

Building Strong Collaborative Relationships for a Sustainable Water Resources Future:

STATE OF INDIANA

SUMMARY OF STATE WATER PLANNING

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The findings contained in this report are based on the information collected from the literature search and interviews for this initiative and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

STATE OF INDIANA

1. STATE/REGIONAL WATER PLANNING STATUS

Indiana does not currently have a comprehensive statewide water plan. Water resources' planning occurs primarily at the watershed level through local watershed groups and river basin commissions. The two state agencies responsible for managing the state's water resources are the Indiana Department of Environmental Management (IDEM) and the Indiana Department of Natural Resources (IDNR). IDEM is responsible for water quality control and watershed planning while IDNR is responsible for water quantity issues such as water resources evaluations, flood plain management, and drought planning. The state agencies provide substantial guidance and financial support to local and regional watershed planners. The *Indiana Watershed Planning Guide*, published by IDEM, is the central document providing guidance for local watershed planners to address both water quality and water quantity issues, and is intended to outline a common approach to watershed management in the state.

There are also six River Basin Commissions (RBCs) in the state that address basin-wide, or regional, water resources issues. The RBCs are considered independent state agencies that are comprised of representatives from the municipal and county governments and the soil and water conservation district for each county that is part of the basin. The RBCs work in partnership with local watershed groups and the state agencies, particularly on nonpoint source pollution, and coordinate planning efforts throughout the river basin. The RBCs and local watershed groups also work with the Indiana Soil and Water Conservation Districts (SWCDs), of which there are 92, one for each county. With support from the state, the RBCs, and the SWCDs, local watershed groups address issues specific to their community through the development and implementation of individual watershed plans.

2. RESPONSIBLE STATE AGENCIES/REGIONAL ENTITIES

The Indiana Department of Natural Resources (IDNR) is responsible for surface water and groundwater supply evaluations, flood plain management, and drought planning. The point of contact at IDNR is:

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The Department of Environmental Management (IDEM) Office of Water Quality is responsible for (Source: [1]):

- Assessing surface and ground water quality
- Regulating and monitoring drinking water supplies and wastewater treatment facilities
- Protecting watersheds and wetlands
- Providing outreach and assistance to the regulated community and the public
- Supporting environmentally responsible economic development

3. WATER MANAGEMENT VISION AND GOALS

The mission of the Indiana Department of Environmental Management (IDEM) is “to implement federal and state regulations to protect human health and the environment while allowing the environmentally sound operations of industrial, agricultural, commercial and government activities vital to a prosperous economy” (Source: [2]). Within IDEM, the Office of Water Quality’s mission is “to monitor, protect, and improve Indiana’s water quality to ensure its continued use as a drinking water source, habitat for wildlife, recreational resource, and economic asset” (Source: [1]).

The mission of IDNR’s Division of Water is to “serve as stewards of Indiana’s surface and ground water resources for the benefit of present and future generations” (Source: [3]).

The vision of the Lake Michigan Coastal Program, which is administered by IDNR, is: “The Lake Michigan coastal community is healthy and thriving for this and future generations” (Source: [4]). Its mission is to “strengthen partnerships by providing the tools and assistance to manage coastal resources in Indiana” (Source: [4]). The goals are to (Source: [4]):

- Improve the integration of the program components to more effectively address the diverse needs of the coastal community.
- Enhance community understanding of coastal resource issues in order to increase participation in planning and decision making processes
- Improve communication among state partners to more effectively provide state services in response to local community issues.
- Enhance the ability of communities to protect and restore coastal resources
- Increase awareness of funding and match opportunities to meet growing stakeholder needs.

Soil and Water Conservation Districts (SWCDs) play an important role in coordinating local resource conservation programs. The SWCDs are managed by the Indiana Association of Soil and Water Conservation Districts (IASWCD), which receives state funding and is comprised of over 450 volunteers. Their mission is “to coordinate assistance from available sources - public and private, local, state and federal - in an effort to develop locally driven solutions to natural resource concerns” (Source: [5]).

