Executive Summary

Wetlands, like soils, trees, fields, rivers, hills, and other natural resources, are vital components of the Indiana landscape. Wetlands serve important functions, both in human benefits such as maintaining the quality of the water we drink and controlling flooding, and in environmental benefits such as providing habitat for endangered species of wildlife and plants. The fact that the majority of the wetland resources once present in Indiana have been lost or converted to other uses makes wetlands especially critical resources for conservation.

Although wetlands conservation has at times been a controversial topic, there is broad agreement among diverse interests on many aspects of wetlands conservation and public responsibility. The purpose of the *IWCP*, and the long-term, intensive planning process used to develop it, is to achieve that conservation in ways that are beneficial to all Hoosiers. It establishes common ground on which progress in wetlands conservation can be made, and it sets forth specific actions designed to achieve that progress.

The *IWCP* has been developed through an extensive process of information gathering, input, and review by a variety of interests across the state. Development of the *IWCP* was guided by the Wetlands Advisory Group (people representing diverse stakeholders in Indiana wetlands conservation—from environmentalists to county surveyors; from farmers to coal mine operators) and the Technical Advisory Team (technical representatives from the state and federal agencies that have regulatory or oversight roles in wetlands conservation).

The *IWCP* includes a wetlands definition, goal, guiding principles, wetlands conservation priorities, and case studies of wetland conservation partnerships already up and running. The *Hoosier Wetlands Conservation Initiative* is the heart and soul of the *IWCP*. It provides a strategic approach to conserving Indiana's wetlands resources. The *Initiative* has six components:

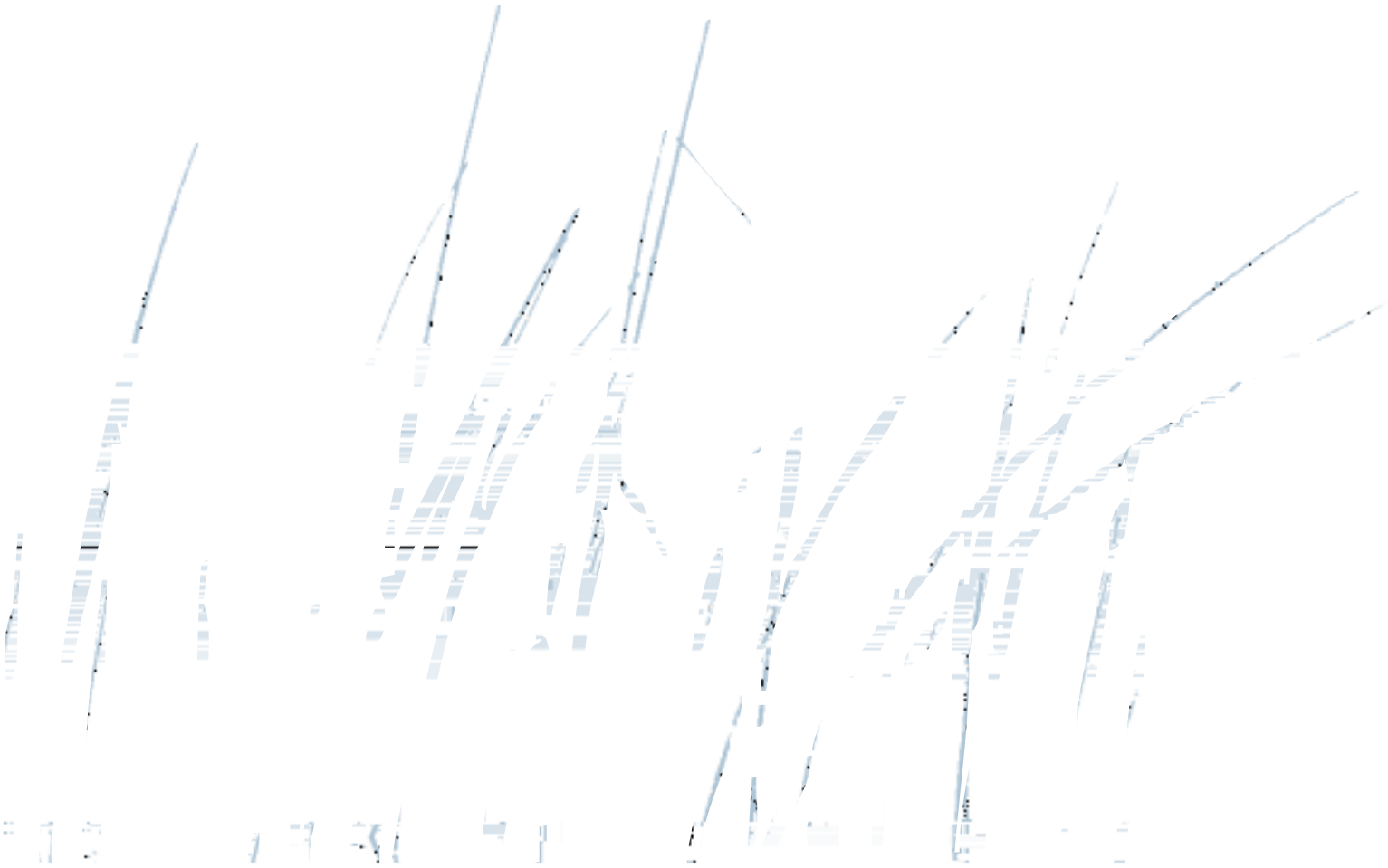
1. The cornerstone of the *Initiative* is an emphasis on planning and implementing the *IWCP* through local wetland conservation partnerships called focus areas.
2. Obtaining increased scientific information on Indiana's wetland resources is critical to identifying and implementing long-term wetland conservation strategies and policies that are both effective and cost-efficient.
3. The *Initiative* emphasizes positive incentives that motivate people to voluntarily conserve and restore wetlands.
4. The *Initiative* calls for increased wetlands education for technical staff, people who own/work the land, school children, and other audiences.
5. The *Initiative* seeks the acquisition of permanent protection for the highest priority wetlands from willing owners.
6. Continued work of the Wetlands Advisory Group and Technical Advisory Team in implementing the *Initiative* is critical to conserving Indiana's wetland resources.

