

BROUGHTON SHEBOYGAN MARSH STRATEGIC MANAGEMENT PLAN 2001

prepared under & authorized by

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(DNR's Sheboygan River Basin Geographical Management Unit)

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The Sheboygan County Planning & Resources Department was the lead agency in defining and developing the *Plan*, and in identifying its implementation strategies. A 14-member *Project Management Team* and a 13-member *Technical Planning Team*, each representing a wide range of interests and talents, was recommended by that Department and appointed by the County Board's Resources Committee to establish policy and guide the planning process. All of these key project participants are identified on page i, the "Plan Title Page & Credits."

Supervisor Burdette "Bud" Petersen, who died of cancer November 2, 2001, facilitated this planning effort with distinction. He chaired the County Board's Resources Committee and served on the Sheboygan Marsh Management Advisory Committee for many years. His leadership and dedication to Sheboygan Marsh was exemplary. He is fondly remembered.

Sheboygan County partnered with University of Wisconsin Extension Community Resource Development Agent David Such to develop the Plan's public opinion/consensus-building process, as well as to identify priority issues and strategies for action.

The collaborative efforts of local, county, and state agency personnel, the "Partners" group, and numerous dedicated, conservation-minded citizens were impressive and appreciated.

Mark J. Leider, Sheboygan County's long-time Planning Director who retired in 2001, was the Principal Author of this Plan, finishing under a DNR planning retainer approved by the County.

Sue Goebel, County Planning Technician, coordinated document production and is credited for the attractive page layout and graphic design.

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Broughton Sheboygan Marsh Strategic Management Plan 2001

VISION

I come to you making an appeal to carry on, for you have the opportunity of writing history here today which will be read long after we have passed away and will mean a heritage of the great outdoors for those who are to come.

– Charles E. Broughton
May 4, 1937

(Presentation to Sheboygan County Board of Supervisors while donating the initial 80 acres for Sheboygan Marsh Park)



MAY 5, 1937

Sheboygan Marsh Is Rare Beauty Spot

Wildlife Is Abundant All Seasons

Once Huge Lake, Then Drainage Project, It Is Now Restored To Vast Marshland.

Sheboygan County abounds in picturesque and inviting spots of historical interest; but none offers greater variety of charm than the area known as the Sheboygan Marsh.

June 26, 1940
Sheboygan Press

MISSION

This project will develop a science-based, strategic management plan to guide decisionmaking for the wise use, appreciation, and stewardship of this treasured resource and its environs, into the 21st century.

GOALS & OBJECTIVES: *THE BIG 10*

1. To preserve this ecologically, geologically, & archaeologically significant area of Wisconsin for present and future generations.
2. To provide multiple outdoor recreational & educational opportunities that are clearly complementary & compatible with the natural environment of *Sheboygan Marsh*.
3. To protect rare species, communities, & ecosystems while enhancing the quality experience of *Sheboygan Marsh* users and demonstrating sound resource management.
4. To retain a place to escape the sights & sounds of urban life and to embrace nature.
5. To develop only those programs and facilities that will neither degrade the natural and cultural resources of *Sheboygan Marsh*, nor diminish the use and enjoyment of this *special place*.
6. To acquire such additional lands that are deemed necessary to protect the waters, lands, and living resources at *Sheboygan Marsh*, and ensure accessible open space, habitat, and recreational opportunities.
7. To encourage consideration of conservation values in the management of *privately-owned*, adjoining lands and waters.
8. To strengthen relationships with neighboring landowners, conservation organizations, and local municipalities.
9. To foster public participation and increase public understanding of how the management decisions attendant to *Sheboygan Marsh* are made and applied.
10. To manage today, for tomorrow, with the vision of Charles E. Broughton yesterday.



A nation behaves well if the natural resources and assets which one generation turns over to the next are increased and not impaired in value.

– Theodore Roosevelt
United States' 26th President
1858-1919

EXECUTIVE SUMMARY: Issues, Proposed Actions, Roles, Schedules, & Financials

Chapters 4 and 5 of this Plan discuss in great detail the Strategic Issues, the Action Plan Alternatives, and the Recommended Actions and Activities proposed at *Sheboygan Marsh* during the planning period.

This Executive Summary “*bottom lines*” the richness, detail, and *scientific basis* documented throughout this Plan—readers of this Executive Summary are cautioned to familiarize themselves with the planning foundation before finding disagreement.

Legend: <i>County</i> = Sheboygan County Planning & Resources Department Staff <i>WDNR</i> = Wisconsin Department of Natural Resources <i>SCCA</i> = Sheboygan County Conservation Association <i>MMAC</i> = Broughton Sheboygan Marsh Management Advisory Committee				
ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Dredging (Derived from <i>Citizen-Identified Issue #1</i>)	County should schedule, budget, & execute maintenance dredging of South Ditch, south of cross-over 5000' to Elkhart Lake outlet stream inlet	County & WDNR collaborate with SCCA & MMAC, secure contractor low bid	2004/2005 and at approximately 20-year, as-needed intervals	Estimated Range, \$75,000-\$100,000
Floating Bogs (Derived from <i>Citizen-Identified Issue #2</i>)	County should delegate dam bypass control to Marsh Manager to moderate water level fluctuations	WDNR establishes policy and supervises Marsh Manager	Accomplished in 2000, pursuant to this planning process	No direct cost
	County should install log boom & signage at South Ditch entrance to prevent bog entry	County & WDNR collaborate with Highway Department	Accomplished in 2000, pursuant to this planning process	De Minimus
	County should purchase a boat (16' john), motor (25 hp), & trailer to facilitate bog removal & other Marsh management practices	County secures low bid	2002/2003	Estimated Range \$4,000-\$5,000
		[NOTE: This purchase could be delayed or deleted if the County faithfully executes the recommended Water Level Management Regime below.]		
	County should enact & commit to the <i>Water Level Management Regime</i> identified below	See <i>Water Level Management Regime</i> below		
Water Level Management Regime (Derived from <i>Citizen-Identified Issue #2</i>)	County & WDNR should aggressively pursue public support and authorization for both partial and total drawdowns on an as-needed schedule determined by <i>ecological warrants</i>	County, WDNR, SCCA, & MMAC must reach consensus and provide leadership to County Board	Timely, as-needed, determined by <i>ecological warrants</i>	De Minimus, unless WDNR executes fish or wildlife habitat projects In fact, this management practice would result in <i>net savings of \$20,000-\$50,000 each year between drawdowns in avoided bog removal costs</i>

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
<p><i>Smart Growth Planning</i> (Derived from <i>Citizen-Identified Issue #3</i>)</p>	<p>County & adjoining Towns of Russell, Greenbush, & Rhine should collaborate & accelerate the development of competent comprehensive plans, complementary zoning & subdivision controls, and land acquisition strategies</p> <p>County should nominate <i>Sheboygan Marsh</i> as an Archaeological Site worthy inclusion on the <i>National Register of Historic Places</i></p>	<p>Partnership of County, Town Planning Commissions, Regional Planning Commission, WDNR, & UWEX is encouraged</p> <p>County should develop nomination in concert with the State Historical Society & the Great Lakes Archaeological Research Center</p>	<p>2002-2004</p> <p>2002/2003</p>	<p>Estimated Range \$60,000-\$100,000</p> <p>De Minimus, unless County or affiliates pursue grant-eligible research, exhibition, or management projects</p>
<p>Land Acquisitions To Create Buffer & Protect Existing Investments (Derived from <i>Citizen-Identified Issue #3</i>)</p>	<p>County, WDNR, SCCA, & adjoining Towns should collaborate in an acquisition strategy for strategic areas around & adjacent to existing public lands, in fee simple or purchase of development rights (PDR) from “willing sellers”; the state land acquisition boundary was changed to include existing ownership</p> <p>County, WDNR, SCCA, & adjoining Towns should collaborate and aggressively pursue & secure available federal, state, county, & private/non-profit grants & gifts for the above acquisitions</p>	<p>Collaboration of County, WDNR, SCCA, and adjoining Towns is encouraged</p> <p>Collaboration of County, WDNR, SCCA, and adjoining Towns is encouraged</p>	<p>Concurrent with proposed acquisition</p> <p>Annually investigate “willing seller” market of pre-selected parcels</p>	<p>No direct cost</p> <p>Estimated Range \$1,000-\$3,000 per acre</p>
<p>Increase County Investments at <i>Sheboygan Marsh</i> (Derived from <i>Citizen-Identified Issue #5</i>)</p>	<p>County should (1) commit to this Plan’s project recommendations in its annual operating and 5 year capital improvements budgets, and (2) maximize leverage of <i>State & County Stewardship Funds</i> & other available public & private grants & gifts</p>	<p>County, WDNR, SCCA, & MMAC collaborate in project prioritization & timing</p>	<p>Plan, program, & budget annually</p>	<p>Budget derived from annual planning & programming</p>
<p>Increase Opportunities for Involvement in Marsh Management (Derived from <i>Citizen-Identified Issue #5</i>)</p>	<p>County should expand the 7-member <i>Marsh Management Advisory Committee</i> (created in 1984) to 13 members to broaden its base of interests & improve its effectiveness</p>	<p>County & SCCA propose to County Board</p>	<p>Accomplished in 2000, pursuant to this planning process</p>	<p>Unpaid Committee</p>
<p>County & State Cooperation</p>	<p>Sheboygan County & WDNR should execute a new, formal <i>Sheboygan Marsh Management Agreement</i> for professional wildlife, fishery, & forestry management, development, protection, & maintenance</p>	<p>County, WDNR, SCCA, & MMAC collaborate on terms of the <i>Agreement</i></p>	<p>2001/2002</p>	<p>No direct cost</p>

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Perimeter Biking Trails	County should (1) sign & promote existing 28-mile <i>Elkhart Lake to Kiel Tour</i> shared road bikeway (Marsh Park is Trailhead), and (2) define, sign, & promote a companion shared road bikeway approximately 22 miles along the perimeter of Sheboygan Marsh	County collaborates with County Convention & Visitors Bureau, and seeks WDNR grants	2003/2004	Estimated Range \$50-\$100 per mile
ANNUAL ACTION AGENDA				
ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Wildlife Management	Share crop approximately 200 acres with adjoining farmers	WDNR	Annually	WDNR operating budget
	Maintain approximately 250 acres of grasslands	WDNR	Annually	WDNR operating budget
	Maintain two runoff ponds & associated structures	WDNR	Annually	WDNR operating budget
	Monitor waterfowl, ruffed grouse, & pheasant populations	WDNR	Annually	WDNR operating budget
	Monitor & record water levels	WDNR & Marsh Manager	Daily	WDNR operating budget
	Maintain posted refuge lines	WDNR	Annually	WDNR operating budget
	Monitor & control exotic & intrusive plant & animal species	WDNR	Annually	WDNR operating budget
	Gravel & grade perimeter parking lots & access roads	WDNR	Annually	WDNR operating budget
	Partner with <i>Ducks Unlimited</i> , <i>Ruffed Grouse Society</i> , & <i>Pheasants Forever</i> to execute habitat improvements	WDNR collaborates with County, SCCA, & MMAC	Annually	Project-specific
Coordinate bog removal	WDNR collaborates with Highway Department for equipment & manpower	As needed	WDNR & County operating budgets	
Fish Management	Survey & monitor fish community	WDNR	Annually	WDNR operating budget
Forest Management	Monitor forest conditions & develop harvest plans as needed	WDNR	As needed	WDNR operating budget
A LIVING PLAN				
ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Plan Updates	County should formally review & revise this Plan at not greater than 5-year intervals	County & WDNR reconvene the Project Management Teams to undergo this planning process	5-year intervals, or earlier if warranted	De Minimus

CHAPTER 1. INTRODUCTION

SHEBOYGAN MARSH TODAY

The *Broughton Sheboygan Marsh Park & Wildlife Area* lies in northwestern Sheboygan County, just west and north of Elkhart Lake; it encompasses over half of the Towns of Russell and Greenbush (North). It includes about 14,000 acres of land and surface water; 8,086 acres are publicly owned, of which 7,414 acres are owned by Sheboygan County and 752 acres by the State of Wisconsin. The remainder is privately owned, some of which is publicly accessible.

Figure 1, “*Sheboygan Marsh Regional Locator Map*,” identifies the facility in relationship to the state and adjacent counties. *Sheboygan Marsh* is illustrated in full detail on the large base map provided in the transparent pocket in the back of this Plan.

The *Wildlife Area* is ecologically diverse; it is comprised of expansive cedar and tamarack swamps, shrub marshes, lowland hardwoods, and large areas of marshes and open water. It is bisected by the Sheboygan River, which is backed up by a dam at the northeast corner of the property. Thus, the open waters and adjoining wetlands are a restored flowage of the Sheboygan River. *Sheboygan Marsh* lies in a 133 square mile watershed.

Sheboygan Marsh is particularly popular during the hunting and fishing seasons. Prime habitat exists for migratory waterfowl, small and big game animals, fish, furbearers, and various species of non-game animals. As such, it is especially attractive to hunters, fishers, and nature observers alike, for all seasons!

The Marsh adjoins the Ice Age National Scientific Reserve; it lies at the northern terminus of Wisconsin’s splendid Kettle Moraine area and the popular Kettle Moraine State Forest (Northern Unit). It has been termed an “archaeological treasure”...a natural classroom, with a rich, extensive Native American cultural history.

A major County Park, located on approximately 30 acres at the northeast corner of the property at the site of the Sheboygan River dam, has been developed by Sheboygan County. This popular facility offers the following:

- ☞ **Marsh Lodge (full service rustic restaurant and tavern)**
- ☞ **Broughton Lodge (multipurpose facility)**
- ☞ **State Wildlife Viewing Area**
- ☞ **64 developed campsites**
- ☞ **Large picnic area with contemporary shelter**
- ☞ **Playground**
- ☞ **Canoe and boat rentals**
- ☞ **Launching ramps**
- ☞ **Fishing piers**
- ☞ **Public snowmobile trails (part of 199 mile county system)**
- ☞ **Large open areas for fun and frolic**

The *Park* is illustrated in Figure 2. A separate Plan exists for the *Park*, and it will not be further discussed in this Plan.

RICH HISTORY/BRIGHT FUTURE

Contrasts and conflicts- risks, failed dreams and realized opportunities- characterize the history of *Sheboygan Marsh*.

FIGURE 1
Sheboygan Marsh Regional Locator Map

CLICK HERE for page
showing **FIGURE 1**

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FIGURE 2
Marsh Park

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showing **FIGURE 2**

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The following is a general description of Sheboygan Marsh as it appeared in 1904 to college researchers Peterson & Sinz (1905):

It is an irregular shaped tract of land, being about six miles long and four miles wide, containing about ten thousand acres. Half of this area is covered with tamarack woods which are located mostly around the outer edge of the swamp. The central portion is a prairie covered with tall marsh grass, which is a source of large fires each fall. The drainage area of the swamp is about forty thousand acres.

A big prairie fire swept the land owned by the Sheboygan Valley Land and Lime Co., two miles north of Elkhart Lake outlet, yesterday night. The fire was first seen at about 7 in the evening. It was bright enough to illuminate the entire lake.

December 11, 1912
Sheboygan Press

Their 1904 observations on the River follow:

The channel of the river is very tortuous and varies in depth from six inches to two feet. The width is fairly uniform, being about forty to fifty feet. The bottom of the river consists mainly of a mixture of marl and peat which flows very easily. As the river leaves the swamp at its eastern edge, the bottom is of a gravelly nature, containing many large boulders. This gravel, however, soon changes to a solid limestone channel which extends for three quarters of a mile farther east. The width of the river becomes narrow after it leaves the swamp, being only about fifteen feet wide. The limestone ledge is the main cause of the existence of the swamp...the cross section of the channel at this point being so very small as compared to that in the swamp, in times of flood flow it is entirely too small to carry all the water. In the spring of the year the eastern part of the swamp for two to three miles up is entirely covered with water.

It appears from these observations that after the first attempt to drain the Marsh, the Marsh was only seasonally flooded. And, prior to the first attempt, it was probably a very shallow lake or marsh that became enlarged and deeper during times of rainfall and runoff.

During 1912-1921, a second attempt to drain the Marsh was initiated by the Sheboygan Valley Land and Lime Company. Stocks and bonds were sold by the Company's promoters who envisioned a rich farming community...a "garden city" surrounded by the prosperous agricultural lands.

With great excitement, a December 2, 1919 Sheboygan Press article proclaimed,

The most stupendous real estate transaction in the history of Sheboygan County was consummated in November when Thompson and Jackson, of Peoria, Illinois, bought from W.J. Hay, Oshkosh, his controlling interest in the Garden City Land Co. of Elkhart Lake...the 9,000-acre tract of land familiarly known as the Sheboygan Marsh, located near Elkhart Lake.

This property, in which the whole State of Wisconsin is interested, is being drained and made fit for cultivation and when the gigantic operations which have been underway for a long time, are completed, it is expected that record-breaking crops will be raised on the piece where formerly swampy desolation reigned.

More than 20 miles of ditches...from 6 to 20 feet deep and up to 60 feet wide...were dug by a monstrous floating dredge (Figure 3). The project was fairly successful. Unfortunately (for them), post-war farmland prices were low and availability high; the demand for this new "wilderness farmland" vanished. The promoters eventually defaulted on their taxes and abandoned the area.

Drainage of the Sheboygan Marsh has begun on the old Sexton farm 1½ miles north of Elkhart Lake, the first shovelful of ground being lifted Monday afternoon under the direction of W.C. Corbett of Grand Rapids, Wisconsin, contractor for the big project which will make 7,000 acres of land available for excellent truck farming.

May 1, 1918
Sheboygan Press

FIGURE 3
Digging the Ditches at the Sheboygan County Marsh – 1912

**CLICK HERE for page
showing FIGURE 3**

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***DRAINAGE OF SHEBOYGAN MARSH CULMINATION OF
DREAM FIFTY YEARS AGO; UTOPIA AWAITED***

*November 19, 1919
Sheboygan Press
(From Milwaukee Journal)*

Once again, unanticipated problems resulted from this ill-fated drainage project. A September 24, 1931 Kiel Tri-City Record article entitled "When 1,000 Acres of Marsh Land Was Reduced To Ashes" reported,

More than 1,000 acres of the Sheboygan Marsh has been reduced to ashes by an old peat fire, recently fanned to high activity, that has burned to an average depth of three feet. Recently a meeting of farmers living near Elkhart Lake approved the construction of a dam across the Sheboygan River there that would again flood the marsh. The burned area was covered with grass, trees and other vegetation on what was a game refuge before it was drained.

By 1927, some conservation-minded citizens advocated building a dam to restore the Marsh to its previous condition and to nurture a habitat for wildlife, particularly waterfowl. These restoration efforts were led by Charles E. Broughton (the Park's namesake) and the Sheboygan Chapter of the Izaak Walton League. The dam was also constructed to combat peat fires which plagued the drained Marsh in 1928 and 1931.

The May 21, 1938 Sheboygan Press pictured its impression of this dramatic restoration; that Press graphic is reproduced on the following page.

**CLICK HERE for
graphic, Page 13**

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I am glad that Sheboygan County has purchased the entire marsh, for it is one of the finest conservation projects in the state. This morning's sale was the culmination of a long fight to restore this wonderful tract, and I am happy over the success.

*March 6, 1937
James Gannon (Town of Greenbush)
County Board Chairman*

In 1937, the county purchased 6,349 acres of the Marsh at a public foreclosure auction for \$17,646. In 1937-38, a permanent dam was constructed under the federal W.P.A. program; the area was reflooded and became an excellent waterfowl area as well as valuable habitat for a diversity of other game and non-game species. (The site of the dam and the adjoining 80 acres had been purchased by Mr. Broughton in 1936 for \$550.)

With 33 men scheduled for a 10½ hour shift of work today the first big "concrete pour" is on at the new dam which will stem the waters of the Sheboygan Marsh to restore that 9,000-acre tract to its former beauty and usefulness as a haven for wildlife.

*December 15, 1937
Sheboygan Press*

A 1941 observation by another university researcher (Herman) follows:

In 1938, the present dam was built and the water level restored; according to the engineer in charge, to about what it was between the years of 1868 to 1921.

By water level was not meant depth, however. The depths in 1938 were much greater than the ones reported by Peterson and Sinz in 1905. No data was given in the government surveys of 1837 as to water depths but undoubtedly the Marsh was deeper in places in 1938 than it was in 1837.

Waterfowl were in abundance for many years. Herman (1941) reported 1,500 acres flooded and the remainder as typical marshy terrain (defined as grass, sedge and cattail cover). The atlas states, *Although thousands of hunters invaded the area everyone had some success and many reported shooting their limit in a very short time.*

Sheboygan Marsh Is Rare Beauty Spot

Wildlife Is Abundant All Seasons

Once Huge Lake, Then Drainage Project, It Is Now Restored To Vast Marshland.

Sheboygan County abounds in picturesque and inviting spots of historical interest; but none offers greater variety of charm than the area known as the Sheboygan Marsh.

*June 26, 1940
Sheboygan Press*

Some indication of habitat conditions just after construction of the dam is given in a summary of surveys by Wisconsin Conservation Department biologists in 1938, 1941, 1942, 1949, and 1952 (Zimmerman, 1953):

The area of open water on the Sheboygan Marsh has been increasing in size since 1942. Previously, this particular area had a considerable stand of wild rice, hardstem and river bulrush, and some reed grass.

When visited in 1949, the area of open water appeared to be at least 150 acres in size. It is believed that this increase in size of the open water area is due in a large measure to the high water level held at the dam.

Around 1953, the water level was raised another 6 inches by the installation of 6-inch I-beams as flashboards on top of the spillway.

A report of 1939 waterfowl hunting pressure follows (Zimmerman, 1953):

Heavy hunting pressure; good shooting; an estimated 3,000 hunters invaded the marsh on the opening day of the 1939 season; mainly puddle ducks bagged; although the 1939 season saw a decrease in the waterfowl take throughout the southeast, the waterfowl harvest increased in Sheboygan Marsh; system of refuges covering 670 acres in 3 units.

Construction of the physical improvements (roadways, shelters, concessions, piers, and ultimately a popular restaurant and tavern) at what is now the Broughton Sheboygan Marsh Park on the east end adjacent to the damsite was initiated in 1938. Numerous other parcels of land were acquired by the county and state during ensuing decades; the year 2001 public ownership is 8,166 acres.

Thousands See Sheboygan Marsh

Rare Beauty Of The Spot Is Attraction

It's Hunter's Paradise, Great Fishing Place; Family Can Enjoy Its Picnic Tables

*June 24, 1942
Sheboygan Press*

In 1968, a bypass tube was installed around the dam with state, county, and sportsmen's clubs funds. The purpose was to allow water-level management in the Marsh to increase plant diversity, to improve hunting and fishing, and to reduce loss of marsh bogs (*Sheboygan Press*, April 1967, March 1968). The Marsh had to be drawn down that summer to allow the installation of the bypass. Other reasons were to allow redredging of the south ditch, peat compaction, and to promote vegetation regrowth.

Initial draining of the Sheboygan Marsh, via a 250-foot bypass pipe, has been officially set for 2 p.m. Sunday, Ray Klemme, president of the Sheboygan Marsh Waterfowl Management Fund, Inc., said today. The public is welcome to attend the ceremony.

*March 31, 1968
Sheboygan Press*

It took 20 days to drain the Marsh in April of 1968. A wet summer and dry fall disrupted plans to reflood the area for the fall of 1968. Geese responded dramatically to the refuge

and feeding area provided by the exposed mud flats. The bottom did compact by an estimated 6 inches and the vegetation regrowth was dramatic. The effect on migratory duck use was evident for at least 3 years after the drawdown; in 1969, 6,000 ducks reportedly used the Marsh as a feeding and staging area.

Total or partial drawdowns were also conducted in 1984, 1987, and 1995, basically in conformance with the 1984 *Master Plan*. A drought in 1988, on the heels of the 1987 drawdown, created a "defacto drawdown." While these managed drawdowns seemed to temporarily stabilize existing cattails, they usually began to dislodge after 1-3 years. Floating cattail mats have been a problem at *Sheboygan Marsh* for more than 50 years. Stabilization attempts have had mixed and only short-term results. A new management regime is warranted and is called for in Chapter 5.