4. SCOPE OF WATER RESOURCES PLANNING AND MANAGEMENT

Water resources planning in Indiana is primarily conducted at the regional and local watershed scales. The two primary state agencies, IDEM and IDNR, provide technical and financial support to local and regional planners in addition to administering a number of statewide programs. This summary is divided into the following six topics, each of which is discussed in detail below:

- Water Availability
- Water Use
- Drought Planning and Management
- Flood Plain Management
- Water Quality
- Watershed Planning

Water Availability

The state is divided into 12 Water Management Basins (WMBs) based on the major river basin delineations shown in Figure 1. For each of these basins, IDNR is charged with conducting an evaluation of water resource availability. Since 1987, IDNR has completed assessments for the following six basins, with the most recent assessment of the White and West Fork White River Basin completed in 2002. There are no existing plans to complete assessments of the other six basins due to limited resources and staff.

- Maumee River Basin (1996)
- Lake Michigan Region (1994)
- Kankakee River Basin (1990)
- Whitewater River Basin (1988)
- St. Joseph River Basin (1987)
- White & West Fork White River Basin (2002)

Each of these assessments includes the following information (Source: [6]):

- Socioeconomic Setting
- Geologic Framework
- Climatic Features
- Surface-water Hydrology and Quality
- Ground-water Hydrology and Quality current and projected water use
- Potential for Water-use Conflicts



Figure 1. Water Management Basins
(Source: [7])

IDNR has also been developing aquifer maps for each county in the state since 1948. So far, maps for 42 of the 92 counties in the state have been completed. In addition, a map of potential groundwater pumping yields throughout the state was created in 1980.

Water Use

As part of the Water Resource Management Act of 1983 (Indiana Code 14-25-7), IDNR is responsible for maintaining an inventory of all surface water and groundwater withdrawals in the state with capacities in excess of 0.1 million gallons per day (MGD). This inventory is updated annually. In collaboration with the U.S. Geological Survey (USGS), IDNR used this data to report annual trends in water use over the period 1986 to 2006 (Source: [8]). This report presents statewide water use trends, as well as trends by county and by Water Management Basin. Figure 2 shows the annual statewide water use of surface water and groundwater for each of the following six categories during 1986 to 2006:

- Energy Production
- Industrial
- Agricultural
- Miscellaneous
- Public Supply
- Rural

Drought Planning and Management

Following a severe drought in 1988, the Indiana General Assembly mandated IDNR to develop a “plan to meet the needs of the citizens and environment of Indiana when the shortage of water threatens (1) the health, safety, welfare, or economic well-being of the citizens; or (2) the environment; of any part of Indiana” (Source: [7]). IDNR thus created a Water Shortage Task Force that developed *Indiana’s Water Shortage Plan*, last updated in 2000. The purpose of the water shortage plan is “to provide the State of Indiana with an effective and systematic plan to assess and manage the State’s water resources during a water shortage or potential water shortage to respond, to the maximum extent practicable, to the needs of its water users while protecting its environment” (Source: [7]). The latest revision of the Water Shortage Plan recognizes the importance of water use efficiency and conservation as a first step towards drought mitigation.

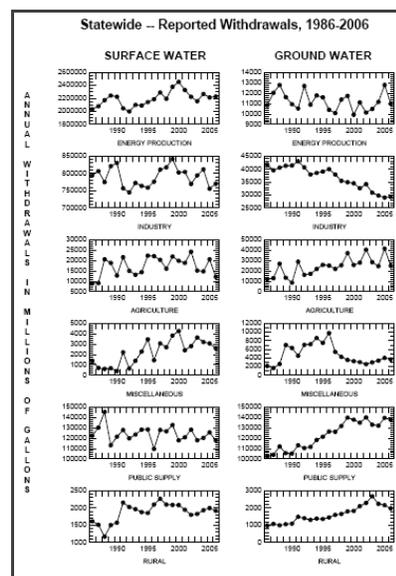


Figure 2. Statewide Water Use
(Source: [8])

The plan provides guidance at three stages of drought, which are quantitatively defined according to the value of the Palmer Drought Index:

Phase 1: Water Shortage Watch – “...to alert government agencies, public water supply systems, and the public regarding the onset of conditions indicating the potential for future water shortage problems” (Source: [7]).

