

# Upper Columbia

UPDATE

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

WINTER 2003

## VARQ flood control implemented on interim basis at Libby

On December 31, 2002, a nearly year-long process ended with the decision to implement VARQ flood control (VARQ FC) at Libby Dam on a short-term basis. VARQ FC is the alternative flood control operation that is intended to better assure reservoir refill while addressing flows prescribed by the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) for threatened and endangered stocks of fish.

The interim decision process included preparation of an environmental assessment (EA), with a finding of no significant impact (FONSI). A decision document was signed by the commander of the Corps' Northwest Division regional office in Portland to finalize the action. The operation will remain in effect until a long-term decision, currently scheduled for late 2004, can be made following the completion of further evaluations pursuant to an environmental impact statement (EIS). The US Bureau of Reclamation had already implemented VARQ FC at Hungry Horse Dam in Montana starting in 2001, and documented that with an environmental assessment in March 2002. The December 2002 environmental assessment evaluated effects in the Kootenai, plus systemwide effects based on combined operation of Libby and Hungry Horse under VARQ flood control.

Although the operational change for Libby was not universally welcomed, the decision was made based on careful consideration of a number of factors including the requirements of the

Biological Opinions of 2000 from the USFWS and NMFS concerning operation of federal dams to meet needs of listed fish stocks.

The EA evaluation relied on computer modeling of flood control operations and fish flows, and accounted for available information concerning impacts.

Flood control issues were the main source of concern to many of those with a stake in the process, with particular concern voiced by residents and officials in Idaho along the Kootenai River before and after the decision. Pend Oreille River residents and other parties below Albeni Falls Dam had also expressed strong concerns about VARQ FC and flood management in a scoping meeting and subsequent letters in fall 2001. Reservoir operation studies for the Kootenai River indicate some increased flood risk from VARQ FC implementation. However, Corps water managers urged against broad interpretation of the computer model studies. While the models are useful to compare different flood control strategies, they represent only one means for evaluating impacts. Use of improved forecasting methods and real-time adaptive management allows water managers to adjust dam operations to changing conditions in many ways that computer models cannot depict. When considering the results of the reservoir operation studies in concert with adaptive management of dam operations, the Corps believes that interim VARQ FC implementation does

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### A PROJECT OF



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# ABOUT THE UPDATE

Upper Columbia Update is intended to inform the 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.



## DEFINITIONS IN THIS ISSUE

**National Environmental Policy Act (NEPA)** is the Federal law under which environmental impact evaluations are performed for proposed federal (or federal-ly-permitted) actions, and written as an environmental impact statement (EIS) or as an environmental assessment (EA).

**Environmental Assessment (EA)** is a concise public document prepared by a Federal agency to provide an evaluation of impacts of a proposed federal action when impacts are not believed significant, or can be mitigated to non-significance (results in FONSI), or to document a decision to prepare an EIS for actions believed to have significant impacts.

**Finding of No Significant Impact (FONSI)** is a document by a Federal agency briefly presenting the reasons why an action of that agency will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared. When the FONSI is approved, the Federal agency generally would implement or carry out the subject action.

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not significantly increase the chance of flooding.

Another issue concerned groundwater seepage in agricultural lands along the Kootenai. The Corps recognizes that the groundwater seepage issue is an ongoing concern for the agricultural community and is not new, since flows for sturgeon in the spring, regardless of the flood control operation at Libby Dam, appear to be linked to increased seepage. However, since VARQ FC makes the

sturgeon flows more likely, its implementation elevated farmers' apprehensions. This is an economic, rather than an environmental or public safety, issue, and is not considered significant under NEPA to trigger preparation of an EIS. However, it is being studied further for the EIS.

Canadian treaty power issues, Canadian wildlife, and navigability of the Kootenai River for recreation EA also emerged as concerns for the EA.

## VARQ interim implementation greeted with mixed reactions

Following the decision on December 31, 2002, to immediately implement VARQ at Libby Dam on an interim basis, Corps managers contacted stakeholders. Elected officials and others concerned about Libby Dam operations in Idaho said they felt let down by the decision. However, proponents including the State of Montana, US Fish and Wildlife Service and the National Marine Fisheries Service praised the decision for its benefits to threatened and endangered fish.

Opponents were reacting to the computer model results on flood control in the draft environmental assessment for interim implementation. Those results did show some increase in flood risk under VARQ. Corps water managers will continue to stress that the computer model results were a worst-case situation and that the range of water management tools would allow the risk to be managed. These managers recognize the challenges and have taken steps to reassure skeptics.

