

**Advisory Board Meeting Notes
Marriott Courtyard Inn, Moorhead, MN
April 24, 2003**

Attendees:

Dean Wieland	Donald Elston
Randy Gjestvang	John Liou
Ed Steadman	Kevin Scheidecker
G. Padmanabhan	Dennis Reep
Jim Johnson	Wes Peck
Sheila Hanson	Xixi Wang
Earl Nelson	Beth Bolles
Scott Jutila	

Review of Past Activities and Progress:

The AAB recommendations and related EERC progress were presented. Beth mentioned that the “checked” items on the list were completed. She indicated that informal updates would be a future activity.

Items for Discussion:

Identification of Storage Areas: Wes talked about the differences between NED and LIDAR. He referred to the NED vs. LIDAR handouts. Comparison of the models is under way, and statistical analysis will be conducted. There is less than 10% volume difference between LIDAR and NED, with NED underestimating storage potential.

Data Collection: An effort has been made to survey existing data with such data points as culverts, size data, and road elevation. Some data exist, and the rest will be surveyed based on the location of storage areas. The present effort is on the Wild Rice Watershed.

The group is constructing a database both for internal and external use. The database will be unique and not a duplicate of RRBDIN.

Beth referred to the packet, noting that we are in the process of categorizing data to identify where gaps exist. The plan is to establish the database by the end of the summer with connections to locations of more data. Also, we are considering a GIS-based version.

Modeling:

Xixi discussed the overview model of the basin. HEC-2 and HEC-RAS (see table) were used to conduct a preliminary estimate on the amount of storage that would have been needed upstream to mitigate the 1997 flood. Drayton to Emerson were not included because the overview model already indicated enough storage. He indicated that he will be moving on to a model of the Wild Rice Watershed and then the other subbasins to obtain a better estimate of the necessary storage volumes.

Xixi discussed his paper, especially pages 25–26, Table XX1. There was a lively discussion about the appropriateness of using HEC-2 and HEC-RAS to estimate storage volumes. The highlights follow.

R. Gjestvang: Are the volumes taken directly off the hydrographs? Does this represent perfect storage? Have you considered timing?

A: Yes.

J. Liou: What about volume? From air photos, we can see inundation areas. We can see average depths for fields. Hydraulic models use peak flows, need to use balance, look at breakout flows.

B. Bolles: We used the models to do the backwards approach. We wanted a back-of-the-envelope calculation to determine preliminary storage volumes. Then we will go back and redo the calculations based on the hydrologic models that are developed.

J. Liou: Based on this info, it is incorrect. You can estimate peak flow, but you do not have volumes. You cannot go backwards from peak flows to hydrographs.

G. Padmanabhan: They will look at subwatersheds.

J. Liou: They need volumes.

R. Gjestvang: They will get into more details later.

G. Padmanabhan: How can you use HEC-2 to determine volumes?

Xixi explained that he used the HEC-2 or HEC-RAS models to adjust the 1997 peak discharge values down until the computed water surface elevations were below the major flood stages published by the Corps. These reduced discharge values were considered as the maximum peak flow that can be conveyed by the channel. Based on the storage-release algorithm that Xixi developed, the observed flow hydrograph was adjusted until the peak was lower than the maximum peak flow. The needed storage volume was calculated by determining the volume difference between the observed and adjusted hydrographs.

J. Liou: Okay, so it is just a rough estimate.

G. Padmanabhan: Does this represent ideal or actual storage?

X. Wang: It is only an estimate of ideal storage, not actual. Actual storage will be estimated using the models that we develop.

G. Padmanabhan: Whatever it is, it needs to be a distributed model.

J. Liou: What is the purpose of the rough numbers?

S. Jutila: To test the possibility of storage for the study.

J. Liou: Is this a false sense of accuracy? Too rough? Not realistic?

S. Jutila: They are different methodologies, but you can compare them. This is just within an order of magnitude, just to see if it is worth studying further.

G. Padmanabhan: Perhaps it can be used in limited areas.

J. Liou: Use this short cut methodology, but do not use it for the entire basin. It may give the wrong idea.

X. Wang: More detailed models will be used to determine how realistic the estimates are.

Toward the end of the discussion, Ed reviewed how and why this “overall” approach was chosen for now. The “overall” model was utilized to determine whether research efforts should be continued. The upcoming research in the subbasins will be more detailed.

No further questions were raised.

Public Outreach

Beth talked about completion of most of the watershed boards and district meetings. She mentioned Jim Johnson’s efforts to meet one-on-one with landowners.

Plans to populate the Web site were discussed, including the calendar of events and links to such items as the RRBDIN. The topic of advisory board names on the Web site was raised. After some discussion, there were no serious objections to listing names. Beth indicated that if there were concerns, the names could be removed at a later time.

Beth introduced the landowner survey. Sheila passed around copies to the advisory board. John Liou suggested the addition of questions related to flood insurance. Advisory board members were asked to review the survey and return comments to Sheila by e-mail or phone.

Demonstration

The upcoming demonstration in the Wild Rice Watershed was discussed. There was some follow-up discussion to the previous discussion of the overall modeling efforts, and questions were raised regarding the complexities of implementation of the Waffle concept.

E. Steadman: The field trial will test the entire project concept on a very small scale.

J. Liou: This project is very complicated and tough to track. The natural flood insurance program is less complex, and it is still difficult for it to work effectively. The (Waffle) concept is good. It may work for a very small area; however, legal issues and policy have to be addressed to make sure it works.

G. Padmanabhan: Roadways are another aspect.

D. Elston: State law says the roads cannot hold water.

E. Steadman: Certain roads may have to be built up. North Dakota would be in support of that, since this is a way to get funding to widen roads to allow school buses to pass.

X. Wang: Once we do the Waffle, will FEMA control that?

J. Liou: It has to meet certain FEMA criteria. It may be considered a flood zone if used for storage. As long as water is there, it is defined by ponding.

Things to consider:

- Accuracy of topographic map (must be very accurate)
- Overland flow

Economic Analysis

The plans for a visit by Andrew Manale were mentioned. Beth noted that Steven Schultz of NDSU might get involved in the study and he already has significant data collected on Maple River and has data or knows where to collect it from other watersheds as well.

Closing

Everyone was invited to participate in the next day's modeling meeting. The advisory board meeting adjourned at approximately 9:00 p.m.