

Upper Columbia

UPDATE

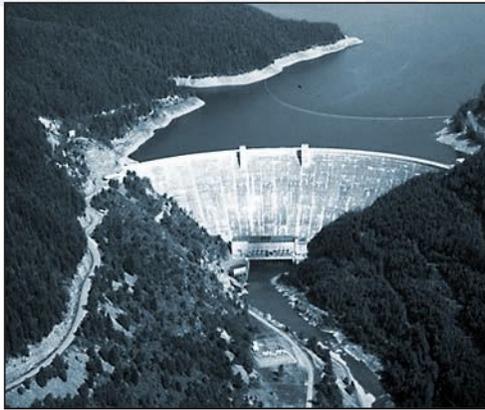
THE NEWSLETTER OF THE UPPER COLUMBIA ALTERNATIVE FLOOD CONTROL AND FISH OPERATIONS ENVIRONMENTAL IMPACT STATEMENT (EIS)

FALL 2002

Welcome to the *Update!*

This is the first of a series of quarterly newsletters we will publish as we prepare the Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement (EIS). If you were able to attend one of our scoping meetings or other forums, you may be familiar with this project and the evaluation of proposed actions, including the VARQ (variable discharge, or "variable Q") alternative flood control operation, and flow augmentation for listed species of fish, to comply with the Biological Opinions (known as BiOps) of 2000 from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

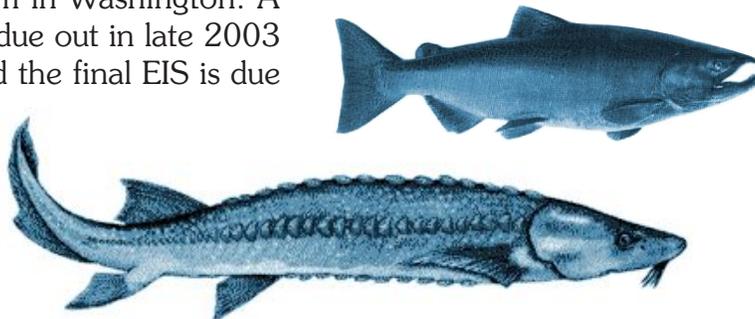
Those BiOps provide recommendations for operation of federal dams to prevent jeopardy to threatened and endangered fish in the Columbia basin. The EIS is intended to address winter and early spring operations at Libby and Hungry Horse dams in Montana, and Grand Coulee Dam in Washington. A draft of the EIS is due out in late 2003 or early 2004, and the final EIS is due out in late 2004.



VARQ helps assure refill of Libby and Hungry Horse reservoirs, and thus helps with flow augmentation for sturgeon, bull trout, salmon and steelhead stocks listed as threatened or endangered. In addition, VARQ moves some flood control releases from Libby and Hungry Horse Dams from the winter months to the spring, which will aid flow augmentation.

Since this project has generated considerable public interest and concern, we are publishing this quarterly newsletter. Of course, if you have access to the internet, you can visit the project website at www.nws.usace.army.mil/ers/varq_web.htm.

We invite your comments and questions about the project or the newsletter itself. Let us know if your address needs correcting or updating on our mailing list as well. You may contact any one of the four managers listed below. Thanks for your interest. We hope this will serve your needs.



INSIDE

Interim use of VARQ at Hungry Horse Dam p.2

Libby spill test provides challenges and insights p.3

Hydrologic modeling: evaluating flood control p.5

Reconciling ESA and NEPA requirements for VARQ p.6

Public input included in scoping document p.8

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DEFINITIONS IN THIS ISSUE

VARQ or, Variable flow (Q) is an alternative flood control operation whereby a storage reservoir is lowered less in winter during years with a low or medium runoff forecast.

Upper rule curves define the maximum allowable elevation of the surface of a storage reservoir, described over the course of a water year (Oct.-Sept.), for flood control purposes.

BASE CRT-63 is a flood control protocol, currently in operation, and proposed for replacement by VARQ for Libby & Hungry Horse dams.

Flow augmentation is the release of water from storage reservoirs to meet specific seasonal life stage needs for fish downstream, above what would normally be released for human needs.

BiOp (Biological Opinion) is a response from either the USFWS or the NMFS to a Biological Assessment prepared by an agency proposing a federal action. A BiOp contains specific actions to protect threatened or endangered species.

