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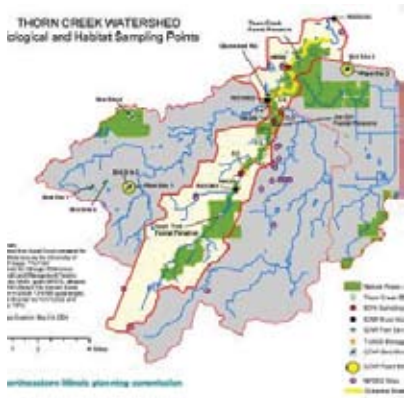
Water Quality Activities Report

July 2005 - June 2007



Highlights for 2005 - 2007

- Completed the second capacity building phase of a multi-state effort to engage regional planning councils in the Lake Michigan watershed in addressing water resource issues.
- Continued to coordinate more than $2.5 million in the Upper Des Plaines River watershed and $3.5 million in the Fox River watershed spanning 16 implementation projects to control nonpoint source pollution.
- Completed the *Salt Creek TMDL Implementation Plan Execution — Phase 1* report summarizing an education strategy and four nonpoint source pollution control projects in the Salt Creek watershed.
- Completed the *Thorn Creek Watershed Based Plan*, incorporating the nine elements essential to qualify as a state recognized watershed-based plan (for which it was approved by the Illinois Environmental Protection Agency (EPA).
- Facilitated the Poplar Creek Watershed Coalition and produced the Illinois EPA approved *Poplar Creek Watershed Action Plan*.
- Provided technical assistance to numerous watersheds including: Upper and Lower Des Plaines River; Fox River, Salt Creek; North Branch of the Chicago River, Nippersink Creek; Thorn Creek, Poplar Creek; Tyler Creek; Kishwaukee River; Aux Sable Creek; and the Little Calumet River.
- Continued to work with several local watershed groups as they upgrade watershed plans to qualify as state-recognized watershed-based plans.
- Completed a watershed-based planning guide for the State of Illinois titled *Guidance for Developing Watershed Action Plans in Illinois* and orchestrated two planning seminars to promote and support the guidance.
- Coordinated the Illinois Volunteer Lake Monitoring Program for more than 80 lakes in northeastern Illinois involving more than 150 volunteers.
- Continued an Illinois Clean Lakes Program Phase 2 Rehabilitation and Protection Project at the Forest Preserve District of Cook County's Maple Lake.
- Began work on the Lake Biodiversity Recovery and Protection Plan Development Pilot Project with the Lake County Health Department-Lakes Management Unit.
- Began work on the McHenry County Advanced Identification study update for wetlands and streams.
- Reviewed Illinois Water Quality Management Plan amendment request which includes Facility Planning Area boundary changes, wastewater land treatment areas, and treatment plant expansions.
- Continued to provide outreach to local government officials, staff, and the public on techniques for protecting natural resources and biodiversity.
- Facilitated meetings of the Upper Des Plaines River/Tributaries Phase I and Phase II Study Advisory Committee.

For more information on topics discussed in this report, please call CMAP (312.454.0400). The individuals who worked on these projecst are:

Kerry Leigh, ASLA, *Director of Environment and Natural Resources Group and staff secretary to the Water Resources Committee:* water quality, watershed planning and management, conservation design, stream and wetland management and monitoring, natural resource planning.

Timothy Loftus, Ph.D., *Principal Environmental Scientist:* water resources, watershed planning, water supply planning.

Holly Hudson, *Principal Environmental Analyst:* lake and watershed monitoring and management, volunteer lake monitoring, nonpoint source pollution control project management.

Irene Hogstrom, ASLA, *Principal Planner (former staff):* natural landscaping, open space planning, sustainable development, preserving and enhancing biodiversity.

Jesse Elam, AICP, *Associate Planner:* watershed planning, water supply, geographic information systems, open space planning, biodiversity protection.

Dawn Thompson, *Associate Planner:* Facility Planning Area program, geographic information systems, Project Review Program.

Mike Hoather, *GIS Analyst (former staff):* geographic information systems and green infrastructure mapping.

David Clark, *Senior GIS Analyst:* population projection reviews and FPA map design and production.

Jeff Wickenkamp, P.E., *Consulting Engineer, Hey and Associates:* City of Chicago Stormwater Manual.

Cover photos/figures (from left): white water lily at Lake Killarney, Thorn Creek watershed map, volunteer lake monitor at Crystal Lake, water scorpion at Maple Lake (photos by H. Hudson, CMAP).

The 2040 Regional Framework Plan and the Importance of Water

The Northeastern Illinois Planning Commission (NIPC) 2040 Regional Framework Plan — honored as the American Planning Association's 2006 national plan of the year — defines specific strategies to guide future growth in northeastern Illinois. The plan provides a vision for meeting land-use challenges in the most efficient, coordinated, and sustainable manner. The importance of water in the 2040 Plan is outlined in *"Implementation Strategy 13: Protect Water Resources."* Some of the planning and policy issues currently being addressed are complex and challenging, and we are looking forward to applying new technological tools to these issues.

With the merger of NIPC and the Chicago Area Transportation Study (CATS) into the new Chicago Metropolitan Agency for Planning (CMAP), the traditional role of NIPC is being reaffirmed and even strengthened. The CMAP Board is working to ensure that the place of water resources is a core factor in guiding our region's future. Many of the projects currently in progress are part of the vision for implementation of Strategy 13, and CMAP is working on a comprehensive regional strategy for water resource protection.

One of the related projects, the Great Lakes Regional Collaboration (GLRC), created by Presidential order, completed development of a framework plan to design and implement a strategy for the restoration, protection, and sustainable use of the Great Lakes. The plan was completed and released in December 2005 and is available for viewing at http://www.glrc.us/strategy.html. As co-chair of the Sustainability Team, I worked to coordinate the regional planning agencies active participation in preparation of this document. The Great Lakes Governors have finalized a proposed compact agreement, which now needs to move forward in the State legislatures. The initial federal funding to support implementation of this plan was redirected to assist with Hurricane Katrina reconstruction, so part of the "next steps" is a major push to get this initiative funded.

We continue to coordinate the USEPA-funded Lake Michigan Academy initiative through Phase II as the Regional Planning Agencies complete their on-going outreach efforts. Phase III is currently in the planning process, and we see this continuing involvement on the part of the Regional Planning Agencies as a commitment to collaboration and information sharing.

It has been five years since signing of the Tri-State Accord encouraging collaboration among Wisconsin, Indiana, and Illinois Planning Agencies, with the prospect of the South West Michigan Planning Agency interested in partnering. It is time to re-convene the signatories and join in a quad-state collaboration.

Our ability to address water and environmental issues is greatly enhanced with the adoption of the new federal transportation planning act — SAFTEA-LU. Specifically, SAFTEA-LU calls for more effective environmental considerations in transportation planning, which supports the State mandate for CMAP to integrate land use and transportation planning. Water and other environmental resources will continue to be driving elements in the region's plans.

Another recent State initiative is the Governor's 2006 Executive Order #1 which created a State-wide water resource planning program. CMAP is managing the first of two State water resource plans. Just as the Chicago Wilderness Green Infrastructure Vision provided a foundation for the 2040 Regional Framework Plan, the regional water resource plan will bring another important component to the 2040 Plan's implementation.

Watershed-Based Planning

Northeastern Illinois has embraced watershed planning as an effective means of protecting and enhancing water quality. Successful watershed plans broadly engage local stakeholders and identify comprehensive solutions to water resource issues. In order to be eligible for Clean Water Act Section 319 funding to help support development of watershed plans, these plans must follow new elements and include certain information as required by the United States Environmental Protection Agency (USEPA). The goal of these "nine elements" for a watershed-based plan is to ensure that federally funded implementation projects are effective in restoring or protecting waters that are either impaired or threatened by nonpoint source pollution.

Thorn Creek and Poplar Creek

In 2003 NIPC, with the support of the Illinois EPA, embarked on two important watershed planning pilot projects — one in the Thorn Creek watershed and the other in the Poplar Creek watershed. These pilot projects are following a consistent planning methodology used by many watershed planners in the region: (1) identify stakeholders, (2) establish goals and objectives, (3) inventory watershed resources and conditions, (4) assess water-body and watershed problems, (5) recommend management practices for prevention and remediation, (6) develop an effective action plan, and (7) implement plan and monitor success. The goal of this planning methodology is to produce a watershed plan that meets U.S. EPA's nine elements of a watershed-based plan.

