

**Minnesota River Integrated Watershed  
Management  
Interagency Study Team Meeting**

**9 February, 2009  
MN River Nat'l Wildlife Refuge Visitor Center  
Bloomington, MN**

***MEETING REPORT***

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**Minnesota River Integrated Watershed Assessment  
Interagency Study Team Meeting  
9-Feb-09**

MEETING NOTES

**PARTICIPANTS:**

See Appendix A.

**NEXT MEETING: TBD Based in part on Funding after March 6<sup>th</sup>**

**AGENDA**

Meeting Purposes: To summarize progress to date, identify resources needed to begin work on tasks, identify technical teams needed for detailed work, and begin preparing educational information about the study in advance of congressional visits.

- 9:30 Welcome and introductions and Lunch Orders
- 9:50 Status of the Watershed Study –*Wells (EQB)*
- Summary of last meeting
  - Problem statements
  - Update on meeting products
  - Status on action items
- 10:10 Meeting Process –*Lead Facilitator*
- Small group process
  - Identify working groups
- 10:30 Break
- 10:45 Proposed Working Groups
- Modeling Technical Team Tasks
  - Planning Technical Team Tasks
  - Other?
- 12:15 Lunch (Ordered from Fat Lorenzo’s approx. \$10 per person for those interested)
- 12:45 Plenary Discussion of Working group products –*facilitated discussion, Rebecca Soileau, Corps*
- 2:00 Working Groups to incorporate plenary recommendations and finish write-up
- 3:00 Reconvene to Review Action items, Proposed Technical Teams and Next Steps - *Corps - Evans*
- 3:30 Adjourn

**SECTION I ACTION ITEMS, DECISIONS, & OPEN ISSUES**

## **A. ACTION ITEMS – New & Ongoing (responsible party)**

1. Produce draft minutes from this meeting for review by the participants (COE)
2. Coordinate legislative group (John, EQB)
3. Set up a method for tracking matches for funding with non-federal partners. (John, EQB)
  - Use MOU's
  - Include small matches, like time at meetings
  - Include big matches through project work
4. Additional funds are needed if work is to continue after March 6<sup>th</sup>.
5. We need to identify people to lead the effort for acquiring information for the next meeting related to identifying the watersheds the study will focus on.
6. Based on funding : set a date to reconvene (COE, EQB with Study Team input)
7. Invite chairs of other MN River efforts to the Technical Group meetings
8. Start a website for this effort (EQB)
9. Create a newsletter to communicate with other stakeholders (?)
10. Compile references and examples of other studies around the country. What the outcomes have been from these other studies. (COE)
11. Rename Task 17. CURRENTLY: LIDAR Collection Contract NEW NAME: Remote Sensing Data Contract
  - *PCA – Certain watersheds with enough data*
  - *Greg E , Norm Senjem – can they share their process in sub watershed selection.*
  - *Will give a reasonable estimate of “representative“ of sub watersheds*
    - *Ecological*
    - *Geomorphic*
12. PCA – Prepare information on which watersheds already have enough data to be considered for the study.
13. Greg E. and Norm Senjem can share their process on sub-watershed selection. Give a reasonable estimate of “representative” sub watersheds based on parameters such as:
  - Ecological
  - Geomorphic

## **B. DECISIONS**

### **a. Agenda items for next meeting**

- i. Identify small watersheds that we are focusing the study on
- ii. Develop Scope of Work with price tag associated for small scale modeling, monitoring, and data acquisition.

## **C. OPEN ISSUES**

- a. Is there a need for a Data Technical Team separate or a sub-team to the Modeling Technical Team?

## Minnesota River Basin Integrated Watershed Study Primary Tasks and Technical Teams

Task No.	Task	Modeling Technical Team	Planning Technical Team
1	Convene Interagency Study Team		
2	Convene Technical Teams		
3	Small Watershed Modeling	<b>X</b>	
4	Simulate Existing Hydrology and Materials Transport Processes for Small Watersheds	<b>X</b>	
5	Simulate Natural Hydrology and Materials Transport Processes for Small Watersheds	<b>X</b>	
6	Assess the Effects of Hydrologic Alteration and Land Use	<b>X</b>	<b>X</b>
7	Scaling to Major Watersheds	<b>X</b>	
8	Simulate Minnesota River Water Quality	<b>X</b>	
9	Simulate Future Conditions	<b>X</b>	<b>X</b>
10	Identify Ecologically Realistic Target Future Conditions, Identify System Needs		<b>X</b>
11	Select Management Measures to Simulate		<b>X</b>
12	Simulate Effects of Management Measures Applied at Different Spatial Scales	<b>X</b>	<b>X</b>
13	Simulate Economic Effects of Management Actions		<b>X</b>
14	Simulate Ecological Benefits of Management Actions		<b>X</b>
15	Develop DSS	<b>X</b>	<b>X</b>
16	Deliver DSS, Technology Transfer	<b>X</b>	<b>X</b>
17	LiDAR Collection Contract	<b>X</b>	
18	LiDAR Collection Admin		
19*	Strategic Plan for Public Involvement		<b>X</b>

## **SECTION II: SUMMARY OF MEETING PROCESS AND NOTES FROM PLENARY SESSION**

These notes are not a formal transcript of the meeting and are meant to provide information about the background discussion for the use of the participants to understand how decisions and action items were determined and for sharing information as appropriate with their and other stakeholder organizations. Each new original comment is given a new bullet and if there was a response recorded to questions it is a sub-bullet under the original question. Comments and responses are not attributed to individuals.

