

**Upper Mississippi River Headwaters  
Reservoir Operations Plan Evaluation (ROPE Study)  
U.S. Army Corps of Engineers and U.S. Forest Service  
March 22, 2006 Partnership Meeting  
St. Paul, Minnesota**

**Attendees**

Kevin Bluhm	Corps of Engineers
Steve Clark	Corps of Engineers
Chantel Cook	U.S. Forest Service
Pam Kichler	Mississippi Headwaters Board
Jody Kormanik	Corps of Engineers
Dick Lambert	Minnesota Department of Transportation, Cass Lake Property Owner
John Niemela	Minnesota Power
COL Michael Pfenning	Corps of Engineers
Mike Schwab	Beltrami County Lakes and Rivers Association, Cass Lake Property Owner
Tom Selwold	Star Island Protective League, Mississippi Headwaters Board
Mel Sinn	Minnesota Department of Natural Resources (DNR)
Doug Spaulding	Consultant, Lower SAF Hydroelectric Project
David White	Star Island Protective League

**Minutes**

1. Kevin Bluhm opened the meeting with introductory remarks and logistics details. He summarized the purposes of the meeting: to gain support for the modeling approach being used to assess alternatives and to check in with partnering groups on their positions regarding balancing of trade-offs in the multiple-objective operating plan alternatives
2. COL Pfenning thanked the attendees for coming to the meeting. He characterized the study as a multiyear journey that will take us to a new operating plan in 2007. Although the study had been delayed by funding issues, sufficient funds were now available to complete the study. A goal of this meeting was help the Corps and Forest Service understand the preferences of the different partners with regard to the alternatives to be considered and their effects.
3. Chantel Cook, the Forest Service ROPE study coordinator, stressed that the partnership with the Corps was very important to the Forest Service. Managing the Mississippi River reservoirs as a system was critical to the Forest Service's development of a new management direction for the Mississippi River corridor.
4. Steve Clark presented information on the ROPE study. The major partners involved in the study are as follows:

Federal reservoirs	Corps of Engineers (six headwater reservoirs) Forest Service (one headwater reservoir)
Non-Federal reservoirs	Otter Tail Power (one hydroelectric dam) Minnesota Power (two hydroelectric dams) Minnesota DNR (habitat management dam)
Other interests	Tribes Mississippi Headwaters Board Citizens Businesses Downstream hydropower dams Downstream cities Lake associations/groups Task forces

It was pointed out that the operators of the non-Federal reservoirs are cooperating entities and the study sponsors (Corps and Forest Service) can recommend changes to the operating plans for these reservoirs but cannot direct their operations. A schematic was shown depicting the relationships among the partners, with most communication passing between the study's project delivery team (PDT) and the other groups. The PDT consists of representatives from the Corps, the Forest Service and Minnesota DNR. The PDT is responsible for most of the day-to-day work and activities. The task forces are technical groups dedicated to specific areas (environmental resources, flood and erosion control, cultural and historic, recreation and tourism, tribal concerns, and hydropower and other downstream uses). The Corps' Headwaters area point-of-contact is John O'Leary, Headwaters Project Manager, Grand Rapids. At this time, Mr. O'Leary is deployed to New Orleans in support of the Corps' hurricane recovery mission.

5. The main purpose of the meeting was to establish the future role of the partnering group:

- Continued support of the study.
- Assistance in plan (alternative) formulation.
- Assistance with trade-of assessment and plan selection.
- Review of the study report and environmental impact statement (EIS) at various stages.

David White asked if the partnering group would be able to review the report/EIS before its release for public review. Mr. Clark said the schedule called for a draft report/EIS to be completed in October 2006 (30-day public review period) and a final report/EIS to be completed in January 2007 (45-day public review period). Before the draft report/EIS is

completed, a preliminary draft will be distributed to the partnering group members for their review.

6. Progress on the ROPE study was summarized from completion of the reconnaissance study in 2001 to the present. Initially, the study had a very broad scope. The Corps made attempts to identify non-Federal sponsors to participate in the study, but none were found. The decision was made to limit the scope of the study to reviewing only the operations of the Corps dams. In 2003, the Corps and Forest Service entered into a partnership agreement, which resulted in the inclusion of the Cass Lake reservoir in the study.