The Thorn Creek Watershed Based Plan was completed in late 2005 and approved by Illinois EPA. It addresses water quality problems typical for urban streams: high fecal "Coliform" levels, low dissolved oxygen during summer and fall months, elevated nutrient levels, and general problems associated with habitat and hydrology (water flow). The Plan is available on NIPC's former website (www.nipc.org/environment/thorncreek).

Development of the Poplar Creek watershed-based plan resumed in the second half of 2005. The Poplar Creek Watershed Coalition actively met and discussed the issues and goals that the watershed plan addresses. The first draft of the *Poplar Creek Watershed Action Plan* was completed in early 2007 and approved by Illinois EPA in the spring. The Plan will be posted on the website of the Chicago Metropolitan Agency for Planning (CMAP) (www.chicagoareaplanning.org).

Watershed-Based Plan Upgrades

NIPC, through a grant from the Illinois EPA,offered financial and technical assistance to improve existing watershed-based plans in northeastern Illinois. In late 2004, NIPC requested proposals from watershed planning groups interested in upgrading their plans. Funding was awarded to seven watersheds, and the work to upgrade these plans continues. Watersheds receiving funding are: Nippersink Creek; Tyler Creek; East and West Branches of the DuPage River; North Branch Chicago River; Bull Creek/Bull's Brook; Fish Lake Drain; and Indian Creek. The upgraded plans will be consistent with the U.S. EPA watershed-based plan guidance, total maximum daily load (TMDL) implementation plan requirements, and current watershed planning principles.

Watershed-Based Planning Guidance

NIPC assisted the Illinois EPA in preparing an update to the existing watershed planning guidance provided in the Draft *Guidance for Developing Watershed Implementation Plans in Illinois* (Illinois EPA, 1998) manual. The manual is being revised to be consistent with the U.S. EPA watershed-based plan guidance, the total maximum daily load (TMDL) implementation plan, and current watershed planning principles. The updated manual provides guidance to ensure that watershed planning efforts identify effective management practices and continue to meet the most recent requirements of the U.S. EPA's Section 319 program as mentioned above.

Wastewater Quality Planning and Management Activity

Under a contract with the Illinois EPA to implement the NE Water Quality Management Plan, NIPC reviewed requested amendments to wastewater Facility Planning Areas (FPA). A summary table of this fiscal year's review actions involving FPA boundary changes and new or expanded treatment facilities is presented below. A total of 79 requests were reviewed during this 2-year time period. The Northeastern Illinois Planning Commission's Water Resources Committee recommended support for approximately 57,044.3 acres of land transfer from non-FPA to FPA or from one FPA to another FPA, two land treatment systems, and 18 plant expansions.

We would like to highlight the efforts of the Village of Frankfort, a model community that has taken a proactive approach to protecting water quality. In a recent FPA amendment request, the Village of Frankfort sought an expansion of its existing Regional Wastewater Treatment Plant from 0.75 mgd to 3.0 mgd. The Village, following the recommendation of NIPC, conducted an anti-degradation study of Hickory Creek. The results of the study provided more definitive information on the actual anticipated impacts from the increased pollutant loadings on the receiving stream. Based on the results of the anti-degradation analysis, the Village concluded that greater treatment of wastewater is necessary to protect water quality in Hickory Creek. The Village then revised its FPA amendment request to reflect the findings of the stream assessment and the more stringent treatment processes and effluent limits the Village deemed necessary to protect the receiving stream. The Village is commended for taking a proactive approach in protecting water quality.

The Village has also prepared a water resource management plan to recognize the importance of natural and native areas; incorporate these areas in land use planning; advocate smart growth and sensible development; protect environmentally sensitive areas; allow development with minimal or no adverse environmental impacts; assure proper maintenance of natural areas; and provide public awareness through publications and education.

Water Resources Committee Update

Effective July 1, 2007, the Chicago Metropolitan Agency for Planning (CMAP) assumed NIPC's former responsibility for the NE Water Quality Management Plan, including the FPA process. Illinois Senate Bill 1201 has established that the CMAP Board must create a Wastewater Committee with the responsibility of recommending directly to the Illinois EPA the appropriateness of proposed wastewater facility planning areas, requests for expansion of wastewater treatment facilities, and other amendments to the State of Illinois Water Quality Management Plan required under the federal Clean Water Act. The new CMAP Wastewater Committee will consist of the following members:

- Three members of the CMAP Board
- One member appointed by the President of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
- One member appointed by the President of the largest statewide association of wastewater agencies

Level 1 Water Quality Plan Amendment Actions

Level 1 Water Quality Amendment Table

WQ Review Number	Applicant	Type of Request	Acreage Requested	NIPC Recommendation	Acreage NIPC Supported	IEPA Decision	Acreage IEPA Approved
04-WQ-045	City of Wilmington	FPA Boundary Change	748	Support	748	Pending	N/A
04-WQ-047	IG Consulting Inc.	New Wastewater Land Treatment System	N/A	Support	N/A	Deferred	N/A
04-WQ-086	Mill Creek WRD	FPA Boundary Change	221.14	Support	221.14	Approved	221.14
04-WQ-071	Village of Lakewood	FPA Boundary Change	2,348	Sup port	2348	Approved	2,348
04-WQ-071	Village of Lakewood	WWTP Expansion - 0.318 mgd to 1.75 mgd	N/A	Support	N/A	Approved	N/A
04-WQ-079	Village of Manhattan	FPA Boundary Change	1,523	Support	1,523	Approved	1,523
04-WQ-101	Village of New Lenox	FPA Boundary Change	1,790	Support	1,790	Approved	1,790
04-WQ-108	City of Joliet	FPA Boundary Change	7,060	Partial Support	2,720	Partial Approval	5,777
04-WQ-110	Village of Elwood	FPA Boundary Change	1,600	Support	1,600	Approved	1,600
05-WQ-007	Village of Beecher	FPA Boundary Change	337	Support	337	Approved	337
05-WQ-008	Village of Wonder Lake	FPA Boundary Change	5,311	Support	5,311	Pending	N/A
05-WQ-008	Village of Wonder Lake	New Wastewater Land Treatment System	N/A	Support	N/A	Deferred	N/A
05-WQ-111	Lakes Region Sanitary District	FPA Boundary Change	1,988.2	Support	1,988.2	Approved	1,988.2
05-WQ-130	Village of Burlington	FPA Boundary Change	5,015	Partial Support	1,744	Approved	5,015
05-WQ-130	Village of Burlington	WWTP Construction	1.58	Support	1.58	Deferred	N/A
05-WQ-131	Village of Maple Park	FPA Boundary Change	6,617	Partial Support	3457	Approved	3,457
05-WQ-131	Village of Maple Park	WWTP Expansion - .25 mgd to 1.0 mgd	N/A	Support	N/A	Deferred	N/A
05-WQ-132	Village of Pingree Grove	FPA Boundary Change	1,400	Support	1400	Denied	0
05-WQ-132	Village of Pingree Grove	WWTP Expansion - 1.7 mgd	N/A	Support	N/A	Pending	N/A
05-WQ-162	City of Elgin	FPA Boundary Change	1,332.5	Support	1,332.5	Approved	1,332.5
05-WQ-175	City of Joliet	FPA Boundary Change	1,851	Support	1,851	Pending	N/A
05-WQ-176	Village of Manhattan	FPA Boundary Change	960	Support	960	Approved	960
05-WQ-177	Village of Frankfort	FPA Boundary Change	3,196	Partial Support	2,225	Partial Approval	2,225
06-WQ-001	City of Joliet	FPA Boundary Change	1,115	Support	1,115	Approved	1,115
06-WQ-002	City of Braidwood	FPA Boundary Change Amended	237	Support	237	Approved	237
06-WQ-002	City of Braidwood	WWTP Expansion - 0.0634 mgd to 1.5 mgd	N/A	Support	N/A	Deferred	N/A
06-WQ-117	City of Wilmington	FPA Boundary Change	725	Application returned to applicant	0	Application returned to applicant	0
06-WQ-119	City of Joliet	FPA Boundary Change	120	Support	120	Pending	N/A
06-WQ-148	City of Harvard	FPA Boundary Change	585	Pending	N/A	Approved	585
06-WQ-148	City of Harvard	WWTP Expansion - 1.8 mgd to 2.4 mgd	N/A	Pending	N/A	Deferred	N/A
06-WQ-149	Village of Spring Grove	FPA Boundary Change	650	Pending	N/A	Pending	N/A
06-WQ-149	Village of Spring Grove	WWTP Expansion - 0.075 mgd to 0.225 mgd	N/A	Pending	N/A	Pending	N/A
06-WQ-165	Rock Creek Land Development	New Wastewater Land Treatment System	N/A	Support	N/A	Pending	N/A
06-WQ-168	Mill Creek WRD	WWTP Expansion – 0.65 mgd to 1.15 mgd	N/A	Support	N/A	Approved	N/A
06-WQ-172	Fox River WRD	FPA Boundary Change and WWTP Expansion	14,011.3	Partial Support	7214	Partial Approval	7,214
06-WQ-204	Village of Minooka	FPA Boundary Change	10,586	Support	10,586	Partial Approval	5,612
06-WQ-205	Village of Wonder Lake	FPA Boundary Change	1,033	Partial Support	868.5	Pending	N/A
06-WQ-216	Aqua Illinois, Inc.	FPA Boundary Change	3,398.11	Pending	N/A	Pending	N/A
06-WQ-228	City of Geneva	FPA Boundary Change	329.09	Pending	N/A	Pending	N/A
07-WQ-028	Village of Shorewood	FPA Boundary Change	235	Pending	N/A	Pending	N/A
07-WQ-039	Village of Elwood	FPA Boundary Change	5,050	Pending	N/A	Pending	N/A
07-WQ-040	Village of Beecher	FPA Boundary Change	2,390	Pending	N/A	Pending	N/A
07-WQ-041	Village of Beecher	FPA Boundary Change	334	Pending	N/A	Pending	N/A
07-WQ-045	City of Wilmington	FPA Boundary Change	3,875	Pending	N/A	Pending	N/A
07-WQ-046	Village of Crete	FPA Boundary Change	2,405	Pending	N/A	Pending	N/A
07-WQ-120	Village of Hebron	FPA Boundary Change	360	Support	360	Pending	N/A
TOTAL			**90,737.92**		**52,057.92**		**43,336.84**

