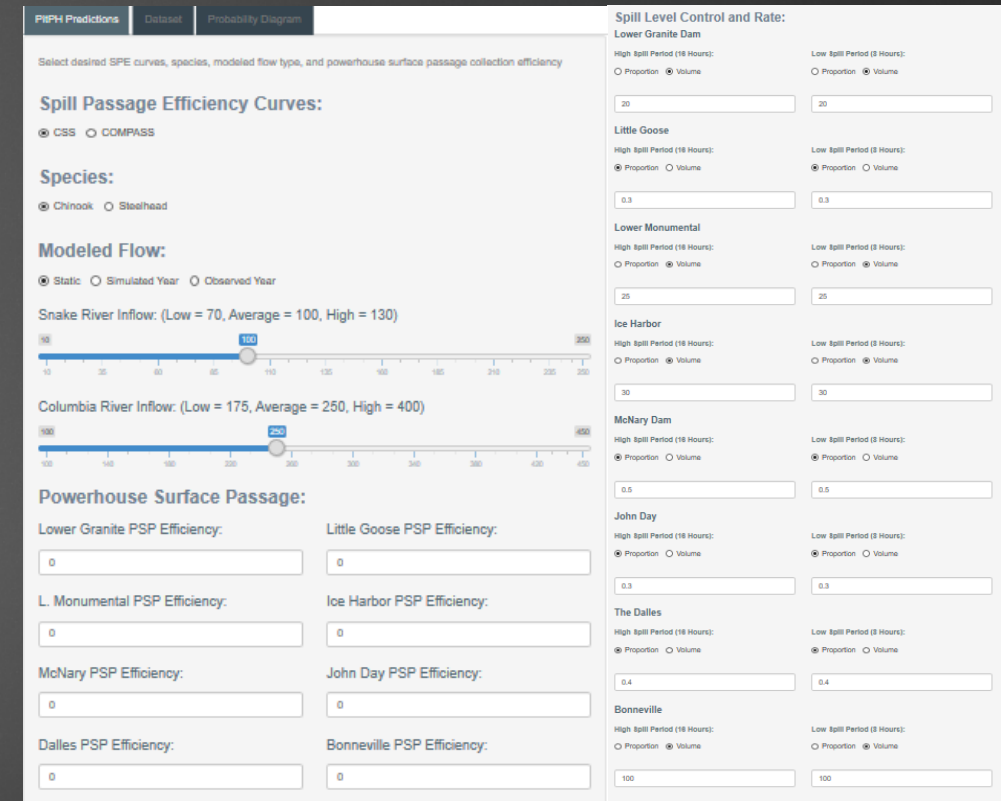
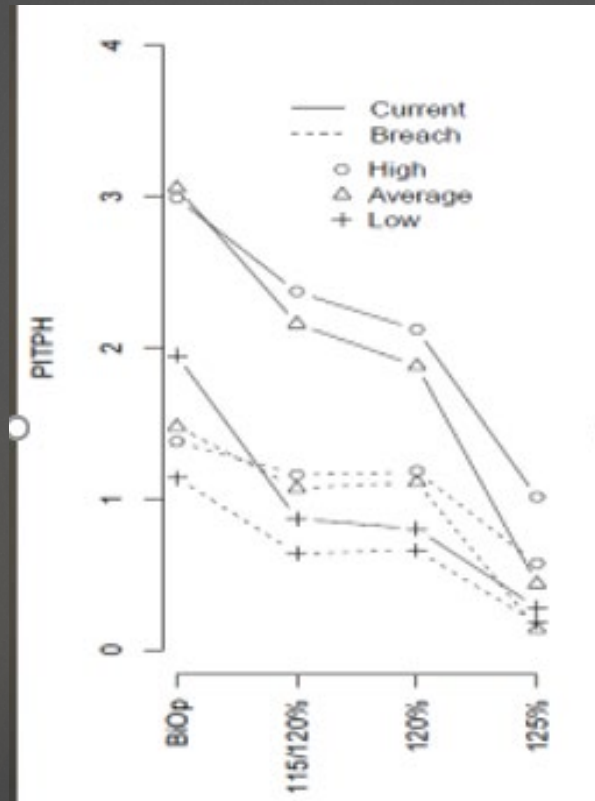
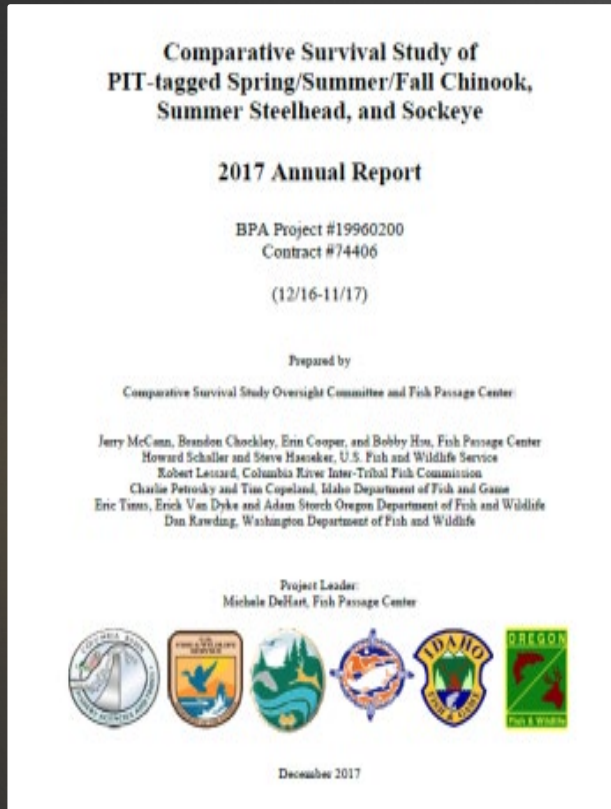
10



