Lower Apple River Action Plan

Partner Strategies for Water Quality, Habitat, and Natural Beauty
September 2011

Partner Organizations

Citizen Volunteers
Martells Landing
National Park Service
Polk County Land and Water Resources
St. Croix Basin Water Resources Planning Team
St. Croix County Land and Water Conservation Department
St Croix County Planning and Zoning
St. Croix County Alliance of Sportsman's Clubs
St. Croix River Association
Star Prairie Land Preservation Trust
Town of Somerset
University of Wisconsin Extension
Wisconsin Department of Natural Resources

Sponsored by: St. Croix River Association
Funded by: Wisconsin Department of Natural Resources River Protection Grant
Facilitated by: Harmony Environmental

Contributors

Ted Mackmiller, Citizen Volunteer
Nancy Brown, Martells Landing
Byron Karnes, National Park Service
Tim Ritten, Polk County Land and Water Resources
Jeremy Williamson, Polk County Land and Water Resources
Randy Ferrin, St. Croix Basin Water Resources Planning Team
Robert Heise, St. Croix County Land and Water Conservation Department
David Fodroczi, St Croix County Planning and Zoning
Mike Reiter, St. Croix County Alliance of Sportsman's Clubs
Deb Ryun, St. Croix River Association
Jean Hoffman, St. Croix River Association
Valerie Hogan, Star Prairie Land Preservation Trust
Bill Lawson, Town of Somerset
Larry Rauch, Town of Somerset
John Haack, University of Wisconsin Extension
Marty Engel, Wisconsin DNR Fisheries
Kathy Bartilson, Wisconsin DNR Northern Region
Harvey Halvorson, Wisconsin DNR Wildlife Management
Ruth King, Wisconsin DNR Northern Region
Buzz Sorge, Wisconsin DNR Central Region

Table of Contents

Project Background

Introduction

The Lower Apple River Action Plan was developed by convening a group of individuals representing organizations with an interest in water quality, habitat, and natural beauty of the river. The focus in the box at right guided the project.

The planning process began by sending a questionnaire to invited project participants. The questionnaire gathered information about organizational responsibilities and interests; concern related to habitat, water quality, and impacts of recreation (the original focus for the project); and potential recommended activities to address the concerns. Survey results and concerns identified in comments on the draft plan are included in Appendix D. Background information was compiled from sources identified in the resource list in Appendix C. No original inventory was completed for the plan.

The goals, objectives and action strategies identified in the action plan were developed through a series of four partner meetings held from March through June of 2011. Background information from various resources was used to help focus partner efforts. Goals, objectives, strategies, and recommendations from existing plans and studies were considered during strategy development.

Lower Apple River Project

Our goal is the long-term protection and improvement of the Lower Apple River through partnership-based management. The project will emphasize habitat protection, water quality concerns, and recreational impacts on the river.

Project Objectives:

- ID shared goals
- Develop an action plan

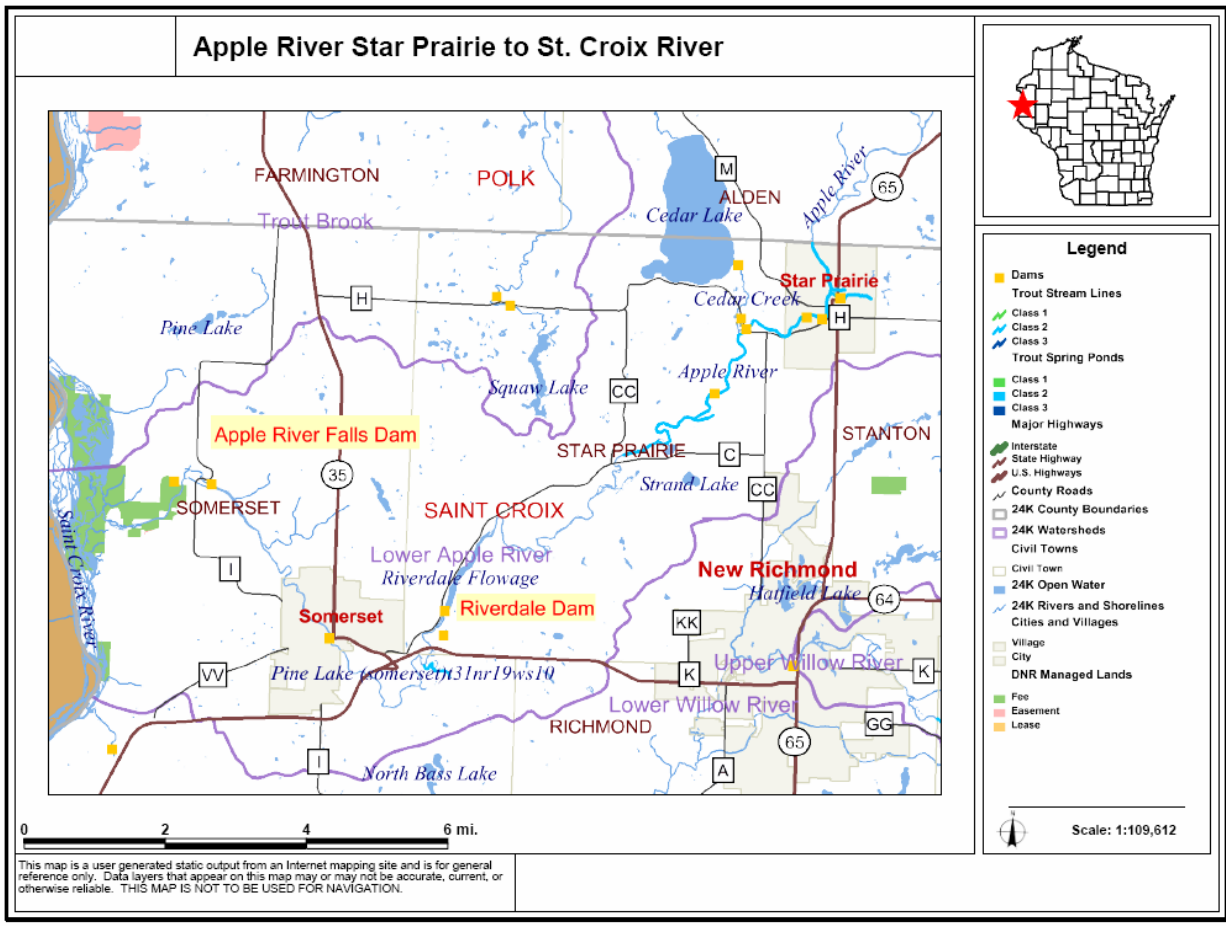
Project Strategy:

- Prioritize resource concerns
- ID opportunities for cooperation
- Use resources and info from previous plans and studies
- Develop framework for working together

Geographic Extent

The Lower Apple River Watershed extends from the dam in the City of Amery to the river's mouth at the St. Croix River. For water quality purposes, the project encompasses the entire Lower Apple River Watershed. The geographic focus for habitat and natural beauty aspects of this project begins where the Apple River crosses St. Croix County HWY C near HWY CC. Development along the river increases at this point where the river is no longer classified as a trout stream. Two dams create flowages in this stretch of river. Heavy recreational tubing begins below the Riverdale Dam and continues into the village of Somerset.

The final two miles of the river are surrounded mostly by protected DNR lands. Periodic heavy algae growth near where the Apple enters the St. Croix motivated this project. This is an area of braided channel backwaters.



Water Quality

The Lower Apple River project partners identified phosphorus loading to the Lower Apple River itself and as a tributary to the St. Croix River as top priorities. Water quality monitoring and planning completed for the St. Croix River provide valuable information. **The recent *Total Maximum Daily Load (TMDL) Lake St. Croix Draft Report* (and previous studies) identified the Apple River as the top watershed contributor of phosphorus to Lake St. Croix.** Lake St. Croix is a wide portion of the river which extends from the City of Stillwater to Prescott. It is a federally listed impaired water. The focus of the TMDL project is to address eutrophication (excess phosphorus) in Lake St. Croix.

Figure 1: Lake St. Croix Subwatershed Phosphorus Loads
(Ranked in order of total load per subwatershed.)