Level 2 Water Quality Amendment Table

WQ Review Number	Applicant	Type of Request	Acreage Requested	NIPC Recommendation	Acreage NIPC Supported	IEPA Decision	Acreage IEPA Approved
03-WQ-099	Village of Plainfield	FPA Boundary Change	4,131	Partial Support	3,233	Approved	4,131
04-WQ-008	Village of Frankfort	WWTP Expansion - 0.75 mgd to 3.0 mgd	N/A	Support	N/A	Deferred	N/A
04-WQ-078	Illinois American Water Company	FPA Boundary Change	286	Non-Support	0	Pending	N/A
04-WQ-111	Northern Moraine WRD	WWTP Expansion - 2.0 mgd to 3.0 mgd	N/A	Support	N/A	Deferred	N/A
05-WQ-009	Village of Bolingbrook	FPA Boundary Change	21.875	Support	21.875	Approved	21.875
05-WQ-110	Fox Metro WRD	FPA Boundary Change	116	Support	116	Approved	116
05-WQ-112	Wheaton Bible Church	FPA Boundary Change	46	Non-Support	0	Pending	N/A
05-WQ-116	Christ Community Church	FPA Boundary Change	13.3	Support	13.3	Pending	N/A
05-WQ-122	Fox Metro WRD	FPA Boundary Change	65	Support	65	Approved	65
05-WQ-128	City of McHenry	FPA Boundary Change	13.8379	Support	13.8379	Approved	13.8379
05-WQ-129	City of St. Charles	FPA Boundary Change	135	Support	135	Approved	135
05-WQ-137	Village of Addison	FPA Boundary Change	39.3	Non-Support	0	Denied	0
05-WQ-138	Glenbard Waste-water Authority	FPA Boundary Change	16	Support	16	Approved	16
05-WQ-139	Village of Algonquin	WWTP Expansion - 3.0 mgd to 5.0 mgd	N/A	Support	N/A	Deferred	N/A
05-WQ-149	MWRDGC	WWTP Expansion - 2.3 mgd to 4.2 mgd	N/A	Support	N/A	Pending	N/A
05-WQ-150	Village of Antioch	WWTP Expansion - 1.6 mgd to 2.0 mgd	N/A	Support	N/A	Deferred	N/A
05-WQ-163	Village of Beecher	FPA Boundary Change	80	Support	80	Approved	80
05-WQ-187	MWRDGC	FPA Map Correction	N/A	Support	N/A	Approved	N/A
05-WQ-189	Village of Mundelein	FPA Boundary Change	149	Support	149	Approved	149
05-WQ-190	Village of Fox Lake	WWTP Expansion - 9.0 mgd to 15.0 mgd	N/A	Support	N/A	Deferred	N/A
05-WQ-191	City of Joliet	FPA Boundary Change	78.62	Support	78.62	Approved	78.62
06-WQ-003	Village of Prairie Grove	FPA Boundary Change	286	Partial Support	274	Approved	274
06-WQ-004	Village of Hampshire	FPA Boundary Change	40	Support	40	Approved	40
06-WQ-005	Village of West Dundee	FPA Boundary Change	34	Support	34	Pending	N/A
06-WQ-118	City of Joliet	FPA Boundary Change	50	Support	50	Pending	N/A
06-WQ-120	Village of Beecher	WWTP Expansion - .06 mgd to 1.2 mgd	N/A	Support	N/A	Pending	N/A
06-WQ-126	Village of Romeoville	WWTP Expansion - 6.0 mgd. to 7.5 mgd	N/A	Support	N/A	Deferred	N/A
06-WQ-127	MWRDGC	FPA Map Correction	N/A	Support	N/A	Approved	N/A
06-WQ-128	Fox Metro WRD	FPA Boundary Change	74	Support	74	Pending	N/A
06-WQ-136	Fox Metro WRD	FPA Boundary Change	27	Support	27	Approved	27
06-WQ-137	Illinois American Water Company	FPA Boundary Change	132	Withdrawn	0	Pending	N/A
06-WQ-150	Village of Plainfield	WWTP Expansion - 3.5 mgd to 7.5 mgd	N/A	Support	N/A	Pending	N/A
06-WQ-170	Belle Meade Development	New Wastewater Land Treatment System	191	Support	191	Pending	N/A
06-WQ-206	Village of Hawthorn Woods	FPA Boundary Change	70.9	Support	70.9	Pending	N/A
06-WQ-217	City of Lockport	FPA Boundary Change	25.83	Support	25.83	Pending	N/A
06-WQ-225	Fox Metro WRD	FPA Boundary Change	151	Support	151	Pending	N/A
07-WQ-008	Village of Bolingbrook	FPA Boundary Change	47	Support	47	Pending	N/A
07-WQ-024	Village of Manhattan	FPA Boundary Change	80	Support	80	Pending	N/A
07-WQ-027	Village of Bolingbrook	FPA Boundary Change	27	Support	N/A	Pending	N/A
07-WQ-038	Village of Elwood	FPA Boundary Change	79	Support	N/A	Pending	N/A
07-WQ-044	Aqua Illinois, Inc.	FPA Boundary Change	80	Support	N/A	Pending	N/A
TOTAL			**6,585.6629**		**4,986.3629**		**5,147.3329**

Facility Planning Area Map Updates

Under a contract with the Illinois EPA, CMAP prepares Facility Planning Area base maps and Point Source Tabular accounts for amendments to the water quality management plan.

During the program year of 2005 and 2006, NIPC and CMAP successfully completed revisions to the facility planning area maps that incorporated all of the recent FPA boundary amendments. In addition to FPA boundaries, these new maps also include the location of NPDES Permits for Municipal Dischargers as well as a tabular description of each municipal discharge. These new maps will provide more information to municipal units of government, planners, engineers, and the general public.

Facility Planning Area Roundtable Discussions

The Water Resources Committee has conducted two of a series of Facility Planning Area roundtable discussions with staff and Commissioners. Discussions have focused on identification of problems with potential FPA amendment applications; case studies of complete and incomplete applications; a review of the Illinois EPA contract; and the Water Resources Committee's role. Discussions also included the potential for other NIPC committees to have a role in the FPA process as it relates to the Regional Framework Plan and its implementation.

