



SURFACE WATER QUALITY WORKGROUP
Minutes of November 10, 2016 Meeting
[Supplementary FLW staff notes in bracketed italics]

Attendance

Present:

Workgroup Co-Chairs: Jim Baumann, Dick Lamers

Workgroup Members: Eric Birschbach, Eric Booth, Kenn Buelow, Amy Callis (for Kevin Connors), Jim Coors, Kurt Calkins, Randy Eide, John Exo, Rick Georgeson, Bill Hafs, Jim Hebbe, Matt Krueger, Scott Laeser, Mary Anne Lowndes, Kriss Marion, Amber Radatz, Steve Richter, Rachel Rushman, Scott Sturgul, John Umhoefer, Darin Von Ruden, Laura Ward Good

Facilitator: Pat Murphy

Staff: Jennifer Thieme (recorder), Jim VandenBrook (presenter). *[FLW staff prepared draft minutes based on recorder notes, Powerpoint presentations, audio recording and cited references.]*

Absent: Greg Baneck, Dana Cook, Paul Dearlove, Judy Derricks, Jeff Endres, Faith Fitzpatrick, Greg Fries, Steve Jacquart, Angela James, Karl Klessig, Dave Marshall, Pete Nowak, Randy Poelma, Jessica Schultz, Dave Taylor, Maria Woldt, Paul Zimmerman (co-chair)

Minutes

Minutes of August 23, 2016 Workgroup meeting were accepted without change.

Facilitator Comments

Facilitator Pat Murphy noted the following:

- Workgroup members should feel free to contact Pat if they need more information on certain topics, or if they have thoughts on how to proceed.
- Workgroup members can collectively help to identify key issues and information needs, and shape Workgroup focus and decisions.
- At the last meeting, the Workgroup focused mainly on phosphorus and water quality, and concluded that surface water quality depends on many variables. Although there is some

uncertainty over whether surface water quality is getting better or worse, Workgroup members seem to agree that surface water quality *can* and *should* be improved.

Expert Presentations

Jim Baumann (Retired DNR Water Quality Specialist)

Workgroup Co-Chair Jim Baumann gave a presentation on phosphorus and surface water quality. Some key points:

- Phosphorus (P) is a major pollutant of Wisconsin surface water. Phosphorus fuels aquatic plant and algae growth, which can adversely affect recreation, property values and public health.
- One quarter of the more than 700 Wisconsin water bodies on Wisconsin's "impaired waters" list fail to meet water quality standards due to high P concentrations.
- P discharges come from "point sources," such as municipal and industrial waste treatment plants, as well as "nonpoint sources" such as farm and urban runoff. Some P also comes from natural sources, and from "legacy" concentrations in lake and stream sediments (created by past P loading).
- The relative P contribution from "point sources" and "nonpoint sources" varies widely, depending on land use patterns and the number of "point sources" in a given watershed. "Nonpoint source" discharges are larger overall, but in some watersheds "point sources" are larger contributors. In most watersheds, both "point sources" and "nonpoint sources" are important P contributors. Farms are, collectively, the biggest "nonpoint sources;" but contributions vary by watershed.
- "Point source" dischargers (including livestock operations with 1,000 or more "animal units") must obtain a discharge permit from DNR. A discharge permit establishes discharge limits for relevant pollutants such as P.
- "Nonpoint source" discharges are, by nature, more diffuse and harder to measure than "point source" discharges. There are no permit requirements for "nonpoint sources," as there are for "point sources." But Wisconsin has established soil erosion, nutrient management and runoff control standards for "nonpoint sources" (Wis. Adm. Code chs. NR 151 and ATCP 50).
- P is a natural component of soil, but fertilizer and manure applications increase soil P concentrations. Concentrated manure production can create localized P surpluses. P adheres to soil, and soil concentrations can increase over time (statewide average concentrations have been rising for decades). Soil erosion and manure runoff events carry P to lakes and streams.
- The Wisconsin Department of Natural Resources (DNR) has established water quality standards, including P standards, for surface waters. There are different standards for different water bodies, based on the natural characteristics and uses of those water bodies. For example, there are 5 different P standards for 5 different categories of lakes. There are also different standards for streams, rivers and Great Lakes. Phosphorus standards are typically expressed as numerical concentrations, but there are also relevant narrative standards.
- DNR designates "impaired" watersheds that fail to meet water quality standards, and typically uses "Total Maximum Daily Load" (TMDL) analysis to address key impairments. TMDL calculations estimate the maximum pollutant loads that a watershed can receive without

exceeding applicable water quality standards. TMDLs must be approved by the U.S. Environmental Protection Agency.

