Lower Fox River TMDL "Kick-off" Meeting
Outreach Committee, Ad Hoc Science Team and Technical Teams

Oct 2, 2008, GBMSD Training Center

Attendees: Dean Maraldo– USEPA; Christine Anderson – review and approve TMDL; Rick Stoll –WDNR; Kevin Erb – UW-Extension; Trisha Cooper – UWGB; Rob McLennan – WDNR; Corinne Billings – WDNR; Nick Vande Hey - McMahon & Assoc.; Eugene McLeod – Calumet County LWCD; John Kennedy – GBMSD; Theresa Qualls – UW-Sea Grant; Vicky Harris – UW-Sea Grant; Bud Harris – UWGB; Lisa Evenson – GBMSD; Kendra Axness – UW-Ext; Matt Heckenlaible – City GB Eng; Kelly Mattfield – Earth Tech alt; Dan Cibalka – UWGB Grad Student; Paul Baumgart – UWGB; Val Klump – UW-Milwaukee; Greg Baneck – Outagamie County LCD; Steve Jossart – Georgia Pacific; Kevin Fermanich – UWGB; Steve Galarneau – WDNR Great Lakes ; John Perrecone – EPA GLNPO; Bill Hafs – Brown Co. Land Conservation; Erin Hanson – WDNR ; Mike Finney – Oneida Tribe; Laura Blake – Cadmus Group, Inc.; Nicole Richmond – WDNR; Paul Abrahams– Baird Creek Foundation; Ed Wilusz – Paper Council; Pat Robinson – UW-Ext
Others: Pete McCarthy – GBMSD; Melissa Mroteck & Ken Graves – Georgia Pacific; Paul Wozniak - Fox River Env. Hist Project.

1. Introductions

2. Workplan/Schedule: Laura Blake, Cadmus

Handout: project schedule timeline

- A detailed work plan is posted on DNR TMDL website and this will updated soon (under Phase II) with the new numeric criteria in the appendix: http://dnr.wi.gov/org/water/wm/wqs/303d/FoxRiverTMDL/
- Priority task: finalize geographic scope of the TMDL and Watershed Management Plan (impaired segments on Oneida Reservation). MS4 boundary areas need to be finalized early so modeling is accurate.
- Paul Baumgart is working on fine tune calibration necessary to run SWAT model.
- Cadmus to expand optimization model to include TSS, urban BMPS, and wastewater treatment to guide implementation planning.
- Goal of implementation plan will be to provide the community with a proposed approach and options to meet the TMDL requirements in a cost effective manner. The optimization model will identify the cost effective approach.
- Optimization to be completed for two of the seven watersheds within the Lower Fox Basin and included in the implementation plan. Not yet determined which 2, perhaps one urban and one rural. Timing and budget not available to optimize for the entire basin.
- Items to be resolved: how to include point source and urban BMPs in the optimization model given that SLAMM model was developed for urban areas and SWAT for agricultural. Need to determine how to integrate the two different models.
- Current goal is complete technical items before May 2009. The TMDL must be approved by the EPA in September 2009. To achieve this, Cadmus will work on report throughout process, within the next 2 months the report outline will be finalized.
- There is a lot of work to be accomplished in short time.

2. Lower Fox River Numeric Targets: Nicole Richmond, WDNR

Handout: Lower Fox Total Maximum Daily Load, Numeric Targets for Phosphorous and Total Suspended Solids

- Recognition of work provided by ad-hoc science team listed on bottom of handout.
- Initial targets were developed based on limited knowledge of biological responses in the main stem of the river and tributary streams. The phosphorous targets were changed because DNR management is developing statewide criteria for phosphorous. These new TMDL targets reflect what the DNR is proposing as the statewide criteria except downstream of De Pere dam. Proposed targets for the TMDL include the following: TP: 0.075 mg/L in tributary streams; 0.10 mg/L in Lower Fox River (main stem from Lake Winnebago Outlet to De Pere Dam); 0.12 mg/L in Lower Fox River (downstream of De Pere Dam to Lower Green Bay).
- 0.12 in Lower Fox below De Pere Dam doesn't meet the proposed statewide criteria however site specific criteria can be brought into the state standard when there is an abundance of data, as is the case for the Lower Fox River.
- These targets were designed to increase water clarity for swimming and growth of submerged aquatic vegetation measured using light extinction coefficients and Secchi depth readings.