Nonpoint Source Pollution Control Projects – Section 319, Clean Water Act

Beginning in 2001, the Illinois Environmental Protection Agency (EPA) awarded funding to NIPC in support of several projects within the Upper Des Plaines and Fox River watersheds. In 2002, Illinois EPA awarded funding to support several projects in the Salt Creek watershed. In 2004, a new round of funding was received to support approximately $660,000 worth of projects in the Upper Des Plaines River watershed and over $2.1 million worth of projects in the Fox River watershed. In 2006, another round of funding was granted to support more than $3.3 million in Upper Des Plaines and Fox River watershed projects.

These projects are part of the Nonpoint Source (NPS) Pollution Control Program, a component of Section 319 of the Clean Water Act. The Section 319 program is intended to support several types of activities: implementation of cost-effective corrective and preventive best management practices (BMPs) on a watershed scale; implementation of demonstrative new and innovative BMPs on a non-watershed scale; NPS pollution control information, education, and outreach projects; NPS pollution control research and monitoring projects; and development of watershed-based plans. CMAP serves as project coordinator, administrator, and technical advisor.

Rain falling on a conventional street surface (foreground) and generating stormwater runoff, a significant contributor to non point source pollution, next to a new porous-pavement parking lot (background) doing its job of preventing stormwater runoff that is typically associated with impervious surfaces (photo courtesy of Lake County Forest Preserves District).

Upper Des Plaines River Watershed Projects

With the successful completion of five FY01-cycle projects (final report was available on NIPC's former website: www.nipc.org/ environment/desplainesriver), the Upper Des Plaines River watershed was the beneficiary of additional Section 319 funding in 2004 ($395,406 in federal funds matched by $263,617 is local sponsor funding) and 2006 (more than $1.1 million in federal funding and $800,000 in local funding), coordinated and managed by NIPC. The three FY04-cycle projects, two of which were completed, and the FY06-cycle project, are highlighted below.

FY04-cycle

The Village of Lincolnshire's ***Indian Creek Restoration Project***, that had intended to stabilize and buffer an approximately 2,200 foot section of Indian Creek with vegetation management and bioengineering techniques, was cancelled due to unforeseen circumstances. The Village will eventually complete the project, but without Section 319 funding support.

Lake County Forest Preserve's ***Ryerson Woods Welcome Center*** was completed and features 40,033 square feet of a porous pavement parking lot with underground storage, bioinfiltration swales or vegetated filter strips, a rain garden, and two cisterns to treat and infiltrate runoff from the site before it discharges to the Des Plaines River in southeast Lake County. The treatment system will be designed so as to retain smaller rain events within the voids of the porous paving drainage layer and evaporate over time. During larger events that saturate the drainage layer, excess runoff from both the drainage layer and the surface of the paving will drain to the bio-filtration swales. An educational brochure also has been developed for distribution to the public.

The ***Ravinia Park and Indian Creek Park Project***, sponsored by the Sylvan Lake Homeowners Association, in conjunction with the Freemont Township Highway Department, has constructed a stormwater wetland in Ravinia Park that is designed to improve pollutant removal before discharging stormwater into Sylvan Lake in south central Lake County. Techniques used in constructing the stormwater wetland included disabling drain tiles, installing a sedimentation basin, and planting native wetland vegetation. The spillway discharging from Sylvan Lake to Indian Creek Park will be repaired at a later date and was outside the scope of this current project. The stream bank below the spillway has been stabilized using bioengineering techniques, and riffle structures were installed to eliminate erosion and reduce stream-flow velocity and bank erosion while oxygenating the water. A 0.40 acre bottomland floodplain was restored through vegetation management. A system of interpretive signage has been installed at the project site that describes the project.

Nonpoint Source Pollution Control Projects – Section 319, Clean Water Act

FY06-cycle

As a recipient of FY06-cycle 319 funding, the Village of Wheeling began implementation of the ***Buffalo Creek Streambank Stabilization Project*** in early 2007. A tributary to the Des Plaines River, Buffalo Creek drains approximately 26.82 square miles in south central Lake County and north central Cook County, Illinois. This project is the first phase of a nearly five mile long, three-phase stabilization program proposed for Buffalo Creek within the Cook County portion of the Village.

In 2005, a comprehensive assessment of Buffalo Creek within the Village's corporate limits was conducted from West Aptakisic Road on the Village's western border to the creek's confluence with the Des Plaines River near Palwaukee Airport. The assessment revealed that Buffalo Creek suffers from slight to severe bank erosion and downcutting as a result of increased stormwater runoff frequency, volumes, and velocities in this primarily urbanized watershed. The most severely impacted reaches are located in the northern third of the assessment area and are the target of this – Phase 1 stabilization project. Approximately 2,600 linear feet of stream channel will be addressed, utilizing both structural and biotechnical techniques to stabilize and enhance the riparian corridor, reduce loss of real estate, and improve water quality and aquatic habitat in Buffalo Creek. Design plans are currently under review

Fox River Watershed Projects

Work was completed in 2004 on the ten projects funded under the FY01-cycle 319 program. The final report can be viewed and downloaded from NIPC's website (www.nipc.org/ environment/foxriver).

The eight projects funded under the FY04 funding cycle (total budget $2,118,222 of which $1,269,441 is federal and $848,781 is local sponsor funding) commenced in the second half of 2004 and are summarized below. The overall NIPC/Illinois EPA Section 319 agreement was extended one year through July 2007 in order to accommodate delayed construction implementation schedules for several of the projects, in large part due to delays in permitting, as well as to allow a complete growing season to assess each projects' status and provide time to prepare final reports. The final project report is under preparation and will be available on CMAP's website.

Three new projects were awarded funding under the FY06 cycle (total budget $1,429,494 of which $885,960 is federal and $543,534 is local sponsor funding). Project design work began in summer 2006. Another project was the beneficiary of FY02-cycle funding left unspent by other projects elsewhere in Illinois (awarded $115,013 in federal funding matched by $94,102 in local funding).

FY02-cycle

The Round Lake Area Park District was granted FY02-cycle funding in spring 2006 with the stipulation to complete their ***Long Lake Shoreline Stabilization Project*** by August 2007, which was accomplished. The project stabilized 500 feet of overgrown and severely eroding shoreline along the lake's southeastern shore within Long Lake Park. A combination of vegetation maintenance, bank re-grading, turf reinforcement and erosion control matting, a rock toe to withstand wave and ice action, and native seeding and planting of prairie and wetland plants, was implemented. Educational signage was also developed and installed.

The Long Lake shoreline before and after restoration (photos by H. Hudson, CMAP).

FY04-cycle

Kane County implemented the ***Lake Run Habitat Restoration Project*** utilizing various stream restoration techniques along an approximately 3,600 foot section of this tributary to Blackberry Creek. Stream restoration techniques included: selective tree and ground cover vegetation; excavation to reconnect the stream with the floodplain; streambank re-grading; coir fiber rolls for toe stabilization; rock bars and riffles for grade control; erosion control blanket; and seeding and planting of the streambanks.
The project also implemented wetland restoration and enhancement techniques including removing existing field tiles to restore wetland hydrology; diverting stormwater from roads to the wetlands; reconnecting the floodplain to the stream channel; excavating topsoil and respreading spoil on adjacent high ground; wetland seeding; burn management; use of herbicides; and floodplain terracing. Restoration techniques were designed to reduce erosion; enhance infiltration; reduce runoff volume and velocity; improve water quality; and enhance aquatic habitat. Construction began in October 2005 and was completed in June 2006. Required monitoring and management continued into summer 2007.

Looking upstream from Hankes Road, the re-graded banks of Lake Run are seen along with a created wetland connected to the stream in the upper left (photo courtesy of Ken Anderson, Kane County).