VARQ also will create some risk of

involuntary spill at Libby Dam; if water must be passed in amounts greater than the turbines can handle, some must go over the spillway. That increased risk is also manageable, according to Corps water managers. Elevated dissolved gas levels resulting from spill may harm fish and other aquatic organisms if they are exposed to high dissolved gas levels for extended periods. The US Fish and Wildlife Service has indicated it feels that the risk to threatened bull trout is low enough that it is outweighed by the benefit for endangered sturgeon that VARQ would provide.

The National Marine Fisheries Service also feels that VARQ is justified, and favored the December decision for its benefits to salmon and steelhead.

If you have questions or comments about the EA and what went into the decision, or about the Upper Columbia EIS in general, you can write or call the project team through the contacts listed on page 8 of this newsletter.



We are providing opportunities for local communities in Montana, Idaho and Washington to express their perspectives on the effects of the UC project and VARQ alternative. This newsletter features comments by Andy Dunau and the Lake Roosevelt Forum, made up of agencies with jurisdiction for management of the lake, Tribes whose reservations border the lake, and people using lake resources.

## VARQ flood control effects on Lake Roosevelt

ANDY DUNAU, EXECUTIVE DIRECTOR, LAKE ROOSEVELT FORUM

### *Flows for fish, flood control for humans.*

Agencies responsible for managing Lake Roosevelt's lake levels understand this sensitive balance. They are also well aware that this balance requires meeting other operational needs, particularly irrigation, power generation and recreation.

The Lake Roosevelt Forum has always supported public education of, and public comments from, local communities. Our philosophy is that decision makers should not make public policy in a vacuum.

There are five counties and two Indian tribes that surround Lake Roosevelt. Because of the rural, sparsely populated nature of these communities, their voices can be hard to hear.

VARQ flood control (FC) is the latest, but certainly not the last, in a series of long and short term management decisions seeking balance. Among other things, VARQ FC reminds us why Lake Roosevelt is often called the "workhorse" of the Columbia River system. Its storage capacity, five million acre-feet, makes it a valuable asset in the region. And its refill ability, seven times in one year, makes it the most flexible resource for managing Columbia River operations.

So, as in the case of VARQ FC, when managers desire to change flood control operations at Libby and Hungry Horse reservoirs to help with flows for downstream fishery stocks that are threatened or endangered, they look to Lake Roosevelt. Changes at Lake Roosevelt are used to offset changes at Libby and Hungry Horse, thus maintaining system flood control objectives

for Portland and Vancouver.

Using data from the last 50 years, VARQ FC would have resulted in Lake Roosevelt being drawn down an average of an additional 1.5 feet each year for flood control at the end of April. In any given year, the additional drawdown can range from zero to over nine feet, when other uses such as power and fish flows are factored in. The December 2002 environmental assessment for interim implementation of VARQ FC showed that the end-of-April elevation would be the same for VARQ FC as for Standard FC at least half the time. In most years, the end-of-April elevation would be less than 4 feet lower under VARQ FC compared to Standard FC. A difference of 9+ feet would be a rare event.

Judging by results of the two environmental assessments prepared in 2002 for VARQ FC implementation, resource experts do not expect the EIS to find that this additional drawdown will have a significant impact on Lake Roosevelt. Local residents, however, are wary. By asking questions and participating in the process, they hope local needs, questions and perspectives get the attention they deserve.

The questions surrounding VARQ FC and Lake Roosevelt are straightforward. Will the lake refill in time to meet levels promised for summer? Will the lake refill in time to meet the needs of resident fish being released from net pens and hatcheries? Other impacts that will need to be examined are increased exposure of cultural resources, lake access at boat

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*The public must stay involved in decisions such as VARQ.*  
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### LOOKING FOR MORE INFO?

Check out our website at

[www.nws.usace.army.mil/ers/varq\\_web.htm](http://www.nws.usace.army.mil/ers/varq_web.htm)

or see  
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for  
contact information



## DEFINITIONS IN THIS ISSUE

**Environmental Impact Statement (EIS)** is a public document prepared by a Federal agency that provides an evaluation of impacts of a proposed federal action when impacts are determined to be significant as documented in an EA. An EIS contains an analysis and discussion of significant environmental impacts of a proposed action and informs the public of reasonable alternatives.

**Cubic Feet per Second (cfs)** is a measure of water flow past any given point in a river or through a dam. One cubic foot of water is about 7½ gallons.

**Computer models** are mathematical simulations of complex systems, like dam operations in the Columbia basin. Computer models of dam operation, also known as hydro-regulation or reservoir operation models, calculate estimates of flows and elevations of rivers and lakes under different conditions and scenarios. Model results are influenced by built-in assumptions or constraints on dam operations for flood control fish, power generation, and other factors. These models are intended to simulate reality, but do not fully depict or predict reality.

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launches, maintaining ferry service from Inchelium to Gifford, erosion, air quality from dust storms, and water quality.

