

PRELIMINARY DRAFT

A LAKE MANAGEMENT PLAN FOR ELIZABETH LAKE AND LAKE MARY

KENOSHA COUNTY WISCONSIN

volume one

INVENTORY FINDINGS

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**COMMUNITY ASSISTANCE PLANNING REPORT
NUMBER 302**

**A LAKE MANAGEMENT PLAN FOR
ELIZABETH LAKE AND LAKE MARY**

KENOSHA COUNTY, WISCONSIN

Volume One

INVENTORY FINDINGS

Prepared by the

Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, Wisconsin 53187-1607
www.sewrpc.org

The preparation of this publication was financed in part through a grant from the Wisconsin Department of Natural Resources Lake Management Planning Grant Program.

December 2008

\$20.00

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**SEWRPC Community Assistance Planning Report No. 302
Volume One, Inventory Findings**

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KENOSHA COUNTY, WISCONSIN**

Chapter I

INTRODUCTION

The “Twin Lakes” are comprised of two connected waterbodies, Lake Mary¹ and Elizabeth Lake, both located within the civil division limits of the Village of Twin Lakes in Kenosha County. Lake Mary is a 297-acre drained lake, situated within U.S. Public Land Survey Section 21, Township 1 North, Range 19 East, which is connected by a narrow waterway to Elizabeth Lake, a 638-acre through-flow lake, situated within U.S. Public Land Survey Section 28, Township 1 North, Range 19 East, both in Kenosha County. The southern extreme of Elizabeth Lake and a portion of the Lake’s tributary area extend southward into McHenry County, Illinois. The Lakes form a short chain of lakes ultimately draining to the Nippersink Creek, and the Fox River in Illinois. The Lakes, while exhibiting distinctly contrasting hydrographical and shoreland characteristics, both offer a variety of water-based recreational opportunities and are the focus of the lake-oriented community surrounding the Lakes.

For many years, the Lakes have experienced various management problems, including excessive aquatic plant growth, recreational user conflicts, water quality-related use limitations, invasive species concerns, and public concerns over the aesthetic degradation. In response to these concerns, the Twin Lakes have been the subject of various reports issued by the Wisconsin Department of Natural Resources (WDNR)^{2,3} and the private sector.^{4,5} Proper management of the 7,524-acre total area tributary to the Twin Lakes will be required in order to maintain the Lakes as valuable recreational resources to the residents of the County and of the Region of which the County is an integral part.

¹*Lake Mary has been known variously as Lake Mary, North Twin Lake, and Marie Lake; as of August 27, 1980, the Wisconsin Geographic Names Council formally affirmed the official name of the Lake as Lake Mary, rescinding a previous action taken in 1963 that caused the Lake name to be officially stated as Marie Lake in conformance with usage by the U.S. Geological Survey.*

²*Wisconsin Department of Natural Resources Lake Use Report No. FX-17, Marie [sic] Lake, Kenosha County, Wisconsin, 1970. See also Wisconsin Department of Natural Resources Lake Use Report No. FX-7, Elizabeth Lake, Kenosha County, Wisconsin, 1969.*

³*Wisconsin Department of Natural Resources, Office of Inland Lake Renewal, Twin Lakes, Mary and Elizabeth, Feasibility Study Results; Management Alternatives, 1980.*

⁴*Discovery Group, Ltd., Madison, Wisconsin and Blue Water Science, St. Paul, Minnesota, Lake Management Plan, Twin Lakes Protective and Rehabilitation District, Twin Lakes, Wisconsin, Revised, February 18, 1993.*

⁵*Aron and Associates, Twin Lakes Aquatic Plant Management Plan, Reassessment, 2005.*

In late-2004, the Village of Twin Lakes contracted with the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to conduct planning studies leading to the preparation of a lake management plan for the Twin Lakes. This plan represents part of the ongoing commitment of the Village of Twin Lakes to sound planning with respect to the Lakes and forms a logical complement to the lake management actions that have been implemented on and around the Twin Lakes. The current plan was prepared by the Regional Planning Commission in cooperation with the Village of Twin Lakes and Twin Lake Protection and Rehabilitation District, and it incorporates the data and analyses developed in the aforementioned lake management-related studies, as well as pertinent water quality and other data gathered by the U.S. Geologic Survey (USGS), the WDNR, volunteers, and private consultants working under contract to the Village and/or Twin Lakes Management District.

This plan presents feasible alternative in-lake measures for enhancing the water quality conditions and for providing opportunities for the safe and enjoyable use of the Lakes. More specifically, this report describes the physical, chemical, and biological characteristics of the Lakes and pertinent related characteristics of the tributary area, as well as the feasibility of various tributary area and in-lake management measures which may be applied to enhance the water quality conditions, biological communities, and recreational opportunities of the Lakes. In addition, the plan addresses alternative approaches to managing water levels within the Lakes, and sets forth measures to ensure, insofar as possible, the regulation of water levels within the Lakes is undertaken in a manner consistent with a published operating protocol to be implemented by the Village of Twin Lakes.

The primary management objectives for the Twin Lakes include: 1) providing water quality suitable for the maintenance of fish and other aquatic life, 2) reducing the severity of existing nuisance problems resulting from excessive macrophyte and algae growth and invasive species which constrain or preclude intended water uses, and 3) improving opportunities for water based recreational activities. The lake management plan herein presented should constitute a practical guide for the management of the water quality of Lake Mary and Elizabeth Lake, and for the management of the land surfaces which drain directly to these important bodies of water. This plan conforms to the requirements of and standards set forth in the relevant *Wisconsin Administrative Codes*.⁶

The plan is presented in two volumes. Volume One sets forth the inventory data used as the basis for reviewing the alternative lake management measures and developing the recommended management measures set forth in Volume Two. Volume One, the inventory data, includes an overview of the Lakes and their tributary areas, a review of the governance structures currently in place surrounding the Lakes, a summary of their water quality, a summary of their biology, and a review of the water use objectives established for the Twin Lakes. Volume Two, the alternative and recommended plans, sets forth alternative lake and tributary area management measures considered for application to the management of the Twin Lakes, and identifies a subset of these measures recommended for use to address current and forecast future lake management issues relevant to Lake Mary and Elizabeth Lake.

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⁶*This plan has been prepared pursuant to the standards and requirements set forth in four chapters of the Wisconsin Administrative Code: Chapter NR 1, "Public Access Policy for Waterways;" Chapter NR 103, "Water Quality Standards for Wetlands;" Chapter NR 107, "Aquatic Plant Management;" and Chapter NR 109, "Aquatic Plants: Introduction, Manual Removal & Mechanical Control Regulations."*