Discussion:

- Vicky Harris (UW-Sea Grant) observed that the 0.12 mg/L TP target is the concentration of TP in the Lower Fox River in 1988. At that time, there were impairments at this level of TP. We won't be able to delist this AOC based on this target. Suggestion that if substantial impairments remain once the Lower Fox has reached this target the plan could be re-examined. Nicole responded that since we don't know when the statewide rule will be on the books, we have to select the target we best feel that we can meet and then will have to re-evaluate in future.
- John Kennedy (GBMSD) asked if the changes to the TP target changed the reduction scenarios that have already been developed. Paul Baumgart (UWGB) responded that it might, but was unsure since the model had not been run with the new TP targets.
- Greg Baneck (Outagamie County LCD) asked how Duck Creek fit into the targets. Nicole responded that since Duck Creek is a tributary the TP target is 0.75 mg/l and the Oneida tribe has supplied a memo of support for TMDL target. It is a good interim first step.
- Rob McLennan (WDNR) asked what the desired level of water clarity was. Nicole responded that at 1.09 m Secchi depth we should be able to see difference. Currently the Secchi depth is 0.91 m. Theresa Qualls (UW-Sea Grant) noted that in Zone 1 the Secchi depth is closer to 0.5 m, and that it's only when zones 1-2 are combined that the depth is 0.91m. Bud Harris (UWGB) noted that a Secchi depth of 1.09m is equivalent to a light extinction coefficient of 1.66.
- Vicki Harris noted Paul Sager's work on trophic gradient within Green Bay. In the south of the bay there are high nutrient concentrations that drop off as you move from zone 2-3. It's important to recognize that the benefits of improved water clarity will be felt beyond zone 1 into zone 2 and 3 even though some clarity issues may remain in zone 1 of the bay.
- Bud Harris noted that the regression model was based on TP in river mouth as it relates to changes in clarity in zones 1 & 2 combined.
- Rick Stoll (WDNR) asked if a significant change was expected in plant life with that degree of change in clarity. Bud Harris responded that the model estimated the depth of aquatic life

and yes, it makes a significant difference. Nicole mentioned that the outreach team needs to consider how to translate these numbers into language everyone can understand.

- Cadmus is developing before and after graphics for the public. Suggestion to use GIS to show the increase in surface area of the bay exposed to light that hasn't been previously exposed (overhead view).
- Nick Vande Hey (McMahon & Assoc) asked where the TSS targets come from and why the targets for the tributaries were higher numbers than in the Lower Fox River. Paul Baumgart responded that TSS targets are based on the mass/volume of water in given year. This is different from the tributary TP targets as these were based on document by Robinson establishing reference conditions for WI (the same methodology used for determining statewide criteria). For TSS the water coming from Lake Winnebago dilutes the Fox River, bringing cleaner water from the TSS standpoint, and the final target is based on the impact in bay based on light extinction. The differences lie in the methodology used to get to the targets.
- Discussion about what the targets refer to (annual basis or storm events), seasonality of target and yearly variation. Nicole responded that this is question for the technical team to discuss when considering implementation. Also concerns about how long term impacts will be considered in TMDL including: climate, changes in weather patterns, land use changes, growth in basin, and increase in surface area related to population growth. Laura Blake responded that we have not yet talked in detail about how to integrate this into TMDL and margin of safety.
- Dean Maraldo (USEPA) mentioned that TMDLs in MN looked at allocations for storm water & chose to select a 10 yr period since it's not reasonable to think a TMDL is going to survive beyond 10-20 years. He also suggested that perhaps a 3rd watershed might be included in the optimization analysis to capture specific changes (sub-watershed going from agriculture to residential use).
- Bud Harris mentioned the WI initiative for climate change (WICCI), a group in Madison that should have regionalized data with a year's time so that climate change elements (freq rain, etc) can be incorporated into SWAT model. When setting the target it should be recognized that this is interim target. In a dynamic system you can't predict all changes but we can plan for climate change because we know it is coming.
- Dean Maraldo mention that EPA is looking at key watersheds in region 5 with long data records to see if there are any trends for the future and considering how to include land use changes. This analysis could play into the TMDL depending on EPA's results. When asked if Duck Creek is included in this, Dean responded that the watersheds are not yet selected.
- Mike Finney (Oneida Tribe) spoke about urbanization and the need to understand erosion control by looking at loading compared to the percent land urbanized. He mentioned the issues with the SLAMM vs SWAT models and the impact of the clay soils in the region. It's important to know if you need Low Impact Development early so that it can be done up front.
- Val Klump (UW-Milwaukee) noted that the target is missing the calculation of load and was concerned about flux in system. If flow increases in the future, to maintain a target load the concentration of the target goes down. Dean Maraldo mentioned that this will be in TMDL because at the end a daily load is needed.
- Nick Vande Hey asked if the TP and TSS are based on the same flow regime – are both interpreted at Q72 (2 year low flow in 7 day period). This is important; otherwise you are

comparing apples with oranges. Dean Maraldo mentioned that the TMDL can be written for whatever flow you choose based on the watershed, some TMDLS are written monthly or seasonally. Bud Harris noted that the targets are based on restoration of the littoral zone of bay and the target is based on data collected during growing season.