Phase 2: Water Shortage Warning – “...to prepare for a coordinated response to imminent water shortage conditions and potential water supply problems and to initiate concerted voluntary conservation measures in an effort to avoid or reduce shortages, relieve stressed sources, and if possible forestall the need for mandatory water use restrictions” (Source: [7]).

Phase 3: Water Shortage Emergency – “marshal all available resources to respond to actual emergency conditions, to avoid depletion of water resources, to assure at least minimum water supplies to protect public health and safety, to support essential and high priority water uses and to avoid unnecessary economic dislocations” (Source: [7]).

For each phase, the *Water Shortage Plan* describes specific actions to be performed by all water users, suppliers and regulators including individuals, water and wastewater utilities, and state and local governments.

Floodplain Management

The Floodplain Management Section in the IDNR Division of Water “helps local communities develop flood hazard mitigation plans, provides support to State and federal agencies during flood emergencies, and monitors community compliance with the National Flood Insurance Program and State floodplain regulations” (Source: [9]). IDNR has released two guides for local floodplain administrators to understand the risks of floodplain development and how to prepare flood mitigation plans (Source: [10]). IDNR also develops floodplain maps for use with the National Floodplain Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA) and controls the state’s Flood Control Revolving Fund which “is a fund from which a loan may be made to a municipality, city, town, county, or special taxing district for the purpose of instituting, accomplishing, and administering any approved flood control program” (Source: [11]).

Water Quality

The Nonpoint Source Program (NPS)/Total Maximum Daily Load (TMDL) Section of IDEM’s Watershed Planning Branch is responsible for assessing, protecting, and improving the quality of the state’s surface water and groundwater resources. Nonpoint source pollution is a dominant water quality concern and is listed as the greatest cause of impairments in the 2008 Integrated Water Quality Monitoring and Assessment Report (Source: [12]). IDEM receives funding from the Section 319 Nonpoint Source Grant Program, available through the Clean Water Act. As part of this program, IDEM developed a NPS management plan, currently under revision. The long-term goals of the NPS program are to (Source: [1]):

- Identify nonpoint source pollution knowledge gaps and characterize the extent and magnitude of nonpoint source pollution in Indiana.
- Build partnerships to address nonpoint source pollution in Indiana.
- Build capacity to address nonpoint source pollution with all partners; and
- Work towards measurable improvements in water quality by addressing NPS pollution through planning, implementation, and education.

The Section 319 Grant Program also requires IDEM to submit annual reports that summarize the various programs created by the state that target nonpoint source pollution control. In the most recent annual report from FY2007, IDEM highlighted 4 of 21 Section 319 programs as examples of “successful projects working to improve water quality through watershed planning, implementation of BMPs [Best Management Practices], and education and outreach” (Source: [13]). These programs included:

- *CORE4 Initiative Project*: Implemented agricultural BMPs in the Owen County Soil and Water Conservation District to reduce water quality impairments.
- *Youngs Creek Watershed Management Plan Implementation*: Provided a cost-share program for BMP implementation in the Johnson County Soil and Water Conservation District and implemented a comprehensive education/outreach program to raise public awareness about the project.
- *Little Elkhart River Watershed Management*: Developed a watershed management program for the Little Elkhart River that provides a detailed land use inventory and specific recommendations for BMP implementation.
- *Innovations in Reducing NPS Pollution Conference*: A conference on NPS pollution supported by the Nature Conservancy and organized by the Rivers Institute at Hanover College and involved members of various organizations including state and federal agencies.

