

Lower Fox River/Winnebago Pool Long-Range Plan

SUMMARY AND RECOMMENDATIONS

April 1989



LOWER FOX RIVER/WINNEBAGO POOL LONG-RANGE PLAN

Summary and Recommendations

Prepared by the

East Central Wisconsin Regional Planning Commission
and the
Lower Fox River/Winnebago Pool Long-Range Plan Task Force

April 1989

This report is part of the East Central Wisconsin Regional Planning Commission CY 1989 planning program which is partially funded with federal assistance in the amount of \$207,400 representing thirty-one (31) percent of the Commission's total program budget. Specific fundings sources for this report include the Economic Development Administration; the Wisconsin Waterways Commission Recreational Boating Facilities Program; and the State of Wisconsin Division of State Energy and Coastal Management, Department of Administration, and the Coastal Zone Management Improvement Act of 1980, as amended, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

EAST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

Paul Stevenson, Chairman
Frank Buettner, Vice-Chairman
Kenneth J. Theine, Secretary-Treasurer

COMMISSION MEMBERS

CALUMET COUNTY

Alvin Ott, Jr.
Clarence Wolf
Wilma Springer

OUTAGAMIE COUNTY

John Schreiter
George Schroeder
Dorothy Johnson
Ervin Conradt
Carl G. Stumpf

WAUSHARA COUNTY

George Sorenson
Howard Gaylord
Lester Van Loon

MARQUETTE COUNTY

Paul Wade
(Marvin Doege, Alt.)
Dorothy Hartwig
Lawrence Gohlke

SHAWANO COUNTY

Harry Bauman
Frank Buettner
Robert Montour

WINNEBAGO COUNTY

Ralph Nielsen
Paul Stevenson
Marigen Carpenter
Thom Ciske
James A. Mather
Donald Kutchera, Alt.)

MENOMINEE COUNTY

Harley Lyons
Wilmer Peters, Sr.
Bruce Wilber

WAUPACA COUNTY

Walter J. Ciura
Roy Nottleson
Eleanor Dretzke

STEERING COMMITTEE

FOX RIVER/WINNEBAGO POOL LONG-RANGE PLAN TASK FORCE

Ron Van De Hey, Chairman

Jeff Christensen, Winnebago County Parks Director
Terry A. Gant, Valley Queen II
Charles Higgs, Director, DNR Lake Michigan District
Dennis Hultgren, V.P., Appleton Papers Corp.
Tom Krauskopf, Federal State Relations Office, DOA
Paul Lusignan, State Historical Society
William G. Meindl, Historic Hazelwood
Scott Neitzel, DOA Div. of Energy & Intergovernmental Relations
Jeff Pagels, DNR Lake Michigan District
Val Ylie, Fox Cities Convention & Visitors Bureau

Special thanks to all Task Force members (Appendix D) and Bill Kellett and Ross Plainse for their assistance and interest in this plan.

ABSTRACT

TITLE: LOWER FOX RIVER/WINNEBAGO POOL LONG-RANGE PLAN
Summary And Recommendations

AUTHOR: EAST CENTRAL STAFF
Greg Keil
Harlan P. Kiesow
Janet Scalpone
Fred Scharnke
Kenneth J. Theine

FOX VALLEY WATER QUALITY STAFF
William Elman

SUBJECT: A long-range development plan for the Lower
Fox River/Winnebago Pool

DATE: April, 1989

SOURCE OF COPIES: East Central Wisconsin Regional Planning Commission
132 Main Street
Menasha, WI 54952

This plan provides a development strategy to realize the historic, recreational and commercial potential of the Lower Fox River Corridor extending from Green Bay through the Winnebago Pool. Its intent is to enlist local, state, federal and private cooperation in establishing the corridor as one of national significance.

CONTENTS

PLAN SUMMARY	1
Why Plan for the Lower Fox River/Winnebago Pool Corridor?	1
What Does This Plan Do?	2
What Are The Costs?	3
What Are The Benefits?	5
What Needs To Be Done To Carry Out This Plan?	7
PROPOSED IMPROVEMENTS	11
RECOMMENDATIONS	17
Continue Operation of the Lock and Dam System	17
Preserve and Promote the Historic Significance	23
Enhance and Expand Recreational Opportunities	29
Develop and Expand Commercial/Recreational Resources	37
APPENDICES	43
Appendix A - Guidelines for Environmental Assessments	43
Appendix B - Proposed Governmental Management Responsibilities ..	47
Appendix C - Corridor Resources	51
Appendix D - Task Force Members	67
MAPS	
Figure 1 - Navigation Improvements Lower Fox River	11
Figure 2 - Navigation Improvements Pool Lakes	12
Figure 3 - Potential Development/Redevelopment Sites and Proposed Visitor Centers	13
Figure 4 - Major Recreational Improvements	14
Figure 5 - Proposed Levels of Control Limiting Land and Water Uses	15
Figure 6 - Lower Fox River-Winnebago Pool System	51
Figure 7 - Locks, Dams and Harbors	52
Figure 8 - Hydropower Sites	53
Figure 9 - Bridges	54
Figure 10 - Historic Dredge Disposal Sites and Areas Of Contaminated Sediments	55
Figure 11 - Lower Fox River and Lower Green Bay Wetlands	56
Figure 12 - Winnebago Pool Wetlands	57
Figure 13 - Historic Sites	58
Figure 14 - Historic Interpretive Sites	59
Figure 15 - Parks	60
Figure 16 - Parks	61
Figure 17 - Boat Launch Sites	62
Figure 18 - Boat Launch Sites	63
Figure 19 - Commercial Establishments	64
Figure 20 - Marinas, Marine Services and Boat Sales	65
Figure 21 - Marinas, Marine Services and Boat Sales	66

PLAN SUMMARY

PLAN SUMMARY

This plan asks local, state, federal and private interests to make a commitment to the future of the Lower Fox River Corridor. Prepared in response to possible disposition of the Fox River Project by the Army Corps of Engineers and termination of through navigation resulting from closure of a lock as a sea lamprey barrier, it demonstrates the benefits derived from the Project and offers guidance for realizing the historic, recreational and commercial potential of the river and Winnebago pool.

A group of 70 area residents and state agencies participated on five task forces in developing the plan. Four public meetings attracted 1100 local residents. The framework of the plan was set forth in East Central's 1988 report: FEASIBILITY FOR 1988 OPERATION OF THE FOX RIVER LOCKS SYSTEM. The planning process included goal formulation and an extensive inventory and analysis of the historic, recreational and commercial resources in the corridor. This information is compiled as a separate report. Two detailed surveys also were conducted—one of river-dependent industries, and the other, an historic survey of the corridor's locks, dams and historic sites. These also appear as separate reports, with the historic survey, conducted by the State Historical Society of Wisconsin, to be published toward the end of 1989.

WHY PLAN FOR THE LOWER FOX RIVER CORRIDOR/WINNEBAGO POOL?

The Lower Fox River corridor, extending from Green Bay through the Winnebago pool, is the second largest urban area in Wisconsin, with a population of 480,000. In the past decade, massive expenditures by industry and municipalities have vastly improved the river's water quality. The cleaned-up river has reawakened interest in waterfront revitalization for commercial and recreational uses and provided an incentive to capitalize on the corridor's unique characteristics. These include diverse natural and cultural features, in addition to a highly developed industrial base centered on the paper industry. This uniqueness offers an opportunity to spur local economic development by establishing the corridor as a national tourist attraction. Among the corridor's unique attributes are:

- * The location of one of two remaining hand operated lock systems in the nation and the only hand operated system continually functioning since its inception. Much of the historic integrity of this 140 year old system is still intact.
- * Over 200 historic and cultural sites commemorating Native Americans and the discovery and settlement of the midwest. The midwest heritage has finally reached an age which can rival the historic east.

- * The site of the world's first successful hydroelectric power plant, the first electrically wired house from a central hydropower system, and the first successful electric trolley system.
- * A recreational resource which includes one of the largest inland lakes in the nation and a river and lake system which contributes the largest volume of water to Lake Michigan.
- * A prime waterfowl area and fishery, with the largest naturally reproducing fresh water lake sturgeon population in the nation.
- * A scenic urban river containing the world's highest concentration of paper mills along a single stretch of river—20 mills in 37 miles.
- * A river cleanup program based on wasteload allocations which has become a model not only in this country but around the world. Just 15 years ago the Fox River was considered one of the ten most polluted rivers in the nation.
- * The home of the Experimental Aircraft Association which operates a national museum and hosts an annual nationwide convention attracting 800,000 visitors.
- * A location within 300 miles of a population of nearly 22 million, including three major midwestern cities: Chicago, Milwaukee and Minneapolis.

WHAT DOES THIS PLAN DO?

This plan provides a strategy for establishing the Lower Fox River as a corridor of national significance. It proposes to protect, enhance and promote the resources of the corridor to capitalize upon its ability to provide a unique experience of midwestern heritage.

At the heart of the strategy is the basic premise that the Lower Fox River is the single most important feature which connects the corridor's communities and gives them a sense of cultural commonality. To maximize the opportunities the river offers, two major actions must occur:

- (1) Water levels must continue to be managed in an objective fashion balancing the conflicting needs of diverse users. This ensures the commitment needed by all users that their investments in the system will be protected.
- (2) Through navigation from Green Bay to Oshkosh must be maintained. This is the continuous link throughout the corridor and the element essential to its historic authenticity.

Within this framework, the plan proposes policies and actions to realize historic, recreational and commercial opportunities in the corridor without jeopardizing its environmental quality (Appendix A). Two basic policies underly all recommendations:

- * Economic development and environmental protection should be viewed interdependently.
- * Commercial and recreational development should be compatible with historic environs.

Major recommendations are:

Continue Operation Of The Lock And Dam System

- * Recognize that multiple users benefit from dam operation
- * Reestablish an operational lock and channel system for through navigation

Preserve And Promote The Historic Significance Of The Corridor

- * Nominate the lock and dam system to the Historic Register
- * Preserve other historic and archeological sites in the corridor
- * Develop a regional interpretive strategy
- * Establish national recognition of the corridor
- * Continue involvement of the State Historical Society in corridor preservation and promotion

Enhance And Expand Recreational Opportunities Along The Water

- * Provide additional public access to the water
- * Increase recreational activities
- * Preserve the urban/rural nature of the corridor
- * Fund the Scenic Urban Waterway program

Expand Income And Employment Opportunities Through Development And Expansion Of Commercial/Recreational Resources

- * Revitalize urban waterfront areas for commercial development
- * Realize the economic potential of expanded tourism development
- * Coordinate and expand areawide tourism promotional efforts
- * Define the Wisconsin Department of Development's role in the development and promotion of the corridor as a major tourist attraction

WHAT ARE THE COSTS?

The costs of this plan include expenditures for dam management, operation and maintenance of the lock system, and expansion and promotion of the historic, recreational and commercial resources of the corridor.

Costs for dam management are \$1.2 million annually. Costs to bring the Fox River navigational system up to full operational status and operate it for a ten year period are estimated at \$16.5 million. Averaged over 10 years, this amounts to \$1.6 million a year.

Development costs for the historic, recreational, and commercial activities are conceptual in nature and difficult to estimate at this time. However, based upon start-up costs for other national heritage corridors, approximately \$350,000 to \$700,000 is needed annually to establish a promotional program and provide seed money for corridor development.

Costs of dam operation:

- * Current Corps operation of the Fox River System with the locks in "caretaker status" is estimated at \$1.2 million yearly. Since there has been minimal expenditures for maintenance on the locks, this figure is considered an adequate approximation of costs to continue Corps management for water level control in the near future.

Costs of reestablishing through navigation:

- * The essential actions required to reestablish full system navigation include rebuilding Kaukauna Lock No. 5 at a cost of \$1.7 million and constructing the boatlift/sea lamprey barrier in the channel below the Rapide Croche Lock at a cost of \$1.1 million.
- * With reestablishment of full system operation, immediate attention would have to be given to major mechanical repairs, estimated to cost \$1.0 million at seven lock sites. These repairs are needed because of the extended period of deferred maintenance under caretaker status. Although these repairs may be scheduled over several seasons, their delay will have an impact on operating efficiency and safety.
- * Costs for minor maintenance to locks, locktender houses, grounds and canal banks are estimated at \$250,000, while dredging channels and harbors throughout the system is estimated at \$850,000, without consideration for the presence of toxics. Dredging costs will be incurred after DNR has completed sediment studies and resolved dredge spoil disposal issues. Minor maintenance costs can be phased over several operating seasons.

- * Improvements to the locks can be made to reduce long-term maintenance costs by replacing the wooden gates on the remaining 13 locks (excludes the rebuilding of Kaukauna No. 5) with low maintenance steel gates having a 100 year life expectancy. Total cost is estimated at \$9.1 million. This can be phased over the next ten years when each wooden gate reaches its useful life.
- * Annual operating cost of the full system, including the boat lift, maintenance and dredging, is projected at \$250,000, compared to the current cost of \$100,000 for three lock operation.

WHAT ARE THE BENEFITS?

Primary benefits of this plan stem from continued lock and dam operation which provides the opportunity to achieve the historic, recreational and commercial development objectives. Direct and spinoff benefits from tourism promotion attracting just one percent of the nearby midwest market could increase the local economy by \$30 million annually. Benefits from continued lock and dam operation include the following:

Benefits of dam operation:

- * Over 480,000 people living within the Fox River corridor are in some way dependent upon water level management. Lake Winnebago is a 164,000 acre municipal water supply for almost 200,000 people in four major cities. The Lower Fox River serves wastewater assimilation needs through wasteload allocations for 12 major industries and six regional municipal plants. Another 37 firms and 18 municipal plants are also using the Winnebago pool and Lower Fox River for wastewater assimilation. The provision of electricity through seven public and seven private hydropower plants provides over 30,000 kilowatts of power. The maintenance of adequate water levels and minimum flows are critical to meeting these basic services.
- * The dam system and water level control program provide flood protection for residents and shoreland development within 17 jurisdictions in addition to thousands of acres of rural land. Lake Winnebago's storage of 420,000 acre feet makes it the largest flood control storage reservoir in the State of Wisconsin and one of the largest in the Midwest. The management of water levels also contributes to the enhancement of over 170,000 acres of fish and wildlife habitat and is critical to the reestablishment of marshlands within the Winnebago pool lakes. In addition, Lake Winnebago and the Lower Fox River provide over one million user days during the highest month of recreation for boaters and anglers.

Benefits of through navigation:

Historic

- * We cannot afford to lose a 140 year old hand operated lock and dam system still functioning as originally built. This is one of only two hand operated systems in the nation and the only one continuously operating since its inception. We have good evidence of the value of this resource and the cost of restoration. The nation's other hand operated system--the Muskingum in Ohio--cost \$78 million to restore to working order after years of abandonment. Already \$100 million has been spent for lock and canal restoration in the Illinois and Michigan National Heritage Corridor, and ten times that amount is proposed. It took 60 years after abandonment to recognize the value of that historic resource which, despite enormous expenditures, will never again be functional. Similar stories can be cited for numerous eastern canals and locks which, in light of present interest in national heritage, have taken on new value.
- * With national recognition and promotion of the working lock system, the corridor has the potential within five years to draw a minimum of 350,000 additional visitors to the area. This is based on the experience of the I & M National Heritage Corridor which saw an increase of this number of visitors specifically to historic sites in just its first year of development and promotion as a national corridor. State and national studies say that historic visitors spend \$8-10 more a day than average tourists and stay in an area an additional 1.5 days longer. Estimating expenditures of \$30 daily, the area can expect to realize about \$16 million annually.
- * Operation of all the locks helps protect the system from eventual deterioration which often occurs with an unused property. Witness the state of the locks on the Upper Fox, abandoned in 1956. Most of these have been filled in or are deteriorated beyond restoration.

Recreational

- * In the past, about 300 boats a season took advantage of the ability to navigate the entire locks system from one end of the Lower Fox to the other. These were mostly large craft, a type of boat becoming increasingly popular. The ability to navigate the entire system greatly expands recreational opportunities for these large craft and for boaters living upstream by enabling them to boat on the Great Lakes. A 1984 study indicated that 20 percent of boaters who navigated the entire system would relocate their craft off the system if through navigation were lost, at a cost of \$1.5 million annually to local economies.
- * A fully operational system permits boaters to move freely within the system. Communities in the inner pools have invested in boat landings and a new multi-

million dollar lift bridge to encourage this type of use of the waterway. A fully operating system also maintains property values. The ability of riparian property owners to boat the entire system from their doorstep contributes to the high value of waterfront property. Loss of this opportunity could be expected to cause some reduction in property values along the river.

Commercial

- * Through navigation provides the opportunity for excursion boats to offer full-system, day-long cruises incorporating varied attractions in stops along the way. This type of trip provides a unique experience as the boat passes through different eras of the river valley's history and between the densely urban/industrial and rural/pastoral settings along the corridor. If only 0.2 percent of the mature and elderly population within 300 miles of the corridor were to take a day cruise and spend one night, a \$950,000 benefit to the local economy could result.
- * Commitments to maintenance of a fully operational navigation system would sustain waterfront revitalization initiatives and permit realization of the full potential of commercial/recreational development opportunities. Public/private investments in projects like the multi-million dollar marina development in Menasha could be discouraged if opportunities for navigating the system were limited.
- * Waterway businesses responding to a survey reported sales between \$44 and \$90 million annually and supported a total employment of nearly 1500. These businesses, including eating and drinking establishments, marinas and marine services, boat and accessory sales and service, hotels/motels adjacent to the waterway and excursion boats, indicate sales could decline by 50 percent if opportunities for navigating the system were significantly curtailed. The loss in sales tax alone could amount to \$2.25 million annually.
- * Through navigation will allow various paper mills to continue river transport of large paper dryers and other equipment which either cannot be moved by alternate means or require significant additional transportation expenditures. For example, the added cost of transporting a Wisconsin Tissue Mills paper dryer by an alternative means is estimated to be \$250,000. The ability to transport large machinery by barge could promote additional expansion of the paper industry in the Fox Cities.

WHAT NEEDS TO BE DONE TO CARRY OUT THIS PLAN?

Some implementation activities have already begun. During the year this plan was being prepared, local, state, federal and private groups were also addressing the major issues of retaining the Corps and reestablishing through navigation. These

issues are still unresolved and negotiations continue. This plan is designed to contribute another element to the negotiating process--to document the value of the resource to the state and nation and demonstrate a local commitment to realizing its potential. To a large extent, this is what drives the action plan.

The following schedule includes immediate actions, short-range actions for the next five years, and long-range actions. By 1990 it is hoped that an umbrella commission (the Fox River Management Commission) will be authorized to coordinate plan implementation. A list of agencies with specific responsibilities assigned them appears in Appendix B.

IMPLEMENTATION SCHEDULE

IMMEDIATE ACTION - 1989

Demonstrate Local Support

Support of this plan at the local level will help gain state and federal commitments.

- Citizen Advocacy Group (Friends of the Fox)
 - Promote the plan with industry, business and area residents
 - Coordinate fund raising for boat lift
 - Coordinate fund raising for the River Fund of the Fox Valley Community Foundation
 - Lobby state and Congressional delegation for plan support
- East Central Wisconsin Regional Planning Commission
 - Present plan for county, municipal and community endorsement
 - Form an Ad Hoc Coordinating Committee of local and state historic, recreational and commercial interests to:
 - Package recommendations by community, set priorities and begin more detailed planning with communities taking lead role
 - Formulate a corridor-wide promotional strategy and interpretive materials and begin promoting the area as a corridor of national significance
 - Write legislation for National Heritage Corridor
- County and Local Government
 - Endorse the plan
 - Fund interim navigational aids

Continue State Action

New state legislation, resolution of the Corps' role in the system, and continued technical assistance are critical in addressing the short and long-range recommendations of this plan.

- Expand responsibilities of Fox River Management Commission
- Provide stable funding source
- Fund staffing for plan coordination and implementation
- Explore funding of designated Scenic Urban Waterway
- Negotiate with the Corps
- Participate on Ad Hoc Coordinating Committee
- Provide technical assistance

SHORT-RANGE 1990 - 1995

Redefine Fox River Project authorization

The Corps may do this administratively or legislatively.

Submit National Historic Register nomination of locks and dams

Upon completion of the nomination form by the State Historical Society, and approval by the Historic Preservation Review Board, the Corps should submit the nomination to the National Parks Service.

Authorize expanded Fox River Management Commission as umbrella organization

With appropriate state legislation, an umbrella organization (the Fox River Management Commission) would serve as a corridor management commission and assume, in addition to lock operation, responsibility for coordination of all aspects of system maintenance, development and promotion. Activities of the Ad Hoc Committee would be delegated to this organization.

- Coordinate Activities Necessary for Through Navigation
 - Lease agreements for lock operation
 - Long-range plan for upgrading locks
 - Rebuild of Kaukauna Lock #5
 - Installation of lift
 - Channel dredging
 - Coast Guard navigational aids

- Continue Development, Interpretive and Promotional Activities
 - Plans for specific lock sites
 - Development of interpretive materials for existing visitors centers
 - Plans for main visitors centers
 - Coordination of nationwide marketing efforts
 - National Heritage Corridor designation

- Promote Enactment of Regulatory Tools
 - Local historic ordinances and Landmark Commissions
 - Surface water regulations, scenic and shoreland development controls and special zoning districts to preserve future waterfront development activities.

Coordinate Corridor plan implementation with the Lake Winnebago Comprehensive Management Plan and the Green Bay Remedial Action Plan.