The Sheboygan marsh area, if it is to propagate fish and game, must have men of vision looking ahead, for an outlay of money will bring little in recreation for the great masses, if we do not furnish the maximum of protection for conservation.

*December 1, 1941
Sheboygan Press Editorial*

Today, management activities on Sheboygan Marsh are primarily directed at habitat improvements for migratory waterfowl, small and big game animals, fish, and development of facilities for other compatible outdoor recreational pursuits. Wildlife, fish, and forestry management is provided by Wisconsin Department of Natural Resources professional staff, in accordance with a formal *Management Agreement* executed with Sheboygan County in 1984.

Camping, picnicking, canoeing, boating, hiking, nature study, fishing, hunting, snowmobiling, and cross-country skiing are among the other recreational activities enjoyed at “Sheboygan Marsh.” The *Marsh Lodge* restaurant and tavern remains popular to residents and visitors alike. Clearly, this multipurpose resource is as attractive for family outings as it is for the individual outdoorsman.

During the 1970s and 1980s alone, Sheboygan County invested over \$1.1 million in capital projects at the Sheboygan Marsh. Projects included acquisitions of large wetland/woodland tracts, development of playground, picnic, and camping areas, and construction of the “*Marsh Lodge*” restaurant and tavern. Gifts and grants supported \$400,000 of that investment. As detailed in Chapter 2 of this Plan, Sheboygan County has invested a whopping \$1,013,084 at the Broughton Sheboygan Marsh Park & Wildlife Area since its inception.

Members of the Sheboygan County Board took time off Monday afternoon to enjoy the annual “duck dinner” at the Sheboygan Marsh, and to a man, they will claim the afternoon was not wasted.

Members of the county board and guests numbering slightly over 50 persons in all, attended the dinner the like of which never has been held before. Everyone sang the praises of Mr. and Mrs. Joel Ferrel and their assistants for the fine dinner.

Upon arriving at the marsh the members of the board made a “tour” of the park property, inspecting the various buildings, looking over the zoo and marveling at the many improvements made since their last visit.

*November 27, 1940
Sheboygan Press*

Operation of the *Marsh Lodge* and management of the *Marsh Park* have been essentially privatized, in accordance with a formal *Lease Agreement* awarded by Sheboygan County on a competitive basis.

Future management of the *Wildlife Area* should be conservative and keenly sensitive to ecological and archaeological impact. Attention should be paid to all animal species (game and non-game) that use the Area as well as to vegetation endemic to the Area.

We know of no other region or locality in the midwestern United States where the relational environmental contexts are so readily accessible. We view the Sheboygan Marsh...as an ice-age and post ice-age laboratory...unique...of national and international significance.

*1989-1990
Dr. David Overstreet, President
Great Lakes Archaeological Research Center, Inc.*

Recent archaeological investigations have classified “Sheboygan Marsh” as an “archaeological treasure” of national significance; it remains a candidate for nomination to the National Register of Historic Places.

A May 20, 1991 Sheboygan Press article proclaimed,

Clues to Life May Lie Buried In Marsh's Muck

The clues to life across the ages lie buried here.

Mastodons may be entombed beneath the muck. The remains of giant beavers and intact Indian villages could be there as well.

Where?

Not the ancient plains of South Dakota, but in our own back yard in the Broughton Sheboygan Marsh Park.

The *Broughton Sheboygan Marsh Park and Wildlife Area* has clearly become a mecca for all seasons...the wise and careful, multiple use management will assure its conservation for future generations. This *Broughton Sheboygan Marsh Strategic Management Plan 2001* will guide the process.

Marsh Park Remains A Resource For All Seasons

Development of the Broughton Sheboygan Marsh Park began in 1937. Sparked by the efforts of the late business, civic and conservation leader, Charles E. Broughton, a dream became a reality. It is doubtful, however, that Broughton had any notion as to how popular and regionally significant "his" project would become by 1990.

*Mark J. Leider, County Planning Director
March 17, 1991
Sheboygan Press*

Sheboygan marsh, with its 15 square miles of flat, swampy surface, its strange plant and animal life, and its solitude as complete as if it lay in the heart of some unexplored country hundreds of miles from civilization, never fails to stir the imagination and excite emotions of mystery and romance.

*Senator G.W. Buchen
June 29, 1945
Sheboygan Press*

PURPOSE OF THIS PLAN

This *Broughton Sheboygan Marsh Strategic Management Plan 2000* is intended to guide decisionmaking for the wise use, appreciation, and stewardship of this treasured resource and its environs, into the 21st century. (And, that's the stated mission.)

Essentially, this document updates the 1984 *Sheboygan Marsh Wildlife Area Master Plan*, which has influenced the management of *Sheboygan Marsh* for over 16 years. A new generation management plan is warranted to chart a course for another decade or two.

For planning purposes, *Sheboygan Marsh* is treated as two management units: (1) *Sheboygan Marsh Wildlife Area*, consisting of 14,000 acres of wild, undeveloped wetlands, woodlands, and surface water, and (2) *Broughton Sheboygan Marsh Park*, consisting of a 30-acre developed park.

Pursuant to the *Sheboygan Marsh Management Agreement*, executed by the Wisconsin Department of Natural Resources and Sheboygan County in 1984, the *Sheboygan Marsh Wildlife Area* is managed *exclusively* by Wisconsin

Department of Natural Resources professional wildlife, fisheries, and forestry staff. In contrast, the *Broughton Sheboygan Marsh Park* is managed *exclusively* by Sheboygan County staff, vendors, or assignees.

By unanimous decision of the planning team, the *Broughton Sheboygan Marsh Park* will not be included in this *Plan*, because it is well-addressed in the most recent 1991 Plan and its routine needs are met in an annual work program.

Beyond the base inventories, analyses, and goal-setting, this *Strategic Management Plan* will identify the key Strategic Issues affecting *Sheboygan Marsh*, and will develop an Action Plan to address them.

PAST SHEBOYGAN MARSH PLANS & PLANNING EFFORTS

This *Plan* updates the 1984 *Sheboygan Marsh Wildlife Area Master Plan*, which was adopted by the Sheboygan County Board of Supervisors that same year. Furthermore, it was approved by the Wisconsin Department of Natural Resources, and was signed by then-Secretary Carroll “Buzz” Besadney on March 28, 1984.

That 1984 *Plan* was prepared by a State Department of Natural Resources and County Planning Department Task Force (Katsma, Schultz, Baer, Adams, & Leider), and has influenced the management of *Sheboygan Marsh* for over 16 years.

The County Planning & Resources Department prepared a long range plan for the 30-acre Park, entitled *Broughton Sheboygan Marsh Park & Wildlife Area: A Plan For The Marsh Park*, which was adopted by the County Board in 1980. That Plan was updated in 1987 and 1991.

The Great Lakes Archaeological Research Center, Inc. (David F. Overstreet, Ph.D., Principal Investigator) in 1990 published a document entitled *Archaeological Investigations in the Sheboygan River Watershed, 1989-1990 Narrative Summary*. It was prepared for the State Historical Society of Wisconsin and Sheboygan County, and encourages nomination as a National Archaeological District to the National Register of Historic Places.

COMPLEMENTARY PLANS & PLANNING ACTIVITIES

The following plans and attendant planning activities directly or indirectly influence *Sheboygan Marsh*. Their relevancy to this Plan is noteworthy. They are available for reference from the identified lead agencies:

- *Sheboygan River Basin State of the Environment Report*, 1999. (Publication WT-523-99)
 - Lead Agency: Wisconsin Department of Natural Resources
- *Environmental Corridors: Pilot Project for Manitowoc & Sheboygan Counties*, 1999. (Technical Report No. 71)
 - Lead Agency: Bay-Lake Regional Planning Commission
- *Sheboygan County Land & Water Resource Management Plan*, 1999.
 - Lead Agency: Sheboygan County Land & Water Conservation Department
- *Sheboygan County Comprehensive Outdoor Recreation & Open Space Plan*, 1998.
 - Lead Agency: Sheboygan County Planning & Resources Department
- *Sheboygan River Water Quality Management Plan*, 1995. (Publication WR-200-95)
 - Lead Agency: Wisconsin Department of Natural Resources
- *Nonpoint Source Control Plan for the Sheboygan River Priority Watershed Project*, 1993. (Publication WR-265-93)
 - Lead Agency: Wisconsin Department of Natural Resources
- *Northern Unit Kettle Moraine State Forest Master Plan*, 1991.
 - Lead Agency: Wisconsin Department of Natural Resources
- *The Sheboygan River Remedial Action Plan*, 1989. (Publication WR-211-88)
 - Lead Agency: Wisconsin Department of Natural Resources

- *Kiel Marsh Wildlife Area Master Plan*, 1986 Draft.
 - Lead Agency: Wisconsin Department of Natural Resources
- *Sheboygan County Farmland Preservation Plan*, 1985.
 - Lead Agency: Sheboygan County Planning & Resources Department
- *Sheboygan County Snowmobile Recreation Plan 1975-1980*
 - Lead Agency: Sheboygan County Planning & Resources Department

CITIZEN PARTICIPATION & PLANNING PROCESS

The very foundation of this *strategic planning process* is citizen-driven. It incorporates a public participation process to ensure that its recommendations reflect a broadly supported future vision. That's a commitment. In fact, the primary *strategic issues* identified in this Plan were identified by interested citizens employing a structured public input process. Appendix A (*Sheboygan Marsh Strategic Issues Identification & Action Planning Process*) details that activity and its results.

The legitimacy of that commitment is further advanced by the nearly 30-member planning and advisory team, representing a wide variety of interests and disciplines, that is executing the Plan. Furthermore, print media coverage by the *Sheboygan Press* and *Plymouth Review* has been exemplary.

This Plan for *Sheboygan Marsh* employs a strategic planning and strategic issues management process. Unlike the traditional master planning process, which focuses on *goals* and *alternatives* for achieving those *goals*, the strategic planning process focuses on identifying *strategic issues* and developing *action plans* to address those *issues*. It involves the selection of a small number of *strategic issues* (i.e., problems & opportunities) and the formulation of *strategies* to address them. It is action-oriented.

A key element of the strategic planning process is a "SWOT" analysis...that being a look at (1) internal strengths and weaknesses, and (2) external opportunities and threats.

Each *strategic action plan* should promote and enhance a desired future condition...developed of and for the public interest.

Strategies are detailed courses of action. They determine (a) what should or must be done, and (b) the allocation of resources necessary to carry them out.

A *Strategic Management Plan* for *Sheboygan Marsh* must be "science-based." It is crucial that *strategies* and *action plans* reflect a firm knowledge and understanding of this resource's past, its potentials, capabilities, and limitations, and its optimal future management. That is called for in the Plan's *Mission* on page 2.

Harmony is never guaranteed. Strategic issue management must seek actions or solutions judged to be in the best public interest. It must serve to provide a framework of leadership and direction...for all interests...that results in overall public benefit. This Plan promises to achieve that balance.

Finally, to be effective, this Plan should be regularly evaluated and amended as needed to keep current with changing needs, demands, or management practices. A two- to four-year evaluation cycle is recommended.

CHAPTER 2. FACILITY & RESOURCE INVENTORY & ANALYSIS

JURISDICTIONS & ASSIGNMENTS

For decades, jurisdiction and management responsibilities over the *Broughton Sheboygan Marsh Park & Wildlife Area* were assigned by the Sheboygan County Board to its Property Committee. There was no direct staff support of a county department, which proved to be a crucial defect.

In late-1984, overall jurisdiction of the facility was formally transferred by the County Board from its Property Committee to its Resources Committee. As such, professional support and day-to-day management was provided by the Planning Director and the County Planning & Resources Department.

Professional wildlife, fisheries, and forestry management services at Sheboygan Marsh are provided by Wisconsin Department of Natural Resources staff (Plymouth field office), under a formal Management Agreement with the county. (See Appendix B.)

A 7-member *Marsh Management Advisory Committee* was created in 1984, to foster and facilitate and make recommendations on the wise and sound management of Sheboygan Marsh. In 2000, that Management Advisory Committee was expanded to 13 members to broaden its base of interests and improve its effectiveness.

The Sheboygan County Conservation Association, a 501-C3 not-for-profit conservation organization comprised of 31 member sportsmen's/conservation clubs, provides key input to the DNR and County Resources Committee on overall management of the Marsh and has made substantial financial contributions for major acquisitions and development projects.

PAST INVESTMENTS: A RECORD OF PROGRESS & COMMITMENT

An inevitable comment at *Sheboygan Marsh* public listening sessions goes something like this: “*The darned County never spends a dime on The Marsh!*” In fact, one of the six Priority Issues identified during this Plan's public input process was to “*Encourage County Board To Invest More Resources...*” (See Chapter 5, Issue #5.)

The facts, fortunately, indicate quite a dramatic contrary. Beyond its regular annual operating expenses at *Sheboygan Marsh* of approximately \$50,000, Sheboygan County's capital investments over the past half century are most impressive!

In fact, the county parlayed Charles Broughton's 1937 initial 80-acre donation into a public ownership exceeding 8,000 acres today—a hundred-fold increase. There are currently 7,400 acres of county ownership and 750 acres of state land on the Sheboygan Marsh. During the 20-year period 1968-1988 alone, the county authorized slightly over \$1 million in acquisition and development projects. Of that, over 40% (\$411,000) was secured in grants from Wisconsin's Department of Natural Resources (\$325,000) and gifts from the County Conservation Association and its member clubs (\$86,000). The most recent land donation of 80 acres was made by the County Conservation Association with a 50% state match of \$56,100.

The following 3-part table, *Table 1, Past Investments: A Record Of Progress & Commitment*, summarizes available data; it indicates a *whopping grand total of \$1,981,807!* [Project activity during the 1940s and 1950s are not noteworthy. Likely the impressive and expensive Marsh restoration and park development accomplishments of the 1930s—plus the intervening World War II (1940s) and Korean Conflict (early 1950s)—limited both the need and the opportunity.]

TABLE 1, PAST INVESTMENTS: A RECORD OF PROGRESS & COMMITMENT

PART A

BROUGHTON SHEBOYGAN MARSH PARK & WILDLIFE AREA

Projects **WITHIN** 30-Acre Developed Park

CLICK HERE for
pages showing
TABLE 1, Parts A&B

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PART B
BROUGHTON SHEBOYGAN MARSH PARK & WILDLIFE AREA
Projects **OUTSIDE** 30-Acre Developed Park

CLICK HERE for
pages showing
TABLE 1, Parts A&B

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PART C

BROUGHTON SHEBOYGAN MARSH PARK & WILDLIFE AREA

TOTAL of Projects Inside & Outside 30-Acre Developed Park

	TOTAL COST	GRANTS	DONATIONS	COUNTY COST
TOTAL OUTSIDE DEVELOPED PARK	\$1,009,612	\$733,452	\$98,807	\$177,353
TOTAL INSIDE DEVELOPED PARK	\$972,195	\$78,111	\$58,353	\$835,731
GRAND TOTAL SHEBOYGAN MARSH	\$1,981,807	\$811,563	\$157,160	\$1,013,084

1999/2000 FIELD INVESTIGATIONS: HISTORIC WATER LEVELS, GEOLOGY, & SOILS

Abstract

An investigation of local geology and historic water elevations was conducted around the Sheboygan Marsh by Department of Natural Resources staff during 1999 and 2000. The purpose of the investigation was to locate the historic spill point on the east end of the Marsh, and compare the elevation with the present day Marsh elevation.

By finding the historic dolomite spill point on the east side of the Marsh, it was hoped that conclusions could be made concerning the elevation of the Marsh before man attempted to alter water levels in the late 1800s. The investigation included field mapping, soil probing, surveying, and the evaluation of historical records and research papers.

The easternmost spill point of the Sheboygan Marsh was located on the Quasius property in an abandoned river channel within the abandoned Town of Rhine Mills. It was located on a bifurcated section of the river illustrated in Figure 5, about a quarter mile south of the railroad bridge (Figure 4).

The difference in elevation from the present Marsh water levels to the base of the old channel in Rhine Mills is 10.67 feet. Historic records show that there was approximately 9 feet of elevation change between Rhine Mills and the west end of the Marsh during the late 1800s (Peterson & Sinz, 1905). Assuming there were approximately 1.5 feet of water in the old channel, it appears that current water levels in the Marsh are very close to the historic levels prior to 1870.

A review of the original land surveys indicates that vegetative patterns on the Marsh in 1835 were similar to present wetland dependent vegetation patterns. An evaluation of the soils data and observed characteristics of soil profiles, slopes, types of rock and other pertinent soil facts also supports this conclusion.

Geology

The Sheboygan Marsh was formed on Silurian Dolomite which is some of the youngest bedrock in Wisconsin. The Silurian Dolomite is exposed to the east of the project site in an abandoned lime quarry on the Quasius property located in the abandoned Town of Rhine Mills. Bedrock supported hills surround the Sheboygan Marsh on the west, south and north margins.

The Sheboygan Marsh lies directly behind the front of the Green Bay glacial lobe, which was deposited during the last glacial advance. The formation of the Marsh was the result of the stagnation of a large ice block during the last glacial advance. The stagnant ice melted slowly, due to the insulating effects of the surrounding till and the sediments covering the ice block. As the ice block melted, the sediments covering the ice were sorted and deposited on the flanks of the ice block. Ridges of sorted sediments (kame type deposits) can be found surrounding the Marsh to this day. The melting ice and deep bedrock valley created a typical kettle lake surrounded by these kame terrace deposits.

As the glacial lake matured, biological activity increased and sedimentation also increased. Cores drilled in the Marsh have found up to 30 feet of marl deposits rich in shell fragments. During this period, wave activity continued to re-work sorted kame terrace deposits on the flanks of “paleo-Lake Sheboygan.” After being a deep open water system for thousands of years, sedimentation eventually caused the lake to transform into a shallow water marsh. The marsh environment increased the deposition rate of organic rich matter. Cores taken in the Marsh have found up to 20 feet of peat on top of the open water marl deposits.

FIGURE 4
1889 Plat Of The Town Of Rhine

FIGURE 5
1875 View Of Rhine Mills Prior To
The Dredging Of The River

**CLICK HERE for page
showing FIGURES 4 & 5**

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Historical Review

DNR Biologist John Masterson discovered a map at the Sheboygan County Historical Society that shows the bifurcated channel in the Sheboygan River in the abandoned Town of Rhine Mills (Figure 5). This map led to the discovery of the old channel on the Quasius property adjacent to the Limestone Quarry. Since the current Sheboygan River channel was blasted and lowered in the early 1870s and between 1912 and 1921, it was important to find an undisturbed “spill point” to evaluate historic water levels. Since there were two mills in the Town of Rhine Mills, the gradient of the water must have been sufficient to support the power demands of the milling operations.

In a 1905 U.W. Madison thesis by H. Peterson & E. Sinz titled Plans for Draining the Sheboygan Marsh, it is stated that there was 9 feet of head between Rhine Mills and the west end of the marsh. Since the head difference across the Marsh is negligible, the water elevation difference between the historic outlet (current Marsh Park) and Rhine Mills (Quasius Property) would have been approximately 9 feet. This would have been more than enough head to power the grist and oil mills that operated in Rhine Mills.

This information indicates that under normal water conditions prior to the first dredging attempts (1870), the glacial kame deposits located near the present day Marsh Park served as the spill point for the water levels in the Marsh. During times of high rainfall and snow melt, the narrow 15 foot wide limestone/dolomite channel east of the Marsh Park restricted flow and backed up water from the dolomite outcrop in the Town of Rhine Mills to the current dam location in Marsh Park. Soil probes taken during field evaluations confirm that the low area east of the current Marsh Park was often inundated, resulting in soils with rich organic sequences.

A review of the original land surveys of 1835 was conducted to determine vegetation types and water levels at the time European settlement. Surveyors noted trees, water, and vegetation changes as they traversed the land plotting legal descriptions for future land sales, etc. The records indicate that the vegetative cover was similar in 1835 to what exists today. There are notes of 12-inch DBH (diameter at breast height) tamarack and 17-inch DBH white cedar where tamarack and cedar exist today (Figure 5). There are records of marsh and cranberry marsh where emergent wetlands exist today. Other notes that support similar water levels are notes on the locations and widths of streams and rivers, as well as the edge of the pond; these locations are the same as the existing water areas. These records are consistent with the geological and soil records of water levels, and compare very closely with water levels that are currently maintained at the Sheboygan Marsh.

Field Evaluations

In the fall of 1999, Department of Natural Resources scientists surveyed the elevations of the current Sheboygan Marsh dam, the soil investigation locations, the dolomite outcrops, and important geologic features on the east end of the Marsh. Table 2, entitled “Sheboygan Marsh Study,” contains the survey elevation information collected.

Department scientists also conducted a thorough field evaluation of the geology and soil characteristics on the east side of the Sheboygan Marsh downstream to the County Road MM Bridge. Silurian dolomite bedrock was found in the Sheboygan River channel several hundred feet west of the County Road MM Bridge. Blast holes were photographed in the dolomite along the exposed bedrock outcrop in the Sheboygan River channel where the bedrock was lowered in an attempt to drain the Marsh (Figure 6).

FIGURE 6
Evidence Of Blasting In Limestone Ledge

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showing FIGURE 6**

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A soil evaluation was conducted of the Marsh and surrounding areas in the fall of 1999. The study included reviewing field survey maps, soil probing investigations in and around the Marsh, and an investigation of dug soil profile pits. Based on the available soils information, there is no indication that major sedimentation has occurred recently in the Marsh. This conclusion is made from the fact that the sediments in the soil profiles along the Marsh are uniform, there is an absence of sediment layers in the peat, and there is an absence of buried horizons in the soil profiles along the edge of the Marsh. The original physiography and distribution of soils is mainly the result of glacial outwash, alluvial and lacustrine deposits which buried the dolomite bedrock with unconsolidated deposits ranging from a few feet (1/2 mile east of the marsh) to several hundred feet in thickness.

As the glacier retreated in the Towns of Russell, Greenbush and Rhine, they left a mass of loamy material or glacial till. The main soil types, Hochheim, Theresa, Nenno, and Lamartine, formed in this material. Water from the melting glaciers transported, sorted, and deposited some of the glacial till as stratified gravel and sand on outwash plains. This is how the Casco soils on the north edge of the Marsh and the Fox soils on the east and south edge of the Marsh were primarily formed.

The low wetland areas were formed from an old glacial lake basin with areas of lacustrine soils consisting of a mixture of silt, sand, and clay. In other areas, residue from water-tolerant plants accumulated to form organic soils over the mineral soils and marl with the thickness of the muck depending on the depth of the water table, substratum and type of vegetation.

The evaluation of the information including observed characteristics of the soil profiles, slopes, types of rocks and other pertinent soil facts supports the conclusion that the current water levels compare very closely with water levels that are currently maintained at the Sheboygan Marsh.

