Leadership for Midwestern Watersheds
March 29 -30, 2011
Radisson Hotel La Crosse
La Crosse, Wisconsin
Summary of Meeting Notes

The Leadership for Midwestern Watersheds (LMW) meeting was convened to provide a forum for directors and key stakeholders of watershed-scale projects involving agricultural land management and water quality to compare notes and share lessons. Participants were drawn from the Upper Midwest region (Wisconsin, Minnesota, Iowa and Illinois).

Issues discussed included the goals and design of projects; their implementation; and measuring project results. A breakout session was held to review issues specific to the Mississippi River Basin Initiative (MRBI), through which the USDA's Natural Resources Conservation Service funds watershed projects.

A summary of the discussion of each major subject area follows. The LMW meeting was intended to initiate regular communication among the individuals and groups working to improve land management and water quality throughout the region. Its purpose was to begin the discussion, but not to conclude it. The 27 people who participated in the discussion at La Crosse represented states that collectively have dozens of watershed-scale projects, some of them in operation for over a decade and many others just being started. An objective common to everyone at LMW was to generate from our watershed projects lessons learned that have much broader application throughout the region and the nation. So we had a lot to talk about, and we made a good beginning.

Goals and design: **What should a watershed project try to do? How should it try to do it?**

The projects represented at the LMW meeting are directed primarily at small (HUC-12) watersheds. Many are part of a broader program like the Mississippi River Basin Initiative of USDA-NRCS or The Nature Conservancy's Great Rivers Partnership. Nutrient and sediment runoff from agricultural land is the water quality problem these projects seek to address. Some of the organizations represented at La Crosse, such as Minnesota's Land Stewardship Project, attempt to assess progress on water quality using habitat and biological metrics.

Some projects focus on phosphorus (P) as the pollutant of greatest concern; others, including projects funded by Sand County Foundation in Wisconsin, attempt to address nitrogen (N), and phosphorus in addition to that. This reflects the reality that P is the pollutant of greatest local concern in most of the Upper Midwest, while

N has a greater impact on the saltwater ecosystem of the northern Gulf of Mexico and the hypoxic zone there. N, as nitrate, is also an acute water quality problem in central Iowa.

This was the context for the vision the project directors and key stakeholders tried to outline at La Crosse. In this vision, watershed project goals should be:

- sustainable, adaptive and oriented to local conditions
- based on local involvement of landowners and farm operators, and collaboration among local, regional and government agency partners
- built on a strong scientific foundation, supported by relevant monitoring
- supported by funding sufficient to ensure long-term implementation

Challenges to each of these conditions were noted in the discussion. Goals oriented to local conditions are not automatically consistent with the objectives of major funders, which are often not located in the project area. Collaboration can always become an end in itself, to the detriment of measurable progress toward desired environmental outcomes. Though no one disagreed with the importance of good science, gaps in our knowledge of water quality in the region's watersheds are considerable and water quality monitoring can be expensive.

Several participants noted the value of incentive payments in securing buy-in from farm operators in the watershed, as well as the value of market-based solutions where practicable. One participant observed that watershed projects now operating can't solve water quality problems by themselves, but can provide demonstrations of approaches to rural non-point sources of water pollution that may be more widely applied later.

Project implementation: Key Issues

Participation: Watershed projects depend on the voluntary participation of relevant parties. Obviously, these include landowners and farm operators. For several reasons – including their influence with landowners and farm operators in project watersheds – agribusiness at various levels must often be enlisted as active project participants as well. Still other parties can be helpful as projects develop, depending on local circumstances.

Discussion of securing participation focused on farmers and agribusiness. Some of the discussion dwelt on the usefulness of watershed councils, used in several projects in Iowa. These can be used as an informal advisory committee, a kind of board of directors for a watershed project operator, or a policymaking group that could (for example) establish incentive payment rates for various land management practices. This has actually been attempted in a project in the Maquoketa River watershed in northeast Iowa.

Many of the projects represented at LMW are in an early enough stage that watershed councils have not been formed yet. There was considerable enthusiasm for the concept, however. The development of a core leadership group was thought to be important in identifying the key landowners and other actors in project watersheds, and to sustaining projects once begun. Collaboration with like-minded organizations was one important activity that a leadership group might make easier and more useful.

Rented cropland and non-resident owners: A fact of life in the Corn Belt is the high incidence of rented cropland. Research done at Iowa State University indicates that more than 60% of cropland in some counties in Iowa and Illinois is farmed by renters rather than by landowners (the majority of whom, incidentally, are either retired farmers or the spouses and other relatives of farmers who have left the industry). Some discussion was therefore directed at the problem of whom to engage: the landowner or the farm operator.