### **MEETING PROCESS SUMMARY:**

John Wells of the EQB presented a summary of the past meeting, work leading up to this meeting, and goals for the meeting. Discussion notes on this presentation and plenary discussions were recorded on flipcharts throughout the day and on the computer by Andrey Kravets (USACE) are included below. Rebecca Soileau presented the working group process and the participants self selected to be in either the planning or the modeling working groups for this meeting.

The primary task table above was used for self selecting and as a basis for the working group activity. The basic working group task was to identify who the appropriate representatives should be to serve on technical teams addressing the planning and modeling needs of the study. For each PMP task listed in the table above, a Modeling Technical Team or Planning Technical team was identified as being responsible for its management. A few of the tasks require input from both a Modeling and a Planning perspective and are checked in both columns. See appendix B. for the Working group task sheets with suggestions for organizing their working group activities for the day.

The groups chose to have a working lunch and save the plenary presentations and discussion of their work to the end of the day. Following the working group presentations and plenary discussions there was a re-cap of the day's events and discussion of how to move forward led by Craig Evans (USACE). The working group reports were recorded on computers by Andrey Kravets for the Planning Group and Ann Banitt for the Modeling Group.

## 1. Plenary Discussion on: Status of the Watershed Study – Wells (EQB)

### Discussion of Project Management Plan:

- Should look at possibility of having a Data Technical Team separate from the Modeling and Planning Technical Teams.

### Problems and Challenges:

- Dealing with the geological history
  - Minnesota River TMDL's and other TMDL's
    - Implementation and modeling,
    - Getting down to field scale representation.
    - There is a tangible need to incorporate the TMDL information with the DSS.
    - Make sure we don't duplicate ongoing TMDL efforts and be able to describe the differences between the TMDL and this Watershed Study.
    - Perhaps give presentation at upcoming TMDL meetings
    - PCA may do part of presentation
    - Also a model or to describe modeling differences
    - Will it be possible to scale the model up to HSPF?? This is necessary for the model to be successful.
  - Should not blindly adopt existing standards in the current study, but think about how the project can inform standards at all the different scales for water quality.
  - In TMDL identifying major sources of contaminants can be used to explore how we use these sources
  - By understanding physical processes like hydrology and how it effects stream bank erosion, we can use this knowledge to guide management/practices for land use
  - How to work with existing efforts. Use this as an opportunity to pull these efforts together.
  - Determining what has been done and what is ongoing to truly coordinate the project and identify all possible “in-kind” contributions will be to our advantage.
  - The DSS will be a collection of other DSS systems
- Use GSSHA/SWAT on some small existing study areas

## SECTION III BREAKOUT SESSION NOTES

### Modeling Breakout Session

Members:

Brian Huberty, FWS

Greg Eggers, DNR

Larry Gunderson, MPCA

Nick Tiedeken, MNDOT

Don Hansen, USGS

Cathy Larson, MET Council

Ann Banitt, USACE

Dallas Ross, Upper Sioux Community

NOTE: Discussion items are in *italics* Group products are in plain text.

### Modeling Breakout Opening Discussion:

- *Quick Review for non tech: Define Modeling ...mathematical samples, graphical combination to answer a question.*
- *What is the objective of modeling? GSSHA HSPF, CEQUAL2 SWAT: Each model is capable of different things. What is the question we are trying to answer? What are we going to use it for?*
- *We have TMDL's for most of the tributaries at this point. This gives watershed an idea of the problem areas. To get into sub watersheds, and what can be done within the watersheds to define what can be done, models targeted at the field scale is important.*
- *Do we know the "bad actor" watersheds? Do we need to address both?*
- *We have some knowledge. Do we have enough models to address WQ, aquatic ecosystems and watershed management - Biology?*
- *The work we do will be ongoing. It will answer some questions but will generate more questions. We need to demonstrate with modeling that we can reduce loadings. What is the cost?*
- *Recap what is the purpose/scope of the PMP.*
- *PMP suggests small scale watershed studies to better define relationships that are key to moving forward. GSSHA – Grid based distributed model at field scale 1-5 acre grid scales. Operates at a small time scale. LU, soil moisture, WQ component. (Soil moisture is important to the farmer). Groundwater link – surface to subsurface. Inform decisions with regard to economics and biology. BMP impact on yields.*
- *5-15 minute precip. What are the inputs for soil moisture? Radar usage? Are some watersheds monitoring soil moisture? IBIS usage (climate model).*