The ***Otter Creek Stream Restoration Project***, locally sponsored by the St. Charles Park District, has implemented several management practices on a segment of Otter Creek, a tributary of Ferson Creek, and the Fox River in Kane County, to stabilize the eroding streambanks and streambed. The selected management practices stabilized 3,140 feet of eroding streambanks. Techniques such as "toe-tuck" revetments for undercut and collapsing banks utilizing logs and/or large cobble/boulder material and rootwads, bankfull bench buildouts in over-widened sections of the channel (utilizing the same materials as the toe-tuck revetments), streambank regrading, selective tree removal, native vegetation planting and seeding, and erosion control blankets, were used. The project also stabilized the streambed by installing three cross-riffle grade control structures and elevating an existing footbridge to reduce the build up of debris caught by the bridge which caused scouring of the channel bottom. Construction was conducted between late October and early November 2005. Planting and seeding were completed in spring 2006.
The management practices will improve water quality, remove suspended and soluble nonpoint source pollutants, enhance habitat and aesthetics, and improve other beneficial hydrologic functions.

The construction contractor uses a backhoe bucket equipped with a hydraulic thumb to insert a root-wad into Otter Creek's bank during building of a toe-tuck revetment (photo by H. Hudson, CMAP).

The City of St. Charles conducted the ***St. Charles Stormwater Outfall Treatment Basin Project***. A stormwater wetland was completed in summer 2005 to receive and treat runoff from a stormwater channel before discharging to 7th Avenue Creek, a Fox River tributary. The excavated stormwater wetland was planted with deep-rooted native forbs and other native wetland vegetation. A new inflow structure allows flows from the storm-water channel to soak into the stormwater wetland. During a rain event in spring 2006, it was discovered that stormwater was flowing over the basin's emergency overflow before it flowed over the primary, modified riffle outlet — just the opposite of the intended design. Corrective measures were implemented and monitoring continues. The stormwater wetland will improve water quality, remove suspended and soluble nonpoint source pollutants, enhance habitat and aesthetics, and provide water retention and other beneficial hydrologic functions.

Installation of wetland plant plugs in the bottom of the constructed stormwater outfall basin (photo courtesy of Chris Tiedt, City of St. Charles).

The ***Poplar Creek Streambank Restoration Project***, sponsored by the Izaak Walton League Home Corporation-Elgin Chapter (Ikes), has stabilized 200 feet of eroding streambanks along Poplar Creek, a tributary of the Fox River in Cook County. The project is controlling streambank erosion and reducing nonpoint source pollution via streambank regrading, stone toe protection, and native vegetation planting and seeding, while protecting and enhancing habitat, ameliorating damage from peak flows, reducing peak flow velocities, and enhancing aesthetic qualities. Construction began in December 2005 and was completed in spring 2006. Several Ikes volunteered much of their time to the project.

Izaak Walton League volunteers spread prairie seed (foreground) and install plant plugs (background) along a stabilized section of Poplar Creek (photo by H. Hudson, CMAP).

The ***Restoration of Lake Antioch Wetlands & Feedstream Project***, led by the Friends of Lake Antioch Association (FOLA), has implemented wetland restoration and streambank stabilization techniques along an unnamed stream in northwest Lake County. A stone filter check dam was installed to retain water and restore wetlands, improve water quality, remove suspended and soluble nonpoint source pollutants, enhance habitat and aesthetics, and provide water retention. Additionally, streambank stabilization techniques including regrading, large woody debris check dams, large woody debris bank protection, gabion baskets, riffles, native vegetation planting and seeding, and erosion control blankets were utilized along 515 feet of eroding stream channel to arrest streambank erosion and reduce nonpoint source pollution. Construction activities were conducted between October 2005 and June 2006, with follow-up monitoring and maintenance work continuing into summer 2007. Much of the work was done by FOLA volunteers.

FOLA volunteers work to install a large woody debris check dam across a stream tributary to Lake Antioch (photo by R. Schieck, FOLA).

The *Prestbury* ***Lake Shoreline Restoration Project***, sponsored by the Presbury Citizen's Association, stabilized 925 feet of severely eroding shoreline on Prestbury Lake, located in the Blackberry Creek watershed in Kane County. This project is controlling shoreline erosion and reducing nonpoint source pollution through upper bank reshaping and native plant revegetation, creation and planting of a shallow wetland shelf, and the installation of stone toe protection — all while protecting and enhancing habitat and aesthetic qualities. Construction began in November 2005 and was completed in summer 2006. Follow up monitoring and maintenance continues.

The Prestbury Lake shoreline before and after restoration ("before" photo courtesy of Al Kent, PCA;" after" photo by H. Hudson, NIPC).

A "No Dumping, Drains to Fox River" marker installed next to a storm drain in a Woods Creek neighborhood (photo by H. Hudson, CMAP).

The Village of Lake in the Hills implemented the ***Woods Creek Nonpoint Source Control Project*** which converted three existing dry bottom detention basins into constructed wetlands designed to improve pollutant removal before discharging stormwater into Woods Creek, a tributary of Crystal Creek which drains to the Fox River in McHenry County. The stormwater wetlands were designed to remove suspended and soluble nonpoint source pollutants, enhance habitat and aesthetics, and improve water retention and other beneficial hydrologic functions while preserving existing flood control benefits. Techniques used include excavation and grading to maximize flowpath lengths in the wetlands, planting emergent and wet mesic native wetland vegetation, modifying structures to retain low flows, and installing level spreaders to dissipate flows discharged from the wetlands. Construction was conducted in late spring/early summer 2007. In addition, a storm drain marker project was implemented in the community.

The Lake County Forest Preserve District implemented the Long ***Lake Shoreline Stabilization Project***, stabilizing 1,400 feet of severely eroding shoreline along the north shore of this glacial lake within the Grant Woods Forest Preserve. Shoreline stabilization practices included excavation and regrading, gabion baskets, submerged shelf with rock wall and submergent/emergent aquatic plant zone, timber wall, sheet piling, boulder toe, clearing of vegetation, erosion control blanket, and native vegetation planting, and seeding. Shoreline construction activities and wetland planting were completed in summer 2005; native prairie seeding was completed in early 2006. An associated curb, gutter, and swale repair project was completed in summer 2006 by the Grant Township Highway Department. Monitoring and maintenance of the seeded and planted areas continue.

One challenge has been the establishment of emergent plant species in some shoreline areas. While the emergent plantings in some sections have done well, in other areas even replanting efforts have largely failed.

Common bur reed and water plantain, protected by a benthic mesh geoweb, are among the wetland plant species installed in the constructed planting shelf at Long Lake (photo by H. Hudson, CMAP).

FY06-cycle

The ***White's Creek Stabilization Project*** is being conducted by the Geneva Park District. A tributary to the Fox River, White's Creek is located in east central Kane County and drains about 1,100 acres of urban area in southeast Geneva and northeast Batavia, Illinois. White's Creek suffers from active channel incision and subsequent bank erosion as the stream channel responds to "flashy" urban runoff by cutting further into the landscape, increasing unstable, near vertical bank heights and reducing cross sectional flow area. The stream gradient varies between 0.4% and 1.0%, and the project reach is very steep (0.9% - 1.1%) through silty clay loam soils. The channel incision and resulting bank erosion is a continual source of sediment, organic material, and nutrients which are transported down the stream channel and into the Fox River.

This project will be the final phase of a ½ mile long restoration/stabilization project on White's Creek. The project reach is located within Esping Park, a 9-acre park owned and managed by the Geneva Park District. The goal of this project is to restore natural hydrologic and riparian function to the stream corridor, which has experienced significant degradation due to historic watershed urbanization and prior lack of active management. This project will reduce pollutant loading into the Fox River by stabilizing the stream channel and banks, thus eliminating the accelerated channel incision which is progressing upstream through the park site.

The project length will be roughly 1,350 feet through the public park property. Natural stream function within the project reach will be achieved by establishing a wider natural stream buffer using native vegetation, reestablishing meanders in the existing low flow channel, excavating/creating new floodplain terraces that are more accessible to stream flows (to reduce in-stream scouring forces), and installation of instream habitat features such as riffles, pools, and coarse material (gravel) substrate. By stabilizing the stream channel, the project improvements will also provide water quality benefits to the local system, which appears to have significant aquatic diversity for such a small, steep tributary. Secondly, this stream is the only tributary to the Fox River between the Geneva Dam and North Batavia Dam that maintains sufficient flow to provide fish access for refuge and spawning.