This discussion produced no definite conclusions, due primarily to the complexity of the subject and considerable variation in local conditions. A key issue identified by participants was who should be entitled to incentive payments. A possible response to that issue – payments to farmers renting land for adjustments in cropping practices and payments to landowners for structural improvements like terraces or constructed wetlands – was mentioned but not agreed to by everyone.

Yearly changes in the land farmers operated were noted as a potential problem some projects would need to address. The fact that farmers owning or operating land inside a project watershed might also farm land outside it was observed to have been a challenge facing projects that sought to engage farmers through incentives for farm-wide nutrient management planning (NMP), for example the Discovery Watershed projects in western Wisconsin.

Agribusiness engagement: Agribusinesses, particularly crop consultants, were cited by several project directors as effective conduits to farmers. It is generally consultants that write nutrient management plans for farmers in many watersheds in the region, and many of them have specialized training in agronomy that is valuable in assessing problems with over-application of N or P and other misuses of the soil. Crop consultants also have more credibility with many farmers than environmental organizations or government agency personnel.

Crop consultants, nutrient management consultants to livestock operations and other agribusinesses are also key factors in indirect communications with farmers in target watersheds. As one Minnesota project director commented, "never underestimate the power of the coffee shop." How farmers in a target watershed react to proposed projects directed at improving water quality is heavily influenced by what they hear about it from people they know and trust, including

other farmers and business contacts. This is often more important than the initial direct contact with the farmer by the organization operating the project.

Targeting: The LMW meeting discussed targeting at length and in detail. "Targeting" has at least two distinct meanings in the context of watershed projects. First, the selection of a watershed in which to concentrate technical advice and financial assistance (for example, NRCS cost-sharing payments for conservation practices) to farmers implicitly means a reduction in advice and financial assistance available to farmers outside the watershed. This is contrary to tradition established over many years in which soil erosion was the primary problem government conservation policy was intended to solve, and conservation programs were expected to be available to every farmer. The word "targeting," therefore, has a negative connotation for some people in the farm community.

Within watershed project areas themselves, targeting can refer to farms or fields thought to contribute disproportionately to runoff of sediment, N or P. Among project represented at La Crosse, projects funded by Sand County Foundation (in western Wisconsin and the West Branch of the Milwaukee River) take the approach of trying to identify "critical sites" through SNAP-Plus modeling software, reasoning that targeting such sites for nutrient management practices will produce the greatest impact for conservation dollars spent. Some projects sponsored by The Nature Conservancy attempt an approach that emphasizes more intensive work with a minority of farmers in project watersheds. The reasoning is that the relationships built through such work will produce more water quality benefit than less intensive work with a larger number of farmers.

Projects receiving Mississippi River Basin Initiative (MRBI) funding fall somewhat in between these two approaches, as cost-sharing payments for nutrient management practices are made available to farmers who successfully apply for them. The application process is often initiated by the watershed project director, allowing for some targeting of both farmers and fields. MRBI projects, many of which receive funding from other sources as well, were a majority of the projects represented at La Crosse.

Strengths and weaknesses of these varied approaches to targeting were noted during the discussion. Discovery Farms has found that the SNAP-Plus software has not identified critical sites with the clarity expected in its Jersey Valley watershed project in Wisconsin's Driftless region, though the focus on sites may have increased farmer acceptance of the project. Uncooperative farmers can be bypassed by projects that do not depend on getting buy-in from all farmers in a watershed, but this may result in reduced gains in water quality if it turns out that non-participating farms produce large quantities of sediment and nutrient runoff.

Other questions raised about targeting within watershed projects included how to set goals that are realistic and meaningful; who should set project goals; and the relative weight to be assigned to acute and chronic water quality problems.

Measuring Project Results: Monitoring, Modeling, Other Metrics of Progress

Most watershed projects are multi-year projects. To the extent they are directed at improving water quality, they require some means of determining whether progress is being made. The means chosen for one project need to be similar enough to those used in others for the data produced to be comparable. The many variables of weather, landscape management, economic decisions, technology, and project finances make measuring project results a complex and challenging field, a fact reflected in this part of the discussion at La Crosse.

