

**Frequently Asked Questions
Libby Dam Operations and the Endangered Species Act**

The Corps of Engineers (Corps) has hosted annual public information meetings in Libby each spring in recent years. These meetings have highlighted community concerns about present and potential future dam operations necessary to meet Endangered Species Act responsibilities for protection of threatened and endangered fish populations. The following questions and answers were prepared to address Frequently Asked Questions.

1. The 2000 U.S. Fish and Wildlife Service (USFWS) biological opinion (BiOp) on operation of Libby Dam (as well as other Federal dams in the Columbia River basin) calls for sturgeon flows. What are these sturgeon flows?

The USFWS BiOp calls for dedicated water storage in Lake Kootenai that can be used to augment spring flows for sturgeon (see Table below). In years with low water supply forecast (less than 4.8 million acre-feet [maf], or slightly less than 80% of average seasonal runoff), no stored water is dedicated to sturgeon flows. For years with water supply forecasts greater than 4.8 maf, stored water dedicated to sturgeon flows ranges from 0.8 to 1.6 maf. Using this stored water, the USFWS requests specific timing and shape of seasonal sturgeon flows each year in the spring, with sturgeon flows typically occurring sometime in May, June or July. Timing refers to when sturgeon flows would be released. The shape of flows concerns how fast flows increase or decrease, and the size and pattern of the sturgeon flows.

Forecast Apr-Aug Runoff Volume (maf) at Libby	Tier	Volume of Water (maf) for Dedicated to Sturgeon Flows from Libby Dam
0.0 < forecast < 4.8	1	None
4.8 < forecast < 6.0	2	0.80
6.0 < forecast < 6.7	3	1.12
6.7 < forecast < 8.1	4	1.20
8.1 < forecast < 8.9	5	1.20
8.9 < forecast	6	1.60

NOTE: Average April-August Runoff Volume for the period 1971-2000 is 6.25 maf

2. What is the rationale behind flow increases for sturgeon?

Lack of substantial reproduction since the completion of Libby Dam was a primary reason why Kootenai River white sturgeon were listed as endangered in 1994. Historically, sturgeon spawned during the spring snowmelt freshet, indicating that the high spring flows are an important habitat component for successful reproduction. According to the 2000 USFWS BiOp, base flows at Bonners Ferry were near 40,000 cubic feet per second in 1974, the last year when the sturgeon reproduced in significant numbers. High flows may promote spawning by sturgeon, successful incubation of their eggs, good hatching success, and survival of the fry through their first year.

3. What about other sources of problems for the sturgeon?

The recovery plan for sturgeon identifies other issues besides flow that are currently under investigation. Among those are contaminants in river water and sediments, suitability of river bottom materials for spawning and recruitment below Bonners Ferry, the role of Kootenay Lake levels in determining where sturgeon spawn, and the loss of side-channel rearing habitat. All of these may play some role in sturgeon biology. For more details, refer to the 2000 USFWS BiOp (<http://www.r1.fws.gov/finalbiop/biop.html>) or the Kootenai River White Sturgeon Recovery Plan (http://ecos.fws.gov/docs/recovery_plans/1999/990930b.pdf).

4. What about the sturgeon hatcheries operated by the Kootenai Tribe and British Columbia Ministry of Water, Land, and Air Protection? Why can't those fish be used to help with the sturgeon situation?

The hatcheries are indeed important in ensuring the sturgeon population does not go extinct in the short term, but they are not sufficient for long-term recovery. In general, hatcheries do not meet the requirements under the Endangered Species Act to recover and de-list a species as self-sustaining in its natural habitat. The Kootenai River white sturgeon hatchery program (or more formally referred to as the conservation aquaculture program) is an interim measure until the habitat and conditions upon which the sturgeon depend can be restored so the sturgeon can reliably reproduce in the wild.