Fish Benefit Modeling CSS-based PITPH Index

11

<https://nptfisheries.shinyapps.io/pitph2/>



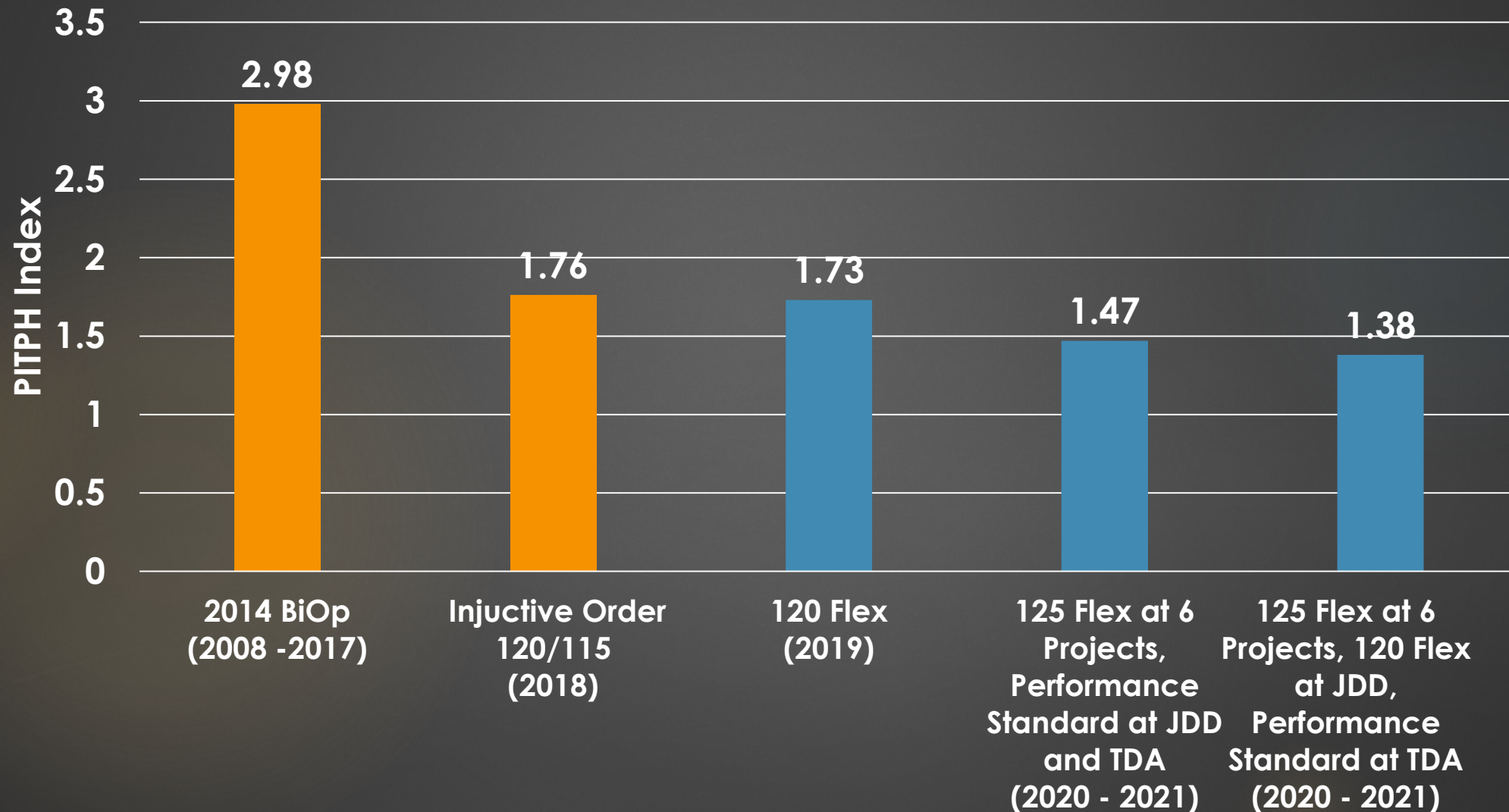
NPCC Program Project
Empirically-based

Spill Operations have
Mechanistic Linkage to PITPH

Web-accessible Open Access
Dynamic Scenario Capability (i.e. Flex)

Increased Spill = Decreased Powerhouse Encounter Probability

2019-2021 Spill Operation Agreement Proposed Fish Benefit - PITPH Modeling Estimates



Spring Flex Spill Operations 2019, 2020

13

Location	Estimated Mean 120% Total Dissolved Gas Spill Cap (16 hours - 2019)	Performance Standard Spill (8 hours – 2019 -2020)	Estimated Mean 125% Total Dissolved Gas Spill Cap at Six Projects, Performance Spill at Two Projects (16 hours – 2020/ 2020)
Lower Granite	45 kcfs	20k	72 kcfs
Little Goose	52 kcfs	30%	79 kcfs
Lower Monumental	44 kcfs	30 kcfs	98 kcfs
Ice Harbor	87 kcfs	30%	119 kcfs
McNary	180 kcfs	48%	265 kcfs
John Day	146 kcfs	32%	32% or 146 kcfs