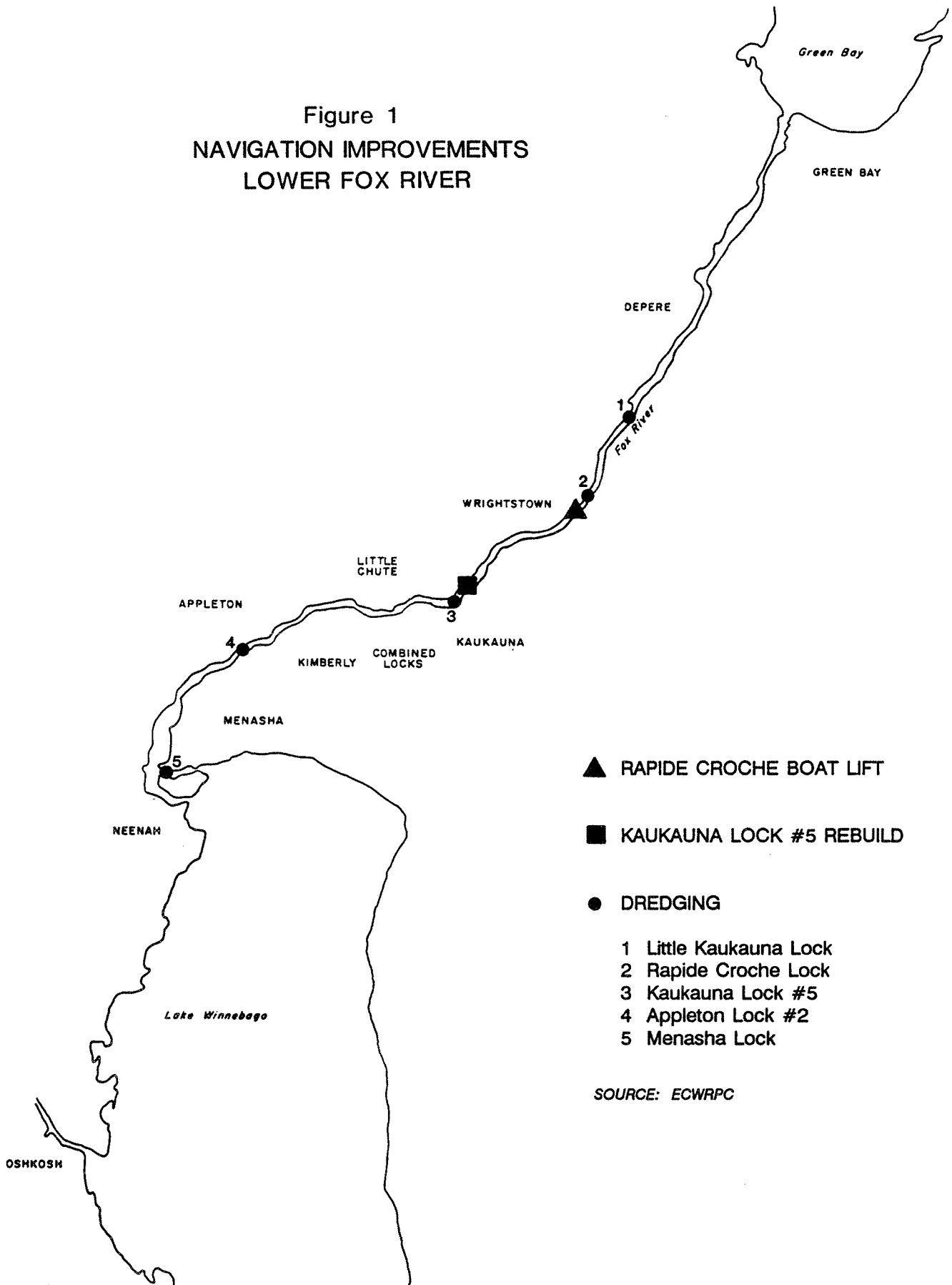
LONG-RANGE

Carry out specific plans developed during the short-range phase

Provide technical assistance to governmental and private developers of waterfront properties, including commercial enterprises, open space and recreational activities, visitors centers and adaptive reuse of historic sites.

PROPOSED IMPROVEMENTS

Figure 1
 NAVIGATION IMPROVEMENTS
 LOWER FOX RIVER



- ▲ RAPIDE CROCHE BOAT LIFT
- KAUKAUNA LOCK #5 REBUILD
- DREDGING
- 1 Little Kaukauna Lock
- 2 Rapide Croche Lock
- 3 Kaukauna Lock #5
- 4 Appleton Lock #2
- 5 Menasha Lock

SOURCE: ECWRPC

Figure 2
NAVIGATION IMPROVEMENTS
POOL LAKES

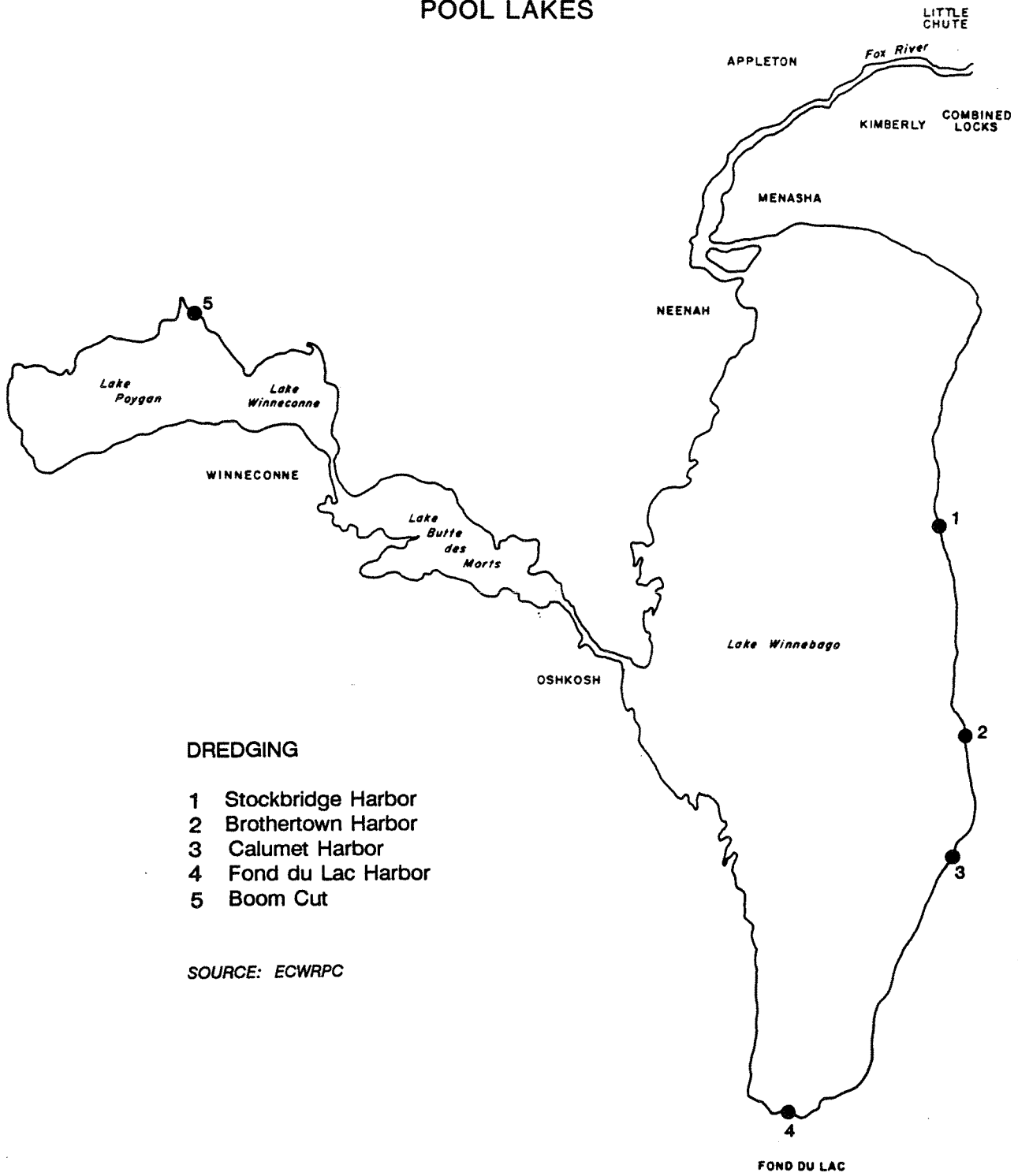


Figure 3
 POTENTIAL DEVELOPMENT / REDEVELOPMENT SITES
 AND
 PROPOSED VISITOR CENTERS

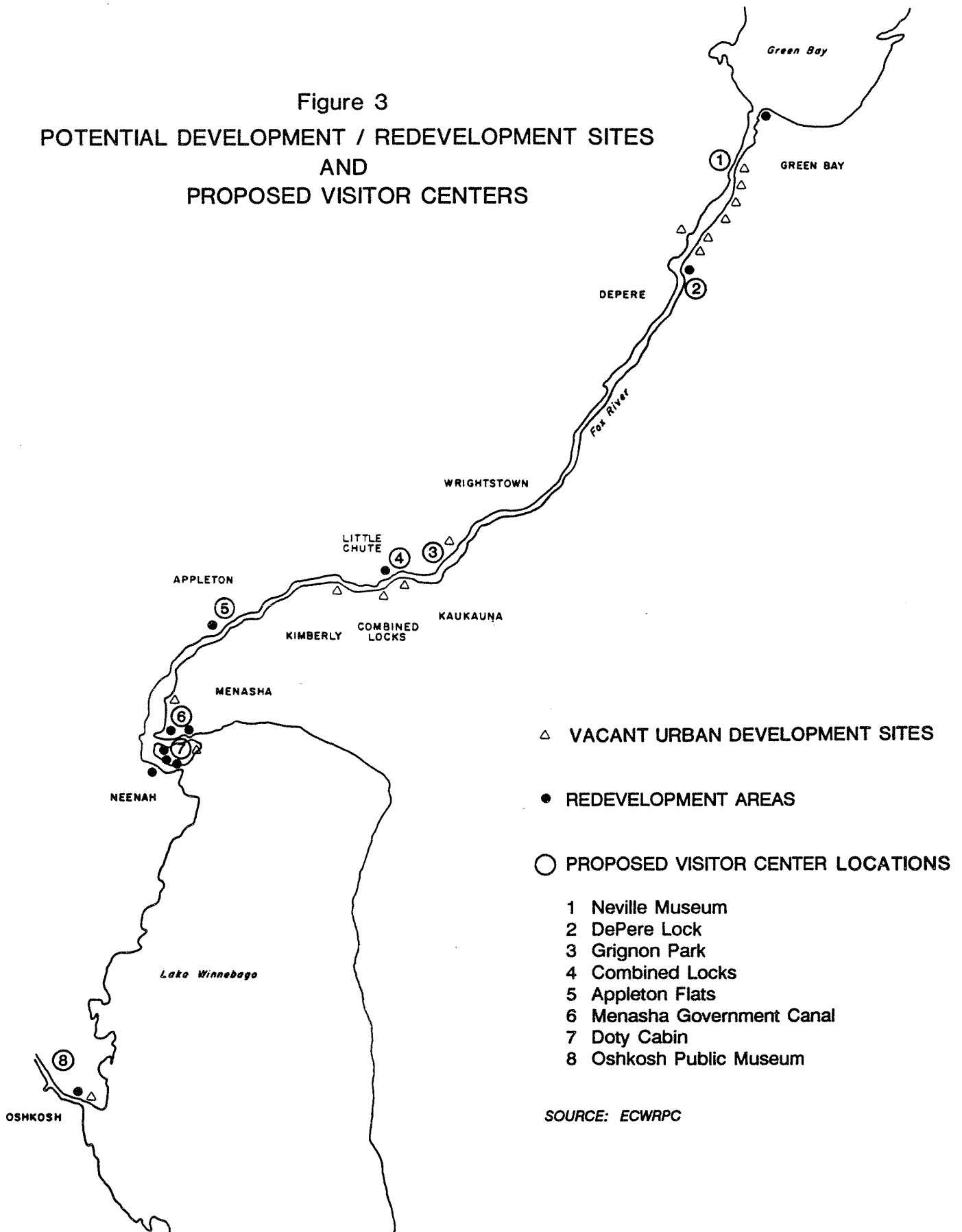
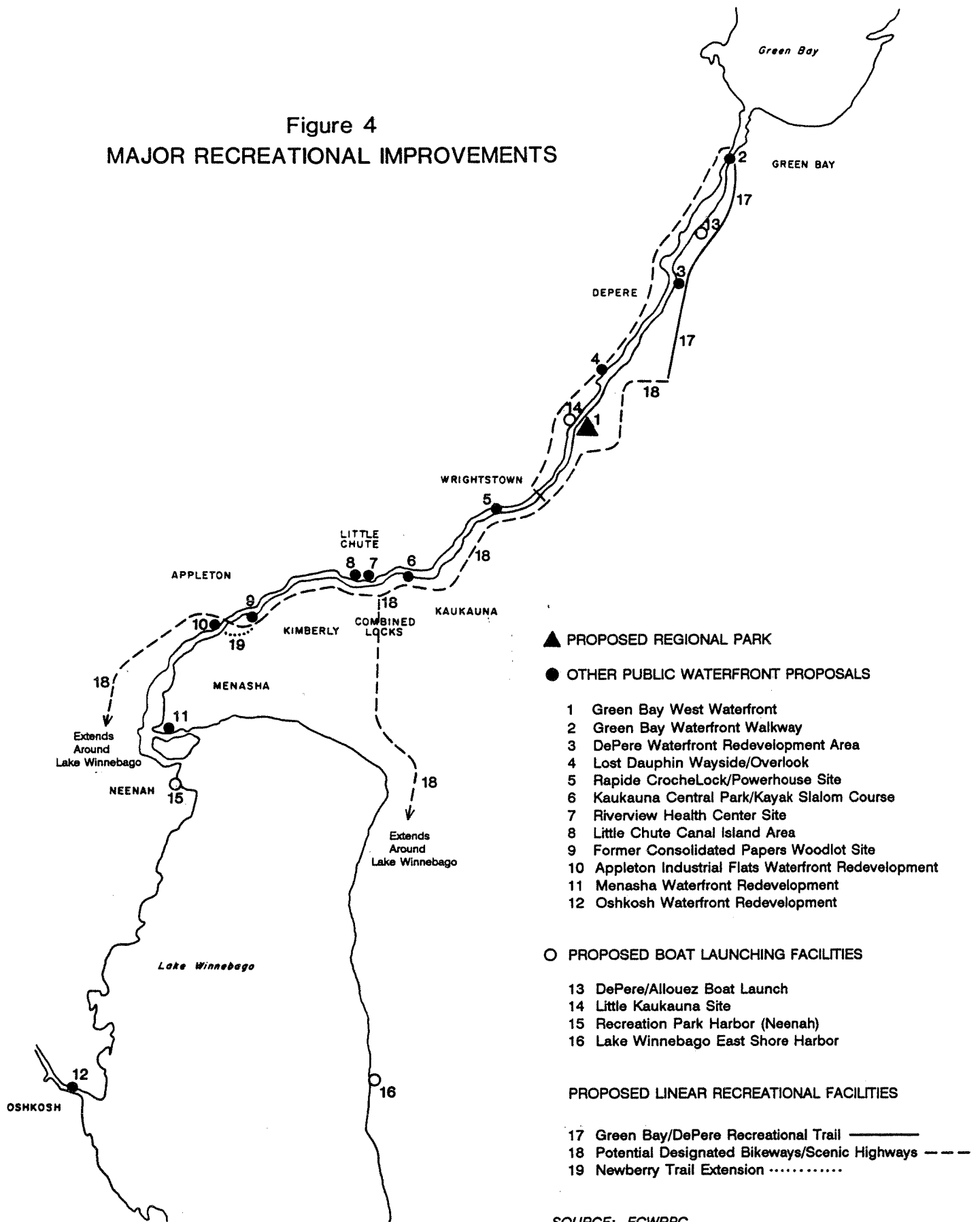
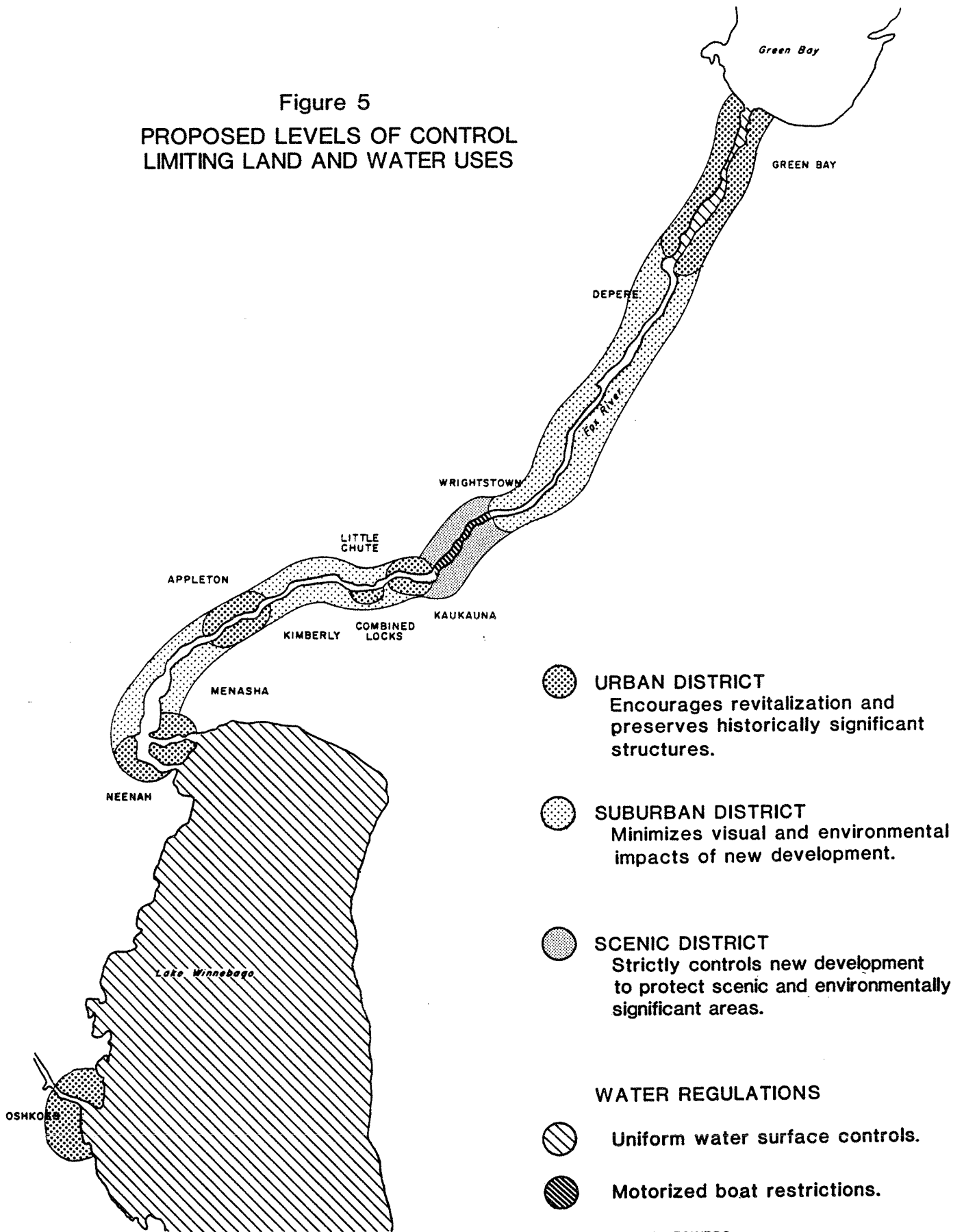


Figure 4
MAJOR RECREATIONAL IMPROVEMENTS



SOURCE: ECWRPC

Figure 5
PROPOSED LEVELS OF CONTROL
LIMITING LAND AND WATER USES



SOURCE: ECWRPC

RECOMMENDATIONS

INSTITUTIONAL RECOMMENDATIONS

OBJECTIVE: TO CONTINUE LOCK AND DAM OPERATION ON THE LOWER FOX RIVER

Continued operation of the dams to meet multiple user needs and restoration of full lock operation are critical to the realization of the corridor's opportunities. Currently, with the Rapide Croche lock sealed to serve as a sea lamprey barrier, the navigation system is limited to three lock operation. Adequate future management of the dams for water level control is uncertain in light of the Corps' draft disposition report recommending transfer of the entire Fox River Project to the State of Wisconsin.

RECOMMENDATIONS

Recognize that multiple users benefit from dam operation

The Lower Fox River-Winnebago Pool is a resource of immeasurable value. The waterway is used for fish and wildlife habitat, water recreation, public water supply, irrigation, cooling and process water for industry, hydroelectric generation, flood control, navigation, and pollution assimilation. It also supports a mix of industrial, commercial and residential riparian land uses. In varying degrees, these uses are dependent upon the management of improvements that harness the resource, including nine public and five private dams, 14 hydropower generation plants, flood control works including channels, breakwalls and levees, and a system of locks and improvements that allows navigation between Lake Winnebago and Green Bay.

For over 100 years the U.S. Army Corps of Engineers has guided management of these improvements under its existing Congressional project authorization for commercial navigation and flood control. Corps management has attempted to balance the often conflicting objectives and competing interests of the various system users. During recent public meetings, strong support was voiced for continuing the objective and non-biased management of the system by the Corps.

Maintain Corps responsibility for the Fox River Project

Both national and regional benefits accrue from the Fox River Project. The State of Wisconsin and local governments claim there is a significant federal interest in continuing the Corps presence in the area. The Fox River, with 20 paper mills in a 37 mile stretch of the river, is home to the largest concentration of papermaking activity in the world and includes much international trade. Of total employment in the Fox Valley (Green Bay, Fox Cities and Oshkosh urban areas), 33 percent, or 77,000 employees, have some

direct or indirect tie to the river. Twelve firms with 20,800 employees and six regional municipal wastewater treatment plants are directly dependent on the river, with wasteload allocations keyed in to proper flow management. Another 37 firms and 18 municipal plants within the Lower Fox River and Winnebago pool have discharge permits.