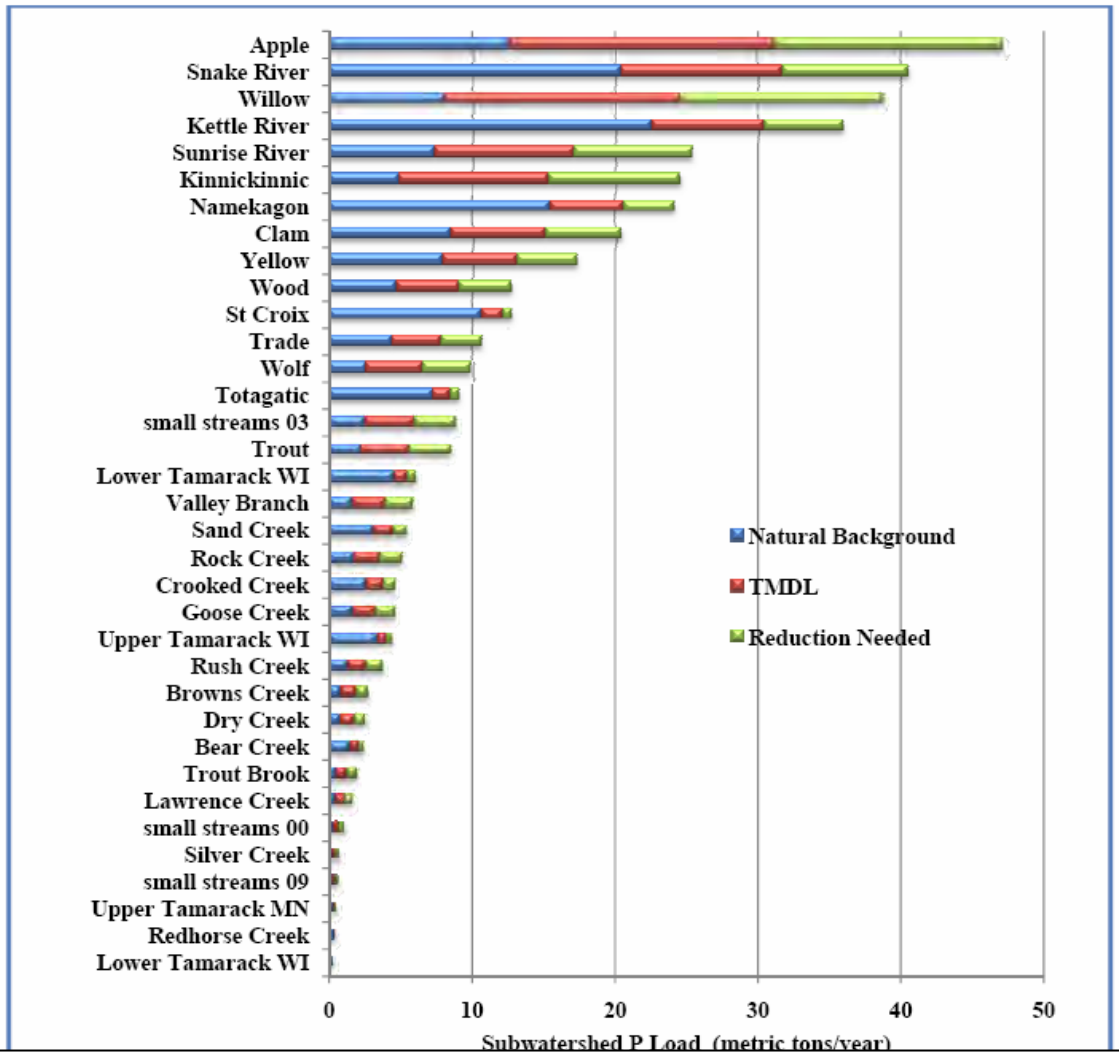


Figure from ***Total Maximum Daily Load (TMDL) Lake St. Croix Draft Report. December 2010.***

The Apple River has a large watershed. When pollutant loading is compared per acre, it becomes the eighth highest contributor of phosphorus to Lake St. Croix and the fourth highest on the Wisconsin side of the river.

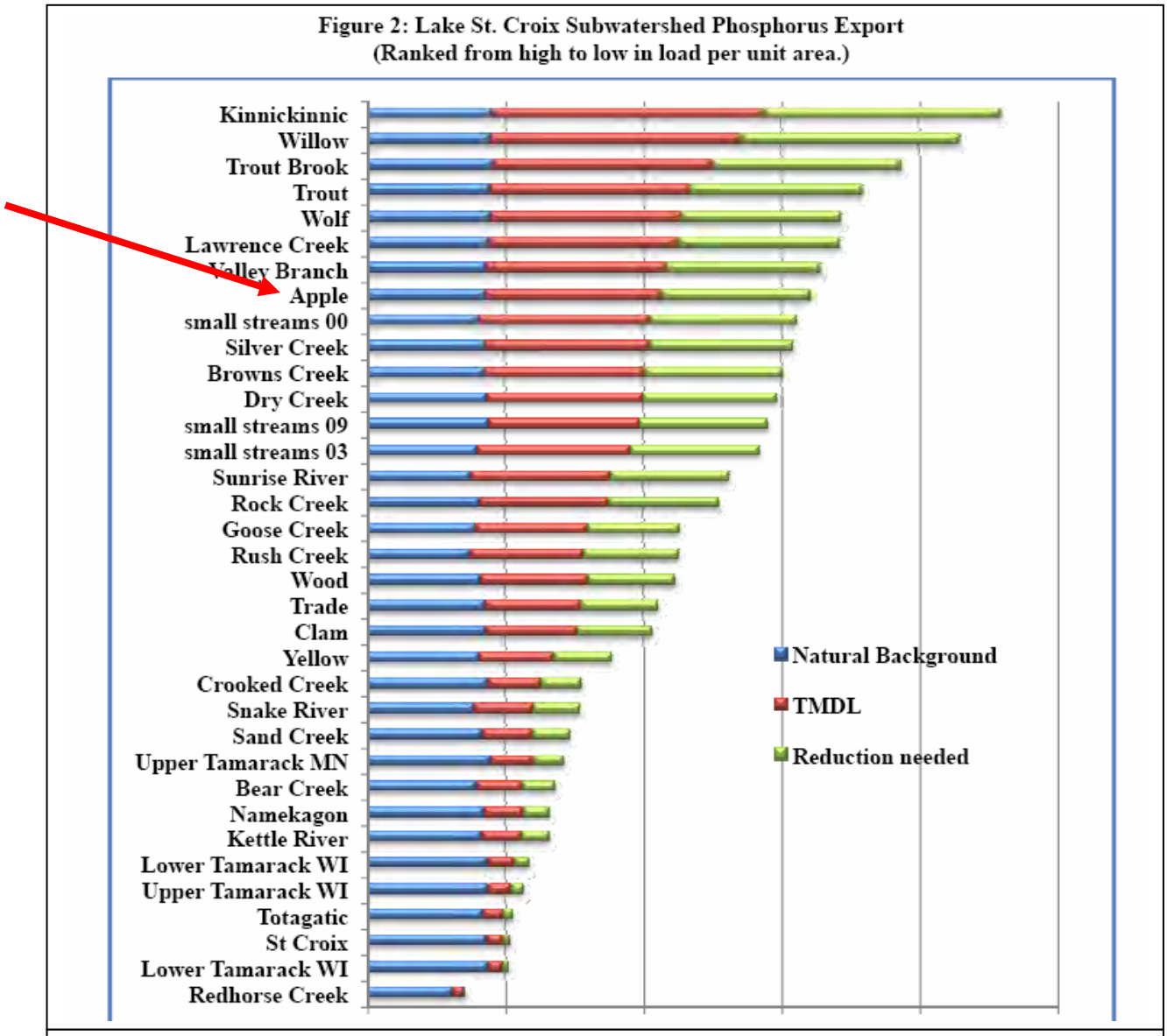
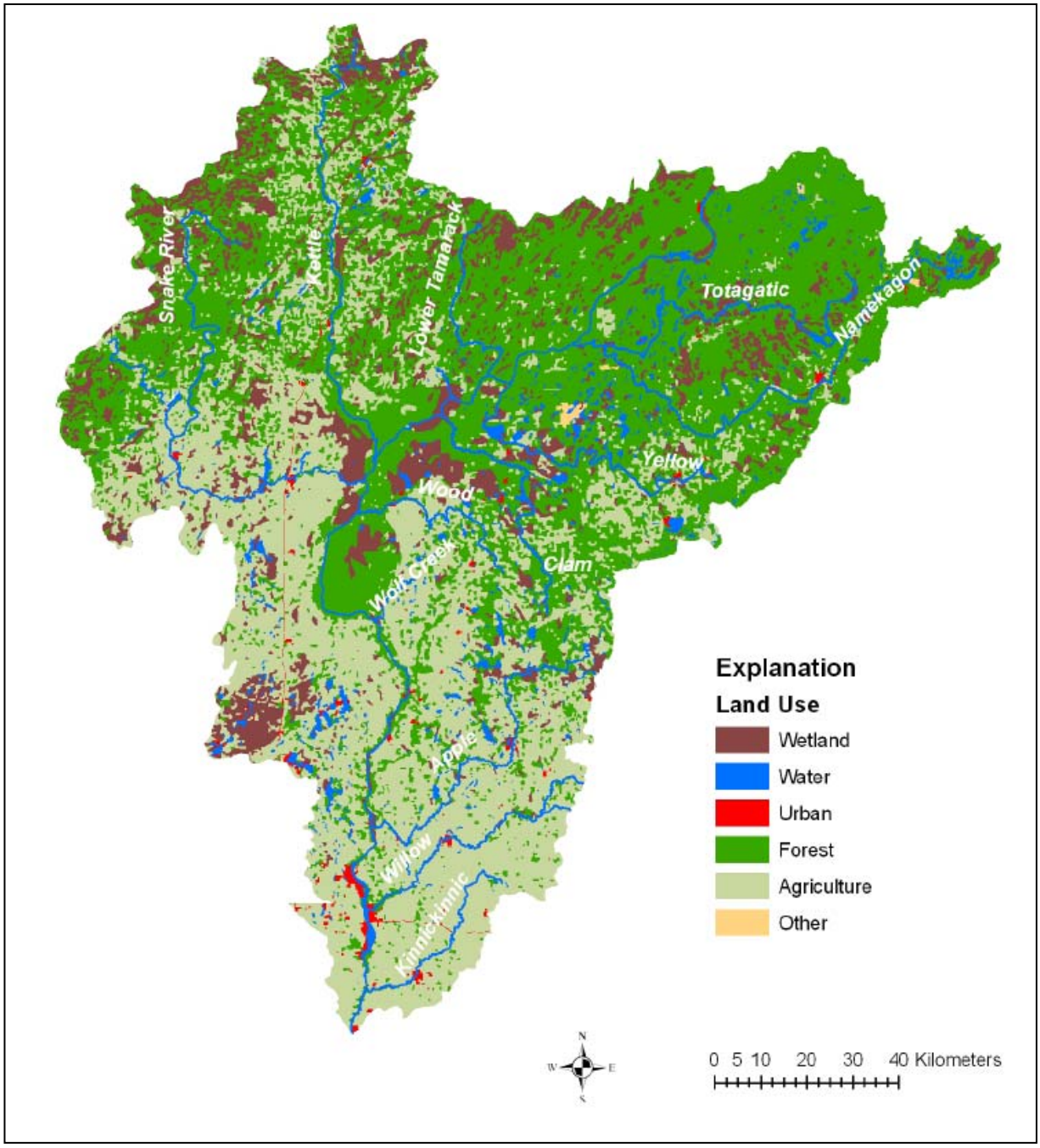