The Dalles	135 kcfs	40%	40%
Bonneville	122 kcfs	100 kcfs	150 kcfs

2020 Summer Spill Operation

14

Location	Initial Summer Spill Operation: Volume/Percent of Total Flow Routed to Spillway (June 21/16 – August 14)	Late Summer Transitional Spill Operation: Volume/Percent of Total Flow Routed to Spillway (August 15 – August 31)
Lower Granite	18 kcfs	RSW or 7 kcfs
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McNary	57%	20 kcfs
John Day	35%	20 kcfs
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Bonneville	95 kcfs	55 kcfs - includes 5k corner collector

High Level Summary of Spill Operations as part of 2019-2021 Spill Agreement

▶ 2019

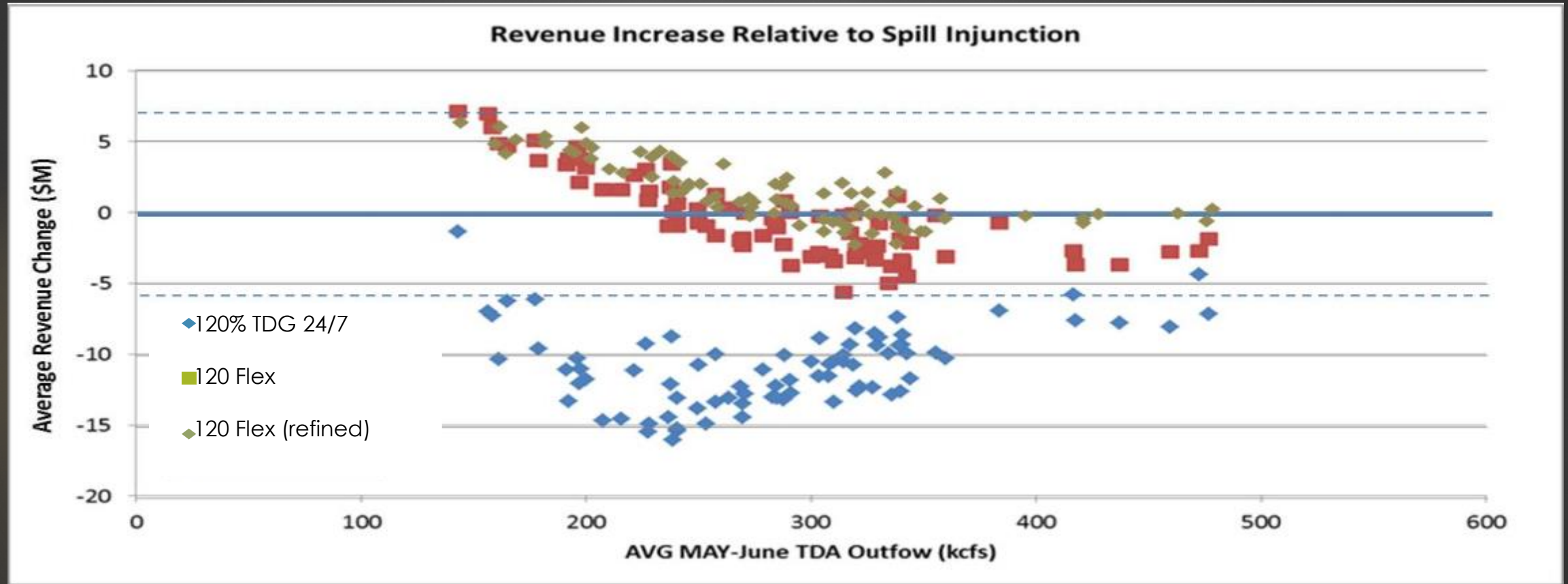
- ▶ Spring spill levels up to 120% TDG spill. Spill can be reduced to 2014 BiOp ("Performance Standard Spill") levels for up to 8 total hours per day.
- ▶ Summer spill levels are based on performance standard results through Aug 30

