



# WATER RESOURCE AVAILABILITY IN THE ST. JOSEPH RIVER BASIN, INDIANA



STATE OF INDIANA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER

1987

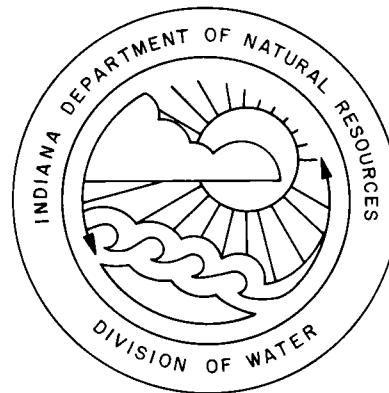
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DEPARTMENT OF NATURAL RESOURCES  
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**Water Resource Assessment 87-1**



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**DEPARTMENT OF NATURAL RESOURCES**  
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## SELECTED LIST OF ACRONYMS AND ABBREVIATIONS

FDA	Food and Drug Administration
GWRSC	Governor's Water Resource Study Commission
IAC	Indiana Administrative Code
IC	Indiana Code
IDNR	Indiana Department of Natural Resources
IDEM	Indiana Department of Environmental Management
MACOG	Michiana Area Council of Governments
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
SCS	U.S. Soil Conservation Service
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

°F	degrees Fahrenheit
ft <sup>3</sup> /s	cubic feet per second
mi <sup>2</sup>	square miles
m.s.l.	mean sea level
mg/l	milligrams per liter

app.	appendix
fig.	figure
pl.	plate

# WATER RESOURCE AVAILABILITY IN THE ST. JOSEPH RIVER BASIN, INDIANA

BY THE DIVISION OF WATER

## INTRODUCTION

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### BACKGROUND

The Water Resource Management Act (I.C. 13-2-6.1) was signed into law on April 7, 1983 by Governor Robert D. Orr. Under Section 3 of the act, the Natural Resources Commission must (1) conduct a continuing assessment of water resource availability, (2) conduct and maintain an inventory of significant withdrawals of ground and surface water, and (3) plan for the development, conservation and utilization of the water resource for beneficial uses.

Section 5 further mandates the statewide investigation of (1) low stream-flow characteristics, (2) water use projections, (3) the capabilities of streams and aquifers to support various uses, and (4) the potential for alternative water supply development. These and other directives reflect a comprehensive approach to water resource management and establish a legislative foundation upon which management programs can be further developed.

To help meet mandated responsibilities, the Commission has divided Indiana into 12 water management basins (fig. 1). Through a series of basinwide investigations, the Indiana Department of Natural Resources (IDNR), Division of Water (the Commission's technical staff) will characterize water on and below the earth's surface. Together with atmospheric water, these hydrologic elements constitute the state's total water resource, a singular entity which will be treated as such in ongoing assessment projects.

### PURPOSE AND SCOPE

The St. Joseph River basin drains 1699 mi<sup>2</sup> (square miles) in northern Indiana and 2586 mi<sup>2</sup> in southern Lower Michigan (fig. 2). The Indiana part of the basin contains a unique combination of natural lakes, wetlands, streams with well-sustained flows, and extensive sand and gravel aquifer systems. The relative abundance of surface- and ground-water supplies

serves a diversity of human needs, ranging from in-stream recreational uses to large water withdrawals for industrial manufacturing and irrigation. Demands on the water resource are expected to increase as both the economy and population continue to grow.

This report describes the availability, distribution, quality and use of ground and surface waters in the St. Joseph River basin, Indiana. The first in a series of 12 regional investigations (fig. 1), it is intended to provide background hydrologic information for water resources decisionmaking. Industrial, agricultural, commercial, recreational, governmental and other public interests can utilize the summarized data in developing and managing the basin's water resource.

### APPROACH

Much of the data in this report has been summarized from maps and data files of federal and state agencies, from various technical reports, and from departmental communication. Some new water quality data were collected during the investigation, and other data have been compiled, analyzed and interpreted.

Because the main body of the report is written for a wide spectrum of readers, detailed data are segregated into technical appendices. However, this report does not provide adequate information for evaluating site-specific water resource development projects. Persons involved in such projects should contact the Division of Water for further information.

Although the St. Joseph River basin includes parts of two states (fig. 2), "the basin" refers only to the Indiana portion unless otherwise indicated. County data are generally presented only for the portions lying within the basin boundary. (The economic summary utilizes data for the whole county, however.) Table 1 lists the in-basin areas and percentages used in this report. A glossary is included at the end of the text.