TABLE 2

Sheboygan Marsh Study		
Lime Kiln Survey elevations with the adjustments based upon the Railroad Bridge Marker		
<i>Site #</i>	<i>Description of the Elevation</i>	<i>Measured ELEVATION</i>
1	LIMEKILN – Elevation of river bottom, downstream about 300' from abandoned bridge.	892.080
2	LIMEKILN – Elevation of river bottom, just below/east bridge (approximately 100').	892.350
3	LIMEKILN – Elevation of river at Sheboygan River shoreline, northeast of County Road MM Bridge, SW¼ NE¼, Section 18, T16N R21E.	893.270
4	LIMEKILN – Elevation of river bottom, approximately mid channel at 150' upstream from abandoned bridge.	893.910
5	LIMEKILN – Elevation of river's shoreline near abandoned bridge.	894.090
6	DAM – Bottom of stream bed downstream from dam, above concrete ledge.	894.165
7	DAM – Bottom of stream bed downstream near culvert overflow, approximately 200' below dam.	895.045
8	LIMEKILN – Elevation of old channel around island west adjacent to abandoned Lime Kiln Road, NW¼ SE¼, Section 18, T16N R21E.	895.200
9	DAM – Elevation of top of concrete ledge below dam, under water surface by 2 1/8".	896.46
10	DAM – Downstream from dam at bottom of overflow culvert on left bank.	897.225
11	LIMEKILN – Bridge marker north of County Road MM, SW¼ NE¼, Section 18, T16N R21E.	901.914
12	LIMEKILN – Marker nails, Quasius driveway, NW¼ SE¼, Section 18, T16N R21E.	901.925
13	LIMEKILN – Elevation over streambank area closer to the County Road MM roadway and bridge.	903.665
14	DAM – Top of spillway ledge behind dam, 5"-6" of water going over top of ledge. Water level of the Marsh/Sheboygan Lake would be approx.	905.870 906.300
15	LIMEKILN – East end of County Road MM bridge over river, SW¼ NE¼, Section 18, T16N R21E. Based on the topography map, the surface elevation of Sheboygan Lake was determined to be 276.2 meters or 906.2122 feet.	905.885 906.2122
16	DAM – Upstream – Elevation of marsh water at dock area adjacent to lodge.	906.260
17	LIMEKILN – Elevation of overbank area measured west of old road bed.	907.73
18	DAM – Elevation of ground at base of step bridge that goes over the dam in park.	910.830
19	DAM – Elevation of flagpole base adjacent to the dam in the park.	911.020
20	DAM – PSC Brass marker on the top of the dam in the park.	910.880
21	DAM – DOT marker on County Road J, south of park entrance.	912.290
22	DAM – Sheboygan County Park at Marsh roadway entrance marker.	913.080
23	LIMEKILN – Elevation of old bridge deck with dirt overlayment.	913.300
24	LIMEKILN – Survey marker, County Road MM, 1100' west of bridge at north entrance to abandoned Lime Kiln Road, NW¼ SE¼, Section 18, T16N R21E.	945.505
<i>Elevation of soil pits dug by the University of Wisconsin - Geosciences</i>		
1	Soils Pit # 1	971.176
2	Soils Pit # 2	944.928
3	Soils pit # 3 Groundwater encountered at 150 cm. or 4.921 ft.	912.118 907.197
4	Soils pit # 4	921.960
5	Soils pit # 5	912.118
6	Soils pit # 6 Groundwater encountered at 50 cm. or 1.640 ft.	905.556 903.916
7	Core # 1	907.1965
8	Core # 2	905.556
9	Core # 3	905.000

The Quasius family now owns the property where the dolomite was mined and converted to lime in kilns adjacent to the abandoned dolomite/limestone quarry. The abandoned Town of Rhine Mills existed to serve the workers of the mining, milling, and lime production operations located on the east end of the Sheboygan Marsh. Tamarack trees from the marsh were used as fuel in the lime kilns; the tamarack logs were hauled out of the Marsh on sleds pulled by draft horses. An ice road was created and maintained each winter adjacent to the river for the hauling operation (Delmar Schuler, Town of Rhine, personal communication). Some of the original equipment used to maintain the ice road still exists on the Delmar Schuler farm on County Road MM.

The original wooden structure built atop the dredge used to create the present day ditch complex in the Sheboygan Marsh still exists as an outbuilding on the Delmar Schuler farm on County Road MM.

Conclusions:

- Cores samples taken within the Sheboygan Marsh show that Glacial lake Sheboygan was at one time over 50 feet in depth.
- Up to 30 feet of marl and 20 feet of peat have been deposited in Glacial Lake Sheboygan (Sheboygan Marsh). The fluvial/lacustrine sedimentary deposits found in the Sheboygan Marsh portray a normal evolution of a glacial lake to a shallow marsh.
- The study confirms that current water elevations in the Marsh are close to mid-1800 elevations.
- Historical records show approximately 9 feet of elevation change between the historic “spill point” of the Sheboygan Marsh and old settlement of Rhine Mills. The current difference in elevation between the dam “spill point” and the old bifurcated channel (Quasius property Rhine Mills) is 10.67 feet. By assuming 1.5 feet of water in the old channel, current water elevation in the Marsh are very close to original water levels prior to blasting the Marsh outlet (refer to Table 2).
- Records of vegetation and water areas from the original land surveys are similar to existing conditions, and therefore corroborates that water levels today are close to those at the time of settlement.

WATER RESOURCES & WETLANDS

The colored maps on the following two pages depict the Sheboygan River Basin (Figure 7) and the Sheboygan River Watershed (Figure 8). They extend into the adjoining counties of Fond du Lac, Calumet, Manitowoc, and Ozaukee. *Sheboygan Marsh* lies in a 133 square mile watershed.

SHEBOYGAN LAKE/MARSH

T16N R20E, Section 23, 26; WBIC - 0058900, Sheboygan County, Sheboygan River Watershed
Surface Acres = 674, S.D.F. = 3.35, Maximum Depth = 3.5

Sheboygan Marsh is an extensive lake/impoundment within the Broughton Sheboygan Marsh Park & Wildlife Area. With over 14,000 acres of reclaimed land, the lake and marsh areas have become important recreational and hunting lands. Flow of water into the marsh is mainly from the Sheboygan River, but also from an outlet of Big Elkhart Lake, St. Anna Creek, and several unnamed tributaries. The total open water acreage is divided into the main lake (368 acres), the Sheboygan River (130 acres), St. Anna Creek (29 acres), and a series of artificial ditches (147 acres). (See Table 3, *Water Areas Within The Sheboygan Marsh*.)

As is characteristic of many marsh lakes, the water is light brown in color and is occasionally low in dissolved oxygen (DO). Over 75 percent of the surface waters are less than 3 feet deep and the maximum depth is 3.5 feet. The dredged channels range in depth from 3 to 9 feet with a 5-foot average depth. During a typical winter, the main body of the marsh and the river channel becomes very low in DO. DO is often down to less than one ppm just above the dam. Some fish mortality occurs throughout the marsh most winters. Fish likely over winter in upstream river reaches and spring areas as well as the South Ditch.

FIGURE 7
The Sheboygan River Basin

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showing **FIGURE 7**

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FIGURE 8
Sheboygan River Watershed

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Aquatic Plants

The following is a general description of the aquatic plant community in the Sheboygan Marsh. The open water areas of the marsh have typically become heavily infested with submergent aquatic vegetation to the point of making navigation difficult during the summer. Aquatic plant respiration may be significant enough to result in dissolved oxygen levels that are stressful to fish and aquatic life. The submergent aquatic vegetation present includes Coontail (*Ceratophyllum demersum*), Water Milfoil (*Myriophyllum* sp.) and Duckweed (*Lemna* sp.). It should be noted that no Purple Loosestrife (*Lythrum salicaria*) was observed in the area; this is due to intensive efforts of the Department of Natural Resources, Wildlife Management program to aggressively control this exotic species. Eurasian Watermilfoil was not observed during this survey however it might be premature to conclude that it does not exist in the impoundment (Wakeman 1996).

UNNAMED TRIBUTARY TO SHEBOYGAN MARSH (ELKHART LAKE CREEK), SHEBOYGAN COUNTY
 T16N R21E, Section 30
 Stream Length = 0.8 miles

Elkhart Lake Creek (unofficial name) originates as an outlet from the northwest end of Elkhart Lake, adjacent to the public boat launch near County Road P. This low gradient stream meanders approximately 0.8 miles through a large wetland complex that is part of the Sheboygan Marsh, and discharges to the South Ditch of the marsh. The surrounding watershed is primarily wetland and provides an excellent buffer for the stream.

WDNR personnel surveyed approximately 200 meters of the stream's fish community and habitat in August 2000. Only 33 fish were captured during the fish shocking survey; too few to calculate an index of biotic integrity. Fish species that were present included bluegill, pumpkinseed, johnny darter, central mudminnow, black bullhead, common carp, largemouth bass, and northern pike. Fish communities may be limited primarily due to lack of fish cover and low flows. Stream habitat was limited due to the lack of fish cover and habitat types. The bottom substrate consists primarily of sand and silt, and the number of riffles and pools are very few.

Fish use the outlet area of Elkhart Lake as a refuge when DO levels are low in the Sheboygan Marsh. This has been observed during the hot summer months. During the winter, the flow from the creek entering the south ditch helps maintain higher DO levels and provides refuge for fish in the marsh.

Zebra mussels are abundant in this stream near the outlet of Elkhart Lake with the population diminishing downstream towards the South Ditch. Zebra mussels extend the length of the stream and zebra mussels have been found in the Sheboygan Marsh South Ditch in low concentrations.

TABLE 3
Water Areas Within The Sheboygan Marsh¹

Waterbody Name	Length (miles)	Width (feet)	Acres
Main lake			368
Sheboygan River			130
St. Anna Creek	2.7		29.4
Ditches:			
Vic's	1.3	50	7.6
Froelich	1.3	50	7.8
Bergin	1.3	50	7.6
South	2.0	75	18.6
Southwest	0.4	90	4.6
South-connecting	1.0	50	6.0
Main	7.2	75	65.6
North	3.3	75	29.6
Total Ditches			147
Total Open Water			674

¹ Acreage calculated from 1975 aerial photos and St. Anna Creek stream length from the 7.5 minute USGS quad maps (Kiel and Elkhart Lake, 1974).

The following Table 4 chronicles a century plus of water level manipulations and management issues experienced at *Sheboygan Marsh*:

TABLE 4
Time Line History Of Water Areas Within The Sheboygan Marsh

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TABLE 4**

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TABLE 4, Time Line History Of Water Areas Within The Sheboygan Marsh

Continued

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PLANT & ANIMAL COMMUNITIES

“*Communities*” usually bear the name of their dominant plant species; however, the community includes all the plants living in association with the dominant species, plus all of the animals present at a given time. The following *communities* are the main types found on *Sheboygan Marsh*.

Coniferous swamps are white cedar or tamarack wetlands that are usually associated with lowland hardwoods. Prior to European settlement, these cover types were probably more prevalent among the forested lowland forests in the area and they are still more abundant than indicated by our wetland maps (Figure 9).

These wetlands may be inundated in spring and saturated for most of the growing season. Soils are organic peat or muck, with tamarack more common in acid soils and white cedar more common in alkaline soils.

While coniferous swamps are common in northern Wisconsin, they are rare in the southern half of the state and are home to many rare plants, such as lady slipper orchids. Other groundlayer plants include ferns, jack-in-the-pulpit, and sedge. Shrub species include alder and sumac.

Many of the same species found in lowland hardwood forests are also found in the coniferous swamps because of their close association and size in this area. They provide habitat for birds such as saw-whet owl, veery, hermit thrush, cedar waxwing, swamp sparrow, and many species of sparrows and warblers. Many northern bird species (white-throated sparrow, northern water thrush, and veery) are found in southern coniferous swamps. Mammals that use coniferous swamps year-around, or seasonally for winter cover, include deer, fox, coyote, and small mammals. White cedar provides both food and cover for wintering deer; deer concentrate, or “yard up,” in these cedar areas during the winter. Coniferous swamps are important to maintaining a population of ruffed grouse in this area of the state as well.

Marshes (deep and shallow marshes) have characteristic emergent aquatic plants in permanent to seasonal shallow water. Emergent aquatic plants typically become established during low water periods or when substrate is exposed, and persist for varying periods of time after water levels return to normal. High water or rapidly fluctuating water levels tend to uproot or kill some of the emergents.

Deep water marsh, from 6 inches to 3 feet, have emergent plants like cattail, softstem bulrush, pickerelweed, giant bur-reed, Phragmites, wild rice, pond weeds, and water lilies. Floating and submergent plants include duckweed, coontail, water milfoil, and wild celery. (Also, see Water Resources section.)

Shallow marshes occur in areas where the soil is saturated to up to six inches of water. They contain many of the same emergent plants as deep water marshes, along with arrowheads, herbaceous plants and sedges. It is possible that an exotic plant, purple loosestrife, could take over in shallow marsh areas and reduce the diversity and quality of this type of habitat.

Marshes are very productive wetlands for water birds and furbearers, and can provide spawning and nursery habitat for fish species. Ducks, rails, herons, and songbirds use marshes for breeding and feeding. Ospreys and northern harriers (marsh hawks) use marshes for hunting. Mammals that use the marsh habitat include muskrats, mink, otter, and beaver. Upland wildlife such as pheasant and rabbits may use them for winter cover. Fox and coyote use them during the winter for hunting. Besides providing wildlife habitat, marshes provide environmental benefits like floodwater retention, buffering shorelines from erosion, taking up nutrients, and trapping sediments.

Shrub swamps or shrub-carr wetlands are dominated by woody vegetation like small willows, red osier, and silky dogwoods. They occur on saturated or seasonally flooded muck soils and on the mineral soils of floodplains. Wet meadows may become shrub swamps after drainage and fire suppression.

Shrub swamps provide excellent winter cover for pheasants, deer, and cottontail rabbits. Common birds found in these areas include northern harrier, snipe, woodcock, ruffed grouse, downy woodpecker, willow flycatcher, eastern phoebe, eastern kingbird and catbird.

Lowland Forests (Southern Hardwood Swamps, Southern Wet-mesic Forests) are a major component of natural habitat found in the Sheboygan Marsh (Table 5). This type of plant community dominates the large blocks of

wetlands along the western and southern edges of the Sheboygan Marsh. This type of forest can be found in old lake basins in southern Wisconsin.

Common trees found in hardwood swamps are black ash, red maple, silver maple, yellow birch, and elm. The shrub layer is comprised of seedlings of the dominant tree species, dogwoods, and alder. Groundlayer plants include ferns, sedges, grasses and forbs similar to wet meadows, and characteristic plants like skunk cabbage and marsh marigold.

Hardwood swamps adjacent to rivers and streams are extremely important for floodwater storage. They also act as reservoirs to help maintain water flow in streams during dry periods and for groundwater recharge.

The large blocks of lowland forests interconnected by corridors of similar cover along the Sheboygan River and tributary streams enhance this habitat type for many species of migratory songbirds. These large blocks of forest contiguous with other wetland cover types increase diversity of plant and wildlife in this area.

The relatively open canopy and variety of moisture regimes make lowland forests an extremely diverse habitat for reptiles and amphibians. Amphibians that occur in lowland forests include American toads, eastern gray tree frogs, spring peepers, wood frogs, blue-spotted salamanders, central newt, red-backed salamanders, and spotted salamanders. Reptiles that are commonly found in lowland forests include eastern garter, northern water, northern ringneck, brown, and red-bellied snakes. Common turtle species include painted and snapping turtles.

A rather distinct group of birds (some endangered or threatened status) inhabit floodplain forests, including prothonotary warbler, cerulean warbler, acadian flycatcher, and cardinal. Water-associated birds include belted kingfishers, green-backed herons, spotted sandpipers, woodducks, and mallards. Woodpeckers such as the flicker, red-bellied, red-headed, and pileated are present as well as many other cavity nesters (e.g., barred owls, wood ducks, hooded mergansers, great-crested flycatchers, and house wrens). Another state listed threatened bird that is likely nesting in these large blocks of lowland forests is the red-shouldered hawk.

Most mammals common to southern Wisconsin make use of the lowland forests in the Sheboygan Marsh. The stream and river corridors allow movement between cover types and increases the value of blocks of cover. The riverine and wetland areas provide ideal habitat for aquatic animals like muskrat, mink, and raccoons. White-tailed deer make extensive use of these lowland forests as cover areas during hunting seasons and during winter.

Wet meadows (sedge meadows) are vegetated with grasses, sedges and showy flowering plants like marsh milkweed, goldenrod and asters. Woody plants are absent and standing water is present only after heavy rains or spring runoff. Wet meadows are especially important for water quality protection since they are generally buffers between uplands and waterways where their dense vegetation traps sediments and takes up nutrients. An example of wet meadows on the Sheboygan Marsh is the north prairie area located in the northwest quarter of the Marsh.

Wet meadows provide habitat for a variety of wildlife species including sandhill cranes (at least one pair nests along St. Anna Creek in the wet meadow areas), pheasants, and many small mammals that provide food for mink, fox, coyote, and raptors. Sedge meadows are particularly important for reptiles, amphibians and invertebrate species. They are important as feeding areas for shorebirds and waterfowls, especially during seasonal flood events.

Grasslands, including croplands, provide habitat for a variety of wildlife species—especially bird species and invertebrates. Sample and Mossman's (1997) "Managing Habitat for Grassland Birds" lists 105 species of birds that use grasslands for some part of their breeding cycle. Hayfields provide nesting habitat for ground nesting birds like pheasants and ducks, if mowing is delayed until after the nesting season. Crop fields provide food and cover for pheasants, deer, turkeys, Canada geese, raccoons and other species.

Original land surveys from 1835 indicate that the area immediately south of the wetlands of the Sheboygan Marsh held oak and oak savannah plant communities. Open landscapes continue to be maintained on the uplands on the south side of the Marsh by sharecropping with local farmers and planting areas to permanent grass cover. There are about 200 acres of land maintained in agricultural crops through sharecropping and 250 acres have been converted to and maintained in prairie grasses; prescribed burns are used to maintain grassland areas.

FIGURE 9
Sheboygan County Marsh Landcover Classification 2001

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TABLE 5 & FIGURE 9**

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TABLE 5
Acres of Cover Types

Interspersed among the upland habitats are small wetland areas; some have these have been developed or restored for wildlife habitat. There are two runoff ponds—7 acres and 12 acres—where water levels can be managed to enhance wetland habitat. There are also 4 dugout ponds. Wetlands have been restored in several areas, including two small wetland scrapes, a tile break, and a ditch block/scrape on state lands on the south side of the Marsh.

Fish Management History

The earliest fish management information is the documentation of a winterkill in 1939. The Sheboygan Marsh has a lengthy history of low oxygen levels in winter except in the South Ditch area. The South Ditch oxygen levels remain suitable to support fish during winter due to the inflow of well-oxygenated water from Elkhart Lake.

Winterkills and summerkills have been a common occurrence in Sheboygan Marsh. The kills are a natural process in the Marsh due to its shallow nature and the abundance of aquatic vegetation. In winter the decaying of vegetation uses most of the free oxygen in the main water body of the Marsh. In summer, extremely high water temperatures and low night-time oxygen levels cause periodic fish kills. A severe fish kill in September, 1986 was associated with a major flood as oxygen depleted water from flooded terrestrial areas entered the Marsh. The Marsh was drawn down the following year and the chemical rotenone was applied to remove approximately 90 tons of carp that remained following the 1986 fish kill. The Marsh was subsequently stocked with northern pike, panfish and largemouth bass.

Periodic fish stocking has taken place in Sheboygan Marsh since 1935. The stockings took place to facilitate recovery from fish kills and drawdowns. A variety of species have been stocked at various times including northern pike, bullhead, black crappie, bluegill, yellow perch, largemouth bass and walleye. The fishery continues to be dominated by natural populations of northern pike, bluegills, black crappie, yellow perch and carp.

A winter fish refuge was established in the South Ditch area from 1949 to 1968, apparently to prevent over-harvest by anglers. The refuge was apparently enforced only during times when the fish trap was operated. The fish traps were located at each end of the South Ditch to remove rough fish such as carp. The rough fish removal program was in operation as early as 1940 and continued until drawdown in 1968.

Conservation Warden Glenn Pople announced that the state's rough fish removal crew is again busy removing carp from the Sheboygan Marsh, and fish are on sale there now to the general public at a very low price. Those purchasing fish must bring their own containers. Fish weighing 5 pounds or less will be sold for 5¢ a pound and fish weighing over 5 pounds will cost 10¢ a pound.

*January 21, 1951
Sheboygan Press*

Drawdowns of the Sheboygan Marsh were conducted in 1968, 1984, 1987 and 1995. An unplanned natural drawdown occurred during a period of drought in 1988. The drawdowns were conducted to compact bottom sediments and to manage emergent aquatic plants. The fishery was negatively impacted by the drawdowns for several years as fish either migrated downstream or died during summer due to exposure to high water temperatures. The fish community recovered quickly in most instances due to both stocking and natural recruitment.

Fishing regulations for Sheboygan Marsh generally followed the standard statewide regulations with two exceptions. Sheboygan Marsh has been regulated by a continuous open gamefish season to allow the harvest of fish in winter that are vulnerable to winterkill. Northern pike were excluded from the Southern Wisconsin northern pike regulations (26" minimum size limit, 2 bag limit) in 1999. The current northern pike regulation for Sheboygan Marsh is no minimum size limit and 5 daily bag limit.

Fish Populations

Northern pike is the dominant gamefish species of Sheboygan Marsh. The population is comprised of mostly small fish (Figure 10), a condition that has persisted through time. The former 26" minimum size limit apparently did little to create a population of larger pike. Pike mortality in Sheboygan Marsh is likely more dependent to the periodic winter and summer kills than angler harvest.

Historically, yellow perch and pumpkinseed sunfish were the dominant panfish species of Sheboygan Marsh. Perch and pumpkinseed are best suited for waters that experience low oxygen conditions. Yellow perch appear to have

declined in abundance with recent drawdowns of the water level. Bluegill and black crappie appear to have increased in abundance and have provided good quality fishing for anglers near Sheboygan Marsh Park in recent years.

FIGURE 10
LENGTH FREQUENCY OF NORTHERN PIKE IN SHEBOYGAN MARSH – SPRING, 2000

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showing FIGURE 10**

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Black bullhead remain abundant in Sheboygan Marsh but, are generally small in size. Brown bullhead are fairly uncommon. Largemouth bass are present, mostly in the South Ditch area and occasionally provide good angling. White sucker, mudminnow and golden shiner provide forage for northern pike.

In general, the size and abundance of gamefish and panfish has fluctuated widely with drawdowns of water levels in Sheboygan Marsh. Experience has shown that the populations recover well within five years of a drawdown and can provide good angling opportunities especially near the Sheboygan Marsh Park area.

Fish Management Problems

The main water body of Sheboygan Marsh experiences low oxygen levels during most winters by mid-February. The decaying of submergent vegetation in the main water body results in low oxygen conditions. Fish that are unable to find areas of well oxygenated water either move downstream of the Marsh Dam or die. Fish that are able to move into the South Ditch area of the Marsh are able to survive because well oxygenated water enters the South Ditch from the outlet of Elkhart Lake.

Plant respiration in the main water body of the Marsh in summer can cause low oxygen levels as well. The problem is especially acute during periods of high water temperatures. Respiration effects are especially bad during night time hours when plant respiration is greatest and no oxygen is produced by photosynthesis. Northern pike and white sucker are most susceptible to summer kills.

Carp Abundance

Common carp appear to have become abundant in Sheboygan Marsh. Carp have been observed in large concentrations in the main water body, the South Ditch, and the outlet stream from Elkhart Lake. The greatest problem presented by the carp has been the uprooting of valuable waterfowl food in the form of submergent vegetation.

Total elimination of carp through the use of chemicals is not feasible in the Sheboygan River watershed above the Sheboygan Marsh Dam. Therefore, the only available means of control would be the harvest of carp from traps as they move into confined areas such as the South Ditch. A fish trap could be established near the north end of the South Ditch to capture many of the carp as they enter the South Ditch in search of well oxygenated water in winter.

Wildlife Management

A Sheboygan Press article of the time reported the following responses immediately after completion of the dam in 1938:

As the water backed up in the old drainage ditches forming a new Sheboygan lake, the wild fowl instinctively found this new haven and soon ducks of all kinds, bittern, coots, tern, killdeer, Florida Gallinule, marsh hawks, geese and great blue heron began to take up homes in the hidden recesses of the area. Conservation clubs and sportsmen planted wild rice and wild celery to keep the birds well fed. Muskrats soon found the marsh and the shy beaver, almost impossible to see, left evidence of his presence by his dams and houses and carefully cut down trees along the spoil banks. Other birds not of the aquatic variety also find the marsh a fine nesting place. Pheasants abound in the woods and fields around the edges of the marsh, and Virginia rails, yellow-billed cuckoos, song sparrows, rose breasted grosbeaks, martins, brown thrashers, several varieties of swallows and numerous other birds have all been seen in the marsh area.

State wildlife management staff have been active in the management of the Sheboygan Marsh since the 1950s. A management agreement that was part of the 1984 master plan detailed the roles and responsibilities of the county and state regarding management activities, including; habitat management, recreational uses, timber management, wildlife refuges, enforcement of public uses, water level management, and other areas.