▶ 2020

- ▶ Operation not finalized but based on preliminary modeling: likely some variation of 6 projects spilling up to 125% TDG with 8 hours of flexible spill reductions. The Dalles and John Day likely held to current spill levels
- ▶ Summer spill levels same as 2019, but reduced to minimum spill levels Aug 15-30.

80 year runoff predictions with daily pricing logic for 120% Flex Operation

16



Retrospective Analysis –2018 market prices

2018: April 16-30		Powerdex		CAISO DAM	
Superpeak HE 7-9 & 19-23		MidC Hourly Prices (Raw)	MidC Hourly Prices (\$0 Min)	Malin DAM Prices (Raw)	Malin DAM Prices (Charges Added)
A	Superpeak Average	\$19.7	\$19.7	\$34.8	\$33.5
B	Non-Superpeak Average	\$11.0	\$11.2	\$16.1	\$28.4
C A-B	Difference	\$8.7	\$8.6	\$18.7	\$5.1
D A/B	Factor	1.8	1.8	2.2	1.2

A-B is the difference in price
between the highest and
lowest hours

Retrospective Analysis –2018 market prices

2018: April 16-30		Powerdex		CAISO DAM	
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A/B must be greater than 2 for a 16 hr at 120 Duck Curve Operation to increase revenue (i.e. 2:1 ratio where 8 hours of superpeak spill must be high priced enough to offset 16 hours of spill to 120%)

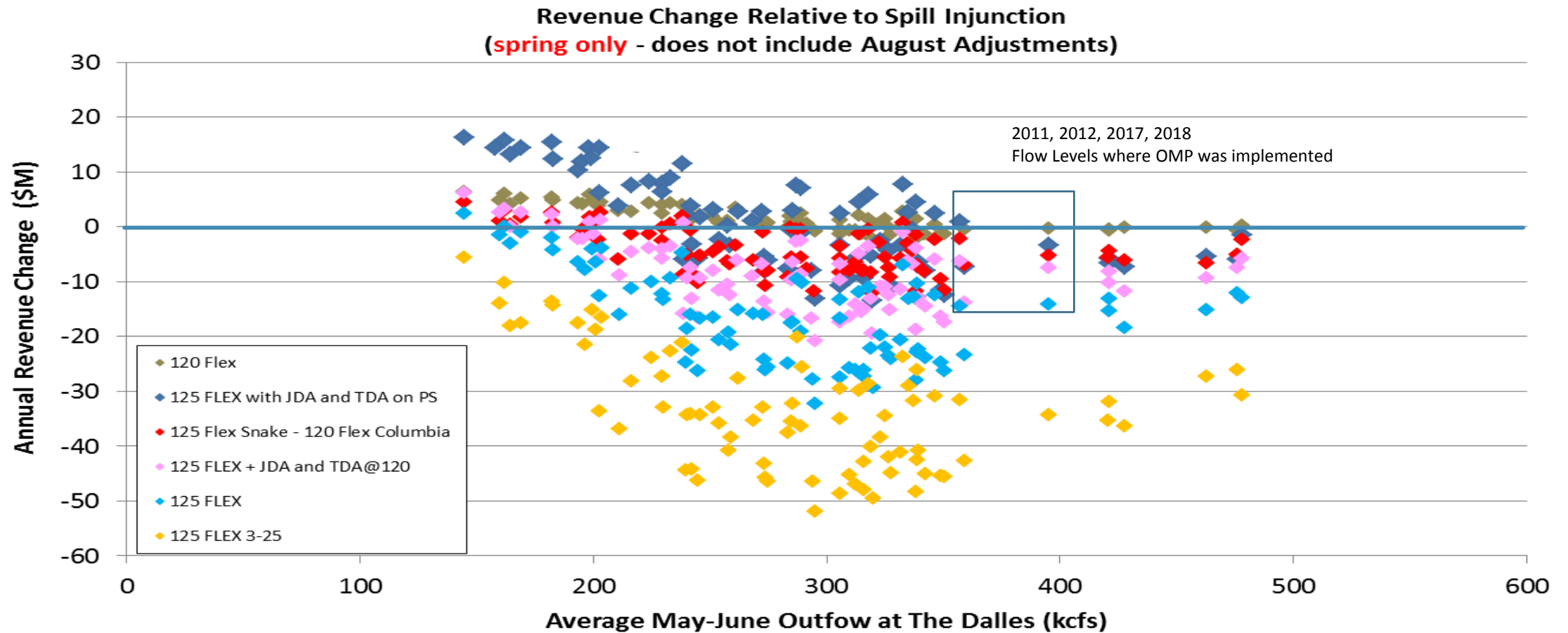
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D A/B	Factor	1.8	1.8	2.2	1.2