Kane County is working with Dundee Township to implement the ***Dixie Briggs Fromm Stream Corridor Restoration Project***. Dixie Briggs Fromm (DBF) Open Space and Nature Preserve is a 151 acre oasis of green space in an area of rapid urbanization. Owned and managed by Dundee Township, DBF has a dry gravel prairie, sedge meadow, graminoid fen, forested ravines, and stream corridors with two interior subwatersheds, and includes a state-dedicated nature preserve. The project is a comprehensive stabilization project that will include streambank bioengineering, grade control, and restoration of riparian corridor vegetation along the approximate 1,850-foot long North-South Channel located in the western portion of DBF. The project aims to halt the erosion and down-cutting of this stream channel and restore the water levels/hydrology to surrounding wetland components by raising the stream bed 1-1.5 feet to restore it to near presettlement levels. The project will implement streambank bioengineering stabilization measures for severely eroded banks, rock riffle, and other grade control structures to arrest extensive channel downcutting, and riparian corridor restoration to reduce bank erosion, increase pollutant filtration, and reduce sediment and nutrient transport to the Fox River. The project will also reduce stormwater runoff generated from the site and increase groundwater infiltration. Additionally, the project involves public education and participation opportunities via site visitation, stewardship, and assessment activities before and after project completion.

The City of Aurora is undertaking work in several interrelated efforts to implement its ***Green Infrastructure Implementation Project***. The City will utilize best management practices (BMPs) within its riverfront tax increment financing districts, brownfield sites, and planned sewer decombination areas in order to provide more effective treatment of urban runoff before it enters the Fox River. Work will be focused within the area tributary to the proposed River's Edge Park (excluding the Indian Creek watershed) to be built along the Fox River's eastern shore (i.e., the "Study Area"). Land uses within the Study Area are primarily commercial, mixed use, industrial, and residential with some parks and open spaces. The project includes the following components:

- construction of a stormwater wetland complex within the River's Edge Park to treat numerous pollutants typical of urban runoff;
- development of a naturalized stormwater management corridor plan (NSMCP) to extend naturalized stormwater conveyance and treatment elements throughout the Study Area and to serve as a tool for parcel prioritization for BMP implementation;
- construction of a pilot bio-filtration BMP feature within a Study Area neighborhood in one of the parcels identified in the NSMCP;
- incorporation of BMPs into pending sewer decombination projects, consistent with the NSMCP;
- development and distribution of a stormwater management toolkit to educate local government agencies, developers, contractors, and land owners about nonpoint source pollution, water quality protection, and stormwater BMP design; and
- development and implementation of several public education and outreach strategies in support of all project components.

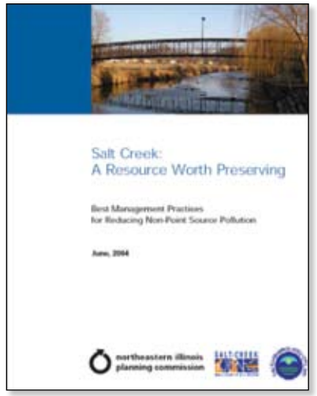
The overall project is designed to help improve water quality in the Fox River to meet the following objectives:

- reduce nonpoint source pollutant deposition and improve water quality in the Fox River;
- develop a naturalized, dispersed stormwater management design to alleviate combined sewer overflow (CSO) challenges;
- increase stormwater detention capacity;
- decrease stormwater discharge volumes to the Fox River;
- create urban wildlife habitat through naturalized stormwater management and interconnected greenways;
- educate the community regarding the value of hydrological best management practice (BMP) implementation; and
- provide a model for naturalized stormwater management for the Fox River watershed and northeastern Illinois region, reflected in policies, practices, and regulations to be adopted by the City.

Salt Creek Watershed Projects

Four projects and educational outreach materials were completed in 2005.

The Salt Creek Watershed Network (SCWN) worked with NIPC on the ***Salt Creek Education Work Strategy*** and prepared a Salt Creek watershed map, a BMP guide, and a guide for funding watershed improvements and projects. The final project report, BMP guide, funding guide, and a stormwater BMP electronic slide show are available on former NIPC's website (www.nipc.org/ environment/saltcreek). SCWN also created a website for the watershed (www.saltcreekwatershed.org).



The Parking Lot Runoff Pollution Prevention Project, sponsored by the Village of Brookfield, installed a bioinfiltration facility and manufactured treatment system to receive and treat runoff from the municipal parking lot and roof of the village hall before it discharges to Salt Creek.

Elk Grove Village implemented the ***Salt Creek Streambank Stabilization Project*** which stabilized streambanks and upland slopes using a variety of bioengineering techniques along 12,000 feet of Salt Creek to reduce streambank erosion while protecting and enhancing habitat.

The ***Salt Creek Headwater Recovery Project*** in Westchester, led by the ***Save the Prairie Society (STPS)***, restored streambanks, wetlands, and upland stream buffers along the Middle Fork of Salt Creek and Harrier Marsh. These practices stabilized eroding streambanks, established a vegetative riparian buffer, and enhanced aquatic habitat. STPS also developed an educational brochure and added a section to its website highlighting the project (www.savetheprairiesociety.org).

A close-up of newly installed vegetated geogrids along Salt Creek in Elk Grove Village (photo by H. Hudson, CMAP).

The Village of Itasca conducted the ***Spring Brook Creek Daylighting and Stabilization Project*** at Spring Brook Nature Center. This project installed bioengineering streambank stabilization techniques along a 1,500 foot section of Spring Brook Creek. Additionally, erosion control measures and wetland plantings were established at a daylighted storm sewer and are controlling erosion and filtering stormwater before it discharges to the creek.

A view upstream (during drought conditions) over two rock cross vanes installed as part of the Spring Brook Creek Stabilization Project (photo by H. Hudson, CMAP).

Lake Monitoring and Management

Volunteer Lake Monitoring Program

Illinois' Volunteer Lake Monitoring Program (VLMP) celebrated its 25th anniversary in 2005. Initiated by Illinois EPA in 1981 (by our count, the fifth oldest statewide volunteer lake monitoring program in the U.S.), this popular program brings together citizens, state agency staff, and regional planning commissions to monitor and investigate the quality of Illinois' lakes. CMAP serves as program coordinator for the six-county northeastern Illinois region. Staff provides volunteer training, technical assistance, educational materials, data management, fact sheet development, and assistance in annual report preparation. Additional activities this period included updating the VLMP *Training Manual* (last revised in 2003) and developing an instructional DVD. Both are expected to be completed by fall 2007.

Volunteer monitors measure water transparency (clarity) in a lake of their choosing using a simple device called a Secchi disk (an 8-inch diameter plate painted black and white in opposite quadrants attached to a calibrated rope or tape measure). The disk is lowered into the water and the depth at which it is no longer visible is recorded. Monitoring typically is done twice a month from May through October at three in-lake locations. The Secchi measurements are used to document changes in water transparency during the monitoring season as well as from year-to-year (Secchi transparency is affected by the color of the water and the amount of suspended sediment and algae in the lake).
In addition to Secchi disk monitoring, a subset of the volunteers (on a rotating basis) also collect water samples that are analyzed at an Illinois EPA or an Illinois EPA-certified laboratory.

VLMP data is used by the volunteers to learn about their lake's ecology and cause-and-effect relationships, and to assist in local lake and watershed management decision-making. Lake scientists, planners, and consultants also use the data for a wide variety of purposes. Further, the Illinois EPA uses VLMP data in its biennial assessment of the state's waters as required by the federal Clean Water Act.

Statewide, more than 120 lakes were VLMP-monitored during at least four of the twelve monitoring periods during 2005 and 2006. Northeastern Illinois lakes made up about half of the statewide total with more than 150 volunteers participating each year.
The accompanying figures present the average annual Secchi disk transparency values for those northeastern Illinois lakes that were monitored during at least four of the twelve monitoring periods during the 2005 and 2006 programs.

For the third and fourth years in a row, West Loon Lake in Lake County exhibited the greatest average transparency, 211 inches. Virginia Lake in Cook County recorded the next greatest average transparencies each year at 183 and 186 inches, respectively. Numerous other lakes, primarily in Lake County, but also in DuPage and McHenry Counties, exhibited average water clarities greater than 100 inches. Several more lakes around the region recorded average transparencies exceeding 80 inches. These high transparency lakes tended to be glacial or former quarry lakes. On the other end of the spectrum, several lakes displayed low average transparency values of less than 24–30 inches, generally due to high levels of suspended sediment and/or algae. More information on the VLMP is available from Northeastern Illinois VLMP Coordinator Holly Hudson of CMAP.