The earliest state wildlife management information is found in a 1953 Pittman-Robertson report that summarized waterfowl habitat surveys by Wisconsin Conservation Department biologists from 1938 through 1952 (Zimmerman, 1953):

“The area of open water on the Sheboygan Marsh has been increasing in size since 1942. Previously, this particular area had a considerable stand of wild rice, hard stem and river bulrush, and some reed grass. When visited in 1949, the area of open water appeared to be at least 150 acres in size. It is believed that this increase in size of the open water area is due in a large measure to the high water level held at the dam.”

A faunal survey was done as part of a requirement for a Master of Science degree from Kansas State College of Agriculture and Life Sciences in 1939 and 1940 by E.F. Herman (1941). This survey documented reptile, amphibian, mollusks, plankton, fish, bird, and mammal species present on the marsh the first two years after being reflowed.

A management report done in 1958 by Game Manager, Les Neustadter included recommendations on wildlife refuge changes and observations on water level management. This report included some interesting hunter success data, presented below:

Year	Dates	No. Hunters	Birds Bagged		Birds Lost	
			Ducks	Coots	Ducks	Coots
1943	Sept 25	292	357	1,792	?	?
1947	Oct 7	23	45	42	6	?
1948	Oct 15,16,17	259	160	414	20	?
1949	Oct 14,15,16	441	371	650	182	?
1954	?	381	157	116	81	?
1955	Oct 1,2	394	381	87	137	?
1956	Oct 1,2,6,7	560	475	437	182	49
1957	Oct 1,5	286	360	156	79	8

Various wildlife and habitat surveys have been completed on the Sheboygan Marsh. Ruffed Grouse drumming surveys have been conducted since 1977 (Figure 11). Duck banding has been conducted on the Sheboygan Marsh annually since 1979 (Table 6). Hunter car counts and success on opening day of the waterfowl season have been recorded, almost every year, since 1965 (Table 7).

FIGURE 11
Sheboygan County Grouse Surveys

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TABLE 6 & FIGURE 11**

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TABLE 6
Summary of Duck Banding Records

TABLE 7
Duck Season Opening Day Surveys – Sheboygan Marsh

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TABLE 7**

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Some other historical activities included the stocking of different strains of mallard ducks (game farm vs. game farm crossed with wild birds); between 1966 and 1971 a total of 1,662 mallards were banded and released on the Sheboygan Marsh. Penned Canada Geese were used as an attraction, “decoy geese” to attract migrating geese to the Marsh in 1974 and 1975. Ninety-nine immature Giant Canada Geese were relocated from urban/suburban areas in Milwaukee and Washington counties between 1989 and 1992, in an attempt to establish a breeding flock on the Sheboygan Marsh, with some success.

Various areas of the Sheboygan Marsh have been designated as wildlife refuges over the years. A 1941 map found in local DNR files shows a refuge system that included four refuge areas (park, north, west, and south). Refuges are maintained to provide protection to waterfowl during the hunting seasons, and to maintain a population of waterfowl on the Marsh during the fall. The current refuge is one block of area on the southeast part of the marsh, comprising 1250 acres of land and water.

Habitat management activities in the 1960s included developing two flowage (~1.6 miles of dike and ditch systems) with water control systems (including electric pumps) on the south side of the marsh. Potholes were blasted in the flowage areas to add permanent water areas and a seven-acre runoff pond area was attached to the flowage on the state land. After many years of maintaining the dikes and water control systems without much success in attracting waterfowl, these pumping systems were abandoned in 1998. The runoff pond is still functional and attracts waterfowl into the refuge each fall.

An additional 10-acre runoff pond/wetland restoration was completed in 2000. Several other wetland restorations/enhancements have been completed on the south side to provide additional habitat for wildlife.

Habitat management activities include establishing and maintaining vegetative cover types, especially on upland areas on the south side of the marsh. Local farmers work under sharecrop agreements to maintain about 200 acres in agriculture to provide food and cover for wildlife on the south side of the marsh; especially for waterfowl, pheasants, deer, and small mammals. Approximately 250 acres of uplands have been converted to grasslands for ground nesting birds. Strips of tag alder (33 acres) were cut in 1990 and 1991 to improve their cover value for woodcock and ruffed grouse.

Wildlife management literature recommends that deep water marshes be managed to improve the distribution of emergent plants to provide the best habitat for most wetland wildlife species (Weller, 1981). Drawdowns allow aquatic vegetation a chance to germinate and grow in more areas of the marsh, providing more food and cover for wildlife. The abundance and variety of aquatic plants begins to decline after three or four years of maintaining normal water levels (see analysis of alternatives in Chapter 4).

Aquatic plant conditions are monitored each year to assess value to wildlife, and to monitor the area for exotic plant infestations. Purple loosestrife has been kept out of the marsh through a program of annual monitoring and control over the last 20 years.

Wildlife management activities include maintenance of three parking areas on state lands, and maintaining some three miles of internal access roads. Posting boundaries of public lands and posting approximately five miles of refuge boundaries are other work activities on the Marsh. Four service buildings are also maintained for equipment and supply storage on the state lands.

The Sheboygan Marsh has a diverse compliment of wildlife that is enjoyed by both hunters and nonhunters. The Sheboygan Marsh has been designated as a “Watchable Wildlife” area. It is designated as such on state maps and in Wisconsin’s Wildlife Viewing Guide. The Sheboygan County Outdoor Skills Center uses the Marsh for outdoor education on wetland ecology; hundreds of middle-school children go through the program each year.

An annual report on management activities of DNR staff has been completed each year since the 1984 master plan. The report has included a summary of water levels throughout the year, and anticipated activities for the next year.

TIMBER

The Sheboygan Marsh is about 50% forested. Major timber types include (1) Swamp Hardwoods, which are a mixture of soft maple, elm, black ash, northern white cedar, and tamarack; and (2) Northern Hardwoods, which are a mixture of upland species such as hard maple, basswood, and white ash. The forested acreage doesn't appear to be expanding and may even be diminishing. The high population of the white-tailed deer and a fluctuating water table are probably the primary reasons for the diminishing forest acreage.

Three major elements are responsible for the current timber types. They include soil type, ditching practices, and the water table.

- *Soils*

Trees will grow and thrive only as well as the soils allow. Water and soil nutrient availability are the two major elements that contribute to tree growth. The predominant soils in the Sheboygan Marsh are Palms, Houghton, and Boots Muck. All three soils are similar in nature. All were formed in depressional areas on old glacial lake plains, in stream valleys, or on outwash plains. They all are poorly drained soils, which are high in organic matter.

In a representative soil profile, the organic layers are 50-60 inches thick and the upper 12-16 inches are black muck. Natural soil fertility is low because of rapid leaching of nutrients. Because of the drainage, the soils are poorly aerated. Poor soil aeration generally leads to slow tree growth and, eventually, mortality.

- *Ditches & Channels*

Many years ago, ditches and channels were established as a means of lowering the water table; the intent was to create and market rich farmland. The effects of this channelization were beneficial for tree establishment between 1921 and 1937. Some fine stands of soft maple presently thrive along the channel system.

- *Water Table*

The tree root zone is limited by the water table. The water table throughout Sheboygan Marsh is at or near the surface the majority of the time. A slight rise in the water table of 6 inches or more could cause significant tree mortality. Thus, tree root systems are shallow and trees are subject to windfall before they reach maturity.

The high water table and slow moving groundwater restrict aeration (oxygen) and are responsible for extremely slow tree growth. A typical site index for black ash or tamarack under these conditions can be 30-40 (30-40 feet tall in 50 years). For example, a black ash that is 5 inches diameter breast high (DBH) can be 75-80 years old.

- *Past, Present, & Future Management*

Timber management and harvesting in the Sheboygan Marsh over the past 50 years has been minimal. Harvesting permits have been granted at various times to Sportsmen's Clubs to cut cedar posts. In 1975, Larry Baer, the local DNR forester, conducted an elm salvage sale. Mature stands of white cedar, soft maple, and tamarack do exist and could be commercially thinned. However, poor equipment accessibility and wet soil conditions make removal almost impossible.

If harvesting were to occur, it is feared that the white cedar type, for example, would be eliminated due to the high deer populations which browse on cedar regeneration. The cedar type serves as a deeryard over the cold winter months, when food for deer is scarce. The soft maple stands could also be lost by over-harvesting. Soft maple stands that are harvested too heavily can easily revert into canary grass. Once canary grass invades a site, tree growth gets choked out.

- *Recommendations*

- (a) Maintain the present timber types. Timber harvesting should be restricted, and respond only to insect and disease epidemics, or natural disasters such as wind and ice storms.
- (b) Maintain the forested acreage for recreational and wildlife management purposes.
- (c) Attempt to increase, or at least maintain, the current forested acreage by controlling the current water levels in the marsh.

ARCHAEOLOGICAL & HISTORICAL CHARACTERISTICS

The Sheboygan Marsh is one of a number of extensive wetland systems in east-central Wisconsin that are situated atop the Niagara Escarpment (also known as Cuesta). This escarpment or cuesta is one of the major topographic features of the geographic province designated as the Eastern Ridges and Lowlands of Wisconsin.

The Sheboygan Marsh is one of several reservoirs of the Sheboygan River. The Marsh is essentially an eutrophic glacial lake formed by meltwaters of the last Wisconsinan glaciation that, along with till and other sediments, filled the pre-glacial valley of the Sheboygan River. The Physical Geography of Wisconsin (1965) notes,

The latter was formerly a lake, for it has beach ridges, wave-cut cliffs, and ice ramparts. The swamp covers 15 4/5 square miles. It was originally occupied by a body of water a little larger than Lake Mendota at Madison. Borings show that it was at least 45 feet deep. It has 9 feet of peat at the surface, underlain by marl and clay. Elkhart lake is a part of the original Sheboygan Lake. There was also a shallow lake in the middle of the present marsh before 1868. In that year \$50,000 was expended in an attempt to drain the marsh, half of this sum being provided by the state.

In spite of its large size and suspected glacial history, little extensive geophysical study has been conducted at the Sheboygan Marsh and its history is undoubtedly more complex than presently documented.

This archaeological and historical perspective was prepared by David F. Overstreet, Ph.D., President of Great Lakes Archaeological Research Center, Inc., and published in *Archaeological Investigations in the Sheboygan River Watershed, 1989–1990 Narrative Summary*.

Prior to clearing in the early- to mid-19th century, the Sheboygan Marsh region was characterized by southern hardwood forest. Both mesic and xeric components are in abundant evidence with oaks, maples, and pines at higher elevations. At lower elevations, water tolerant species such as black ash and tamarack are predominant. Because northwestern Sheboygan County is within the limits of the so-called tension zone, pockets of conifer-hardwood forest also may have been major elements of the floral communities surrounding the Marsh. In addition, a few pockets of prairie or oak openings may have occurred here, but at the time of historic contact the nearest major distribution of these communities was found in east-central and northeast Fond du Lac County.

Detailed post-glacial vegetation succession has not been developed for Sheboygan County, but it is likely that the immediate post-glacial habitat, from approximately 12,000 to 10,000 BC, was a mixed tundra spruce forest. With warming and drying, pines began to replace the spruce some time after approximately 9,000 to 8,000 B.C. With continued lengthy periods of drought and dry period, the mid-Holocene hypsothermal, oaks and the associated southern hardwood species became the dominant arboreal species. There has likely been little vegetational change in the region from approximately 3000 BC to the advent of historic period land clearing.

Undoubtedly the major floristic communities were exploited by prehistoric populations for mast crops, large and small mammalian species that occupied the forests, and other understory plant resources. However, the concentrated and abundant aquatic species of plants and animals certainly provided the major elements of subsistence for the region's prehistoric populations up until about AD 1000, at which time corn horticulture was introduced into the region.

Fish, waterfowl, aquatic mammals (especially muskrat and beaver), and turtles were easily acquired by the residents of the marsh fringe. Aquatic tubers also were an important food source for the prehistoric residents. The marsh/lake seemed the key to local subsistence.

Archaeological investigations conducted in and around the Sheboygan Marsh during the 1980s/1990s have yielded significant results. Surveys resulted in the identification and verification of nearly 100 prehistoric archaeological sites within the limits of the Sheboygan Marsh tract owned by Sheboygan County, or immediately adjacent to these public lands. Archaeological site locations have been mapped, but are not included in this Plan due to the risk of unwarranted or illegal exploitation.

These sites demonstrate that the Marsh environs encompass virtually the entire spectrum of prehistoric occupation in Wisconsin. For approximately 12,000 years, prehistoric inhabitants of the region utilized the post-glacial lake and its extensive aquatic habitats for both hunting and gathering.

Collectively, the known and suspected historic and prehistoric archaeological sites represent a vast storehouse of potential research with regard to aboriginal lifeways following the end of the last glacial advance.

The contexts in which these archaeological sites occur and their surrounding marsh/bog environs present superior opportunities to reconstruct the ecological setting within which human adaptations took place. The deep peat records of the Marsh contain a pollen record of climatic variations following the demise of the Wisconsin ice sheets. They also, likely, include plant macro-fossils of twigs, bark, seeds nuts, algae, and fungi, all useful indices of past climate and flora. The record of fossil remains of such forms as mastodon, mammoth, musk ox, barren ground caribou, dire wolf, giant beaver, and big horned bison is significant, but spotty. The Sheboygan Marsh provides, because of its periodic draw-downs, a fine opportunity to implement such research.

The Broughton Sheboygan Marsh Park is a focal point for public use and interpretation. Numerous federal and state surveys relating to tourism interest have demonstrated that historic and archaeological sites are consistently near the top of stated reasons why travelers select certain locations. Coupled with regional emphases on ice-age landscapes and interpretive centers, the Sheboygan Marsh is a most appropriate locality to enhance the interpretation of human activity from the last glacial recession to historic times.

Archaeologist Alphonse Gerund, in 1920, noted:

The Sheboygan marsh, an extinct lake of about the size of Lake Mendota at Madison, still indicated on maps as Sheboygan lake occupies the northwest corner of the county. This marsh or lake and surrounding area is undoubtedly one of the most interesting regions in Wisconsin from the standpoint of its Indian remains, village sites, hunting and fishing grounds. Its banks were one continuous village site. Here the Indian probably made his last stand in the county, until about 1870, when he left to seek another home.

Gerund continued:

Almost everywhere along its margin have been found numerous Indian artifacts. Numerous collections of these from these banks and surrounding territory have been made. Specimens found here have been scattered widely throughout the county. Many have found their way to larger collections in Wisconsin, into eastern museums, as the Smithsonian and the Museum of Natural History, New York. The H.H. Hayssen collection now in the Milwaukee Public Museum was largely collected here.

Archaeological investigations in the Sheboygan River watershed, focused on the Sheboygan Marsh area, demonstrated that the preservation and research potential for cultural resources is inordinately high. Historic and prehistoric archaeological sites in intimate association with deep sedimentary, saturated contexts also provides a unique opportunity to reconstruct not only the lifeways of the past 10,000-12,000 years, but also to develop an absolute chronology and description of the post-ice age habitats to which these past populations adjusted those lifeways.

Some of the newly reported sites may have been cited in the literature (e.g., Gerund 1920, Thomas 1894) and collections from the sites are housed locally in private hands, at the Smithsonian Institution, the Milwaukee Public Museum, the State Historical Society of Wisconsin, and the Museum of The American Indian – Heye Foundation. In this respect, documentation is certainly not complete and refinement of this information should be an on-going process.

DAMSITE & WATERFRONT

The permanent dam on the Sheboygan River at the northeastern-most corner of Sheboygan Marsh was completed under the federal Works Progress Administration (WPA) during 1937 & 1938.

The county's 1937 dam construction application to the Public Service Commission Of Wisconsin stated that its purposes are *To maintain a constant water level in the Sheboygan Marsh, for fire protection and conservation purposes.*

The concrete structure has a height of 8 feet, with a top width of 65 feet and a base width of about 90 feet. During the 1990s, Sheboygan County made routine repairs to the concrete spillway and wingwalls as well as to the banks above and below the dam. The Wisconsin Department of Natural Resources has determined the dam to be in very good condition.

In 1968, a 250-foot long bypass pipe, 5 feet in diameter, was constructed just north of the dam to facilitate raising and lowering the water levels. It is operated manually, employing a worm gear and pinion. (The county replaced the bypass control valve and catwalk in 1993, enabling easier operation and access.) The bypass enables the complete drawdown of the Marsh; however, with a watershed of about 133 square miles (about 85,000 acres) draining to this tiny damsite and bypass, it is totally ineffective at “controlling” water levels, particularly following even modest precipitation or spring thaws.

Two large fishing piers are located on the south and north sides of the Sheboygan River above the dam in the Marsh Park. These piers were sponsored by and are maintained by the Winooski Bowmen's Club and Koenig's Conservation Club, respectively. A series of fishing platforms along the South Ditch, also in the Marsh Park, were sponsored by the Johnsonville Rod & Gun Club.

The collection and removal of floating cattail bogs at the damsite is an on-going (and expensive) maintenance responsibility for the county. A log boom has been cabled upstream of the dam to prevent overtopping or blockage, and to accommodate bog retrieval. A second log boom has been placed in advance of the South Ditch to prevent bog entry. In the late-1990s, a \$20,000 concrete approach was completed above the dam to better accommodate the backhoes used to pick out the floating bogs which are manually pushed from boats toward shore by DNR staff.

A fairly primitive, two-lane concrete boat ramp exists on the north shore, adjacent to the Koenig's Conservation Club pier and the large north side gravel parking lot. It provides adequate access to Marsh users.

A small concrete wharf and a “sand ramp” exist on the south shore, adjacent to the Winooski Bowmen's pier, to accommodate the Marsh Park's watercraft rentals as well as transient users.

REGIONAL CONTEXT

At 14,000 acres (8,166 publicly owned), *Sheboygan Marsh* is regionally significant and ecologically important.

It accommodates a wide variety of outdoor recreation activities. However, it is most ecologically well-suited, and widely recognized, for its wildlife habitat of statewide significance. Its primary importance as a migratory waterfowl spring nesting and fall staging area is well understood in the scientific community. As such, its management has focused on wildlife, and waterfowl hunting has always been the premiere recreational activity enjoyed at *Sheboygan Marsh*. However, competing recreational demands—and incompatible recreational uses and users—threaten those special ecological characteristics and wildlife values.

In the overall management regime at *Sheboygan Marsh*—e.g., wildlife, fish, forestry, water levels—fish and fishing must be considered a “*bonus*” resource and activity. The aggressive management for an “optimal fishery” would compromise the sound, and priority, management for wildlife, forestry, and vegetation, and could upset the ecological balance at *Sheboygan Marsh*.

Boating, snowmobiling, ATV riding, and other emerging recreational activities are also of concern, and are questionably compatible with optimal wildlife habitat, management, and the *Sheboygan Marsh* ecosystem.

As detailed in Chapters 4 and 5, one of the 6 Priority Strategic Issues identified in the public input process was set forth as follows: *Issue #4. Resources Should Be Kept Primarily For Hunting & Fishing Due To Declining Opportunities Throughout The County. (Involve Ducks Unlimited.)*

As illustrated in Chapter 3, there are many other area lakes, streams, trails, and parks available in this region to accommodate fishing, boating, snowmobiling, ATV riding, and other recreational demands. A dozen popular and productive fishing lakes lie a short distance from, or within a 30-minute drive of, *Sheboygan Marsh* – Elkhart Lake (whose outlet feeds the Marsh), Crystal Lake, Gerber Lakes, Little Elkhart Lake, Jetzer Lake, Lake Ellen, Random Lake, Crooked Lake, Long Lake, Beechwood Lake, Lake Seven, and Wolf Lake. Moreover, some of the best fishing and water recreation in North America are available a short drive east or west on Lake Michigan and Lake Winnebago, respectively. Plus, several hundred miles of public snowmobile and multipurpose trails exist in Sheboygan County and the nearby Calumet, Fond du Lac, and Manitowoc counties.

Sheboygan Marsh should not be expected to accommodate the diversity of increasingly incompatible recreational uses. In 2001, the public seems to recognize the *Sheboygan Marsh* has a “*carrying capacity*” that is being approached and needs to be addressed.

The Broughton Sheboygan Marsh Park & Wildlife Area enjoys an interesting regional context. Figure 12 illustrates its geographic location in relation to the following nine State Wildlife Areas, listed in order of nearness to Sheboygan Marsh:

- Kiel Marsh Wildlife Area (Map #2)
- Mullet Creek Wildlife Area (Map #3)
- Killsnake Marsh Wildlife Area (Map #4)
- Collins Marsh Wildlife Area (Map #5)
- Nichols Creek Wildlife Area (Map #6)
- Eldorado Wildlife Area (Map #7)
- Brillion Wildlife Area (Map #8)
- Theresa Marsh (Map #9)
- Horicon Marsh Wildlife Area (Map #10)

No shallow marsh and wildlife area comparable with Sheboygan Marsh—at 14,000 acres, 8,166 publicly owned—exists in Sheboygan County. Thus, the sound management and protection of its unique ecosystem is crucial, particularly as open space lands are increasingly converted to developed uses in this growing southeast quadrant of Wisconsin.

The most noteworthy State of Wisconsin Wildlife Areas which form the regional context of *Sheboygan Marsh* are depicted in Figure 12 and profiled below:

- **Kiel Marsh Wildlife Area** (Map #2). 833 acres, lying along the Sheboygan River along a 3-county boundary at north-central Sheboygan County, southwest Manitowoc County, and southeast Calumet County. It features public hunting and fishing, wildlife observation, and nature-based outdoor recreation. The Kiel Marsh Wildlife Area is located just 4 miles north of Sheboygan Marsh.
- **Mullet Creek Wildlife Area** (Map #3). 2,177 acres, lying east of Mullet Lake in east-central Fond du Lac County. It features public hunting and fishing, wildlife observation, and nature-based outdoor recreation. The Mullet Creek Wildlife Area is located about 10 miles southwest of Sheboygan Marsh.
- **Killsnake Marsh Wildlife Area** (Map #4). 5,777 acres, lying along the south-central boundary of Calumet and Manitowoc counties. It features public hunting, wildlife observation, and nature-based outdoor recreation. The Killsnake Marsh Wildlife Area is located about 12 miles north of Sheboygan Marsh.
- **Collins Marsh Wildlife Area** (Map #5). 5,434 acres, lying in central Manitowoc County. It features public hunting, wildlife observation, and nature-based outdoor recreation. The Collins Marsh Wildlife Area is located about 14 miles north-northeast of Sheboygan Marsh.
- **Nichols Creek Wildlife Area** (Map #6). 1,000 acres, lying within the Northern Unit, Kettle Moraine State Forest, in southwest Sheboygan County. It features public fishing on Nichols Creek, a Class I trout stream, plus public hunting, wildlife observation, and nature-based outdoor recreation. The Nichols Creek Wildlife Area is located about 12 miles south of Sheboygan Marsh.
- **Eldorado Wildlife Area** (Map #7). 6,371 acres, lying in north-central Fond Du Lac County. It features public hunting, wildlife observation, and nature-based outdoor recreation. The Eldorado Wildlife Area is located about 24 miles west of Sheboygan Marsh.
- **Brillion Wildlife Area** (Map #8). 5,159 acres, lying in the northeast corner of Calumet County. It features public hunting, wildlife observation, and nature-based outdoor recreation. The Brillion Wildlife Area is located about 20 miles north of Sheboygan Marsh.
- **Theresa Marsh** (Map #9). 5,499 acres, lying just east of the famous Horicon Marsh, at the Washington County and Dodge County boundary. It features public hunting, wildlife observation, and nature-based outdoor recreation. The Theresa Marsh is located about 26 miles southwest of Sheboygan Marsh.
- **Horicon Marsh Wildlife Area** (Map #10). 11,009 acres, lying in central Dodge County. This internationally famous waterfowl nesting and staging area—primarily Canada geese—also features public hunting and fishing, unparalleled wildlife observation, and nature-based outdoor recreation. The Horicon Marsh Wildlife Area is located about 30 miles southwest of Sheboygan Marsh.