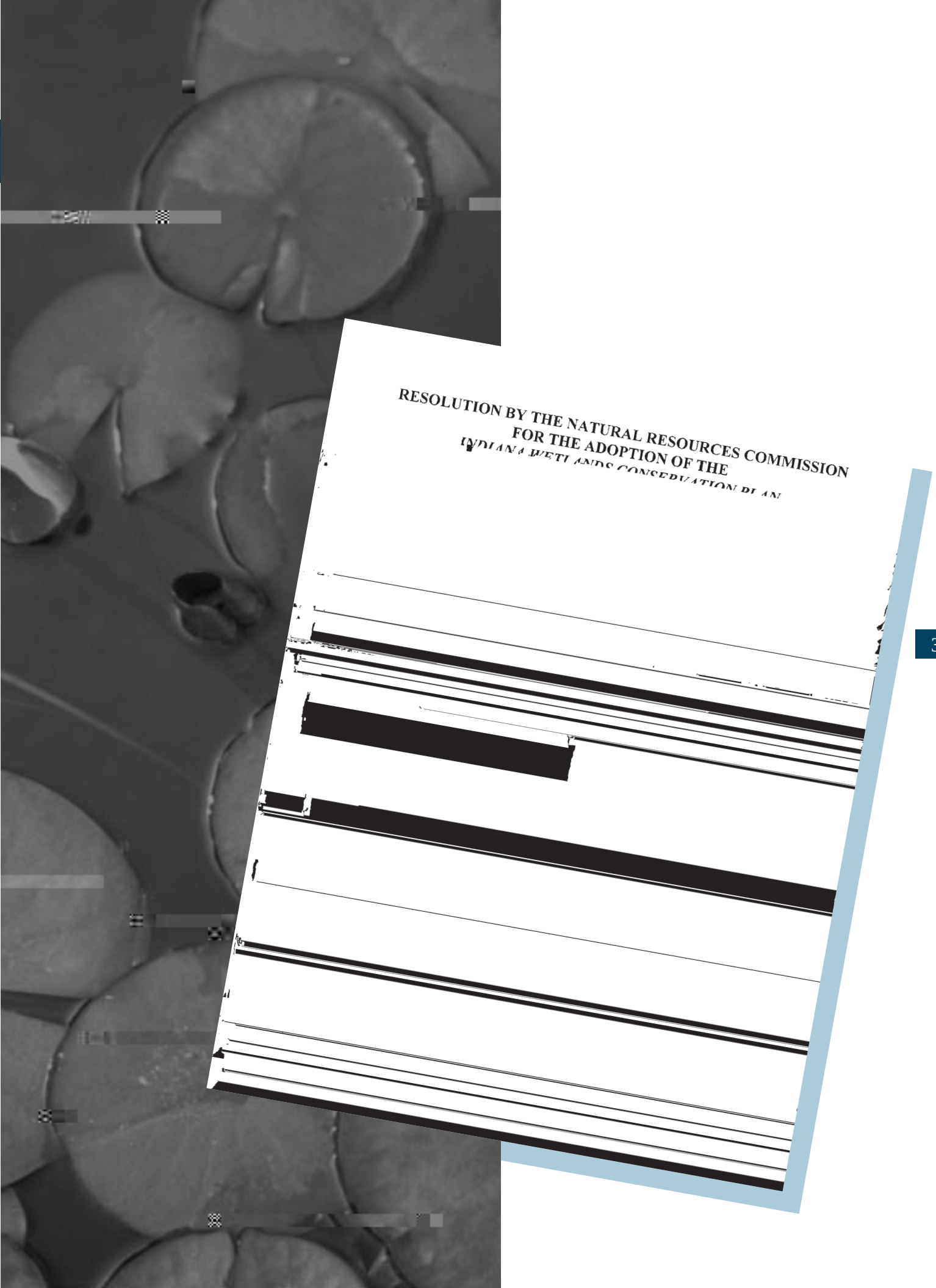
Specific objectives and actions for each of the six strategic components are outlined. Monitoring and evaluation of the *IWCP* are described.

Preface

In April 1994, the Indiana Department of Natural Resources initiated a process to develop the *Indiana Wetlands Conservation Plan* (*IWCP*).

This document represents the culmination of that process—a process that




RESOLUTION BY THE NATURAL RESOURCES COMMISSION
FOR THE ADOPTION OF THE

The *IWCP* does not, and is not designed to, address every issue surrounding wetlands conservation today. It does not seek to resolve every dispute or modify every program. What it has been designed to do is serve as a framework for discussion and problem-solving. It establishes common ground on which progress in wetlands conservation can be made, and it sets forth specific actions to achieve that progress.

"The Indiana Department of Environmental Management is pleased to have been a part of the Indiana Wetlands Conservation Plan process. It is encouraging to participate in a project where diverse interests work together to find common ground and mutually beneficial solutions to issues and concerns."
—Kathy Prosser,
Indiana Department of Environmental Management

The IWCP has four sections:

1. Status. An assessment of wetland resources and wetland conservation in Indiana.
2. Setting Direction. A description of what the *IWCP* is designed to accomplish and how—definitions, goals, guiding principles, priorities, and case studies.
3. *Hoosier Wetlands Conservation Initiative.* The action portion of the *IWCP*—strategic components, what will be accomplished, how it will be accomplished and when, and how it will be funded.
4. Monitoring and Evaluation. Measuring progress.

Development of the *IWCP* offers a tremendous opportunity. This process and the resulting *IWCP* may well become key points in the history of conservation in Indiana.

The Process—How the IWCP Was Developed

Although development of the *Indiana Wetlands Conservation Plan* has been coordinated by the Indiana Department of Natural Resources, the *IWCP* is intended as a guide for all wetlands conservation efforts in the state. Funding for the project was provided through a grant from the U.S. Environmental Protection Agency to the Indiana Department of Natural Resources.

"This project brought together a wide range of divergent interests to focus on wetlands conservation. I think it was a valid process and one we were happy to participate in."
—Jim Barnett,
Indiana Farm Bureau

The *IWCP* has been developed through an extensive process of information gathering, input, and review by a variety of interests across the state.

The major components of this process include:

1. **Technical Advisory Team.** This group includes technical representatives from the state and federal agencies that have regulatory or oversight roles in wetlands conservation (Appendix A).
2. **Wetlands Advisory Group.** A group of people representing diverse stakeholders in Indiana wetlands conservation—from environmentalists to county surveyors; from farmers to coal mine operators (Appendix B). Through a series of full-day working sessions, the Group has developed much of what is contained in the *IWCP*.

3. **Project reviewers.** This is a group of several hundred stakeholders that have been solicited for input on the *IWCP* by telephone and through the mail throughout the planning process (Appendix C).

4. **Public opinion survey.** A public opinion survey was conducted in November 1995 to determine Indiana residents' opinions on and attitudes toward wetlands and wetlands conservation.