4. Load Duration Curves: Laura Blake, Cadmus

Handout – Draft Load Duration curves for Duck Creek and East River

- Reference on EPA website titled "An approach for using load duration curves in the development of TMDLs" http://www.epa.gov/owow/tmdl/duration_curve_guide_aug2007.pdf
- Load duration curves examine water quality in the context of flow. Pollutant loads are compared with the record of hydrology for a given gage and this provides insight as to when problems occur (low vs high flow events).
- Symbols on the graphs were explained. Instantaneous load = flow multiplied by ambient data.
- Cadmus can prepare load duration curves for all gaged basins (there are 5). Model output for ungaged basins can also be plotted for as many subwatersheds as needed. Targets can be assessed by comparing them with observed and modeled loads. This is used for implementation planning by selecting BMPs that address problems specific to a basin (low flow vs high flow exceendences).
- The East River curve might be considered a function of stormwater in urban environment and implementation planning can consider these curves in relation to land use, slope, etc.

Discussion:

- Context is needed for the measured flows – for example where is one year occurrence high flow, 0% is the highest flow on record but where does this fall, are these small rains or flood events, where is greater than 50% storm flow?
- Precipitation data available through the Midwest climate center might be able to provide dates of 0-10% flows in relation to precipitation itself. They are looking at what % of rains fall into 1, 10, 100 year storms.
- Val Klump asked what was meant by daily. Laura responded that the blue dots represented a load for a given day. If the target load was assessed or based on a daily basis all dots would have to be below the line.
- Vicky Harris noted that the state needs to determine how they're going to interpret their standard and asked what was timetable for implementation. The DNR is moving slowly and talking about how to implement the state phosphorous criteria.
- Dean Maraldo mentioned that TMDLs are usually based and implemented on annual loads. Although EPA has been approving TMDLs based on monthly or annual loads for years a court case determined that TMDLs must be expressed as daily loads. Permits will have to be written to be consistent with TMDL.
- Jim Baumann will be asked to attend a technical team meeting to discuss how the state standards will mesh with the TMDL.
- Data on the curves was from 2003-2007 and not historic data.
- It will be important to inform the public that you are not going to be below the maximum load every day if that's not the case. It depends on pollutant whether you have to meet the load every day, for example if E.coli is the pollutant then you would have to follow standard

each day. The Lower Fox River end result is a desired Secchi depth. You could explain to the public that can have noise around TMDL, but this is desired end goal.

- Kevin Fermanich (UWGB) mentioned that tributaries need to meet some goals as well, another phase will be determining if they attain their use. Pre-TMDL implementation data is important to assess TMDL effectiveness.
- DNR doesn't have statewide process for use attainability analysis. Post TMDL would have to assess if streams can't meet their use given all efforts, then are they reclassified.
- Vicky Harris questioned if streams are on 303d list for other parameters? Nicole responded that TP is listed for DO impairment in the stream and TSS is usually linked with degraded habitat. Nick Vande Hey noted that the East river pollutant is heavy metals and Nicole noted that this TMDL doesn't address heavy metals, though reduction in TSS may help.

5. Status of Outreach & Education Efforts: Vicky Harris, UW – Sea Grant

- Approximately twelve people have been meeting for two years to develop an outreach strategy for Phase 1 & 2, and are now looking to Phase 3 (TMDL Development) of the TMDL and Phase 4 (TMDL Implementation).
- Affected parties and other stakeholders are identified and a series of messages developed that ALL groups need to receive. TMDL success depends on cooperation and collaboration of all.
- Recognition of the abundance of data available and that *MANY* TMDLs are based on much less information.
- In the next phase more focus will be on groups that need to cooperate that aren't going to be regulated (small farms, private individuals).
- Denise Scheberle & Trisha Cooper (UWGB) were contracted to hold facilitated discussions with potentially affected groups (agricultural community, storm water, permitted facilities) to identify issues and hurdles.
- Awaiting results of a separate dairy farmers survey that looked at awareness, practices & attitudes to change. This will help technical team identify practices suitable to farmers. After TMDL implementation could re-survey to determine changes in farmers to assess success of TMDL.
- A fact sheet was developed, the Green Bay Press-Gazette printed a full page report, public information meeting was held and there is intent to look for additional funding sources for future outreach activities.