FIGURE 12
Regional Context: *Sheboygan Marsh* & Comparable State of Wisconsin Wildlife Areas

**CLICK HERE for page
showing FIGURE 12**

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CHAPTER 3. RECREATIONAL ACTIVITIES: DEMANDS & NEEDS

INTRODUCTORY COMMENTS

Chapter 1 of this Plan describes in rich detail the evolution of *Sheboygan Marsh*...from “swampy desolation” (Sheboygan Press, 1919) to a drained “garden city” to a restored “vast marshland” (Sheboygan Press, 1940), “rare beauty spot” and “hunter’s paradise” (Sheboygan Press, 1942).

As described in both Chapters 1 and 3 of this Plan, *Sheboygan Marsh* accommodates a wide variety of outdoor recreation activities. However, it is most ecologically well-suited, and widely recognized, for its wildlife habitat of statewide significance; its primary importance as a migratory waterfowl spring nesting and fall staging area is well understood in the scientific community. As such, it has been managed accordingly, and waterfowl hunting has always been the premiere recreational activity enjoyed on the Sheboygan Marsh.

The Sheboygan Press captured “opening day” in a series of photographs in its October 3, 1938 edition; it is reproduced on the following page.

HUNTING & SPORT SHOOTING

Hunting—whether big game or small game, waterfowl, or upland gamebird—is undoubtedly the most popular outdoor recreational activity enjoyed at Sheboygan Marsh. Wildlife habitat of such size and complexity as that found at Sheboygan Marsh is rare in this region of Wisconsin. Thus, it enjoys popularity from a wide geographical area.

Hunting and sport shooting are virtually a part of the heritage of Wisconsin and Sheboygan County as well. The hunting tradition is weaved into the fabric of this state and this county.

Father Of Restoration Of Marsh Declares It Will Be Open To Hunters Forever

This announcement was made by C.E. Broughton...to definitely brand false a recent rumor that the marsh was going to be converted into a wildlife refuge, and Mr. Broughton pledged that as long as he and his associates live, as long as a state conservation department exists, this will never come to pass.

*September 9, 1940
Sheboygan Press*

Wisconsin’s *State Comprehensive Outdoor Recreation Plan 1991-1996* recorded 650,000 hunters and sport shooters aged 18 and older in the state; that’s 17 percent of the adult population. Wisconsin ranks 4th in the nation in number of hunters. The national total is 14 million, or 7 percent of the nation’s population.

Because of its greater rural character, open spaces, and outdoors affinities compared with Wisconsin’s populous urban centers, Sheboygan County’s participation rate probably exceeds that statewide 17 percent greatly. But, at 17 percent and a 110,000 population, Sheboygan County would have nearly 19,000 hunters and sport shooters. [Sport shooting activities include sighting in a gun, shooting at clay pigeons, archery, and target shooting with rifle or handgun. Hunting activities include hunting deer (firearm or bow), waterfowl, upland birds, small game, turkey, and other animals.]

Over 84 percent of Wisconsin hunters hunted deer (gun and bow). Small game were hunted by about 48 percent, upland birds by about 45 percent, and waterfowl by about 30 percent.

The game animals available in Sheboygan County, and particularly at Sheboygan Marsh, are illustrated in Table 8.

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graphic, Page 54**

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The U.S. Fish & Wildlife Service and U.S. Census Bureau report that during 1996, nationally, 14 million hunters spent \$20.6 billion to support their hunting activities...\$1,492 per capita. It also reported that 8 percent of Wisconsinites hunt.

At 8 percent and 110,000 people, Sheboygan County would have nearly 9,000 "hunters." Above, it was estimated the county had 19,000 "hunters and sport shooters." If we select a range of 9,000 to 19,000, with each spending the

average \$1,492...a fairly reasonable expectation...total expenditures would range from \$13.5 to \$28 million by Sheboygan County hunting enthusiasts. Clearly, the economic impact of hunting is significant and commands attention in long-range outdoor recreation planning.

Statewide, lands closed to hunting, crowding, and lack of high quality public hunting land are the chief problems faced by hunters. In Sheboygan County, these problems are evident, particularly due to the impact of the 150,000 – 300,000 hunters in the urban areas of southeast Wisconsin seeking open spaces and farmlands further north (Table 9).

By any measure, good habitat for Sheboygan County’s game populations, and hunting opportunities, are being squeezed by residential and commercial development sprawling out onto rural farmlands, woodlands, and environmental corridors. Permanent protection of such natural areas...particularly identified environmental corridors...must be a “high priority” in planning efforts to preserve prime wildlife habitat and to provide quality hunting opportunities.

TABLE 8

GAME ANIMALS IN SHEBOYGAN COUNTY AND AT SHEBOYGAN MARSH: 1990’S STATUS

SPECIES	ABUNDANCE	PROBABLE FUTURE STATUS
White-Tail Deer	Abundant	Increase
Cottontail Rabbit	Abundant	Same
Gray Squirrel	Abundant	Increase
Fox Squirrel	Common	Same
Turkey	Abundant	Increase
Ring-Necked Pheasant	Common	Same
Hungarian Partridge	Rare	Same
Ruffed Grouse	Rare to Common	Same
Woodcock	Common	Same
Canada Goose	Abundant	Increase
Ducks	Abundant	Increase
Red Fox	Common	Same
Gray Fox	Common	Same
Coyote	Common	Increase
Raccoon	Abundant	Same
Mink	Common	Same
Otter	Rare	Increase
Muskrat	Abundant	Increase
Beaver	Rare	Increase

SOURCE: Sheboygan County Planning & Resources Department; Wisconsin Department of Natural Resources.

TABLE 9

**County, State, & Federal Public Conservation Recreation Land
By Ownership In Sheboygan County: 1998**

Sheboygan County		Wisconsin DNR			United States	Total County, State, Federal Ownership	Gross Area of County	Percent County, State, Federal Ownership
Parks & Open Space	Forests	Parks	Fisheries	Wildlife	Fish & Wildlife			
7,706 acres	15,520 acres	919 acres	1,070 acres	2,227 acres	300 acres	27,742 acres	331,249 acres	8%

FISHING

Fishing has always been one of the most popular, and productive, outdoor recreational activities at the Sheboygan Marsh – enjoyed during all 4 seasons, by young and old alike.

In the overall management regime at Sheboygan Marsh—e.g., fish, wildlife, forestry, water levels—fish and fishing must be considered a “bonus” resource and activity. The aggressive management for an “optimal fishery” would compromise the sound, and priority, management for wildlife, forestry, and vegetation, and could upset the ecological balance at Sheboygan Marsh. Nonetheless, the open waters of Sheboygan Marsh will remain attractive for fishing, whether from boats, piers, shores, or through the ice.

Most fishing effort is directed at panfish, specifically bluegill, yellow perch and black crappie. Anglers also target northern pike, especially in winter through the ice. Black bullheads generally are small in size, but provide fishing action for many anglers.

There have been many efforts to improve and supplement the fish population near the Marsh Park through stocking. Local conservation clubs have donated funds and manpower to move fish to the Marsh from nearby waters. Their effort is an indication that the demand for quality fish in the Marsh exceeds the availability of those fish.

Wisconsin’s *State Comprehensive Outdoor Recreation Plan 1991-1996* identified fishing as one of the highest recreational needs for the Southeast District of the state, including Sheboygan County.

The U.S. Fish & Wildlife Service and U.S. Census Bureau report that during 1996, nationally, 35 million anglers spent \$38 billion to support their fishing activities...\$1,080 per capita. It also reported that 18 percent of Wisconsinites fish.

At 18 percent and 110,000 people, Sheboygan County would have nearly 20,000 anglers. With each spending the national average of \$1,080...a reasonable expectation...Sheboygan County angler expenditures would total \$21.4 million. Clearly, the economic impact of fishing is significant and commands attention in long-range outdoor recreation planning.

Fishing is particularly popular in Sheboygan County with its splendid access to giant Lake Michigan as well as its 2,647 acres of inland fishable surface waters (1,647 acres of inland lakes and 1,000 acres of rivers and streams). (See Table 10.)

TABLE 10
FISHABLE INLAND SURFACE WATERS (IN ACRES)

Beechwood Lake	11	Crystal Lake	152
Butler Lake	7	Lake Ellen	121
Crooked Lake	91	Little Elkhart Lake	48
Gerber Lakes	23	Random Lake	213
Lake Seven	26	Sheboygan Lake (Marsh)	640
Jetzer's Lake	15	Rivers and Streams Fished	1,000
Elkhart Lake	300	TOTAL ACRES	2,647

SOURCE: Sheboygan County Planning & Resources Department.

TRAPPING

Sheboygan Marsh is home to an abundance of furbearing animals. Its habitat is ideal, and its management practices have been largely favorable since the facility was restored in 1938.

Trapping and the Sheboygan Marsh have been synonymous for centuries...indeed dating back perhaps 12,000 years to its earliest native occupations. Those early inhabitants' very survival depended upon their successful trapping and hunting for food, clothing, and shelter.

Centuries ago, beaver, otter, mink, muskrat, raccoon, coyote, wolf, red and gray fox were found in abundance. Today, with the exception of beaver, otter, and wolf (all fairly rare at this marsh), these species remain common-to-abundant. (See Table 8.)

While trapping opportunities remain good at Sheboygan Marsh, the popularity of trapping appears to be in decline, both locally and nationally. Trapping never was a *mainstream* activity. It is a specialty, requiring a stealth uncommon among outdoor pursuits.

The market for wild population pelts and furs remains depressed. The demographic trend among participants is downward; the art and science are not being passed down to new (and increasingly urbanized) generations. Regulations have become more stringent. Further, public attitude toward trapping is, unfortunately and unjustifiably, growing more negative.

BOATING/CANOEING

Water recreation has changed a lot over the past 25 years. Personal watercraft (jet skis), wave riders, sailboards, and kayaks are now as familiar on Wisconsin waters as are the common aluminum rowboats; 100 to 200 horsepower motors, and higher, are the norm. In addition, while water users jockey for space at overcrowded boat landings, communities grapple with shoreline degradation and limiting access to lakes and rivers.

These issues are clearly evident on Sheboygan County lakes, especially since the county lies less than a 1 hour drive from 1 million people and just 2 hours from over 3 million. Sheboygan Marsh is also experiencing increasing pressures from increasing watercraft types and uses.

As illustrated in Table 11, Sheboygan County's 2001 boat registration totaled 8,994. That's an average of nearly 1 boat for every 13 persons. This is slightly below the statewide average of 1 boat for every 11 persons. As Table 11 also indicates, the growth rate over the last two decades has slowed in Sheboygan County and its neighboring counties, while it has increased sharply statewide. Area and coastal county boat registration comparisons are shown below.

TABLE 11
SELECTED WISCONSIN COUNTY BOAT REGISTRATIONS

COUNTY	1984	1990	PERCENT CHANGE 1984-1990	1995	PERCENT CHANGE 1990-1995	2001	PERCENT CHANGE 1995-2001
Manitowoc	5,720	6,568	14.8%	7,131	8.6%	7,266	2.0%
Fond du Lac	6,739	7,630	13.2%	8,444	10.7%	8,930	5.8%
Sheboygan	7,115	8,023	12.8%	8,635	7.6%	8,994	4.2%
Washington	7,352	9,116	24.0%	10,659	16.9%	11,130	4.4%
Ozaukee	4,547	5,131	12.8%	5,558	8.3%	5,094	-8.3%
Milwaukee	41,151	40,166	-0.2%	36,848	-8.3%	29,334	-20.0%
Racine	10,193	11,663	14.4%	12,843	10.1%	13,356	4.0%
Kenosha	6,933	7,940	14.5%	8,978	13.1%	10,043	11.9%
Wisconsin	399,110	455,580	14.1%	476,747	4.6%	554,574	16.3%

SOURCE: Wisconsin Dept. of Natural Resources; Sheboygan County Planning & Resources Dept.

According to the state's 1986-1991 *State Comprehensive Outdoor Recreation Plan (SCORP)*, statewide participation in canoeing is estimated at 150,500 or 4.3% of all Wisconsin adults, placing fifth in popularity among all recreational activities. An average of 4.3 hours are spent canoeing, ranking third behind backpacking and snowmobiling.

The popularity of canoeing is expected to increase in the next five years. SCORP has given a "medium priority" rating for development/improvements to help provide for increased participation. A SCORP survey of canoeists cited information, development of public access points, markings, and developed portages as needed improvements.

Within Sheboygan County, 34.5 miles of rivers are customarily used by canoeists during the canoeing season, with almost double this amount available in spring and early summer. Portions of the Sheboygan and Pigeon Rivers...and particularly the Sheboygan Marsh...are very popular spots for canoeists.

Based upon discussions between the Sheboygan County Planning & Resources staff and local canoeing enthusiasts, needed improvements in Sheboygan County parallel those identified in the SCORP document; trail information and development of portages were singled out as high priority improvements to alleviate increasing congestion.

SNOWMOBILING, ATV RIDING, & NORDIC SKIING

The frozen waters at Sheboygan Marsh—some 675 acres of Main Lake, Sheboygan River, and 21 miles of ditches—become a true "winter wonderland" for snowmobilers, ATV riders, and nordic skiers. Furthermore, the Broughton Sheboygan Marsh Park lies on Sheboygan County's popular, 199-mile public snowmobile trail system.

The accommodation of these activities is a "double edged sword." While the user enjoyment and attendant economic impact seem clear, these rapidly growing activities threaten to overwhelm the "carrying capacity" of available Marsh acreage – most notably when snow is deficient and the 199-mile trail system is closed. Excessive speeds (100 mph+), an overabundance of users in a fairly concentrated area, and illegal encroachments onto adjoining public and private properties are key problems presently. Improved management and enforcement are warranted.

In just the past decade, ATV numbers have grown from a few hundred unregulated machines to a total year 2001 DNR registration of 10,691 for this 6-county region, as follows:

• Calumet	1,239
• Fond du Lac	2,466
• Manitowoc	2,125
• Ozaukee	884
• Washington	2,393
• SHEBOYGAN	<u>1,584</u>

TOTAL 10,691

Those 10,691 machines in those 6 adjoining counties represent over 8 percent of the statewide total of 131,310 ATVs.

Since no ATV trails exist in Sheboygan County (and few in the others), the Sheboygan Marsh and that area's lakes have become the most popular destination for ATV operators.

The year 2001 DNR snowmobile registration for the same 6-county region is also dramatic...exceeding 9 percent of Wisconsin's 236,933 total...as follows:

• Calumet	2,569
• Fond du Lac	4,228
• Manitowoc	3,850
• Ozaukee	2,205
• Washington	5,408
• SHEBOYGAN	<u>3,899</u>

TOTAL 22,159

In late-1998, Sheboygan County enacted an Ordinance (Chapter 25, County Code of Ordinances) that set forth very specific and reasonable snowmobile operation regulations at Sheboygan Marsh. It did so,

*[B]ecause of the high potential for property damage
and bodily injury resulting from uncontrolled usage*

&

*[T]o secure for the public the quiet, orderly, and
sustainable use and enjoyment of the Broughton
Sheboygan Marsh Park & Wildlife Area*

As a "State Managed" facility (pursuant to the formal 1984 "Sheboygan Marsh Management Agreement" between Sheboygan County and WDNR, consistent with Chapter NR 45, Wisconsin Administrative Code), motorized vehicles are prohibited on the *public lands* of the Sheboygan Marsh Wildlife Area, except in expressly designated areas.

Therefore, while snowmobiles, ATVs, and other motorized recreational vehicles may legally be used "at your own risk" on the frozen surface of all public waterways, only the following three designated areas permit access onto the ice:

- Public accesses in the 30-acre Broughton Sheboygan Marsh Park
- Hunters Court public access south of St. Anna
- St. Cloud public access to Sheboygan River

In particularly the recent decade, these vehicles have damaged vegetation and wildlife habitat in some of the most environmentally sensitive areas of Sheboygan Marsh. Noise has also become a nuisance for some users of the Marsh and for some neighboring landowners.

The popularity of snowmobiling, coupled with the dramatic growth of ATVs and other motorized vehicles, demand the attention of those responsible for the wise management of Sheboygan Marsh. The effective enforcement of existing laws is crucial. This *Plan* will identify strategies for action in Chapters 4 and 5.

PLEASURE DRIVING & WILDLIFE VIEWING

The *Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005* reaffirms that *Pleasure Driving* (nearly 70% participation) and *Wildlife Viewing* (nearly 60% participation) continue to be two of the most popular recreational activities enjoyed by Wisconsin adults. (See Figures 13 & 14.)

FIGURE 13 Tier I Activities

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FIGURE 14 Tier II Activities

Snowmobiling (about 14%), canoeing (about 17%), hunting (about 23%), power boating (about 40%), and fishing (about 50%) are far surpassed among the broad population by the passive leisure activities of pleasure driving and wildlife viewing.

The popularity of those passive activities at the Sheboygan Marsh is likely to mirror, or exceed, that of the state as a whole. First, Sheboygan County's population is somewhat older than the statewide population, and more drawn to passive versus active pursuits. Second, the *Broughton Sheboygan Marsh Park* is designed in such a manner that observation of the area's resources is easily accomplished from both vehicles and on foot. Third, during the 1990s the DNR designated Sheboygan Marsh as a statewide "Wildlife Viewing" area, published a registry, and placed appropriate logo signs along principal transportation routes. Finally, Sheboygan County maintains a popular, full-service restaurant and tavern (*Marsh Lodge*) within the Park that provides a delightful visitor destination.

Sheboygan Marsh provides many opportunities for observing a wide variety of wildlife (game and non-game), fish, and plants, whether from within the developed Park, at several mapped parking/walk-in points around the 13,000-acre Wildlife Area, and along lightly traveled perimeter roads.

Sound land use planning and zoning controls, limited development, and continued wildlife, fish, and forestry management are the keys to ensuring that Sheboygan Marsh remains an inviting, exciting, and unique visitor destination.

NATURE STUDY PROGRAMS

While nature study programs have traditionally been aimed at our youth, organized programs are becoming more and more popular with adults. The public increasingly voices concerns about the environment, and increasingly wants to learn about changes to the natural world and what part individuals might play. The decline in such outdoor skills as hunting, trapping, orienteering, outdoor survival, and even fishing, plus the lack of an environmental ethic among the public, have been identified as problems facing the future of outdoor recreation in Wisconsin, and indeed Sheboygan County.

It is noteworthy that the *Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005* identifies the following Priority Issue:

*Overall, People Lack Outdoor Skills & Ethics & Knowledge
of Available Outdoor Recreation Opportunities*

Sheboygan Marsh is a natural classroom; and, it has become a home to one of Wisconsin's pioneering, and most successful, outdoor education programs – the *Outdoor Skills and Education Center, Inc.*

The *Center* (formally merged with the Sheboygan County YMCA in 2001) provides a wide variety of hands-on outdoor skills training and education to tens of hundreds of school children—actually about 1,200 each year since 1995—from school districts throughout the county, and to adults as well. At the Sheboygan Marsh, the focus is on wetlands ecology, plant and animal identification, canoeing, fishing, and related outdoor skills and appreciation.

Sheboygan Marsh has also been described as a "natural classroom" by visiting archaeologists who have conducted major field investigations at and around the facility. These investigations are detailed in Chapters 2 and 4 of this *Plan*.

The *Broughton Sheboygan Marsh Park* managers are exploring presently (2001) the possibility of conducting guided boat tours on the Sheboygan Marsh, with a focus on its history, its wildness, and its splendor.

As these nature study opportunities evolve, county leadership and Marsh managers should be cautioned to ensure that (a) all programs leave a "soft footprint," and (b) should minimize conflicts with hunting, trapping, fishing, and other such primary activities that occur within this truly wilderness area.

CHAPTER 4. PRIORITY STRATEGIC ISSUES

INTRODUCTORY COMMENTS

The primary *strategic issues* set forth in this Plan were identified and prioritized at a series of year 2000 and 2001 public informational meetings and input sessions by interested citizens. They employed a structured public input process, which is detailed in Appendix A (*Sheboygan Marsh Strategic Issues Identification & Action Planning Process*).

Furthermore, the breadth and depth of this Plan's project and program recommendations are built upon the objective *Citizen Participation & Planning Process* set forth in Chapter 1 and Appendix A.

Those processes resulted in the identification and *unanimous approval* of 10 priority issues; 4 of those 10 priority issues were very similar and were merged...*by unanimous consent...*to form 6 priority issues. Those issues, recommended actions, and action strategies are identified below:

- Issue #1. *Dredge Marsh To Create Decent Fishing Habitat.*
- Issue #2. *Get Rid Of Floating Bogs And Better Manage Water Levels.*
- Issue #3. *Need For (a) Smart Growth Zoning, (b) Additional Land Purchases To Create Buffer And Prevent Area Development, And (c) Monitor Potential Runoff From Large-Scale Farms.*
- Issue #4. *Resources Should Be Kept Primarily For Hunting & Fishing Due To Declining Opportunities Throughout The County. (Involve Ducks Unlimited.)*
- Issue #5. *Encourage County Board To Invest More Resources & Provide Opportunities For Involvement In Marsh Management.*
- Issue #6. *Beware Of Federal Takeover Of Marsh For Inclusion In Ice Age Park.*

Recommended alternatives and action plans for each of these 6 Strategic Issues are individually set forth in the following Chapter 5.

The priority strategic issues identified at *Sheboygan Marsh* are further examined below.

SURFACE WATERS & WATER LEVELS

The history and background on water levels and water level management are discussed in Chapter 2, and summarized in Table 4. The Sheboygan Marsh "flowage" is in fact a restored wetland; restoration was completed in 1938 with the installation of the dam.

The water levels were restored, "according to the engineer in charge, to about what it was between the years of 1868 to 1921." This level was verified by a field investigation in 1999 & 2000 (Chapter 2). By water level was not meant depth, however. The depths in 1938 were much greater than the depths reported by Peterson and Sinz in 1905. "No data was given in the government surveys of 1837, but undoubtedly the Marsh was deeper in places in 1938 than it was in 1837" (Herman, 1941). This was probably the result of peat fires and normal oxidation of the soils during the period that the Marsh was drained between 1921 and 1937 (see quote on page 12 from 1931 Kiel Tri-City Record).

When the dam was installed in 1938, it was installed without water level controls. In 1968, a bypass tube was installed around the north side of the dam, to allow water level control/management. The primary reasons for water level management were: 1) to reduce problems with floating cattail mats, and 2) to improve wildlife habitat conditions. A secondary reason for water level management has been to manage or improve the fishery.

While the problems with floating cattail mats and the "opening up" of the Marsh was well-evidenced back in the 1940s and 1950s, media accounts documented those problems beginning in the late 1960s (see Table 4). Plymouth Review photographs from December, 1982 document major problems with cattail blockages downstream of the dam and at the damsite two years before the 1984 drawdown. Floating cattail mats continue to be a problem that has been aggravated by flood events in 1995 and 1997 (Figures 15-17).

FIGURE 15: *Cattails Being Extracted By Excavator At Sheboygan Marsh Dam*

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FIGURE 16: *Boat Slips At Marsh Park Blocked By Cattails*

FIGURE 17: *View Of Marsh Lodge & Cattails From The West*

The following analysis is based on published literature, experience with water level management of similar flowages in the state, and on past experience with water level management on *Sheboygan Marsh*. We have first hand knowledge of the 1968 drawdown from several people on the project management team, and file photos and reports on the drawdown and results in the DNR files in Plymouth. In addition some members of the technical planning team were involved in developing the water level regime in the 1984 master plan and with the 1984, 1987, and 1995 drawdowns on the Sheboygan Marsh.

We also have written reports from two “outside” experts, after field visits on the Sheboygan Marsh: Art Techlow, DNR fishery biologist with extensive experience on the Winnebago Lakes system (1998); and Russ Terry, a Ducks Unlimited habitat biologist (1999). M.W. Weller, a renowned expert on marsh management and ecology, illustrated the loss of emergent aquatics in the figures from his book Freshwater Marshes – Ecology and Management, 1981 (see Figures 18 & 19).