Reflects Transmission Access Charges (TAC) of approx. \$12 MWh to transmit power if BPA purchases out of CAISO.

Scenarios Considered with 125% TDG Spill

20

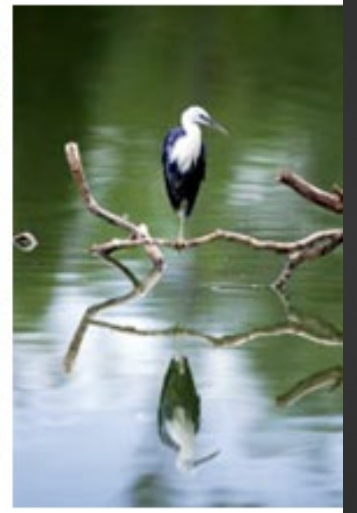


Operations: Corps

21

The Columbia River System is operated to serve multiple Congressionally authorized purposes that vary by project and must be preserved throughout implementation of the Flex Spill Agreement:

- ▶ Flood risk management
- ▶ Navigation
- ▶ Irrigation
- ▶ Water Supply
- ▶ Fish and Wildlife Conservation
- ▶ Recreation
- ▶ Water Quality Control
- ▶ Hydropower Generation



Operations: Corps

22

- ▶ The Corps will set spill caps and target spill levels that seek to meet but not exceed state TDG water quality standards
- ▶ The flex spill operation is new – expect to learn as we implement
- ▶ In-season adjustments will be coordinated through the Regional Forum.
- ▶ Currently incorporating the operations described in the Agreement into a 2019 Fish Operations Plan



Water Quality Standard Adjustments

23

- ▶ Conditions of 2019 short-term modification to total dissolved gas standards (currently under consideration):
 - ▶ Authorized by the WA Department of Ecology
 - ▶ Conditioned, timed, and restricted to minimize degradation of water quality, existing uses, and designated uses
 - ▶ Must be valid for the duration of the activity
 - ▶ Allows degradation of water quality if not harmful to existing or designated uses or cause long-term harm to the environment
 - ▶ Does not lessen or remove proponent's obligations and liabilities under other federal, state, and local regulations

Short-term modification timeline

24

- ▶ Opened scoping comment period (November 16, 2018) ✓
 - ▶ Made a determination of significance in SEPA analysis
 - ▶ Issuance of scoping notice in SEPA register
- ▶ Closed scoping comment period (December 14, 2018) ✓
 - ▶ Received 10 submissions
- ▶ Opened EIS comment period (January 28, 2019) ✓
 - ▶ Distributed draft environmental impact statement (EIS)
 - ▶ Distributed draft short-term modification language

Timeline, continued

25

- ▶ In-person hearing (February 13, 2019) – **today!**
 - ▶ Presentation, Q/A, and formal testimony
- ▶ Hearing via webinar (February 19, 2019)
 - ▶ Presentation, Q/A, and formal testimony
- ▶ Close 30-day EIS comment period (February 28, 2019)
- ▶ Issue Final EIS (March 21, 2019)
 - ▶ Will include response to comments
- ▶ **Issue Short-term Modification (March 29, 2019)**

Next Steps

26



* Next steps contingent on future TDG modifications

Questions?