

US EPA ARCHIVE DOCUMENT

## EXECUTIVE SUMMARY

The Indiana Department of Environmental Management/ Office of Water Quality has developed this document to provide information on Indiana water quality required biennially by Section 305(b) and periodically by Section 303(d) of the federal Water Pollution Control Act (the Clean Water Act most recently amended in 1987). This first Integrated Water Quality Monitoring and Assessment Report is intended to meet the reporting requirements of Sections 106, 303(d), 305(b), 314, and 319 of the Clean Water Act. Specific information requested in U.S. Environmental Protection Agency's (USEPA) most recent guidance documents are included for Section 305(b) reporting, Section 303(d) list of impaired waters, and the Integrated List of Waters classified into five assessment categories (USEPA 1997a and Wayland 2001).

This report replaces the Final Draft 305(b) Report submitted to USEPA Region V earlier this year. Some data and table values have been updated. The data in Table 1 represent comprehensive aquatic life use assessments for streams and are intended to be used for Clean Water Act Section 106 funding calculations and comprehensive Section 305(a) reporting.

This report is available electronically in Adobe Acrobat (.pdf) format on the IDEM web site: [www.in.gov/idem/water/planbr/wqs/quality.html](http://www.in.gov/idem/water/planbr/wqs/quality.html). Updated site-specific assessment information will be made available on the web site periodically as it becomes available.

A comprehensive assessment of 99.3 percent of Indiana stream miles included in USEPA's Total Waters File has been completed for support of aquatic life use (USEPA 1993). Approximately 64.5 percent of the stream miles fully support aquatic life use. Of the stream miles assessed for full body contact recreational use, 58.6 percent support. Indiana's Lake Michigan shoreline outside the Indiana Harbor supports aquatic life use, but does not fully support full body contact recreational use.

The Indiana State Department of Health has issued fish consumption advisories for many Indiana streams, the Indiana portion of Lake Michigan, and some inland lakes. A general carp fish consumption advisory has also been issued for all Indiana rivers and streams only. (ISDH 2001)

Table 1 provides use support data for Indiana streams and lakes that have been assessed and reported since 1998. This report represents the completion of a five year rotating basin cycle with all assessments accumulated from 1998 to date.

**Table 1 Summary of Use Support - Waterbodies Reported 1998 through 2002**

(values rounded to the nearest ten units)

Designated Use	Support	Threatened	Partial Support	Non Support	Assessed	Not Assessed
<b>Rivers - in miles</b>						
Aquatic life use	23000			12430	35430	250
Fish consumption*			3170	230	3400	32270
Drinking Water Supply	3				3	
Primary Contact (RECR)	5080		120	3460	8660	27010
<b>Great Lakes shoreline - in miles</b>						

(values rounded to the nearest ten units)

Designated Use	Support	Threatened	Partial Support	Non Support	Assessed	Not Assessed
Aquatic life use	60			1	60	
Fish consumption*			60		60	
Primary Contact (RECR)	1			60	60	
<b>Lake Michigan open water – in acres</b>						
Fish consumption*			154180		154180	
<b>Lakes, Reservoirs - in acres</b>						
Aquatic life use	5740		6310	1670	13730	92480
Fish consumption*			65750		65750	40460
Drinking Water Supply		9110	15870	480	25460	80750
Primary Contact (RECR)	7170				7170	99040

\* Indiana fish consumption Advisory, 2001, includes a state wide advisory for carp consumption for rivers and streams. Only site specific fish consumption advisories were considered in determining use support status. Source: Indiana 305(b) Assessment Database 2002 and IDEM Biological Studies Section.

The IDEM Office of Water Quality believes that the most consistent way to evaluate overall use support for streams is best represented by the stream miles supporting aquatic life use. Representative samples for fish community assessment were used to determine overall aquatic life use support as part of the rotating basin approach. A stratified random sampling design was used to computer generate sampling sites, which provided a representative sample set for each basin. Fish community index of biotic integrity (IBI) was determined for each sampling location, and the results of each year's sample data set were analyzed to estimate the percentage of stream miles supporting aquatic life use for each basin. In this way, a small number of representative samples were used to estimate aquatic life use support for a large geographic area.

The Office of Water Quality has set a goal to develop a watershed approach that will integrate water management programs by focusing on watersheds. The watershed approach establishes a framework for coordinating and integrating the multitude of programs and resources within a delineated geographic area.

A new surface water monitoring strategy was implemented in 1996. All basins in the state have been assessed and are included in the assessment values in this report. The goal to report aquatic life use assessments for all basins by 2003 has been met this year. Approximately 20 percent of the waterbodies in the state were assessed and reported each year. This report now provides the most recent comprehensive report on Indiana water quality and is the baseline report for the state (IDEM 1994-95, 1998c, and 2000a).

This comprehensive report on Indiana water quality replaces the 1996 baseline report and includes the five-year rotating basin monitoring and comprehensive assessment of Indiana surface waters. Indiana had elected to submit annual electronic updates to USEPA with an abbreviated written report submitted in even numbered years. Appendices A through F provide data and technical information suggested in USEPA's integrated reporting guidance (Wayland 2001).

Causes of nonsupport are reported for each waterbody type: rivers, lakes, and Great Lakes shoreline. Causes of stream pollution affecting over 2000 miles of stream each are: pathogens

for recreational use, mercury and polychlorinated biphenyl for fish consumption. Over 2000 stream miles also have biological communities with measurable adverse response to pollutants.

Fish tissue and surficial sediment were monitored for the presence of toxic pollutants. The Indiana Fish Consumption Advisory identifies fish species that contain toxicants at levels of concern for human consumption. The Great Lakes sport fish risk based approach was used to evaluate PCB contamination (Anderson 1993). As fish tissue and sediments from additional watersheds are analyzed for contaminants, it is expected that the miles of impaired streams and acres of impaired lakes and reservoirs due to fish consumption advisories will increase for the near term.

Waterbodies that require total maximum daily load calculations (TMDL) are reported to USEPA as required in Section 303(d) of the Clean Water Act. This is the first integrated report that includes classification of Indiana waters into five Integrated Reporting Categories. Category 5 is the Clean Water Act Section 303(d) List of Impaired Waters.

Support of designated uses was determined for each stream and lake waterbody using USEPA assessment guidelines (USEPA 1997b). The Indiana Trophic State (or eutrophication) Index, a modified version of the BonHomme Index developed for Indiana lakes in 1972, was applied to inland lake data. Results from the following six monitoring programs were integrated into one assessment for each waterbody.

- Physical/chemical water results (lakes and streams).
- Fish community assessments (streams).
- Benthic aquatic macroinvertebrate community assessments (streams).
- Fish tissue and surficial aquatic sediment contaminant results (lakes and streams).
- *E. coli* monitoring results (streams).
- Indiana Trophic State Index (lakes).

Ground water is an important resource for Indiana citizens, agriculture, and industry. The majority of the state's population use ground water for drinking water and other household uses. Of the population served by public water supplies, approximately 50 percent depend on ground water. In 2000, 4154 public water supply systems supplied ground water to a population of approximately two million people (IDEM 2000). Over one-half million Indiana homes have private wells for their water supply.