Figure from ***Total Maximum Daily Load (TMDL) Lake St. Croix Draft Report. December 2010.***

Land Use

Land that is urban and/or agricultural use has the greatest potential to negatively impact water quality. These land uses are also where there is the greatest potential to decrease phosphorus loading. Recent estimates of land use are not available for the Lower Apple River. The map below provides general land use information and shows significant agricultural land and scattered small urban areas in the Lower Apple River watershed.[1]



[1] Source: Monitoring Plan for the St. Croix River: 2010.

Monitoring

Monitoring information is limited for the Lower Apple. The *Monitoring Plan for the St. Croix River: 2010* provides a status report and recommendations. Flow is monitored at the Xcel Energy hydroelectric facility at the Apple Falls Flowage dam, and samples are collected about ½ mile upstream of the St. Croix River near the end of Apple River Lane. The National Park Service collects water samples monthly from April through November every other year. These samples are analyzed for dissolved organic carbon, total suspended solids, chlorophyll a, total phosphorus, orthophosphate, dissolved phosphorus, nitrate-nitrogen, ammonia-nitrogen, and total Kjeldahl nitrogen. Transparency measurements are also taken. No other regular water quality sampling or flow measurements on the Lower Apple are known.

The monitoring plan for the St. Croix River also provides recommendations for increased monitoring in the St. Croix and its tributaries. A high priority for the Apple River is to add snow melt and storm event samples because it is during these events when much of the pollutant loading occurs. The most effective way to collect samples from these events is with automated sampling.

Sample results are used to calculate pollutant loads from the tributaries and to calibrate water quality models such as SWAT (Soil and Water Assessment Tool). Models are used to set water quality goals and estimate the impact of implementation of various water quality practices. Several years of data is desired prior to SWAT modeling. To calibrate the model, one to four monitoring sites along the Apple are needed at the following locations: the mouth, separate branches, and impoundment inflows/outflows.

<u>Study of algae blooms on the Lower Apple River</u>

According to the Wisconsin DNR, "Concerns associated with blue-green algae include discolored water, reduced light penetration, taste and odor problems, dissolved oxygen depletions during die-off, and toxin production." In the last several years, there appears to be a more noticeable occurrence of blue green blooms in area lakes and streams.

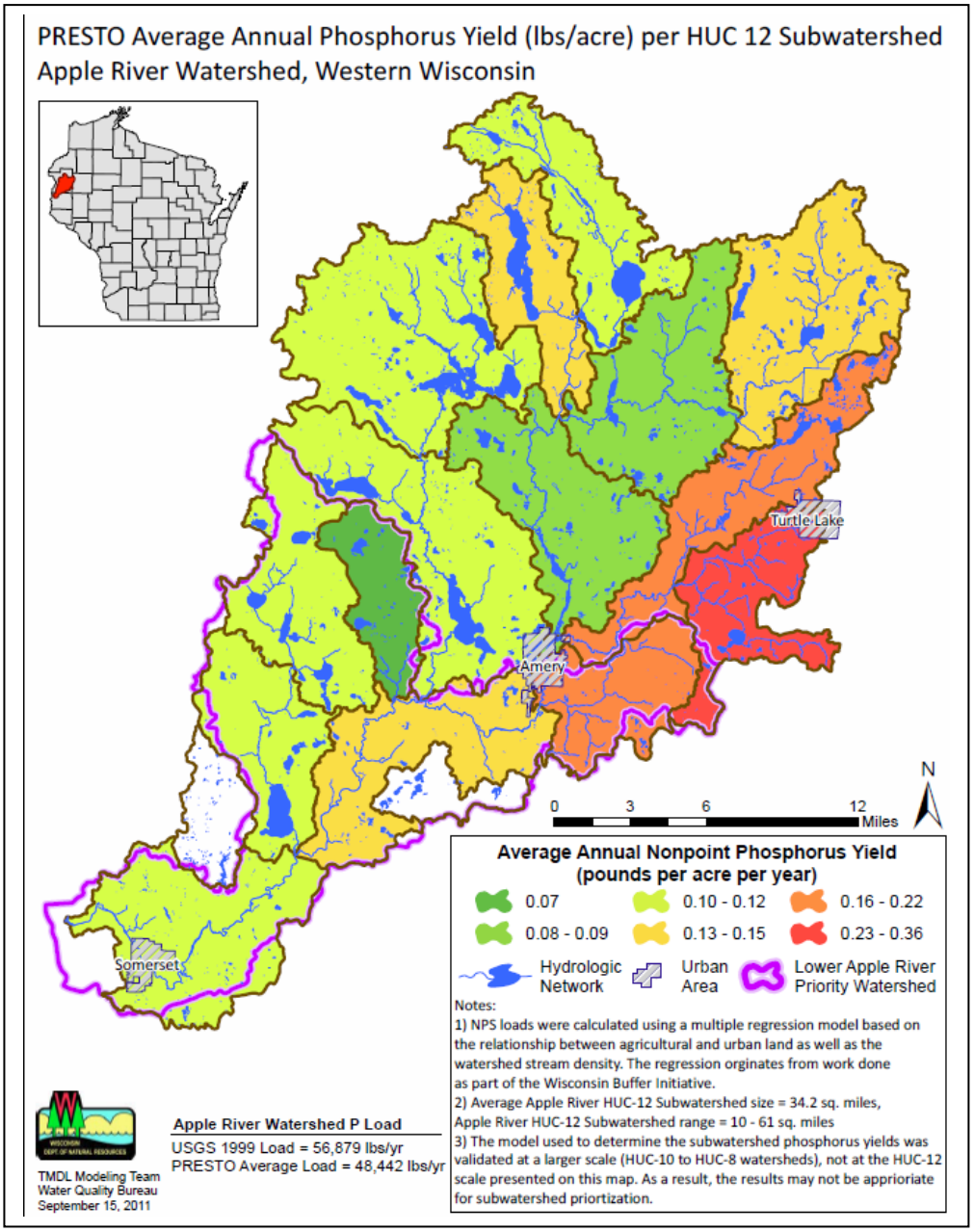
Unfortunately, it may not be a simple matter to separate the effects of upstream backwaters versus the effects of the Apple River on algal growth. These systems are very hydrologically complex alone, and more so together. One objective will be to tease these effects out.

While sediment cores have been done in the Stillwater Islands area, none are known to have occurred below the Apple River. Coring will be another objective

Though there may be issues of eutrophication within Apple River delta, the floating globs of cynobacteria that have been observed in the past few years do not appear to be a new – and have been documented since the 1930's. In a reach of river near a shallow, highly productive backwater area this is perhaps the result of chronic loading and not some acute input into the system. This issue will be explored further. The St. Croix National Scenic River is committed to find funding to studying this important issue. For more background on this issue, see: Zheng and Paul, Effects of Eutrophication on Stream Ecosystems, Tetra Tech, Inc.