- *Do we need to define what these models can do before we select the watersheds.*
- *How many models are out there in a watershed? Where is data being collected? Is there a single question we are trying to define?*
- *How, When, Where we can improve the WQ Sediments, Loads, Biological layers of the watershed? What models address this?*
- *The Q you address with GSSHA - How has past land use impacted the hydrology in the watershed. What are we trying to change in the Hydrologic response?*
- *Need review of the models/studies being performed out there.*
- *IBIS NASA study in Midwest, Energy use... when is the best time to harvest corn? Models have not been used extensively. We are looking at a system of systems to make decisions. Future: Model listing & capabilities.*

### **Tasks 3,4,5,6,9 Small Watershed Modeling –**

#### **Task Description**

1. List objectives – Core problem
2. What models need to be used – Their capabilities and considerations:
  - a. Water Quantity and Groundwater
  - b. METC Metro Area Groundwater Model
  - c. USGS Groundwater Models ModFlow (finite diff), Data
  - d. Mn Dept of Health & DNR groundwater data
  - e. HSPF/ GSSHA
  - f. Floodplain interaction. HSPF does not handle area outside of the channel itself. (Issues with Blackdog Power Plant and its settling, lake effect, stormwater thermal, biocide effect )
  - g. HEC-RAS models
  - h. Nutrient loading from backwaters.
3. Define differences between models
4. Select watersheds
5. Small watershed modeling
  - How many models are run in a watershed?
6. How can we improve physical, chem., biological features.
  
14. Alternative runs will be needed.
15. Assess watershed responses for past, present, future land use conditions.
  - Need input from the field.
16. Coordination from various modeling efforts.
17. Economics will drive the whole study.

### **Collaborators or Partners**

1. DNR – Greg Eggers. .
2. U of MN – Dave Mulla
3. USACE – Lab and District
4. MET Council –SWAT modeling
5. Jim Almendinger, Science Museum
6. MPCA
7. EPA -
8. National Center for Earth Dynamics
9. USGS
10. NOHRSC (Weather Service)

### **Sequencing/ Duration**

1. Scope Out Tasks, Costs and Schedule (March)
2. Select Watershed (March)
3. Select Model and its data needs (April)
4. ID Available Data (April)
5. ID data needs – Data Gaps (April)
6. Remote sensing data – Timing? Spring 2009
  - i. USACE Remote sensing lab, mobilize this spring if funding avail.
  - ii. USGS LiDAR Spring 2010. Data avail 2011.

### **Additional Discussion Notes:**

- *Greg has a case study of the Upper Chippewa River in GSSHA modeling. Includes wetland restoration, WQ - depressional lake. Greg will be starting this project in Feb09*
- *How much time does it take to build a GSSHA model? (assuming you have data)*
  - *6 case studies.... Greg estimates 1.5 years to build each GSSHA model.*
  - *How many years of data do we need to support a watershed model?*
    - *Answer: You need a \*minimum of 1 season of data.*
- *Data availability in the metro area - plenty.*
- *What is availability of data in out watersheds?*

### **Obstacles**

1. Funding
2. Available Data
3. Coordination efforts between models
4. Unknowns w/ model development at the Lab
5. How do we tie in bio effects to models that are more phys and chem based?

## **Funding Needs**

1. Lidar \$100/ sq mile (\$2.1Million for watershed)
2. Optical Aerial Photography \$500,000 (or \$20/sq mile)
3. Radar \$500,000  
METC 5 SWAT models fully funded
4. Greg DNR Funded for DNR watershed study
5. Greg estimates \$50K-\$60K per watershed.
6. Unknown Costs – Field Sampling
7. Funding for the ERDC Labs w/ model development

## **Responsibility**

1. Judy Sventek, MetC
2. Dave Leuthe, DNR
3. Ann Banitt, USACE
4. Don Hansen, USGS
5. Larry Gunderson, PCA

## **Tasks 7, 12 Scaling to Major Watersheds**

### *Initial Discussion:*

- *Assumed HSPF model would be used for a major watershed model. HSPF has had a lot of development to date. Possible use of SWAT to bridge information*
- *Hope that small watershed model will inform HSPF model.*
- *Socio/Economics will drive. “Whole Farm Planning” Land owners are taxed based on best use and taxation of that property.*
- *Green Acres and Taxation. What BMP option will “hurt the farmer less?”*
- *Legislative and administrative thinking has to fit into this analysis.*
- *Alternatives run w/in models will be predicated on the economic/social impacts*
- *How? Strategy to scale up to major watershed model*
- *HSPF*
- *SWAT*

## **Task Description**

1. Scale up watershed model
2. Scale up economic/social
3. Shift growing patterns
4. Increase diversity
5. Tools to use incentives
6. Examine HSPF and SWAT and determine if additional development needs to be done.
7. Costs

## **Obstacles**

1. Larry - Chuck Regan left their organization, he had the – HSPF Capabilities. Access John Bucher w/ local knowledge
2. HSPF not funded for additional work. EPA may have funding for this.
3. Coordination with small watershed team.
  - a. Additional biology will be challenging.
  - b. Data availability – Data Gaps
4. Trust of public – Especially with the scaling.