Water quality monitoring and modeling: Water quality monitoring for N and P can establish the existence of a problem, suggest solutions to the problem, and help tell us if progress toward addressing the problem is being made. It can also be very expensive. Water quality monitoring has historically been under-resourced by most levels of government. This fact influences the very first stage of watershed project – the selection of a target watershed – and is a factor in every stage thereafter.

The United States Geological Survey (USGS) provides research-quality data at a cost too high for some projects. Some projects represented at La Crosse rely heavily on USGS; others do not use the agency at all. Iowa Soybean Association has chosen to address the cost of monitoring by building its own water quality laboratory at its headquarters in Ankeny. This solution is not available to everyone.

The amount and cost of monitoring required to assess water quality problems and progress being made toward solving them was the subject of much comment. The importance of funding for monitoring was mentioned several times. One comment stated that this was a policy problem that could be addressed with better coordination among federal and state government agencies. Plans for monitoring through watershed projects' 3 to 5 year project life were cited as valuable. Several project directors stated that monitoring over a longer term was important.

In a positive vein, LMW participants agreed that their respective watershed projects tended to be very good at collecting large quantities of data, and were getting better at lowering the cost of data collection through the use of volunteers. There has been progress made in the use of common concepts and protocols, and among some projects in learning from one another.

One area in which watershed project could improve was said by several participants to be the interpretation of data for different audiences. One project director from Minnesota observed that communicating data to the general, non-farm public required one to "think like a 4th grader." One the other hand, several

participants noted the value of providing data in real time to participating farmers, believing that this helped give them a stake in watershed project goals.

Computer models are used extensively by many watershed projects, particularly to identify problem areas. They have the advantage of being far less expensive than monitoring and hard data collection; they are, by general agreement, more accurate than they used to be. Farmer confidence in predictive models, however, cannot be assumed, making them inadequate as the sole tool to measure progress.

Models useful for one project (for example, the P Index used in some Great Rivers Partnership projects) are unsuitable for others. Projects that emphasize N as well as P, like the Discovery Watershed projects in Wisconsin and the MRBI projects in all four states, need another assessment tool. One comment made pointed out that a model had to be regarded as accurate as a tool both for assessing a nutrient problem caused by agriculture in a watershed and the effectiveness of measures to address that problem, in order to be the basis for water quality trading between upstream farmers and regulated point sources downstream. An in-depth discussion of the technical aspects of various computer models available was deferred until a future meeting.

Another subject raised and citied as worthy of further investigation was the use of social indicators, both as a means of defining the challenges faced by new watershed projects and as intermediate tools for measure progress early in a project's life. For many reasons, including weather variability, so-called "legacy phosphorus" left in soil by farming operations in prior years, and contributions of both P and N by land not in agriculture, data showing the impact of changes in agricultural land management on water quality may not show up for many years. The larger the watershed, the more likely this is to be true. Participants from Iowa noted the value of other measures of progress, as a means of sustaining multi-year projects until changes in water quality could be observed.

Mississippi River Basin Initiative (MRBI)

MRBI is an initiative of USDA's Natural Resources Conservation Service (NRCS), begun in 2009. It provides funding, drawn from EQIP and other NRCS programs, for targeted watershed projects focused on nutrient runoff reduction in the twelve states of the Mississippi River Basin.

MRBI's intellectual origins were in a legislative initiative undertaken during the debate over what became the 2008 Farm Bill. The Discovery Watershed Demonstration Program was intended to show how nitrogen and other runoff from Midwest production agriculture could be reduced through cooperative engagement with farmers, thereby addressing the hypoxic zone in the northern Gulf of Mexico as well as local water quality issues.

Iowa Soybean Association and Sand County Foundation were both heavily engaged in the Discovery Watershed effort, which was not approved by the House-Senate conference committee that determined the final shape of the Farm Bill. Most of the ideas behind the Discovery Watershed initiative were incorporated in MRBI, which is the single largest source of funds in the Midwest for watershed-scale projects aimed at nutrient runoff.

MRBI projects in Iowa, Minnesota, Illinois and Wisconsin were represented in La Crosse, and a special breakout session was included in the meeting agenda to address issues specific to this Initiative. Tom Krapf, Assistant State Conservationist for NRCS in Wisconsin, participated in the agency staff group that developed MRBI and represented the agency's viewpoint.

For NRCS, MRBI shows that the agency is taking the hypoxia problem seriously. The influence of nutrients from agriculture, particularly N, in the yearly appearance of a large "dead zone" of oxygen-depleted water south and west of the Mississippi River's mouth has attracted national and international attention, and interest by the Environmental Protection Agency and some advocacy groups supportive of a regulatory approach to reducing nutrient runoff. MRBI is part of the NRCS response. It is seen, as well, as a means to leverage NRCS spending to attract money from other sources to address water quality issues.