The Fox-Wolf Watershed is not only the largest tributary to Lake Michigan but also to the entire Great Lakes system from the American side. The Winnebago pool is the state's largest impoundment and one of the largest in the nation under Corps control. According to the Corps draft disposition report, the benefit/cost ratio of operating the water regulation portion of the project is estimated to be extremely high at 4.8 to 1. The Corps has the existing technical expertise, ability and infrastructure to manage a complex water regulatory impoundment system. The estimated annual cost for Corps management of the water level regulation and control process is \$1.2 million.

Redefine the Corps' Fox River Project authority

Federal action is needed to clarify the existing definition of the Corps' Fox River Project authority. The current purpose of "commercial navigation" and "flood control" should be evaluated in light of the historical management of the system for "multiple use." This action will allow the Corps to formalize its current water level management practices and expand its involvement in activities and improvements to the system. The proposed multiple use objectives are flood control, municipal water supply, hydropower generation, waste assimilation, fish and wildlife enhancement, and recreation.

Maintain the existing water level regulation and control process

Over the years the Corps has developed a water regulation strategy. As additional demands for use of the system have developed, the Corps has adjusted its management. This process has balanced system demands in an equitable and unbiased fashion. The Corps has established a water levels advisory committee which meets periodically to review water level management. As indicated by surveys and public meetings, the existing water regulatory process appears to best meet the needs of multiple uses of the system.

Continue the state lead in project negotiations with the federal level

In response to the Corps proposal to dispose of the project, the State of Wisconsin has undertaken a number of efforts to address the continuing management of the system in the best interests of the state and local area. The Governor's office, through the Department of Administration, is the lead negotiating agency. The State has refused to accept management responsibilities and supports continued Corps management of the project.

Local Fox Valley legislators have formed an areawide caucus which is addressing issues facing the future management of the system and its impact on the Fox Valley region. Local governments have also stated that their intent is to maintain Corps responsibility for the project. These efforts should continue to be directed not only to the Corps but to the state Congressional delegation in light of the need for federal legislation.

Establish an operational lock and channel system for through navigation

The assurance of through navigation shows a commitment to increasing the historical, recreational and commercial opportunities of the Fox River Corridor. The experience of not only one operating lock but an entire system of locks and dams in their near original condition provides a unique insight into the historic and cultural development of the area. Without a complete navigation system, boating opportunities between Lake Winnebago and Green Bay are curtailed as evidenced by the recent closure of 14 locks on the system. With access to boat traffic, commercial shoreline activities related to tourism can be greatly enhanced. Only with a fully operational lock system can excursion tour boats take advantage of the historic and recreational opportunities along the river.

Reestablish the operational status of the Corps' navigation project

The Corps' placement of the Fox River Project in "caretaker" status has led to deferred short and long-term maintenance of the lock and channel system. To resume full operation of the navigation system, numerous reconstruction activities should be undertaken by the Corps of Engineers. The activities initially needed to reopen the lock system for full operation in a safe and efficient manner are estimated to cost \$3.8 million. The estimated costs for longer (5-10 year) term major maintenance is \$9 million.

Rebuild and repair locks and lock facilities

Prior to any future operation, a major rebuild of Kaukauna Lock No. 5 is required at an estimated cost of \$1.7 million. Seven other locks require major mechanical repairs totaling \$1 million. Minor repairs and upgrading of locks, locktender houses and grounds and canal bank reconstruction is estimated at \$250,000.

Dredge navigation channels and harbors

To establish navigable channels, maintenance dredging is required at six priority sites on the navigation system. In addition, maintenance dredging is also required at the four Lake Winnebago harbors of refuge. The estimated cost of this dredging is \$850,000. These costs do not include toxic dredge spoil disposal. The sediment testing for toxics is

currently underway. If toxics are present dredging may be delayed until a toxic spoil disposal plan is prepared.

Install steel lock gates to reduce long-term maintenance costs

The existing wooden lock gates have a life expectancy of approximately 20 years. Over the next ten years, 13 of the locks will require gate replacement. Steel gates would substantially reduce long-term replacement costs as they have a life expectancy of over 100 years. The estimated cost of a phased steel gate replacement program is \$9 million.

Provide long term management of the lock and channel navigation system

The Fox River Management Commission should assume responsibility for the lock and navigation channel system after it is upgraded to full operational status by the Corps. This responsibility includes day-to-day lock operation, installation of a boat lift and maintenance of the locks, lift and navigation channels.

Install boat lift facilities at the Rapide Croche locksite

A boat lift facility at the Rapide Croche locksite and lamprey barrier should be installed at a cost of \$1.1 million. This facility will restore through passage from Lake Winnebago to Green Bay.

Operate and maintain the lock and channel system

Full system operation involves the day-to-day operation and minor maintenance of the 17 locks and the boat lift at Rapide Croche. Annual maintenance involves major lock rebuilding and canal and channel dredging. Annual costs are estimated at \$250,000.

Secure appropriate federal, state and local funding

A secure funding source, predictable from year to year, is needed to properly operate the system so that investments related to the corridor can be made without undo risk. Currently, the Corps owns the navigational system and may or may not enter into a lease for its operation. It also provides no guarantee that the facilities are being adequately maintained. The state has created and authorized the Fox River Management Commission to operate the locks with no guaranteed funding source.

Provide federal funding for upgrading the lock and navigation system

The Corps should maintain ownership and responsibility for the system and upgrade it to a low maintenance status.

Provide state funding for lock and navigation system operation

The system will only be viable if consistent and predictable funding is provided for the operating entity. The state should guarantee a funding mechanism for system operation.

Establish a state authorized management agency for operation of the system.

Should there be need for state operation, or for a separate operating entity, the state should prepare the necessary legislation. This can be done by modifying existing authorizations or creating new authorizations to expand responsibilities for single entity management and to ensure predictable funding year in and year out. The navigational system of locksites, canals and channels should be managed as a unit and the associated property held in public ownership for planned development of the corridor.

Establish a mechanism to coordinate activities associated with through navigation

With through navigation on the Fox River System, attention will have to be paid to, and coordination achieved with, related activities not directly part of the lock and channel system. These include the placement of navigational aids for boating and the operation of drawbridges.

Resume the U.S. Coast Guard's navigational aids program

The U.S. Coast Guard withdrew from the system at the end of the 1987 navigation season. Its rationale was that with lack of dredging since 1977, it could no longer place buoys because there were no safe and navigable channels to mark. The Coast Guard has stated that it will reevaluate the Fox River Project when dredging is completed. After dredging of channels and establishment of an annual dredging maintenance program, the Coast Guard should be urged to resume its navigational aids program. Coast Guard participation will provide centralized management and uniform establishment of navigational buoys. The estimated cost of this activity is \$50,000 annually.

Assign interim responsibility for buoy placement to the navigational operating entity

An informal process to place buoys was led by Winnebago County for the 1988 and 1989 boating season; however, this process has been hindered by lack of full participation and funding from other governmental units. It is recommended that the navigational system operating entity be responsible for funding buoy placement until such time as dredging is completed and the U.S. Coast Guard again exercises its responsibility for buoy placement.

Coordinate lock and drawbridge operational schedules

Procedures for the operation of drawbridges on navigable waters of the United States are specified by U.S. Coast Guard regulations. A total of 19 drawbridges must be opened on demand 24 hours a day unless other hours have been specified in the Code of Federal Regulations. Under provisions of the same code, the operating schedule for the navigation season is set annually with a Notice to Mariners. These schedules for the operating season and daily operating hours impacting six different bridge owners should be coordinated annually by the entity operating the lock system. In recent years, the schedules of the two have diverged causing confusion and consternation among boaters.

HISTORIC RECOMMENDATIONS

OBJECTIVE: TO PRESERVE AND PROMOTE THE HISTORIC SIGNIFICANCE OF THE FOX RIVER CORRIDOR

The diversity of historic and cultural resources in the Fox River Corridor reflects a unique heritage in American and midwestern history. The Fox River is famous as the route Marquette and Joliet took to discover the Upper Mississippi. The river was critical in the opening of the Northwest Territory and served as a major artery in bringing commerce to the interior of the nation. Historically tied to the development of the paper industry, the Lower Fox River is noted for having the nation's highest concentration of paper mills along a single stretch of river. Power generated from the river's early dams was responsible for the first successful hydroelectric plant in the world and the first residence electrified from a centrally-located hydroelectric plant. The 140 year old lock and dam system is the nation's only remaining hand operated lock system continually functioning since its inception.

RECOMMENDATIONS

Nominate the lock and dam system to the National Register of Historic Places

The Lower Fox River lock and dam system is the dominant historical element in the corridor. Preliminary findings of the Intensive Survey conducted by the State Historical Society indicate that the system is eligible for the National Register of Historic Places. This designation will help protect and preserve the system. If designated, the property, whether owned by federal, state or local governmental bodies, would be subject to review by the State Historical Society before any activity could impact it. If privately owned, the activity would be subject to review when federal funds are involved.

Document the national significance of the locks and dams in the nomination process

As part of the nomination process, a case should be built for the national significance of the locks and dams. The lock system is one of only two hand operated systems in the nation, and the only hand operated system continually functioning since its inception. It represents a distinct era in water transportation technology, falling between the earlier tow-path oriented models and the modern, automated systems. Much of the historic integrity of the locks and dams remain. All except the Menasha lock are over 50 years old, a major criterion for the Register. Some of the locks have their original masonry walls and wooden gates. All still employ the original fill and discharge technology. Ten of the 12 locktenders houses, built in the early 1900's, are still standing, with their exteriors mostly intact. The fact that this system

has remained in its original state is of extreme interest and value to the study of the evolution of American engineering technology.

Encompass the broadest possible theme for the nomination

A thematic nomination most likely will be used for Historic Register designation. The broader the theme, the greater the extent of protection afforded the corridor. Potential themes are "The Lock and Dam System of the Lower Fox River", "Water Transportation" and "Water Transportation and Industry." Within these themes each of the 17 lock sites and any eligible building in the corridor associated with the themes may be nominated.

Request the Army Corps of Engineers to submit the nomination

Although the State Historical Society is documenting the National Register nomination, the Army Corps of Engineers, as federal owners, are required to submit the nomination to the National Park Service.

Upon inclusion in the National Register, develop an agreement between the agency maintaining the locks and dams and the State Historical Society

A prearranged agreement would spell out what types of maintenance activities could be carried on without individual review by the State Historical Society. This would eliminate needless red tape for either agency.

Preserve other historic and archeological sites in the corridor

The large number of 19th century structures and archeological sites in the corridor contribute to its historic fabric. Efforts should be made to preserve the most significant of these sites.

Nominate significant sites to the National or State Register of Historic Places

Listing on these registers contribute to the preservation and restoration of historic sites. Currently listed on the National Register are 90 sites in Brown, Outagamie and Winnebago counties, with about half of these directly associated with the river. The Intensive Survey of the corridor conducted by the State Historical Society indicates about 400 buildings over 50 years old, with possibly 200 of significance within a block of the river. The shores of the pool lakes are known to have many archeologically significant sites. Intensive surveys completed for Oshkosh, Neenah, Menasha, Kaukauna and Green Bay have also identified sites of significance.

Develop local Landmarks Commissions and historic ordinances for all communities in the corridor

Local participation is a critical component in historic preservation efforts and varies among communities. Landmark Commissions and ordinances play a key role in historic preservation in Oshkosh, Neenah and Menasha and have potential for similar roles in other communities.

Encourage adaptive reuse of historic buildings

Adaptive reuse is one of the best ways to preserve historical buildings. Often these buildings can serve as excellent interpretive centers or for other tourist-related activities. A number of historic sites/buildings within a block of the river have been identified as vacant or about to be vacated. These include Cook and Brown and Universal Foundry in Oshkosh; the old library in Menasha; the Institute of Paper Chemistry (about 12 buildings), the Lincoln Mills complex and the Atlas Mill in Appleton; Riverview Health Center in Kaukauna; the vacant Hydroplant at Little Rapids; Hickory Grove Sanitarium in the Town of Lawrence; and the Kemps Building in Green Bay.

The ten Corps' owned locktender houses, two of which are currently occupied, also have potential for reuse. These were built early in the century, and although extensively remodeled inside, still retain their historic exterior. All were occupied until 1984 when the locks were put into "caretaker" status. Some ideas for their use include leasing to the general public, elderly housing, canal/lock museums, gift shops, visitors centers, and park comfort stations.

Develop a regional strategy to interpret the historic corridor

A regional strategy for interpreting the river would provide a much broader perspective of the corridor heritage than is currently portrayed.

Promote the lock system as the central focus of the river corridor

Recognition in the Historic Register enhances the lock system's potential to be a key component for tourism development in the corridor. As a linear system that extends through a major portion of the corridor, the locks and canals would serve to unify the corridor.

Develop a thematic structure for interpreting the corridor

Five top themes identified for historic interpretation of the corridor are water transportation, fur trading/early settlement, lumber, paper industry and hydroelectricity. While most of these themes apply generally throughout the valley, some are particularly linked with individual communities. Green Bay

is associated with early explorers, the military and early settlement; DePere with missionaries and Kaukauna with fur trading and lockbuilding. Little Chute's roots are its Dutch immigrants; Neenah, Menasha and Appleton had strong early ties to the paper industry. Menasha is historically linked to the canal and Appleton associated with early hydroelectricity and trolleys. Oshkosh was the center of the lumbering trade and steamboat routes. The pool lakes were populated by Native Americans as early as 800 A.D.

Help existing interpretive centers become cornerstones in portraying regional interpretive themes

At least 23 interpretive sites from Green Bay to Oshkosh are already attracting over 600,000 visitors. These sites include museums, restored residences and four riverboats. An estimated 40 percent of these visitors come from out of the area. Establishing a communication network among these sites, developing corridor-wide themes to complement existing programs, and establishing guidelines for developing interpretive material within the corridor's thematic structure would provide excellent support for the corridor concept.

Cooperate with the Army Corps in developing a visitors center and interpretive materials about the locks and dams

The lock and dam system has potential to serve as an historical showpiece for the Army Corps of Engineers. As a representative of a distinct technology in the history of American engineering and as the only manually operated lock system continuously functioning since its inception, the system is a unique example of living history. It offers the opportunity to tell the story of the Corps vital role in the development of the nation. For this purpose, the Corps could develop visitors centers and interpretive materials similar to that developed for some of its other projects. This would further the Corps stated policy in its FY86 Annual Report that it is placing a new emphasis on disseminating historic information about its projects through talks and interpretive displays in project visitor centers. Corps recognition and promotion of the historic value of the locks and dams would ensure appropriate Corps maintenance to protect the system's historic integrity.

Develop additional attractions, visitor centers and festivals at lock sites and canals with distinctive historic environs

At these sites various local and regional themes can be interpreted, including the currently untold story of the locks in terms of design, construction and use. Key sites for historic interpretation include the DePere Lock, the Grignon Mansion with access to three of the Kaukauna locks, the Combined Locks in Little Chute, the Appleton Flats with access to four locks, and downtown Menasha bordering the old government canal.

Create a coordinating committee of local historical societies to help develop historic interpretive materials

Local historical societies represent the most knowledgeable historians in the valley. Most of these societies have already published high quality material which is used to promote historic sites. Nine local Historical Societies are active in the valley: Oshkosh, Neenah, Menasha, Outagamie County, Kaukauna, Wrightstown, DePere, Ashwaubenon and Brown County.

Establish national recognition for the historic corridor

The varied and significant resources of the Fox River Corridor are not generally known. Critical to realizing the economic development opportunities of the river corridor is national recognition of its historic value. National and state studies indicate that national historic sites are among the top attractions for tourists and travelers. In just one year after nationwide promotion as a national corridor, the Illinois and Michigan National Heritage Corridor increased visitation to historic sites by about 350,000.

Establish a corridor-wide label of national significance

The first step in promoting the corridor would be to give it a name, such as the Fox River National Heritage Corridor, or the Fox Heritage Waterway. This would immediately have a coordinating impact.

Seek designation as a National Heritage Corridor

The corridor has potential for designation as a National Heritage Corridor. A detailed comparison with the three corridors currently designated—Illinois and Michigan Canal (1984), Blackstone River Valley (1986) and Delaware and Lehigh Navigation Canal (1988)—indicates strong similarities. This type of designation involves the National Park Service and could provide funds and technical assistance for promotional material, nationwide advertising and possible improvement, operating and maintenance funds. Designation is by Congressional legislation. Based on legislation for other corridors, a management Commission would be established for five years with potential for a five year extension, the National Park Service would provide technical assistance and develop interpretive material, and \$250,000-\$350,000 (possibly with a 50 percent local match) would be provided annually to carry out Commission activities.

Explore cooperation with groups seeking national recognition of the Upper Fox

Designation as a National Heritage Corridor is one of the long-range goals of the Fox-Wisconsin Heritage Waterway Park Corporation in Portage. This organization is promoting a linear park from the Wisconsin River Locks to

Green Bay. In 1986 legislation was introduced in Congress for this corridor, but was tabled in committee. While both the Eureka Lock and the Portage Canal are listed on the Historic Register, the historic integrity of most of the other Upper Fox locks, which were abandoned in 1956, has been lost. Further exploration is needed to determine how the Upper Fox would fit into a national promotional concept with the Lower Fox.

Establish a commission to act as a focal point for coordination of historic and other activities

This would be an umbrella organization encompassing the various interests in the corridor. It could be a new organization or an expansion of the Fox River Management Commission. Its function would be to provide a focal point for directing activities of corridor plans.

Market the historic attractions nationwide

This would be done in cooperation with existing local marketing programs.

Continue involvement of the State Historical Society in Corridor preservation and promotion

The State Historical Society is the agency currently conducting the Intensive Survey of the corridor with \$25,000 appropriated by the State Legislature. It will also be preparing the nomination of the lock and dam system to the Historic Register and, if designated, will be the agency protecting its historic integrity. In addition, the State Historical Society participates in nomination of historic sites to the state and national registers, funds historic surveys and some restoration projects, and promotes state historic resources. It is critical that this state agency participates in the management of this corridor.

RECREATIONAL RECOMMENDATIONS

OBJECTIVE: TO ENHANCE AND EXPAND RECREATIONAL OPPORTUNITIES ON AND ALONG THE WATER

The Lower Fox River and Winnebago Pool Lakes represent one of Wisconsin's most significant and underutilized water resources. The river provides about 5,000 acres of surface water while the lakes collectively contain 164,000 acres, about 17 percent of the state's entire inland lake area. These are tremendous resources which can accommodate a significant amount of additional boating activity without disrupting the recreational experiences of other users. Recent surveys of boat use on the river indicate that even during periods of peak activity, there is more than eight times the water surface available per boat than is needed to enjoy a quality recreational experience. Additionally, nearly 80 miles of shoreline exist along the Lower Fox and 160 around Lake Winnebago and the other pool lakes. In many areas the shoreline's unique physical features and excellent habitat for plants, fish, and wildlife are ideally suited for providing a diversity of related recreational opportunities and preserving the system's intrinsic environmental values. These shoreline areas also provide access to the water surface.

RECOMMENDATIONS

Provide additional public access to the water

Surface water is the dominant recreational resource in the study area, but its potential is currently limited because less than five percent of the corridor's 240 mile shoreline is publicly owned. This frontage is unrealistically expected not only to provide access to the water but also to accommodate a range of other recreational opportunities for nearly 480,000 residents, the state's largest population concentration outside of Milwaukee, and visitors to the area. Almost 100,000 will be added to the area's population in the next 30 years, placing increased demands on public water frontage.

Provide additional access to the water in downtown urban areas

Implementation of locally adopted plans and other proposals which call for development of linear parks, pedestrian walkways and amenities, and other nodes of public open space along their waterfronts is one of the best ways to integrate the waterscape into the urban fabric of a community and stimulate new private investment. These efforts are underway or planned in Green Bay, DePere, Kaukauna, Menasha, Oshkosh and Omro. A similar opportunity has been identified for the Industrial Flats area of Appleton, where creation of waterfront open space could be the cornerstone of other redevelopment activities. An opportunity unique to Kaukauna is to create a canoe/kayak slalom

course below the dam, integrating this facility with its plans to develop an outdoor civic center on adjacent land.

Develop a regional park on the Lower Fox River

Acquisition and development of land flanking the Little Kaukauna Lock and Dam as a regional park would serve as the centerpiece for increased recreational use of the Lower Fox River. Long identified in the Brown County Outdoor Recreation Plan, the site has excellent potential for providing launching and mooring facilities, shoreline fishing, trail development, camping, and picnicking. An operating lock and the attractive setting of the lock tender's residence add interest to the site. A park here also would provide area residents an alternative to High Cliff State Park, the only state park in the study area. High Cliff receives such heavy local use that it annually ranks third among all state parks in attendance despite its location away from the mainstream of tourist destinations.

Use existing publicly owned land along the river to provide river access

Use of existing publicly owned land minimizes land acquisition costs. The former Lost Dauphin State Park site near Little Rapids, City of Kaukauna-owned land adjacent to its powerhouse at Rapide Croche and below Telulah Park in Appleton, county-owned land along the river at the vacant Riverview Health Center in Little Chute, the island area adjacent to the combined locks, also in Little Chute, and Corps of Engineers land at the Rapide Croche lock site and along navigational canals in Kaukauna, Little Chute, Appleton, and Menasha all have unrealized potential for recreation and open space use. Because land on both sides of the river is in public ownership at Rapide Croche, integrated development of these two parcels could provide an opportunity for new recreational activity in this area.

Increase recreational activities

There is excellent potential for providing additional recreational facilities which better utilize the system's natural resource base. Opportunities also exist to accommodate recreational activities which currently are seriously deficient in the area. In addition, creation of unique or enhanced recreational experiences is possible.

Develop additional opportunities for boating on the system

Boat registrations in the five county study area, already the highest concentration of boat ownership outside the Milwaukee area, are projected to increase from slightly under 60,000 to over 90,000 in the next 30 years. While even this significant increase does not jeopardize the system's carrying capacity as a whole, it will increase user conflicts, overcrowding, and similar

problems already occurring at spot locations. Even more critical, it will severely tax existing launching sites, already inadequate on portions of the system. It is, in fact, the opportunity for launching boats as measured in parking capacity and the number and quality of ramp lanes which is the controlling factor in achieving fuller utilization of the system's substantial surface water resource.