ABOUT THE UPDATE

This Fall 2002 issue contains articles on results of the scoping process, the hydrologic and flood control evaluations, the Libby spill test, and the decision process on implementing VARQ on an interim basis after 2002. Future articles will address the progress of other technical evaluations and our decision making process, as well as articles reflecting the perspectives of the communities that may be affected by this project (*Community Focus*).

Several other features will be common to all the newsletters. *On The Web* will keep you updated on what new and ongoing information is on the project web site. *Definitions* will help you navigate through technical jargon and acronyms.

Interim use of VARQ at Hungry Horse dam

This spring the U.S. Bureau of Reclamation examined the potential effects of VARQ at Hungry Horse and decided to implement it on an interim basis. "VARQ worked well at Hungry Horse in 2002 despite some rather extraordinary runoff conditions," noted River and Reservoir Operations Manager Patrick McGrane.

"It was an unusually cold spring in northwest Montana followed by 121 % of normal precipitation in June. Natural runoff was high from Memorial Day until the 4th of July, but Hungry Horse Reservoir had enough space to prevent flooding downstream. It was a real test of VARQ."

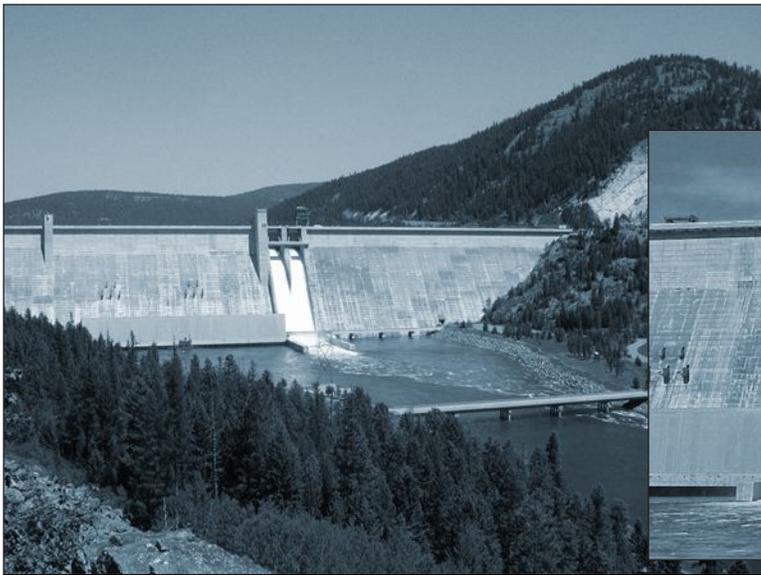
Under the previous flood control criteria, Hungry Horse would have released more water from the reservoir prior to May 1 and less water in May and June. Operations by the end of June were about the same.

Under VARQ flood control, the river stage downstream on the Flathead River at Columbia Falls was between elevation 12.5 and 13.0 feet for 15 days in 2002. If the old flood control rules had been in place, the river would have been between 12.5 and 13.0 feet for 5 days. The maximum elevation the river reached in either case would have been about the same,

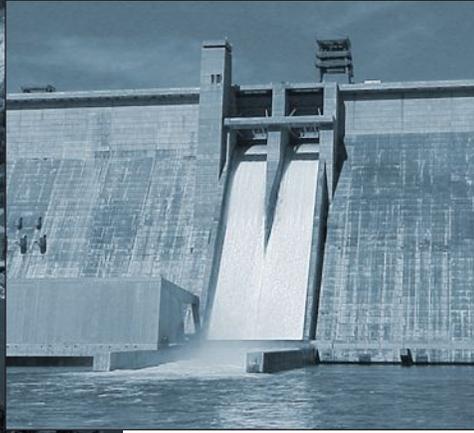
elevation 13.17 on May 31. Flood stage at Columbia Falls is elevation 14.0 feet.

In 2002, implementation of VARQ operations at Hungry Horse Dam required a small increase of flood control space at Lake Roosevelt (behind Grand Coulee Dam) in order to provide the same level of system flood protection downstream. VARQ operations at Hungry Horse resulted in Lake Roosevelt being drawn down to elevation 1245 feet for flood control instead of 1247 feet under the old flood control criteria. Ultimately, Lake Roosevelt was drawn down to elevation 1240 feet in May to provide flow for migrating salmon.

