



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, NORTHWESTERN DIVISION  
PO BOX 2870  
PORTLAND OR 97208-2870

May 4, 2006

District Support Team

Mr. David B. Allen  
Regional Director, Pacific Region  
U.S. Fish and Wildlife Service  
911 NE 11<sup>th</sup> Avenue  
Portland, Oregon 97232-4181

Dear Mr. Allen:

DAVE

On behalf of the U.S. Army Corps of Engineers (Corps) and the Bonneville Power Administration (BPA), I am providing you with a description of the operations that will be implemented in 2006 consistent with the Fish and Wildlife Service Biological Opinion regarding The Effects of Libby Dam Operations on the Kootenai River White Sturgeon Bull Trout and Kootenai Sturgeon Critical Habitat, dated February 18, 2006 (2006 BiOp).

The 2006 BiOp and Reasonable and Prudent Alternative (RPA) identify habitat attributes, which the U.S. Fish and Wildlife Service (Service) has determined are necessary for successful sturgeon spawning and in-river production. These attributes are depth, velocity, temperature, and substrate. Achieving these attributes at the appropriate time and location is important for increasing the likelihood of recruitment. The RPA provides the Corps and BPA flexibility to select from a suite of actions to achieve these attributes; for example, a mixture of flow management and habitat improvements.

The RPA includes a recommendation that the Corps and BPA work collaboratively with the Service, Idaho Department of Fish and Game, Montana Fish, Wildlife and Parks, the Kootenai Tribe of Idaho, the Confederated Salish - Kootenai Tribe, and the U.S. Geological Survey to develop a flow plan implementation protocol (RPA Component 1, Action 1.1). The *Kootenai River Ecosystem Function Restoration Flow Plan Implementation Protocol* (Protocol) was provided to the Service on April 14, 2006, and provides a scientifically sound adaptive management approach for implementing different flow strategies and assessing effectiveness. The Protocol describes potential Libby Dam operations (test treatments) under various water conditions, the hydrological parameters for the different test treatments, the physical and biological monitoring to be performed, and the biological criteria to evaluate the different operations.

Applying the information developed in the Protocol, staff from the Corps, BPA, and the Service have been evaluating the efficacy of potential operations or scenarios for achieving the habitat attributes in the braided reach of the Kootenai River given the water supply forecast for 2006. The best available information indicates that the braided reach has suitable spawning substrate and velocities conducive to successful spawning and recruitment; however, the RPA identifies desired depth as: "Intermittent depths

of 16.5 to 23 ft or greater in 60% of the area of rocky substrate from RM 152 to RM 157...” The Corps modeled scenarios to evaluate the depths attained in the braided reach by estimating river stage at Bonners Ferry with releases up to full powerhouse with “stacking” on local tributary inflow, and powerhouse plus 10,000 cfs<sup>1</sup>.

For this analysis, modeling was performed using three historical water years with a similar water supply as forecasted in 2006. The 2006 April final water supply forecast for the April through August period is 6.076 Maf, falling between Tier II and Tier III, providing approximately 1 Maf for sturgeon purposes. The analysis compared the timing and duration of the two scenarios and the resultant Kootenai River stage at Bonners Ferry using the estimated 1 Maf available. Based on this evaluation, the stacked flow operation provides equal or greater depths for a longer duration peak at Bonners Ferry than the powerhouse plus 10,000 cfs (see enclosure).

The RPA recommends optimizing temperature releases from Libby Dam “to maintain 50 degrees F with no more than a 3.6 degree F drop.” Biologists believe that sturgeon historically spawned on the receding limb of the high elevation runoff (above Libby Dam), which normally occurred in mid to late June when temperatures were warmer (local tributary inflow peaks typically occur in mid to late May). At the beginning phase of the stacked flow operation, the temperature attribute described in the BiOp is not likely to be achieved as reservoir and local inflow temperatures are typically cooler. However, in the later phase of the operation, i.e. on the receding limb of the hydrograph, optimization of temperature releases, utilizing the selective withdrawal features at Libby Dam, would occur.