Provide additional launching facilities

While public boat landings are generally well-spaced along the river and lakes at the present time, many are marginal, particularly on the lakes, where road ends with poorly sloped unprotected ramps and limited parking outnumber well-designed boat landings. Development and improvement of launching facilities generally has been and should be need-generated. Present development of a 100+ capacity facility on the east side of the Fox River downstream of the DePere dam and plans to develop a protected harbor to facilitate launching at Neenah's Recreation Park and expand parking at the Badger Avenue launch on the west end of Lake Poygan are in progress. Other needs which should be addressed in the near future are a centrally located protected harbor on the east shore of Lake Winnebago and ramps capable of serving both pools at the Little Kaukauna Lock and Dam site. As existing sites become developed to capacity, a longer range need will be to find a way to provide additional launching opportunities on the system.

Provide additional long-term mooring facilities

The trend toward larger less trailerable boats has increased demand for seasonal mooring. Accommodating this demand also reduces user pressure at existing launch sites.

Develop short-term mooring facilities along the water

Providing short-term mooring such as exists in Green Bay, DePere, Wrightstown, Menasha, Oshkosh, Omro and Winneconne is an excellent way to combine recreational boating with related activities such as land-based recreation, dining and shopping, and other attractions located near the water. Private mooring facilities such as that at the Fin 'n' Feather in Winneconne provide additional destinations for boaters and add greatly to the atmosphere of the waterfront setting.

Enact and coordinate water surface controls in select areas

Strategic application of water surface controls is needed to address problems which arise on the system. Uniform water surface controls

should be implemented to regulate boating and other activity on the Fox River from Green Bay to DePere, an area of heavy boating activity and multiple jurisdictional responsibility. Another area needing immediate attention is off Streich's Point south of Oshkosh, where concentrations of boats moored a short distance off shore are hindering boating by adjacent property owners.

Utilize the Rapide Croche pool for non-motorized boating

Setting aside the wide areas of the Rapide Croche pool immediately downstream from 1000 Islands Environmental Center for non-motorized or no-wake boating by zoning a portion of the water surface to restrict motorized boat activities provides a unique opportunity to experience a relatively high quality recreational experience seldom available in such a heavily populated urban area. Through boat traffic could be steered along the north (west) bank by marker buoys.

Undertake bank modifications at various lock sites to facilitate portaging of canoes and kayaks

Safe and well marked areas where these craft can be portaged would encourage canoeing and kayaking on the Lower Fox. Even when the locks were staffed, they were not operated for passage of canoes and kayaks, requiring constant portaging in areas of steep banks and riprapping.

Develop and promote fishing in the Lower Fox

Water quality improvements in recent years have had a major impact in rebuilding the fishery in the Lower Fox River. Today trophy walleyes taken below the DePere dam during a special spring season have earned the river a statewide reputation. While not as well known, other portions of the river are also yielding nice catches for knowledgeable fishermen. Future water quality improvements are expected to continue to increase the value of the fishery.

Initiate actions to maintain and enhance the river's fishery

As water quality improves, an adequately supported and effective management plan will be the single most important factor in developing a quality fishery in the Lower Fox River. Expanding the scope of DNR's present study of the river's improved fishery, now limited to that portion of the river downstream from the DePere dam, to include the entire Lower Fox from Lake Winnebago to Green Bay is an important first step. Opportunities to utilize innovative management strategies should be

evaluated. Protection of wetland areas along and tributary to the river is essential for enhancement of the river's fishery.

Expand opportunities for shoreline fishing

Developing handicapped-accessible shoreline fishing facilities, particularly below the dams and in urban areas, will enable a broader segment of the population to have access to prime fishing areas. Preserving the pool above the Combined Locks dam for non-boat fishing only will create a unique recreational experience not often found on river systems.

Heighten public awareness of the improving fishery of the Lower Fox River

At the local level, activities such as sponsored tournaments, publicity of significant catches from the river, and other promotional literature would help promote the Lower Fox River fishery and attract visitor dollars into the local economy.

Increase camping in the corridor

Among support facilities, campgrounds (and campsites) stand out as being in short supply. Only 50 campsites are on the river, an additional 100 in the corridor, and 175 more in the immediate area. Additional campground facilities along the river would help meet an identified need for campsites and provide economic benefits for the surrounding area. Brown County's plans to develop additional camping facilities at its fairgrounds will still leave much demand unmet. Several sites between DePere and Kaukauna have potential for this type of development, particularly for a private facility, but the best site for publicly provided camping is the proposed regional park located on the southeast side of the Little Kaukauna Lock and Dam.

Create additional opportunities for linear recreation

Providing additional linear recreational opportunities more strongly oriented to the river would allow fuller utilization of the river as a recreational resource. At the present time opportunities for these types of recreational experiences along the Fox River are minimal, limited to relatively short pedestrian trails in Oshkosh, Appleton, Kimberly, and Green Bay, one mile of Rustic Road, and no cross-country trails which come within more than incidental contact with the river. Acquiring the abandoned railroad right-of-way along the east bank of the Fox River between Green Bay and DePere would provide a unique opportunity for developing non-motorized linear recreation in an urban setting, accommodating bicycling, hiking, and cross-country skiing.

Designate and promote a bike route on roads and trails paralleling the river

Consistent signing and a common name, such as Fox River Run, would allow its promotion throughout the corridor as a recreational resource worthy of perhaps statewide significance. The route could be the cornerstone of a more extensive trail system encircling Lake Winnebago and connecting with other attractions such as nature centers in outlying portions of the corridor. Additional promotion could come about by local sponsorship of biking events.

Provide additional opportunities for hiking and cross-country skiing in the corridor

Trails along the river on publicly owned land in both urban and rural areas for hiking and cross-country skiing would permit recreationalists on foot to enjoy the corridor's scenic character throughout the year. Limited use easements similar to that used for public snowmobile and Ice Age trails could also be sought from cooperative landowners.

Designate roads along the river as state scenic highways

The corridor's scenic character and history should be used by local chambers of commerce and other tourism promotion groups from Green Bay to Prairie du Chien to work together with the State Department of Tourism to gain support for a state-designated scenic highway, which would follow the historic Fox-Wisconsin waterway used by Marquette and Joliet and other early explorers. The Lost Dauphin site could be developed as a wayside and scenic overlook.

Preserve the urban/rural nature of the corridor

Sharp contrast between the urban/developed and the rural/agricultural segments of the corridor should be preserved. By appropriately regulating land use and encouraging cooperation from private land owners development can be tailored to complement existing uses and preserve scenic quality.

Within intensively developed areas, regulate to encourage revitalization and preserve historically significant structures

Older industrial and commercial areas along the river in the larger communities are valued because they provide a strong sense of the corridor's history, serve as focal points, and often feature interesting architecture and juxtaposition of structural elements. The industrial islands in Menasha and Appleton are two areas with such potential. Low cost actions such as painting, landscaping,

and removal of unnecessary debris are generally adequate to enable these areas to be viewed in a favorable light.

In suburban areas, regulate to minimize visual and environmental impacts of new development

In some areas, such as along the river in Appleton, remarkable success has been achieved in preserving the quality of the river experience by maintaining wooded valley walls to shield direct views of homes along its banks. Development of areas more visible from the river, such as south of DePere where the river is less entrenched and fewer trees exist, would have a detrimental affect on the corridor's scenic and environmental qualities unless techniques such as large lot zoning, water setback requirements, and protective covenants are implemented.

In rural areas, strictly control new development to protect the most scenic and environmentally significant areas

Rural portions of the river, increasingly threatened by development pressures, have a scenic quality worth preserving which is unique for such an intensively developed urban area as the Fox River Valley. The character of the landscape as seen from the water would be quickly destroyed by new development along its banks. The shoreline between Kaukauna and Wrightstown, still largely natural, is particularly vulnerable. Preservation of these areas can be achieved with mandatory setbacks for building sites, limitations on timber removal, and other actions which effectively keep development from being visible from the river. Scenic easements can also be purchased.

Fund the Scenic Urban Waterways Program

In 1988 the Fox River was designated as a Scenic Urban Waterway by the Wisconsin State Legislature. This designation has the most potential for state involvement, especially since DNR concluded in a 1986 study that the lock sites are poor candidates for a state park. The designation gives DNR authority to manage and coordinate activities relating to the river; acquire parks, easements, trails and other access; and provide grants to municipalities to undertake these activities.

COMMERCIAL DEVELOPMENT RECOMMENDATIONS

OBJECTIVE: TO EXPAND INCOME AND EMPLOYMENT OPPORTUNITIES THROUGH DEVELOPMENT AND EXPANSION OF COMMERCIAL/RECREATIONAL RESOURCES WITHIN THE CORRIDOR

The Fox River corridor supports over 100 commercial/recreational businesses whose sales are dependent on the recreational or scenic amenities of the waterway. Just those businesses responding to a survey indicated a sales volume in the range of \$44-\$90 million, while supporting 1500 jobs in the local economy. Opportunities for expanding economic activity through tourism development and promotion could generate an additional \$6.6 million if only 1 percent of the near-Midwest tourism market were tapped. Spinoff benefits could generate an additional \$24 million in local economic activity. In several communities, the public and private investments in commercial redevelopment of waterfront areas have paid off with new restaurants, apartments, offices, shopping, hotels and green space, contributing to the tax base and recreational opportunities and generally improving the urban environment.

RECOMMENDATIONS

Expand and revitalize urban waterfront areas for commercial development

Communities throughout the corridor have come to recognize that waterfront redevelopment enriches their economic, cultural and aesthetic fiber. In Oshkosh, for example, a former lumber mill was converted into a large, up-scale apartment complex while dilapidated commercial and industrial buildings were cleared to make way for a technical college, new office space, a marina, green space, and a major hotel/convention facility. Urban areas should remain the focal point of commercial waterfront development to capitalize on the existing commercial base and minimize environmental impacts and land use conflicts in rural areas.

Redevelop appropriate waterfront tracts into mixed use commercial areas

Waterfront areas provide an attractive setting for many types of development. Projects in communities across the country have capitalized on waterfront amenities. A project in Memphis, Tennessee, created a \$63 million educational and recreational complex on a dredge spoil island that draws 1.2 million visitors to its restaurants, retail shops and recreational facilities, and features a working scale model of the Mississippi River and access to the project by monorail and riverboat. Much more common are projects that convert functionally obsolete industrial buildings and sites into specialty shopping centers, office buildings, apartments, condominiums, or mixed use developments.

In addition to the scattered waterfront redevelopment sites throughout the corridor, the Appleton Flats and the area along the U.S. Government Canal in Menasha should be considered major waterfront redevelopment areas. The scope and character of redevelopment should be determined by local planning efforts taking into account historic preservation, recreation, commercial development and environmental considerations. Governmental entities should support waterfront commercial development/redevelopment activities through the preparation of plans, appropriate land use regulations, and site acquisition/property assembly where necessary.

Preserve remaining vacant urban waterfront development and redevelopment sites for water dependent commercial/recreational uses

Vacant urban waterfront development sites are a scarce resource. Only 16 sites totalling 89 acres were identified in the land use inventory of the corridor. Redevelopment sites are likewise scarce, with only 11 sites covering 59 acres inventoried in the corridor. Communities should exercise their zoning powers to restrict development to those uses which are dependent upon or utilize the amenities of waterfront sites.

Establish additional dining, entertainment, and lodging facilities along the waterway

Currently, there are 36 fine restaurants, 68 eating and drinking establishments, and 8 hotels/motels within the waterway corridor. Both the Oshkosh and Green Bay area have full service hotels and fine restaurants located directly on the waterway. The lack of these types of facilities in the Fox Cities suggests a development opportunity. It is estimated that a major waterfront restaurant would generate annual sales of \$750,000 and employ 40 persons.

Improve boat access to waterfront commercial areas

Waterfront redevelopment efforts in Oshkosh, Menasha and the Green Bay area have included provisions for boat tie-ups and temporary mooring. These facilities encourage boaters to disembark for shopping, dining and entertainment in waterfront commercial areas. Suitable boat access to commercial areas is notably lacking in the Appleton and Kaukauna areas.

Realize the economic development potential of expanded tourism and recreational development

Tourism can be a significant contributor to the Fox Valley economy. New jobs and income opportunities principally accrue to the retail trade and services sectors. However, spinoff benefits are realized by all sectors of the economy. Dollars spent by visitors tend to remain longer in the local economy. It is estimated that for every tourist dollar spent, \$3.65 of economic activity is generated. The locational

relationship of the Fox River Valley to major Midwestern markets—Twin Cities, Chicago, etc.—suggests the potential for tapping into a market of nearly 22 million persons. Drawing even 1 percent of the market at an average expenditure of \$30/person/day would generate an additional \$6.6 million in direct revenue for businesses in the corridor, plus spinoff effects.

Develop commercial/recreational facilities adjacent to lock sites

An operating lock system could become a focal point of tourism development. The locks at Sault St. Marie Michigan annually attract over one million visitors and though the Fox River's locks are not directly comparable, their functional characteristics and interest as an engineering work can be equated. Commercial enterprises should be developed in conjunction with interpretive centers at lock sites to enhance the stature of the locks as a potential tourism attraction. A "Trading Post" at an appropriate lock site, such as Kaukauna #5 which is also adjacent to the Grignon Mansion, is illustrative of the concept. A large operating boat lift as proposed for the Rapide Croche area, together with supporting facilities could likewise serve as an attraction. Commercial facilities should be architecturally compatible with adjoining structures and complement the historic character of lock sites.

Retain and expand excursion boat operations on the waterway

In 1988, nearly 69,000 passengers took part in tours on the three excursion boats operating on the Lower Fox and Winnebago Pool. The River Queen, operating out of the Green Bay area with 17,000 passengers, terminated operations, largely in response to the uncertain operational status of the locks. The Valley Queen, out of Oshkosh, has also reported decreasing ridership, partially attributable to the loss of through navigation opportunities.

Excursion boat operations are a key component of tourism development, and their loss would seriously impair future commercial/recreational development potential of the waterway. Maintenance of basic navigational facilities and construction of a large boat lift at Rapide Croche is essential to the retention and expansion of this tourism development resource.

The opportunity to navigate the entire waterway is a primary requirement for expanded riverboat tours that capture the sense of the waterway's role in the historic development of the Fox River Valley. Day long cruises as part of a broader tour package would extend the length of visitor stays and could become a major part of a tourism development strategy. Sightseeing and boat and train excursions have been cited by motor coach tour operators as two of the top three attractions on tour itineraries.

Develop local events into major tourism attractions

The Fox Valley area currently supports over 100 annual events and community festivals. Many of these events—Bayfest in Green Bay, Fox Riverfest in DePere, River Days Music Festival in Kaukauna, Riverfest in Menasha, Communityfest in Neenah and Menasha, and Waterfest in Oshkosh—illustrate the waterway's significance to the area's culture and heritage.

The potential exists to expand certain events into regional or statewide significance. Octoberfest in Appleton exemplifies the growth potential of well-organized community festivals. The cultural diversity of the Valley suggests the potential to key into the ethnic heritage of certain communities as festival themes. Events like the Otto Grunski Polish Festival in Menasha, and the Dutch Kermis Festival in Little Chute seem well suited to further development.

Expand offerings of motor coach tours to increase visitor days

The Fox Valley area offers a unique mix of museums, historic structures, state and local parks, environmental centers, community events, industrial tours, dinner theaters, shopping opportunities and other attractions suitable for motor coach itineraries. It is estimated motor coach passengers spend an average of \$80 - \$100 per day on outings, with roughly half that amount remaining in the local economy.

Additional opportunities should be explored for offering mixed modes of transportation; e.g. combined motor coach/excursion boat tours, motor coach/rail tours (perhaps originating at the National Railroad Museum in Ashwaubenon, or utilizing the trolley car undergoing restoration in Appleton).

According to tour operators, the top attractions, in descending order, are dinner theaters, sightseeing, boat/train tours, shopping, small fairs and plays. Group tours generate over \$70 million in sales in the Midwest. A target population of nearly five million mature and elderly persons exists within a 300 mile radius. Bringing 10,000 tour participants, or just .2 percent of the target population to the Fox Valley, would generate \$1 million in local sales based on an expenditure of \$50 person/day with one overnight stay. Using a multiplier of 3.65, the total local impact of this kind of tour offering would be \$3,650,000.

Coordinate and expand tourism promotional efforts on an areawide basis

Develop a unifying theme for promoting tourism within the corridor

Presently, there is no common identity associated with the events, attractions and facilities offered within the corridor. A unifying theme would enhance recognition of the corridor and promote its image as a major attraction. The waterway and its role in the development of the area is a common thread that links facilities and occurrences in one segment of the corridor to another. This attribute should be a major consideration in selecting a theme.

Collectively promote the facilities, attractions and events offered by the corridor

Communities, Chambers of Commerce, Convention and Visitor's Bureaus, and individual businesses are currently engaged in tourism promotion. These entities should expand cooperative working relationships to capitalize on the diversity and complementary characteristics of the many attractions within the corridor. Efforts to increase the awareness of government financial institutions and developers concerning the economic benefits of tourism development should be expanded.

Define the Wisconsin Department of Development's role in the development and promotion of the corridor

This plan suggests the waterway corridor is an historic and recreation/tourism resource of national significance. To realize the corridor's full development potential, its significance should be recognized by the state as a basic facility on which expansion of tourism can be built. Potential roles for the Department of Development include participating in the financing of basic facilities, business development, and promotion of the corridor as a prominent state attraction by the Bureau of Tourism.

APPENDICES

Appendix A

GUIDELINES FOR ENVIRONMENTAL ASSESSMENTS

GUIDELINES FOR ENVIRONMENTAL ASSESSMENTS

As part of the development of the Lower Fox River/Winnebago Pool Long-Range Plan, an Environmental Task Force was established to assemble an Environmental Resource Inventory of the area and establish a series of guidelines that would be used to evaluate specific recommendations for this "framework" plan. Membership on this task force included representatives from Wisconsin Department of Natural Resources (DNR), U. S. Fish and Wildlife Service, Fox River Audubon Society, UW-Oshkosh, Lower Fox River Dischargers' Association, Conservation Congress, City of Appleton and the Fox Valley Water Quality Planning Agency (FVWQPA).

The Lower Fox River, Lower Green Bay and Winnebago Pool Lakes contain a wide diversity of fish, wildlife and environmentally sensitive areas. Significant reduction in wastewater treatment plant discharges and improved pool level management strategies over the past 15 years have resulted in dramatic improvement of the area's water quality, fish populations and the public's awareness of the water resource. As efforts continue to provide greater opportunities for mutual enjoyment and expanded use of this resource, extreme care must be taken to protect, maintain and expand areas vital for continued viability of the region's fish and wildlife resources and natural communities. Although serious problems with contaminated river and bay sediments have yet to be resolved, these problems must be resolved in a manner to benefit all "users" of the system. Special efforts must also be undertaken to protect present natural areas from future development, restore lost habitats and maintain the urban and rural nature of the corridor.

It is clearly recognized that the Lower Fox River and Winnebago Pool will ultimately develop with or without plan. This natural resource is strategically located within a rapidly expanding urban/industrial metropolitan area which also contains a rich historical heritage. Future development should only be undertaken in a manner that protects and promotes the region's environmental quality. In order to provide this natural resource protection, all development proposals should adhere to the following guidelines.

1. For Development Proposals in Areas that May Contain Contaminated Sediments

Several areas of the Lower Fox River and Lower Green Bay contain contaminated (toxic) sediments that pose a direct threat to humans, fish and wildlife (Historic Dredging Sites and Areas of Contaminated Sediments). As these sediments are resuspended or disturbed by water action, fish, benthic organisms or dredging, they bioaccumulate and move up the food chain to humans. Some of these toxics (specifically, some forms of PCBs), have been found to cause physical defects in fish and wildlife and adversely affect propagation. Proposals for recreational activities—swimming, boating and fishing, in particular—should consider the impact of contaminated sediments on their viability.

Prior to undertaking development activities in areas that contain contaminated sediments, the following efforts should be undertaken:

- a. A complete and detailed analysis of the site-specific bottom sediments be conducted to delineate the areal extent of the contamination and its concentration.
 - b. A thorough study to identify alternate methods to remove the contaminated sediments. Special attention should be given to exploring the use of innovative techniques (as used in Europe) that will reduce sediment resuspension.
 - c. A detailed identification of alternative disposal methods, sites and costs should be prepared.
- 2. For Proposals that Would Occur in Areas that Serve Nesting, Spawning, Food Supply, Cover, Flood Control, Sediment Settling and Nutrient Control Needs ("Environmentally Sensitive Areas" section of Environmental Inventory)**

Over the past 50 years, the Lake Winnebago Pool, Lower Fox River and Lower Green Bay have seen significant losses of marsh and wetland areas. Viable marsh and wetland areas have been shown to (a) remove sediment and nutrients from stormwater runoff, (b) provide a natural means to prevent shoreland erosion by buffering the effects of wind and wave action and (c) provide necessary areas for the food, cover and rearing habitat needs of fish and wildlife. Much of the effort to control water and air pollution in the region has been aimed at improving the habitat of native and migratory fish and wildlife. These programs, which have involved the expenditure of hundreds of millions of dollars, will not succeed unless adequate habitat is maintained.

3. For Proposals that May Adversely Impact Areas that Provide Habitat for Endangered and Threatened Fish and Wildlife Resources

The Lower Fox River Valley contains a limited number of endangered and threatened wildlife species that have managed to survive in the area. Special efforts are necessary to protect and maintain acceptable habitat for these residents. The steep sloped wooded areas around Kaukauna, for example, provide the type of habitat that has attracted a bald eagle back to this area. Critical habitats should be given highest priority for protection and restoration efforts.