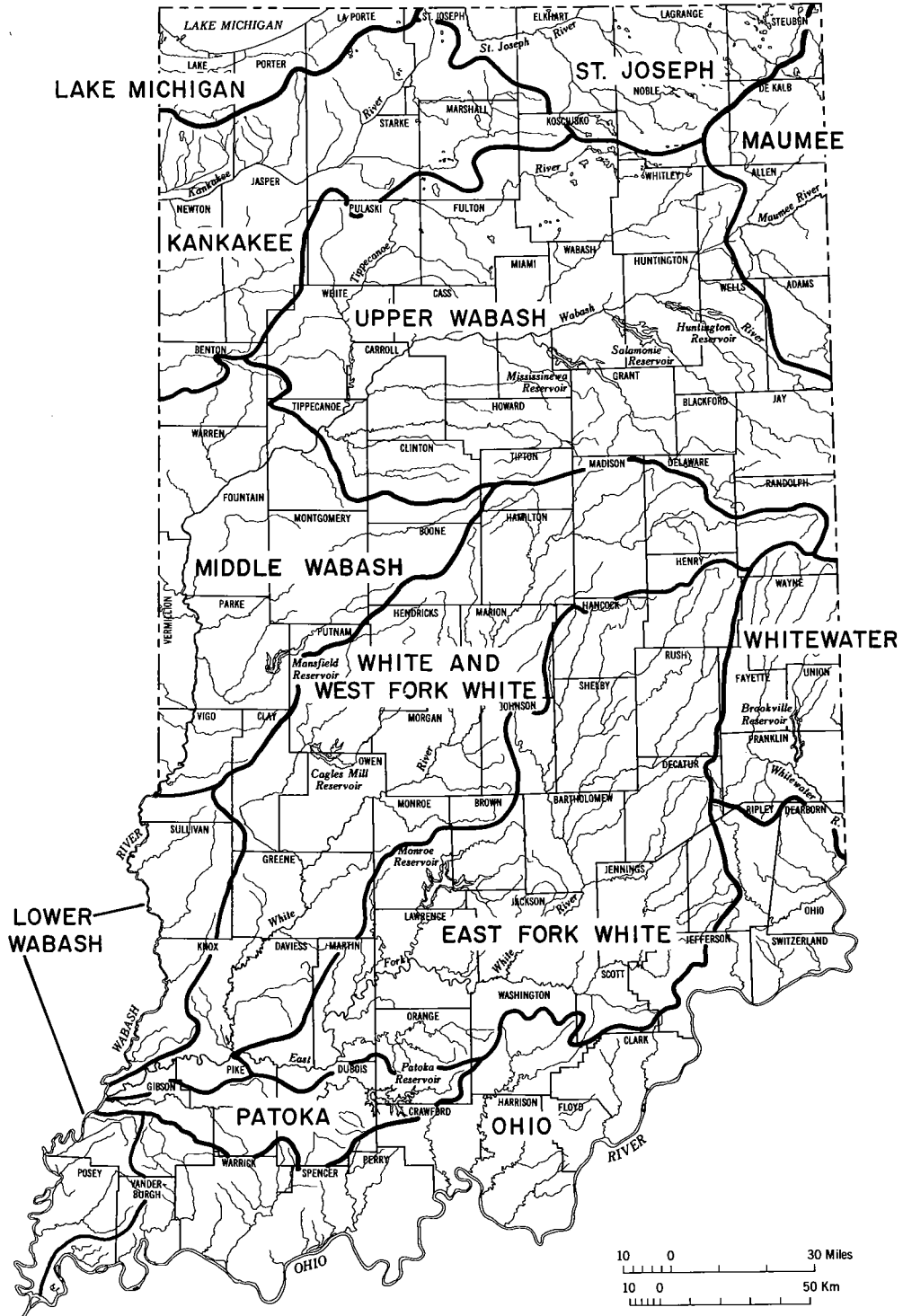


Figure 1. Water Management Basins

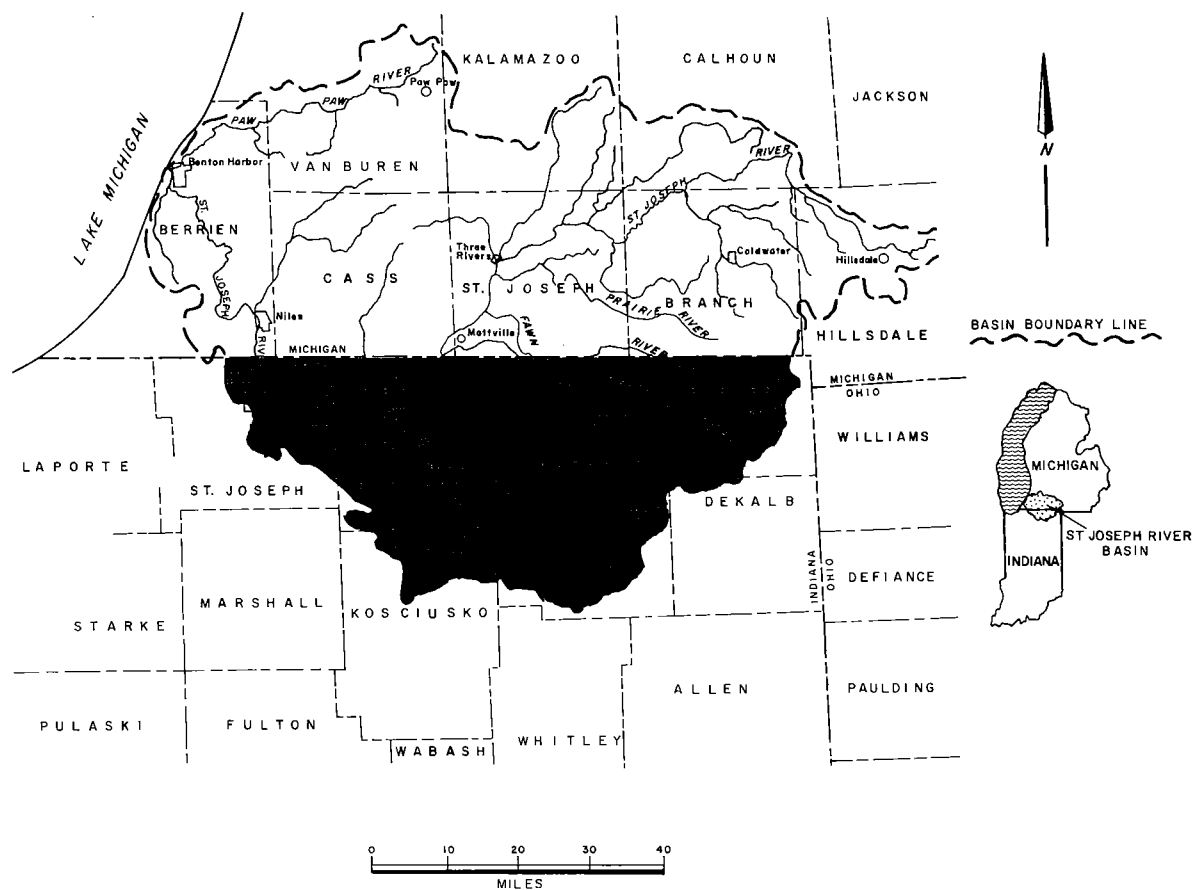


Figure 2. St. Joseph River Basin

TABLE 1. St. Joseph River Basin Area

County	Total Area (mi <sup>2</sup> )	In-basin Area (mi <sup>2</sup> )	Percent
Dekalb	364	9.2	2.5
Elkhart	466	438.9	94.2
Kosciusko	540	110.8	20.5
LaGrange	379	379.0	100.0
Noble	413	300.6	72.8
St. Joseph	459	226.7	49.4
Steuben	308	233.8	75.9
Total	2930	1699	

## PREVIOUS INVESTIGATIONS

Klaer and Stallman (1948) and Marie (1975) present a quantitative evaluation of the ground-water resources of the South Bend area, while Stallman and Klaer (1950), Rosenshein and Hunn (1962), Pettijohn (1968), Hunn and Rosenshein (1969), and Imbrigiotta and Martin (1981) discuss the ground-water resources within larger areas of the basin.

An evaluation by Crompton and others (1986) assesses the adequacy of basinwide hydrologic data collection for management purposes. Bailey and others (1985) and Lindgren and others (1985) evaluate the local effects of simulated pumpage on ground and surface water systems. Three plates by Reussow and Rohne (1975) summarize the water resources of the basin: ground water, surface water, and precipitation.

A cooperative federal-state report (State of Indiana, 1976) details both the land and water resources of the Elkhart River basin (a subbasin of the St. Joseph study area). A report by the Governor's Water Resource Study Commission (1980) assesses various aspects of water availability and use for 18 planning and development regions in Indiana. The St. Joseph basin lies primarily in two of these regions.

### ACKNOWLEDGEMENTS

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