The stacked flow scenario, which has not been thoroughly tested, will provide a normative type flow (depth) to assess whether sturgeon will migrate further upstream into the braided reach of the Kootenai River where suitable spawning substrate exists. This operation differs from past sturgeon flows operations, which were triggered later in the spring in response to fish movement upstream. The stacked flow operation is designed for consistency with the RPA, and will also provide information on whether attainment of the depth attribute in the braided reach, in advance of attainment of the temperature attribute, will affect sturgeon migration and spawning behavior.

As noted above, modeling indicated full powerhouse releases plus 10,000 cfs were not as effective for attainment of depths for as long a period of time as the stacked flow operation. Additionally, this operation requires voluntary spill from Libby Dam. As a consequence, this operation would increase total dissolved gas (TDG) saturation in the Kootenai River between Libby Dam and Kootenai Falls, and exceed the State of Montana’s TDG water quality standard.

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<sup>1</sup> In order to implement the powerhouse plus 10,000 cfs operation, several actions are necessary: (1) U.S. representatives to the Columbia River Treaty Operating Committee have been coordinating with their Canadian counterparts pursuant to provisions of the Columbia River Treaty; (2) completion of an Environmental Impact Analysis under the National Environmental Policy Act; and, (3) addressing the effects of spilling 10,000 cfs on the State of Montana’s total dissolved gas standard.

Based on the above analysis, for 2006, the Corps plans to implement the stacked flow operation at Libby Dam and will operate to full powerhouse (approximately 25,000 cfs) for up to two weeks with the objective of timing releases to coincide with a local runoff freshet below Libby Dam. This will be followed by releases up to 20,000 cfs optimizing temperature until the sturgeon volume of 1 Maf is exhausted. The Corps plans to coordinate with your staff and other regional biologists on the start time for implementation of the full powerhouse releases. With this operation, the Corps will not intentionally exceed elevation 1764 feet at Bonners Ferry, the flood stage designated by the National Weather Service. As described in the Protocol, data collection in 2006 will include tracking adult sturgeon movement, collecting eggs and larvae, and monitoring depth, velocity and water temperature in the braided reach.

We believe implementation of this operation is appropriate for 2006 as the stacked flow operation is designed to achieve the habitat attributes, is consistent with the 2006 BiOp RPA and Incidental Take Statement, and avoids exceedances of the Montana water quality standard for TDG. We request your concurrence in this matter. If you should have any questions, please contact either David Ponganis (Corps) at 503.808.3828 or Joe Flores (BPA) at 503.230.5677.