5. Can't the sturgeon be relocated somewhere else where they'll do better?

Under the Endangered Species Act (ESA), a species or a population must be recovered in its native habitat because that's what the species or population has evolved with. Recovery of a listed animal or plant almost always includes restoration of habitat conditions that will allow the population to survive and to thrive in its natural setting. Relocation does not accomplish the purpose of recovery of the species in its habitat, and it may in turn create problems for other species that are native to the area to which the relocation would occur. Putting sturgeon in Lake Koocanusa has been considered and would require thorough study before it could happen, but the lake would be only an experimental backup rearing area.

6. The 2000 USFWS BiOp on operation of Libby Dam calls for higher release capacity from Libby Dam – how much and how often?

The current discharge capacity of the 5-turbine Libby Dam powerhouse is 25,000 to 28,000 cubic feet per second. The 2000 USFWS BiOp calls for, by 2004 and 2007 respectively, two 5,000 cubic feet per second increments of increased outflow capacity above the present discharge capacity of the 5-turbine Libby Dam powerhouse, in such a manner as to remain within the State of Montana water quality limit of 110 percent saturation for total dissolved gases, which is intended to protect the health of fish in the river below Libby Dam. Under any sturgeon flow scenario, sturgeon spawning and egg and fry survival will continue to be monitored and evaluated each year. Numbers of eggs and juveniles captured will continue to be used in the evaluation of flow augmentation.

7. How would Libby Dam flow capacity for sturgeon flows be increased?

We don't know yet. The 2000 USFWS BiOp didn't specify how to make routine water releases above the current powerhouse capacity (such as an additional power unit, spillway use, or spillway or sluiceway modification). We are exploring all options for near-term and long-term viability.

8. How do sturgeon flows compare to flood control releases from Libby Dam?

During flood control operations, Libby Dam can release flows substantially higher than those contemplated for sturgeon. For example, water releases from the dam for flood control equaled or exceeded 35,000 cubic feet per second from July 3 to July 11 in 1982, and from June 28 to July 5 in 2002. Peak dam releases in both 1982 and 2002 were about 40,000 cubic feet per second.

9. What are the chances of seeing flood control releases from Libby Dam in the range of 35,000-38,000 cubic feet per second?

Even without implementation of the flow increase sought by the BiOp, the river has at least a 10% chance each year of seeing releases of 35,000 cubic feet per second Libby Dam. This estimate is based on two studies of regulated flows from Libby Dam.

10. How do river stages at Libby and Bonners Ferry change with increasing river flow?

The following table provides estimates of the change in river stage at Libby as flows increase.

River Flow at Libby, MT (in cubic feet per second - cfs)	Approximate Increase in River Stage
28,000	On the order of ½ ft. higher than @ 25,000 cfs
35,000	On the order of 2 ft. higher than @ 25,000 cfs
50,000	On the order of 4½ ft. higher than @ 25,000 cfs
60,000*	On the order of 5½ ft. higher than @ 25,000 cfs
115,000**	On the order of 10 ft. higher than @ 25,000 cfs
* The estimated 100-year flow at Libby with the dam ** The estimated 100-year flow at Libby without the dam in place	

River stages at Bonners Ferry depend on both the river flow and the stage of Kootenay Lake (because the river between Bonners Ferry and Kootenay Lake has almost no gradient and is highly influenced by the elevation of Kootenay Lake). Given a typical spring Kootenay Lake elevation of 1748 feet, estimated river stages at Bonners Ferry for different flows are provided in the following table.

River Flow at Bonners Ferry, ID (in cubic feet per second)	Estimated River Stage*
26,000	1755.6 ft.
36,000	1758.4 ft.
46,000	1761.0 ft.
* To account for the influence of Kootenay Lake elevation on the river stage at Bonners Ferry, these river stage estimates are all based on a typical spring lake elevation of 1748 feet.	