Reclamation plans to implement the VARQ flood control plan at Hungry Horse Dam in 2002, 2003, and 2004 on an interim basis. In order to make a long-term decision, the Upper Columbia Flood Control and Fish Operations EIS is being prepared. A subsequent decision will be made on a combined Hungry Horse and Libby Dam (a U.S. Army Corps of Engineers project) operation. Consult www.pn.usbr.gov/project/salmon/varqindex.shtml to see the Environmental Assessment on Interim Operation VARQ at Hungry Horse Dam.



Libby Dam during June 2002 spill test



Close-up view of Libby Dam spillway with 6,000 cfs of spill

Libby spill test provides challenges and insights

During the week of June 24, 2002, the U.S. Army Corps of Engineers (Corps) scheduled a comprehensive test to measure how a range of spillway releases at Libby Dam affected the levels of total dissolved gas in the river downstream. The spill test was designed to gather information on how spillway flows between 2,000 and 10,000 cfs affected dissolved gas levels in the river downstream.

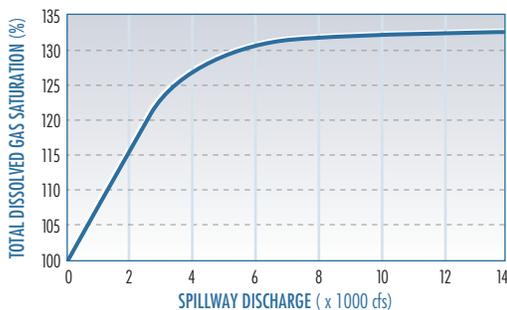
Early on the morning of June 25, the Corps raised the Libby Dam spillway

decreased as spill was increased, to limit total flow to 25,000 cfs, equal to routine powerhouse capacity.

However, a wet May, a late snowfall in the mountains in early June, and higher-than-normal temperatures as the spill test approached meant that the reservoir inflows of about 60,000 cfs were considerably higher than routine powerhouse capacity at the dam, and the reservoir was within ten feet of full at the start of the test. Though the outflow had been increased to 26,000 cfs starting June 12, the reservoir was filling at the rate of about 1½ feet per day, with several days of high inflows projected. The afternoon of the first day of the test, a closely coordinated decision was made among water managers to raise total flows above powerhouse capacity, the agreed-upon limit for the spill test. Flows were increased by that evening to 29,000 cfs, including full load through the powerhouse.

The spill test design incorporated safeguards to protect fish and other aquatic life in the Kootenai River. These safeguards consisted of thresholds for dissolved gas levels and fish observations above which the spill would stop.

continued on next page ▶



Predicted relationship between spillway discharge and total dissolved gas immediately downstream of Libby dam. This is based on preliminary results; actual gas levels may vary somewhat in final analysis, and will depend on environmental conditions.

gates to begin the spill test as scheduled. The first two intervals were accomplished as planned, with powerhouse flows being

LOOKING FOR MORE INFO?

Check out our website at

www.nws.usace.army.mil/ers/varq_web.htm

or see **page 8**

for contact information

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Observations during spill of about 6,000 cfs on the afternoon of June 25 showed that conditions exceeded both the dissolved gas and fish monitoring thresholds for the spill test. Given that information, and with total flows exceeding 25,000 cfs, the spill test was now officially ended. Thereafter, Libby Dam discharges were determined based on flood control operations only, under which protection of human safety takes precedence. To the extent possible, the flood control operations may be



Pat Dwyer, Montana Department of Fish, Wildlife, and Parks, checks a mountain whitefish for symptoms of gas bubble disease as part of the spill test fish monitoring

adjusted to safeguard the aquatic life but human safety is the paramount concern.

Reservoir inflows remained high and the Corps gradually increased total dam discharge to as high as 40,000 cfs, with 15,000 cfs discharged via the spillway, on July 1. Inflows began to drop on June 30. As inflow dropped further, the Corps gradually decreased dam discharge until, on July 7, spillway flows ceased.

Given the combination of natural events during the spring of 2002, spillway use was unavoidable even in the absence of the planned spill test. Although the Corps was not able to tightly control spill volumes as planned for the spill test, the

dam operations occurring from June 24 through the end of the extended flood control spill did provide an opportunity to measure the effect of spillway operations on dissolved gas levels in the river downstream. Monitoring of dissolved gas levels and fish continued throughout the 2002 spill. The gathered data will be analyzed and summarized in a report scheduled for completion by the end of the year.

