

Lower Fox River TMDL Technical Team Meeting Notes

Date: Oct 24 2008, 9am – 3pm

Location: WDNR Green Bay, Lake Michigan Room

Technical Team Attendees:

Nicole Richmond (WDNR), Rob McLennan (WDNR), Steve Jossart (Georgia Pacific), Kelly Mattfield (Earth Tech AECOM), Matthew Heckenlaible (City of Green Bay), Nick Vande Hey (McMahon), Kevin Erb (UW-Extension), Ed Wilusz (WI Paper Council), Bud Harris (UWGB), John Kennedy (GBMSD), Greg Baneck (Outagamie County Land Conservation), Bill Hafis (Brown County Land Conservation), Eric Cooley (UW Discovery Farms), Dani Santry (Calumet County LWCD), Paul Baumgart (UWGB), Erin Hanson (WDNR), Laura Blake (Cadmus)

Other Representation: Peter Schleinz (Brown Co. Planning, NEWSOC), Mark Hagedorn (Brown County UW-Extension), Brent Petersen (Brown County Land Conservation), John Beckle (Brown County Land Conservation)

1. Welcome & Introductions

- Nicki gave an overview of the Lower Fox TMDL timeline. WDNR told the EPA that the Lower Fox TMDL would probably not be ready for Sept 2009. This committee needs to work to get a draft done by May knowing that there may be a time buffer at the end.

2. Optimization Approach

- Cadmus' demonstration project provided a small scale optimization to determine feasibility of running the model. The optimization model identifies optimal combinations of BMPs to meet loading reduction goals. Paul runs selected scenarios through SWAT to simulate combinations of management options to determine reductions in loading. The optimization model can be run many ways including for: TP & TSS separately, ag alone, urban alone, to reduce costs, or to determine which BMPs can meet the reduction goals regardless of cost.
- Spatial scale: The demonstration project ran optimization for a sub-watershed unit (65 in the LF basin). Currently there is not enough budget or time to optimize for entire LF basin (pg 2 of map handout shows 7 watersheds). At the watershed scale the results wouldn't be as meaningful as at the sub-watershed level because of great variability within the basin.
- Proposal: Optimize for 2 watersheds, Plum Creek (portion of watershed) and East River. East River optimization likely won't account for variability within each sub-watershed (though Paul might be able to do all 17) as it is a much larger watershed with substantial amount of urban land use. It will be a more general optimization to provide information on costs at a larger scale. These assumptions could be applied to the entire Lower Fox basin. This optimization will provide a framework for the future so that after the TMDL is approved additional, specific optimization for implementation planning could be done.
- Handouts: Charts can be used as a tool to evaluate watersheds. It was noted that the pie charts do not include land applications of industrial and municipal wastes. Erin is to compile information available at Green Bay DNR. The SWAT model is calibrated so the phosphorus inputs are accounted for, just not their relative sources and spatial distribution. Laura is to check on legend for maps (no green triangles) and she clarified that yield is the relative magnitude of load given the area that load is coming from.
- Benefits of selecting these 2 watersheds:
 - These two have moderate loadings which will give a better idea of reduction costs compared to watersheds that have little loading (would overestimate cost) or very high loading (would underestimate cost).

- The East River has CAFOs, variation in soils, more variability than Plum, and potential for more stakeholders to be involved.
- Plum Creek has similar soils and sized farms as Bower Creek, is primarily traditional agriculture (some are approaching CAFO size), and similar potential loads to Bower Creek watershed that was used to calibrate SWAT model. Also, Plum Creek hasn't had a priority watershed project yet, so there might be more willing stakeholders to implement the TMDL plan.
- Concerns about selecting these 2 watersheds:
 - Concern was expressed that Plum Creek hasn't been part of verification of data since there was no permanent monitoring station there.
 - The selected watersheds have different topography than the western part of Lower Fox basin which is much flatter.
 - There was discussion whether Apple Creek should be used instead of Plum Creek. Factors that were considered are listed below:
 - Plum Creek:
 - PROS: multiple wastewater dischargers, higher loading, similar soils to East River – more clay
 - CONS: no monitoring station, Kaukauna
 - Apple Creek:
 - PROS: agriculture with urbanizing component – mixed use, permanent monitoring station, moderate loading, geographic balance among urban areas (includes Appleton area), more representative of agricultural areas
 - CONS: few wastewater dischargers, urbanizing

Decision: use Plum Creek and East River for optimization model.

- Suggestions:
 - Push to optimize for 3 watersheds and include Apple Creek as 3rd.
 - The DNR should consider a special project proposal to get funding to monitor Plum Creek for baseline TMDL (fish, macro, TSS, TP, flow) or to continue USGS stations that will not be operating. DNR has until January to propose special monitoring projects in work plan.
 - Some WWTF do discharge into tributaries. Although their load is relatively small they should be included in the optimization so that all stakeholders are reflected.
- It was discussed that empirical data within basins will be needed to assess TMDL effectiveness. Index sites for ongoing water quality and habitat changes will need to be identified. Separate discussion of this topic will have to occur at a later date.