5. **Facilitators.** In addition to facilitating the planning process, project facilitators also compiled information on various aspects of wetlands conservation in Indiana and the U.S. for use in developing the *IWCP*.

6. **Public review process.** Two drafts of the *IWCP* were made available for public review so all Hoosiers would have an opportunity to comment and make recommendations. A December 18, 1995 draft of the *IWCP* was distributed for public review and comment to 350 people, 60 of which had requested the draft based on publicity about its availability. A March 8, 1996 draft was distributed for public review and comment to 357 people, and 175 sets of comments on various drafts of the *IWCP* have been received. These comments have been compiled and are part of the public record.

How You Can Be Involved

Successful conservation of Indiana's wetland resources will depend on the interest and involvement of citizens in the State. There are several things you can do to help achieve wetlands conservation in Indiana:

1. Review the *IWCP*—if you have questions, contact the Indiana Department of Natural Resources or any of the people, agencies, or organizations listed in the appendices of this document.

2. Encourage agencies, private conservation organizations, and businesses to support and help implement the

Erosion Control: Wetland systems help stabilize shorelines and prevent soil erosion. The roots of wetland plants bind the soil, holding it in place, while the above-ground portions of these plants absorb wave energy, slowing the water's flow. Wetlands also trap sediments suspended in moving water. Wetlands with emergent plants (such as cattails) can remove up to 95% of the sediments from flood waters.

In northern Indiana, many natural lakes have experienced serious shoreline erosion due to the wake wash from the growing number of boats and other pleasure craft. Wetlands fringing these lakes shield the shorelines from wave action, providing important erosion control that protects lakefront properties.

Economic

Food Production: Wetlands provide habitat for fish, waterfowl, shellfish, and other animals that are harvested for food. Healthy and functioning wetland ecosystems are necessary to maintain the resource base for this food production economy. Because of their high productivity, wetlands also have unrealized food production potential through the harvest of vegetation and aquaculture.

Wood Production: Forested wetlands often contain high-value tree species, and under proper management, are an important source of timber and other forest products. In Indiana, more than half of the remaining wetland acres are forested. Indiana ranks third nationally in hardwood lumber production, contributing $5 billion annually to the state's economy.

Trapping: Although it is not a major economic activity in Indiana, the harvest of fur-bearing animals does generate revenue for trappers. All of the economically significant furbearer species in Indiana are wetland-related.

Recreation: Many recreational activities take place in or around wetlands, including hunting, fishing, sightseeing, nature study, photography, bird-watching, canoeing, and boating. Some of these activities are directly dependent upon wetlands. Nationwide over $10 billion is spent annually by an estimated 50 million people on fishing, hunting, boating, nature study, photography, and swimming. In Indiana, duck and goose hunting alone provide approximately 75,000 user days of recreation annually, and a survey by the U.S. Fish and Wildlife Service suggests that Indiana wetland habitats generate more than a million user days of nonconsumptive recreation each year.

"Wetlands are one of the most important conservation issues we face in Indiana at the moment. They are some of the most diverse ecosystems we have."
—Jon Voelz,
Indiana Wildlife Federation

Historic Wetland Losses

The best estimate of the wetlands in Indiana prior to settlement 200 years ago is an assessment based on hydric soils (soils that indicate the presence of wetlands) conducted by the USDA Soil Conservation Service (now the Natural Resources Conservation Service). Based on an analysis of this data by the Indiana Department of Natural Resources, Division of Outdoor Recreation in 1989, there were approximately 5.6 million acres of wetlands in Indiana 200 years ago. Combining the information from the National Wetlands Inventory and the Division of Outdoor Recreation yields the following summary:

- Total land area ---------- 23,226,240 acres
- Estimated wetlands circa 1780s -------- 5,600,000 acres
- Percent of surface area in wetlands circa 1780s ---------- 24.1%
- Existing wetlands ---------- 813,000 acres
- Percent of surface area in ing wetlagTIltTIlng wetl/1c.,1.4 TD((3.5 -)Tj6.336 0 TD(cres)Tj-15 -1.2Tj0.

Education Programs

Federal

- Environmental Education Grants (U.S. EPA, 312-353-3209)
- Environmental Software (U.S. EPA, 312-353-6353)
- Enviroscape watershed model (U.S. EPA, 312-353-7314)
- Wetlands Information Hotline (U.S. EPA, 800-832-7828)

State

- Project Learning Tree (Indiana DNR, 317-290-3223)
- Project WILD (Indiana DNR, 317-290-3223)

Private/Local

- Know Your Watershed
  (Conservation Technology Information Center, 317-494-9555)
- National Wetlands Conservation Alliance
  (National Association of Conservation Districts, 202-547-6223)
- Partners for Wetlands Protection Kit (Izaak Walton League, 301-548-0150)
- The Wetlands Project (Indiana Sierra Club, 317-231-1908)
- WOW! The Wonders of Wetlands (Environmental Concern, Inc., 410-745-9620)
- Soil and Water Conservation Districts (SWCD)
  example: Exploring Wetlands (Clark County SWCD, 812-256-6171)
- County Parks
  example: We Need Wetlands Activity Pack for Educators
  (St. Joseph County Parks, 219-654-3155)

Cooperative

- Integrated Environmental Curriculum Wetlands Component
  (Sierra Club Wetlands Project, U.S. Fish & Wildlife Service,
  Indianapolis Zoo, 812-334-4261)

Acquisition Programs

Federal

- National Forest Land Acquisition Program (U.S. Forest Service, 812-275-5987)
- National Park Service Land Acquisition Program
  (National Park Service, 202-343-8124)
- National Wildlife Refuge System (U.S. Fish & Wildlife Service, 812-334-4261)
- North American Waterfowl Management Plan
  (U.S. Fish & Wildlife Service, 812-334-4261)

State

- Indiana Heritage Trust (Indiana DNR, 317-232-4080)
- Land and Water Conservation Fund (Indiana DNR, 317-232-4070)
- Wetland Conservation Areas (Indiana DNR, 317-232-4080)

Private/Local

- MARSH (Matching Aid to Restore States' Habitat)
  (Ducks Unlimited, No. of SR 26, 219-463-4353; So. of SR 26, 812-397-2740)
- Hoosier Landscapes Capital Campaign: Saving *Our* Last Great Places
  (The Nature Conservancy, 317-923-7547)
- Waters of Life Campaign (The Nature Conservancy, 317-923-7547)
- Focus Area Projects (these might also be considered as incentive programs)
  examples: Limberlost Swamp Remembered (219-997-6494)
  Little River Wetlands Project, Inc. (219-429-4565)
- Land Trusts
  examples: Acres, Inc. (219-422-1004)
  Oxbow, Inc. (513-471-8001)
  Sycamore Land Trust (812-336-5257)

Cooperative

- Indiana Natural Heritage Protection Campaign
  (The Nature Conservancy, 317-923-7547; Indiana DNR, 317-232-4052)

Regulatory Programs

Federal

Dispute Resolution

The lack of a process or forum for regulators and regulatees to work through disputes to find mutually beneficial solutions.

