

DRAFT
SYSTEM OPERATIONAL REQUEST: #MT-2014-1

The following State, Federal, and Tribal Managers have participated in the preparation and support this SOR: Montana Fish Wildlife & Parks and the Kootenai Tribe of Idaho

TO:

Colonel John S. Kem	COE-NWD
Col. John Eisenhower	COE-NWD
Lt. Col. Andrew Kelly	COE-Walla Walla
James D. Barton	COE-Water Management
Doug Baus	COE-RCC
David Poganis	COE-PDD
Karl Kanbergs	COE-NWD-NP-WM-RCC
Col. Bruce A. Estok	COE-Seattle District
Lorri Lee	USBR-Boise Regional Director
Elliot Mainzer	BPA-Administrator
Tony Norris	BPA-PGPO-5
Scott Bettin	BPA- KEWR-4
Steve Oliver	BPA-PG-5
Lori Bodi	BPA-KE-4

FROM: Brian Marotz & Jim Litchfield

DATE: April 16, 2014

SUBJECT: Summer and Fall Plan for Libby operations

OBJECTIVE: To maintain stable or gradually declining flows for period July through September.

SPECIFICATIONS: The Corps should develop and implement a plan of operation at Libby that will achieve the stated objectives by estimating a rate of outflow from Libby following the sturgeon operation in June that will maintain a stable outflow until the end of August and gradually declining flows across September to achieve a reservoir draft to approximately elevation 2449 ft by the end of September. . Should precipitation events increase inflow into Kootenai reservoir such that the draft to elevation 2449 feet cannot be achieved without an increase in outflow it is requested that the Corps continue to extend the planned gradual decline in outflow into October until the reservoir is drafted elevation 2449 feet.

JUSTIFICATION: Biological conditions for resident fish in Montana and the Idaho portion of the Kootenai River are greatly improved by gradually ramping down river discharge, after the spring freshet, toward stable, or gradually declining, summer flows through September (extended into October if possible). Stable or gradually declining flows are especially important during the

biologically productive summer/fall months. The growing season in the Kootenai River in Montana and Idaho is short; rivers become productive in late June, after the spring freshet, and remain productive until water temperature drops to 6 degrees C in October. Peak production occurs in three months, July through September. River flows above bull trout minimums increase the available productive riffle habitat. Higher flows are slightly more productive but with diminished returns due to the channel morphology.

It is important to avoid short-term flow reductions. Short-term flow reductions dewater river substrate. When it is hot and dry (or freezing) the benthos (algae, insects etc.) dry out (or freeze) and die in just a few hours or days. It takes about a month and a half to become productive once a dewatered zone becomes wet again.

To preserve productive aquatic habitat it is important to minimize flow fluctuations. For this reason it is important to remain within allowable ramping rates when changing outflows at either Libby or Hungry Horse. River morphology causes ramp rates to be more restrictive as flows approach minimum flow and less restrictive as stage approaches bank full. This is because the wetted perimeter changes rapidly at low flows, but at higher flows, wetted perimeter changes less rapidly as flows increase.

Since 2011, the Kootenai Tribe of Idaho has requested flows from Libby Dam of 8 kcfs or less in September to allow for the implementation and construction of several habitat restoration projects to benefit endangered Kootenai River white sturgeon and other native fish species. Due to the nature of the habitat work planned for August – October 2014, flows of 8 kcfs or less are not required for implementation of the sturgeon spawning substrate enhancement project so there is greater flexibility to provide a gradual ramp down of flows to the end of September and into October. Habitat productivity will be increased by targeting an operation that leaves sufficient volume in the reservoir at the end of August to maintain releases of 9 to 10 kcfs until the end of September or elevation 2449 feet is reached. If the elevation at Libby Dam reaches 2449 feet in September releases should be reduced to 6 kcfs for the balance of the month.

The current FCRPS BiOp calls for Libby Dam to be drafted to an elevation of 2449 feet by the end of September in all but the driest water years. However, past operations that attempted to reach a fixed elevation have been problematic, because sudden changes in inflows to Koocanusa Reservoir are possible due to unpredictable precipitation events. Therefore the ending elevation should not be treated as a hard constraint but rather as a guideline for developing a stable flow during the month of September. This can be done by the Corps using the actual reservoir conditions near the end of August combined with expected inflows until the end of September to produce a stable outflow that is expected to draft the reservoir to 2449 feet. However, if actual inflows differ from the forecast, it is more important to maintain the stable outflows than it is to hit a specific reservoir elevation at the end of September.