- Based on its TMDL calculation, DNR develops a TMDL implementation plan for the watershed. The plan determines discharge limits that will be applied to individual “point source” dischargers, via their discharge permits. The plan may also identify “nonpoint” pollution reduction goals, but there is no comparable permit mechanism to implement those goals. Plans may aim to achieve “nonpoint source” reductions in other ways, such as by promoting farm conservation and urban runoff control practices.
- TMDL plans aim to reduce P loading, and thus P concentrations in “impaired” surface waters, over time. Note that a percentage reduction in P *loading* is not the same as a percentage reduction in P *concentration*.
- In recent decades, we have made significant progress in addressing P loading from “point sources.” Further “point source” reductions will come at increasing marginal cost.
- In many cases, it may be cheaper to achieve “nonpoint source” P reductions than to achieve equivalent “point source” P reductions. But, for a variety of reasons, we have been less successful in reducing P loading from “nonpoint sources,” such as farms. That will be a key challenge going forward.
- Perhaps 10-20% of needed “nonpoint source” P load reductions can be achieved by relatively basic farm conservation practices. Bigger reductions will require more intensive manure and nutrient management strategies, and more long-term practices such as riparian buffers and manure management infrastructure. Progress will depend on reducing local P surpluses (P inputs in excess of crop needs) and P concentrations in soil.

Comments and Discussion by Workgroup Members:

- Workgroup member Scott Sturgul distributed a document entitled *Understanding Soil Phosphorus*.
- The “phosphorus index” has become the preferred method for estimating P runoff risks on farms. Current state nutrient management standards incorporate the phosphorus index. The phosphorus index considers soil P levels, but also considers a variety of other factors that may affect P delivery to surface water. The phosphorus index allows farmers to achieve P management compliance in a variety of different ways. [Note: Free SnapPlus software helps farmers to evaluate their management options, and choose the best ways to achieve compliance on their farms.]
- Livestock operators are becoming more attuned to P management.
- There is limited statewide sampling of P runoff from wood lots (from leaf litter, etc.). But in one Dane County watershed project (Pleasant Valley), the only detectable sediment delivery from woodlots to streams occurred during snowmelt.
- About half of Wisconsin’s streams exceed the P concentration standard for streams (75ug/L), and half of our rivers exceed the P concentration standard for rivers (100ug/L). There is no available summary showing the percentage of waterways that exceed current standards by small vs. large amounts (Jim has agreed to develop such an analysis).

Note: Jim Baumann's Powerpoint presentation can be viewed at <http://wisconsinlandwater.org/programs/food-land-water-project>.

Jim VandenBrook (Executive Director, WI Land+Water)

Jim VandenBrook, substituting for Workgroup Co-Chair Paul Zimmerman, gave a presentation on Wisconsin farm conservation standards. Some key points:

- The Wis. Dept. of Agriculture, Trade and Consumer Protection has adopted conservation standards for all Wisconsin farms (*Wis. Adm. Code ch. ATCP 50*). Among other things, the conservation standards implement “nonpoint source” pollution runoff standards adopted by the Wis. Dept. of Natural Resources (*Wis. Adm. Code Ch. NR 151*).
- These standards require farmers to do all of the following, subject to applicable cost-share requirements:
 - *Maintain a tillage setback from surface waters*, to ensure stream-bank integrity and prevent soil movement to surface water (5-20 feet, as necessary).
 - *Meet tolerable soil loss (“T”) standards* on all fields and pastures.
 - *Have and follow an annual nutrient management plan*, to minimize nutrient runoff (about 30% of Wisconsin farms have plans at this time). The plan must be based on soil tests, and must account for all crops and nutrient sources. Nutrient applications may not exceed UW recommendations, and must conform to federal standards (NRCS 590). Plans must meet a “phosphorus index” to minimize phosphorus runoff risks.
 - *Prevent direct runoff* from feedlots or stored manure to surface water, wetlands or groundwater.
 - *Control livestock access* to surface water or wetlands, in order to maintain vegetative cover and prevent erosion.
 - *Avoid discharging wastewater* to surface water, wetlands or groundwater.
 - *Avoid stacking unconfined manure* within 300 feet of a stream or 1,000 feet of a lake.
 - *Divert water flow* (e.g., from rain gutters) away from feedlots, manure storage areas, or barnyards that are located within 300 feet of a stream or 1,000 feet of a lake.
 - *Construct and maintain manure storage facilities to specified standards*, to prevent leaks, failures and overflows.
- Compliance requirements are normally contingent on an *offer* (not necessarily an *acceptance*) of cost-sharing, but there are some important exceptions. A cost-share offer, if required, must normally cover 70% of compliance costs (there are standard per-acre rates for some practices, such as nutrient management and conservation tillage).
- Cost-sharing is *not* required for any of the following (although it may be offered):
 - Changes needed to bring facilities into compliance with conservation standards that *were already in effect* when those facilities were installed, or when relevant portions of the facilities were last modified.
 - Conservation practices that can be implemented without a significant change to existing facilities or practices.
 - Conservation practices needed to restore, to compliance, land that has gone out of previous documented compliance.

- Ongoing maintenance of a capital improvement (such as a manure storage facility) whose installation was cost-shared.
- Annual practices such as nutrient management, contour farming or cover cropping, which have been cost-shared for at least 4 years.
- Facilities or practices required in connection with a county manure storage permit, a DNR pollution discharge permit (1,000 or more “animal units”), or a local livestock facility siting permit (500 or more “animal units”). Local requirements must conform to state standards.
- Practices installed by a landowner who claims income tax credits under Wisconsin’s farmland preservation program.
- Practices required to remedy a criminal or grossly negligent pollution discharge.
- If a farmer must take more than ½ acre out of production in order to implement a required conservation practice, the farmer’s “cost” is calculated as the sum of the farmer’s annual costs for lost production use over a 10-year period (based on local farmland rental rates). A higher rate may apply to certain riparian land that is kept out of production for at least 15 years.
- Counties are primarily responsible for implementing state farm conservation standards. Counties offer information, cost-sharing and technical assistance. As a last resort, a county may take compliance action against a farmer who refuses to comply with conservation standards.

Comments and Discussion by Workgroup Members:

- A recent Dane County watershed project (Pleasant Valley) suggests that focused implementation of current farm conservation practices can have a significant impact in reducing P discharges. The project achieved a well-documented 55% reduction in P discharges to the Pleasant Valley watershed.
- Is the current farm conservation tillage setback requirement (5-20 ft.) consistent with the current shoreland zoning restriction on clear-cutting trees and shrubs (35 ft.)?
- Farm conservation compliance efforts are hampered by a lack of cost-share funding. *[Note: The State of Wisconsin currently provides about \$7.2 million per year in bond revenue funding for capital improvements such as manure storage facilities and buffer strips (ave. \$100,000 per county), and about \$1.7 million per year for annual practices like nutrient management and conservation tillage (ave. \$24,000 per county). Another \$800,000 is earmarked for state-contracted training and field projects, including \$250,000 for “producer led” projects. Under a new federal-state “adaptive management” program, metropolitan sewage districts and other “point sources” in P-impaired watersheds may also partner with counties to provide cost-share dollars for “nonpoint” P reductions. That could add roughly \$9 million in annual total cost-share funding for the affected watersheds, depending on participation rates. USDA also provides federal cost-share funding to Wisconsin farmers; but federal conservation projects are completely voluntary, confidential, and independently administered by USDA – with only limited county involvement.]*

Note: Jim VandenBrook’s Powerpoint presentation can be viewed at <http://wisconsinlandwater.org/programs/food-land-water-project>.