Water quality modeling

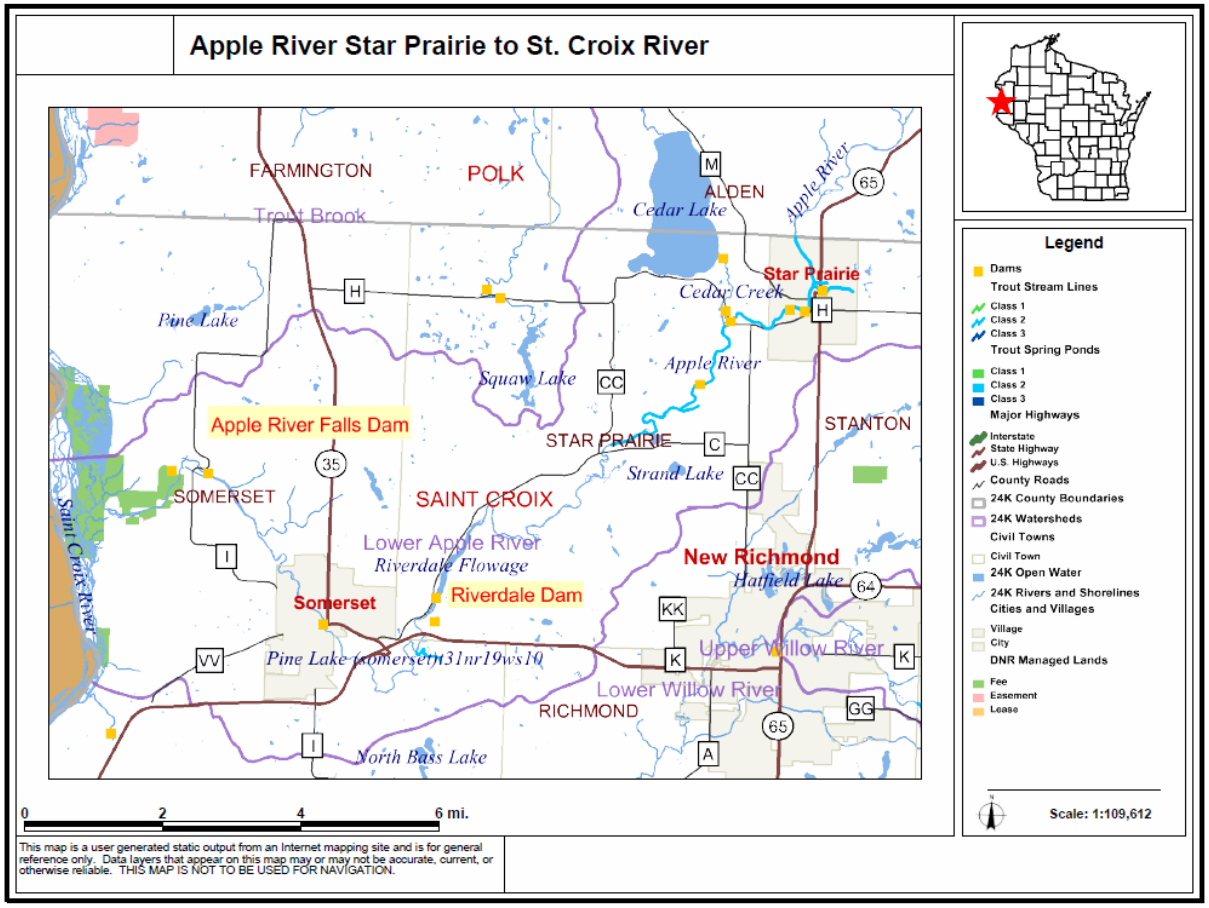
Models provide a means to identify high priority areas with the watershed to focus water quality projects. Wisconsin Department of Natural Resources and other agencies use a variety of modeling tools including SWAT (Soil and Water Assessment Tool), WiLMS (Wisconsin Lake Modeling Suite), PRESTO (to understand point and nonpoint source loads), and Wisconsin Buffer Initiative tools. Results of the Wisconsin Buffer Initiative model are presented in the map below. This map provides a rough cut at potential priority areas for water quality focus. Future modeling tools (to be developed over the next few years) may be able to zoom into smaller grids and allow more precise selection of priority areas.[2] The St. Croix Lakes TMDL implementation plan may help to drive this process.



[2] Adam Freifhoefer, Wisconsin DNR TMDL modeler. Personal communication September 12, 2011.

Habitat

According to Marty Engel, DNR Fisheries Biologist, Apple River in-stream habitat is in relatively good shape.[3] Identified concerns are related to streambank erosion and removal of native riparian habitat. Just downstream from Star Prairie to County HWY H there are a number of highly eroded banks on residential properties. There is one highly eroded bank just upstream of County C in the Apple River Bend Subdivision. The stretch from County Highway C to Riverdale has few problems, perhaps only one eroded bank. There is severe bank erosion where people enter and exit the river for tubing downstream of Riverdale. DNR will sample this area in the fall of 2011 if funds are available.



[3] Personal email communication April 25, 2011 based on an inventory in 1995 and regular observations on the river from Star Prairie to the Riverdale Flowage. Confirmed in an email September 9, 2011 after stream inventory was underway.

Stream Monitoring

Stream monitoring and inventory is proposed to better identify habitat concerns and potential restoration areas. Several methods are under consideration. These will measure in-stream habitat characteristics, areas of erosion, and riparian vegetation.

The Water Action Volunteer program is a potential resource to train volunteers to conduct stream monitoring. Water Action Volunteers (WAV) is a statewide program for Wisconsin citizens who want to learn about and improve the quality of Wisconsin's streams and rivers. The program is coordinated through a partnership between the Wisconsin Department of Natural Resources and the University of Wisconsin – Cooperative Extension. Citizens' groups from throughout Wisconsin are using Water Action Volunteers' sampling protocols to monitor the health of their hometown streams and rivers. They monitor dissolved oxygen, temperature, transparency, flow, habitat, and macroinvertebrates between April and October.

Six parameters are included as part of the monitoring program. Between April and October, temperature, dissolved oxygen, stream flow and transparency are monitored monthly by most WAV citizen monitors. Volunteer monitors also assess the aquatic and streamside habitat by evaluating various parameters and assigning scores, as well as the stream's macroinvertebrate community in four categories of oxygen sensitivity, using a biotic index. These two parameters are generally measured less often; habitat assessments are commonly completed once a year, in the spring, while the biotic index is generally assessed twice a year, once in the spring and again in the fall.

DNR Wildlife Areas

The Lower Apple River is identified in Wisconsin's Wildlife Action Plan (2005-2015) as a "Conservation Opportunity Area" as a Large River Corridor with Continental Significance. Public lands identified in this area include the Apple River Canyon State Natural Area and the St. Croix Island State Wildlife Area.

Apple River Canyon features a deep (100-140 feet), narrow (150 feet) gorge along the Apple River about two miles upstream from its confluence with the St. Croix River. The Apple River is a shallow stream flanked by steep high cliffs on both sides. A cross section of the gorge reveals - from top to bottom - thin layers of glacial outwash and Oneota dolomite (Ordovician), a massive layer of Jordan sandstone (Cambrian), Lodi shale (Cambrian), Nicollet Creek dolomite (Cambrian), and Franconia sandstone (Cambrian). The vegetation is quite interesting due to the nearly east-west orientation of a segment of the gorge, creating north and south walls with contrasting sunlight, moisture, and temperature conditions. On the upland to the north is an oak forest: on the south-facing upper slope a strip of prairie grasses; on the south-facing cliffs a few lichens and mosses; on the lowest talus slope a floodplain forest; on north-facing talus a northern dry-mesic forest; on northern cliffs, cryptograms; and on the upper slope a narrow prairie. Apple River Canyon is owned by the DNR and was designated a State Natural Area in 1978.

St. Croix County Islands Wildlife Area and Apple River Canyon State Natural Area is an 1,135 acre property (mainland, islands, and bed of Rice Lake) located in St. Croix County. The property consists of wetland (St. Croix River), lowland and upland hardwood, and grassland. The St. Croix Islands Wildlife Area officially came into existence in 1946, when the St. Croix County Board sold most of the islands to the WDNR. In 1948, additional islands held by the county were purchased by the state. The total cost to acquire the majority of the wildlife area was $806.71 at this time. The Apple River Natural Area came into existence in 1977 when an additional 235 acres were added to the St. Croix Islands Wildlife Area. The wildlife area is located entirely within the boundary of the Lower St. Croix National Scenic Riverway.