## **Resources**

1. Don Hansen, USGS has HSPF experience.
2. Funding to scale up?

## **Sequencing and Duration (Timelines)**

1. Begin this task when we are 75% through small watershed modeling...
2. Est. begin June 2010
3. Est. end date end 2012

## **Responsibilities (Same as previous small watershed)**

1. Judy Sventek, MetC
2. Dave Leuthe, DNR
3. Ann Banitt, USACE
4. Don Hansen, USGS
5. Larry Gunderson, PCA

## **Additional Discussion Notes:**

- *Carbon Credits*
- *Control Drainage Systems, ex gates/ w/in tile system Lateral zoning. Example area study in Illinois. Results: design tile system close gates and maintain moisture. Increased average yield 378 bu/ac*
- *Move to bio fuels*
- *Need for lidar – define depression storage areas.*
- *What type of scenarios do you need to run?*
- *May impact model capability needs*

## **Task 8 – MN River Water Quality Model**

### **Task Description**

1. Evaluate current models and determine if additional models are needed.
2. Needs sediment transport capability (HSPF in-stream capabilities (sim to Qual2))
3. Navigation model
  - a. Factor in large changes in geology
4. Time period to simulate
5. Data needs & data availability
6. ID Reach of concern
7. Time periods of existing models
  
8. HSPF Discussion:
  - a. METC HSPF modeled for 1985-2006 Jordan to the mouth.
  - b. Land Use layer 2000 - Does it need to be updated.
  - c. If different river models are used, linking river models at Jordan.

### **Collaborators or Partners / Responsibility** (same as previous group)

1. MET Council
2. USACE

### **Sequencing and Duration**

1. Set up during small watershed study
2. Similar to small watershed. Staggered and similar.

### **Obstacles**

1. Scaling up with applicable time frames
2. If different river models are used, linking river models at Jordan.
3. Data Availability
4. Funding

## **Task 15, 16– Develop DSS Systems**

1. Reconnaissance -
  - a. What is known at the user community?
  - b. Are there things that the user community needs
  - c. What do they need to help them do their landscape management?  
Engineering Research Development Center (ERDC)
  - d. Define Role under SMART program
  - e. Assume the DSS has been developed to a certain extent at ERDC.
2. List Partners/ Users
  - a. Technology Transfer( DNR, Extension Service, NGOs ...)
3. How to tie in ecology and economics – U of MN
4. Customize and apply DSS to MN River Watershed

### **Collaborators or Partner**

1. Previous List +
2. Dept of Agriculture
3. Local Users
4. US Dept of Ag/NRCS/ Extension Services/ FSA

### **Timeline/ Sequencing and Duration**

1. #1. The “TOOL” needs to be defined
  - i. What do the local users need?
  - ii. May need to happen early in study timeline and continue throughout
2. Customize and Apply DSS to MN Watershed within 1 year
3. Technology transfer to Local Users.
4. Have the DSS complete at the end of the project

### **Responsibility**

1. USACE
2. ERDC
3. All Partners

### **Additional Discussion Notes:**

- *Is a Data Subcommittee Needed?*
  - *Gathering data*
  - *Feeds model (Tiling county roads, removal of wind rows)*
  - *Additional Subgroup for another level of detail in the models*
    - *Grad Students*
- Task 17 LIDAR Collection Contract -RENAME TO- Remote Sensing Data contract
- *FSA is 1 meter summer information – Cannot see soil erosion along banks w/ leaf-on summer imagery.*
- Collect spatial or optical info
  - Surface Elevation
  - Water Component
  - Image

### **Sequencing and Duration**

1. ASAP - As soon as funding comes in.
2. Coarse scale initially for entire basin (i.e. 1 meter resolution)
3. High Res for smaller watersheds (1-foot or better)

**Collaborators/Partners**

1. NOAA, Gamma radiation snow survey ‘
2. Heritage LCCMR
3. USDA
4. USGS
5. NGA
6. USACE
7. U of MN R&D Support
8. Counties
9. MNDOT

**Responsibility**

1. Brian Huberty, FWS

**Obstacles**

1. Funding

***\*\*\* End of Modeling Work Group Breakout\*\*\*\****

## **Planning Breakout Session**

Members:

Dave Leuthe DNR,  
Todd Kolander, MN DNR  
Tony Sullins, US FWS  
John Beckwith, USDA-NRCS  
John Wells, EQB  
Norm Senjem, MPCA  
Susie Carlin, MN River Board  
Craig Evans, USACE  
Jeff Nielsen BWSR  
Pam Taheri, Shakopee Mdewakanton Sioux Community

NOTE: Discussion items are in *Italics*. Group products are in plain text.