7. The future milestone schedule was presented:

May 2006	A 2-day partnering team meeting to provide technical details of the modeling and plan assessment.
Aug 2006	“In-house” preliminary draft report/EIS distributed.
Oct 2006	Draft report/EIS released for public review.
Jan 2007	Final report/EIS released for public review.
Spring 2007	Record of Decision (ROD) and implementation of new operating plan.

Mr. White asked if any groups/special interests might not have made themselves known who might be waiting until the reports are released to raise obstacles. In particular, he was concerned about real estate developers and the increasing demand for development in the headwaters area. Mr. Clark thought that any issues would surface when the operating plan alternatives are revealed at public meetings to be held in mid-August 2006. Mr. White wanted to know if the planning process and schedule could accommodate outreach to these special interest groups to identify issues/concerns earlier. Mr. Clark said that the process could accommodate that but that time and expense may be a factor in how much outreach could be accomplished.

8. Mr. Clark explained that any changes in the reservoir operating plans would be accomplished under existing Corps of Engineers Headwater authorities: navigation, tribal trust, flood control/reduction, recreation, water quality and water supply, and fish and wildlife. Most of the Corps’ Headwaters operations are currently driven by flood control/reduction and recreation. Under the ROPE study, the partners are looking for balance among all the competing needs. Dick Lambert asked what navigation in the Headwaters meant. Mr. Clark explained that the navigation authority provided for the initial construction of the Headwater reservoirs, whose purpose was to augment low flows in the river below Minneapolis to sustain navigation. Since the construction of the locks and dams system on the Upper Mississippi River, begun on the 1930’s, the Headwaters reservoirs have no longer been needed for this purpose. COL Pfenning

added that the Corps measurement for navigation is in ton-miles and funding allotments are determined in accordance with this measurement. For the Headwaters, this measurement resulted in no navigation-based funding for fiscal year (FY) 2006. Flexibility in executing the budget in FY 2006 was further restricted by new laws that prevented any transfer of funds from other St. Paul District projects to the Headwaters. This situation has resulted in the recent announcement to close some of the Corps-operated Headwaters campgrounds. Doug Spaulding pointed out that the Federal Energy Regulatory Commission (FERC) collects fees from hydropower producers on behalf of the Government. However, these monies are not counted as project benefits.

9. Mr. Clark reviewed the current operating plan for the Headwaters reservoirs. The governing criteria are water level targets (including summer levels), minimum river flows during low-flow periods, fall/winter drawdown to obtain flood control storage for the following spring, flood considerations (both in-lake and downstream), and tribal trust considerations (including wild rice management). Mr. Lambert asked if the fall/winter drawdowns were also done to reduce ice damage around the reservoir shores. Mr. Clark stated that this benefit is coincidental; the sole purpose for the drawdown is flood control capacity.

10. Mr. Clark explained that the Corps' operating guidelines are based heavily on past guidance from the Minnesota DNR. The concerns addressed by the operating plan have been primarily environmental and flood reduction. The ROPE study is reevaluating these guidelines to determine if changes can be made to optimize reservoir operations and provide the best balance for the many important considerations related to the reservoirs. The ultimate outputs from this study will be optimizing the operations of the Corps and Forest Service dams; recommending operation changes for the non-Federal reservoirs; identifying potential environmental, erosion control and flood damage reduction projects; establishing an improved interagency and tribal coordination network for managing the Headwaters reservoirs; and giving the public a better understanding of the merits and limitations of reservoir operations. Examples of potential projects that could be pursued under other authorities include restoration of the Leech Lake River and a Section 205 flood control project at Aitkin, which is waiting for outputs of the ROPE study before examining such a project's feasibility.

11. Ms. Cook spoke about the ongoing public involvement and the need for an EIS. She summarized the EIS process and indicated that the Corps and Forest Service would issue a separate ROD at the completion of the EIS process. The Corps' ROD would apply to its six Headwaters reservoirs; the Forest Service's ROD would apply to the service's reservoir at Cass Lake. Ms. Cook summarized the public involvement activities that have occurred throughout the study scoping process.

12. Mr. Clark discussed ROPE issue identification: natural resources, water quality, cultural resources, recreation, socio-economics, flood control, erosion, and tribal interests. He said each category included many topics. For example, natural resources include wild rice, waterfowl, mussels and invertebrates, muskie spawning, etc.