Education

In a broad sense, the lack of knowledge for and appreciation of the critical functions provided by wetlands among different segments of the public.

Property Rights

There is concern about the impact regulations and other management activities have on private property rights.

"This issue of property rights is a very real concern for anyone with urban or rural property."
—Gordon W. Barnett, Oakland City, Indiana

Prioritization

The lack of priorities for conserving wetlands hinders the effectiveness of programs.

Access to Resources

A concern that conservation programs will close wetland areas off to any type of use resulting in negative economic impacts. Also, the concern that wetland conservation efforts will take valuable agricultural land out of production.

Access to Information

There is a tremendous amount of information on wetlands, but this information is often not readily available to the people who need it. Also, people may not be aware that the information exists.

Focus on Conservation

Concern that public agencies will bow to political pressure and not do what is needed for wetlands conservation.

Wetlands and Public Health

Concern that increasing wetlands in the state may increase the incidence of diseases such as malaria.

Indiana Residents' Opinions on and Attitudes toward Wetlands Conservation

Following are summarized results of a survey concerning Indiana residents' opinions on and attitudes toward wetlands and wetlands conservation. This survey was conducted in November 1995 by Responsive Management, Inc. through telephone interviews with 600 randomly selected Indiana residents. Complete survey results are available in a separate document titled *Indiana Residents' Opinions on and Attitudes toward Wetlands Conservation.*

Hoosiers were asked if they were aware that there are wetlands in Indiana:

79% yes
21% no

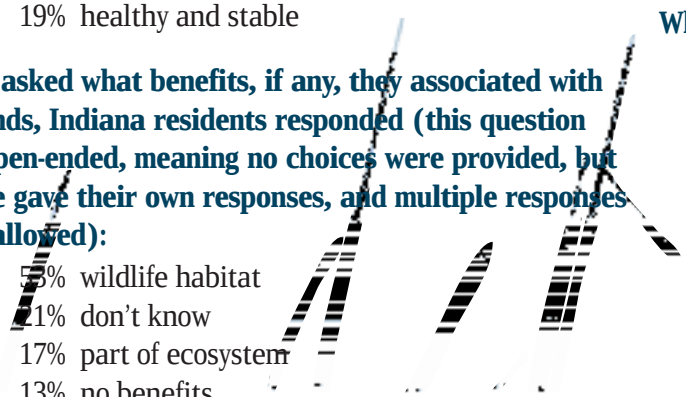
Those who said they are aware of Indiana's wetlands were asked how much they had heard about wetlands:

4% nothing
48% little
31% moderate amount
17% great deal

Those aware of Indiana's wetlands were asked what they thought was the status of Indiana's wetlands:

19% don't know
61% declining
19% healthy and stable

When asked what benefits, if any, they associated with wetlands, Indiana residents responded (this question was open-ended, meaning no choices were provided, but people gave their own responses, and multiple responses were allowed):



53% wildlife habitat
21% don't know
17% part of ecosystem
13% no benefits
6% recreation
6% pollution control
14% other (responses included: aesthetic, maintenance of groundwater levels, flood control, and educational)

When asked what drawbacks, if any, they associated with wetlands, Indiana residents responded (this question was open-ended):

43% no drawbacks
22% don't know
11% takes farmland out of production (17% of respondents who listed their residence as rural stated this response)
11% mosquitos
13% other (responses included: development, increased public ownership of land, disease, can't do anything with land, flooding, and increased crop damage)
10% other (no specific responses given)

When asked their opinions about protecting wetlands:

80% of Indiana residents (69% of rural respondents) said they strongly or moderately support efforts to protect Indiana's wetlands (15% said neither/don't know, and 5% said they strongly or moderately opposed such efforts)
88% think it is very or somewhat important for the state to protect Indiana's wetlands (8% said don't know, and 5% said not at all important)

Hoosiers were asked who should be responsible for protecting Indiana's wetlands:

45% state government
16% don't know
9% everyone
9% private landowners
6% other
5% federal government
11% private groups, municipalities, DNR, or no one

When asked their opinions about methods of protecting wetlands (choices were: strongly oppose, moderately oppose, neither, moderately support, strongly support):

52% strongly or moderately support tax breaks to private landowners who protect wetlands on their property

68% strongly or moderately support private conservation groups providing compensation to private landowners who protect wetlands on their property

72% strongly or moderately support the state of Indiana purchasing land containing wetlands

76% strongly or moderately support private conservation groups purchasing land containing wetlands

78% strongly or moderately support state regulations designed to protect wetlands

Residents were asked how they thought wetland conservation efforts should be paid for (this question was open-ended):

27% don't know
25% voluntary donations
19% redistribute state revenues
17% increase state taxes
14% private conservation groups
15% other (responses included: user fees, lottery, increase property tax, shouldn't be protected, and hunt/fish licenses)
4% other (no specific responses given)

Residents were asked where they get their information about wetlands (this question was open-ended):

39% newspapers
23% television
22% magazines
19% no information
15% personal experience
13% family/friends
23% other (responses included: school, private conservation organization, radio, Indiana DNR, hunting experience, farming experience, books, work, don't know, cooperative extension service, and library)
5% other (no specific responses given)

When asked which source of wetlands information they considered most credible, Hoosiers responded:

43% Indiana DNR
21% private conservation groups
19% U.S. Fish & Wildlife Service
9% farmers
9% none of these, friends/family, or celebrities

NOTE: This is a scientific definition—not a regulatory definition. It is not intended for use in conducting regulatory delineations. The *Plan* also recognizes that there are other scientific definitions of wetlands in existence (e.g., the National Academy of Science, National Research Council: *Wetlands: Characteristics and Boundaries*). However, the *Plan* is non-regulatory in nature and therefore not dependent on a specific legal definition; and the Cowardin definition remains the most widely accepted and used scientific definition to date. Therefore, the WAG and the TAT agreed upon use of the Cowardin definition for purposes of the *IWCP* at this time.