11. Does the BiOp call for higher flows even at the risk of an unreasonable threat to public health and safety?

No. The USFWS BiOp contains several provisions that recognize that maintaining public safety is a key component in any effort to increase flows for sturgeon. It's important to recognize that although Libby Dam and the levee system are designed and operated to help reduce the flood risk for areas along the Kootenai River, they cannot completely eliminate that risk. People living in the floodplain will always be at some risk for flooding.

12. Is the Corps determined to release higher flows no matter what?

No. The Corps plans to continue to protect public health and safety, and the BiOp contains several provisions that recognize that maintaining public safety is a key component in any effort to increase flows for sturgeon. We have legal requirements to implement the 2000 USFWS BiOp, and must pursue a process to do so in a manner that is consistent with our other obligations. Implementation of increased flow capacity is subject to full public coordination per the National Environmental Policy Act (NEPA), and the Corps is currently preparing the Upper Columbia Alternative Flood Control ("VARQ") and Fish Operations EIS (UCEIS for short) to disclose the full range of potential impacts of higher sturgeon flows. For more information on the EIS process, refer to the UCEIS website at <http://www.usbr.gov/pn/programs/VARQ/index.html>.

13. Between an Environmental Impact Statement (EIS) and an Environmental Assessment (EA), which NEPA document provides the best appraisal of the impact of increased sturgeon flows on the people, the property and the economies of the communities along the Kootenai River? Which of the two documents do you intend to release for public review?

The two types of documents would be equally effective. Either way, the level of detail in the document is not determined by what type it is -- all known impacts are addressed as well as possible. A determination of significance is made using an EA. If impacts are believed to be significant under a specified set of criteria, then the EA would determine that an EIS should be written; if not, or if significant impacts can be mitigated to a non-significant level, then an EA would result in a "Finding of No Significant Impact" (FONSI) statement. Currently, the Corps plans to address the additional flow capacity called for in the 2000 USFWS BiOp in the UCEIS, though the actual mechanism for achieving additional flow capacity is not known well enough yet to evaluate in that document. A FONSI was prepared for interim implementation of

alternative flood control ("VARQ") at Libby Dam because for the short term, significant impacts were not foreseen. However, work continues on the UCEIS for a long-term decision.

14. Does the Corps recognize residents' concerns about higher flow impacts on wells and septic systems?

Yes. In the late 1990's, residents along the river notified us about their concern that sustained dam discharges of 28,000 cubic feet per second may result in hydraulic connection between the river and their drinking water wells and septic systems. In conjunction with the spill event in June-July 2002, when sustained dam discharges reached 40,000 cubic feet per second, the Corps monitored groundwater in the Libby and Troy area in cooperation with the Lincoln County Department of Environmental Health. The monitoring showed no adverse effects to well water quality from high river flows.

15. What other analysis of sturgeon flows is being planned?

The Corps is currently assessing how different sturgeon flow releases affect seepage in the Bonners Ferry area, how these flows have affected the integrity of the levee system, how these flows would affect groundwater quality along the Kootenai River, how higher releases of water for sturgeon might be accomplished at Libby Dam, what effects spill over the dam has on water quality and resident fish, and how the higher river stages would affect property along the un-diked portions of the river. We have enlisted the help of the affected communities in formulating and conducting our investigations. As studies are completed, the results will be available by contacting the Corps. They will also be posted on the Corps website (<http://www.nws.usace.army.mil/>).

16. What is being investigated that could lead to a reduction in the peak flows being requested for sturgeon?

The US Geological Survey is now evaluating sediment transport capacities of the Kootenai River and the channel shape in the Bonners Ferry reach of the Kootenai River. Conclusions from that study may lead to recommendations to modify channel configuration and bed materials in the sturgeon spawning area. This may allow sturgeon eggs to incubate successfully with peak flows lower than originally estimated. Efforts underway to better understand how water velocity, turbulence, depth, and other factors affect sturgeon reproduction may also help fine-tune future flow targets for benefit of sturgeon.

17. Will the BiOps on the Federal Columbia River Power System trump authorized purposes of Libby Dam and cause flooding or power blackouts?