Volunteer Phil Hoaglund (Crystal Lake, McHenry Co.) uses a Secchi disk to measure water transparency (photo by H. Hudson, CMAP).

Volunteer Sharon Moderwell (Gages Lake, Lake Co.) carefully folds a filter containing algae that will be shipped to an Illinois EPA laboratory for chlorophyll analysis (photo by H. Hudson, CMAP).

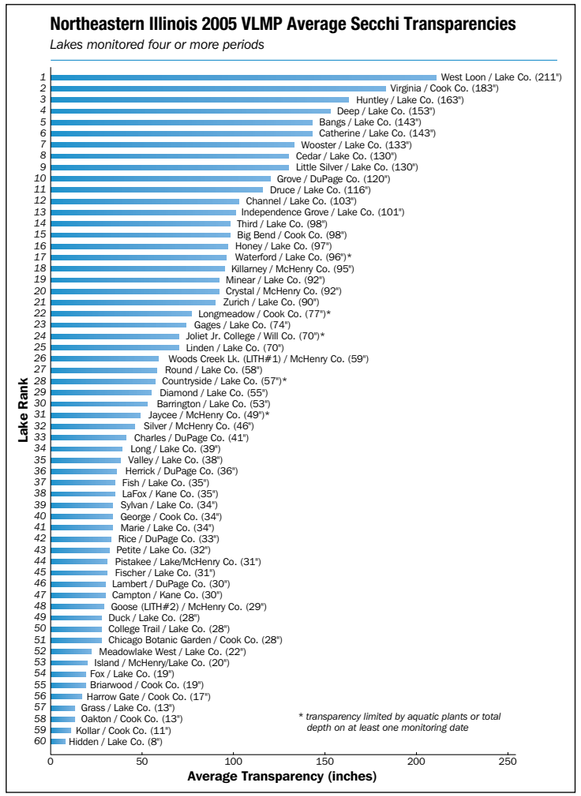
Lake Rehabilitation and Protection

For more than 25 years, NIPC assisted numerous local municipalities and agencies in studying, protecting, and rehabilitating their lakes. This assistance typically involved applying for grant funds, monitoring lake conditions and diagnosing problems, formulating rehabilitation and protection plans, and assisting in the implementation of rehabilitation and protection strategies.

Maple Lake Rehabilitation and Protection Project
An Illinois Clean Lakes Program Phase 2 rehabilitation and protection program at the Forest Preserve District of Cook County's Maple Lake continued into its third and fourth years of implementation. Several projects are aimed at maintaining the Lake's water quality and improving aquatic habitat and recreational opportunities. CMAP is serving as technical project advisor to the District for the Phase 2 program.

During the past two years, staff continued lake water quality sampling, provided input during the construction and post-construction phases of the shoreline stabilization project, participated in a shoreline clean-up event, conducted detailed surveys of the aquatic plant community, and continued to work with District staff to develop plans for a sediment removal project in the lake's southeast and southwest bays.

The shoreline stabilization project commenced in late July 2005 with the drawing down of the Lake's water level approximately two feet (gravity drained via a valve on one of the outlet structures). The drawdown facilitated installation of flagstone for shore protection in selected, high-use erosional areas along the north and east shores, as well as the construction of a fishing pier off the east shore. The last phase of the shoreline stabilization project was completed in May 2006 with the planting and seeding of wetland and sedge meadow vegetation along the east shore portion of the project. CMAP staff will continue to monitor revegetation success and recommend any needed remediation. Fishing appears to be more popular than ever at Maple Lake, with many folks and families taking advantage of the fishing pier and the flat surfaces the flagstone provides.



The drawn down lake provided an opportune time for a shoreline clean-up event. Organized by the District's Fisheries Division, about 30 volunteers convened on a crisp October Saturday in 2005 and collected an estimated two tons of garbage (primarily glass bottles) along with numerous 55-gallon drums, tires, and a few picnic tables — and that was from only about half of the Lake's shoreline (about 3/4 miles). *"If we only had had one more day…!"* according to the volunteers.

As reported in a previous *Water Quality Activities* report, the discovery of the non-native, invasive aquatic plant Eurasian water milfoil (*Myriophyllum spicatum*) in the lake in late summer 2004 was of great concern. A spring 2005 survey revealed that the milfoil's overall aerial extent was similar (within an approximate 3 to 4 acre area), but that abundance had increased somewhat. With the drawdown of Maple Lake beginning in late July 2005 for the shoreline stabilization project, much of the milfoil became exposed on the drying mudflats. By late September, minimal evidence of this invasive plant was found in the exposed areas. All of the remaining submersed milfoil was then treated by District staff. The spring 2006 aquatic plant community survey revealed minimal milfoil. The lake's water level remained below normal throughout the winter of 2005-2006, and thus desiccation and freezing may have controlled a significant portion of the Eurasian water milfoil population. However, by fall 2006, several milfoil plants were seen scatted in nearshore areas within the eastern third of the lake. By summer 2007, milfoil plants had, not surprisingly, spread to spots along the southern shore.

Another invasive aquatic plant species, curlyleaf pond-weed (*Potamogeton crispus*), remained abundant during spring 2006 in water depths less than about 11 feet (thus approaching half the lake's area) and sprouted a second though less abundant crop during mid- to late-summer. Curly-leaf pond-weed, like Eurasian water milfoil, is one of the first aquatic plants to sprout in the spring, and this species was again abundant in spring 2007. A native plant that noticeably increased in abundance between 2005 and 2006 and may have benefited from the drawdown was a naiad species, *Najas flexilis*. However, yet another invasive plant, flowering rush (*Butomus umbellatus*) also seemed to flourish following the drawdown and formed dense colonies in several shoreline areas by spring 2007. Staff will continue to monitor the aquatic plant community and work with the District on implementing invasive plant management strategies. Invasive aquatic animal species also are of concern at Maple Lake due to their potential to disrupt the lake's fish population and overall ecology. Rusty crayfish (*Orconectes rusticus*) is known to be in the lake, and the District has recently implemented a round goby (*Neogobius melanostromus*) watch effort.

While still under construction, dedicated anglers couldn't wait to take advantage of the new flagstone protection along Maple Lake's north shore (photo by H. Hudson, CMAP).

One of several "Round Goby Watch" signs posted, along with monofilament fishing line collection tubes, around Maple Lake (photo by H. Hudson, CMAP).

Related Natural Resource Activities

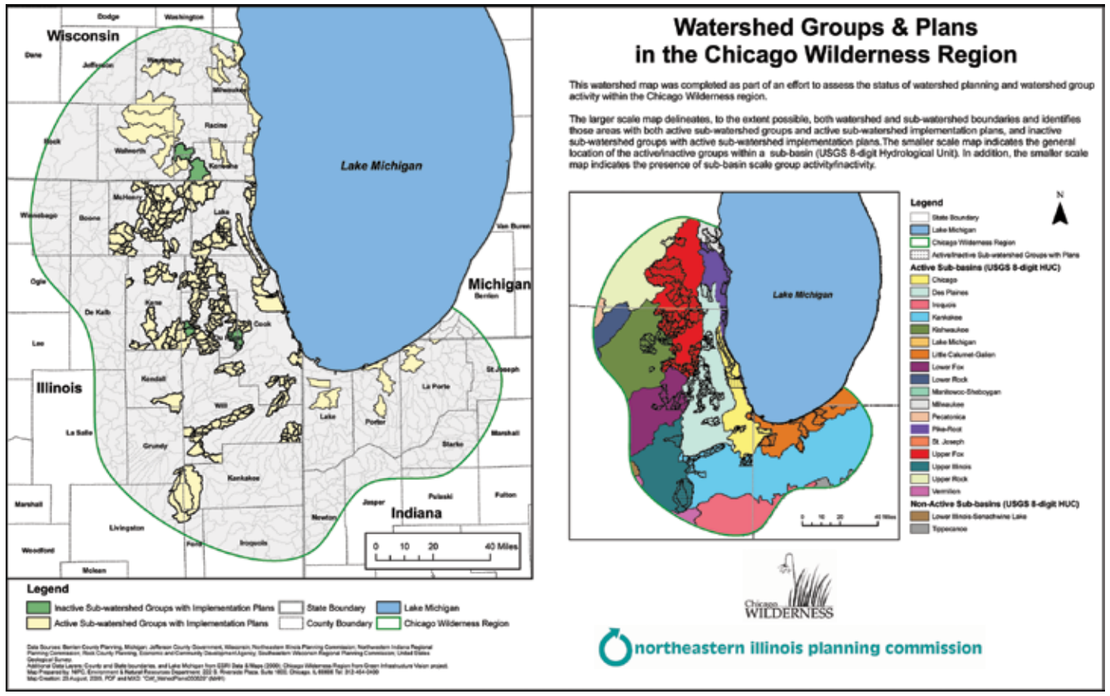
Chicago Wilderness Activities

The consortium now includes over 180 organizations, and staff members continue to work within the organization and on projects funded by Chicago Wilderness. CMAP staff members are active in several Chicago Wilderness groups, including serving as co-Chair and as Coordinator for the Sustainability Team. Other staff members are active on the Aquatics Task Force and Science Team.