Regulatory Definitions of Wetlands

The *Indiana Wetlands Conservation Plan* recognizes that there are state and federal regulations currently in place that define and delineate wetlands for specific purposes. Therefore, parts of the *Plan* that come under the jurisdiction of these regulations will be subject to these definitions. The *Plan* does not add to or alter the existing regulations in any way.

State of Indiana Definition (from rules adopted by the Natural Resources Commission to help administer the Indiana Flood Control Act)

"Wetland" means a transitional area between a terrestrial and deep water habitat (but not necessarily adjacent to a deep water habitat) where at most times the area is either covered by shallow water or the water table is at or near the surface and under normal circumstances any of the following conditions are met:

(A) The area predominantly supports hydrophytes, at least periodically, or the substrate is predominantly undrained hydric soil; for example, peat or muck.
(B) The substrate is not a soil but is instead saturated with water or covered by shallow water some time during the growing season; for example, marl beaches or sand bars.

Environmental Protection Agency and U.S. Army Corps of Engineers Definition (from Section 404(b)(1) Guidelines under Section 404 of the Clean Water Act (40 CFR Part 230.3(t)))

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

Wetlands Conservation Priorities

Given the limited resources (time and funding) available for wetlands conservation, determining the number of acres and the types of wetlands that should be conserved will be a challenge. Such *prioritization*, however, is fundamentally important to the *IWCP*. The more specific the plan can be about how many acres of what types of wetlands need to be conserved and where they are, the more efficient and cost-effective the wetlands conservation strategies can be.

Two things make setting priorities difficult, especially on a statewide basis. First, as discussed in the Status section of this plan, detailed, up-to-date information on the location, status, and threats to existing wetlands is not readily available.

Second, and more important, the many functions and benefits derived from wetlands make it difficult to set priorities. For example, how do we compare the value of protecting existing wetlands or restoring drained wetlands for purposes of flood control versus for conserving biological diversity?

After considerable work, discussion, and review by both the Technical Advisory Team and Wetlands Advisory Group, the following recommendations were made regarding prioritization. These recommendations represent progress to date and do not constitute a complete prioritization process. They should be used as a starting point for implementing Actions 2.2.1 and 2.3.1 in the *Hoosier Wetlands Conservation Initiative* (page 40).

1. Given that 85% of Indiana's wetlands have been lost, all remaining wetlands are important and should be considered important for conservation. However, a system for prioritizing wetlands for conservation must be developed.

2. Priorities for conserving wetlands based on water quality, flood control, and groundwater benefits should be made at the watershed or sub-watershed level. Criteria for identifying priorities based on water quality, flood control, and groundwater benefits were developed and are included in Appendix E. A description of Indiana's 12 water management basins or "watersheds" is included in Appendix F.

3. Special concerns for water quality, flood control, and groundwater should be identified for each watershed. An initial list of concerns developed by the Technical Advisory Team is listed in Appendix F.

"The Natural Resources Conservation Service of USDA is pleased with the process utilized over the past two years in preparing the first Indiana Wetlands Conservation Plan."
—Robert L. Eddleman, Natural Resources Conservation Service

4. Statewide priorities for conserving wetlands based on biological and ecological functions should be developed based on the following criteria:

   a. Rarity of wetland type
   b. Presence of endangered, threatened, or rare species
   c. Presence of endangered, threatened, or rare species habitat, but species not yet identified at the site
   d. Diversity of native species
   e. Diversity of wetland community types
   f. Proximity of other valued ecosystem types
   g. Natural quality (amount of disturbance/degradation)
   h. Irreplaceability (can the wetland type be re-created)
   i. Recoverability (can the wetland type recover from disturbance it has experienced)
   j. Size
   k. Location

The priorities should be identified based on the natural regions currently used by the Indiana Department of Natural Resources, Division of Nature Preserves and many other agencies and organizations. The natural regions and wetland communities found in each watershed are identified in Appendix F. Wetland communities are described in Appendix G.

5. Historical and recreational benefits of wetlands should be considered in identifying priorities.

6. Based on the statewide biological and ecological priorities, a process should be developed to assist in identifying wetland priorities at the watershed or sub-watershed level.

7. Better information on Indiana's wetland resources is needed to more effectively identify scientifically based priorities described in Appendix G.

"It's always inspiring to see a voluntary group putting so much time and energy into addressing issues and solutions together."
—Cathy Garra,
U.S. Environmental Protection Agency,
Region 5

In addition to voluntarily restoring wetlands, partners also encouraged local landowners to plant trees and filter strips along the Fish Creek corridor, and encouraged farmers to adopt conservation tillage practices to reduce erosion. And they don't just talk about it either. Partner organizations provide the technical expertise needed to do the projects right. Perhaps more importantly, they provide cost shares and other funding for these measures through internal programs as well as grants received from outside sources.

Partnerships Are the Key

According to Clemens, "Gathering a diverse group of agencies, organizations, and individuals together is the key to success in this kind of effort. We found it worked best to keep the partnership informal. Every partner brings different talents and resources to the table, and we don't worry about who's getting recognition for it."

"Gathering a diverse group of agencies, organizations, and individuals together is the key to success in this kind of effort."
—Larry Clemens,
Fish Creek Watershed Project

Clemens highly recommends that the partnership have a full-time, locally based coordinator who can keep things moving forward. "It means a lot to the local interests when you can meet with them face-to-face. Then the partnership becomes real—it has a name and a face—and it's not just a pie-in-the-sky idea anymore." Clemens also says that getting the "right" local people involved can make a big difference. "We sought support and participation from community and neighborhood leaders in addition to leaders in the local units of government. Probably the best promotion that the partnership gets is through word-of-mouth among neighbors."

Interestingly, the partnership aspect also helps when it comes to funding the conservation efforts. "Partnerships is a buzzword in the fund-raising arena," says Clemens. "People want to give to partnerships because they know their money will go farther and be used more effectively that way." Clemens points out that location can also play a role in funding. "There's a lot of national attention being placed on water quality in the Great Lakes Region right now. It's a good time to get funding for these critical efforts from the Environmental Protection Agency, Great Lakes National Program Office and Great Lakes Commission."

As final words of advice to other local areas who are considering forming a partnership like Fish Creek, Clemens says: "Put a high priority on getting some projects done right away. It's a lot easier to build and sustain momentum for the whole effort when you can point to a restored wetland or a completed tree planting."

For more information, contact Larry Clemens, (219) 665-9141.

Oxbow, Inc. is a grassroots organization that has more than 1,100 members from around the country. It is funded primarily through membership dues, although it has been the recipient of several large settlements from industries that have caused pollution in the area.