13. He then talked about how the scope of the ROPE study has narrowed since its start. Initiatives that are no longer under consideration include dam removal, new project construction, land acquisition, and drought planning (which is already addressed in District procedures). He also pointed out that any changes made in the operating plan would have to be within existing authorities. The document describing the scoping process will be available to the public on the ROPE website. Mr. White raised a question about dam removal. He indicated it is likely that some interests will question why it is not being considered and wanted to know if any analysis had been done to support the decision to not consider removal. Jody Kormanik stated that the effects of dam removal had been examined and that the data would be available for comparison with the current conditions. Mel Sinn had a question about being limited by existing authorities. Ms. Kormanik said that the congressionally set limits for operation are fairly wide and that our current operating plan within those limits is much narrower. For instance, she said the authorized band at Lake Winnibigoshish is probably 6 to 7 feet, while operations are usually restricted to less than 1 ½ feet. Mr. Clark pointed out that pursuing new authorization would be a large effort, both in terms of time and cost. Mr. Schwab asked about the alternative to drop lake levels to help establish vegetation that would reduce shore erosion. Similar drawdowns have been done on the Mississippi River below the Twin Cities. However, the magnitude of the drawdowns has been only 1 to 1½ feet.

14. Mr. Clark explained about the computer models that are being used to develop and optimize alternative operating plans. The Prescriptive Reservoir Model (PRM) will be used to help develop and optimize “smart” alternatives. The Structural Thinking Experimental Learning Laboratory with Animation (STELLA) model will simulate alternative water release plans. Using both models will facilitate evaluation of tradeoffs and assessment of the many conflicting needs and responsibilities of the water system. By using the models alternately, each informing and updating the other, participants will be better able to understand the system and interaction between objectives and allow them to develop a plan of operation that balances those objectives as effectively as possible.

15. Mr. Clark displayed a map of the Headwaters study area that identified 42 locations or “nodes” at which the effects of each alternative operating plan would be evaluated. The effects are evaluated for the following objectives: flood control, environmental, tribal, archeological, recreation, erosion, and hydropower/water supply. For each category, a “penalty function” was developed. The penalty function indicates ranges of lake stage that would create ideal, acceptable, or adverse conditions for each objective. The penalty functions were created as follows:

Flood Control: Structures that would potentially be affected by changes in lake levels were surveyed. Relationships between lake levels and dollars of flood damage and between lake levels and numbers of structures were developed using computer models.

- Environmental: The Environmental Task Force assisted in the development of this penalty function. Individual penalty functions were built for a variety of resources considered important to and indicative of the area. Composite functions were then developed for each node.
- Tribal: The Leech Lake and Mille Lacs Bands provided input. With Modification, the environmental penalty functions represent the tribal desires.
- Archeological: 35 sites listed on or eligible for the National Register of Historic Places are included in the models. The number of times each would be inundated is reported for each alternative operating plan.
- Recreation: This penalty function was based on a Minnesota DNR model of recreation use. Additional input was solicited during scoping and lake group meetings. Recreation opportunities considered include fishing, boating, and canoeing.
- Erosion: Reservoir and river erosion were both considered. In the reservoirs, severity of erosion was correlated with lake levels. Along the river, it was correlated with duration of bank-full flows. Mr. White asked if the study would consider the effect of erosion on water quality. Mr. Clark said we do not have sufficient data to evaluate it in this study.
- Hydropower/Water Supply: Penalty functions were developed with managers of plants on potentially affected waters. Hydropower curves relate flow and energy generated. For water supply and waste assimilation, penalty functions define minimum flows needed to meet these needs.

16. Mr. Clark asked the participants if all the key issues were being addressed in the modeling.

a. Mr. Spaulding asked if the effects on air quality would be assessed. He pointed out that deficits in hydropower generation would need to be made up from other sources, predominantly fossil-fuel generation. Mr. Clark said that it would be addressed in the EIS but would not be included in the modeling.

b. Mr. Schwab asked if the selling of forestlands by paper manufacturing companies would affect the study. COL Pfenning thought that this concern would affect areas farther north than the Headwaters study area.

c. Mr. Lambert asked if the categories of effects could be compared on an economic basis. Mr. Clark indicated that the impacts were not going to be converted to dollars. Mr. White thought other groups might be interested in quantifying the impacts in terms of dollars. Mr. Clark indicated that the study team had not recruited this type of assistance. COL Pfenning thought the results of this study might prompt other analyses by other interest groups once the results were made available and the data was available to share.