This area was once populated with Sioux, Fox and Chippewa Indians which trapped and riced the backwaters and islands of the St. Croix River. Parts of the wildlife area and the Apple River canyon were logged between 1839-1920. Isolated stands of red and white pine left from this era can still be seen in the canyon. Settlement began in the 1800's along the St. Croix River near Hudson. Early settlers lived by trapping or logging. Later, homesteads sprang up along the St. Croix and on the bluffs above the Apple River. Many of these properties that were once farms are now being subdivided to provide homes for the expanding populations of nearby Minneapolis-St. Paul.

The St. Croix Islands Wildlife Area is located in the Western Prairie Ecological landscape and is identified as a place for large river corridor and floodplain forest community conservation in the Wisconsin Wildlife Action Plan. The property is managed to provide opportunities for public hunting, trapping, fishing, wildlife observation, and other nature-based outdoor recreation. Management objectives include restoring temporary and seasonal wetlands, protection of the ecological gradient from lowlands to uplands along the floodplain corridor, and control of invasive species.

Natural Beauty

The St. Croix County Development Management Plan includes goals, objectives, and policies for protection of rural character and natural resources. These goals are closely aligned with protection of natural scenic beauty. The public identified and prioritized the issues in the Development Management Plan. A comprehensive plan, currently under development, will replace the Development Management Plan.

Implementation of these goals relies heavily upon the use of conservation site design development. This type of development identifies conservation features (including environmental corridors), preserves open space, and maximizes open space views. Environmental corridors identified in the plan include areas around major rivers such as the Apple. Conservation design is accomplished by clustering housing in small rural village-like groups on small lots while setting aside natural areas and other desirable features of the site. Conservation design development is currently allowed in St. Croix County subdivision regulations (Land Division – Chapter 13).[4] However, since the land division ordinance was updated to allow for conservation design, few subdivisions have been created, and only one has used conservation design.

The Town of Somerset Comprehensive Plan also has a goal to retain the rural character of the Town of Somerset landscape and points to conservation site design to implement this goal. Open space development in the town of Somerset allows for two acre lots with a three acre average. Evaluating landscape features is an initial step for open space development. This development fits with conventional zoning standards for the county.

The Town of Somerset Comprehensive Plan points to the importance of the Apple River for the town in its introduction. . .

> *For much of its course through the Town of Somerset, the Apple River is a fast flowing river with occasional moderate rapids. The river traverses the Town of Somerset and is a unique and largely unspoiled waterway. Portions of the river flow through eighty to ninety foot rock palisades on its way to join the St. Croix National Riverway. There is presently considerable interest in creating conservation easements along the river that would be open to the public for low impact activities such as hiking, fishing and picnicking.*

The Lower St. Croix River is included in the National Wild and Scenic Rivers Act. St. Croix County has adopted regulations to protect and preserve the scenic and recreational value of the riverway (Lower St. Croix Riverway Overlay District – Subchapter III.V, Section 17.36).

According to the St. Croix National Scenic Riverway website, the St. Croix River offers clean water gliding past a lush green landscape, with glimpses of a human presence. This river corridor provides a wealth of scenic views and a haven for wildlife near a major metropolitan area.

---

[4] These ordinances are available for viewing on the St. Croix County web site: http://www.co.saint-croix.wi.us/index.asp?Type=B_LIST&SEC={D1648D84-3ECE-4FC7-85BC-D55386B8D210}

Lower Apple River Action Plan

Plan Goals

Understand the sources of algae blooms in the St. Croix River near the outlet of the Apple River.

Reduce watershed loading of phosphorus to the Lower Apple River by 26%.

Improve in-stream and shoreline habitat for fish and other wildlife in and along the Lower Apple River.

Preserve, enhance, and provide opportunities to appreciate the natural scenic beauty along the Lower Apple River.

Partners in the Lower Apple Project

Citizen Volunteers
Martells Landing
National Park Service
Polk County Land and Water Resources
St. Croix Basin Water Resources Planning Team
St. Croix County Land and Water Conservation Department
St Croix County Planning and Zoning
St. Croix County Alliance of Sportsman's Clubs
St. Croix River Association
Star Prairie Land Preservation Trust
Town of Somerset
University of Wisconsin Extension
Village of Somerset
Wisconsin DNR

Partner Commitment

Each partner representative was asked to complete and sign a commitment statement. The statements demonstrate commitment to support the goals of the Lower Apple River Action Plan and identify the strategies in which the partner group or individual plans to participate. The commitment statements are included as Appendix A.

Public Involvement

An open house to inform and obtain feedback from the public will be held in September of 2011. Invitations will be sent to members of local organizations and elected officials. The purposes of the meeting will be to review the action plan, raise awareness of watershed concerns, and to provide positive examples of plan strategies and opportunities for citizen involvement. Citizens will also be given the opportunity to express their concerns and to pledge participation in the action plan.

Plan Implementation

Initial implementation will focus on strategies established as priorities by the partner group or through citizen input. More detailed scopes of work found in Appendix B outline actions for those strategies selected as initial priorities by the partner group. Commitments are especially needed to sponsor and implement these strategies.

Locating the financial and human resources to complete initial priorities will be a critical next step. Funding sources may include existing organization budgets, grants, and private foundations.

Public outreach and involvement will be critical to implementing many of the project strategies.

Plan Review and Update

Project progress will be reviewed and future priorities selected in an annual meeting convened by the St. Croix River Association. This plan is intended to be a dynamic document.

The partner group discussed models of various forms of partnerships which might be used to implement this project. A summary of each including a description, advantages and disadvantages are presented for each in Appendix E. The partner model currently being followed is that of an informal coalition. The St. Croix River Association has committed to facilitate this information coalition – at least initially.

Water Quality Goals and Strategies

Goal. Understand the sources of algae blooms in the St. Croix River near the outlet of the Apple River.

Strategies

WQM 1. Study algae and the nutrients that lead to algae blooms.

- *a.* Existing conditions will be recorded by the National Park Service in 2011.
- *b.* Further study is likely to involve sediment cores to profile phosphorus and date the core.

WQM 2. Monitor water quality in various locations on the Apple River.

- a. Identify objectives for water quality monitoring more clearly.
- b. Use guidance from the 2010 monitoring plan for the St. Croix River, and proposed 2012 Wisconsin Consolidated Assessment and Listing Methodology (WisCALM).

Goal. Reduce watershed loading of phosphorus to the Lower Apple River by 26%.

- *Phosphorus loading is targeted because phosphorus leads to algae blooms.*
- *Activities which reduce phosphorus loading may also reduce sediment deposition and improve aquatic habitat (among other benefits).*
- *Numerical goals may be adjusted as more is learned about the river and its watershed.*

Strategies[5]

WQ 1. **Be involved in the TMDL implementation planning process to guide and fund water quality strategies.**

a. Implement financial, technical, and educational measures of the Wisconsin Nonpoint Source Pollution Abatement program.

b. Encourage federal cost share and incentive programs.

EVALUATION

To be identified in TMDL process.

WQ 2. **Select priority areas/subwatershed using best available models.** Within these priority areas:

- a. Identify more specific target lands: inappropriate practices on vulnerable lands.
- b. Identify and contact decision makers for these properties.
- c. Use local, technically competent, credible technical assistance providers to work cooperatively with decision-makers to develop solutions. Take a farm by farm, field by field approach.

[5] Strategies in bold are identified as initial priorities by project partners. Initial implementation of these priority strategies is outlined in Appendix B.

EVALUATION

- Monitor downstream of these priority areas prior to and after project implementation.
- Track implementation of projects.

WQ 3. Encourage and protect natural green corridors along the Apple River.

a. Conservation easements are one tool that might be used to permanently protect these areas.
b. Owners can also commit less formally to establishing and maintaining permanent native vegetation.
c. Provide assistance for establishing permanent vegetative cover.

EVALUATION

- Identify priorities for protection.
- Track easements installed along the Apple River. Identify characteristics of protected property.
- Record landowner commitments to maintain permanent vegetation.

WQ 4. **Encourage local policies, plans, and ordinances which protect and improve water quality.**

a. Contribute to the development of these by participating in the process.
b. Develop the capacity for local volunteer involvement by providing training and networking opportunities.
c. Assist municipalities in developing local stormwater plans and ordinances.

WQ 5. Develop an outreach and education plan to encourage implementation of water quality projects.

a. Encourage local resident and business participation in projects to protect and improve water quality.
b. Include outreach and education for both urban (residential and commercial) and agricultural audiences.

Habitat Goal and Strategies

Goal. Improve in-stream and shoreline habitat for fish and other wildlife in and along the Lower Apple River.

Objectives[6]
Improve in-stream habitat

No net loss of natural river shoreline

Reduce erosion and sediment from shoreline areas

Strategies

HB 1. Complete inventories to assess existing habitat and the need for improvements.
   a. Bank erosion
   b. Riparian vegetation (including invasive species present)

HB 2. Assess biological indicators and habitat conditions in various locations.
   a. Encourage volunteer participation, participate in, and/or provide training for Volunteer Stream Monitoring through the Water Action Volunteers (WAV) Program.
   b. Use biological and habitat indicators independent of the WAV Program.