Kurt Calkins (Columbia County Conservationist)

Workgroup member Kurt Calkins gave a presentation on county implementation of state farm conservation standards. Some key points:

- Wisconsin adopted statewide, mandatory farm conservation standards 15 years ago. Compliance obligations are normally contingent on a 70% cost-share offer (there are some important exceptions).
- Counties are primarily responsible for implementing the state conservation standards. The state provides some cost-share funding, staff funding and technical assistance. State rules spell out basic standards for county programs, but give considerable latitude to counties. Counties are largely responsible for setting their own conservation priorities, although there are some state mandates. In order to qualify for state funding, counties must submit annual land and water conservation plans to the state.
- Different counties take different approaches to farm conservation compliance. They do so, in part, because of wide differences in land use, agricultural practices, water resources, water quality problems, geology, soils, available funding, traditional local practice, and county board support. Some counties might take a more active approach, while others might take a more cautious approach. Some counties struggle to gain priority recognition and financial support for conservation programs. Counties have wide-ranging responsibilities, but staffing is limited.
- Counties generally rely on voluntary farmer participation to implement farm conservation practices. Counties provide information, education, cost-sharing and technical assistance in an effort to achieve voluntary compliance. Compulsory action is rare.
- To date, most counties have achieved only partial compliance with existing farm conservation standards. For example, only about 30% of Wisconsin farms have nutrient management plans, as contemplated by state nutrient management standards. Counties have limited resources for compliance surveys or audits, so there is limited compliance information available.
- Farmers are often unaware of applicable conservation standards and requirements. Counties must often begin with education before they can move to implementation, and that can be time-consuming.
- Counties strive to set conservation priorities, and focus their resources on priority problems. But there are many conflicting demands, and priority initiatives may depend on farmers' willingness to participate.
- Cost-share dollars are limited. But even when cost-share funds are available, some may go unspent because of staffing limitations or lack of participation by farmers.
- Some conservation projects can be quite complex, and can require considerable county technical review and assistance. It is also a challenge to track cost-shared projects, to ensure that they are maintained over time – particularly when there is a change in ownership.
- Counties seldom take formal compliance action against violators. Compliance procedures vary between counties. A county may disqualify a farmer from claiming state farmland preservation income tax credits, but for many farmers that it is not a compelling compliance incentive.

Comments and Discussion by Workgroup Members

- Do we know whether nutrient management planners are doing a good job? Is anyone checking?
 - Nutrient management planners are presumptively qualified if they have certain professional credentials. Farmers may prepare their own nutrient management plans if they complete certain training. DATCP could disqualify a nutrient management planner for cause, but would normally rely on evidence provided by a county.
 - County monitoring varies between counties. Some counties might review all nutrient management plans, while others might only do occasional audits.
- Do we know whether farmers, manure and bio-solids (septage, industrial, and municipal bio-solids) haulers, and fertilizer applicators are actually complying with existing nutrient management plans? Is anyone checking?
 - There has been very limited auditing of nutrient management plan compliance.
 - Counties that have done selective audits have found some significant problems.
- How can lake districts and other interested organizations support surface water quality work?
- Could citizens and farmers collaborate to increase funding and support for conservation practices?
- Good water quality science is important, but it is also important to recognize the need for effective community outreach and education.
- Can we ensure reasonable consistency of implementation among counties, recognizing that local conditions vary significantly from county to county? Farmers would like to have a reasonably “level playing field.”
- Can we get nutrient management planners, county staff, NRCS staff, and other players on the same page, and pulling in the same direction? How?
- Nutrient management planners, who are paid by farmers, are often reluctant to give difficult farm conservation prescriptions that may be needed to protect water quality. How can counties and nutrient management planners work together to address water quality problems?

Small Group Brainstorming

The Workgroup divided into 3 subgroups. Each subgroup was asked to discuss the following questions, and report its ideas:

- Will current programs achieve our water quality goals? Are we making significant progress toward our goals? If not, why not?
- If current programs are not working, what would it take to make them work?
- If current programs cannot work, what alternative approaches would work?