Kendra Axness, UW-Extension

- UW Extension Lower Fox River Basin has TMDL webpage and another just for the outreach committee with the facilitated stakeholder report.
- Need to match the communications strategy messages with the TMDL timeline. In a meeting 9/22/08 attempted to develop an action plan for the development and implementation phase of TMDL. Specific messages for each audience are not yet available, so the plan selected more general messages.
- Here is a near term to-do list:

1. Updated fact sheet available next week from Cadmus.
2. Vicky Harris to develop story ideas for the Press-Gazette and Appleton Post-Crescent.
3. Fact sheets are to be mailed to rural town board chairs to initiate contact.
4. Rob McLellan is involved in reaching out to legislators since the TMDL will need political support. He will be sending letters to state and federal representatives including the basic fact

sheet, Trisha Coopers newsletter, and an offer to meet on a one to one basis. This will keep them informed as the project gets more publicity and help if they get calls from constituents.
5. Insert fact sheet into the Brown County Land Preservation Ctte. mailing to agricultural producers in November. Check with other counties if there are other similar opportunities.
6. Host "train the trainer" workshops so that others can feel comfortable answering frequently asked questions.
7. Put information in the hands of other environmental groups so they can use it when advocating for their issues.
8. Facilitate 2 sub-watershed stakeholder meetings to make use of optimization results and gain more acceptance to use as an example for other sub-watersheds.

- One consistent result of outreach is that each group feels that they are being singled out. Must build acceptance that everyone contributes to the problem.
- Suggestion to contact small town media and local publications (Wrightstown press, etc) to reach other audiences.
- Outreach committee to have next meeting late in October and will need to be informed of technical group progress as soon as information becomes available.

Discussion:

- State of the Bay report & website, data feeding modeling. Is this being repackaged into fact sheets and is the message getting out there? Bud Harris mentioned that the summary document of the state of Bay might be moved ahead, link to website to get overview.
- Baird Creek urbanization study findings would fit with helping to build support of community.
- John Perrecone (EPA) asked how have things changed in terms of receptivity to the message and getting people involved from the time of the RAP to now? Vicki Harris responded that a public attitude survey completed at the time of the RAP identified uses of the bay. It was redone recently and people still used bay in same way. People recognize that bay is impaired. At the time of the RAP, people were concerned about PCBs and point sources and outreach was done at that time to bring understanding about non-point sources. Now the public understands that nonpoint sources play a key role and that other sources are important as well. Point sources don't always get credit from the public for the work that they've done. Pie charts showing percentage contribution by source will be included in Trisha Cooper's next newsletter.
- Rob McLennan spoke about the better understanding now of the role of education and information. Many of the changes we want we can't require and just providing information isn't enough to get people to change. Need different tools to get change.
- Discussion about Green Bay's new slogan and branding effort, "Better by Bay", and how the outreach committee could incorporate it. Water going to be focus in the future as aesthetics change and gas prices keep people local. Need to get message to people how great this resource is! When people value resource they will change attitude.
- Discussion about NR151 rules. There is a mechanism to require small farms to reduce discharge IF funding available. Bill Hafs (Brown Co. Land Conservation) is working on a buffer program. Buffering concentrated flow channels would go a long way to reaching TMDL goals.

- John Perrecone spoke about the need to use targets from the TMDL to drive delisting of the Area of Concern (AOC) and to apply the same standards and principles so as to blend the 2 programs.
- Dean Maraldo noted that the EPA headquarters is developing national TMDL success stories, the Lower Fox River will be one and a summary posted on EPA website which could be used as part of the outreach package.
- The Fox River Environmental History Project has lots of great information.
- Behavior change to clean up river needs to be tied to a personal investment, Trisha Cooper's work is helping here.

6 & 7 General Thoughts and Discussion

- Pete McCarthy (GBMSD) noted that they are committed to monitoring and improving water quality and also committed to customer's rates. The GBMSD has demonstrated that they can operate at 0.3 mg/l TP but it will take approximately $300M to go from 0.3 to 0.1 mg/L and will impact customer's rates. He was concerned that scarce dollars be applied cost effectively, and about the window for trading and the time between TMDL development and when their permit will require a decrease in effluent. TMDL needs to rigorously identify goals, designate attainable use goals, and develop a protocol for trading.
- EPA strongly encourages trading program. This TMDL unique in that it considers cost benefit analysis.
- DNR phosphorous advisory committee needs to be here so that there's consistent message and to discuss a pollutant trading issue. Previous attempts to discuss trading occurred before the NR151 standards were in place. $300M could go a long way to installing rural BMPs because staffing and cost sharing are needed. Also need a way to monitor the success of rural BMPs, either based on models or water quality. Nutrient management plans and county funds are good examples of programs lacking money right now.