Sincerely,



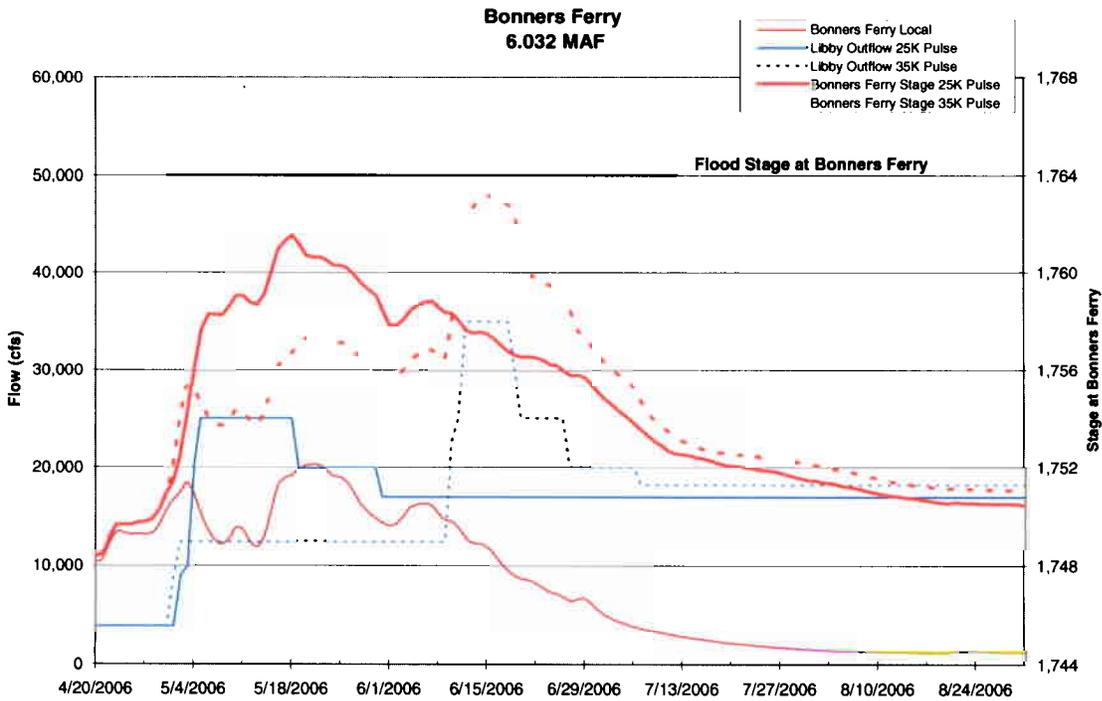
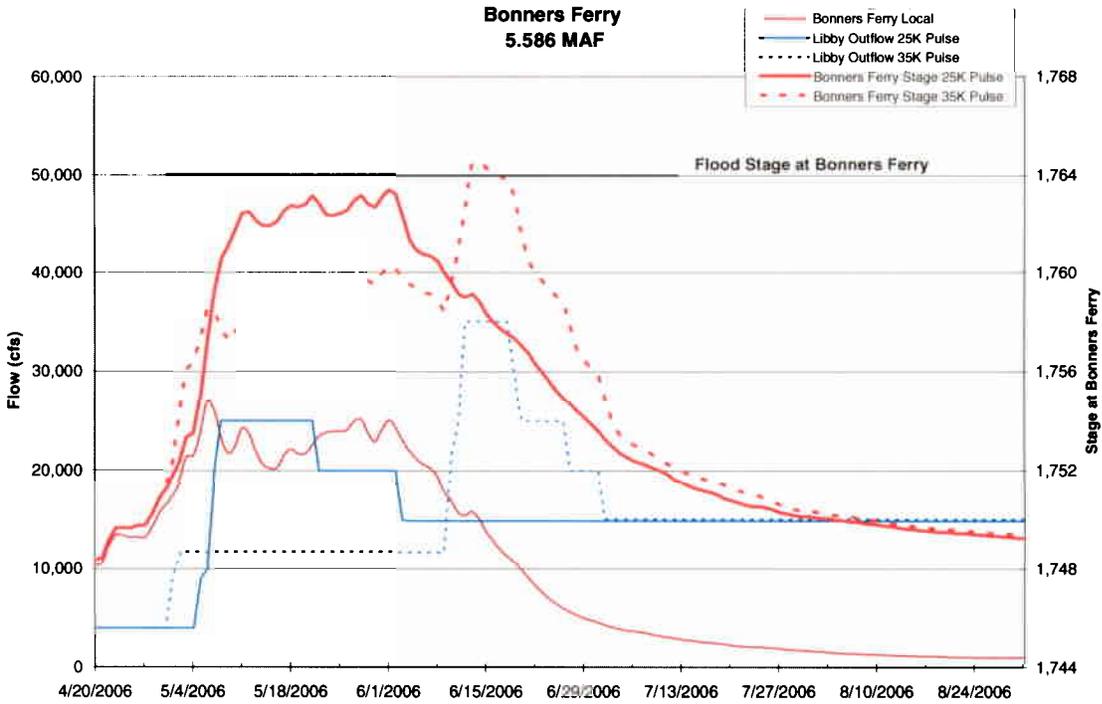
Karen L. Durham-Aguilera, P.E.  
Director, Programs

Enclosure

Copies Furnished:

Mr. Steve Wright  
Bonneville Power Administration  
P.O. Box 3621A  
Portland, Oregon 97208

# Modeled Scenarios for Libby Dam Operations for Kootenai River White Sturgeon



**Bonnerr Ferry  
6.508 MAF**