Following the subgroup “brainstorming” sessions, the subgroups noted the following key points (collected, organized and summarized by FLW staff):

Key Challenges:

- We cannot achieve our water quality goals without increasing public and private investments. How can we mobilize the necessary investments? What level of investment are we willing to make? Who should pay?
- We cannot achieve our water quality goals within a reasonable time frame unless we “step up the pace.” Are we willing to do so? What will it take?
- Do we have a clear understanding of what is happening “on the ground” and in the water? Can we do better?
- Do we understand our compliance responsibilities and options? Can we do better?
- Are we focusing on the most serious problems? Are we pursuing the most cost-effective solutions? Can we do better?
- Agriculture is changing rapidly. Farms are getting bigger and more complex. Absentee ownership and lease arrangements are increasing. More conservation compliance tasks are being delegated to crop consultants, manure haulers, farm suppliers and other third parties. Does our current approach address these changes? Can we do better?
- To what extent should we focus on “nonpoint source” vs. “point source” discharge reduction? Farm vs. urban “nonpoint source” reduction? Are we pursuing a fair and cost-effective strategy? Can we do better?
- Can we respect local authority, encourage local initiative, and provide flexibility to address varying local conditions, while ensuring reasonably consistent statewide regulation of our agriculture and food industries?
- Can we mobilize the creativity and resources of private business, including food supply chains, cooperatives, bankers, entrepreneurs, farm supply businesses, and farmers themselves, to achieve conservation goals?
- Can we increase public understanding and support?
- Current water quality goals include P reduction to 75 or 100ug/L, depending on water body; safe and useable waters (no blue/green algal blooms); 20% reduction in N & P in 20 years; and reduction in/protection against aquatic invasive species. Current programs are unlikely to achieve these goals. Are there new ways to achieve water quality goals?
- Can we achieve our water quality goals, while maintaining the competitiveness of Wisconsin’s agriculture and food industries?

Specific suggestions:

- Increase funding and resources for farm conservation compliance, including cost-share funding, staffing, and technical assistance. Consider alternative funding sources. Systematically focus county cost-share spending and compliance efforts for maximum impact.
- Improve coordination between federal, state, county and local conservation compliance programs. Align water quality and conservation compliance plans to achieve priority goals.

Improve information sharing, transparency and public accountability, while respecting the privacy of individual farmers.

- Ensure that every county has a solid, and adequately funded, conservation program. But also identify critical statewide priorities, and focus extra attention and resources on those priorities.
- Focus on key problems and practices that are known to have a big impact. Focus on critical watersheds, and susceptible environments. Focus on large-scale, rather than small-scale, problems.
- Provide generous cost-share and technical support to farmers, but expect accountability. Make sure that counties have adequate compliance tools, and use them judiciously. Monitor to ensure that cost-shared practices are properly implemented and maintained.
- Create new incentives for farm conservation. Consider new tax or financial incentives, or tying conservation compliance responsibilities to existing tax benefits.
- Support producer-led group projects where appropriate. Such projects can play a helpful role in getting other farmers involved, hosting field demonstrations, and sharing information about what works. There are now 15 state-funded producer-led projects underway. Most projects are coordinated with counties or UW-Extension, to help ensure continuity, transparency and public accountability.
- Shift investment from “point source” P reductions to more cost-effective “nonpoint source” P reductions, where appropriate. Wisconsin’s new “adaptive management” program may offer a way to do this, but success will depend on active partnerships between “point source” dischargers, counties and others.
- Use existing permit mechanisms, where appropriate, to address conservation compliance by livestock facilities. Livestock facilities holding a DNR pollution discharge permit (facilities with 1,000 or more “animal units”) or a local livestock facility siting permit (county or local option for facilities with 500 or more “animal units”) must comply with state conservation standards regardless of cost-sharing. Improve compliance monitoring. *[Note: About 25 counties, and a number of towns, have adopted local livestock facility siting ordinances to date.]*
- Encourage a high level of professionalism by nutrient management planners, crop advisors, manure haulers, farm supply outlets and other key players. Improve training, communications and coordination. Trust, but verify by periodic compliance audits.
- Consider ways to “internalize” pollution costs that are currently “externalized” to the public or the environment. Support Wisconsin farms and businesses, but require them to shoulder their fair share of pollution control costs. Consider pricing and other incentives for conservation.
- Survey and monitor water quality and conservation compliance in a more systematic manner, and publicly report key findings.
- Support promising new technology and practices, including manure treatment, manure management and cropping practices, as appropriate. Consider “pilot projects” and demonstrations, then scale-up cost-effective approaches where appropriate. Carefully evaluate feasibility, cost-effectiveness, financing, private market incentives, access, and appropriate public vs. private contributions. Evaluate individual projects in the context of overall water quality and conservation compliance strategies.
- Encourage active partnerships with food industries and supply networks to support farm conservation compliance efforts. Encourage industry funding, price incentives, and other support for farm conservation practices. Consider the potential impact of “consumer push” and