HB 3. Complete in-stream, bank restoration, and stream restoration projects including installation of wood habitat.
   a. Offer financial and technical assistance to landowners
   b. Provide information about shoreland zoning ordinances and proper shoreland management options.
   c. Implement control measures for invasive species.

HB 4. Encourage and protect natural green corridors along the Apple River.
   a. See detail in WQ strategy 3.

HB 5. Encourage local policies to manage development and avoid fragmentation of habitat.

HB 6. Be involved in federal farm policy to encourage habitat and water quality incentives. Produce conservation, not commodities.

[6] An objective of increasing the area of designated trout waters was considered, but according to Marty Engel, WDNR Fisheries Biologist, water temperatures are not conducive to trout in our focus area. Trout are supported through stocking upriver, and where present, occur because of springs.

Natural Scenic Beauty Goal and Strategy

Definition

Pleasing views of natural landscapes such as forests, prairies, and waterways and the plants and animals they support.

Goal. Preserve, enhance, and provide opportunities to appreciate the natural scenic beauty along the Lower Apple River.

Objectives

Identify scenic natural areas along the river.

Preserve scenic natural areas.

Restore and enhance scenic beauty.

Encourage appreciation of scenic beauty.

Strategies[7]

NSB 1. Use a variety of techniques to identify scenic natural areas: GIS mapping based, information gathered from citizens (perhaps through a photo contest), etc.

NSB 2. Set aside scenic land and views through acquisition of title or scenic/conservation easements.

NSB 3. Support land use policies and ordinances that preserve scenic natural areas.

- Be involved in county and town planning processes.
- Advocate for scenic natural beauty preservation such as through mitigation requirements and adherence to shoreland buffer standards in updates to the shoreland ordinance.

NSB 4. Provide technical and financial assistance for restoration of native vegetation and other scenic enhancements along the river.

NSB 5. Evaluate best options for access which provides views and allows recreation to encourage appreciation of natural scenic beauty.

NSB 6. Enhance natural scenic beauty through projects which prevent and pick up litter along the river.

[7] Strategies in bold are selected for initial, priority implementation.

APPENDIX A. Commitment Statements

Polk County Land & Water Resources Department

The Polk County Land and Water Resources Department mission statement is to “preserve, protect and enhance our natural resources” and within that broad statement the department is committed to do whatever our financial and personnel resources will allow, in conjunction with the Polk County Land and Water Resources management Plan, regarding water quality improvement in the Apple River.

Specifically the department commits to assist with the development of a comprehensive water quality management plan for the Apple River Flowage, as well as to pursue the development of a TMDL project for the lower Apple River watershed in concert with the St. Croix Basin TMDL Implementation Plan and grant money to conduct large scale cropland soil nutrient evaluation and targeted nutrient management planning in the Horse Creek watershed.

St. Croix Basin Water Resources Planning Team

Protecting Water Quality Through Interagency Collaboration

The St. Croix Basin Water Resources Planning Team (The Basin Team) is an interstate, interagency group formed in 1993 to help protect the water resources of the St. Croix River Basin. Several state, federal, and county agencies, watershed districts, and river-based organizations make up the Team. The Basin Team was responsible for leading an intense monitoring and research effort that led to the Team setting a phosphorus reduction goal for the St. Croix of 100 metric tons per year. Later, the Basin Team was responsible for convincing the States of Wisconsin and Minnesota to agree to a nutrient reduction plan and eventually to list Lake St. Croix as an impaired water due to excessive phosphorus. The Basin Team is currently working on a Total Maximum Daily Load (TMDL) plan for the river along with an Implementation Plan to achieve phosphorus reduction.

To that end, the Basin Team endorses the goals of the Lower Apple River Action Plan. The Basin Team pledges to provide technical review and input on documents, plans, and strategies that are developed through the Lower Apple River Action Plan pertaining to water resources, as requested. Likewise, the Team will actively engage representatives from the Lower Apple River partners group in development of the TMDL for Lake St. Croix, specifically the Apple River portion of the phosphorus reduction plan. Correspondence and requests should be directed to the current Basin Team Coordinator, or the current Basin Team Chair.

Founding Member Agencies:

Minnesota Pollution Control Agency ♦ Minnesota Department of Natural Resources ♦ National Park Service
Wisconsin Department of Natural Resources ♦ and the former Minnesota-Wisconsin Boundary Area Commission

With support by other cooperating members including the U.S. Geological Survey, Metropolitan Council-Environmental Services, St. Croix Watershed Research Station, University of Wisconsin-Extension, U.S. Army Corps of Engineers, St. Croix River Association,
Washington Conservation District, and St. Croix, Burnett, and Chisago Counties

St Croix County Alliance of Sportsman's Clubs

The St Croix County Sportsman's Alliance represents all the outdoor recreational organizations in the County. It works very closely with local, state and federal units of government to promote outdoor recreational opportunities and public education. The Alliance continues to have a dedicated interest in all avenues of conservation efforts implemented in St Croix County.

The Alliance recommends and manages St Croix County Aids Projects which would potentially be used, depending on the scope of the project, to provide funding along with that of other organizations for projects on the Apple River as we have done in the past. Manpower, when and where needed would also be provided. Existing partnerships would be utilized and optimized. Avenues for public relations would be provided through access to newspaper columns, outdoor newsletters and email lists.

Sincerely

Mike Reiter- Sec./Treasurer

St Croix County Sportsman's Alliance

461 Parkview Dr.

New Richmond, 54017

715-246-6643

mikesal@frontiernet.net

St. Croix County
LAND & WATER
CONSERVATION DEPARTMENT

The St. Croix County Land and Water Conservation Department is committed to protect and enhance the water quality of the Apple River and the Lower St. Croix River through the goals and objectives identified in the St. Croix Basin – TMDL implementation plan and our Land and Water Resource Management Plan as long as the department has the required financial and personal resources to do so.

ST. CROIX COUNTY
PLANNING & ZONING

Code Administration
715-386-4680

Land Information & Planning
715-386-4674

Real Property
715-386-4677

Recycling
715-386-4675

MEMO

Date: September 2, 2011

To: Cheryl Clemens, Harmony Environmental

From: Dave Fodroczi, Planning & Zoning Director

Re: Lower Apple River Commitment

The Goals and Strategies of the Lower Apple River Action Plan are consistent with several Goals, Objectives and Policies of the St. Croix County Development Plan (Comprehensive Plan) and related County Land Use Ordinances. As such, the St. Croix County Planning & Zoning Department will:

1. continue to cooperate with ongoing development and implementation of the Lower Apple River Action Plan;

2. continue to recognize the Lower Apple River and adjoining uplands as a Primary Environmental Corridor where multiple, sensitive environmental features are found together;

3. actively enforce and administer St. Croix County Land Use Ordinances for shorelands, floodplains and wetlands associated with the Lower Apple River; and

4. collaborate with the Towns of Somerset and Star Prairie to encourage rural subdivisions within the watershed to consider following conservation design standards for such development.

pz@co.saint-croix.wi.us
St.Croix County Government Center
1101 Carmichael Road, Hudson, Wi 54016
715-386-4686 Fax
www.co.saint-croix.wi.us

St. Croix National Scenic Riverway

The St. Croix National Scenic Riverway, a unit of the National Park System, was created by Congress to preserve protect, restore, enhance and interpret the Riverway's exceptional natural and cultural resources for the enjoyment of present and future generations. Key among these resources are the major tributaries flowing into the St. Croix's waters. The Apple River is a spectacular body of water providing purpose and opportunities as diverse as recreation, animal and plant habitat, and drinking water. As a significant addition to the St. Croix's watershed, the Apple's health ties directly into the current health and future condition of the larger river. By supporting the goals of the *Lower Apple River Action Plan*, the National Park Service and its partners are helping to meet the mission for which the Riverway was established. The Riverway will work with our partners in an ongoing basis, to improve water quality on the Apple River, especially as it relates to the goals stated in the *Action Plan*. The Riverway will try to seek funds to explore nutrient issues related to the Apple and how it relates to the delta within the St. Croix River.

St. Croix River ASSOCIATION

The St. Croix River Association's mission is to protect, restore, and celebrate the St. Croix River and its watersheds. Therefore, the St. Croix River Association recognizes that a new watershed movement is needed on the lower Apple River and commits to help build the capacity and dedication that is critical for protecting the Apple River watershed. The St. Croix River Association (SCRA) commits to help accomplish the four Plan Goals as outlined in the *Lower Apple River Action Plan*. The SCRA commits to help reduce the Apple River watershed loading of phosphorus to the lower Apple River by 26% by helping to implement the Wisconsin Buffer Initiative in the watershed, and be involved in the TMDL implementation planning process. The SCRA commits to be sponsors of future projects and to maintain a management role on a temporary basis until a group, agency, or organization takes over the work that needs to be done. The SCRA will assist in locating the financial and human resources to complete priorities as outlined in the *Lower Apple River Action Plan* and will participate in grant applications. The SCRA will assist with public outreach and involvement, and will help to influence policies needed to protect and improve water quality and to implement Apple River project strategies. The SCRA commits to help bring partners to the table and facilitate discussions to ensure that the above commitments and *Lower Apple River Action Plan* moves forward.