3. BMPs for Implementation/Optimization - Planning

- The technical team was asked to come to consensus on an approach for selecting BMPS. The demonstration report selected BMPs from crop consultant meetings to put into the optimization model. Now is the time to propose other BMPs to model for this TMDL.
- It was mentioned that only using traditional BMPs will not be enough to reach TMDL targets and that new, innovative approaches/technologies should be considered. The BMPs selected by the technical team will not be set in stone and can be flexible as technology advances.
- Staff costs for enforcement and determining compliance need to be included in the final analysis, but separately from cost to implement practice. Cadmus needs the cost to get the process started.
- The size of a farm may change attitudes, the implementation rate, and the cost to install BMPs (CAFOs have potentially different attitudes and ability to pay).
- The cost of installing buffers in Brown County will be \$0. CREP is done, and just regulatory issues and staffing funding requirements remain.

- Alternative BMPS suggested:
 - Dewatering animal waste/Pelletized waste technology – Federal government cost sharing is available for these types of projects but not state cost sharing. Brown County LCD is working on a waste transformation project that takes industrial/farming waste and puts it into a factory, turning it into pelletized product. The technology is currently available. This might reduce phosphorus application to just the land where needed and then farmers could sell the pelletized product.
 - Dane County is taking waste from dairies to a community digester to produce electricity.
 - Alternative cover crops could be forage radish (grow down to 20 deg F and then die off so would not have to spray herbicide to kill cover crop) or wheat (Maryland producers use it but the growing season is longer there).
 - Sediment basins could be used on farms to address TSS.
- Suggestions:
 - Paul could eliminate 25, 50, and 75% of manure from the SWAT model (however we get there, new technology or not) and we will know if this meets TMDL targets.
 - The team needs the cost of building a dewatering plant to compare its costs against the costs of other sources. An Appleton plant has a number of what it costs/gallon to run average dairy manure through their plant, but it doesn't include transportation. Dewatering on site could reduce transportation costs.
 - The team should consider soluble compared to insoluble phosphorus, and how to increase infiltration rather than let phosphorus run off. To build up soil phosphorus might be ok since in this part of WI the top 6" soil phosphorus levels are dropping. In the time around 1995-6 higher manure application with deeper injection may have built up subsoil phosphorus. Now with more shallow application subsoil reserves may be drawn down.
 - The team should look at the BMPS that provide protection during critical runoff events. Load duration curves help identify these critical periods and can identify contribution of different sources depending on what period the loading is seen in.
 - Once the TMDL is written, LCDs will need to have the full range of BMPs available to select from when working with individuals to get reductions for the least cost.
 - The team needs to consider development and maintenance costs of BMPs for both point sources and agriculture.
- Questions:
 - Is there enough storage available to allow incorporation within the time frame specified?
 - Cover crops are active at critical point in time (spring) when large portion of annual load is exported. Impediments to implementing cover crops are: cost (because with traditional cover crops producers have to spray) and the perception that there is delay to plant corn.
 - Do you account for water taken in by the facilities? Georgia Pacific gets credit for discharging less TSS than what is taken in. Pie charts are based on discharge, not net value.
 - Will DNR hold municipalities to their sediment load reduction requirements or will there be wiggle room if they agree to trade? Urban areas will be held to the required "maximum extent practicable" for the first step in reduction. The technical team can look at optimization models to see the costs to get a 40% reduction in TSS. New development will require an 80% reduction of TSS and will be completely separate from old data. SLAMM reports include cost optimization.

Decision:

It would be useful to schedule phone conferences to discuss issues relating to each subgroup of technical team members: agriculture, point sources, and municipalities. These will be scheduled in November and may take the place of the November meeting. Discussion will include

determining the costs for upgrading point source facilities or constructing new BMPs for urban and agricultural sources.

4. Area to be included in TMDL

A Decision was made to include areas on either side of Green Bay that drain directly into lower Green Bay Area of Concern in modeling and the TMDL. This will add some smaller watersheds that had not been previously included on the west shore of Green Bay. Cadmus is to look at mapping potentially restorable wetlands and the current model takes into account existing wetlands.

5. Phosphorus Criteria Update

- A WPDES team in Madison is developing guidance of how to incorporate TMDL allocations into permits. They are considering phased implementation and compliance schedules.
- Jim Baumann will be speaking about the proposed statewide phosphorus criteria at the Lower Fox Partners meeting on December 9th, from 1-3 pm at GBMSD (meeting continues until 4pm). Interested technical team members are invited to attend.
- TMDL targets are consistent with the proposed statewide phosphorus criteria except for the Lower Fox River below the De Pere Dam (TMDL target is 0.12 mg/l, proposed statewide criteria for non-wadeable rivers is 0.10 mg/l). Site specific phosphorus criteria for the Lower Fox River downstream of the De Pere dam may be proposed as part of the rule.
- There was discussion of how the TMDL targets will work with the delisting criteria for the Area of Concern (AOC) since the Fox River is part of the area of concern too. 0.12 mg/l might not be low enough to meet the delisting criteria for beneficial uses and may need to be considered as an interim target for the TMDL.
- Optimization modeling could help the state see the costs of implementing the phosphorus criteria. Legally in a TMDL costs aren't taken into account and implementation is not required, but there is an allocation for each source assigned by the TMDL. It was questioned if a variance process would be included in the TMDL.

5. Other Discussion

- County contacts on the Technical team have a conflict with the December meeting date (12/10). We will use the December meeting to address point source issues and may invite specific people who have treatment option data to attend this meeting.
- There was discussion of urban runoff modeling. SWAT lumps all urban sources together and models it so that loads match observed data. SLAMM runs historic rainfall from 1969 (winter excluded) to simulate a 'typical year'. To make SLAMM data fit with SWAT would need to do run daily precipitation data through SLAMM. There is a need to determine what area is non point urban and what area is point source urban.