In addition to the Section 319 Nonpoint Source Program, Indiana also receives funding from the Section 310 Technical Assistance program of the National Oceanic and Atmospheric Administration (NOAA) Office of Ocean and Coastal Resource Management to support the Indiana Coastal Nonpoint Pollution Control Program (ICNPCP). The ICNPCP is administered by the Lake Michigan Coastal Program in IDNR and has been approved by NOAA and EPA under Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990, which requires states “with approved coastal management programs develop a coastal nonpoint pollution control program to address water quality impairment of coastal waters” (Source: [14]). Figure 3 shows the Lake Michigan drainage basin in Indiana. The ICNPCP describes potential sources and NPS pollution reduction strategies for each of the following land and water uses in the coastal drainage basin:

- Agriculture
- Forestry
- Urban/Rural
- Marinas and Recreational Boating
- Hydromodification

IDEM is also responsible for protecting groundwater quality through source water protection. IDEM administers the state’s Wellhead Protection Program that “is designed to protect Community Public Water Systems that use ground water as their water source” (Source: [15]). They also perform Source Water Assessments to identify “the areas that are sources of public drinking water, assess the

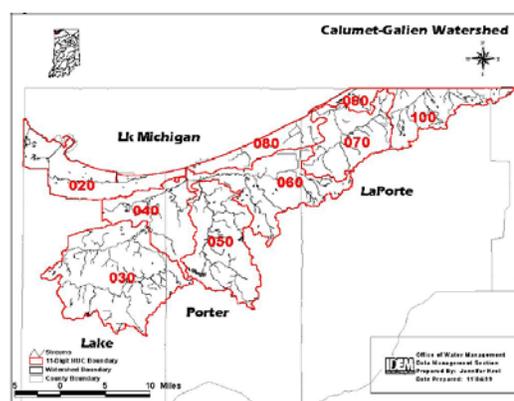


Figure 3. Lake Michigan Drainage Basin in Indiana (Source: [14])

susceptibility of water-supply systems to contamination, and inform the public of the results” (Source: [15]).

Watershed Planning

Watershed planning occurs primarily at the local level through local watershed coordinators with guidance and support from the Watershed Planning Branch of IDEM. In 2003, IDEM released the most recent *Indiana Watershed Planning Guide* which outlines the entire process of developing a watershed plan including developing partnerships, setting goals, monitoring, decision-making and implementation. The purpose of the watershed planning guide is (Source: [16]):

- To assist local groups in developing successful watershed plans
- To establish a common approach for watershed planning throughout Indiana
- To help answer the four great watershed planning questions:
- Where are we now?
- Where do we want to be?
- How are we going to get there?
- How will we know when we’ve arrived?

The guide is comprised of the following eleven sections that outline the necessary steps to creating and implementing a watershed plan from start to finish.

- Building Local Partnerships
- Thinking Together
- Investigation
- Land Inventory
- Water Resources Monitoring
- Analysis
- Goal Setting for Success
- Decisions and Actions
- Implementation
- Are We There Yet?
- Where To From Here?

While IDEM and IDNR provide financial and technical support to local watershed groups, it is the local groups themselves that are responsible for planning in their watershed.

In addition to IDEM, the Indiana Soil and Water Conservation Districts (SWCDs) play an important role in facilitating and coordinating watershed management throughout the state. There are 92 SWCDs, one for each county, all of which belong to the Indiana Association of Soil and Water Conservation Districts (IASWCD). The mission of the IASWCD, as well as each individual SWCD, is “to coordinate assistance from available sources - public and private, local, state and federal - in an effort to develop locally driven solutions to natural resource concerns” (Source: [5]). The SWCDs work in partnership with the state agencies and local watershed groups to (Source: [17]):

- Create awareness about IDEM's watershed initiative among conservation stakeholders at the local, regional and state levels,
- Develop recognition on the importance of watershed planning and implementation, and
- Draw a solid line from effective community watershed planning and implementation to thriving Indiana urban and rural communities.