## **Task 19 - Strategic Plan for Public Involvement –**

### **Task Description**

1. Public needs to be educated and get involved to get feedback.  
This can be done with public meetings, but need to think of best way to connect with the public and the strategic plan should identify it.
2. Identify target public
  - a. Public meaning people with specific issues such as hunting, local government, those who are focused stakeholders.
  - b. Link to TMDLs study for the list of stakeholders
  - c. Need to focus on people who have a stake in this.
3. Create strategic plan  
List what you want to accomplish, different groups you want to connect with, get the right vehicle for the right purpose.
4. Gather balanced, credible, modeled information that support or not support.

### **Collaborators or Partners**

1. Use PR/education Departments of Land Grant Universities to get public involved, educate them.
2. Tying local planners, focused public groups such as farmers, local elected officials, TMDL stakeholders, and agricultural groups
  - a. Engaging farmers: they have been getting together for many years and have lines memorized for why they don't want change. By making a list of people that can be part of creating a technical expertise group we can utilize them as a decision tool.
  - b. Contact people that take it upon themselves
3. Scott Kudelka – Mankato WRC/Watershed alliance Partner MPCA-TMDL stakeholders.



- a. Scott can be a contact person. He is involved in a news letter. Contents are weekly updates and the news letter is most widely read. It can be used to advertise to the public

### **Additional Discussion Notes:**

- *Contact through the watershed district of people participating in the cost share.*
- *Bob Patten has worked with drainage*
- *Highlight projects on things that have been done, bring in those people to highlight what has been done.*
- *For implementation we need to build a support system.*
- *When we get to a large scale we would want to have a farmer excited about it by getting them involved at the beginning with the smaller scale.*

### **Responsibilities**

1. Susie Carlin MN River Board
  - a. Design a new way to get input
  - b. Contact Scott Kudelka
  - c. Drafting up strategic plan and create a framework and send out for comments.

### **Obstacles**

1. Size of the watershed – people struggle to identify with the size of the watersheds; they want to look at a smaller part.
2. Perception of top-down
  - a. Overcoming skepticism.
  - b. Get people to understand where the implementation came from.
  - c. Have people that might use it to be part of the process.
3. Identifying obstacles – counter it by meetings and challenge to think about downstream.
4. Point out value added in this process
  - a. Garner public involvement.
  - b. Need to convey what public can gain.
5. Accepting skepticism
  - a. Empower the public to convey their skepticism to us. It is a way to have a vehicle for getting around the planning fatigue.

### **Additional Notes:**

- *Start thinking that this is not just the Corps, but it is the people at this meeting, or state and local partnership.*
- *May want to get citizens involved in monitoring. Their data can be used for better modeling.*

## **Task 15,16 - Develop DSS, Deliver DSS, Technology Transfer**

### *Initial Discussion:*

- *How to take the major learning from the project and get people to know how to apply?*
- *We can look at other examples, but it is what we make it and we need to be flexible right now.*
- *Who are the partners to identify the needs? Going back to stakeholders, maybe there is an analogues part on the ecosystem side.*

### **Task Description**

1. Develop DSS
  - a. By defining DSS, and what it is for we can help identify the different users.
  - b. We can assemble a group to have as an intended users, and have them part of developing. They should be localized.
  - c. Identify people responsible that will lead at the beginning and maintain it later. It is part of identifying key stakeholders.
  - d. Offer a draft description of what DSS is to submit it to the larger group and have it as our early product of endorsement. Next step would be to submit to public to get their input.
2. Deliver DSS
  - a. Need to turn it to technical thing instead of political thing.
  - b. Decision Support System should take the modeling events and translate them to real world. Present model results without having to rerun the model.
  - c. There can be multiple models and which ones are best for different goals.
3. Technology Transfer
  - a. Create a support system.
  - b. Once the project is done, the Corps. leave, and the responsibility is transferred to people on the decision support system
  - c. Should have a data center that looks at the results to have neutral check

### **Collaborators or Partners**

1. TMDL stakeholders
2. Technical users
3. Drainage authorities
4. Solicit the partners to get their strategy. If we do it collectively as a government body, we may get a product that is not usable.
  - a. Get their strategy
  - b. Ask how we can get the best value to provide what the users want while allowing for the best water quality improvement.
5. Additionally, need to look at partnership.

### **Responsibility**

1. Dave Leuthe DNR, Jeff Nielsen BWSR, and Norm Senjem, MPCA
  - a. Look at identifying a service center to deliver.

### **Obstacles**

1. Identify the decisions that need to be addressed.
2. We need to have sense of where we are going to end up, feed into decision system, and selection of people involved.
3. Realize that it is a process and is not going to get owned except for the watershed themselves
4. Not an easy support system to run.
  - a. May want to have this as a service that is centralized at first because it is not an easy support system to run
  - b. Identify the system for providing permits.
  - c. Have a system that is the same for all.