Linking Watersheds Conference

NIPC conducted a comprehensive inventory of the Green Infrastructure Vision Area, as approved by the Chicago Wilderness consortium, for the Linking Watersheds 2005 conference held at the Brookfield Zoo in Brookfield, Illinois. The project included collecting information on the existence, date, type and status of watershed plans and using the inventory information to create a map of the results. From the information gathered, the watersheds were divided into three groups: 1) active (watersheds/sub-watersheds with either one or more currently active groups or the presence of a watershed plan, regardless of the presence of a currently active group); 2) unknown status (from the information gathered, no conclusion can be made whether they are active); and 3) inactive (no watershed plan and/or no activity within the watershed).

The map and inventory listing was used to involve more watershed groups in the area. Project partners included the Forest Preserve District of Will County, Brookfield Zoo, Northwestern Indiana Regional Planning Commission (NIRPC), Northeastern Illinois Planning Commission (NIPC), the Southeastern Wisconsin Regional Planning Commission (SEWRPC), and the U.S. Fish and Wildlife Service. The conference was well received and included staff from the Chicago Wilderness organization, environmental planners, interested citizens, and professionals.



Lake Biodiversity Recovery and Protection Plan Development Pilot Project

The Illinois Department of Natural Resources (IDNR) awarded C2000 funding to CMAP in spring 2006 to support a Lake Biodiversity Recovery and Protection Plan Development Pilot Project. This is a joint undertaking of CMAP and the Lake County Health Department–Lakes Management Unit (LCHD-LMU).

This project will complete three lake-specific bio-diversity protection and recovery plans, one each for an "exceptional," an "important," and a "restorable" lake (as defined in the Chicago Region Bio-diversity Council's *Biodiversity Recovery Plan*) within the Chicago Wilderness region, using Lake County, Illinois, as the pilot project area. This work will 1) identify, gather, update, and centralize already existing data from a variety of sources (e.g., Illinois DNR, Illinois EPA, NIPC, LCHD-LMU, U.S. Army Corps of Engineers), building upon LCHD-LMU's existing and extensive lakes databases; 2) develop a "lake bio-diversity" database to consolidate the existing data and allow addition of new data as it is collected; and 3) complete three written bio-diversity protection and recovery plans, one for each of the three lake types as noted above.

The lake owners and managers at each of the three pilot lakes will be engaged in the plan development process. It is intended that the specific bio-diversity protection and recovery actions recommended at each of the pilot project lakes will be implemented, as this plan development project is the first step for future, on-the-ground projects. These plans will outline actions for native aquatic species protection and possible reintroduction of extirpated species. These pilot projects will also serve as models of the planning process and applied practices that may be utilized at other lakes in the Chicago Wilderness region.

McHenry County ADID Update

The McHenry County Advanced Identification of Aquatic Resources (or ADID) study was a cooperative effort among federal, state, and local agencies to inventory, evaluate, and map high quality wetland and stream resources in the county. ADID studies are part of a U.S. Environmental Protection Agency program to provide improved awareness of the locations, functions and values of wetlands and other waters of the United States. The primary purpose is to identify wetlands and streams unsuitable for dredging and filling because they are of particularly high quality. This information can be used by federal, state and local governments to aid in zoning, permitting and land acquisition decisions. In addition, the study can provide information to agencies, landowners, and private citizens interested in restoration or acquisition of aquatic sites.

Protection and management of wetlands in McHenry County is critical to minimize the impact of urban development on important wetland resources. A Geographic Information System based wetland inventory had identified 36,451 acres of wetland in the county, representing approximately 9.3 percent of the county's total land area.

City of Chicago, Department of the Environment: Stormwater Management Ordinance and Associated Regulations and Manual

NIPC assisted the City of Chicago, Department of the Environment, in preparation of a Stormwater Management Ordinance and the associated Regulations and Manual. The City was interested in crafting a program that protected the water resources and was compatible with the unique characteristics of the City's drainage system and ongoing development and redevelopment activities.

First, an existing draft Stormwater Management Ordinance and Regulations provided by the City were reviewed and commented on for accuracy and interpretation, comprehensiveness of scope, the regional context, and the urban context.

Secondly, NIPC worked with the Department of Environment to draft the Regulations document. The document needed to be regulatory in nature, but also contain enough information to allow an applicant to understand what is required and provide information on the allowable methodologies. It contains much of the information that has been traditionally included in "ordinance" documents prepared for other communities. Development of the Regulations included tasks and activities that are required to write a stormwater ordinance based on NIPC's experience in developing model ordinance documents.

Thirdly, NIPC worked with the DOE to provide assistance and serve as technical advisor to the DOE on the preparation of a final draft of the Stormwater Management Manual. Comments and revisions to the draft were also provided. The manual is intended to provide background, explain design requirements, explain the review process, and include procedures for submitting and modifying a stormwater management plan. The Manual was designed to serve:

- as an educational tool that explains the background for the recommended approaches; and
- as a technical tool, resource, & guide for engineers & developers to prepare stormwater management plans for developments and to indicate how to prepare submittals for City review and approval.

The Manual identifies and includes appropriate technical guidance in a number of areas to provide users with a comprehensive package to guide development plans. The Manual focuses on clarifying the ordinance and providing design and submittal guidance. Based on the final draft of the Ordinance and Regulations, CMAP will review the draft Manual and prepare recommended revisions and serve as the technical advisor to the DOE on the preparation of a final draft of the Stormwater Manual.

Last year NIPC completed coordination of the first phase of an important, multi-state effort to engage regional planning councils in the Lake Michigan watershed in addressing water resource issues. Funded again by the US Environmental Protection Agency, the second phase of the Lake Michigan Academy project saw the regional planning councils taking the watershed approach back to their constituents by holding numerous conferences on watershed management, conducting direct outreach to local plan commissions, and communicating the results of technical pollutant loading studies to the public. The results of these education and outreach efforts will soon be made available on the CMAP website.

Water Supply Planning

At the behest of Governor Blagojevich's Executive Order 2006-1, an eleven county water supply planning process is underway in northeastern Illinois; one of two priority water planning areas in the state. CMAP has been chosen by the IDNR to lead and facilitate this planning process and has organized a new Regional Water Supply Planning Group (RWSPG) to be the representative body for deliberations and plan recommendations.

The RWSPG is composed of thirty-five delegates that represent the following stakeholder-interest groups:

1. academia and pubic interest in regional planning (2)
2. agriculture (2)
3. business, industry, and utilities (2)
4. conservation and resource management (2)
5. county government (11)
6. environmental advocacy (2)
7. municipalities and municipal water suppliers (10)
8. real estate and development (2)
9. wastewater and non-municipal water suppliers (2)

A new regional water supply plan is due July 1, 2009.

This report was prepared in 2007 using federal Water Pollution Control Act Section 604(b) funds from the Illinois Environmental Protection Agency. The findings and recommendations contained herein are not necessarily those of the funding agency.

Watershed and Natural Resource Technical Assistance Available

Commission staff continues to offer technical assistance on various water and natural resource topics to local governments and related organizations. Common topics include watershed planning; stormwater management; flood mitigation; sustainable development; conservation design; natural landscaping; and stream, lake and wetland protection.

Contact the Environment and Natural Resources Group at 312.454.0400 to discuss assistance needs.

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