

Memorandum For The Record

14 January 2003

SUBJECT: Second Meeting of the Upper Mississippi River Headwaters ROPE Study Environmental Task Force.

1. Participants:

U.S. Forest Service (USFS): Chantel Cook

Minnesota Department of Natural Resources (MNDNR): Steve Marod, Donald Pierce,

Chris Kavanaugh, Howard Christman, John Steward, Jim Lilienthal, Ray Norrgard

Minnesota Pollution Control Agency (MPCA): Ken LeVoir, Jim Hodgson

Whitefish Area Property Owners Association (WAPOA): Jack Wallschlaeger, Ron DeLaHunt
Corps of Engineers (COE): Jim Noren, Steve Clark

2. On January 7, 2003, the individuals listed above met at the Minnesota Pollution Control Agency (MPCA) office in Brainerd for the second meeting as the Environmental Task Force (ETF) of the Upper Mississippi River Headwaters Reservoir Operations Plan Evaluation (ROPE) Study. Prior to the meeting, Steve Clark sent out an agenda (see attachment). The meeting agenda was generally followed.

3. The basic requirements and outputs of the hydrologic and hydraulic modeling currently being proposed for the ROPE were explained to the ETF, and a discussion of further needs followed. The ETF members were asked to consider the need for modeling in areas of the Headwaters presently not identified for modeling and to develop a short proposal for inclusion of those areas in the modeling effort. Currently proposed modeling efforts were provided in map and spreadsheet form. The additional modeling would be included in the ROPE, contingent on its cost and utility.

a. The reach downstream of Pokegama to the mouth of the Prairie River was identified as a possibility for inclusion in the hydrologic modeling effort. It would enable the identification of the effects of the Prairie River on the Mississippi River below their confluence.

b. Other reaches were also discussed including portions of the Mississippi River upstream and downstream of Aitkin and the Leech Lake River.

4. Representatives from the Minnesota Department of Natural Resources (MNDNR) stated that it is important to determine the point (water level or drought severity) at which it is no longer possible to augment Mississippi River flows downstream of the headwaters region (more specifically at Minneapolis and St. Paul) during a drought. It is believed that this may prevent problems with water demands on the Headwaters reservoirs during droughts such as the one in 1988. The ETF members will review the Mississippi River Headwaters Lakes in Minnesota, Low Flow Review, dated October 1990, for its ability to address this concern.

5. A discussion of the development of “target hydrographs” for the environmental resources of the region resulted in a group consensus that the desired condition for all reservoirs and river reaches would be the hydrographs most closely approaching a without-dam condition within yet-undefined constraints.
6. It was explained to the ETF that target hydrographs for each reservoir and river reach would be requested of the group after they are provided with further information: hydrographs of the present with-dam condition and those of a modeled without-dam condition for each reservoir and river reach of study; a description of the current operation of the headwaters reservoirs and the identification of relationships that would impact possible changes; a list of some constraints within which changes could be made to the current operation.
7. The group concluded that it was important to identify the definite constraints within which the reservoir operating plans could be altered (e.g., dam removal, water level requirements, etc.). This would prevent spending time thoroughly evaluating options that are outside the scope of ROPE. However, it will be important to consider options outside the scope of ROPE to make recommendations for further actions.
8. The ETF will review the “normal stages” of all the reservoirs and may propose changing them; however, in many cases a change will not be recommended. Periodic drawdowns of the reservoirs will likely be pursued to simulate drought conditions that can have many environmental benefits.

Steve Clark, COE
Environmental Task Force Coordinator

Attachment
Agenda

**Upper Mississippi River Headwaters ROPE Studies
Environmental Task Force Meeting – 7 January 2003
MPCA Office in Brainerd**

AGENDA

Start at 10:00 a.m.

1) Introductions

2) Status of ROPE

- a) Website has changed to the following location -
<http://www.mvp.usace.army.mil/finder/display.asp?pageid=143>
- b) EIS Notice of Intent is being prepared and should be published soon.
- c) MNDNR has identified some key management objectives for the ROPE
 - i) "...managing the reservoirs as a river reservoir system."
 - ii) "...achieve a more natural flow regime."
 - iii) "...it is important that the existing statutory Ordinary High-Water Levels (OHWLs) and the 100-year flood event levels are not increased."
 - iv) "...plans for releasing emergency supplemental flows be re-focused to address a 500- to 1,000-year frequency drought event."
- d) The delivery team will be evaluating the pros and cons of two approaches to alternative development and evaluation.
 - i) Traditional alternative development and subsequent evaluation to identify a preferred alternative.
 - ii) Utilization of an optimization model to develop a greatest-net-benefit alternative.

3) Hydrologic and Hydraulic Modeling Efforts

- a) COE has begun the process for reservoir and river/floodplain modeling.
- b) Hydrologic Modeling
 - i) The first expected modeling outputs will be existing and without dam ("natural") hydrographs. We will also include a summary of current dam operation for all the reservoirs.
 - ii) Current list of lakes and river reaches to be modeled is available in map and spreadsheet form (spreadsheet attached).
 - (1) 15 yr stage hydrograph – stage/duration; is the hydrograph for the entire selected period of record. Can be used to show "average" conditions for long periods of time (inter- and intra-annual variation). The period of record has not been chosen yet.
 - (2) Single event stage hydrograph – gives the hydrograph for a single selected event. Shows short-term effects such as the length of time required to fill or drain a lake or wetland.

- (3) 15 yr maximum stage – highest water elevation during the chosen period of record or the hydrograph above the elevation at which the chosen lake connects with the main lake.
- iii) The ETF must identify other river reaches and lakes requiring modeling or different modeling techniques to address effects on important resources.
- c) Hydraulic Modeling
 - i) Instream-flow-related modeling in 10 river reaches (bright green spots on map).
 - ii) 6 reaches immediately downstream of each dam.
 - iii) 4 other reaches identified by DNR and FS personnel.
 - iv) Channel geometry, substrate, and cover data have been collected.
 - v) ETF must first identify target species for impact analysis.

4) Evaluation Matrix

- a) Draft example of the evaluation matrix.
- b) ETF proposed target hydrographs – final goal is to provide the delivery team with a hydrograph for each lake and river reach. ETF must decide which of the following two approaches to take, or develop a third approach.
 - i) Could develop preferred hydrographs for each resource of interest and each site along with an impact assessment for each. Then combine these to provide the greatest benefit by weighting each resource.
 - ii) Or agree that the natural hydrograph is preferred, develop hydrographs that approximate this within given constraints, and conduct an impact assessment (for all important resources) of the near-natural hydrograph.
- c) Issues to consider when developing target (resource) hydrographs.
 - i) Stage mean and variability (Intra-annual variation).
 - ii) Drought and flood cycling (Inter-annual variation).
 - iii) Which portions of the hydrographs are most critical and why? This will be very important when weighing trade-offs between competing uses.
- d) ETF will develop these hydrographs after the modeling effort produces existing and “natural” hydrographs with probable constraints.
- e) Resource models will be used to conduct impact assessments (possibly in the form of “deviation impact curves”). Now it is important to consider what resources will be most greatly affected and to identify methods to measure the impacts on those resources.

5) Schedule Next ETF Meeting

Close Meeting at 12:00 noon