No. Although the Endangered Species Act is more than 30 years old and there have been thousands of consultations on the effects of federal projects on listed species, there have only been a handful of instances where a biological opinion has ever stopped a project. Recommendations of the USFWS and National Marine Fisheries Service (NMFS, now also referred to as NOAA Fisheries) include reasonable and prudent alternatives when a federal activity may jeopardize the continued existence of a listed species. With an existing facility such as Libby Dam, the reasonable and prudent alternatives typically fall within the authorized range of operations. Furthermore, the Corps will not abrogate its flood control responsibilities. Power is

managed across the Columbia system as a whole, so flow changes at one dam are not going to cause blackouts.

18. What assurance can you give me that the spillway or an additional turbine at Libby Dam will not be used to drain Lake Kootenai faster than ever and destroy our sport fisheries, recreational opportunities and businesses?

Both the USFWS and NOAA Fisheries BiOps recommend that new flood control operations known as VARQ be adopted to provide storage for augmentation flows to conserve listed fish and to provide a much higher probability of refilling Lake Kootenai. The intent of VARQ is to better assure reservoir refill (i.e. store more water in the reservoir) while considering dam releases to augment flows for threatened and endangered fish species. In order to provide releases for summer salmon flow augmentation, the USFWS and NOAA Fisheries BiOps recognize that reservoir refill is one goal of the VARQ operation.

19. What water quality studies are planned and when?

The Corps maintains an annual water quality monitoring program on the Kootenai River at one station immediately below Libby Dam and at three stations in Lake Kootenai. The monitoring program consists of analyses for nutrients, inorganic compounds, heavy metals, chlorophyll, pH, conductivity, dissolved oxygen, and temperature. These analyses establish baseline water quality conditions upstream and downstream of the dam to which future water quality conditions can be compared.

The Corps will continue to monitor water temperature in Lake Kootenai and downstream of the dam in an effort to meet criteria set forth by an agreement with Montana Fish, Wildlife & Parks for operating the selective withdrawal system for the benefit of trout, and also for sturgeon recovery guidelines set forth by the U.S. Fish & Wildlife Service. Temperature monitors in the reservoir and downstream of the dam will evaluate the effects of reservoir operating conditions on downstream temperatures.

The Corps has established a permanent total dissolved gas (TDG) monitoring station below Libby Dam. This station monitors TDG levels in the Kootenai River to evaluate the impacts of dam operating conditions on downstream water quality factors that affect fish health.

20. Will increased-outflow operations for fish or a forced spill for flood control involve sudden changes in flows?

As a general rule, flow increases for sturgeon would be done within the gradual ramping rates (changes in flows) approved in the BiOp. Occasionally, the Corps or USFWS have requested variances in BiOp ramp rates. Any forced spill for flood control would be done as gradually as possible under the specific circumstances.

21. Will the 2000 USFWS or National Marine Fisheries Service BiOps likely lead to increased levee maintenance requirements in the U.S. or Canadian portions of Kootenai Valley?

The 2000 USFWS BiOp recommends reducing river fluctuations or ramping rates for the benefit of bull trout. This action likely will also reduce the extent of levee

maintenance necessary. Large water level fluctuations can be erosive of the toe of the levees, especially during freeze-thaw cycles during the winter when Kootenay Lake and the Kootenai River are at low elevations. Recent levee condition surveys indicate that the reduced ramping rates since the late 1990's have allowed vegetation to grow and stabilize levees. However, some levees currently remain in poor condition, and maintenance has always been required to allow them to withstand high flows, whether from flood control or fish flow operations.

22. Why doesn't the Corps repair levee erosion problems in Bonners Ferry caused by higher fish flows?

The Corps has been concerned about the condition of the levees for many years, even before fish flows, but because the levees were locally built, their maintenance is the responsibility of the local drainage and diking districts. Federal programs for levee repair have cost-sharing and maintenance requirements that may have discouraged local entities from participating. Without this local cooperation, however, the Corps has no authority to take independent action to repair the levees.