### **Additional Notes:**

- *If all works out, this enables people to take the tools identified and see how they will be used in the entire project.*
- *Process and tools for people to identify what part of solution for this problem they are.*
- *DSS process will help identify the real solution we get out of this, to get agreement on the modeling solution*
- *May want to lose the name as DSS, since it is not a robotic process, and define it with a different phrase for purpose of discussing with people outside this room.*

### **Task 10 - Identify Ecologically Realistic Target Future Conditions, Identify System Needs**

#### *Initial Discussion:*

- *Good example is the Minnesota River TMDL study.*

#### **Task Description**

1. One realistic target should be meeting the established target future conditions.
  - a. Should have different things besides turbidity standard.
  - b. Determine what kind of change is needed and we can then determine what goals need to be accomplished.
2. Identifying recovery conditions of R and E species.
3. Look at the upper regions and identify the segments with restoration potential.
  - a. Used to focused on worst watersheds, but up stream people have a good condition with lots of good aquatic life.
4. Find out what is valued
  - a. Determine what stakeholders value and see what they want to see.
  - b. By bringing ecological people, we can show what used to be here. From this information stakeholders can identify what they want and don't want. We can use it to determine some goals.
5. Need to identify the flow in the systems and not only look at ecological but hydrological.
  - a. Look at future potential for the system in terms of changing the hydrology. By not changing hydrology it may evolve to worse conditions.

## **Collaborators or Partners**

1. DNR and PCA
  - a. What are they looking for in the system?
2. DNR Eco Services
3. USFWS

## **Responsibility**

1. Todd Kolander, MN DNR
2. Tony Sullins, USFWS

## **Obstacles**

1. Identifying people that want change.
2. Determining realistic targets.
3. Identifying what is valued.

## **Additional Discussion Notes:**

- *Maybe changing the farming system things may not have to be the way they are now.*

## **Task 9 - Simulate Future Conditions**

### **Task Description**

1. Look at what-if simulations
2. Looking at status quo with no intervention
  - a. Land use changes
  - b. Where are we headed
3. Describe what needs to happen.
  - a. Future land use – urban vs. rural
  - b. Future climate
  - c. Having renewable energy as a factor
  - d. Land use for energy vs. food vs. habitat
4. Identify partners.
  - a. Many agencies have future management plans

### **Responsibility**

1. John Wells EQB

### **Obstacles**

1. Looking at the future may be too abstract. We need answers today and attaining them is a process that may be in itself 15 years.
2. Very drastic changes may need to be implemented in order to change water quality.

3. We need to address what future conditions mean. Is it the conditions as status quo, or the what if...? ”Looking at simulation of change”

### **Additional Discussion Notes:**

- *May want to include economics under inputs into the simulation of future conditions, because people that make the decisions are also economic based. For example cost of water treatment system.*
- *Can't overkill with the future scenarios, but we need to have a few.*
- *Look at urbanization, and passing on the cost to the consumer. Additionally, some externalities that may affect conditions in the future, possible energy future, should be considered.*
- *When looking ahead 50 years, have the potential for change be proportional to the past 50 years.*

### **Task 11 – Select Management Measures to Simulate**

#### **Task Description**

1. If hydrology rules, manage quality by management of quantity. Look at different types of management measures to simulate.
2. Determine the BMPs we should manage.
3. Hydrology not the only simulation we will focus on.
  - a. Land restoration
  - b. Reforestation
  - c. Prairie Restoration,
  - d. Wetland Restoration,
  - e. Cropping Systems
  - f. Land management
4. Determine strategy for selecting measures.
  - a. Make photography of how different landscapes look and have people to react to them – look at current landscape and how it looks with more trees.
  - b. Look at the value of simulating protection.
  - c. Need the outputs of models to see how the different systems have the cumulative effects.
  - d. What practices are people willing to allow to happen on their land
5. Simulations that are not realistic should not be looked at
6. Look at the economic future.
7. Look at the ecosystem future.

#### **Collaborators or Partners**

1. Dean Lempsky – Iowa
2. Bring in other stakeholders from Iowa and other places outside of Minnesota.
3. Leanol B. - South Dakota Drainage Contractors

## Obstacles

1. Risk of not being too conservative in our definition of future conditions.
  - a. Why not look at sensitivity analysis? It would provide boundaries for our system.
2. Grounding ourselves in reality we know that the river basin will be certain type of land use and we can modify it but not completely change.
  - a. Other things like landscape and soils provide a given
  - b. Boiling down to something to more simple: Drainage and land cover. Looking at natural system.
3. Having a graph with Drainage vs. Land cover.
  - a. Changing a landscape will yield a certain amount of quality.
    - i. For example, corn cover will create a certain impact and will have a resulting water quality.
    - ii. Having Prairie grass will create different quality at a certain cost. We need to be able to balance the equation for cost and quality.