Techlow stated, “*Floating cattail mats are symptomatic of flowages with high water levels, and with too long of intervals between drawdowns.*” In comparing similar problems at nearby Eldorado Marsh and Rush Lake, he noted, “*The best managed marshes typically have more frequent drawdowns, 4- to 5-year intervals, and keep lower water levels.*”

Terry reported, “*Floating cattail mats most commonly occur in impounded areas that are infrequently or never drawn down.*” He felt the partial drawdowns every 5-7 years were too infrequent, and concluded, “*I recommend a water level management scheme where water is slowly drawn down every 2-4 years.*”

FIGURE 18

Figure From: *Freshwater Marshes – Ecology and Management* (#1)

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FIGURE 19

Figure From: *Freshwater Marshes – Ecology and Management* (#2)

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The Project Management Team and Technical Planning Team reviewed the "Actions Suggested From The Floor" for Issue #2 (Chapter 5). Water level regimes that have been recommended by the experts, along with those recommended in the literature and those that have been tried in the past, will be evaluated. Each alternative will be analyzed by evaluating the likely impacts to: 1) aquatic vegetation, 2) wildlife, 3) fish, 4) navigation/boating recreation, and 5) other environmental impacts. The following 6 water level regimes (strategies) will be evaluated:

1. Maintain "normal" water levels.
2. Maintain "normal" water levels, except for bypassing water during peak flows in spring and fall.
3. Lower average water levels (0.5 – 1 foot lower).
4. Winter drawdown for spring flood storage.
5. Partial summer drawdowns.
6. Complete summer drawdowns.

The likely effects are summarized in Figure 20.

FIGURE 20

Water Management Impact Analysis

1. Maintain “normal” water levels.

Under this water level strategy, normal water level fluctuations would occur without any attempt to control water levels with the bypass structure. There would be larger water level fluctuations than occur now, especially in the spring and fall.

- Aquatic vegetation: The diversity and quantity of emergent plants would continue to decline as wave action, ice and carp dislodge cattail mats along the edge of the open “lake” area. Submergent plant diversity would likely decline as well, from increased suspension of silt and less sunlight penetration.
- Wildlife: Less cover and lower plant diversity would result lower numbers and diversity of wildlife using the deep marsh area. Waterfowl numbers would decline during the breeding season (less cover for nesting and brood habitat) and migration (less cover and food), except for an increase in use by diving ducks during the latter part of migration. Muskrat and mink numbers would decline, as well. There would also be a decline in shorebird and wading bird use, as well as in use by terns and songbirds.
- Fish: This alternative would have the least impact to fish communities in the Marsh. Populations would experience natural fluctuations in population size and length structure.
- Navigation/boating recreation: Opportunities for this activity would likely increase during spring, early summer, and fall. Dense growth of coontail and milfoil would likely restrict boating activities during mid-summer and early fall.
- Other environmental impacts: As plant diversity decreases and suspended sediments increase, the diversity and number of invertebrates, and planktonic species will decrease. The open water area of the marsh will continue to increase and emergent vegetation will decline; this will lead to increased wave action and suspension of sediments.

2. Maintain “normal” water levels, except for bypassing water during peak flows in spring and fall.

We would expect similar results as found with strategy 1. Northern pike may be negatively impacted by this alternative as flooded vegetation would be less available in most years during the egg laying and incubation period at ice out. Northern pike fry and fingerling may be stranded in isolated pockets of water.

3. Lower average water levels by 0.5 to 1.0 foot.

The mudflats that would be exposed would initially sprout a variety of annual and then perennial plants. But, within 3 to 4 years those areas would likely fill in with cattails. The area of open water would be reduced by about 25 percent and the remaining area would be shallower by 0.5 to 1.0 foot. Cattails may invade more of the remaining “lake” area, as the optimal depth for cattail growth is 1.5 to 2.5 feet. Water level fluctuations would continue to be a problem and floating cattail mats may be even more of a problem.

- Aquatic vegetation: Would increase the amount of emergent vegetation because of shallower water levels. Problems with floating cattail mats would likely continue, and may become worse. Submergent plants would decrease because of less area but would be dense in the remaining “open” water areas.
- Wildlife: Waterfowl and other water birds would likely increase initially but may decline over time, as the diversity of emergent vegetation declines. Use by migrating diving ducks would likely decline. Muskrat and mink populations would increase initially and then decline as emergent vegetation declines. General loss of wetland species with the loss of deep water marsh habitat.
- Fish: The lowered residence time of water in the Marsh may be beneficial to many fish species. The faster exchange of water should be especially beneficial in winter when stagnant areas of the Marsh experience depleted oxygen conditions. Fish would be more confined to flowing areas of the Marsh in natural and man-made channels.
- Navigation/boating recreation: The opportunities for this activity would decline, especially in the spring and fall. Opportunities on the river itself would remain about the same.
- Other environmental impacts: There would be an increase shrub and tree growth with lower water. Over time more area of shrub-carr, lowland timber, and wet meadow wetland types would develop.

4. Winter drawdowns for spring flood storage.

Water levels would be drawn off after ice has formed, probably in early December. Another approach would be to keep water levels up until February, or early March, and then drawn down in anticipation of spring runoff.

Late winter drawdowns would have less severe impacts on wildlife and aquatic plants. Either way the water levels would be kept as low as possible until after all the frost had left the ground and cattail mats.

- Aquatic vegetation: The large watershed, 133 square miles, limits the efficacy of this technique in reducing flooding and dislodging of cattails. This technique may reduce floating cattail problems but would impact survival of some aquatic plants because of freezing under the ice. Loss of muskrats may limit their impact on reducing the area of cattails. The diversity of submergent plants would be reduced, as well as quantity. Without periodic drawdowns during the growing season the variety and quantity of emergent plants would also decline.
- Wildlife: Muskrats, mink, otter, and beaver would likely be impacted to some unknown degree. Loss of muskrats through winter freeze-outs would be likely. If the variety of aquatic vegetation were reduced there would likely be a reduction in wetland birds, including waterfowl.
- Fish: The impacts of this alternative are similar to those in Alternative 3. The lowered residence time of water would reduce the areas impacted by low oxygen conditions. Fish would be more confined to flowing areas of the Marsh.
- Navigation/boating recreation: Minimal impacts to boating. **Hazardous** conditions would likely develop for snowmobilers and ATV users using frozen navigation routes for recreation during the winter.
- Other environmental impacts: Lower survival of invertebrates, mollusks, and herptiles, etc.

5. Partial summer drawdowns.

Partial summer drawdowns were conducted in 1984 and 1995, in an attempt to limit problems with floating cattail mats and improve wetland wildlife habitat while limiting impacts to the fishery. The 1984 drawdown was successful in stimulating germination and growth of aquatic vegetation. There was some new cattail growth around the fringes of the remaining cattail areas. The 1995 partial drawdown did not seem to be effective in stabilizing the large mass of floating cattails for more than that year (Table 12).

- Aquatic vegetation: Vegetation response to the 1984 partial drawdown was textbook: submergents were primarily coontail and about 40 acres of wild celery; the annual, first year, emergents were composed of dense stands of smartweed and bidens, with perennials showing up the next year—primarily softstem bulrush but also wild rice, arrowhead, burreed, and some cattail expansion—mostly along existing cattail beds. Cattail mats were stabilized until flooding in September of 1986 (Table 12); even with the parking lot flooded in fall of 1985, cattails were not a problem.
- Wildlife: There was a good response to improved habitat conditions with a big increase in migratory waterfowl use the first fall (> 3500 ducks staging), as well as breeding bird increases seen for ducks, black terns, wading birds, and yellow headed blackbirds. Although no formal surveys were done, many more muskrat houses were evident in 1985 and 1986.
- Fish: Fish populations have declined during past partial drawdowns. The declines were temporary in scope with recovery generally occurring within 4 years of the drawdown. Temperature and low oxygen stress were the most likely causes of summer kills of fish during past partial drawdowns.
- Navigation/boating recreation: Partial drawdowns would decrease opportunity and use by boaters from June through August, although some access would still be available for canoes.
- Other environmental impacts: Scientific literature on drawdowns indicate that allowing vegetated aquatic areas to remain, as in a partial drawdown, provides areas for invertebrates and mollusks to survive and repopulate the flowage at full pool. Partial drawdowns retains more habitat for waterfowl, muskrats, and other wetland species during the year of the drawdown than a complete drawdown would provide. Water clarity and quality improves the year of and for a year of two after partial drawdowns.

6. Complete summer drawdowns.

Complete summer drawdowns were conducted in 1968, to install the bypass tube, and again in 1987, to allow a fish eradication project. There aren't good records for years following the 1968 drawdown, but initial response was very similar to the results from the partial drawdown in 1984. Apparently there weren't major problems with floating cattail mats because there are no records of having to remove cattails until around 1981 when newspaper accounts and file records indicate that cattail mats were blocking water flow at the dam and downstream in the river.

- **Aquatic vegetation:** Vegetation response was again as would be expected, with dense growth of smartweed and bidens showing up the first year; followed by perennials like bulrush, arrowhead, burreed, and wild rice. File references and photos indicate that cattails expanded along the existing cattail beds but not into the “lake” area during the 1968 drawdown. The complete drawdown in 1987 was followed by a drought in 1988 that lowered water levels about 18 inches, equivalent to a partial drawdown; the result of back-to-back drawdowns was germination and then growth of cattails throughout the “lake” area of the marsh. The cattails were stressed by deeper water in the “lake” area (~ 3 feet) after 1988 but persisted and slowly expanded, especially the root complex, through 1992. There were no problems noted with floating cattail mats from 1987 through 1993, when major floods occurred throughout the midwest. Flood conditions existed in April, June, and July of 1993, ripping up cattail mats throughout the “lake” area, approximately 250 acres.
- **Wildlife:** The response from wetland wildlife species were similar to those reported under partial drawdowns above for both the 1968 (D. G. Olson, 1969, Sheboygan Marsh Renewal, Wisconsin Conservation Bull. Vol. 34, No. 3) and 1987 drawdowns (DNR file references). Production of wetland dependent wildlife species is reduced during the years of complete drawdowns but improved habitat in subsequent years more than makes up for these losses.
- **Fish:** Full drawdowns have the greatest negative impact on fish communities in the Marsh. However, full drawdowns present the opportunity to temporarily control carp which are then confined to small areas of the Marsh where they may be eliminated with the application of the chemical rotenone. Recovery of the fishery occurs generally within four years of the full drawdowns.
- **Navigation/boating recreation:** Obviously boating access is very limited during the time that the water levels are down (June through August), with only limited canoe access on the river channel itself.
- **Other environmental impacts:** Although no surveys were done on impacts to mollusks, invertebrates, and herptiles, it can be assumed that a full drawdown does impact abundance during the year of the drawdown; Increased vegetation and nutrient release from the drawdowns likely increase these production of these organisms in subsequent years. Increased vegetation and compaction of sediments during the drawdowns improves water clarity, and probably water quality in the marsh and river.

TABLE 12
Days of Cattails

Timeline Data			
Year	# of days	Cost	Comments
1938			Dam built to restore water levels
1949			Increase in area of open water ~ 150 acres
1953			Alarm over loss of cattail hoes - high water
1968			Problems w/ floating cattails noted Drawdown & installation of bvnass
1980			Problems w/ floating cattails noted
1981			Cattail blockades @ dam and river
1984	5		Cattails removal prior to partial drawdown
1985	2		bulrush removed. high water
1986	6		Flooding in September/fish kill
1987	0		Complete drawdown + fish eradication
1988	0		Drougth ~ 13 inches below dam
1989	0		
1990	0		
1991	0		
1992	0		
1993	15	\$ 2,409.00	Flooding
1994	4	\$ 1,842.00	?Easterly Winds?
1995	3	\$ 351.00	Partial drawdown
1996	9	\$ 4,368.00	
1997	14	\$12,460.00	Flood in June
1998	14	\$ 6,340.00	
1999	18	\$38,627.00	
2000	15	\$21,045.00	
2001			

FISH & ASSOCIATED HABITATS

Carp Control

1. *Status Quo:* Carp will continue to have a negative impact on waterfowl habitat and water clarity. Carp will continue to uproot aquatic plants that provide food for waterfowl and will continue to create turbid water conditions while rooting around on soft bottom material.

Carp may also interfere with the successful spawning of some other fish species such as bluegills, black crappie, pumpkinseed sunfish and largemouth bass. They have been observed disturbing fish nests, possibly feeding on developing eggs.

2. *Chemical Control:* Spot treatment of carp concentrations may be effective. Such treatment would require monitoring of the Marsh by air to determine the location of large concentrations of carp and immediate application of rotenone or another suitable chemical agent.

Chemical control would require a great deal of effort and expense. Carp carcasses may have to be disposed of in an approved landfill. Chemical control is often viewed as controversial despite past successful operations.

3. *Carp Harvest:* A carp trap could be constructed and operated near the north end of the South Ditch near the culverts at the south end of the Sheboygan Marsh park. Harvest by a contractor may be a viable alternative of harvest. Harvest would result in some population control. Carp removed from the trap may be marketable.

Contracted harvest would greatly reduce Department of Natural Resources staff time and expense. Contracts have been issued on numerous other water bodies in Wisconsin with fair success.

WILDLIFE MANAGEMENT

Some of the major issues related to wildlife management correlate with those identified by the public, especially water level management issues.

The analysis of the alternatives section of water level management in this chapter briefly discussed the likely impacts of each alternative on wildlife. Every aspect of water level management potentially effects wildlife and wildlife related recreation. The most commonly accepted scenario for optimal wildlife habitat on a deep water marsh, is to provide 50 percent dispersion of emergent vegetation with open water (termed a "hemi-marsh"). Figure 18 provides a simple illustration of different habitat conditions on an open marsh with general wildlife responses; as illustrated the medium condition provides the best condition for many individuals and the greatest variety of wildlife.

The accepted method to produce this hemi-marsh condition is through some type of drawdown of the water levels. Any type of change in water levels and aquatic vegetation will benefit some species of wildlife more than others. The recommended alternative in this plan provides some years, within 3 to 4 years of the drawdown, of more emergent vegetation followed by 3 to 5 years of more open water conditions; or until floating cattails dictate a water level management response.

Issue # 3 (related to land-use around the Sheboygan Marsh) relates directly to the amount of wildlife habitat, public access to wildlife, and potential conflicts between wildlife, hunting, and landowner interests. The more rural and open space that can be maintained, the better for wildlife and wildlife related recreation, and the fewer problems with wildlife on private lands.

Issue #4 (Resources should be kept primarily for hunting & fishing). Management activities related to habitat and access are designed primarily to provide hunting and fishing opportunities. There are also opportunities for viewing wildlife and outdoor education, that require minimal additional management activities by the Department of Natural Resources.

Another wildlife related issue is concern for long-term maintenance of white-cedar stands on the Sheboygan Marsh. White-cedar is an important, and relatively rare, habitat type in this part of the state. It provides important food and

cover for wintering deer. It is also important to other wildlife species, including ruffed grouse. Poor reproduction of white cedar is related to high deer densities, and probably other environmental conditions.

High deer populations on the Sheboygan Marsh also cause concern and complaints from farmers around the Sheboygan Marsh. There has been a history of deer damage complaints and deer shooting permits being issued around the Marsh.

RECREATIONAL ACTIVITIES: LAWFUL, UNLAWFUL, & INCOMPATIBLE

The *Broughton Sheboygan Marsh Park & Wildlife Area* has been termed a “resource for all seasons.” And, in fact, the 30-acre developed *Park* and the vast, roughly 13,000-acre, *Wildlife Area* cater to a wide variety of recreational activities. There is caution in the wind, however. These multiple recreational activities competing for the same, somewhat limited recreation resources have created use and user conflicts.

Fishing, hunting, trapping, boating/canoeing, snowmobiling, ATV riding, nordic skiing, camping, picnicking, nature study, and pleasure driving/wildlife viewing are among the recreational activities enjoyed at the Sheboygan Marsh. (See Chapter 3 of the *Plan* for additional detail.)

While *multiple use management* has traditionally been employed at Sheboygan Marsh, the facility simply cannot accommodate all uses and users on an equal basis. The growing popularity of motorized recreation, in particular, has led to conflicts between various user groups, and created dissatisfaction among both motorized recreation participants and those affected by the growth in motor sports.

It is noteworthy that the *Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005* identifies as its Number 1 Priority Issue:

*Multiple Recreational Activities Competing For The
Same Limited Recreation Resources*

Minimizing future conflicts between competing activities is key to increasing satisfaction for all participants. That is evident statewide and countywide, and it is crucial at *Sheboygan Marsh*.

Sheboygan County has historically enacted very few restrictions on the use of the Sheboygan Marsh. However, in recent years illegal motorized vehicle encroachments have damaged environmentally sensitive wildlife habitats (particularly in the northwest quadrant of the Marsh) and have sparked an outcry for action.

As a “State Managed” facility (pursuant to the formal 1984 “Sheboygan Marsh Management Agreement” between Sheboygan County and WDNR, consistent with Chapter NR 45, Wisconsin Administrative Code), motorized vehicles are no longer permitted on the *public lands* of the Sheboygan Marsh Wildlife Area, except in expressly designated areas.

Therefore, while snowmobiles, ATVs, and other motorized recreational vehicles may legally be used “at your own risk” on the frozen surface of all public waterways, only the following three designated areas permit access onto the ice:

- Public accesses in the 30-acre Broughton Sheboygan Marsh Park
- Hunters Court public access south of St. Anna
- St. Cloud public access to Sheboygan River

While passively enforced in the past, it is aggressively enforced today.

Other unlawful activities of growing concern are (1) the reckless operation of motorboats, (2) the construction of permanent deer stands on public land, and (3) the erection or relocation of “hunting shacks” in conservancy-designated areas.

County and state enforcement capabilities have been strained due to the vastness of this 13,000+ acre resource area. But, future management must be conservative and keenly sensitive to ecological values and capabilities, as well as use and user compatibility.

ACCESS

Non-motorized public access, and nearly all non-motorized uses, on the publicly-owned lands and waters of *Sheboygan Marsh* is practically unrestricted.

The limited restrictions on the operation of motorized recreational vehicles are discussed in Chapter 3 (*Snowmobiling, ATV Riding, & Nordic Skiing*, pages 58 to 60) and Chapter 4 (*Recreational Activities: Lawful, Unlawful, & Incompatible*, page 71) of this *Plan*.

Improved access sites are depicted on the insert map in the back of this *Plan*. Chapter 2 of this *Plan* (*Damsite & Waterfront*, page 49) discusses access within the developed *Broughton Sheboygan Marsh Park*.

LAND USE PLANNING & ZONING

Conservationists and the general public alike have registered concerns over future growth and development around *Sheboygan Marsh*. They have encouraged implementation of appropriate planning and zoning measures before irreversible encroachments adversely affect this significant natural area.

It is noteworthy that the *Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005* identifies the following Priority Issue:

*Changing Land Uses, Ownership And Regulations Are Reducing
Recreational Opportunities & Diminishing Resource Quality*

Land use trends are, arguably, the most challenging problem facing outdoor recreation in Wisconsin. That is also true in Sheboygan County and at *Sheboygan Marsh*.

The Towns of Russell, Greenbush, and western Rhine, within which the entirety of the Sheboygan Marsh is located, are both zoned municipalities. And, both have active Planning Commissions that are anticipating their future growth and development.

As illustrated in Figure 21, the Towns have zoned essentially all of the undeveloped lands at the Sheboygan Marsh as either Lowland Conservancy (C-1) or Upland Conservancy (C-2). The C-1 District includes “lakes, streams, marshes, bogs, and other wetlands,” and permits essentially no developed uses. The C-2 District includes “significant woodlands, scenic areas, and submarginal farmlands”; it permits essentially open space uses, plus single-family dwellings at the low density of not less than 10-acre parcels.

Advance planning is impressive in this region. In 1999, the Town of Greenbush completed a formal planning report that (a) encourages residential and commercial growth only in, and adjacent to, the developed areas of Glenbeulah and unincorporated Greenbush, and (b) discourages such growth and development around the Sheboygan Marsh and similar natural and open space areas. In 2001, the Town of Russell began to seriously explore the preparation of a *Smart Growth* Plan for the Town. Their zoning ordinances will be the primary tools to implement the recommendations contained in those Plans.

Sheboygan County enacted its *Sheboygan County Shoreland-Floodplain Ordinance* in 1970. As illustrated in Figure 22, that Ordinance has designated the vast majority of the Sheboygan Marsh as *Shoreland-Wetland*, a conservancy classification that precludes nearly all developed uses. Restrictions exist for the remaining lands adjoining surface waters and floodplains.

FIGURE 21
Zoning Map

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FIGURE 22
Shoreland Map

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FIGURE 23
Environmental Corridors

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Finally, the Bay-Lake Regional Planning Commission completed an Environmental Corridors study of Sheboygan County in 2000. Figure 23 illustrates the Commission's Environmental Corridors inventory at the Sheboygan Marsh. The corridors are essentially comprised of wetlands, floodplains, surface waters, steep slopes, and significant woodlands. Local and county governments are encouraged to protect these resources through zoning and other regulatory measures.

ARCHAEOLOGICAL & HISTORICAL CHARACTERISTICS

Sheboygan Marsh lies on the threshold of truly international significance, due to its vast storehouse of prehistoric archaeological remains.

Mastodons? Mammoths? Giant beavers? Big horned bison? Entire Indian villages? Very likely! A leading archaeologist, Dr. David Overstreet, Marquette University professor and President of Great Lakes Archaeological Research Center, Inc., is confident fossil records of them and more remain buried literally throughout the area. Following the extensive initial investigations described in Chapter 2 of this *Plan*, Overstreet recommended nomination of *Sheboygan Marsh* as a National Archaeological District on the National Register of Historic Places. He wrote,

[We] know of no other region or locality in the midwestern United States where the relational environmental contexts are so readily accessible...[We] view the Sheboygan Marsh...as an ice-age and post ice-age laboratory...unique...of national and international significance.

The desire to preserve this archaeological treasure, and the idea of National Registry designation, remain alive. This Plan's Project Management Team renewed the interest. The April 2, 2001 edition of the Sheboygan Press reported,

Area Marsh Considered as Historic Site

There is a wealth of history—and pre-history—in the Broughton Sheboygan Marsh.

Now, thought is being given to preserving it by placing the marsh on the National Registry of Historic Places.

There's been a lot of published archaeology about the marsh, going back to the 1880s...the Smithsonian Institution did archaeological research then in the marsh.

The story of John L. Sexton is historically significant not just at *Sheboygan Marsh*, but countywide and statewide as well; it is reproduced in Appendix C of this *Plan*, "*John L. Sexton: Hermit's Death A Legend*"; *A Restoration Project Deemed Worthy Of Future Consideration*.

The history of Sheboygan Marsh is compiled in rich...and unparalleled...detail in Chapter 1 of this *Plan*.

OUR VIEW

Marsh should be on National Register of Historic Places

Long before the birth of Christ, Native Americans and their predecessors occupied the area of the Sheboygan Marsh.

The abundance of remnants of those settlements make it one of the most significant archaeological districts in Wisconsin.

Sheboygan County officials should help ensure preservation of these treasures by going ahead with an application to put the district on the National Register of Historic Places.

For land in Sheboygan County Broughton Marsh Park, the listing would protect the sites against any federal or state projects and make any county projects affecting the sites subject to the approval of the State Historical Society of Wisconsin.

Fifty-one percent of private landowners in the district would have to approve the listing for their lands to be included in the district.

Burial sites on either public or private property are already protected under existing state law.

Diane Holliday, deputy state archaeologist of the State Historical Society, said the chief advantages of the listing besides helping to protect the sites would be to increase research, education, revegetation and

development of interpretive displays at Marsh Park. Federal funds are available for such projects.

The down side of the listing would be to force the county to get state approval for projects such as ditching or development at the park, but we don't think the county should be undertaking projects that harm our archaeological heritage.

Holliday said some of the 90 sites at or near the Marsh Park go back as far as 12,000 years.

There are significant Native American mounds that mark the summer and winter solstices on the property of Gary Henschel, operator of Henschel's Indian Museum, north of the Marsh. Also included in the area are sites of the earliest European settlement in the mid-1800s.

If the district is registered, it would join about 300 other archaeological sites in this state with such a designation.

It makes sense to apply now so these important remnants of our history and pre-history receive maximum protection.

The listing of the Marsh on the National Register of Historic Places also could bring more visitors to Henschel's museum and enhance county tourism.