Getting It Done

For other focus area efforts just getting started, Flannery offers this advice: "Try to attract prominent members of the local communities to join your effort. They have the financial resources and influential friends that can really help—especially when you're just getting started." Although she admits that fortunate timing had a lot to do with the success of Oxbow, Inc., Flannery also credits the can-do attitude of the members and the Board of Directors. "We said from the very beginning that we can't wait on someone else to come along and help us do this. We said if we're going to get it done, we've got to be the ones to get out there and do it." To date, 1,541 acres are preserved or protected. So far so good.

For more information, contact Norma Flannery, (513) 471-8001.

Case Study: Cedar Creek Watershed Alliance

Clean Drinking Water and a Lot More

No one wants to drink water that is laced with pesticides and herbicides, yet that is the reality that faced the 175,000 residents of Fort Wayne and other cities and towns along the St. Joseph River in northeast Indiana. T:
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How to Get Started?

Based on Troyer'

The history of the marsh has lived on in the minds of many area residents. This, combined with a deteriorating agricultural drainage system and the potential for funding under the North American Wetland Conservation Act, led to the establishment of the Indiana Grand Kankakee Marsh Restoration Project in 1993.

A Unique Situation

Recognizing that wetlands provide many benefits to society

Keys to Success

Seketa believes that having the right steering committee is a major factor in making local area efforts successful. "You've got to have dedicated, locally based people who are open-minded and willing to work together for common goals," he says. He also believes that selecting the right chairperson of the committee is critical. Once the committee and chairperson are in place, they must develop a plan of action that communicates their vision and mission to the public and to potential project partners. "Grants and other sources that provide money on a matching basis are the best bet for project funding," Seketa says," because they create and encourage the formation of partnerships, which makes all of the efforts more powerful." The final keys to success that Seketa mentions are the intangibles. "Sometimes, you just need some good luck—to be in the right place at the right time. That's what happened with the GKMP; I still can't believe we've done what we've done."

For more information, contact Dick Blythe (Project Chairman), (219) 924-4403.

"Sometimes, you just need some good luck—to be in the right place at the right time."
—George Seketa,
Grand Kankakee Marsh Restoration Project

Objective 2.1 Have a standardized method for functional assessment of wetland quality in place by May 1998.

Some individual wetlands of one type are higher quality than others of the same type and thus should be given a higher priority for conservation. A standardized method for assessing wetland quality is needed. Both existing and new methods for functional assessment should be considered.

Action 2.1.1 The next steps for obtaining a functional assessment method will be determined by the Technical Advisory Team and Wetlands Advisory Group.

Objective 2.2 Have an inventory system capable of quantitatively identifying and monitoring Indiana's wetlands in place by May 1998.

This is a major undertaking. It is important to note that the system for conducting the inventory should be in place by May 1998, but it is unlikely the actual inventory will be completed by then. The inventory system would be designed to try to answer the following questions:

- How many of what types of wetlands are there in Indiana and where are they found?
- How many of what types of wetlands are we gaining or losing?
- What is causing the gain or loss?
- What impact do specific wetland conservation programs, regulations, and policies have on wetland resources?

The inventory should be updated at regular, periodic intervals.

Action 2.2.1 By March 1997, a task force should develop a description of the system needed, the costs to get it established, and a timetable for having it in place by the target date of May 1998.

The task force should be multi-disciplinary with representatives from resource agencies, universities, and the private sector.

Objective 2.3 Prioritize Indiana's wetlands for conservation by community type and watershed by May 1999.

Action 2.3.1 Develop a process that integrates the inventory described in Objective 2.2 with the Natural Heritage Inventory database. The process should consider the multiple functions and benefits of wetlands and should incorporate monitoring information from the focus area projects.

- Consider incentives for:
  - -Conservation of existing wetlands.
  - -Restoration and then conservation of drained or modified wetlands.
  - -Creation of wetlands.
- Identify needs for specific focus area projects, and promote and deliver incentives through the focus areas.

4. Education—targeted efforts for technical staff, people who own/work the land, school children, and other audiences

Background

The need for better, more timely information on wetlands and wetlands-related programs, and an increased understanding of the functions and benefits of wetlands have been consistently identified as high priority needs. This call for *education* comes from a broad diversity of interests, including environmental groups, developers, and county surveyors, who identify a lack of information and misunderstanding as major obstacles. *Education* is a broad topic. The following objectives and actions focus efforts through 1998. The efforts should be delivered at both statewide and focus area levels.

Objective 4.1 Inform Hoosiers of the *IWCP*—what it is, what it means to them, and how they can get involved.

Action 4.1.1 Distribute information directly by mailing copies of the *IWCP* to all interests and communicating through the media upon completion of the *IWCP* in May 1996. In addition:

- Use existing mechanisms and programs.
- Emphasize the multiple benefits and functions of wetlands.
- Make all *IWCP*-related information available on the Internet.

Objective 4.2 Identify existing, effective education efforts and specific additional education efforts that are needed in Indiana.

Action 4.2.1 Compile an inventory of existing education efforts.

This inventory has been completed as part of the *IWCP* project. Detailed information on the education efforts listed on page 18 of the *IWCP* are available in a separate document titled *A Summary of Action:*

Action 4.2.2 Assess needs, evaluate existing efforts, and identify modifications and additional efforts needed by August 1997. The assessment should include three entities from throughout the state:

- People who represent the "recipients" of the information (landowners, developers, soil and water conservation districts, etc.).
- Wetlands conservation entities (technical people).
- Education community (people involved in conservation and environmental education as well as education in general).

"The Indiana Wetlands Conservation Plan is comprehensive and addresses the problems in a thorough manner. It seems eminently workable."
—Norma Flannery, Oxbow, Inc.

Objective 4.3 Improve the accessibility of existing wetlands information to all interests.

Action 4.3.1 Develop outreach efforts for interests that currently have direct impacts on wetlands. Considerations include:

- The efforts should be developed cooperatively with the various interests—developers, county surveyors, farmers, soil and water conservation districts.
- The efforts should be small group-oriented (e.g., seminars, workshops, and one-on-one contacts).
- Emphasize wetlands avoidance by providing information on techniques for designing projects and conducting operations and land management practices in ways that avoid adverse impacts on wetlands.
- Deliver and coordinate efforts through the Wetlands Advisory Group, Technical Advisory Team, and focus areas.
- Emphasize two-way exchange of information.