water quality “branding.” Encourage farmer cooperatives to play a more active role in promoting and facilitating conservation compliance.

- Modify current conservation standards as necessary. But focus on effective, practical implementation, not just adding new regulations.
- Consider the extent to which we invest in urban runoff control vs. farm conservation practices.
- Remember that some P is coming from “legacy” sources, and consider ways to address those sources where feasible.
- Increase information and education efforts:
 - Strive for clarity, fairness and accuracy. Use data to convince.
 - Focus information and education in support of water quality and conservation compliance goals. Use information as part of a systematic compliance strategy.
 - Help farmers and their agents to understand their compliance responsibilities and options.
 - Help the public to understand the practical and economic challenges faced by farmers.
 - Boost public understanding and support.
 - Enlist farm, business and community groups.
 - Increase program transparency.
 - Continue to “lift up” positive activities.

Supplemental to the notes above, the following items are taken from lists developed by breakout groups whose purpose was to come up with potential recommendations to address ongoing surface water quality issues. To the extent possible, these items were included in the narrative above but some items may need further clarification to capture the concept properly.

Economic, budget, and financial suggestions:

- More people/resources/money
- Concentrate resources at local level
- Corporate engagement (state level support)
- Farmers get compensated for conservation
- Crop advisors sell conservation and be rewarded for it
- Co-op certificates applied to meet water quality goals
- Market approaches – how do you pay costs for externalities?
- Subsidize monitoring P sensors – national network
- Increased cost-share funding
- Seek alternative funding
- Consumer push

Conservation practice suggestions:

- Increase digesters on farms
- Branding for water quality
- Efficient water use
- Stored rainwater to irrigate crops

- Waste management
- Right form of manure engineering
- Remove manure from farmers' hands, return it at right time under right conditions
- Get rid of animal milk (i.e., indirectly remove a source of contamination)
- Eliminate runoff to streams
- Increase tillage setback
- Leaf management
- Reduce gas emissions
- Sponges into systems
- Permeable pavement
- Perennial corn
- Artificial grass
- Work on smaller areas & build up
- Find unique approach in management of nutrients

Technology and treatment systems:

- Improve performance at metro Waste Water Treatment Plants
- Treat water for everyone
- Use WWT tech to get water from operations "clean enough to drink"

Program and policy suggestions:

- Ensuring permanence of conservation practices via deed restrictions
- Find ways to implement current regulations before adding new
- Increase consistency among implementation to build credibility
- Maintain flexibility to address watershed differences
- Adopt widespread soil health principles
- Tax every drop of water (i.e., directly impact value of water)
- Focus on watershed needs/priorities
- P value on every surface water body
- Continue to "lift up" positive activities
- Start farmers talking w/ other farmers
- Expand producer-led programs and let them drive social pressure to conserve (sense of community)
- Affect renewable portfolio to include WI-generated power

Education and outreach suggestions:

- Encourage implementation at local level, lake associations/private, education by all stakeholders, and community conservation days
- Increase farmers' understanding of NMPs
- Find way to reach uninterested

- Increase accountability, personal/social/emotional investment in programs as opposed to using “sticks”. There is a lack of enforcement of both point and non-point sources.
- Use data to convince
- Speak to the economics of farming: 2 yr hay + 14 yr corn is not financially equal to 8 yr hay + 8 yr corn. Have someone understand these economics and programs to pay for the difference when a conservation practice is implemented. Invite ag/eco economists to the table
- Get people on the water
- Wildlife organization involvement
- Develop social norms for future/social acceptance

Adjournment

By unanimous consent, the meeting was adjourned.