Star Prairie Land Preservation Trust
PO Box 155
New Richmond, WI 54017

Subject: Lower Apple River Action Plan

The Star Prairie Land Preservation Trust supports the goals and activities documented in the 2011 Lower Apple River Action Plan.

Specifically, the Trust will address the Water Quality Strategy WQ 3, "Encourage and protect natural green corridors along the Apple River," related to item "a," through the establishment and management of conservation easements.

The Star Prairie Land Preservation Trust would like to thank the St. Croix River Association, Harmony Environmental, and the Wisconsin Department of Natural Resources for their leadership and funding, and was honored to be a "Partner Organization" during the development of this Action Plan.

Beth Wood

Beth Wood, President
Star Prairie Land Preservation Trust

Formally approved at the July 21, 2011 meeting of the Board of Directors.

Our Mission

Preserve environmentally sensitive land and promote rural character,
while protecting water quality and wildlife habitat for future generations.

Town of Somerset
P.O. Box 248
Somerset, WI 54025-0248
www.townofsomerset-wi.org

The Town of Somerset supports the goals and activities documented in the 2011 Lower Apple River Action Plan. The Town of Somerset is committed to protect and enhance the water quality of the Apple River, thereby improving the water quality of the Lower St. Croix River through the goals and objectives identified for the St. Croix River, provided the Town has the financial resources and personnel available. This commitment was approved at the Town of Somerset Board meeting of September 7, 2011.

Cooperative Extension

John Haack
Natural Resources Educator
University of Wisconsin Extension
Spooner, WI 54801
715-635-7406
715-635-7641
john.haack@ces.uwex.edu
http://naturalresources.uwex.edu

August 30, 2011

Lower Apple River Commitment Statement

The UW-Extension's Regional Natural Resources Program includes a team of Natural Resource Educators located across the state. The educators provide local and statewide education, training, and technical support for environmental and natural resource issues.

The St. Croix Natural Resource Educator is committed to working with the Lower Apple River initiative to provide educational resources, evaluation, group facilitation and technical support within the limitations of his current work load.

Sincerely,

John Haack

UW Extension Natural Resource Educator

Draft

The following is the mission statement of the Department of Natural Resources:

To protect and enhance our Natural Resources - our air, land, and water; our wildlife, fish and forests.
To provide a clean environment and a full range of outdoor opportunities.
To insure the right of all Wisconsin citizens to use and enjoy these resources in their work and leisure.
And in cooperation with all our citizens to consider the future and those who will follow us.

The Department is committed to the protection and enhancement of the fishery, wildlife and water quality of the Apple River as identified in the goals and objectives of the Lower Apple River Action Plan, and the Lower St. Croix River through the goals and objectives identified in the St. Croix Basin – TMDL implementation plan and County Land and Water Resource Management Plans. Technical and financial assistance will be provided to assist with the implementation of the Lower River Action Plan as long as the Department has the required approvals, financial and personal resources to do so.

APPENDIX B. Strategies for Initial Implementation

WQ 1. **Be involved in the TMDL implementation planning process to guide and fund water quality strategies.**

a. Implement financial, technical, and educational measures of the Wisconsin Nonpoint Source Pollution Abatement program.

b. Encourage federal cost share and incentive programs.

Evaluation and Monitoring

To be identified in TMDL process.

Committed Partners

St Croix Basin Water Resources Planning Team (Lead)
Polk County Land and Water Resources Department
St. Croix County Land and Water Conservation Department
St. Croix River Association

Summary

The St. Croix Basin Water Resources Planning Team is currently leading the development of a TMDL Implementation Plan for Lake St. Croix. Lower Apple River partners will participate in the development of this plan which aims to reduce phosphorus loading to Lake St. Croix. Various tools will be used in the implementation plan. Citizen engagement will be crucial in successful implementation of the plan.

Funding

Implementation plan development is funded by Minnesota Pollution Control Agency. Part of the planning process will be to identify and seek funding for the strategies for phosphorus reduction identified in the implementation plan.

WQ 2. **Select priority areas/subwatershed using best available modeling methods.**

Within these priority areas:

a. Identify more specific target lands: inappropriate practices on vulnerable lands
b. Identify and contact decision makers for these properties
c. Use local, technically competent, credible technical assistance providers to work cooperatively with decision-makers to develop solutions. Take a farm by farm, field by field approach.

EVALUATION

- Monitor downstream of these priority areas prior to and after project implementation.
- Track implementation of projects.

Committed Partners

Polk County Land and Water Resources Department
St. Croix County Land and Water Conservation Department
St. Croix Basin Planning Team (technical review)
St. Croix River Association

Summary

An initial map of priority areas is included in this plan. It is based on land use in the subwatersheds. Monitoring is needed to verify priorities. Polk County has completed a watershed project in the Horse Creek subwatershed which is part of the Lower Apple. The county plans to conduct large scale cropland nutrient evaluation and targeted nutrient management planning in this subwatershed. Modeling work backed up by water quality sampling would help to further prioritize areas to focus management efforts.

Potential Funding

? Modeling and monitoring
BMP Implementation

WQ 4. **Encourage local policies, plans, and ordinances which protect and improve water quality.**

a. Contribute to the development of these by participating in the process.
b. Develop the capacity for local volunteer involvement by providing training and networking opportunities.
c. Assist municipalities in developing local stormwater plans and ordinances.

Committed Partners

St. Croix County Planning and Zoning (collaborate with the Towns of Somerset and Star Prairie)
St. Croix River Association (assist with public outreach)
UW Extension Natural Resources (provide education and group facilitation)
UW-Extension – Pete Kling???

Summary

Local residents can have a great influence in protecting water quality by participating in local policy, plan, and ordinance development. The project plan encourages volunteers to participate in these processes and will seek to improve capacity to do so.

Potential Funding

Small scale DNR-planning grant for volunteer workshops

HB 1. Complete inventories to assess existing habitat and the need for improvements.

a. Bank erosion
b. Riparian vegetation (including invasive species present)

Committed Partners
St. Croix County Land and Water Conservation Department
St. Croix Alliance of Sportsman's Clubs
DNR Fisheries (?)

Summary
Monitoring methods will be identified for each item above:

- bank erosion: identify areas of bank erosion with GPS points, estimate extent of erosion and take photographs
- riparian vegetation:
  - identify areas with purple loosestrife by canoe during late July and early August, document locations with GPS points and photographs
  - assess shoreland vegetation compliance with zoning regulations, identify GPS locations where ordinances are violated

St. Croix County may be able to coordinate inventory of bank erosion and riparian vegetation given adequate funding. A summer intern could be used.

Potential Funding
St. Croix County Aids Projects
Star Prairie Fish and Game
DNR River Protection Grants

NSB 1. Use a variety of techniques to identify scenic natural areas: GIS mapping based, gather information from citizens (perhaps through a photo contest), etc.

Committed Partners
(none specifically identified)

Summary

Potential Funding Sources

APPENDIX C. Resource List

Minnesota Pollution Control Agency and Wisconsin Department of Natural Resources. *Total Maximum Daily Load Lake St. Croix Draft Report.* December 2010.

The Nature Conservancy. *Conservation Action Plan for the Lower & Middle St. Croix River*. 2009.

St. Croix Basin Water Resources Planning Team. *Monitoring Plan for the St. Croix River: 2007*.

St. Croix Conservation Collaborative. *St. Croix River Watershed Conservation Priorities Report.* 2006.

St. Croix County Land Information On-line. http://stcroixwi.mapping-online.com/StCroixCoWi/default.htm

St. Croix County Land and Water Conservation Department. *Land and Water Resource Management Plan.* 2009.

St. Croix County Planning and Zoning. *St. Croix County Development Management Plan.* 2000. http://www.co.saint-croix.wi.us/index.asp?Type=B_BASIC&SEC={DBE5085E-D1C8-4739-892F-3036A42CFB55}

St. Croix County Planning and Zoning. *St. Croix County Comprehensive Plan (In process to replace CDMP above)* http://www.co.saint-croix.wi.us/index.asp?Type=B_BASIC&SEC={193869EB-C649-48C6-A778-A6026605796B}

St. Croix County Planning and Zoning. *Farmland Preservation Plan Workshop Results and Final Report.* 2010. http://www.co.saint-croix.wi.us/index.asp?Type=B_BASIC&SEC={BED77BFD-EA74-421F-87E0-08E7115EB1AC}

St. Croix County Planning and Zoning *St. Croix County Land Use Ordinances.* http://www.co.saint-croix.wi.us/index.asp?Type=B_LIST&SEC={D1648D84-3ECE-4FC7-85BC-D55386B8D210}#{D55EBF9E-22BD-4BB8-A1CA-AAA35968FE92}

St. Croix Valley Community Foundation. *Lower St. Croix Watershed Assessment*. 2000.