23. What about the groundwater seepage near Bonners Ferry? What is the Corps doing about that?

We have more recently become aware of the groundwater seepage issue. In partnership with Boundary County, Idaho, the Corps has conducted an initial investigation of these issues and possible remedies. The Corps is currently conducting a more detailed study of seepage, scheduled to be completed in mid-2004. The study will identify seepage areas, the potential impacts to crops, and the associated economic impacts from various flow regimes.

24. How can I become involved in the process to help ensure that the interests and concerns of the community are fully considered as the Corps implements the 2000 USFWS and NOAA Fisheries BiOps?

The Corps welcomes participation of all stakeholders on issues that affect their interests. Interested parties can keep abreast of current dam operation issues on the Libby Dam website at <http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=libby&pagename=libbymain>.

On a more formal basis, we hope all interested citizens and other parties participate in the UCEIS preparation and review. We are preparing a draft EIS scheduled to be released for public review in 2005. We welcome comments at any time. Please see the UCEIS project web site at www.usbr.gov/pn/programs/VARQ/index.html for more information on the project, how to contact the project managers, and to submit comments. In the future, actions involving substantial changes in dam operations or construction projects would also be subject to publicly coordinated NEPA processes.

The Corps also holds annual public meetings on Libby Dam operations that provide a good opportunity for public involvement. Additionally, the Corps is also working with the Kootenai Valley Resource Initiative, a group of stakeholders in Boundary County, Idaho, to provide updates on a variety of issues surrounding Libby Dam operations and to solicit input on items of interest to the Bonners Ferry, Idaho region. Groundwater seepage is one important area where we are working with the community in Boundary County; levee integrity is another.

25. Why did so much water have to be released into the river in 1997?

Libby Dam is operated for a number of purposes, which include flood control, fisheries, recreation and hydropower. You may recall the above-average amount of snow at the end of winter in 1997. During periods of high rainfall or snowmelt, higher outflows are necessary to maintain some empty space in the reservoir to capture some of the runoff and thus reduce potential flood damage downstream. This was the case in 1997.

26. What happened with the 2002 spill test and why did we see so much water being released from the dam?

The planned spill test in 2002 was designed to carefully control spillway flows while monitoring water quality in the river downstream. The planned test started on June 25, 2002. After the first day, due to high inflows into a nearly full reservoir, the spill test became an actual flood control operation. The high reservoir inflows were the result of unexpected late-season snow followed at the end of June by hot weather. Resulting spillway flows for flood control lasted for two weeks, with peak dam discharges of 40,000 cubic feet per second (including spillway flows of 15,600 cubic feet per second). Dissolved gas in the river was monitored throughout the event, as were effects on fish. We gained a great deal of information on the dissolved gas levels and on susceptibility of fish to harm from that. We learned that while fish may be somewhat resistant against long-term injuries, they still suffer in the short term from high levels of dissolved gases. We also learned about limitations on spill to avoid high dissolved gas levels. The report on the dissolved gas monitoring during the 2002 spill is available at:

http://www.nws.usace.army.mil/ers/reposit/Libby_Spill_Test_Report.pdf

The results of the fish monitoring are available at:

<http://www.efw.bpa.gov/Environment/EW/EWP/DOCS/REPORTS/RESIDENT/R00006294-3.pdf>

27. I have read something in the newspapers about breaching or removal of Libby Dam. What is that about?

That is not proposed or being considered by the Corps of Engineers or the USFWS. The news reports may have resulted from comments made by a conservation group to the USFWS suggesting consideration of breaching. The Federal agencies feel that white sturgeon and bull trout can recover with some changes in operations at Libby Dam and effective restoration and rehabilitation of sturgeon habitat. As we have seen with the controversy over the issue of removal of Snake River dams for salmon, policymakers would not make a decision to remove a dam lightly, or without full consideration of the tradeoffs for the public.