4. For Proposals that May Adversely Impact a Balanced Management of the Winnebago Pool Water Levels for Fish and Wildlife Management, Flood Control, Water Supply, Boating, Angling, Hydropower Generation and Waste Assimilation Needs

The management of the water level in the Winnebago Pool directly impacts a wide variety of beneficial uses and interests in the Fox Valley. These include riparian interests, boaters, anglers, hydropower generators, wastewater treatment plants, water supply treatment plants, fish, mammals, waterfowl and all forms of aquatic life. A careful balance must be maintained so that all can benefit from this water resource. Proposals that might impact this balance should include a detailed assessment of how the other beneficial uses will be impacted if the proposal is implemented.

Appendix B

PROPOSED GOVERNMENTAL MANAGEMENT RESPONSIBILITIES

PROPOSED GOVERNMENTAL MANAGEMENT RESPONSIBILITIES AND ACTIONS

FEDERAL

Corps of Engineers

- Redefine project authorization
- Maintain dams (water level control)
 - Responsibility, ownership and management
 - Operation and maintenance cost of \$1,200,000/yr
- Reestablish navigation system (locks, harbors, canals, channels)
 - Maintain ownership
 - Upgrade to operating status at cost of \$12,900,000
 - Long-term lease to Fox River Management Commission for operation and maintenance
- Submit National Historic Register nomination to National Park Service
- Establish a visitors information center

Coast Guard

- Resume responsibility for navigation aids
- Annual operation and maintenance cost of \$50,000/yr

Federal Congressional Delegation

- Oversee Corps project authority redefinition
- Expand Corps' budget for system upgrading
- Introduce "National Heritage Corridor" legislation

STATE

Fox River Management Commission

- Assume responsibility for coordination and administration of the corridor plan
 - Provide incentives for public and private investment
 - Promote National Heritage Corridor designation and funding (\$300,000/yr)
 - Prepare site specific plans for improvements
- Expand navigation system responsibility (locks, harbors, canals, channels)
 - Long-term lease from Corps after system upgrading
 - New harbor and channel dredging responsibility
 - Operating and maintenance cost of \$230,000/yr

- Construct Rapide Croche boat lift
Installation cost of \$1,100,000
Operation and maintenance cost of \$20,000/yr

Department of Natural Resources

- Enhance the Fox River fishery
- Evaluate state or regional park designation
- Prepare and implement Scenic Urban Waterways plan (Green Bay to Portage)
- Coordinate corridor plan implementation with the Green Bay Remedial Action Plan and the Lake Winnebago Comprehensive Management Plan
- Develop dredge disposal plan

Wisconsin State Historical Society

- Document locks and dams for nomination to National Register of Historic Places
- Assist in nomination of other historic sites
- Assist in developing local landmark commissions
- Assist in National Heritage Corridor designation
- Prepare further research and educational materials on the corridor

Department of Development

- Provide economic development funds for private commercial investments
- Provide national tourism promotion through Division of Tourism
- Provide capital investment funding for tourism development

Wisconsin State Legislature/Governor

- Expand authority of Fox River Management Commission and provide stable funding
- Introduce legislation for FRMC operating and maintenance funding commitment (Legislative Council study)
- Fund Scenic Urban Waterways program
- Negotiate Corps continuing responsibility for the Fox River Project

LOCAL

Local Government

- Maintain interim responsibility for navigation aids at cost of \$50,000/yr
- Nominate local sites to National Historic Register
- Develop local Landmarks Commissions
- Enact historic preservation ordinances

- Provide additional water access sites
- Enhance existing parks
- Provide additional launching and mooring sites
- Enact water surface use regulations
- Designate trails for biking and auto tours
- Enact scenic and shoreland development controls
- Redevelop urban waterfronts
- Enact special zoning districts to preserve future waterfront development opportunities
- Expand community festivals related to the corridor
- Provide corridor promotional assistance

Local Historical Societies

- Develop interpretive and educational materials
- Assist in nominating local sites to Historic Register
- Operate and maintain local historic sites
- Organize local historic festivals

Appendix C
CORRIDOR RESOURCES

Figure 6
 LOWER FOX RIVER-WINNEBAGO POOL SYSTEM

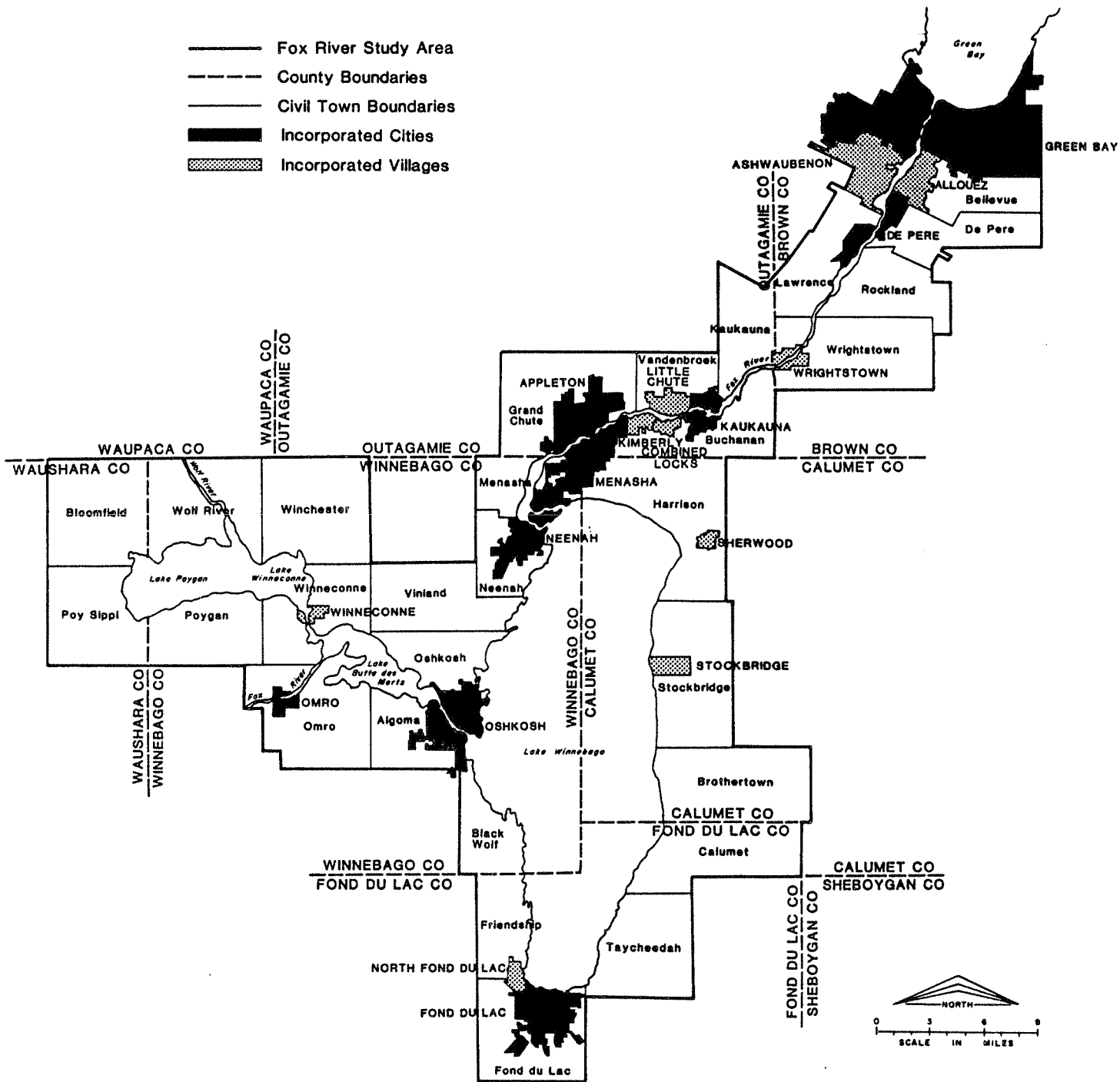
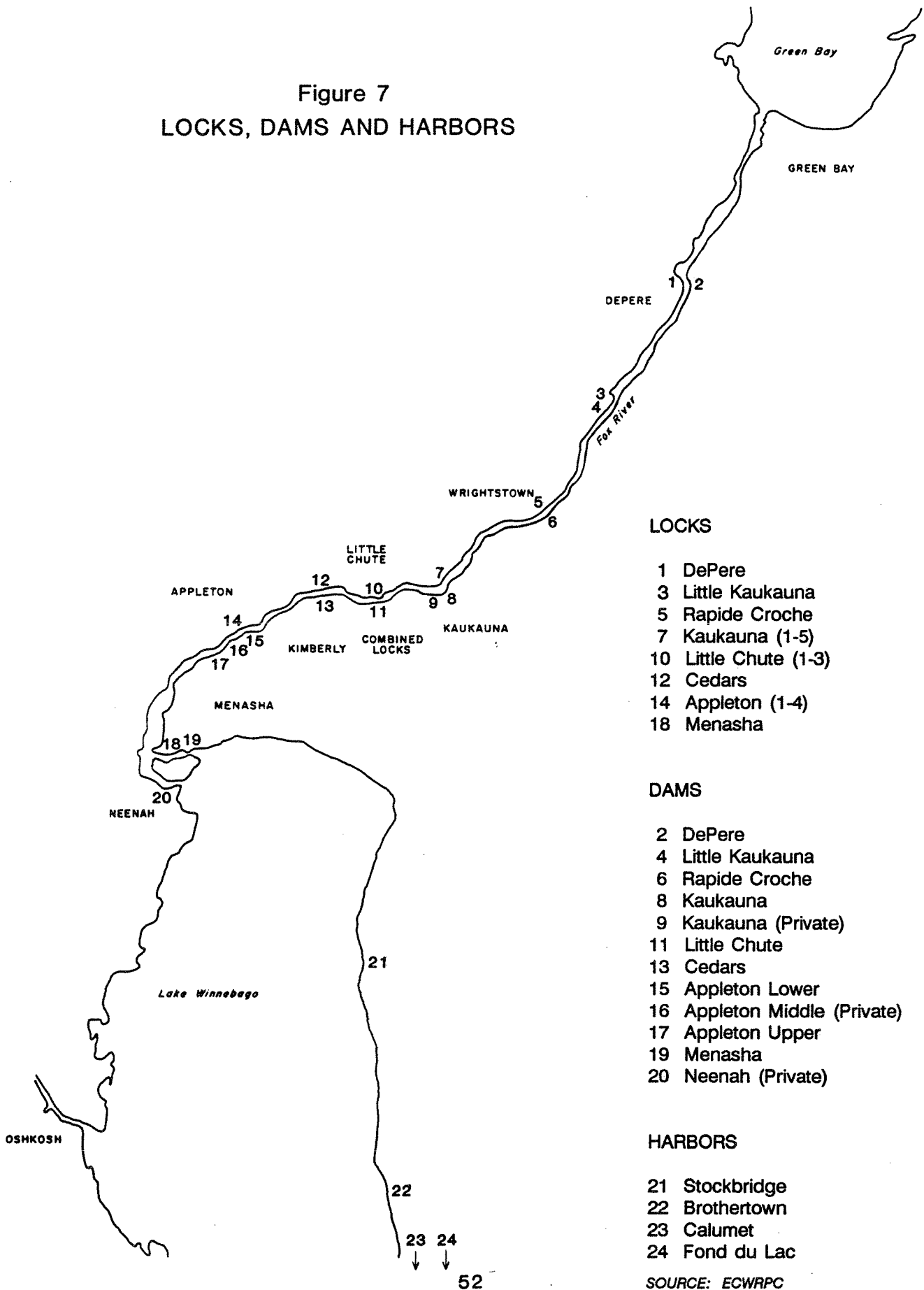


Figure 7
 LOCKS, DAMS AND HARBORS



LOCKS

- 1 DePere
- 3 Little Kaukauna
- 5 Rapide Croche
- 7 Kaukauna (1-5)
- 10 Little Chute (1-3)
- 12 Cedars
- 14 Appleton (1-4)
- 18 Menasha

DAMS

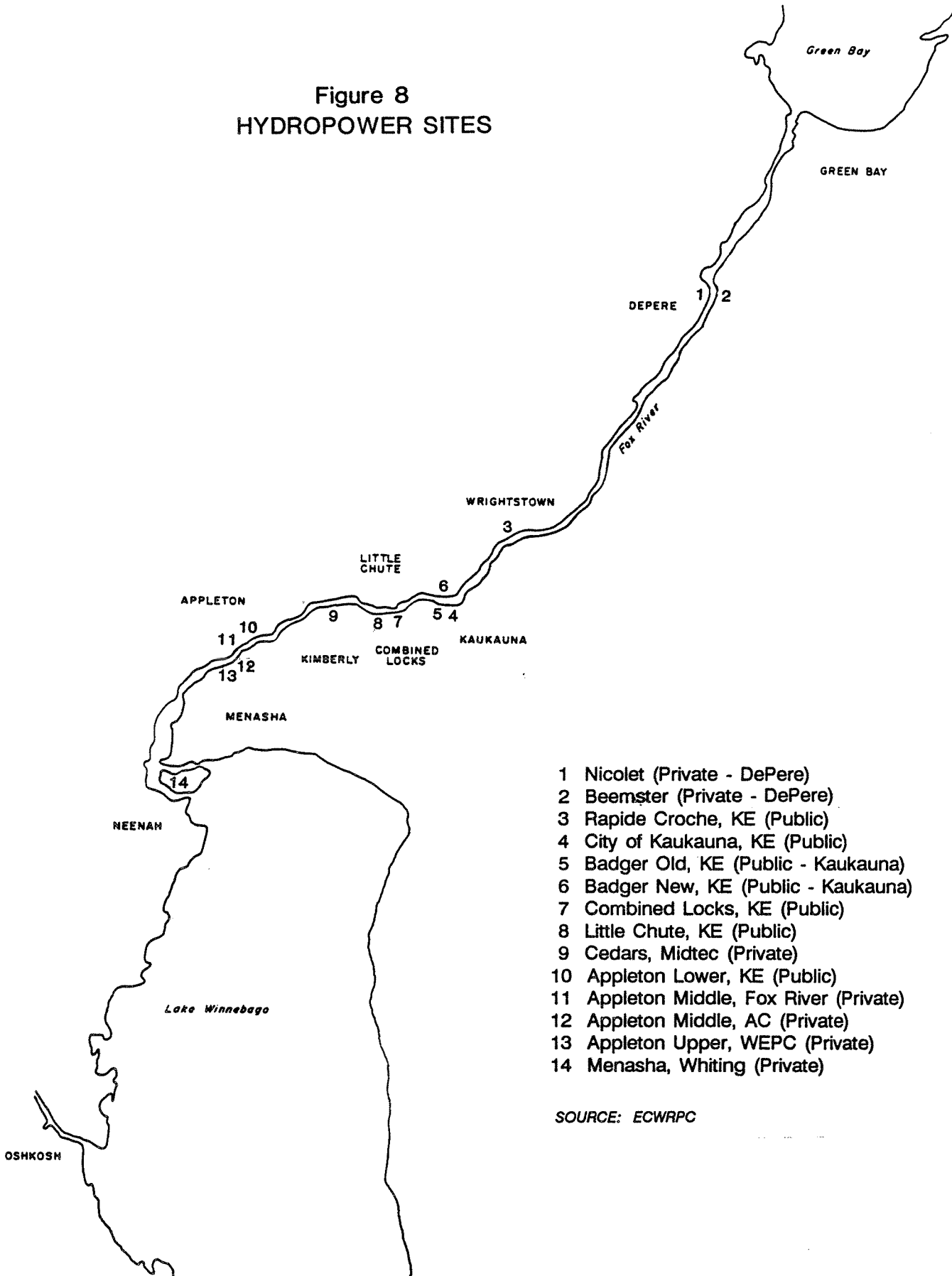
- 2 DePere
- 4 Little Kaukauna
- 6 Rapide Croche
- 8 Kaukauna
- 9 Kaukauna (Private)
- 11 Little Chute
- 13 Cedars
- 15 Appleton Lower
- 16 Appleton Middle (Private)
- 17 Appleton Upper
- 19 Menasha
- 20 Neenah (Private)

HARBORS

- 21 Stockbridge
- 22 Brothertown
- 23 Calumet
- 24 Fond du Lac

SOURCE: ECWRPC

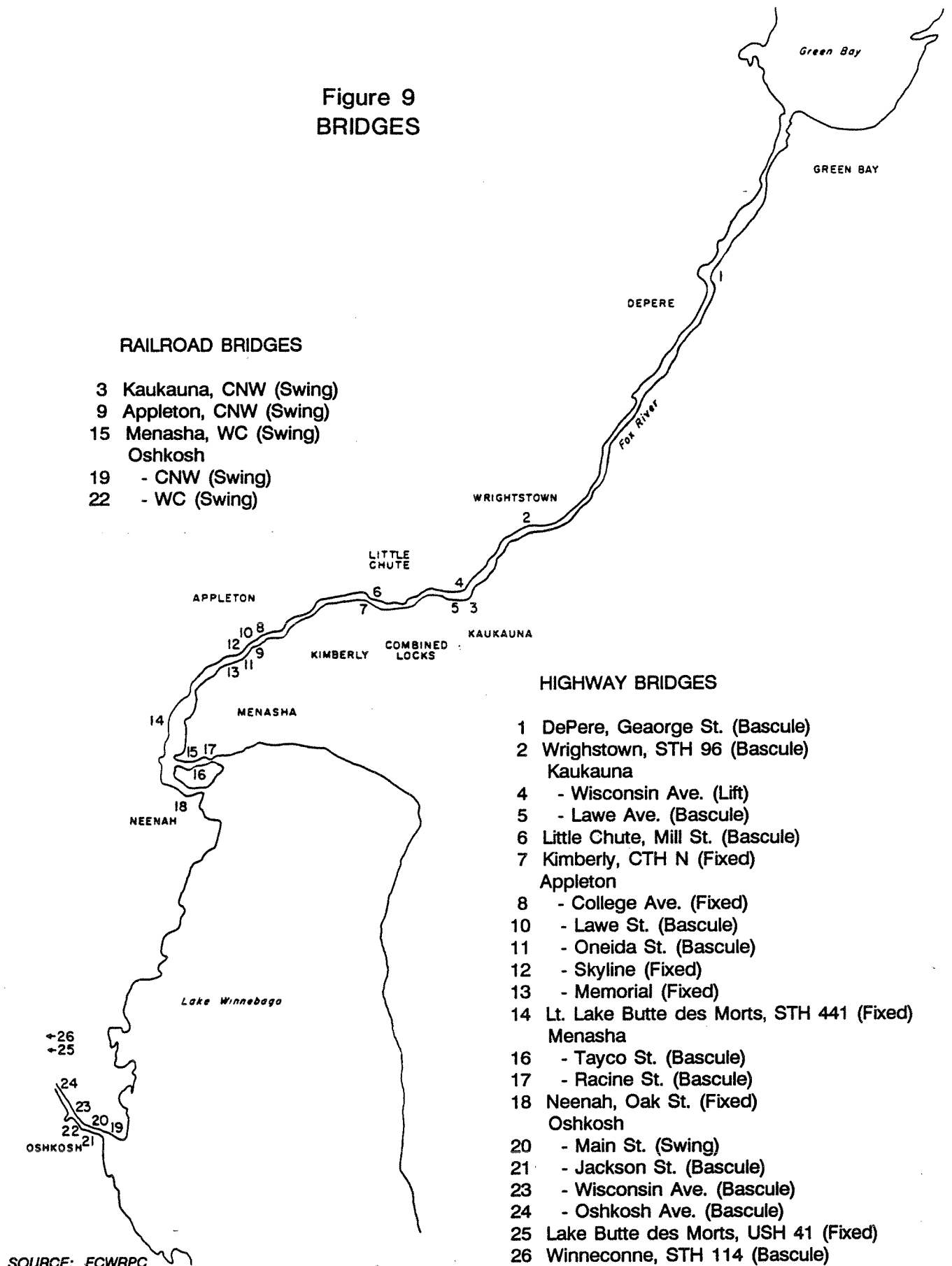
**Figure 8
HYDROPOWER SITES**



- 1 Nicolet (Private - DePere)
- 2 Beemster (Private - DePere)
- 3 Rapide Croche, KE (Public)
- 4 City of Kaukauna, KE (Public)
- 5 Badger Old, KE (Public - Kaukauna)
- 6 Badger New, KE (Public - Kaukauna)
- 7 Combined Locks, KE (Public)
- 8 Little Chute, KE (Public)
- 9 Cedars, Midtec (Private)
- 10 Appleton Lower, KE (Public)
- 11 Appleton Middle, Fox River (Private)
- 12 Appleton Middle, AC (Private)
- 13 Appleton Upper, WEPC (Private)
- 14 Menasha, Whiting (Private)

SOURCE: ECWRPC

**Figure 9
BRIDGES**



RAILROAD BRIDGES

- 3 Kaukauna, CNW (Swing)
- 9 Appleton, CNW (Swing)
- 15 Menasha, WC (Swing)
- Oshkosh
- 19 - CNW (Swing)
- 22 - WC (Swing)

HIGHWAY BRIDGES

- 1 DePere, George St. (Bascule)
- 2 Wrihstown, STH 96 (Bascule)
- Kaukauna
- 4 - Wisconsin Ave. (Lift)
- 5 - Lawe Ave. (Bascule)
- 6 Little Chute, Mill St. (Bascule)
- 7 Kimberly, CTH N (Fixed)
- Appleton
- 8 - College Ave. (Fixed)
- 10 - Lawe St. (Bascule)
- 11 - Oneida St. (Bascule)
- 12 - Skyline (Fixed)
- 13 - Memorial (Fixed)
- 14 Lt. Lake Butte des Morts, STH 441 (Fixed)
- Menasha
- 16 - Tayco St. (Bascule)
- 17 - Racine St. (Bascule)
- 18 Neenah, Oak St. (Fixed)
- Oshkosh
- 20 - Main St. (Swing)
- 21 - Jackson St. (Bascule)
- 23 - Wisconsin Ave. (Bascule)
- 24 - Oshkosh Ave. (Bascule)
- 25 Lake Butte des Morts, USH 41 (Fixed)
- 26 Winneconne, STH 114 (Bascule)