5. Acquisition—efforts to acquire permanent protection for priority wetlands from willing owners

Background

Acquisition of enough land to conserve all of the functions and benefits wetlands provide in Indiana and to achieve the goal of the *IWCP* is neither feasible nor desirable. However, there is broad support for providing permanent protection of some wetlands because of their rarity, susceptibility to loss, or other factors. It is important to emphasize that acquisitions should be from willing sellers and that permanent protection can be obtained in ways other than fee title such as permanent easements.

Objective 5.1 Identify long-term, statewide wetland acquisition priorities.

Action 5.1.1 Compile an inventory of existing acquisition efforts.

This inventory has been completed as part of the *IWCP* project. Detailed information on the acquisition efforts listed on page 18 of the IWCP are available in a separate document titled *A Summary of Wetlands Conservation Programs in Indiana.*

"This document has obviously been well thought out."
—James H. Keith, Earth Tech

Action 5.1.2 By May 1999, develop long-term acquisition priorities based on the overall wetland conservation priorities identified under Action 2.3.1.

Objective 5.2 Increase acquisition efforts for current high priority wetlands from willing sellers.

Action 5.2.1 Provide additional funding to the Heritage Trust Program.

Action 5.2.2 Provide funding for high priority wetlands identified through focus area projects.

Objective 5.3 Address the issue of tax revenue reductions to local communities as a result of wetland acquisition programs.

Action 5.3.1 Review options for addressing this issue based on the results of the task force work identified in Action 2.4.1.

6. Continue the work of the Wetlands Advisory Group and Technical Advisory Team

Background

Both the Wetlands Advisory Group and Technical Advisory Team feel strongly that the approach used in developing the *IWCP* has been very effective, but considerable work remains.

The objectives and actions listed above can be most effectively achieved through continuation of the work of the Wetlands Advisory Group and Technical Advisory Team—through the same cooperative, partnership approach that has been used to develop the *IWCP*.

The benefits of this partnership approach are threefold:

1. Most of the expertise needed to address Indiana's wetlands conservation issues is found in these two groups, and people whose expertise is needed can be recruited to participate.

2. The majority of statewide interests that affect or are affected by wetlands conservation efforts are represented. Interests not represented can be recruited to participate.

3. It is cost- and time-efficient. New organizations, programs, divisions, or sections are not created to develop or administer the *IWCP*. Instead, the activities of existing organizations are coordinated in a synergistic way.

The Wetlands Advisory Group and T

Otto Doering, Purdue Ag. Economist, Purdue Univ.

Ken Foster, Dept.of Ag. Economics, Purdue Univ.

James Gammon, DePauw Univ.

Bill Jones, School of Public and Environmental Affairs, Indiana Univ.

Dennis LeMaster, Dept. of Forestry and Natural Resources, Purdue Univ.

Stephen Lovejoy, Dept. of Ag. Economics, Purdue Univ.

Josep M. Mallarach, School of Public and Environmental Affairs, Indiana Univ.

Rich Nicholson, S.P.U.R., Earlham College

Robert Start, DePauw Univ.

Daniel E. Willard, School of Public and Environmental Affairs, Indiana Univ.

Sporting Groups

Steve Cox, IN Bass Federation

Hoosier Fly Fishers Club

Tim Mather, Hoosier Flyfishers

Linda Personette, Hoosier Bass'N Gals

Mike and Janet Ryan, NW IN Steelheaders, Inc.

Industry

Jeff Antonetti, IPALCO

Doug Daniel, Fidler, Inc.

Mark Evans, NIPSCO

John Fekete, Inland Steel

Carol Findling, Trash Force, Inc.

Don Foley, Foley Hardwoods

Ray Judy, Phoenix Natural Resources

Larry Kane, Bingham, Summers, Welsh, and Spillman

Sandy O'Brien, Consulting Biologist

Larry Pile, AMAX Coal Company

Jim Plew, Engineering Aggregates Corp.

Dave Robinson, Weston Paper and Manufacturing Co.

Bernard Rottman, Black Beauty Coal Company

Lisa Sampson, SIGECO

Christine Schuster, US Steel - Gary Works

Therefore:

The Indiana Department of Natural Resources will implement strategies that:

1)

C. Soils
1. Chemical composition
2. Particle size
3. Soil horizons
    a. Depth of soil
    b. Depth to water table
4. Infiltration and percolation time
5. Microbial activity

D. Vegetation
1. Nitrogen uptake
2. Phosphorus uptake
3. Heavy metal ion uptake
4. Organic uptake (e.g., pesticides, herbicides)

II. Flood Control

A. Location

1. Ecosystem connections
    a. Proximity to stream, lake, or other wetlands
    b. Current function of adjacent aquatic ecosystems
    c. Relationship to existing flood control structures

2. Surrounding land use
    a. Area of protected watershed
    b. Economic importance of floodplain activities
    c. Timing of flooding and human activities
    d. Extent and duration of flooding
    e. Use of flood flows by critical species

B. Size and shape

1. Ratio of wetland to watershed area

2. Storage capacity
    a. Rate of sediment filling
    b. Retention time

3. Flow rate and pathway
    a. Number of inlets
    b. Location of inlets relative to outlets
    c. Sheetflow or channel flow
    d. Outflow
        1) Constriction
        2) Single point of discharge (control of outflow)

C. Soils

1. Infiltration rate

2. Water storage capacity
    a. Depth to hardpan
    b. Soil type (absorbs water)
    c. Saturation (depth to water table)

D. Vegetation

1. Roughness

2. Evapotranspiration

Kankakee

Description

The Kankakee River basin, located in northwestern Indiana, is the sixth largest (2,989 square miles) of the 12 water-management basins in the State. The basin includes most of Newton, Jasper and Starke counties and one-half to two-thirds of Lake, Porter, LaPorte, St. Joseph, Marshall and Benton counties. Most of the towns in the basin are farming communities; the largest cities are LaPorte, Plymouth, Knox, and Rensselaer.