April 12, 2001
Sheboygan Press

POTENTIAL FUTURE STRATEGIC ACQUISITIONS

As identified in the *INTRODUCTORY COMMENTS* above, one of this Plan's *Priority Strategic Issues* is restated below (bold emphases added):

- Issue #3. *Need For (a) Smart Growth Zoning, (b) Additional Land Purchases To Create Buffer And Prevent Area Development, And (c) Monitor Potential Runoff From Large-Scale Farms.*

This Issue was identified by citizens, in the open forums described in Appendix A of this *Plan*.

The *Sheboygan County Comprehensive Outdoor Recreation And Open Space Plan 1998* identifies and maps lands, countywide, that it terms *High Priority For Future Public Acquisition*. Lands adjacent to *Sheboygan Marsh* are included. Figure 24 depicts that *Plan's* northwest quadrant of the PUBLIC LANDS IN SHEBOYGAN COUNTY Map that shows the lands considered for potential future strategic acquisitions.

The Sheboygan County Conservation Association prepared and approved a countywide future land acquisition strategy—“*Land Acquisition Plan, 1997.*” It served as the source document for the *County Plan*, and it includes the same land parcels adjoining *Sheboygan Marsh*.

The County and the Conservation Association share a common and consistent land acquisition strategy. A principle policy is that any acquisition—whether in fee simple or long term lease or by easement (e.g., *purchase of development rights*)—shall be strictly on a *willing seller* basis.

Within the next several years, the Towns of Russell, Greenbush, and Rhine (within which *Sheboygan Marsh* lies), and Sheboygan County itself, must prepare and adopt *Smart Growth Plans* under Wisconsin's mandatory comprehensive planning statutes. Those *Plans'* land use elements will also include a future land acquisition strategy; as they relate to *Sheboygan Marsh*, they should be incorporated by reference into this *Plan* or future editions of this *Plan*.

This *Plan's Project Management Team* emphasizes that priority for future acquisitions at *Sheboygan Marsh* be considered for those parcels that provide *strategic access to the existing public lands and waters*. (See ACCESS above in this Chapter).

The state can acquire land that lies within pre-approved boundaries. There are exceptions including donated lands and when a parcel (up to 40 acres) outside of the boundaries is part of a larger, in boundary, acquisition. There was a recent donation of 80 acres that is adjacent to but outside of the boundary, and a 40-acre parcel that is outside of the boundary that was part of a 1987 acquisition. Land ownership by the state currently consists of 753 acres on the south side of the marsh.

The present boundary and acquisition goal was established as part of the 1984 master planning process. It is recommended that the boundary be adjusted to include the present state ownership and the land area that is within the current boundary (Figure 24). The land acquisition goal should be increased to include all vacant land within the revised boundary, and set at 1,140 acres.

It is the policy of the Wisconsin DNR to purchase land only from willing sellers through friendly negotiations. Although the recommended acquisition goal is for fee simple acquisition, the state may purchase partial land rights as conservation easements as well.

FIGURE 24
Public Lands And Potential Acquisition Sites At Marsh

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CHAPTER 5. RECOMMENDED STRATEGIC ISSUE ALTERNATIVES & ACTION PLANS

INTRODUCTORY COMMENTS

The Plan's recommended alternatives and action plans must correlate with the plan's *Mission* set forth in Chapter 1. The *Mission* is restated below:

This project will develop a science-based, strategic management plan to guide decisionmaking for the wise use, appreciation, and stewardship of this treasured resource and its environs, into the 21st century.

The term *science-based* is emphasized. Management recommendations must be professionally solid and consistent. They must not compromise ecological values and principles in facing demands to accommodate the needs of whatever new activities are certain to come on the scene. While certain management practices may be *unpopular* among some *special interest* groups, they should be *scientifically sound* and reflect the overall *public interest*.

The 13-member Project Management Team and 13-member Technical Planning Team served to ensure the *science-based* integrity and credibility of this Plan.

The 10 Principals who were assigned to actually produce this Plan are profiled, alphabetically, below; they collectively bring 250 years of professional experience to the project:

- ❖ **Larry Baer**
 - Senior Forester
 - Wisconsin Department of Natural Resources
 - 32 Years Professional Experience
 - Bachelors Degree, Forestry, University of Missouri
 - 24 Years Professional Experience
 - Certified Wildlife Biologist
 - Bachelors Degree, Natural Science, University of Wisconsin-Madison, 1974
 - Masters Degree, Wildlife Ecology, University of Wisconsin-Madison, 1977
- ❖ **Michael J. DeMaster**
 - County Zoning Administrator
 - Sheboygan County Conservation Association Officer, Director, & Program Leader (16 years)
 - County Planning & Resources Department
 - 28 Years Professional Experience
- ❖ **Charles J. "Chip" Krohn**
 - Regional Water Leader
 - Wisconsin Department of Natural Resources
 - 25 Years Professional Experience
 - Bachelors Degree, Geology, University of Missouri, 1976
- ❖ **Kenneth Denow**
 - Soil & Wastewater Specialist
 - Wisconsin Department of Natural Resources
 - 29 Years Professional Experience
 - Bachelors & Masters Degrees, Soil & Water Resources, University of Wisconsin-Stevens Point
- ❖ **Mark J. Leider**
 - County Planning Director (Retired)
 - County Planning & Resources Department
 - 31 Years Professional Experience
 - Bachelors Degree, Biology, St. Norbert College, 1967
 - Masters Degree, Environmental Biology, University of Dayton/Northern Michigan University, 1969
- ❖ **Steve Galarneau**
 - Water Quality Biologist
 - Wisconsin Department of Natural Resources
 - 15 Years Professional Experience
 - Bachelors Degree, Zoology, University of Wisconsin-Milwaukee, 1981
 - Masters Degree, Aquatic Biology, University of Wisconsin-Milwaukee, 1985
- ❖ **John Nelson**
 - Senior Fish Biologist
 - Wisconsin Department of Natural Resources
 - 20 Years Professional Experience
 - Bachelors Degree, Fisheries Management, University of Wisconsin-Stevens Point, 1978
 - Masters Degree, Biology, Tennessee Tech University, 1981
- ❖ **Roy C. Kalmerton**
 - Conservation Warden
 - Wisconsin Department of Natural Resources
 - 33 Years Professional Experience
- ❖ **Tony Ulezelski**
 - County Marsh Management Advisory Committee Chairman
 - Sheboygan County Conservation Association Officer, Director, & Program Leader
 - 16 Years Active Service
 - Bachelors Degree, Resource Management/Business Administration, University of Wisconsin-Stevens Point
- ❖ **Dale E. Katsma**
 - Senior Wildlife Biologist
 - Wisconsin Department of Natural Resources

The following quotation—made by in 1938 Wisconsin’s Conservation Chief at a grand banquet in celebration of the Sheboygan Marsh restoration—is instructive today:

As far as the future of the Marsh is concerned, the Conservation Department will move in here and do the best it can to bring back the Marsh as it was. In some instances we may not proceed exactly as you believe, but let me assure you that in the long run you will find that what we do will be for the best.

*H.W. MacKenzie, State Conservation Department Director
May 23, 1938
Sheboygan Press*

This new Plan seeks to *do what will be for the best.*

6 PRIORITY ISSUES & STRATEGIES FOR ACTION

IDEAS IDENTIFIED AT FEBRUARY 3 & APRIL 26, 2000
PUBLIC INFORMATIONAL MEETINGS & INPUT SESSIONS

Issue 1: Dredge Marsh to Create Decent Fishing Habitat

<u>Citizen Suggestions “From the Floor”</u>	<u>Project Management Team Comments & Proposed Action Strategies</u>	
	<u>Comments</u>	<u>Action Strategies</u>
<ul style="list-style-type: none"> • Dredge all ditches to accommodate boats. 	<ul style="list-style-type: none"> • Dredging <i>all</i> 21 miles of ditches would be cost prohibitive, environmentally destructive, & not likely to be permitted by state/federal regulatory agencies. <p style="margin-left: 20px;">Furthermore, widespread boat accommodation may be incompatible or inconsistent with sound ecosystem management.</p>	<ul style="list-style-type: none"> • County should schedule, budget, & execute maintenance dredging of South Ditch on an as-needed basis (~ 20 year intervals).
<ul style="list-style-type: none"> • Get water flowing and lake to open up. 	<ul style="list-style-type: none"> • An “open water” situation may be the opposite condition for long-term, sound, overall resource management at Sheboygan Marsh. Records show that as the emergent plants decline, submergent plant and algae growth makes boat access difficult or impossible and reduces habitat for wetland wildlife species. 	

- Obtain state & federal grants to assist.
- Agree.
- County, DNR, & Non-Profit Conservation Organizations should continue to aggressively pursue & secure available state, federal, & private/non-profit grants & gifts for maintenance dredging & other fisheries enhancements.
- Secure adequate funding for overall management.
- Agree.

Issue 2: Get Rid of Floating Bogs and Better Manage Water Levels.

Citizen Suggestions “From the Floor”

Project Management Team Comments & Proposed Action Strategies

	<u>Comments</u>	<u>Action Strategies</u>
<ul style="list-style-type: none"> • Replace I-beam on top of dam to prevent bogs. 	<ul style="list-style-type: none"> • Floating bogs were problem before unauthorized I-beam was removed, would afford no solution now, and resultant water levels would adversely affect forests within & adjoining the Marsh and its wildlife habitat. <p>Furthermore, this action could cause flooding of riparian lands without legal flowage easements, possibly resulting in lawsuits against the County.</p>	<ul style="list-style-type: none"> • County should implement on-site resident management & prompt bypass control to moderate water level fluctuations.
<ul style="list-style-type: none"> • Move boat landing to location not affected by bogs. 	<ul style="list-style-type: none"> • This would not address the <i>bog problem</i>. Plus, the floating cattail mats affect <i>all</i> the activity areas in the Park, not just the boat landing. 	<ul style="list-style-type: none"> • County & DNR should pursue a water level management strategy that would reduce problems with floating cattail mats.
<ul style="list-style-type: none"> • Construct series of log booms up river to catch & hold floating cattail masses . 	<ul style="list-style-type: none"> • Such a structure would be difficult or impossible to maintain on the soft peat sediments. Further, navigability would be unacceptably impeded upstream of the solid barrier. As such, project would not likely be permitted by state/federal regulatory agencies. 	<ul style="list-style-type: none"> • Maintain log booms in front of the dam and the south ditch to reduce problems with cattails that float into the dam area.

- Raise water level 1 foot, preventing cattails from growing in deeper water.
- Investigation of historic water levels shows that current water levels are close to original water levels. Raising water levels would kill tamarack and cedar forest areas and reduce shrub marsh areas. Private property would likely be flooded. This action would likely increase problems with the breakup of cattail mats, at least initially.
- Conduct periodic drawdown to reduce cattail mat.
- Agree – conclusion of technical committee.
- See water level management analysis for complete discussion of planned actions.
- Lower water level 1 foot to prevent cattails.
- Would likely increase cattail growth in “lake” area of the marsh, leading to similar or worse problems with floating cattail mats.
- Install electronically controlled valve to stabilize water level.
- Impractical & unreliable given the vast size of the watershed and small size of the dam bypass. Also, some water level fluctuations are important to the overall ecological functioning of the Sheboygan Marsh.
- Water level of Marsh should be at top of dam.
- Would result in an average reduction of water levels by about 6 inches, and would likely result in an increase in cattail growth and problems.
- Historic natural water levels should influence the establishment of future water levels.
- Agree – consistent with the analysis of the technical committee and would best simulate the natural wetland ecology of the marsh.
- Consider dredging as alternative to raising water levels.
- Ecologically and economically impractical to dredge enough soil to significantly impact cattail growth. Current depths of the “lake” area is likely deeper than historic depths as a result of peat fires during drainage.

- High water levels have impact on timber areas around Marsh, and adversely affect wildlife habitat.
- Agree.
- Recommended alternative is to maintain water levels consistent with what the current spillway level allows.

Issue 3: Need for (a) “Smart Growth” Zoning, (b) Additional Land Purchases to Create Buffer and Prevent Area Development, and (c) Monitor Potential Runoff from Large-Scale Farms.

Citizen Suggestions “From the Floor”

Project Management Team Comments & Proposed Action Strategies

- | <u>Citizen Suggestions “From the Floor”</u> | <u>Comments</u> | <u>Action Strategies</u> |
|--|---|---|
| <ul style="list-style-type: none"> • Enact consistent plans & zoning ordinances in & around Sheboygan Marsh. | <ul style="list-style-type: none"> • Agree. It is worthy of note, however, that the <i>Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005</i> identifies 5 major, statewide issues facing outdoor recreation in Wisconsin, including:
<i>Changing Land Uses, Ownership and Regulations Reduce Recreational Opportunities and Diminish Resource Quality.</i> | <ul style="list-style-type: none"> • County & adjoining Towns of Russell, Greenbush, & Rhine should collaborate & accelerate the development of competent comprehensive plans, complementary zoning & subdivision control ordinances, & land acquisition programs. |
| <ul style="list-style-type: none"> • Purchase additional land to increase buffer around Marsh. | <ul style="list-style-type: none"> • Agree. | <ul style="list-style-type: none"> • County, adjoining Towns, & Non-Profit Conservation Organizations should continue to aggressively pursue & secure available state, federal, & non-profit acquisition grants & gifts. • The acquisition program in fee simple or conservation easements/development rights should add approximately 1,684.64 acres of habitat in identified strategic areas (see Figure 24). |
| <ul style="list-style-type: none"> • Seek privately-owned conservation easements rather than government-owned conservation easements. | <ul style="list-style-type: none"> • Agree. (Also, see Issue 5 discussion concerning public funding limitations.) | |

Issue 4: Resources Should be Kept Primarily for Hunting & Fishing due to Declining Opportunities Throughout County. (Involve Ducks Unlimited.)

Actions Suggested “From the Floor”

Project Management Team Comments & Proposed Action Strategies

- | <u>Actions Suggested “From the Floor”</u> | <u>Comments</u> | <u>Action Strategies</u> |
|---|--|--------------------------|
| <ul style="list-style-type: none"> • Guarantee protection of public hunting, fishing, & trapping rights. | <ul style="list-style-type: none"> • Agree. | |

- Manage for multiple use to broaden base of support & funding opportunities.
- Agree. It is worthy of note, however, that the *Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005* identifies 5 major, statewide issues facing outdoor recreation in Wisconsin, including:
Multiple Recreational Activities Competing for the Same Limited Recreation Resources.
- Uses compatible with the ecology of the marsh will be encouraged. Some activities are restricted because of environmental concerns; for example airboat and ATV use on lands of the Sheboygan Marsh.
- Funding from Ducks Unlimited will continue to be sought for waterfowl habitat projects.
- Advice from DU habitat biologists was sought related to water level management.
- Oppose “government” designation as “wilderness area” or “wildlife refuge.”
- This Plan does not designate any “wilderness areas” on the marsh, but there is an existing waterfowl refuge on the marsh.
- The waterfowl refuge is intended to both protect waterfowl from overharvest and maintain a huntable waterfowl population during the fall hunting season.

Issue 5: Encourage County Board to Invest More Resources & Provide Opportunities for Involvement in Marsh Management.

<u>Citizen Suggestions “From the Floor”</u>	<u>Project Management Team Comments & Proposed Action Strategies</u>	
	<u>Comments</u>	<u>Action Strategies</u>
<ul style="list-style-type: none"> • Prepare list of prioritized items for decision-makers (County Board, others) to consider for funding. 	<ul style="list-style-type: none"> • Agree. It is worthy of note, however, that the <i>Wisconsin Statewide Comprehensive Outdoor Recreation Plan 2000-2005</i> identifies 5 major, statewide issues facing outdoor recreation in Wisconsin, including: <i>Financial Resources Are Increasingly Strained to Meet Costs of Operating and Maintaining Recreation Resources.</i> <p>While the County Board is encouraged to maintain its financial support at <i>Sheboygan Marsh</i>, any charge that it has neglected in its level of investment is completely unfounded. The detailed spreadsheet in Chapter 2, pages 22-25 of this Plan, shows that the County has authorized a whopping total in expenditures of <i>\$1.9 million</i> at <i>Sheboygan Marsh</i> during the past 6 decades!</p>	<ul style="list-style-type: none"> • All County Board Supervisors, the County Conservation Association, the Marsh Management Advisory Committee, and key WDNR officials shall receive a copy of this Plan, which includes the action agenda. • County Planning & Resources Department staff, with County Resources Committee endorsement, should ensure that projects recommended in this Plan are included in the 5 Year Capital Improvements Plan or the annual operating budget, whichever is appropriate. • The County should maximize the leverage of State & County <i>Stewardship Funds</i> to accomplish the projects identified in this Plan.

- Provide additional opportunities for involvement in Marsh management.
- Agree. In fact, Sheboygan County immediately approved the recommendation to broaden the representation of its *Marsh Management Advisory Committee*. It expanded the Committee from 7 members to 13 members, pursuant to County Board Resolution #3 (2000/01).
- No further action is warranted.

Issue 6: Beware of Federal Takeover of Marsh for Inclusion in Ice Age Park.

<u>Citizen Suggestions “From the Floor”</u>	<u>Project Management Team Comments & Proposed Action Strategies</u>	
	<u>Comments</u>	<u>Action Strategies</u>
<ul style="list-style-type: none"> • Marsh should remain locally owned & managed. 	<ul style="list-style-type: none"> • The U.S. Department of Interior’s National Park Service prepared and distributed its proposed <i>Ice Age National Scientific Reserve Master Plan</i> during 1977 and 1978. The identified “Reserve” was 39,905 acres, and it included the Broughton Sheboygan Marsh Park & Wildlife Area as a unit. 	<ul style="list-style-type: none"> • No further action is warranted. • A management agreement between the county and state will be reviewed and updated as part of this planning effort.
	<p>The purchase of a small part of the Sheboygan Marsh unit was suggested in that Plan. That suggestion proved controversial and sparked widespread opposition locally. An accompanying letter, drafted by County Planning Director Mark Leider on April 4, 1978, set forth Sheboygan County’s opposition to fee simple acquisitions at Sheboygan Marsh for the Ice Age National Scientific Reserve.</p>	
	<p>That local sentiment proved persuasive. In response to Leider’s November, 2000 inquiry attendant to this Issue 6, Ice Age National Scenic Trail Superintendent Tom Gilbert reported,</p>	
	<p style="text-align: center;"><i>In the 1980s, Sheboygan Marsh was dropped as a unit of the Ice Age National Scientific Reserve, and replaced by the State-owned and managed portion of Horicon Marsh.</i></p>	
	<ul style="list-style-type: none"> • There is no risk that Sheboygan County will relinquish its current ownership or its management control of the Broughton Sheboygan Marsh Park & Wildlife Area. On the contrary, the County’s adopted policy in its <i>Sheboygan County Comprehensive Outdoor Recreation & Open Space Plan</i> is to acquire additional strategically-located land tracts at Sheboygan Marsh. 	

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Recommended Alternative For Water Level Management

Based on the need to stabilize cattail mats, the desire to manage for wetland wildlife species, an objective evaluation of scientific literature and historical records related to drawdowns on the Sheboygan Marsh, we conclude that a combination of strategy **B) normal water levels bypassing peak flows** and **F) intermittent complete summer drawdowns** would be the best water level management strategy. The justification for this recommendation is as follows:

Historical records show that since being reflowed in 1938 there have been continual problems with the decline of emergent aquatic vegetation and the breakup of the cattail mats (Table 12). Complete drawdowns, like those conducted prior to dam installation in 1938, again in 1968 to install the bypass, and 1987 resulted in stabilization of the cattail mats from 5 to more than 10 years. Partial summer drawdowns were effective in stabilizing cattails for only one to three years (1984 & 1995).

As the analysis in Chapter 4 shows, there are positive and negative aspects to each water level management strategy (Figure 20). If our emphasis is stabilization of the cattail mat and improvement of habitat for most wetland wildlife species, complete drawdowns are the best strategy. Although this will likely reduce fishing opportunities for three to four years, there may be more years between drawdowns to allow the fishery to improve. This strategy would also provide opportunities for carp removal operations and dredging projects if necessary.

There are some risks associated with any drawdown. Unusual precipitation events could either hamper our ability to get water levels down or return them to normal levels in the fall. A severe drought following a drawdown year could allow cattails to become established throughout the “lake” area, setting the stage for problems in the future. Some fish will likely be caught in shallow areas and perish; this could also lead to botulism problems for waterfowl. The latter two problems could be reduced by closely monitoring conditions during the drawdown, using an airboat.

In addition peak flows will be moderated by allowing water to bypass during spring runoff, and during heavy rainfall events. This will be done in an attempt to moderate severe water level fluctuations that tear cattail mats loose from the bottom. The watershed size and small natural outlet, reduces the efficacy of the procedure during peak flow periods. It does dampen the peaks flows to some degree and should help reduce the break-up of cattail mats.

Summer Drawdown Schedule*		
<u>Date</u>	<u>Action</u>	<u>Anticipated Results</u>
mid-May	Open by-pass gate.	
June – August	Keep water levels down to expose mudflats.	Encourage germination of aquatic vegetation.
September	Close by-pass down, while allowing > 25% flow into the river.	Protect downstream fish and wildlife habitat.
October	Water levels at or above spillway.	
Normal Water Level Schedule*		
<u>Date</u>	<u>Action</u>	<u>Anticipated Results</u>
March to mid-April	Lower water levels to 6 inches below spillway prior to spring thaw.	Reduce dislodging of cattail mats.
Remainder of the year	Monitor water levels and open by-pass when water levels are likely to exceed 12 inches over the spillway.	

CHRONICLE OF PAST SUPPORT FOR *DRAWDOWNS & THE RECOMMENDED WATER LEVEL MANAGEMENT REGIME*

* * * * *

Sportsmen Favor Marsh Drawdown, Dredging, Too

Public sentiment ran highly in favor of the DNR's plan to have a complete drawdown of the Sheboygan Marsh this year, as the DNR conducted its informational hearing on its plans Wednesday night.

Ray Klemme, Chairman of the Marsh Advisory Committee, was totally in favor of a drawdown. He noted,

The last time we had a drawdown, the sediment compacted 18 inches, and it was good for 15 years. With one good year of a drawdown, it should be good for another 15 years, and if we can have partial drawdowns every five years, it would keep the Marsh clear.

Ray Klemme
April 30, 1987
Sheboygan Press

* * * * *

...without a partial drawdown it would be impossible to dredge the south ditch, and that must be done about every 20 years to prevent fish winterkills. The cost...is about \$150,000. Despite the cost, to maintain a fishery, dredging is going to have to be done.

DNR Fish Manager John Nelson
August 16, 1983
Plymouth Review

* * * * *

Marsh Plan Hinges On Drawdown Agreement (1984)

The DNR's master plan recommends at least a partial Marsh drawdown...about every 5 to 7 years.

Managing water levels on a marsh, any marsh, say resource biologists, is a vital part of the management of fish and game species that will be available to the sportsmen and recreational users of the marsh.

In 1968, a bypass tube was installed around the Marsh dam...to allow water-level management in the Marsh to improve hunting and fishing and to reduce loss of marsh bogs.

The marsh had to be drawn down to riverbed level that summer to allow installation of the bypass. This also allowed for re-dredging of the south ditch, and for peat compaction to promote vegetation regrowth.

The drawdown had a profound effect and impact on attracting waterfowl. Wild geese flocked into the exposed mud flats – 8,000 at peak count and the most the Marsh has ever drawn since records were kept in 1961.

The drawdown did produce vegetation that wild ducks like, so that for three years after the drawdown duck use increased. In 1969, an estimated 6,000 ducks used the Marsh as a feeding and staging area.

But, while the drawdown benefited waterfowl, it obviously destroyed the fishing. It took several years for a northern pike fishery to be restored.

Local reaction to the drawdown was negative, so that as a result of the opposition, the bypass tube has not been used for its intended purpose since its installation in 1968.

Today's Marsh master plan, prepared in large part by Sheboygan County wildlife manager Dale Katsma, calls for periodic, partial drawdowns from May into August – the goal to restore waterfowl habitat by allowing emergent vegetation to return.

* * * * *

“Floating cattail mats are symptomatic of flowages with high water levels, and with too long of intervals between drawdowns.”