17. Mr. Clark said the study was relying on the partnering group to discuss the tradeoffs among the competing resources and decide from their own perspectives where the tradeoffs should be made. The decision-makers (Corps and Forest Service) would consider this input in developing a “balanced” multiobjective reservoir operating plan.

18. To facilitate the process of making tradeoffs, curves will be developed comparing pairs of objectives. Four sample curves were presented comparing recreation, hydropower generation, erosion, and environmental to the number of structures flooded (higher reservoir levels = more structures flooded). In this case, the graphs will show how benefits gained by reducing the number of structures flooded will affect the other objectives. For recreation, the objectives compliment each other; i.e., the fewer the structure flooded, the more recreation opportunities increase. The other three comparisons have an inverse relationship. The more water held is in the reservoirs, the lower hydropower generation is, the higher erosion is (around the lakes), and the higher adverse environmental effects are. The point on the curves that represents the current operation system was indicated.

19. Once the curves were explained, the partnering group members were asked to indicate where on each curve they would make a tradeoff between the competing objectives. They were asked to do so from the perspective of the interests/groups they represent. The markers they used were identical so no one would be able to tell who had placed which markers. Since the recreation curve indicated a win-win situation, it was not included in the exercise. On the hydropower curve, three of the six markers were clustered around the existing operation point, indicating that those who placed these markers did not see a need for change to accommodate hydropower or number of structures flooded. On the erosion curve, three people thought erosion control merited more consideration than the number of structures flooded. Three people thought just the opposite. On the environmental curve, all six people thought more consideration should be given to improving environmental conditions than to the number of structures flooded, relative to existing conditions. It was noted that the Minnesota DNR and tribal perspectives were not represented in this exercise.

20. Once the comparisons are completed, the decision model will use the STELLA output for each node to generate tables and graphs illustrating the effects of each alternative operating plan. These tools would be used by the decision-makers in identifying an operating plan that would be best for the river as a whole.

21. The attendees were given time to ask questions, make comments, or suggest other topics that should be included in future efforts.

a. Mr. White wanted to confirm that a preliminary draft report/EIS would be available in early August and asked how it would be made available to the public. Mr. Bluhm said the Corps and Forest Service would conduct a series of public meetings in August to publicize the alternatives. When the draft EIS is released, media outlets will be notified, and the EIS will be posted on the ROPE website. The meeting schedule will also be posted there. The Forest Service will have a link on its website to the ROPE website.

b. Mr. Selwold thought that the presentation that was made today might not be appropriate for the public meetings. He thought some of the audience might be frustrated by the number of charts and graphs.

c. COL Pfenning pointed out that the study's communication plan is posted on the website. It has a Frequently Asked Questions (FAQs) section that helps to explain the study and the evaluation process. He encouraged the participants to offer suggestions for additional questions.

d. Mr. Schwab thought the charts and graphs could use clearer or more informative labels. For example, the chart should explain that the higher the number of structures flooded, the higher the reservoir levels will be. The charts should also indicate which end of the scale represents "better."

e. Mr. White thought the alternative operating plan titled "Unregulated Flow" needed a better name that more accurately described it. It could be misinterpreted as the condition without dams or run-of-river. Under this plan, flow would still be regulated, but the flow would be adjusted to mimic natural seasonal fluctuations

f. Mr. Selwold stressed the importance of getting this information to the local decision-makers (for example, county planning and zoning commissions). He said the pressure on these decision-makers for increased development is intense.

22. When the participants were asked if today's meeting was worthwhile, Mr. Selwold stated that he thought it was an excellent day. Mr. White said he had been initially skeptical, but thought the meeting was invaluable. He has been continually impressed by the fairness of the process and thought the products would stand up to scrutiny because of the careful and well-documented study process.

23. The following actions are needed as follow-ups to the meeting:

- Meeting minutes need to be posted on the website on March 27.
- Today's PowerPoint presentation needs to be posted on the website.

- The website links may not work correctly; they need to be checked and corrected, if needed.
- Tradeoff recommendations need to be solicited from the Minnesota DNR and Leech Lake band.
- The communication plan needs to be emailed to the partnering group members. Members are encouraged to submit suggestions for additional FAQs.
- The website calendar must be updated.
- The tradeoff graphs need easily understood and consistent labels.