

**SYSTEM OPERATIONAL REQUEST: FWS #1**

<b>Corps of Engineers Northwestern Division (NWD) SEATTLE DISTRICT (NWS)</b>	
<b>TO:</b>	
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**Tribal Liaisons: Dean Holecek (NWD), Melissa Leslie (NWS)**

**FROM: Lisa Ellis, State Supervisor, U.S. Fish and Wildlife Service, Idaho Fish and Wildlife Office, on behalf of the Libby Biological Opinion Policy Group**

**DATE: May 07, 2024**

**SUBJECT: 2024 Libby Dam Releases for Sturgeon and Bull Trout Flows**

**SPECIFICATIONS:**

Based on the U.S. Fish and Wildlife Service’s (Service) July 24, 2020, Biological Opinion on Columbia River System Operations and Maintenance, and the U.S. Army Corps of Engineers (Corps) May final April-August volume runoff forecast of 5.13 million acre-feet (MAF) (Flow Plan Implementation Protocol Technical Team - Final

Flow Plan for 2024 Sturgeon Operations at Libby Dam, dated May 7, 2024, we are within a Tier 2 operations year for Kootenai River white sturgeon. The minimum recommended release volume for sturgeon conservation in a Tier 2 year is .80 MAF and we recommend the following procedures for discharge of at least this minimum volume from Libby Dam.

The precise means that will be utilized to meet these objectives are dependent on real-time conditions and in-season water management. Given these uncertainties, the Technical Team has developed the following guidelines for sturgeon operations in 2024:

- The 2024 sturgeon flow augmentation operation at Libby Dam will begin between May 14 and May 21, based on real-time river stage and tributary discharge projections at the week of May 6. The exact date of commencement, as well as the total number of days at peak discharge and exact shape of the post-peak discharge hydrograph, will depend on real time conditions and the shape of the inflow hydrographs.
- The augmentation operation will consist of a period of increasing dam outflows (pre-peak) from VARQ flow of ~13,300 cfs to 25,000 cfs (powerhouse capacity) over 2-3 days following BiOp ramping rates, a period of powerhouse capacity (peak) flows for ~ 16 days, and a period of decreasing flows (post-peak) from 25,000 cfs to ~ 9-11,000 cfs, the summer “flat flow” (7,000 cfs is the minimum bull trout flow for Tier 2) following BiOp ramping rates over ~ 5 days (Figure 3). After the sturgeon volume has been exhausted, Libby Dam discharge will be shaped to provide a steady to declining river hydrograph while achieving reservoir refill and the end-of-September reservoir elevation target (2,449’ MSL for the May 2024 WSF).

### **2024 Flow Projections**

- Days of 30,000 cfs @ Bonners Ferry 17 days
- Days at 1,760’ MSL @ Bonners Ferry 0 days
- Kooconusa Maximum Elevation P~2,454’ MSL  
(Full Pool = 2,459)
- Selective Withdrawal System (SWS) gates at Libby Dam above elevation 2,326’ MSL will be installed immediately prior to, and during, the peak flow period, with the objective of passing the warmest water available in the forebay (surface and sub-surface) as discharge is reduced.
- Release of the warmest water possible from Libby Dam, in combination with lower volume of release, may allow the Kootenai River temperature to increase to appropriate temperatures at Bonners Ferry (9-10+°C) during the receding limb of the hydrograph to trigger spawning. The low water supply forecast through the late winter and early spring resulted in storage of cold thermal mass that may influence the ability to provide optimal discharge temperatures through late spring and early summer.
- After the sturgeon flow augmentation volume has been exhausted, decrease discharge at Libby Dam towards stable summer flows, following BiOp ramping rates, to no less than bull trout minimum flows (7,000 cfs in Tier 2).

- As always, flood risk reduction operations supersede sturgeon flow augmentation, and dam managers will coordinate operations with the FPIP Technical Team. The sturgeon flow augmentation discharge may be extended for additional days if the Corps elects to provide volume in excess of the minimum volume requirement in the 2020 BiOp to control the refill rate of Libby Dam.
- Additional recommendations may be provided as water supply forecasts are updated in order to provide stable or gradually declining discharge through the end of August following ramping rates and minimum flow guidelines in the 2020 BiOp.
- Bonners Ferry stage is not expected to reach 1,760' MSL (Figure 2) during the 2024 sturgeon flow augmentation operation, an objective during higher Tier years. The achievement of habitat connectivity downstream of Bonners Ferry is dependent on Libby Dam discharge, local (downstream) tributary discharge, and upstream extent of Kootenay Lake backwater; the latter 2 of these parameters will not be conducive to connectivity during 2024.
- Projected pool elevation for Koocanusa Reservoir is ~2,454' MSL in late July (Figure 5). Full pool management objective is 2,454' MSL; maximum pool elevation is 2,459' MSL.
- The WSF in 2024 is such that connection to Nimz Ranch (stage of 1,760'+ MSL) is not likely, though connectivity to off-channel habitats closer to Kootenay Lake (backwater effect) and the confluence of the Goat River (Yaqaan nu?kiy Hunting Grounds) is likely.

## **JUSTIFICATION:**

The objective of the 2024 sturgeon flow augmentation operation in this SOR is to provide a period of peak river stage/flow during the spring freshet, and to concurrently provide a stable to rising thermograph in the river as the operation concludes. The peak Libby Dam discharge (25,000 cfs), timed to coincide with peak downstream tributary (local) run-off, is intended to provide: 1) cues for sturgeon to migrate further upstream from their staging areas, and then cues to spawn on the descending limb of the hydrograph (receding flow, warming water), with the overall goal of providing conditions that will enhance the likelihood for sturgeon to migrate to, and spawn over, rocky substrates that exist upstream of Bonners Ferry; and 2), connectivity to the floodplain, and partial inundation of, Nimz Ranch, an off-channel Kootenai Tribe of Idaho-owned habitat downstream of Shorty's Island, for the purposes of allowing for spatially and temporally normative ecological processes in support of primary and secondary productivity for larval sturgeon and other species.

The operating parameters outlined in this SOR are intended to provide guidance on how to provide optimal conditions for Kootenai sturgeon migration, spawning, incubation, and rearing. Previous years' operations have shown that conditions at Libby Dam and in the Kootenai River basin can change rapidly. Recognizing this, the exact shape of the operation will need to be developed and modified in-season as more is known. The in-

season coordination will occur via the Kootenai River Sturgeon Flow Plan Implementation Protocol Team with a final recommendation coordinated through the Action Agencies and the Technical Management Team.