In addition to fish and water quality monitoring, the Corps, in cooperation with the Lincoln County Department of Environmental Health, monitored a number of wells along the river during the spill. Preliminary results from well monitoring during the spill period don't show any adverse effects to wells associated with high river flows.

Because of the possibility of increased frequency of spill under VARQ operations, and because of the Fish and Wildlife Service BiOp measure calling for increased flow capacity from Libby Dam, information from the spill test will be used in the environmental impact documentation for upper Columbia alternative operations. That includes both the environmental impact statement, which is to be completed by 2004, and the environmental assessment scheduled for this year as a decision tool for whether to implement VARQ in 2003.

PUBLISHING INFORMATION

Upper Columbia Update is intended to inform the interested public about the progress of, and topics of interest pertaining to, the Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement, and to facilitate public participation during the course of the project. Questions or comments about the Update should be addressed to the project contact(s) identified on page 8.

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Persons or organizations wishing to be removed from the Upper Columbia Update mailing list may do so by contacting the Editor. Address corrections are encouraged and welcomed. Please return your mailing label with the changes noted.

ECO Resource Group, Editor
2536 Alki Ave. SW
PMB #160
Seattle, WA 98116

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Hydrologic modeling: evaluating flood control

The Army Corps of Engineers is currently conducting hydrologic studies to provide environmental documentation for the Upper Columbia Alternative Flood Control and Fish Operations Environmental Assessment (EA) and Environmental Impact Statement (EIS). Results from a reservoir system simulation model are being used to evaluate how the proposed VARQ flood control procedure differs from the procedure currently in use, which is called BASE CRT.

In the Columbia Basin computer model simulations, as well as in real life, reservoir operations are guided by "rule curves." In order to fairly compare VARQ flood control with BASE CRT flood control, the Corps has been refining the upper rule curves for Libby Dam for water year 1928 through water year 1989. (A water year runs from Oct. 1st through Sept. 30th, as opposed to a calendar year that goes from Jan. 1st to Dec. 31st.) Upper rule curves prescribe maximum reservoir elevations throughout the year to provide flood control protection. On any given date, the reservoir surface elevation should not exceed the elevation specified by the upper rule curve except temporarily to store floodwater. With the refined upper rule curves, each of these years is being modeled under both the VARQ flood control scenario and the BASE CRT flood control scenario. For purposes of this phase of the modeling, both of these

scenarios assume that the entire Columbia River System is operated as a single purpose system to optimize flood control only. There is no consideration of other multi-purpose uses of the system such as power generation. This step is complete, and a report is being prepared.

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With the flood control portion of the work done, the modeling will then turn to incorporating aspects of flow augmentation outlined in the 2000 Biological Opinions. When these scenarios have been evaluated, the results will be published so that interested parties can review them in a report format. The report will include figures such as frequency curves and flow-duration curves, along with text to explain how the various scenarios compare with each other. Ultimately, the information will be used to determine impacts not only for flood control but also for fish and other aspects of concern to basin residents. This will also be available for public review, through the draft EIS process.

NOW ON THE WEB

For the latest news and information on the UC project, go to

www.nws.usace.army.mil/ers/varq_web.htm

Listed below are just a few of the informative articles and documents you'll find on the website:

- **Frequently Asked Questions**
Answers to a number of questions about the project covering technical issues, policy, background, & process.
- **Final Scoping Document**
The results of the initial scoping process of public and agency meetings, letters, and consultations, setting the scope for the EIS.
- **The Environmental Assessment for Interim Implementation of VARQ**
An assessment of the effects of implementing VARQ while the EIS is underway, done by the Corps of Engineers for Libby Dam. The letter from the Corps of Engineers to US Fish and Wildlife and NMFS regarding the process of preparing an EIS and implementing VARQ.

Plus links to:

- Agency websites
- Articles and reports on Columbia and Kootenai River dam and flood control operations
- Information on endangered species
- Alternative perspectives and viewpoints

Some new links relative to the Fall newsletter:

- Rule curves
- Base CRT

Any Missing Links?

If there are any links you think would add to the information on our site, please submit them to:

uceis@usace.army.mil

Thanks for your input!