## **Wrap-Up - We need to identify people to lead effort for acquiring information for next meeting.**

- *We have assignments to report back on.*
- *These tasks are part of something we will work on even if this effort goes forward or not, but we want to bring these efforts together.*
- *We need to see the value added by connecting our resources.*
- *Right now we have no funding from federal government. If we get funding then the effort will move much more extensively.*
- *Modelers are working on modeling right now, and are going to continue doing so. We can have the focus directing to specific watersheds*
- *By hearing more from modelers, we can see what they are doing and what they need more of.*
- *We need more context for this effort to provide what people at this meeting can benefit from.*

## **Topic for next meeting**

- *We need more perspective for the effort, sell people on this process. For example provide a sample model and how actions on a landscape affect the outcome.*
- *This is an opportunity to help local land managers to learn how hydrology of the system works and how it affects the parameters we are concerned about.*

## **SECTION IV: PLENARY DISCUSSION NOTES**

### **Discussion on Modeling Group Effort**

1. MN Dept of Agriculture – Not here today.
2. Provide SWAT models
3. Norm Senjem – Note Four Small Watershed modeling projects
  - a. This Effort – USACE/ Interagency Effort
  - b. BWSR – Al Kean – Ag Restoration
  - c. EPA – TetraTech for Lake Pepin TMDL to add N to parameters TSS and Phosphorous implementation plan to serve hypoxia issue in Pepin/ Mississippi
  - d. Full Cost Accounting – 2 watersheds on MN River w/ U of MN
  - e. Small watershed, analysis to meet Pepin TMDL – optimal Ecosystem
4. Action Step – Invite chairs of all these MN River watershed efforts.
5. What are the linkages over time?
6. What is the roadmap?
7. Who has the authority to do these studies (Brian Huberty)?
8. Radar –
9. Alaska mapped by 1990 Japanese radar imagery.
  - a. Advantage – once you get it going, you have coverage ongoing. IE Flood extent map every day if you need to. (Satellite based)
  - b. Radar – you get imagery even if it is cloudy. (Why were USACE told not to capture RADAR?)
10. Landsat – you would not see anything during flood event.

### **Discussion on Planning Group Effort:**

1. DSS
  - a. Had trouble to figure out what this would be.
  - b. Much dialogue.
  - c. Define the need for each group. – Reach to stakeholder group.
  - d. What answers do they need? Use that to drive strategy in watershed model
  - e. Development.
2. Obstacle
3. Mgmt on a watershed basis.
4. Task 10
  - a. Realistic ecologic conditions for future conditions.
  - b. Ranges of restoration potential
5. Task 9
  - a. Simulate Future Conditions of Hydrology
    1. Partners – FWS, U of MN, Jon Leading this – Existing plans and resources

2. "Habitat for tomorrow"
6. Task 11-14
  - a. Clumped at end.
  - b. Simulation Process
    1. Fundamentals to different partners...and what buy-in is in this process.
    2. Individual perceptions of process.
7. Must have USACE \$ before we get partners ready to move ahead.
8. Future
9. Population change in x number years
10. Climate change
11. Fed farm bill – subsidies...
12. Lots of things in society are subsidized. What would happen if they were not?
13. Skeptic – Technological BLUF...Overestimate computerized system to take place of human judgment... it never has... Tackle the understanding of DSS
14. Modeling – Skepticism. We do have models that work ex. METC - Effluent limitations on wastewater treatment system.
15. Interface to the world... helps you make a better decision.
16. Ex Google Earth new tool... History of imagery last 20 years.... Crude DSS. But it is an improved DSS... that makes decision process
17. DSS – a bunch of tools that HELPS a user make better decisions. – Informs where to restore wetlands, conservation drainage, to make grants ... Agency decision maker ...
18. Purpose -... to come together is a forum to cooperate and collaboration that we build along the way.
19. What is the end user... County Office, SWCD application, State and Fed level
20. Service Center ... Each county would not be able to operate this. Maybe a specialist...
21. State LMIC- Planning outreach for the whole state. Shell of what they used to be.
22. 1.DSS – have we taken out bias out of the process
23. 2 Takes human elements out.
24. Emphasis this is a tool to make more informed decisions.
25. Hard Rock mining...
26. DSS 2 LGOs each w/ a different vision for the county.
27. Will DSS be a regulatory mechanism? With Strength.
28. Calculate consequences to environment and economy the impacts of the decision.
29. A guideline – That would not be the Corp's intent. It would be informational.



30. We have assignments to report back on.
31. This is something we will work on even if this effort goes forward or not, but we want to bring these efforts together.
32. We need to see the value added by connecting our resources.
33. Right now we have zero funding from federal government. If we get funding then the effort will move much more extensively.
34. Modelers are working on modeling right now, and are going to continue doing so. We can have the focus directing to specific watershed.
35. By hearing more from modelers, we can see what they are doing and what they are needing more of.
36. We need more context for this effort to provide what people at this meeting can benefit from.
37. Topic for next meeting – we need more perspective for the effort, sell people on this process. For example provide a sample model and how actions on a landscape affect the outcome.
38. This is an opportunity to help local land managers to learn how hydrology of the system works and how it affects the parameters we are concerned about.