The SWCDs work closely with IDEM's five watershed specialists. The watershed specialists are part of IDEM's Nonpoint Source Program and serve as liaisons "between different state and local initiatives and officials to facilitate watershed planning and total maximum daily load (TMDL) development activities" [(Source: [17])].

In addition to local watershed groups and SWCDs, there are six River Basin Commissions (RBCs) in Indiana. Four of these RBCs (Kankakee, Maumee, St. Joseph, and Upper Wabash) were established under Indiana Code 14-30 in 1988, the Little Calumet-Galien Basin Commission was established under Indiana Code 14-13-2, and the Ohio River Commission was established under the Federal Water Resources Planning Act of 1965 (Public Law 89-80). The purpose of the RBCs is to (Source: [10]):

- Promote flood control
- Encourage soil and water conservation
- Improve water quality
- Increase cooperative planning and coordinated management of a basin's water and related land resources
- Support coordinated and cooperative action in the planning, development, and management of water resources

The RBCs are considered independent state agencies and focus on basin-wide, or regional, water resources issues, particularly nonpoint source pollution and land use. They also work in conjunction with local watershed planning efforts.

5. PARTNERSHIPS, STAKEHOLDER, AND PUBLIC INVOLVEMENT

Water resources planning in Indiana involves many partnerships between local, regional, state, and federal governments. Statewide, IDEM and IDNR provide assistance to local watershed groups and river basin commissions. Actual planning is conducted primarily by these local organizations, which use state guidance and financial support to develop and implement their own watershed management plans that address local issues.

In addition to the partnerships between IDEM, IDNR and the local watershed groups, a number of federal agencies also provide guidance and support to the state. NOAA supports the Lake Michigan Coastal Program and their Coastal Nonpoint Pollution Control Program. The USGS works with IDNR in the development of surface water and groundwater availability assessments of the 12 Water Management Basins in addition to the Water Use Trend report. The National Resources Conservation Service (NRCS) works with the Watershed Planning Branch of IDEM and the Soil and Water Conservation Districts to reduce nonpoint source pollution, particularly from agricultural lands. IDNR partners with FEMA in floodplain management including floodplain mapping and administering the National Flood Insurance Program. The U.S. EPA

partners with IDEM in a number of projects, in particular through the Section 319 Nonpoint Source Grant and Section 303 Integrate Water Quality Assessments and TMDL program. The U.S. Army Corps of Engineers works with IDNR on floodplain management and flood protection projects, as well as sustainable reservoir operations.

6. OUTCOMES ASSESSMENT PROCESS

Since most planning is conducted at the local level, the outcomes assessment process varies from watershed to watershed. IDEM's Watershed Planning Guide provides guidance for selecting realistic goals that can be measured and used to assess local progress. There is no formal review process of local planning efforts by the state, unless specific grants or funding sources require them. For example, funding from IDEM's Section 319 and 205(j) grant programs requires that IDEM approve local watershed plans to ensure they include a process for evaluating appropriate measures of success.

IDEM's Section 319 Nonpoint Source Program will be evaluated through a set of environmental and social indicators, which are currently under development by the NPS/TMDL Section of IDEM. The Lake Michigan Coastal Program's Nonpoint Pollution Control Program Report, submitted by IDNR and IDEM to NOAA, lists a series of specific evaluation metrics, the responsible entities and a timeline for each group of control strategies.

7. NEEDS, CHALLENGES AND CRITICAL PRIORITIES – INTERVIEW INSIGHTS

The greatest challenges Indiana faces are the ability to meet demand in regions with high growth and ensuring the equitable distribution of water across the state. Increases in agricultural use, primarily to support ethanol production facilities, and withdrawals by the facilities themselves, are increasing demand in rural areas while population increases in metropolitan areas, particularly Indianapolis, are increasing public water supply use.

Excluding the portion of Indiana within the Great Lakes Basin, the State does not currently have a regulatory system for permitting high capacity groundwater withdrawals. Indiana does require users to register and report withdrawals to IDNR. There are regulatory mechanisms in place to allow small capacity groundwater withdrawal users to seek compensation if a new large capacity withdrawal impacts their pumping capacity. The overall water use and water rights system have thus far proven relatively self-regulating, with few major water conflicts in the state.