SOURCE: ECWRPC

Figure 10
 HISTORIC DREDGE DISPOSAL SITES
 AND
 AREAS OF CONTAMINATED SEDIMENTS

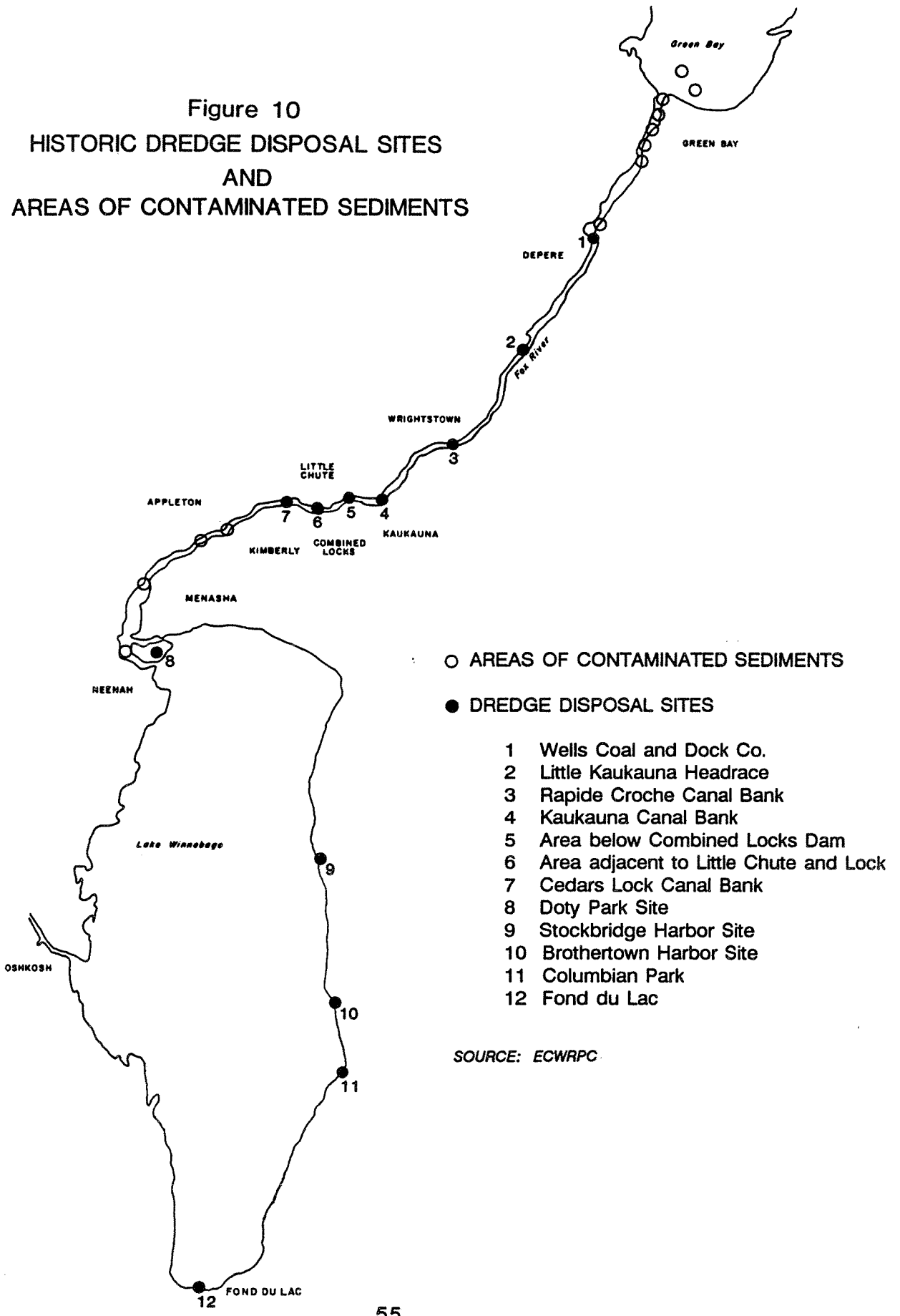
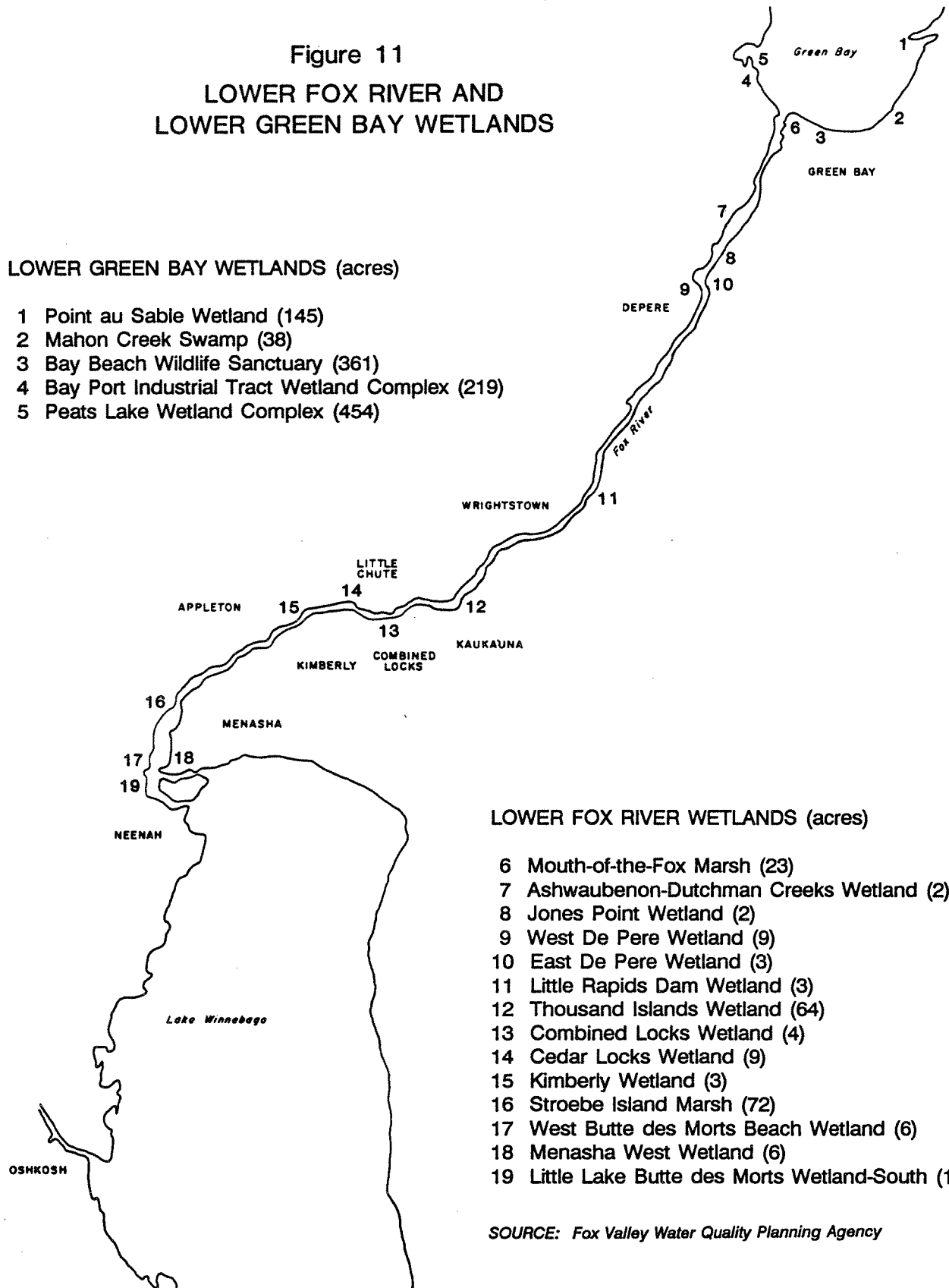


Figure 11
LOWER FOX RIVER AND
LOWER GREEN BAY WETLANDS

LOWER GREEN BAY WETLANDS (acres)

- 1 Point au Sable Wetland (145)
- 2 Mahon Creek Swamp (38)
- 3 Bay Beach Wildlife Sanctuary (361)
- 4 Bay Port Industrial Tract Wetland Complex (219)
- 5 Peats Lake Wetland Complex (454)

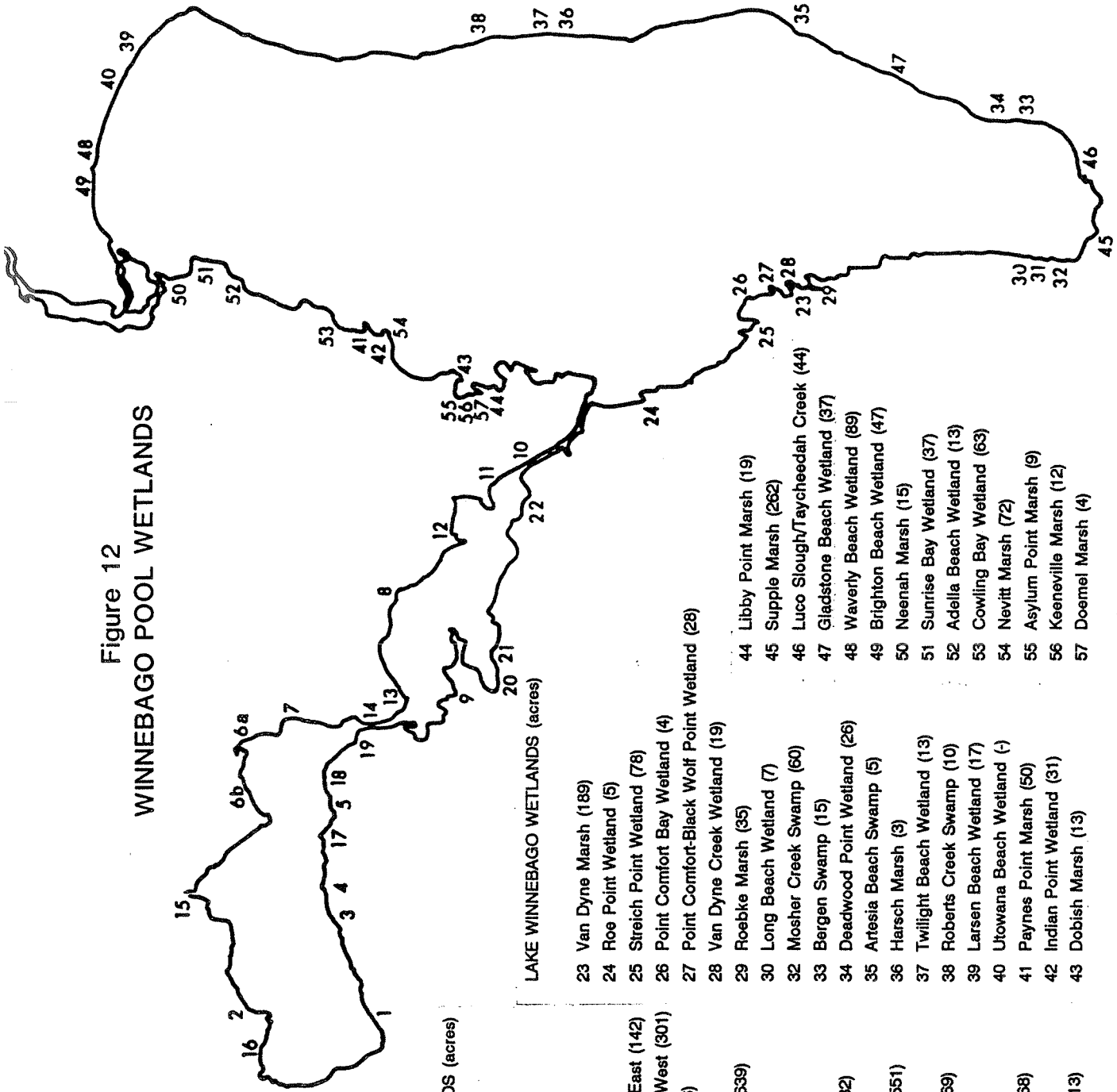


LOWER FOX RIVER WETLANDS (acres)

- 6 Mouth-of-the-Fox Marsh (23)
- 7 Ashwaubenon-Dutchman Creeks Wetland (2)
- 8 Jones Point Wetland (2)
- 9 West De Pere Wetland (9)
- 10 East De Pere Wetland (3)
- 11 Little Rapids Dam Wetland (3)
- 12 Thousand Islands Wetland (64)
- 13 Combined Locks Wetland (4)
- 14 Cedar Locks Wetland (9)
- 15 Kimberly Wetland (3)
- 16 Stroebe Island Marsh (72)
- 17 West Butte des Morts Beach Wetland (6)
- 18 Menasha West Wetland (6)
- 19 Little Lake Butte des Morts Wetland-South (16)

SOURCE: Fox Valley Water Quality Planning Agency

Figure 12
WINNEBAGO POOL WETLANDS



UPPER POOL LAKES WETLANDS (acres)

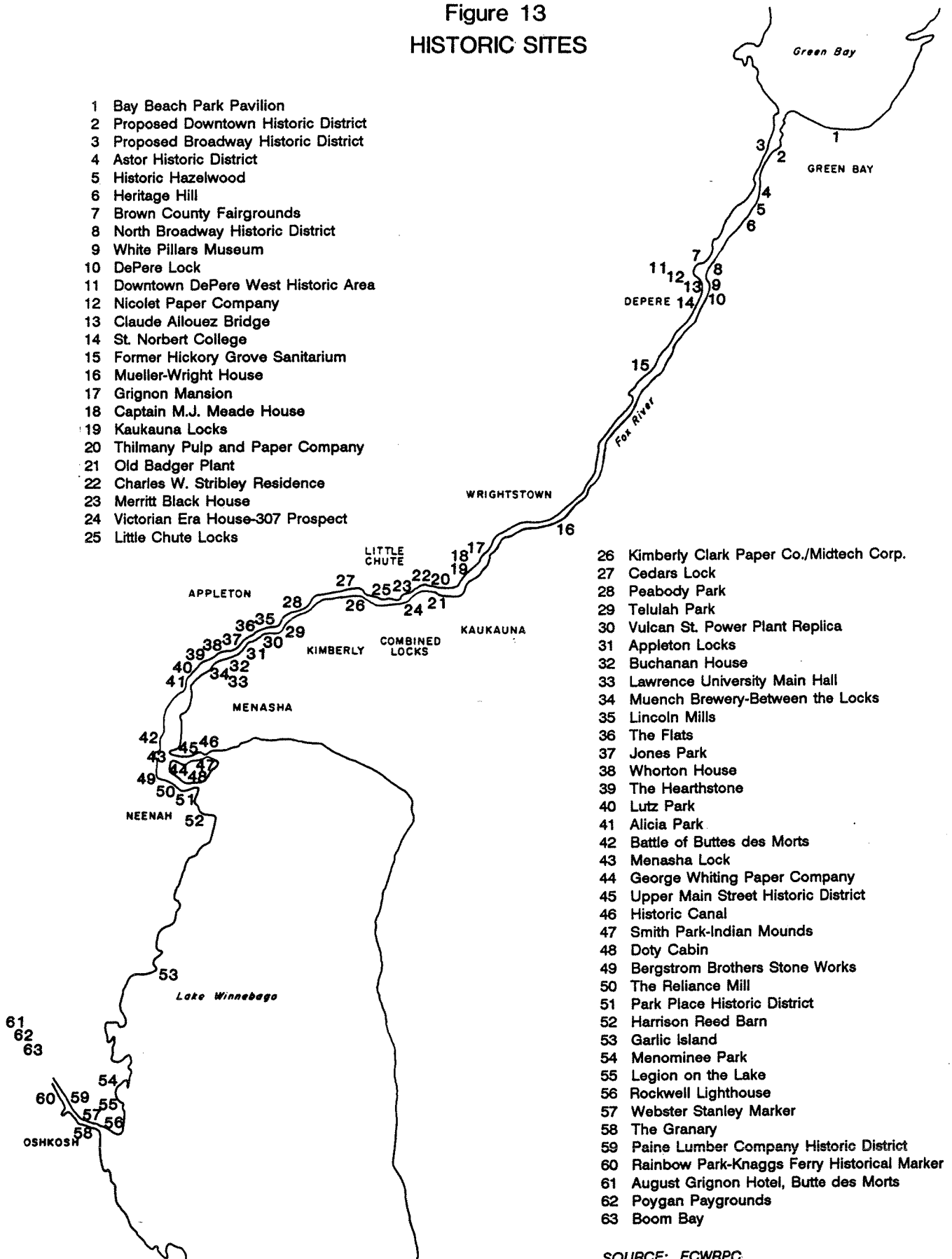
- 1 Lee-O'Connell Wetland (113)
- 2 Alder Creek Wetland (14)
- 3 Berger Swamp (20)
- 4 Grignon Marsh (5)
- 5 Hanke Marsh (7)
- 6a Clark's Bay Marsh Complex-East (142)
- 6b Clark's Bay Marsh Complex-West (301)
- 7 Arrowhead River Wetland (46)
- 8 Daggets Creek Swamp (6)
- 9 Fox River Marsh Complex (1639)
- 10 Allen Marsh (53)
- 11 Slough Creek Marsh (217)
- 12 Shangri La Marsh (49)
- 13 Courtney/Plummer Marsh (382)
- 14 Lasley Point Marsh (67)
- 15 Wolf River Marsh Complex (551)
- 16 Old Indian Point Marsh (14)
- 17 Lone Willow Island Marsh (169)
- 18 Wentzel Marsh (102)
- 19 Spiering Marsh (113)
- 20 Springbrook Creek Marsh (168)
- 21 Reighmoor Marsh (10)
- 22 Melrose/Steinhilber Marsh (113)

LAKE WINNEBAGO WETLANDS (acres)

- 23 Van Dyne Marsh (189)
- 24 Roe Point Wetland (5)
- 25 Streich Point Wetland (78)
- 26 Point Comfort Bay Wetland (4)
- 27 Point Comfort-Black Wolf Point Wetland (28)
- 28 Van Dyne Creek Wetland (19)
- 29 Roebke Marsh (35)
- 30 Long Beach Wetland (7)
- 32 Mosher Creek Swamp (60)
- 33 Bergen Swamp (15)
- 34 Deadwood Point Wetland (26)
- 35 Artesia Beach Swamp (5)
- 36 Harsch Marsh (3)
- 37 Twilight Beach Wetland (13)
- 38 Roberts Creek Swamp (10)
- 39 Larsen Beach Wetland (17)
- 40 Utowana Beach Wetland (-)
- 41 Paynes Point Marsh (50)
- 42 Indian Point Wetland (31)
- 43 Dobbish Marsh (13)
- 44 Libby Point Marsh (19)
- 45 Supple Marsh (262)
- 46 Luce Slough/Taycheedah Creek (44)
- 47 Gladstone Beach Wetland (37)
- 48 Waverly Beach Wetland (89)
- 49 Brighton Beach Wetland (47)
- 50 Neenah Marsh (15)
- 51 Sunrise Bay Wetland (37)
- 52 Adella Beach Wetland (13)
- 53 Cowling Bay Wetland (63)
- 54 Nevitt Marsh (72)
- 55 Asylum Point Marsh (9)
- 56 Keeneville Marsh (12)
- 57 Doemel Marsh (4)

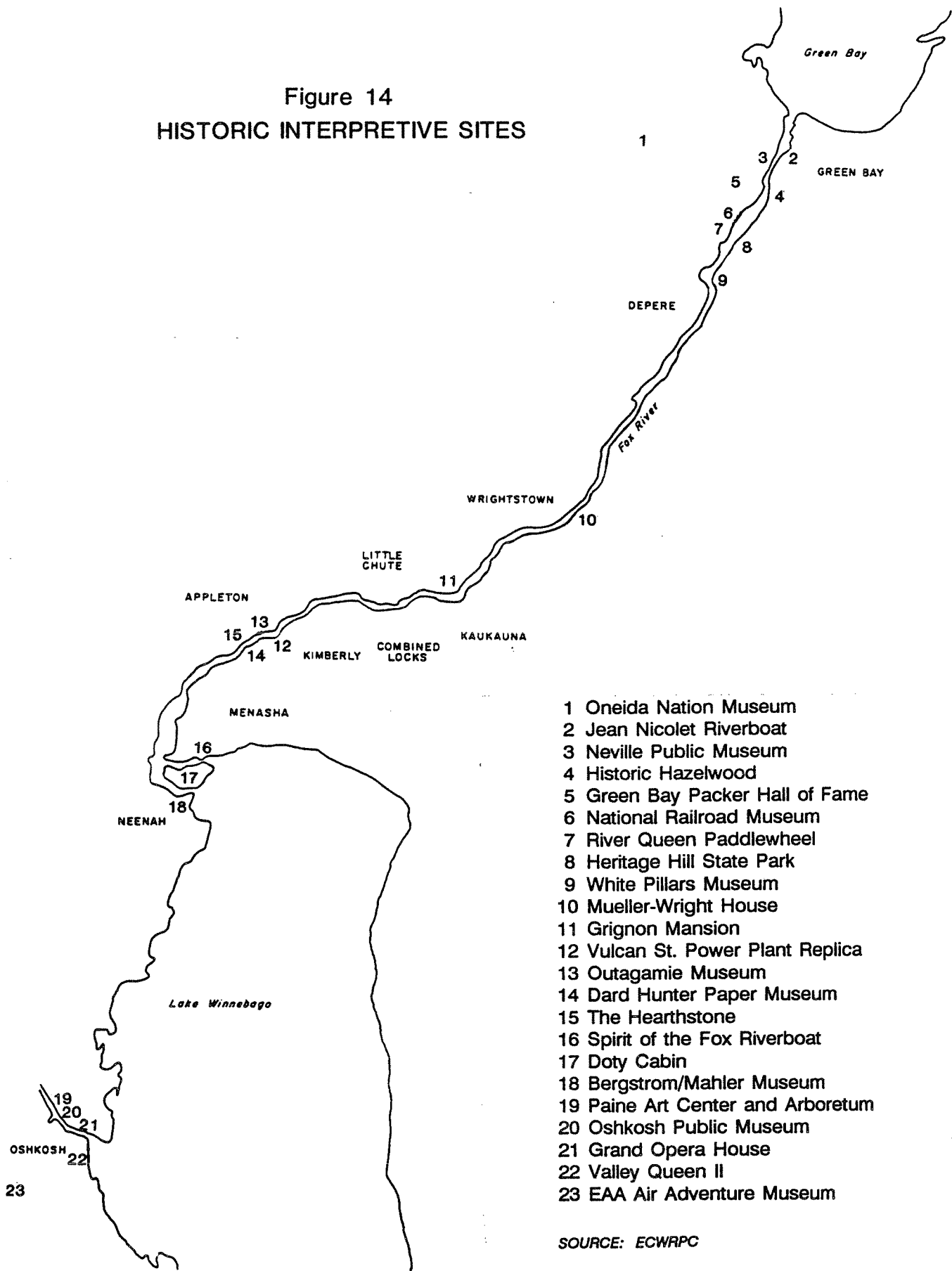
SOURCE: Fox Valley Water Quality Planning Agency