Communities around the lake are also sensitive to the needs of their neighbors. Residents of Colville understand that Pend Oreille River residents are concerned that VARQ FC may affect their local flood control needs. Is that a Lake Roosevelt issue? No. Is it a neighborhood issue? Yes. Says Cathy LeBret, from Congressman George Nethercutt's office, "A foot here. A foot there. It all adds up. When you live in a rural area like this, you learn the value of supporting each other. Whenever one of these decisions comes up, we feel

outnumbered in the dialog from day one."

Sensitivity is also high because of other operational changes being discussed. For August, these include an additional 2-foot drawdown of Lake Roosevelt and an additional 5-foot drawdown of Banks Lake. As LeBret notes, it all adds up.

The Forum hopes the public stays involved in decisions such as those involving VARQ. And the Forum expects action agencies such as the Bureau of Reclamation and the Army Corps of Engineers to provide Lake Roosevelt the same environmental protections as every other body of water. That's how neighbors think.

## Upper Columbia Water Supply Forecast

To the extent possible, each issue of the Upper Columbia Update will include updates of water supply forecasts, flood control target elevations based on those forecasts, and current reservoir elevations. The table below summarizes the data for February.

	Libby	Hungry Horse	Grand Coulee	The Dalles
February 1 snow runoff forecast	4.66 MAF*	1.36 MAF	48.9 MAF	65.3 MAF
Percent of average runoff	75%	74%	76%	70%
End of February standard flood control target**	2423.2 FEET	3541.1 FEET		
End of February VARQ flood control target**	2436.4 FEET	3551.7 FEET		
End of January elevation**	2408.0 FEET	3513.0 FEET	1288.0 FEET	

\* Million Acre Feet

\*\* elevation above sea level, measured at the dam

## VARQ operation for 2003 at Hungry Horse and Libby

Implementation of VARQ flood control should not affect Hungry Horse and Libby outflows and lake levels this year due to drought conditions in western Montana. The February water supply forecast for Spring, 2003, is 75 percent of average. Minimum releases from Hungry Horse and Libby have drafted both reservoirs below the required elevation for flood control under either VARQ or the standard flood control

target. The reservoirs are expected to remain below either target unless there is a substantial change in the water supply forecast.

In a normal, non-drought year, VARQ flood control implementation would affect the reservoirs by allowing higher-than-average reservoir water levels in early spring. This would result in larger releases during the spring and a higher probability of reservoir refill by the end of June.

# Two Environmental Impact Statements underway in the Flathead Valley

Two separate – yet related – environmental studies are underway in the Flathead Valley: Upper Columbia Alternative Flood Control (VARQ) and Fish Operations Project and the Environmental Impact Statement for the Proposed Flathead Drought Management Plan and Operation of the Kerr Hydroelectric Project. Information will be fully shared between these two projects, but neither will attempt to meet environmental documentation responsibilities for the other.

The Environmental Impact Statement for the Upper Columbia Alternative Flood Control (VARQ) and Fish Operations Project (the subject of this newsletter).

**Proposed Action** Evaluate environmental and Columbia River system-wide flood control impacts of implementation of new flood control rule curves at Hungry Horse and Libby Dams. The proposed new flood operations are intended to provide more water for flow augmentation for threatened and endangered fish in the Kootenai, Flathead and lower Columbia Rivers from May through August. The possible use of fish flow water from Hungry Horse Dam to extend recreation at Flathead Lake will be evaluated in the DMP EIS.

**Who** U.S. Army Corps of Engineers and Bureau of Reclamation are co-leads.

**For more information**, see “Project Contacts” on page 8 of this issue.

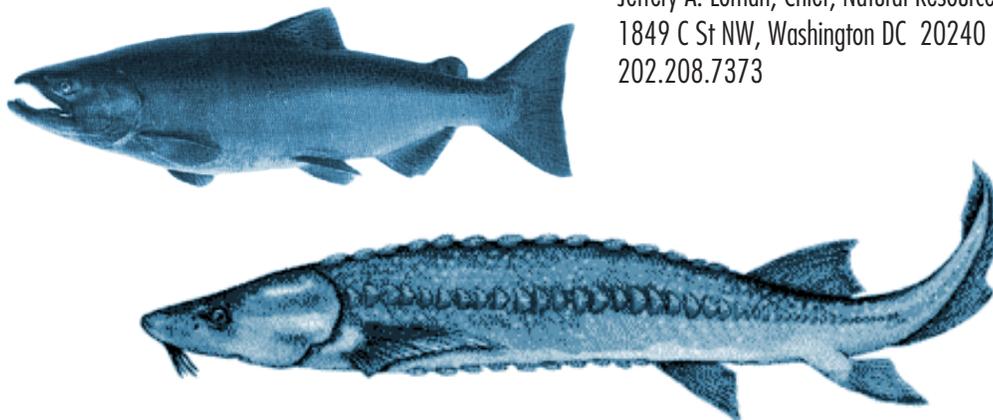
The Environmental Impact Statement for the Proposed Flathead Drought Management Plan (DMP) and Operation of the Kerr Hydroelectric Project.