## Plenary General Discussion after Working Group reports

1. Need to define DSS better, where it's at, where it's going
2. Technological BLUF: Models won't remove the messy human element
3. Example of models helping with management: effluent levels.
4. DSS presents information that helps you make better decisions – change overtime
5. Put DSS up front – Put questions in front of building models
6. Forum to get more collaborative – build work together to answer questions
7. Primary value is collaboration/coordination DSS is one component of this primary value
8. End user is from locals on up including landowners
9. DSS informing management decisions to optimize environment and economy
10. This study overlaps but doesn't duplicate current efforts
11. Have a service center for disseminating – planning outreach
12. If two extremes of system – A: Agency -- B. Individual landowners (decision makers)
13. Is DSS
  - a) Guidelines?
  - b) Regulatory?
  - c) Some strength for making decisions?And how would county use this? DSS might help evaluate consequences in a public accessible way. Won't change authorities just inform them?
14. No new meeting until budget passed from USACE
15. Non-COE tasks from this meeting can move ahead
16. Doodle Poll for conference call on legislative/lobbying-it's already being done
17. Lidar for basin submitted to stimulus package
18. Lessard commission for Lidar?
19. MN River Basin is next priority for state Lidar goals

### **Wrap up by Craig Evans (COE):**

1. We will need to take some time and put the information together and send out notes. There was a lot of good discussion and we will try to make sense of that.
2. We will need more funding to have another meeting. “Waiting for 2009 funding”
3. Identify some priority actions we need to start taking to keep this group energized to continue the task.
4. Once we have an idea of what the baseline is then we wait for the funding. If we get funding we can move on and actually establish public involvement strategy. Address how we will inform decision making.
5. It doesn't have to be perfect the first iteration there will be opportunities to catch some bad assumptions on second or third iteration.
6. Will try to get funding for 2010 at the state level.
7. Funding thing is a large part, but we need to take care of the small things to keep this effort going. This includes some conference calls.
8. For the call we need to come in with ideas of what the lobbying plan should be.
9. Proposal for LIDAR has been submitted by the USACE
10. U of M water quality group plans on appealing to the state for collecting LIDAR and the MN River is a top priority.
11. Set up process for tracking matching funds. John Wells will get back to non-fed partners on this.
  - a. Use MOU's
  - b. Small matches like time at meetings
  - c. Big ones in projects
12. Once budgets are resolved we need to set up project management.
13. Project management plan is fluid and can be changed by simply making adjustments in the text to fit funding.
14. All of this is part of the process of getting where we need to be and we need to examine cost sharing. Get together with locals and where we decide the smaller watersheds will be.
15. Future task for modeling team can be looking at the criteria for smaller watersheds. This is also collaborated with the planning team. It is a planning activity.

APPENDIX A:

PARTICIPANTS

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Minnesota River Watershed Study  
 Interagency Study Team Meeting  
 February 2, 2009

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## APPENDIX B: WORKING GROUP TASK SHEETS

### **Breakout Task: Listing Resources Needed to Accomplish Tasks**

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**Purpose:** To identify the people and other resources needed to accomplish PMP tasks. You are identifying the people best equipped to define the detailed action steps to accomplish the task. They may be from your agency or other contacts. You are NOT tasked here with trying to define every subtask. However, you may need to brainstorm some on what the subtasks are to guide who would be appropriate on the technical teams.

**Steps:**

- Choose your groups support people – facilitator, recorder, reporter, timekeeper
- For each task with an X in the column for the Technical Team you are defining fill in the information for each of the items listed below.
- Use brainstorming for the first pass on each item to get the most amount of information out quickly. Then assess if it needs further refinement
- May assume funds from \$0 - \$300,000 through September. Amount depends on success of communication with funding sources.
- Report back to the Plenary and turn in your report on CD at the end of the meeting.

***Information to include for each PMP Task:***

**Task Description** – a short statement which can be understood by a non-participant reader. You may choose to use the description from the PMP or write your own. The goal is for everyone in the working group to understand the task definition before providing more information to address it. You may want to brainstorm subtasks to help reach that understanding.

**Collaborators or Partners** – who is essential to get the task accomplished and should be on the Technical Team?

**Sequencing and Duration** – Suggested beginning and completion dates for the task.

- Also list specifically any work that has already begun on the task and by which agencies/partners.
- Please list any subtasks your organizations are starting.

*We want to capture what Non-Federal groups are doing on any subtasks so that they can be recognized in the PMP for in-kind contributions etc.*

**Resources**

List each organization's resources in hand available for the task.

List each organization's funding needs for task implementation.

**Responsibility** – who **in the room** is responsible for identifying and coordinating participation of members of their organization in the Technical Team or providing information to the Team? Which tasks are the Corps going to do, FWS do, etc.

**Obstacles** - For example: Specific conflicts in interests of stakeholders or regulatory requirements or lack of local support that may need to be resolved or specific lack of resources preventing accomplishment of the action.