MRBI provides primarily cost-sharing assistance to farmers for the application of conservation practices. Approved MRBI project areas are 12-digit HUC watersheds within 8-digit HUCs designated by NRCS. Experiences with MRBI have varied among the four states represented at La Crosse.

Minnesota project directors reported impressive farmer response to the first sign-up. Having gotten rules on runoff from feedlots from the state government helped with the identification of the appropriate practices. A second MRBI sign-up will emphasize cost-sharing for wetland restoration.

Illinois has some MRBI projects on the ground. Farmer participation is said not to be high as yet. Some difficulties were reported in the allocation of EQIP money to MRBI projects in Illinois, reducing the attractiveness of MRBI project participation to farmers.

Iowa's experience showed a great difference between MRBI projects that built on work already done in the target watersheds and those that could not do so. Pre-MRBI engagement with producers made the process of establishing conservation practices much more effective. Iowa Extension had success in engaging some producers in preparing initial applications for MRBI projects, giving farmers an early stake in the projects' success.

Wisconsin has only two MRBI projects at this point. While one of these quickly obligated more money in cost-sharing payments than it had applied for, many county land conservation departments complained that MRBI provided no funding for project staff or for water quality monitoring.

NRCS has attempted to address the latter problem by establishing edge-of-field monitoring as a conservation practice eligible for cost-sharing payments under MRBI. The agency acknowledges that some difficulties were created by the very short time project directors had to obligate cost-sharing payments in the first project sign-up. The lack of MRBI funding for staff was an issue for many LMW participants, but many project directors at La Crosse were local government employees who had the job of running all or part of a MRBI project included in their overall portfolio.

Some general comments included the view that some farmers and local agency personnel saw MRBI as ordinary EQIP funding under another name, potentially significant because EQIP is not dedicated specifically to improving water quality. Edge-of-field monitoring as a conservation practice was said to be very new both for producers and for local agency staff, who are both still learning. The fact or prospect of regulations such as Total Maximum Daily Loads (TMDLs) for sediment or nutrients was said to be significant in raising farmer interest in MRBI projects in Minnesota.

Eligibility rules for practices appear to be interpreted differently by NRCS from one state to another. MRBI projects in Minnesota, Iowa and Illinois reported conspicuous success in engaging local partners. Shortage of available conservation technical assistance is a common complaint. Short sign-up periods are another, though project directors are aware that NRCS is constrained by the Congressional appropriations process. Some project directors acknowledged that having to commit money quickly made it more urgent to get practices on the ground, at the expense of setting desired environmental outcomes from MRBI projects.

Better communication about projects, their goals and progress toward them was called for. An idea similar to an existing American Farmland Trust program was advanced, involving the use of MRBI funds to offset the risk to farmers of adopting new nutrient management practices. A MRBI project in Dane County, Wisconsin supported financially by Sand County Foundation was cited as an example of how NRCS money could be part of a wider effort to address water quality in areas with farmland mixed with residential and commercial land use. Finally, most participants saw MRBI as a tremendous opportunity, though one with significant issues that need to be addressed.

Next steps

The LMW meeting, intended to be the first installment in an ongoing conversation among the people working on the land to advance the cause of better water quality, ended with a discussion of next steps.

There was positive comment on the La Crosse meeting format and the facilitated discussion approach. Suggestions for future meetings included broadening participation to include agencies like USGS and EPA not represented at LMW, state agencies, farm groups, local college and university experts, influential non-profit organizations like Environmental Defense Fund, and watershed project directors who could not attend this meeting.

With respect to project directors and some state agency employees, the issue of getting reimbursed for travel expenses across state lines was mentioned as significant for any future meeting. Several project directors from Iowa and Illinois were unable to attend the La Crosse meeting for this reason.

The idea of establishing an online collection point for Upper Midwest watershed project summaries and data was discussed. Sand County Foundation offered to host the site. Agenda items for future meetings included how to publicize project results; how to assist struggling projects; how to leverage additional sources of funds to maintain projects; further discussion of targeting and some of the other issues covered in La Crosse; and the implications of MRBI and other watershed projects for the next Farm Bill, scheduled for Congressional action in 2012.

Subsequent to the LMW meeting in La Crosse, some participants have discussed scheduling a follow-up meeting for watershed project directors and other key stakeholders, to be held this fall in Iowa.