Special concerns for water quality and flood control in watershed

- flooding (Newton, Lake counties)
- water quality
- massive historical conversion of wetlands (wetland restoration)
- levee systems in agricultural areas

Wetland communities in watershed

Grand prairie natural region

- floodplain forest • sand flatwoods • wet prairie
- marsh • fen • bog • sedge meadow
- muck and sand flats • lake • pond
- northern swamp • shrub swamp

Northern lakes natural region

- floodplain forest • sand flatwoods • marsh
- northern swamp • shrub swamp • fen • bog
- sedge meadow • marl beach • seep
- muck and sand flats • lake • pond • wet prairie

Maumee

Description

The Maumee River basin in northeastern Indiana is 1,283 square miles and includes parts of Adams, Allen, Dekalb, Noble, and Steuben counties. Principal cities within the Maumee River basin include Auburn, Decatur, Fort Wayne, Garrett and New Haven. The Maumee River begins in Fort Wayne, Indiana, at the confluence of the St. Marys and St. Joseph Rivers. Most of the Maumee River basin in Indiana is drained by these two tributaries. From the confluence, the Maumee River flows 28 miles east-northeast to the Indiana-Ohio state line. The mouth of the Maumee River is in northwestern Ohio, at the southwestern end of Lake Erie. In Ohio, the Maumee River flows 108 miles to Lake Erie; thus, the total length of the Maumee River is 136 miles.

Special concerns for water quality and flood control in watershed

- water quality of Fish Creek (mussel populations)
- flood control (Fort Wayne)

Wetland communities in watershed

Grand prairie natural region

- floodplain forest • sand flatwoods • wet prairie
- marsh • fen • bog • sedge meadow
- muck and sand flats • lake • pond
- northern swamp • shrub swamp

Northern lakes natural region

- floodplain forest • sand flatwoods • marsh
- northern swamp • shrub swamp • fen
- bog • sedge meadow • marl beach • seep
- muck and sand flats • lake • pond • wet prairie

Till plain and black swamp natural regions

- floodplain forest • till plain flatwoods • marsh
- shrub swamp • fen • seep • pond • wet prairie
- northern swamp

Upper Wabash

Description

For management purposes, the Indiana Department of Natural Resources has divided the Wabash River basin into three subbasins: an upper basin, a middle basin, and a lower basin. The Upper Wabash River basin extends from the Indiana-Ohio state line downstream to include Wildcat Creek near Lafayette, Tippecanoe County. This area is approximately 110 miles east-west by 70 miles north-south.

The Upper Wabash River basin is 6,918 square miles and includes all or most of Blackford, Carroll, Cass, Clinton, Fulton, Grant, Howard, Huntington, Jay, Miami, Pulaski, Wabash, White, Whitley, and Wells counties, and parts of 13 other counties. Principal cities in the basin include Bluffton, Columbia City, Frankfort, Hartford City, Huntington, Kokomo, Logansport, Marion, Monticello, North Manchester, Peru, Portland, Rochester, Wabash, and Warsaw.

Special concerns for water quality and flood control in watershed

- lake water quality
- mussel diversity in Tippecanoe
- headwater water quality
- agricultural contamination (crops, livestock)

Wetland communities in watershed

Grand prairie natural region

- floodplain forest
- sand flatwoods
- wet prairie
- marsh
- fen
- bog
- sedge meadow
- muck and sand flats
- lake
- pond
- northern swamp
- shrub swamp

Till plain and black swamp natural regions

- floodplain forest
- till plain flatwoods
- marsh
- shrub swamp
- fen
- seep
- pond
- wet prairie
- northern swamp

Lower Wabash

Description

The Lower Wabash River basin incorporates the drainage basin of the Wabash River between Honey Creek in Vigo County and the mouth of the Wabash River at the Ohio River in Posey County. The basin has an area of 1,339 square miles and includes most of Sullivan and Posey counties, plus parts of Vigo, Greene, Knox, Gibson, and Vanderburgh counties in southwestern Indiana. The major cities and towns in the basin are

Wetland communities in watershed

Till plain and black swamp natural regions

- floodplain forest
- till plain flatwoods
- marsh
- shrub swamp
- fen
- seep
- pond
- wet prairie
- northern swamp

Southwest wetlands and bottom lands natural regions

- floodplain forest
- southwest flatwoods
- southern swamp
- shrub swamp
- seep
- lake
- pond
- marsh

Shawnee hills and highland rim natural regions

- floodplain forest
- sinkhole swamp
- sweep
- spring
- sinkhole pond
- marsh
- southern swamp
- shrub swamp

East Fork White River

Description

The East Fork White River basin, located in south-central Indiana, extends from the southwestern to the east-central part of the State. The basin has an area of 5,746 square miles, and its long axis trends northeast-southwest for a distance of approximately 150 miles. The East Fork White River basin includes all, or part of, the following counties: Bartholomew, Brown, Davies, Decatur

Shawnee hills and highland rim natural regions

- floodplain forest
- shrub swamp
- sweep
- sinkhole swamp
- sinkhole pond
- spring
- marsh
- southern swamp

Bluegrass natural region

- floodplain forest
- shrub swamp
- pond
- bluegrass flatwoods
- marsh
- southern swamp

Whitewater

Description

The Whitewater River water-management basin is located in southeastern

Forested fen—a tree-dominated wetland on organic soil which receives groundwater. They are often a mosaic of tree areas, tall shrub areas, and herbaceous areas.

Gravel wash—a plant community occurring on gravely substrates along streams and rivers. Ground cover consists of mixed herbs, grasses, and vines with shrubs present at times. These communities are subject to brief but severe flooding.

Lake—a natural standing water body larger than four acres. Lakes have temperature stratification, and may have beaches formed from wave action. These communities have plant mosaic patches that correlate with water depth and types of substrates. Water levels may fluctuate seasonally, and there is little or no water flow.

Marl beach prairie—fen-like community located on the marly muck shorelines of lakes; the surface is firm and moist but not saturated, and marl precipitation is evident.

Marsh—herbaceous wetland of more or less permanent, non-flowing water bodies, either in lakes or water-filled depressions; water levels may fluctuate, but rarely recede to expose the soil surface.

Muck flat—a shoreline and lake community possessing a unique flora of sedges and annual plants, many of which are also found on the Atlantic and Gulf Coastal Plains. They are situated at the margins of lakes or are covering shallow basins. This system has a peat substrate and may float on the water surface, but during high water periods are usually inundated. The water level fluctuates seasonally or from year to year in response to the amount of precipitation.

Open water—a wetland of less than 20 acres, the bottom of which has at least 25% cover of particles smaller than stones, and a vegetative cover less

Sand flat—a shoreline and lake community possessing a unique flora of sedges and annual plants that resemble those found on the Atlantic and Gulf Coastal Plains. They are found at the margins of lakes or covering shallow basins. This system has a sand substrate and during high water periods are inundated. The water level fluctuates during a season or from year to year in response to the amount of precipitation.

Sedge meadow—sedge-dominated wetland of stream margins and river floodplains, lake margins, or upland depressions. These systems usually occupy the ground between a marsh and upland. The substrate of a sedge meadow is typically highly organic, and is at or just above the water level.

Shrub swamp