Figure 13
HISTORIC SITES



SOURCE: ECWRPC

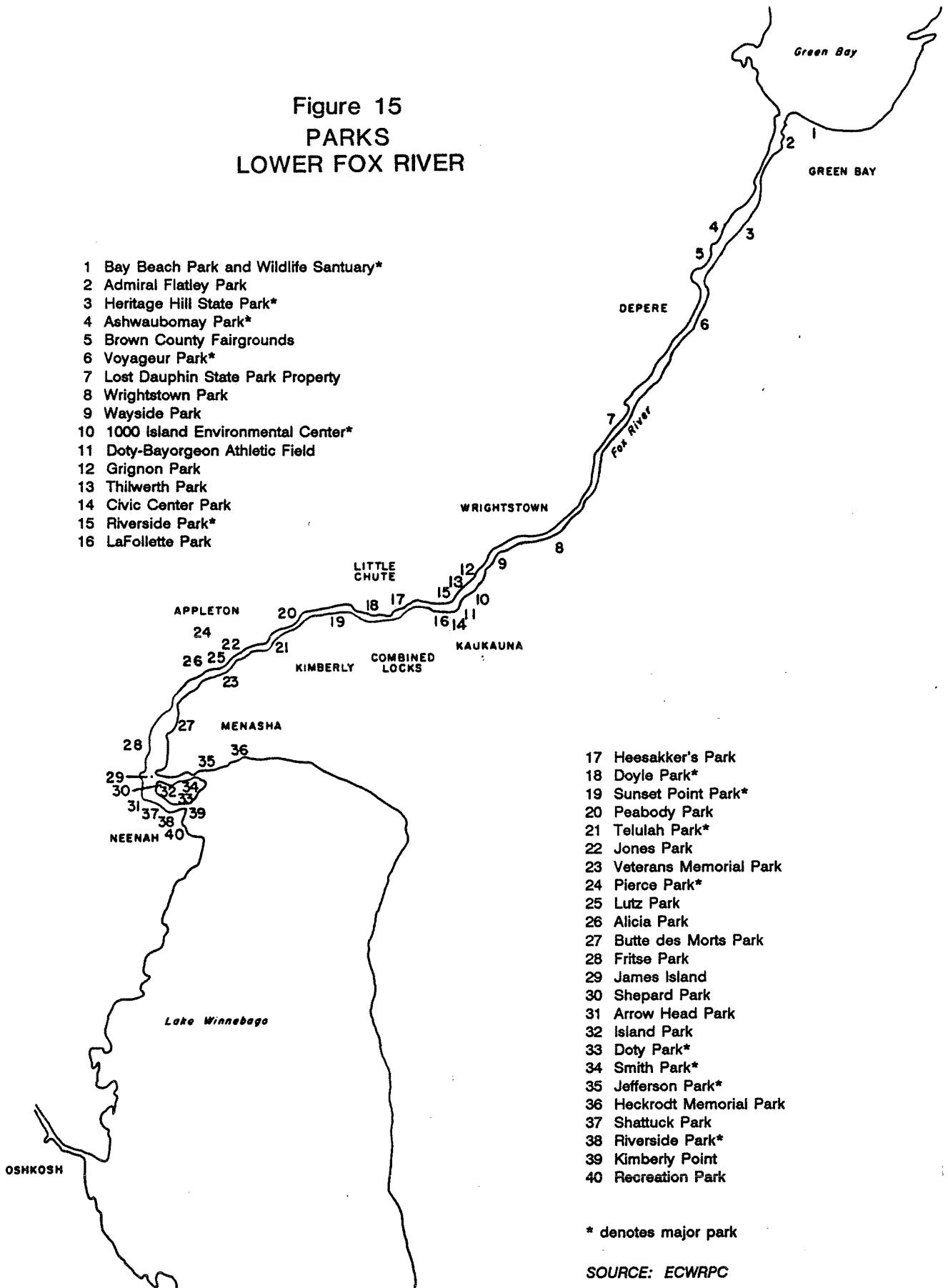
Figure 14
HISTORIC INTERPRETIVE SITES



- 1 Oneida Nation Museum
- 2 Jean Nicolet Riverboat
- 3 Neville Public Museum
- 4 Historic Hazelwood
- 5 Green Bay Packer Hall of Fame
- 6 National Railroad Museum
- 7 River Queen Paddlewheel
- 8 Heritage Hill State Park
- 9 White Pillars Museum
- 10 Mueller-Wright House
- 11 Grignon Mansion
- 12 Vulcan St. Power Plant Replica
- 13 Outagamie Museum
- 14 Dard Hunter Paper Museum
- 15 The Hearthstone
- 16 Spirit of the Fox Riverboat
- 17 Doty Cabin
- 18 Bergstrom/Mahler Museum
- 19 Paine Art Center and Arboretum
- 20 Oshkosh Public Museum
- 21 Grand Opera House
- 22 Valley Queen II
- 23 EAA Air Adventure Museum

SOURCE: ECWRPC

Figure 15
PARKS
LOWER FOX RIVER



- 1 Bay Beach Park and Wildlife Sanctuary*
- 2 Admiral Flatley Park
- 3 Heritage Hill State Park*
- 4 Ashwaubomay Park*
- 5 Brown County Fairgrounds
- 6 Voyageur Park*
- 7 Lost Dauphin State Park Property
- 8 Wrightstown Park
- 9 Wayside Park
- 10 1000 Island Environmental Center*
- 11 Doty-Bayorgeon Athletic Field
- 12 Grignon Park
- 13 Thilwerth Park
- 14 Civic Center Park
- 15 Riverside Park*
- 16 LaFollette Park

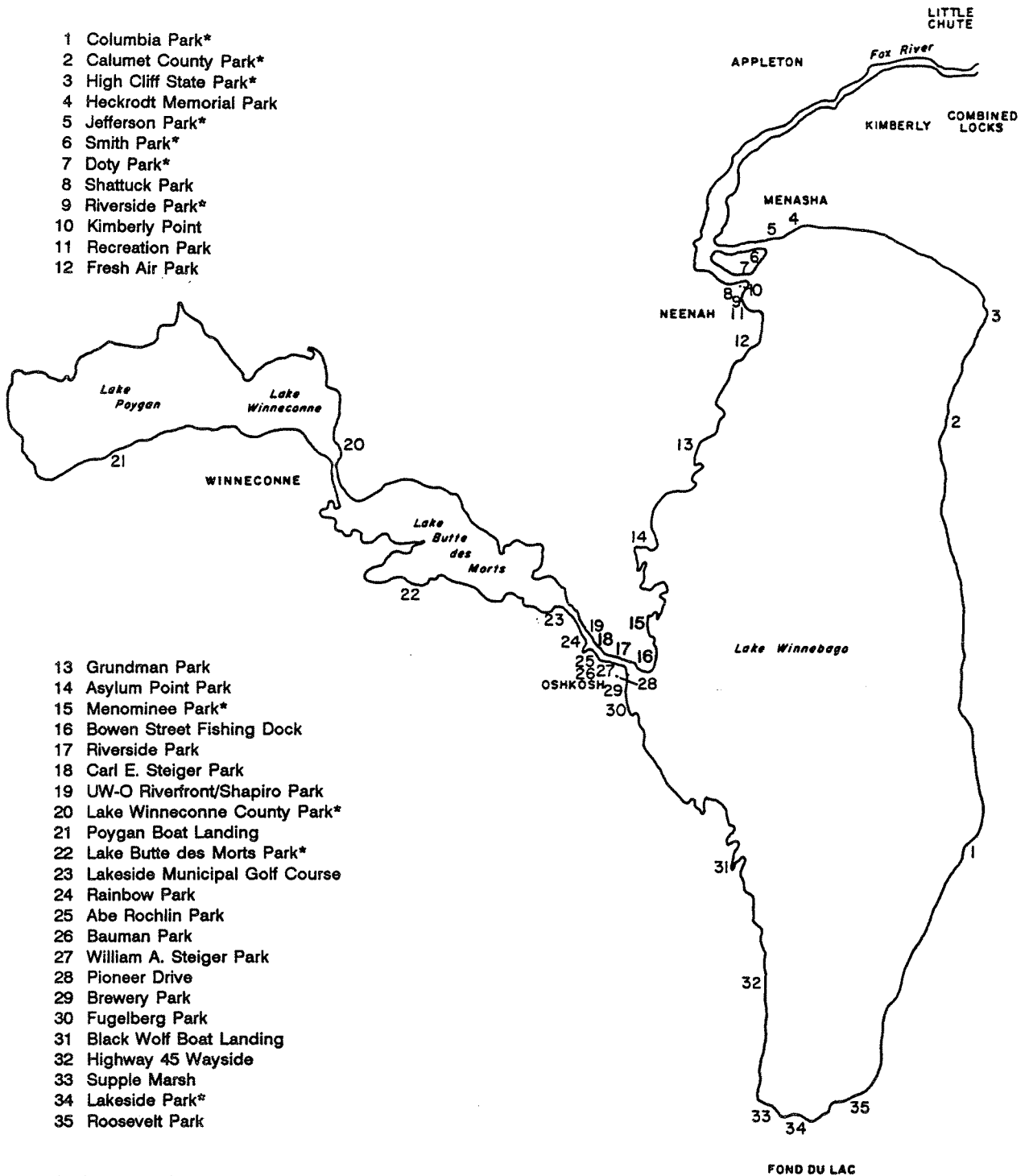
- 17 Heesakker's Park
- 18 Doyle Park*
- 19 Sunset Point Park*
- 20 Peabody Park
- 21 Telulah Park*
- 22 Jones Park
- 23 Veterans Memorial Park
- 24 Pierce Park*
- 25 Lutz Park
- 26 Alicia Park
- 27 Butte des Morts Park
- 28 Fritse Park
- 29 James Island
- 30 Shepard Park
- 31 Arrow Head Park
- 32 Island Park
- 33 Doty Park*
- 34 Smith Park*
- 35 Jefferson Park*
- 36 Heckrodt Memorial Park
- 37 Shattuck Park
- 38 Riverside Park*
- 39 Kimberly Point
- 40 Recreation Park

* denotes major park

SOURCE: ECWRPC

Figure 16
**PARKS
 POOL LAKES**

- 1 Columbia Park*
- 2 Calumet County Park*
- 3 High Cliff State Park*
- 4 Heckrodt Memorial Park
- 5 Jefferson Park*
- 6 Smith Park*
- 7 Doty Park*
- 8 Shattuck Park
- 9 Riverside Park*
- 10 Kimberly Point
- 11 Recreation Park
- 12 Fresh Air Park

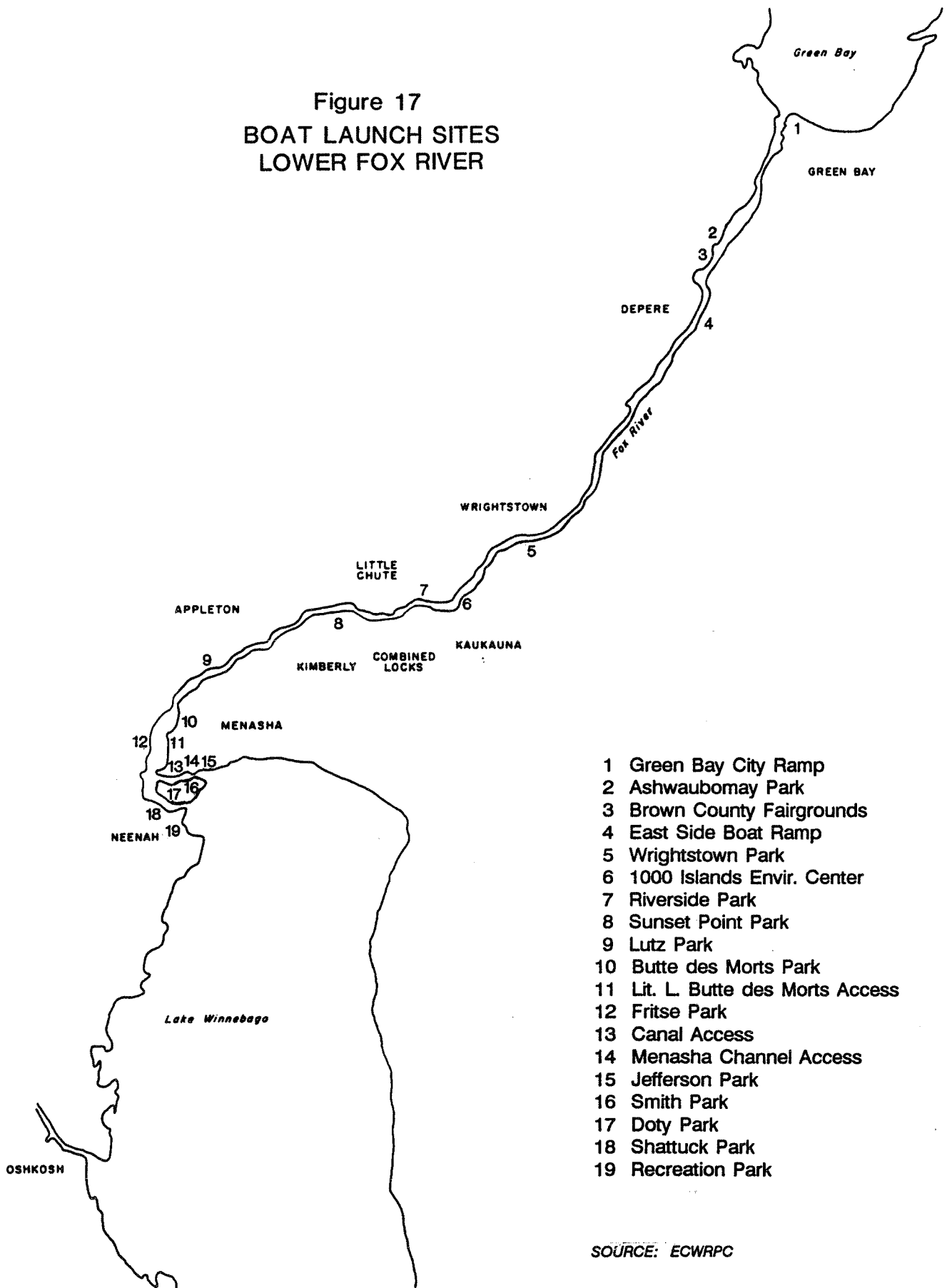


- 13 Grundman Park
- 14 Asylum Point Park
- 15 Menominee Park*
- 16 Bowen Street Fishing Dock
- 17 Riverside Park
- 18 Carl E. Steiger Park
- 19 UW-O Riverfront/Shapiro Park
- 20 Lake Winneconne County Park*
- 21 Poygan Boat Landing
- 22 Lake Butte des Morts Park*
- 23 Lakeside Municipal Golf Course
- 24 Rainbow Park
- 25 Abe Rochlin Park
- 26 Bauman Park
- 27 William A. Steiger Park
- 28 Pioneer Drive
- 29 Brewery Park
- 30 Fugelberg Park
- 31 Black Wolf Boat Landing
- 32 Highway 45 Wayside
- 33 Supple Marsh
- 34 Lakeside Park*
- 35 Roosevelt Park

* denotes major park

SOURCE: ECWRPC

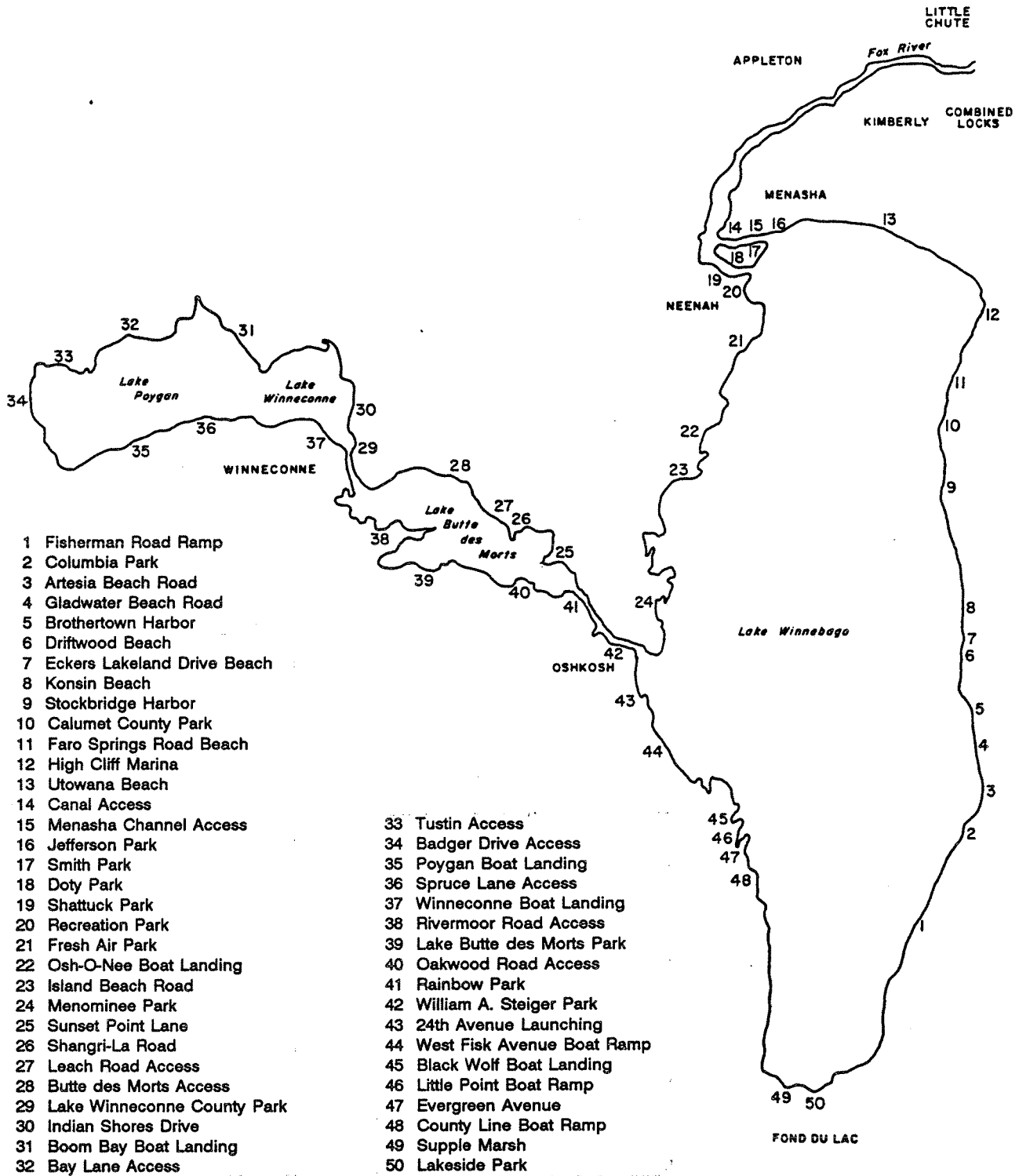
Figure 17
**BOAT LAUNCH SITES
 LOWER FOX RIVER**



- 1 Green Bay City Ramp
- 2 Ashwaubomay Park
- 3 Brown County Fairgrounds
- 4 East Side Boat Ramp
- 5 Wrightstown Park
- 6 1000 Islands Envir. Center
- 7 Riverside Park
- 8 Sunset Point Park
- 9 Lutz Park
- 10 Butte des Morts Park
- 11 Lit. L. Butte des Morts Access
- 12 Fritse Park
- 13 Canal Access
- 14 Menasha Channel Access
- 15 Jefferson Park
- 16 Smith Park
- 17 Doty Park
- 18 Shattuck Park
- 19 Recreation Park

SOURCE: ECWRPC

Figure 18
BOAT LAUNCH SITES
POOL LAKES



SOURCE: ECWRPC

Figure 19
COMMERCIAL ESTABLISHMENTS

GREEN BAY/DE PERE AREA

- 3 Al's Hamburger Shop
- 1 August Moon Chinese Restaurant
- 3 Blackstone Restaurant
- 3 Cafe Espresso
- 1 Christopher's Grill & Pub
- 3 Corner Cafe
- 3 Dairy Queen
- 3 Danny's Pizza
- 4 Days Inn
- 1 Dem Bones
- 3 Diamond Dave's Taco
- 3 Domino's Pizza
- 1 Eve's Supper Club
- 1 Frank & Pat's Pizza
- 1 Fuzzy Thurston Bar & Restaurant
- 3 Gallery Restaurant
- 3 Gary & Cindy's Restaurant
- 3 Glen's Cafe
- 3 Hardee's
- 4 Holiday Inn
- 3 Ivan's Restaurant
- 3 Just AJ's
- 1 King's X
- 1 La Bonne Femme
- 3 Main Street Restaurant
- 2 Mariner Motel & Restaurant
- 3 McDonalds
- 3 Mr. D's Family Restaurant
- 3 Nicolet Restaurant
- 3 Noodlenest Restaurant
- 3 1 Potato 2