Reconciling ESA and NEPA requirements for VARQ

The Biological Opinions from the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service call for implementation of VARQ in 2001 (effectively winter 2002), but the environmental impact statement (EIS) process cannot be completed until 2004. That presents a timing issue.

Compliance with the Endangered Species Act (ESA) is very important, but so is compliance with the National Environmental Policy Act (NEPA). In legal terms, NEPA provides a procedure for public review of proposed federal actions, but ESA involves the actions for protecting species listed as threatened or endangered.

In winter of 2002, a process was developed to reconcile the two requirements. Executives from the 5 involved federal agencies (Fish and Wildlife Service, National Marine Fisheries Service, Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration) decided to use available information in 2002 to develop an environmental assessment for implementation of VARQ for 2003. If no significant impacts are found for VARQ itself, then it would be implemented on an interim basis, pending long-term decision making through the NEPA process.

The USFWS BiOp calls for implementation of flows beyond Libby

Dam's existing capacity to pass water through the generators. Therefore the interim EA will evaluate the effects of providing that additional flow capacity as well, based in part on results of the spill test of June 2002 (see article on pp. 3-4). The additional flow capacity will help the Corps provide enhancement of base flows at Bonners Ferry for sturgeon spawning when tributary inflows are low.

The overall decision process in 2002 will include evaluation of the results of hydrologic and flood control modeling, the spill test, coordination with Canada under the Columbia River Treaty, and the environmental assessment, which will be available as a draft for public review.

The review process will occur in fall of 2002, and a decision on whether or not to implement VARQ on an interim basis will be made in December of 2002. We will keep you posted on that as we work through that evaluation.

In the meantime, Reclamation has implemented VARQ at Hungry Horse Dam, and has prepared a voluntary environmental assessment (EA). To view the EA, you may:

- contact either of the two USBR contacts on this project (see page 8)
- view it on-line at www.pn.usbr.gov/project/salmon/pdf/varqfonsi.pdf.

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COMMUNITY FOCUS

In future issues of this newsletter, we will be providing perspectives from local communities in Montana, Idaho and Eastern Washington on the effects of the Upper Columbia project and the VARQ

alternative. We hope to give you the opportunity to read about the variety of opinions and information that we have heard through the scoping process, public meetings and other letters and calls.

FEDERAL COLUMBIA RIVER POWER SYSTEM



Public input included in scoping document

The meetings we held around the upper Columbia region of the U.S. in October and November 2001, and in Creston, B.C. in January 2002, resulted in significant input from you and your neighbors on what we need to consider in our environmental impact statement.

We heard about economic and environmental impacts, including issues of flooding, wildlife habitat, electric power generation, operation of boat ramps and marinas, contaminated sediments and many others. Many of these issues were ones we had been aware of; a few we did not know much about. We had already been developing a study plan, and

the scoping process has helped us further determine what we need to look into.

A scoping document was developed to record the input we received in the scoping process, and is available for you to see. We've made it available for download on our web site. Go to [www.usace.army.mil](#) and link from the menu to Documents and Links. You can also contact Jeff Laufle or Evan Lewis as listed in this newsletter to have a copy mailed to you.

Of course, as we've said, we will consider your comments at any time during the EIS process, so feel free to write or call any of us to register your views.

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ECO Resource Group, Editor
2536 Alki Ave. SW
PMB #160
Seattle, WA 98116

Or,

Send an e-mail to the following address, with SUBSCRIBE in the subject line:

uceis@usace.army.mil

PROJECT CONTACTS

U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
PO BOX 3755, SEATTLE, WA 98124-3755

Jeff Laufle USACE Project Manager
206-764-6578 E-mail: jeffrey.c.laufle@usace.army.mil

Evan Lewis USACE Environmental Coordinator
206-764-6922 E-mail: evan.r.lewis@usace.army.mil

U.S. BUREAU OF RECLAMATION
1150 N. Curtis, Suite 100, Boise, ID 83706

Jim Fodrea USBR Project Manager
208-378-5392 E-mail: jfodrea@pn.usbr.gov

Bob Christensen USBR NEPA Coordinator
208-378-5039 E-mail: rchristensen@pn.usbr.gov



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U.S. Army Corps of Engineers, Seattle District
PO Box 3755
Seattle, WA 98124-3755

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