The water use reporting system, which has been in place since 1985, has proven highly beneficial for state planning. Indiana's water use records have allowed them to satisfy part of the Great Lakes Compact, which requires each member to track water withdrawals in the Great Lakes Basin in order to avoid negative impacts on the Great Lakes. Another benefit to the program is that it did not require a significant burden on the part of the water users, which is typically the case for groundwater withdrawal permitting systems. Thus for little cost and effort, the state has been able to acquire a long record of useful water use data.

During the interview, Mr. Basch also mentioned that the recently passed House Enrolled Act 1224 establishes a water resources task force, similar to the water shortage task force that was

created in 2006. The new task force will focus on broader comprehensive statewide water planning and will integrate water quantity and quality issues.

Mr. Basch indicated that the state is beginning to look at water demand forecasts, which have not been a focus of planning efforts since Indiana is a relatively “water-rich” state. Water shortages are generally expected not only because of a lack of quantity, but due to inequitable distribution throughout the state.

8. REFERENCES

- [1] IDEM (2008). *Indiana Nonpoint Source Management Plan - Draft*. Retrieved on 4/9/2009 from http://www.in.gov/idem/files/nonpoint_management_plan_2008.pdf
- [2] Indiana Department of Environmental Management (IDEM) (2009). *IDEM's Mission Statement*. Retrieved on 4/9/2009 from <http://www.in.gov/idem/5215.htm>
- [3] Indiana Department of Natural Resources (IDNR) (2009). *Division of Water Homepage*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/>
- [4] ILMCP (2007). *Lake Michigan Coastal Program Annual Report 2007*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/lakemich/pdf/lm-2007AnnualReport.pdf>
- [5] Indiana Association of Soil & Water Conservation Districts (IASWCD) (2009). *IASWCD Homepage*. Retrieved on 4/9/2009 from <http://www.iaswcd.org/>
- [6] IDNR (2009). *Water Resource Assessments (Basin Studies, 1987-2002)*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/4083.htm>
- [7] IDNR (2000). *Indiana's Water Shortage Plan*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/files/watshplan.pdf>
- [8] IDNR. *Water Use in Indiana, Graphs by County and Water Management Basin, 1986-2006*. Retrieved on 4/9/2009 from http://www.in.gov/dnr/water/files/water_use_graphs1986-2006.pdf
- [9] IDNR (2009). *About Us*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/2461.htm>
- [10] IDNR (2009). *Community Assistance & Information*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/2459.htm>
- [11] IDNR (2009). *The Flood Control Revolving Fund*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/water/4891.htm>
- [12] IDEM (2008). *2008 Integrated Water Quality Monitoring and Assessment Report*. Retrieved on 6/3/2009 from http://www.in.gov/idem/files/waterbody_2008_assessment.doc
- [13] IDEM (2007). *2007 Nonpoint Source Program Annual Report*. Retrieved on 4/9/2009 from http://www.in.gov/idem/files/2007_nonpoint_annual_report_final.pdf

- [14] Indiana Lake Michigan Coastal Program (ILMCP) (2005). *Indiana Coastal Nonpoint Pollution Control Program*. Retrieved on 4/9/2009 from <http://www.in.gov/dnr/lakemich/pdf/6217%20Final.pdf>
- [15] IDEM (2009). *Source Water Program Description*. Retrieved on 4/9/2009 from <http://www.in.gov/idem/4280.htm>
- [16] IDEM (2003). *Indiana Watershed Planning Guide*. Retrieved on 4/9/2009 from http://www.in.gov/idem/files/watershed_planning_guide.pdf
- [17] IASWCD (2009). *Meet the IDEM Watershed Specialists*. Retrieved on 4/25/2009 from <http://iaswcd.org/watershed/specialists.html>