**Proposed Action** Evaluate low water year operations of Flathead Lake and the resulting level of the lake. Generally when the Flathead Basin receives less than 70 percent of average runoff, operations prescribed in a 1962 MOA may conflict with new FERC license requirements for the Kerr hydroelectric project. The DMP is intended to develop operations to meet licensing requirements for minimum flows and lake levels.

**Who** Bureau of Indian Affairs (BIA) is lead agency for the EIS. Owners of Kerr Dam are PPL Montana, and the Confederated Salish and Kootenai Tribes. The U.S. Army Corps of Engineers and the Bureau of Reclamation are cooperating agencies.

**For more information** or to be added to the mailing list for the DMP, contact:

Jeffery A. Loman, Chief, Natural Resources, BIA  
1849 C St NW, Washington DC 20240  
202.208.7373



## 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](http://www.nws.usace.army.mil/ers/varq_web.htm)

### NEW! Final Environmental Assessment for 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.

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.

### 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

### 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](mailto:uceis@usace.army.mil)

**Thanks for your input!**

# Real-time water management in the upper Columbia basin

The Reservoir Control Center (RCC) at the Corps' Northwest Division in Portland, Oregon is responsible for real-time management of federal dams on the Columbia River. In managing the systems, the RCC must consider multiple uses of the river including flood control, hydropower, navigation, irrigation, recreation, and protection of fish, wildlife, and cultural resources. This article focuses on how the RCC manages the system to provide flood control.

In the upper Columbia Basin, storage reservoirs like Libby, Hungry Horse, and Grand Coulee dams are a large component of flood control operational strategies. Other upper Columbia Basin storage reservoirs include the Canadian Treaty storage reservoirs of Mica, Arrow Lakes and Duncan. Storage reservoirs enable water managers to time water releases to meet the multiple purposes of the Columbia River system. Other dams on the Columbia, like Chief Joseph Dam in Washington, are run-of-river dams, which maintain relatively constant reservoir levels and have no storage capacity that could be used to store water or manage downstream river flows.

Most precipitation in the upper Columbia Basin falls as snow and stream and river flows change largely in response to snowmelt patterns. Accordingly, water management in the upper Columbia Basin is designed to respond to snowmelt runoff in the spring. As the snowpack builds from November through April, the storage reservoirs are lowered to make space to capture the anticipated snowmelt that normally occurs in May through July. During the spring snowmelt season of May through July, reservoirs refill.

Water management is most challenging during the snowmelt/refill period. During the spring refill period, water managers must balance refill of the res-

ervoir with flood control, hydropower generation, fish flows, and other uses. If too much water is released during refill, the reservoir may not fill, which could impact recreation, hydropower generation, or fish flows later in the year. If water releases are too low during refill, the reservoir could refill too quickly, which could result in downstream flooding.

During actual operations, water managers make daily decisions that consider many variables such as long-term weather predictions, short-term weather forecasts, snowpack, reservoir storage, power system requirements (cold snaps, transmission limitations, power demands), requirements of treaties with Canada, and fish needs.

Water managers use computer simulations or models to make decisions on reservoir operations. Model output provides insight to potential future conditions.

Of course, model output depends on the accuracy of model input. Since some model input (such as weather forecasts) can be highly variable, model output can provide only guidelines.

During actual operations, water managers use their professional judgment to adjust daily operations in response to changing conditions and new information. This is called adaptive management. Managing the Columbia River system has many complexities and uncertainties that cannot be fully simulated by models. Each day, water managers must examine the available information, including model output, and develop management strategies to meet the multiple purposes of the system and individual reservoirs. The water management strategies must take into account the conditions in the next few days, but must also be consistent with longer-range objectives within the next several months.

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*During actual operations, water managers use their professional judgement to adjust daily operations in response to changing conditions and new information.*”

# FEDERAL COLUMBIA RIVER POWER SYSTEM



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As part of real-time water management of the Columbia River system, the Corps and Reclamation participate in the Technical Management Team (TMT) of the National Marine Fisheries Service Regional Forum, an inter-agency technical group responsible for making recommendations on dam and reservoir operations.

A variety of valuable information about water management in the Columbia Basin can be found on-line at the following websites:

Corps Reservoir Control Center  
<http://www.nwd-wc.usace.army.mil/>

Technical Management Team  
<http://www.nwd-wc.usace.army.mil/tmt/>



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Or,

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

[uceis@usace.army.mil](mailto:uceis@usace.army.mil)

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