Town of Somerset, Comprehensive Plan: http://www.townofsomerset-wi.org/compplan.html includes "The Land Use Element": http://www.townofsomerset-wi.org/compland_use.pdf

Wisconsin Department of Natural Resources. *Land Legacy Report.*

Wisconsin Department of Natural Resources. *Webview GIS Mapper.*

Wisconsin Department of Natural Resources. *Wisconsin's Wildlife Action Plan (2005-2015).*

Zheng and Paul. *Effects of Eutrophication on Stream Ecosystems*. Tetra Tech, Inc.

Much of this information is linked on the St. Croix River Association web site:
http://www.stcroixriverassociation.org/resources/links

Appendix D. Partner Questions Results and Comments

Lower Apple River Project Questionnaire Summary

1. Partners Completing Questionnaire

DNR Fisheries, Marty Engel
St. Croix County Land and Water Conservation Department, Bob Heise
Star Prairie Land Preservation Trust, Valerie Hogan
Martell's Landing, Nancy Brown
West Wisconsin Land Trust, Britta Kelly
St. Croix Basin, Randy Ferrin
National Park Service, Byron Karns
St. Croix County Sportsman's Alliance, Mike Reiter
DNR Northern Region, Kathy Bartilson
Polk County Land and Water Resources, Jeremy Williamson
St. Croix County Planning and Zoning, Dave Frodoczi
St. Croix River Association, Jean Hoffman

2. Please describe your organization's or department's primary interests and responsibilities along and in the Lower Apple River and its watershed.

Interests
Fishing
TNE Species
Fishing and Recreational Access
Apple River / St. Croix River Water Quality
St. Croix River Invasive Species
Apple River / St. Croix River Recreation

Responsibilities
Implementation of WQ BMPs
Preservation of Land through Conservation Easements
Environmental Education
Promotion of Outdoor Recreation
Water Quality Studies
Administering Land Use Ordinances

3. Please list existing planning or resource documents related to the river and/or its watershed that you are aware of. Provide source of information and/or digital link if known.

Many sources are listed. Information used will depend upon priorities selected by the partner group.

4. Please list your current priority concerns related to impacts to the Apple River and its watershed in the following areas.

Those suggested for partnership effort are followed by a (P)

Habitat concerns (list)

Protection of Endangered Species Habitat (P)
- Unique Flora along the River

Protection of Wildlife Habitat (P)
- Green Corridors (P)
- Riparian Buffers (P)
- Designated Natural Areas: Apple River Canyon and St. Croix Islands
- Coarse Woody Debris
- Wild Rice
- Sensitive Wetlands

Aquatic Invasive Species (P)
- AIS on Apple River Flowage in Amery
- Purple Loosestrife in Apple River Delta
- Garlic Mustard

Development Impacts
- St. Croix River Bridge Construction
- Subdivision in Environmentally Sensitive Areas: shorelands / rural uplands

Water Quality Impacts on Habitat

Water quality concerns (list)

The Apple River is a watershed in the St. Croix Basin TMDL. (P) Pollutants of concern include: sediment, phosphorous, nitrites

Sources of pollutants
Nonpoint: agricultural and stormwater runoff, shoreland and rural upland development
Point sources
Trash/contamination from tubers

Lack of monitoring info for the Apple – (P - through citizen monitoring)

Lack of advocacy groups

Recreation impact concerns (list)

Impacts of Recreation
Tubing: littering, noise, nutrients, bacteria, bank erosion, increased use
Aquatic Invasive Species introduction
Sediment suspension
Need to encourage respectful use

Limits to Recreation
Lack of/difficult Access: motorized boats, shore fishing (P) (trespass related to lack of access)
Swimming: Algae bloom impacts to swimming
Navigation: AIS and native plants impeding navigation

5. Which of the **concerns** you list above could be addressed most effectively by cooperative efforts of a partner group?

Many stated the potential to partner and the importance of cooperating on all activities listed. Concerns that were specifically mentioned are marked with a (P) above.

6. What **activities** to address the concerns you list in #6 could be most effectively carried out cooperatively?
Think about the work that you do that is related to your priority concerns for the Lower Apple River. How would this work be enhanced by working together with another organization?

Land Acquisition for both protection and shore fishing access
Establish conservation easements to prevent subdivision and increase protection of wildlife habitat

Technical and Financial Assistance
Work with landowners to install voluntary BMP's
Removal/control of invasive species (purple loosestrife biocontrols)

Outreach and Education
Work with villages, towns to create awareness and educate, perhaps install BMP's where applicable.
Cooperative education efforts focusing on invasive species
Education regarding reducing recreation impacts: schools, churches, local newspapers, clean-up events, etc.
Demonstrations and model programs

How to do these things?
Learn from and model the activities of other river advocacy groups on the Willow, Sunrise, and Kinnickinnic Rivers
Increase referrals between partner groups
Combine funding and volunteer sources
Set goals for all items listed above (protection, outreach, education)

Implementation of the Lake St. Croix TMDL.

7. Please review the enclosed list of invited partner groups and representatives.
Suggestions for additions not yet included.
City of Amery (as upstream stakeholder)
Dave Clausen – Natural Resources Board member
Polk County Lakes and Rivers Association
Representatives of landowners and land users

Additional Comments

Town of Somerset: The Somerset Town Board reviewed the information and questionnaire on the Lower Apple River Project. They directed me to email you. Their recommendation was that you look at the Apple River beginning at Riverdale and/or Halverson Park (Town of Star Prairie) rather than below the Xcel Energy Hydroelectric Plant. The Board feels you may be missing several points of concern by starting below the Xcel Dam.

APPENDIX E. Partner Models[8]

Informal Coalition or Team

Plan would be used to guide activities. Need an entity to coordinate occasional meetings/communication to check progress.

Advantages	Characteristic	Disadvantages
Can readily change ←	Membership is flexible →	Not as firm of a commitment
Various entities can apply to different sources ←	Grant funding →	May not be eligible grantee
Grantors like partnerships		
	Authority to act	No authority
	Ability to coordinate	Lack of coordination

Consider a letter of commitment as demonstrated on this web site:
http://www.johnsonfdn.org/chartingnewwaters/commitments/

Similar Examples: Blue Thumb.org (?), St. Croix Conservation Collaborative, St. Croix Basin Water Resources Planning Team (a bit more formal; began with a memorandum of understanding)

Subcommittee of an Existing Organization

An existing organization agrees to take on management of the Lower Apple River Plan.

Advantages	Characteristic	Disadvantages
Easier with a non-govt. org.	Grant administration	
Yes	Focus on issues	
Yes	Existing administration/oversight	
Yes	Connect geographic concerns	
Yes	Builds org. capacity with this project	
Yes	Builds on existing success	
	An existing organization has volunteered	No
	Local buy-in	May be limited

Similar Examples: St. Croix River Association (although not interested), Apple River Association (not interested)

[8] Includes notes from 4/8/11 Lower Apple River Project Meeting. No decision yet regarding which choice will work best, although starting a new organization was not generally favored because of the investment in start-up. Selected goals and strategies may help to suggest one model as better than the others.

New Lower Apple River Citizen's Group with Advisors

There is no current group for the Lower Apple.

Advantages	Characteristic	Disadvantages
	Number of existing organizations	Perhaps too many already
Strong leader(s)	Local support/enthusiasm	Need to ID local
Clean start	Existing bias/baggage/conflicts	
Can establish	Geographic focus: both St. Croix and Polk	
Can establish	Water quality focus	
Can establish	Holistic resource focus	
	Ability to lobby (as a 501(c)(3)	Limited
	Partnering	May not feel like partnership
	Funding	Considerable investment of time and money to start
		Lack of demonstrated success
		Compete poorly for funds

Similar Examples: Apple River Association (currently Polk County only), Lake Associations, Kinnickinnic River Land Trust, Friends of the St. Croix Headwaters (FOTSH)

Local Unit of Government Lead with Advisors

Advantages	Characteristic	Disadvantages
Has taxing authority	Funding	Government funds are limited Not all $ available to government
Local reps bring passion	Advisors	Some may not want to link to government
Ability to change	Local rules and incentives	
Yes	Longevity	
Yes	Administrative structure	May be cumbersome/bureaucratic
Yes	Link to TMDL process	
	Ability to lobby	Cannot

Lead could vary by project goal.
Examples of potential leads: St. Croix County Land and Water Conservation Department and Polk County Land and Water Resources Department for water quality, St. Croix County Planning and Zoning Department for natural beauty, DNR Fisheries for fisheries.