- 3 Orange Julias
- 1 Paul's Carriage Inn
- 3 Pizza Hut
- 3 Pizza Pit
- 1 The River Room
- 3 Salad Garden Restaurant
- 1 Schooners Bar & Restaurant
- 1 Stein Lounge & Supper Club
- 3 Steiners Family Restaurant
- 3 Taco Bell
- 3 Town Room
- 1 Towne & Country Supper Club
- 3 Union Hotel
- 3 White Front Restaurant
- 1 Ye Old Chatter House
- 5 Riverside Shell
- 5 DePere Mini Mart
- 5 Q Mart

FOX CITIES AREA

- 3 Breakfast Club
- 1 Carlson's Riverside Inn
- 3 Harvey's
- 3 Mihm's Charcoal Grill
- 1 Prokash's Restaurant
- 7 Spirit of the Fox
- 1 The Olde Grog
- 3 Don's Family Bakery & Restaurant
- 3 Hungry Bull Charcoal House
- 4 Valley Inn
- 3 Golden Wok Chinese
- 1 Caliban's Restaurant
- 1 Arlo Coffee Shop
- 3 Hav's Restaurant
- 3 Market Place Cafe
- 1 Dos Bandido's

- 1 Mako's
- 3 Hardee's
- 1 Washington Inn
- 4 Paper Valley
- 1 Peppermill Restaurant
- 1 Mavericks
- 6 The Avenue Mall
- 3 Domino's Pizza
- 3 TK Pizza
- 3 Darboy Chicken
- 3 Mark's Sub Shop
- 3 Mom's Cozy Cafe
- 6 Sandwich Factory
- 1 Liberty Hall
- 3 Larry's Parkside Restaurant
- 3 Donut World

EAST LAKE WINNEBAGO AREA

- 1 High Cliff Restaurant
- 2 Lakeview Motel & Restaurant
- 1 Jim & Linda's Lakeview
- 1 Shenanigan's

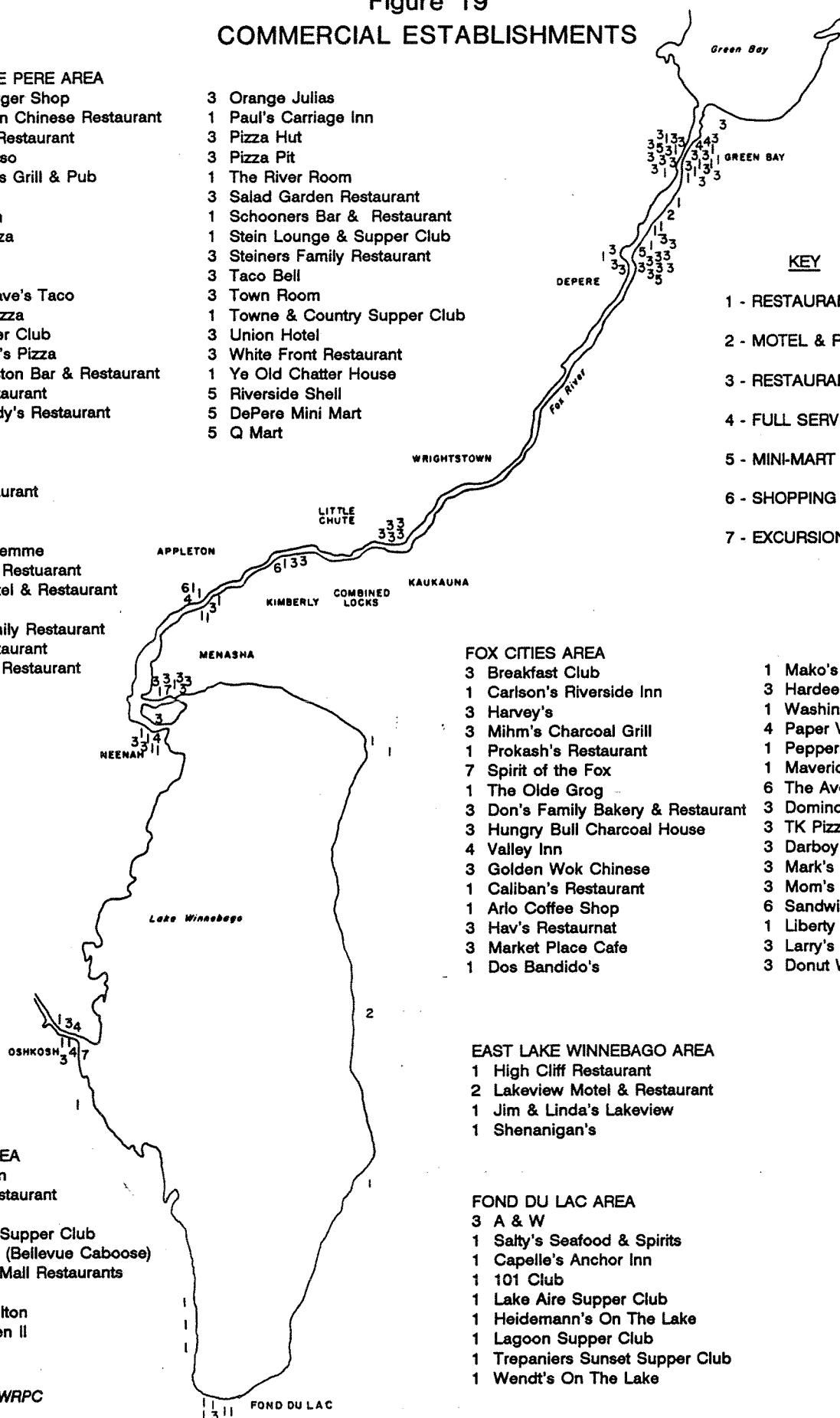
FOND DU LAC AREA

- 3 A & W
- 1 Salty's Seafood & Spirits
- 1 Capelle's Anchor Inn
- 1 101 Club
- 1 Lake Aire Supper Club
- 1 Heidemann's On The Lake
- 1 Lagoon Supper Club
- 1 Trepaniers Sunset Supper Club
- 1 Wendt's On The Lake

OSHKOSH AREA

- 3 Dairy Queen
- 1 Granary Restaurant
- 1 Grey Fox
- 1 Mr. Elmers Supper Club
- 4 Pioneer Inn (Bellevue Caboose)
- 3 Park Plaza Mall Restaurants
- 1 Brooklyn
- 4 Oshkosh Hilton
- 7 Valley Queen II

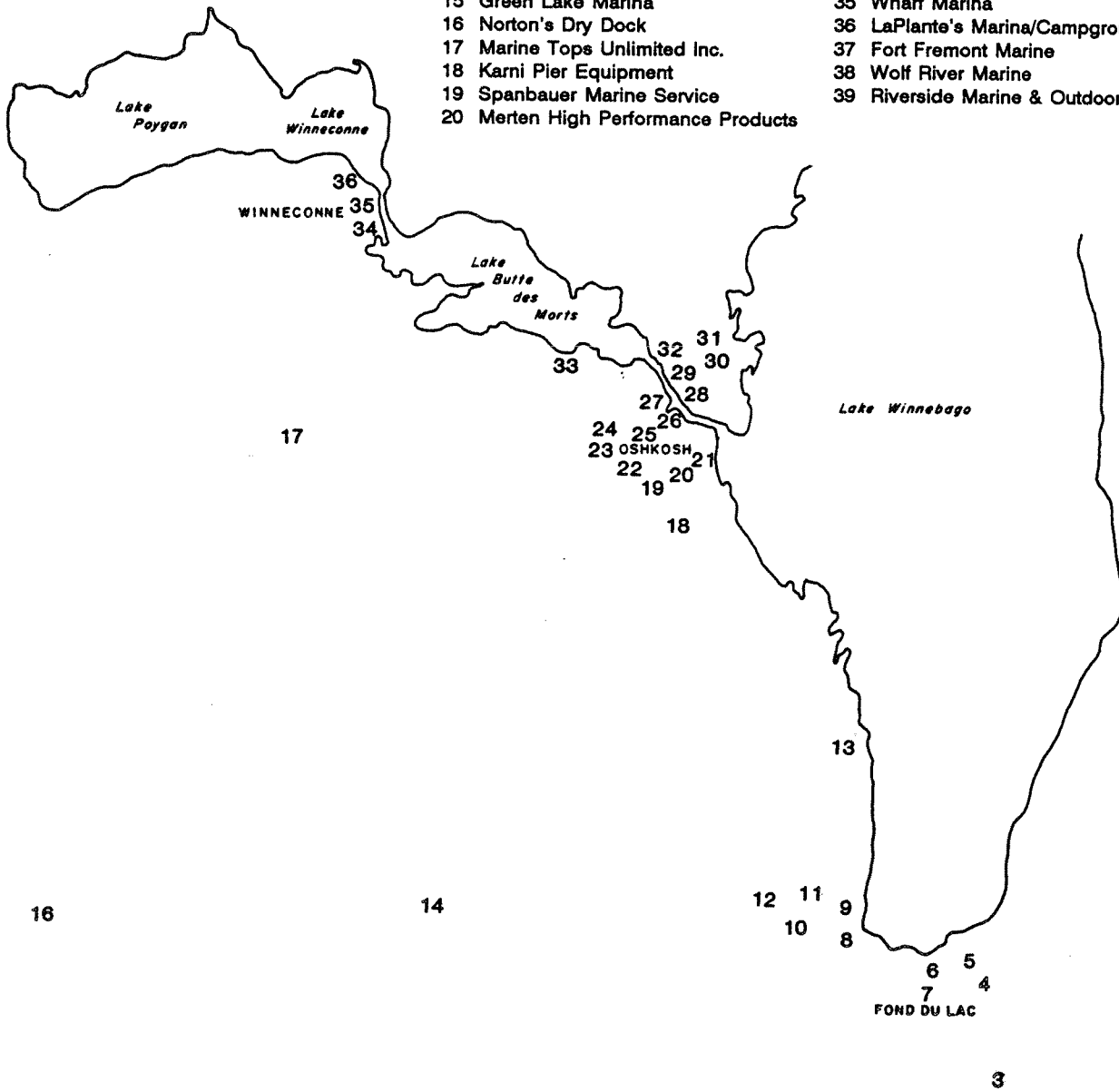
SOURCE: ECWRPC



39
38
37

Figure 20
MARINAS, MARINE SERVICES AND BOAT SALES
POOL LAKES

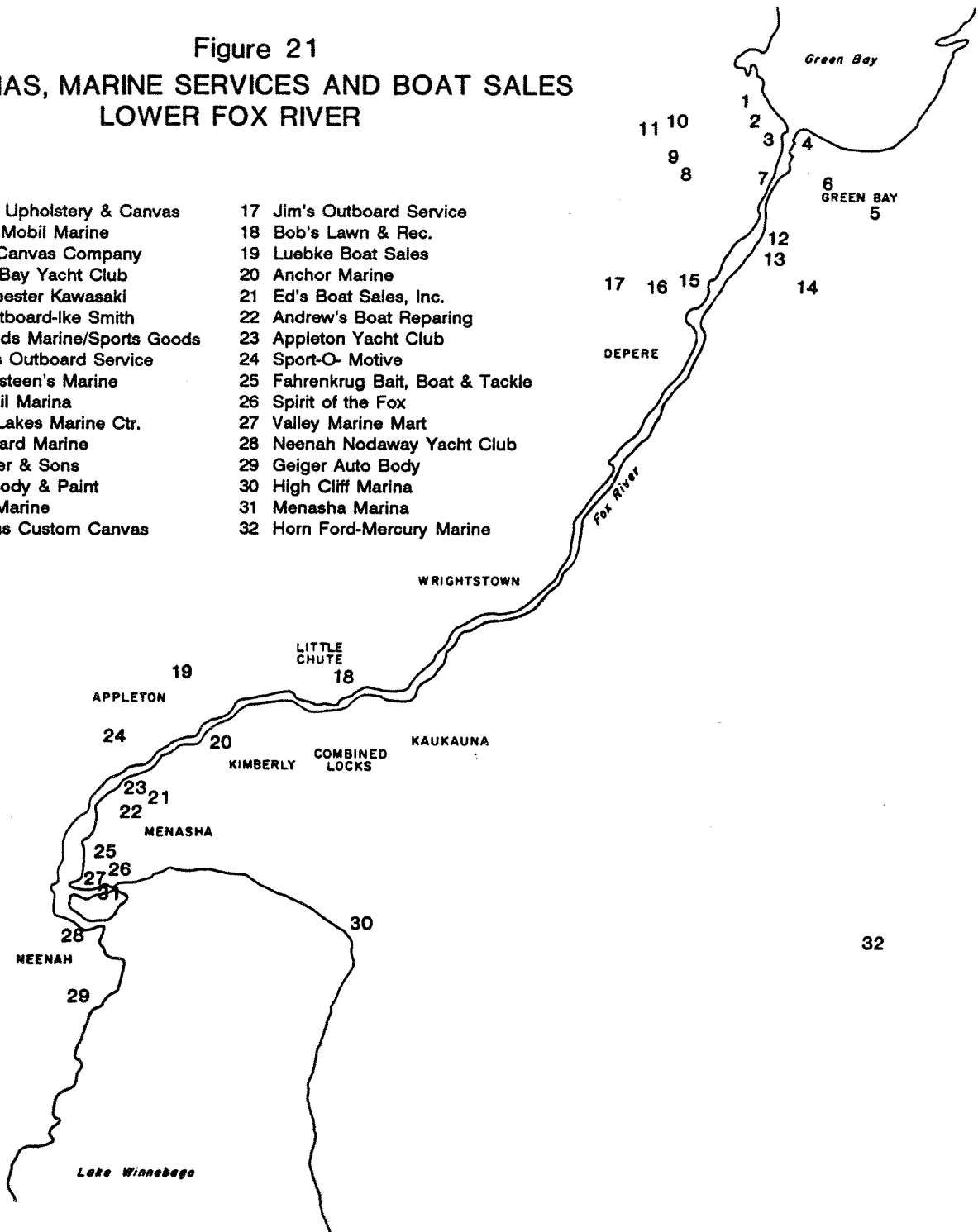
- | | |
|-------------------------------------|--------------------------------------|
| 1 Feldner Chevrolet, Inc. | 21 Fox River Marina |
| 2 Lakeland Sports Ctr. | 22 Sailtech |
| 3 Nimmer Marine Service | 23 Moe's Marine Service |
| 4 Blue Water Boat Works | 24 Glaze of Wisconsin |
| 5 Scotty's Upholstery | 25 Lakeside Marina |
| 6 Custom Faberkin Inc. | 26 Hergert Sport Center |
| 7 Lakeside Park Marina | 27 The Marina |
| 8 Kiek Haefer Aero Marine Inc. | 28 The Yacht Sailmakers |
| 9 Shoreline Marine | 29 Spellman's Marina |
| 10 Wind Power Sailboard Ctr. | 30 Winnebago Boat Builders |
| 11 Clarence's Harbor Inc. | 31 Red's 45 Gun & Marine |
| 12 Fondy Marine Sales | 32 Eddie's Evergreen Marine |
| 13 Wendts Marine, Inc. | 33 Skipper Bud's Marina & Boat Sales |
| 14 Riggs Marine Service | 34 Jechoths Boat Works |
| 15 Green Lake Marina | 35 Wharf Marina |
| 16 Norton's Dry Dock | 36 LaPlante's Marina/Campground |
| 17 Marine Tops Unlimited Inc. | 37 Fort Fremont Marine |
| 18 Karni Pier Equipment | 38 Wolf River Marina |
| 19 Spanbauer Marine Service | 39 Riverside Marine & Outdoor Sports |
| 20 Merten High Performance Products | |



SOURCE: ECWRPC

Figure 21
MARINAS, MARINE SERVICES AND BOAT SALES
LOWER FOX RIVER

- | | |
|---------------------------------|-----------------------------------|
| 1 Hussin Upholstery & Canvas | 17 Jim's Outboard Service |
| 2 S & G Mobil Marine | 18 Bob's Lawn & Rec. |
| 3 Kings Canvas Company | 19 Luebke Boat Sales |
| 4 Green Bay Yacht Club | 20 Anchor Marine |
| 5 Rentmeester Kawasaki | 21 Ed's Boat Sales, Inc. |
| 6 Mr. Outboard-Ike Smith | 22 Andrew's Boat Repairing |
| 7 Bertrands Marine/Sports Goods | 23 Appleton Yacht Club |
| 8 Pamp's Outboard Service | 24 Sport-O Motive |
| 9 Vandersteen's Marine | 25 Fahrenkrug Bait, Boat & Tackle |
| 10 Longtail Marina | 26 Spirit of the Fox |
| 11 Great Lakes Marine Ctr. | 27 Valley Marine Mart |
| 12 Ship Yard Marine | 28 Neenah Nodaway Yacht Club |
| 13 Al Zeller & Sons | 29 Geiger Auto Body |
| 14 MJ's Body & Paint | 30 High Cliff Marina |
| 15 Van's Marine | 31 Menasha Marina |
| 16 Williams Custom Canvas | 32 Horn Ford-Mercury Marine |



SOURCE: ECWRPC

TASK FORCE MEMBERS

HISTORIC

William G. Meindl, Historic Hazelwood, Co-Chair
Paul Lusignan, State Historical Society Co-Chair

William Brehm, Appleton Director of Community Development
Ed Brick, Wisconsin DNR
Richard Calaway, Mueller-Wright House
Pat Cochran, DePere Historical Museum
Ross Fullam, Heritage Hill State Park
Bill Herziger, Menasha Historical Society
Kitty Hobson, Oshkosh Public Museum
Donald Hoke, Outagamie County Museum
Don Mitchell, Fox River Management Commission
Jerry Musich, National Railroad Museum
Suzanne O'Regan, Neenah Historical Society
Tom Schultz, Artist
Mary Lou Van Dreel, 90th Assembly District
John N. Vogel, M.A., Consulting Historian
Jane Wanamaker, Brown County Historical Society
Malcolm Wayne, Boaters Representative
Lynn Webster, Oshkosh Historical Society
Len Weis, Hearthstone Foundation
JoEllen Wollangk, Grignon Mansion

COMMERCIAL DEVELOPMENT

Terry A. Gant, Oshkosh, Valley Queen II Co-Chair
Val Wylie, Fox Cities Convention & Visitors Bureau, Co-Chair

Loren Anderson, Division of Public and Governmental Relations, DOD
Jon Bartz, Appleton Planning Department
Jerald Bechard, Appleton Real Estate/Investments
Donald Biggar, Winneconne, Fin & Feather
Tim Casey, Oshkosh Chamber of Commerce
Gary De Young, Green Bay Convention and Visitors Bureau
Terry Eisch, Oshkosh Residential Developer
John Forster, Fox River Management Commission
Jack Gray, UWEX Recreation Resources Center
Steve Griesbach, Neenah, Charter Fishing
Pete Heesakker, Manager, Lakeside Marina
Darrell Hofland, Village of Little Chute
Jules LeFebver, DePere Developer
Pat Marks, Nationwide Bus Tours
Dave Muench, UWEX Resource Agent
Leo Patt, FVTC Economic Development
Fred Russler, Aid Association for Lutherans
Jim Schlies, Economic Development Planner

RECREATIONAL

Jeff Christensen, Winnebago County Parks Director, Co-Chair
Jeff Pagels, DNR Lake Michigan District, Co-Chair

John Bedore, Appleton Yacht Club
Mike Brandel, Bubolz Nature Center
Alice Connors, Calumet County Board
Dan Cook, Ashwaubenon Parks Director
Lee Hammen, 1000 Islands Nature Center
John F. Hart, Wrightstown Village Board
Jim Kalkofen, Fond du Lac, Mercury Marine
Chuck Lamine, Kaukauna City Planner
Paul Leuthold, Menasha Parks Director
Richard Matty, Division of Tourism, Wisconsin DOD
Bill Miller, Retired Neenah Parks Director
Bill Patzke, Brown County Planning Commission
Jerald Perkofski, DePere Parks Director
Wayne Rollin, Fond du Lac Cty. Planner
Diane Schabach, Harbormaster, Menasha Marina
Jerry Tate, Outagamie County Planning Department
Bernie Vanden Boogaard, former Kimberly Parks Committee Chairman
Tim Van Dyn Hoven, G.B. Yacht Club
Frank Wasdovitch, Calumet County Superintendent
Ken Young, Brown County Planning Commission

ENVIRONMENTAL

Dennis Hultgren, V.P., Appleton Papers Corp., Co-Chair
Charles Higgs, Director, DNR Lake Michigan District, Co-Chair

Ron Bruch, DNR Oshkosh Area Office
Hank Liebzeit, Appleton, Conservation Congress
Peggy McGaffey, Fox River Valley Audubon Society
Robert Miller, Appleton, Director of Public Works
William Sloey, Professor of Biology, UW-Oshkosh
Janet Smith, Green Bay, U.S. Fish and Wildlife Service
Dave Wentland, DePere, Coastal Planning and Design Associates

INSTITUTIONAL ARRANGEMENTS

Ronald Van De Hey, Fox River Management Commission, Co-Chair
Scott Neitzel, DOA Division of Energy and Public Affairs, Co-Chair

Marigen Carpenter, Mayor of Neenah
Paulette Harder, Madison DNR
Steve Hintz, University of Wisconsin-Oshkosh
Thomas Schmidt, Wisconsin Paper Council
Paul Stevenson, Winnebago County Executive
Tom Krauskopf, Director, Federal State Relations Office
Ron Bruch, DNR Oshkosh Area Office