“People that use these flowages have conflicting desires; shallow lakes like this are best managed for waterfowl and other wetland wildlife values. These types of flowages are very productive and fish grow fast but they often winterkill as well. Consequently, they are usually boom or bust situations for the fishery.”

– DNR Fisheries Biologist Art Techlow
August 4, 1998

* * * * *

“Floating cattail mats most commonly occur in impounded areas that are infrequently or never drawn down.”

“...to maintain productivity and maximize species diversity in the marsh, I recommend that water level manipulation remain an active component in management of Sheboygan Marsh.”

“Fish benefit from drawdowns as well because the increased productivity provides an influx of food resources.”

“Drawdowns...would enhance productivity, and would benefit wildlife and habitat across the spectrum – shorebirds, songbirds, invertebrates, as well as waterfowl.”

“The current schedule of partially drawing off water every 5 to 7 years is too infrequent and the system would benefit from more regular disturbance. I recommend a water level management scheme where water is slowly drawn down every 2 to 4 years.”

– Habitat Biologist Russel Terry
Ducks Unlimited, Great Lakes/Atlantic Region
July 27, 1999

* * * * *

“In the past, higher water levels than those recommended have created too much open-water area, floating bogs, and suppressed growth of the vegetation of most value to wildlife.”

– DNR Fish Manager Paul Schultz
November 18, 1970

PROPOSED ACTIONS, ROLES, & FINANCING STRATEGIES FOR 6 PRIORITY ISSUES

Legend: <i>County</i> = Sheboygan County Planning & Resources Department Staff <i>WDNR</i> = Wisconsin Department of Natural Resources <i>SCCA</i> = Sheboygan County Conservation Association <i>MMAC</i> = Broughton Sheboygan Marsh Management Advisory Committee				
ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Derived from <i>Citizen-Identified Issue #1</i> Dredging	County should schedule, budget, & execute maintenance dredging of South Ditch, south of cross-over 5000' to Elkhart Lake outlet stream inlet	County & WDNR collaborate with SCCA & MMAC, secure contractor low bid	2004/2005 and at approximately 20-year, as-needed intervals	Estimated Range, \$75,000-\$100,000
Derived from <i>Citizen-Identified Issue #2</i> Floating Bogs	County should delegate dam bypass control to Marsh Manager to moderate water level fluctuations County should install log boom & signage at South Ditch entrance to prevent bog entry County should purchase a boat (16' john), motor (25 hp), & trailer to facilitate bog removal & other Marsh management practices County should enact & commit to the <i>Water Level Management Regime</i> identified below	WDNR establishes policy and supervises Marsh Manager County & WDNR collaborate with Highway Department County secures low bid [NOTE: This purchase could be delayed or deleted if the County faithfully executes the recommended Water Level Management Regime below.] See <i>Water Level Management Regime</i> below	Accomplished in 2000, pursuant to this planning process Accomplished in 2000, pursuant to this planning process 2002/2003	No direct cost De Minimus Estimated Range \$4,000-\$5,000
Derived from <i>Citizen-Identified Issue #2</i> Water Level Management Regime	County & WDNR should aggressively pursue public support and authorization for both partial and total drawdowns on an as-needed schedule determined by <i>ecological warrants</i>	County, WDNR, SCCA, & MMAC must reach consensus and provide leadership to County Board	Timely, as-needed, determined by <i>ecological warrants</i>	De Minimus, unless WDNR executes fish or wildlife habitat projects In fact, this management practice would result in <i>net savings of \$20,000-\$50,000 each year between drawdowns in avoided bog removal costs</i>

Continued on next page...

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
<p>Derived from <i>Citizen-Identified Issue #3</i></p> <p>Smart Growth Planning</p>	<p>County & adjoining Towns of Russell, Greenbush, & Rhine should collaborate & accelerate the development of competent comprehensive plans, complementary zoning & subdivision controls, and land acquisition strategies</p> <p>County should nominate <i>Sheboygan Marsh</i> as an Archaeological Site worthy inclusion on the <i>National Register of Historic Places</i></p>	<p>Partnership of County, Town Planning Commissions, Regional Planning Commission, WDNR, & UWEX is encouraged</p> <p>County should develop nomination in concert with the State Historical Society & the Great Lakes Archaeological Research Center</p>	<p>2002-2004</p> <p>2002/2003</p>	<p>Estimated Range \$60,000-\$100,000</p> <p>De Minimus, unless County or affiliates pursue grant-eligible research, exhibition, or management projects</p>
<p>Derived from <i>Citizen-Identified Issue #3</i></p> <p>Land Acquisitions To Create Buffer & Protect Existing Investments</p>	<p>County, WDNR, SCCA, & adjoining Towns should collaborate in an acquisition strategy for strategic areas around & adjacent to existing public lands, in fee simple or purchase of development rights (PDR) from “willing sellers”; the state land acquisition boundary was changed to include existing ownership</p> <p>County, WDNR, SCCA, & adjoining Towns should collaborate and aggressively pursue & secure available federal, state, county, & private/non-profit grants & gifts for the above acquisitions</p>	<p>Collaboration of County, WDNR, SCCA, and adjoining Towns is encouraged</p> <p>Collaboration of County, WDNR, SCCA, and adjoining Towns is encouraged</p>	<p>Concurrent with proposed acquisition</p> <p>Annually investigate “willing seller” market of pre-selected parcels</p>	<p>No direct cost</p> <p>Estimated Range \$1,000-\$3,000 per acre</p>
<p>Derived from <i>Citizen-Identified Issue #5</i></p> <p>Increase County Investments at Sheboygan Marsh</p>	<p>County should (1) commit to this Plan’s project recommendations in its annual operating and 5 year capital improvements budgets, and (2) maximize leverage of <i>State & County Stewardship Funds</i> & other available public & private grants & gifts</p>	<p>County, WDNR, SCCA, & MMAC collaborate in project prioritization & timing</p>	<p>Plan, program, & budget annually</p>	<p>Budget derived from annual planning & programming</p>
<p>Derived from <i>Citizen-Identified Issue #5</i></p> <p>Increase Opportunities for Involvement in Marsh Management</p>	<p>County should expand the 7-member <i>Marsh Management Advisory Committee</i> (created in 1984) to 13 members to broaden its base of interests & improve its effectiveness</p>	<p>County & SCCA propose to County Board</p>	<p>Accomplished in 2000, pursuant to this planning process</p>	<p>Unpaid Committee</p>

OTHER IDENTIFIED ISSUES & STRATEGIES FOR ACTION

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
County & State Cooperation	Sheboygan County & WDNR should execute a new, formal <i>Sheboygan Marsh Management Agreement</i> for professional wildlife, fishery, & forestry management, development, protection, & maintenance	County, WDNR, SCCA, & MMAC collaborate on terms of the <i>Agreement</i>	2001/2002	No direct cost
Perimeter Biking Trails	County should (1) sign & promote existing 28-mile <i>Elkhart Lake to Kiel Tour</i> shared road bikeway (Marsh Park is Trailhead), and (2) define, sign, & promote a companion shared road bikeway approximately 22 miles along the perimeter of Sheboygan Marsh	County collaborates with County Convention & Visitors Bureau, and seeks WDNR grants	2003/2004	Estimated Range \$50-\$100 per mile

ANNUAL ACTION AGENDA

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Wildlife Management	Share crop approximately 200 acres with adjoining farmers	WDNR	Annually	WDNR operating budget
	Maintain approximately 250 acres of grasslands	WDNR	Annually	WDNR operating budget
	Maintain two runoff ponds & associated structures	WDNR	Annually	WDNR operating budget
	Monitor waterfowl, ruffed grouse, & pheasant populations	WDNR	Annually	WDNR operating budget
	Monitor & record water levels	WDNR & Marsh Manager	Daily	WDNR operating budget
	Maintain posted refuge lines	WDNR	Annually	WDNR operating budget
	Monitor & control exotic & intrusive plant & animal species	WDNR	Annually	WDNR operating budget
	Gravel & grade perimeter parking lots & access roads	WDNR	Annually	WDNR operating budget
	Partner with <i>Ducks Unlimited</i> , <i>Ruffed Grouse Society</i> , & <i>Pheasants Forever</i> to execute habitat improvements	WDNR collaborates with County, SCCA, & MMAC	Annually	Project-specific
Coordinate bog removal	WDNR collaborates with Highway Department for equipment & manpower	As needed	WDNR & County operating budgets	
Fish Management	Survey & monitor fish community	WDNR	Annually	WDNR operating budget
Forest Management	Monitor forest conditions & develop harvest plans as needed	WDNR	As needed	WDNR operating budget

A LIVING PLAN

ISSUE	PROPOSED ACTIONS	ROLES	SCHEDULES	FINANCIALS
Plan Updates	County should formally review & revise this Plan at not greater than 5-year intervals	County & WDNR reconvene the Project Management Teams to undergo this planning process	5-year intervals, or earlier if warranted	De Minimus

APPENDIX A.

SHEBOYGAN MARSH STRATEGIC ISSUES IDENTIFICATION & ACTION PLANNING PROCESS

Recognizing the need to chart a positive course for the future, the Broughton Sheboygan Marsh Management Advisory Committee scheduled a public input meeting on the evening of February 3, 2000 to identify and prioritize current and future issues facing the Marsh. Over 40 interested citizens participated in the February 3 meeting.

In order to identify issues and concerns, participants were asked to individually write clear, concise responses to the question: “What are the current and future issues facing the Broughton Sheboygan Marsh?” All issues identified were written on large flip chart sheets and displayed for participants.

After a list of issues was developed (42 issues were identified), participants were asked to individually vote for any five issues they felt were the highest priorities. A point system was used to weight priority issues (5 points were assigned to all first-priority issues, 4 points to all second-priority issues, 3 points to all third-priority issues, 2 points to all fourth-priority issues, and 1 point to all fifth-priority issues.

Points were tallied and the highest priority issues were identified. A listing of all issues identified, along with the respective weightings, is contained in Attachment 1. A list of the 10 highest priority issues is found in Attachment 2.

It was the consensus of participants at the February 3rd meeting that a follow-up meeting would be scheduled to further discuss the highest priority issues.

A follow-up public input meeting was held on April 26, 2000. Over 60 citizens participated. Each of the 10 issues was discussed at length. All participants were provided an opportunity to express what they perceived to be the “current situation” regarding the issue. All responses were recorded on large flip chart sheets. Similarly, all participants had an opportunity to identify their “desired situation,” or the situation as they would like it to be. Results of the April 26 meeting are summarized in Attachment 3.

The citizen input received from both meetings was subsequently utilized by the Broughton Sheboygan Marsh Management Advisory Committee as a foundation upon which recommendations were based.

Attachment 1

BROUGHTON SHEBOYGAN MARSH ISSUE IDENTIFICATION MEETING February 3, 2000

Responses to the question: “What are the current and future issues facing the Broughton Sheboygan Marsh?”

All issues listed in unranked order (points/votes in parentheses).

1. Dredge Marsh to create decent fishing habitat (31)
2. Impact of Marsh water level on water table (11)
3. Cattails increase with drainage of Marsh (25)
4. Manage for water fowl production (13)
5. Increase recreation use and conflicts generated (12)
6. Non-point runoff from large-scale farming operations (19)
7. Invasion by non-native organisms – carp, milfoil, etc. (18)
8. Is it a duck Marsh or a mediocre fishing hole – make a decision (7)
9. Lack of vegetation - cover for ducks, etc. (11)
10. Resources should be kept primarily for hunting and fishing due to declining opportunities throughout county (involve Ducks Unlimited) (27)
11. Lack of wild rice/food for duck management (7)
12. Excessive amounts of litter in Marsh (6)

13. How much access will be allowed and will there be need to limit in future (0)
14. Types of travel allowed in Marsh (5)
15. Zebra Mussels are present and impacts on future management options (1)
16. Provide year-round fishing opportunities as experienced 30 years ago (5)
17. Get rid of floating bogs (31)
18. Impact of water levels on forest species – Tamarack, etc. (8)
19. Water levels need control (18)
20. Walk-in access east of “J,” lower river, and at extreme west end of Marsh from the village (0)
21. Federal takeover of Marsh for inclusion in Ice Age Park (22)
22. Encourage county board to invest more resources/provide opportunities for involvement in Marsh (26)
23. Water level needs to be higher (19)
24. Problem with reproduction of White Cedars due to deer (8)
25. Water level currently managed too high (10)
26. Winter fish kill concerns (2)
27. Need for rebuilding dam in future and costs (0)
28. Need for fish cleaning station for public and campers (0)
29. Does dam have capacity to manage flows under flood conditions (11)
30. Use impact from ATVs, Jet Skis, and Airboats on natural resources (13)
31. Accelerate wildlife habitat restoration (6)
32. Manage Marsh for both duck marsh and fishing (6)
33. Agricultural land being subdivided creating “urban sprawl” around Marsh (14)
34. Marsh needs deer management since it’s becoming deer refuge (1)
35. Duck droppings increase siltation and impact fish habitat (0)
36. Need for “smart growth” zoning (28)
37. Additional land purchases to curtail development and create buffer (22)
38. Make long-term commitments (12)
39. Alternative funding sources for cattail removal (0)
40. Install boom for cattail management (7)
41. Protect view from Marsh from development (10)
42. Dredge south ditch – west branch (12)

Attachment 2

BROUGHTON SHEBOYGAN MARSH ISSUE IDENTIFICATION MEETING February 3, 2000

Responses to the question: “What are the current and future issues facing the Broughton Sheboygan Marsh?”

Issues listed in top ten order (points/votes in parentheses).

1. Dredge Marsh to create decent fishing habitat (31)
2. Get rid of floating bogs (31)
3. Need for “smart growth” zoning (28)
4. Resources should be kept primarily for hunting and fishing due to declining opportunities throughout county (involve Ducks Unlimited) (27)
5. Encourage county board to invest more resources/provide opportunities for involvement in Marsh (26)
6. Cattails increase with drainage of Marsh (25)
7. Federal takeover of Marsh for inclusion in Ice Age Park (22)
8. Additional land purchases to curtail development and create buffer (22)
9. Non-point runoff from large-scale farming operations (19)
10. Water level needs to be higher (19)

Broughton Sheboygan Marsh

STRATEGIC MANAGEMENT PLANNING FORUM

APRIL 26, 2000

Issue 1: Dredge Marsh to create decent fishing habitat.

The Current Situation

- Being able to access areas in summer.
- Water flow does not come from Elkhart Lake; water does not flow west.
- Water level of marsh affects small ponds to east of marsh.
- Drive across south ditch has slowed current, resulting in weed growth.
- Fishing concentrated in south ditch.

The Desired Situation

- Adequate funding for overall management.
- Get water flowing and lake to open up.
- Dredge all ditches to accommodate boats.
- Obtain state and federal funding and grants to assist in this issue.

Issue 2: Get rid of floating bogs.

The Current Situation

- Bogs jam up boat landing (from dam up into channels).
- Fishing is further restricted by bogs.
- County is removing bogs at great taxpayers expense.
- All recreation activities are restricted by bogs.
- Fish loss as result of stress from bogs.

The Desired Situation

- Replace board on top of dam to prevent bogs.
- Move boat landing to location that would not be affected by bogs.
- Ray's Log boom.

Issue 3: Need for "Smart Growth" zoning.

The Current Situation

- Concern for future residential / commercial growth around marsh.
- Currently increasing development around outside of marsh.
- Lack of consistent plans and zoning ordinances of units of government in and around marsh.

The Desired Situation

- Consistent plans and zoning ordinances in and around marsh.
- Need for additional land purchases to increase buffer around marsh.

Issue 4: Resources should be kept primarily for hunting and fishing due to declining opportunities throughout county (involve Ducks Unlimited).

The Current Situation

- Less and less public hunting areas.
- Need for protection as hunting, trapping, and fishing (consumptive) area (policy issue and commitment to general goal).
- More difficult to get permission for hunting on private lands.

The Desired Situation

- Guaranteed protection of public hunting / trapping and fishing rights.
- Manage for multiple use to ensure funding for future.
- Protection from being designated a wilderness area or wildlife refuge.

Issue 5: Encourage County Board to invest more resources/provide opportunities for involvement in Marsh.

The Current Situation

- Little involvement from County Board.
- County Board does not have good plan to consult for funding opportunities.

The Desired Situation

- List of prioritized items for decision makers (County Board / others) to consider for funding.

Issue 6: Cattails increase with drainage of Marsh.

The Current Situation

- More cattails mean more bogs.
- Non-regulation of water levels.

The Desired Situation

- By raising water level one foot would prevent cattails from growing in deeper water.
- Periodic drawdown to reduce cattail mat.
- Lowering water level one foot would prevent cattails.
- Electronically controlled valve to stabilize water level.

Issue 7: Federal takeover of Marsh for inclusion in Ice Age Park.

The Current Situation

- Concern for Fish and Wildlife Service goal to increase acreage by 53,000 acres in eastern Wisconsin.

The Desired Situation

- Marsh should be locally managed and locally owned partnerships.

Issue 8: Additional land purchases to curtail development and create buffer.

The Current Situation

- Concern for future residential / commercial growth around marsh.
- Currently increasing development around outside of marsh.
- Lack of consistent plans and zoning ordinances of units of government in and around marsh.

The Desired Situation

- Privately owned conservation easements rather than government owned.

Issue 9: Non-point runoff from large scale farming operations.

The Current Situation

- No info.

The Desired Situation

- No info.

Issue 10: Water level needs to be higher.

The Current Situation

- Cattails resulting from low water levels.
- Slow flow.
- Questionable future supply of water for marsh.
- High water levels have impact on timber harvesting in areas around marsh.
- Legal issues associated with changing water levels.
- High water levels adversely affect big and small game animals.

The Desired Situation

- Water level of marsh should be top of dam.
- Take historic natural water levels into consideration for future water levels.
- Dredging as alternative to raising water level.

APPENDIX B.

“SHEBOYGAN MARSH MANAGEMENT AGREEMENT” BETWEEN SHEBOYGAN COUNTY & WDNR

Management Agreement

Agreement between the Wisconsin Department of Natural Resources and the County of Sheboygan for the management, development, protection, and maintenance of the county-owned lands on the Sheboygan Marsh in the Town of Russell and north part of Town of Greenbush, all in Township 16 North, Range 20 East, excluding the 38 acre developed Broughton County Marsh Park in Sections 13 and 24.

This agreement, is made and entered into this _____ day of _____, 2002, by and between the Wisconsin Department of Natural Resources, hereinafter referred to as the WDNR, and Sheboygan County, hereinafter referred to as the County.

WITNESSETH

WHEREAS, S. 23.09(2)(h), Stats., authorizes the WDNR to enter into cooperative agreements with governmental agencies for purposes consistent with S. 23.09, Stats.; and

WHEREAS, the WDNR and County both own substantial acreage within Sheboygan Marsh with current acreages of approximately 753 and 7,385, respectively, and

WHEREAS, the WDNR and Sheboygan County are desirous of cooperating to assure coordinated and effective efforts in the management of natural resources and especially the fish and wildlife resources of the Sheboygan Marsh; and

WHEREAS, the WDNR and the County are desirous in defining the roles and responsibilities of the management of the natural resources of the Sheboygan Marsh; and

WHEREAS, the WDNR through its land, water, and forestry divisions and Sheboygan County, through its Resources Committee, will formulate a comprehensive management plan for the Sheboygan Marsh and further desire to cooperate in management, protection, and development of the Sheboygan Marsh in accordance with the concepts of said plan and any future revisions that are mutually agreed upon.

NOW, THEREFORE, the WDNR and the County mutually agree as follows:

1. Habitat Management: The WDNR will provide resource management service for the mutual benefit of the State and County. The WDNR shall have authority to manipulate vegetative cover types for the maintenance and perpetuation of fish and wildlife on Sheboygan Marsh as outlined in the plan. Manipulation of vegetative types shall include the use of the following techniques: bulldozer, herbicide control, cutting, timber harvesting, mowing, prescribed burning, various agricultural techniques, and other necessary, feasible methods. The WDNR may contract with other parties for the maintenance and development of wildlife habitat.
2. Recreational Activities: Outdoor recreational activities shall be permitted throughout the above designated area as long as they are compatible with the fish and wildlife management program.
3. Timber Harvests: The County agrees to leave to the discretion of WDNR “representatives” (local forester and wildlife manager), any decisions regarding the harvest of forest products. Timber harvest shall be consistent with the goals and objectives of the Master Plan. The County reserves the right to all forest products, and revenue from the sale of timber, from its lands.
4. Wildlife Refuges: The WDNR may establish refuges as delineated in the Master Plan and/or Wisconsin Administrative Codes.

5. Hunting & Fishing: The County agrees to allow any person or persons to hunt, pursue, take, catch, and kill game and fish in any legal manner on said described lands during the open season for such fish and game.
6. Enforcement of Public Use: The WDNR agrees to enforce laws pertaining to conservation of the above described lands wherein it is within the provision of their action (Chapter 45 of Wisconsin Administrative codes included). The County agrees to assist WDNR in regulating vehicular use on the above described property.
7. Land Ownership: The County agrees that none of the lands described herein will be sold or otherwise disposed of while this agreement is in effect. This agreement will also cover any additional lands acquired by the County as part of the Sheboygan Marsh complex.
8. Management on Small Impoundments: The WDNR will maintain the dikes, and ditches, and water control structures associated with the small flowages. The WDNR will have sole authority for water level manipulation of these flowages. The County may provide funds for material that are necessary to maintain said flowages. This will also apply to any new flowages developed on the Sheboygan Marsh complex.
9. Water Levels: a) The County and the WDNR agree to manage water levels according to the recommended management regime described in the Master Plan and the laws and regulations governing the management of flowages in the State. Refusal to allow such management will justify the termination of this agreement. b) The County will designate an individual to assist WDNR personnel in the maintenance of water levels on the marsh according to guidelines established through the Master Plan and/or public hearings on water level maintenance. The WDNR personnel and County Assistant will maintain records of water levels as deemed necessary by the County and the WDNR.
10. Periodic Review: This agreement shall become effective when signed by the parties hereto and shall continue in force until terminated by mutual agreement or at the option of either party upon one year's notice given upon any anniversary date hereof. The agreement shall be reviewed by the County and the WDNR biennially and at such other times as may be requested by either party on 60 days written notice. An annual activity report shall be prepared by the WDNR and presented to the County during the 1st quarter of each year or within 30 days of written request. Project proposals submitted by the WDNR or the County that will affect the above described area shall be reviewed by the other party.
11. Liaison and Coordination Responsibilities: To provide for the primary point of contact between WDNR and the County, the fish manager and wildlife manager at the Plymouth Field Station of WDNR and the Resources Committee of the County Board are assigned.
12. All rights and responsibilities of the WDNR contained herein are subject to the availability of future legislative appropriations.

IN WITNESS WHEREOF, the parties hereto cause this agreement to be executed on the date hereinabove first set forth.

Secretary of the WDNR

Sheboygan County Board Chairman

APPENDIX C.

“JOHN L. SEXTON: HERMIT’S DEATH A LEGEND”; A RESTORATION PROJECT DEEMED WORTHY OF FUTURE CONSIDERATION

The following history and proposal was prepared by Mr. David Quasius in 1989. Quasius is an avid historian, whose family owns the lime quarry at Rhine Mills adjacent to *Sheboygan Marsh*. He also serves on the *Broughton Sheboygan Marsh Management Advisory Committee*.

Charles Broughton had a deep fondness for John Sexton, and wanted him to be remembered as a “Friend Of The Great Outdoors.” In fact, Broughton donated the Sexton property to the county and wanted a permanent memorial erected in his memory. Why not the return and restoration of the original John Sexton House?

It is appropriate that this bit of Sheboygan County history be perpetuated.

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JOHN L. SEXTON HOUSE

David Quasius
Idea Outline
February 1, 1989

PROJECT:

The construction or return and restoration of the original John Sexton House on his original homestead site and location.

PURPOSE:

To perpetuate the history and memory of John Sexton, pioneer school teacher of Sheboygan County, and to relate the incidents of his famous murder, called Sheboygan County's most celebrated murder. His story is also closely tied to the full telling of the history of the Sheboygan County Marsh property, the nearby Lime Quarry Works and the history of Elkhart Lake. Thus, the Sexton House could become a major county and state historical attraction and would supplement interest and use of the existing Sheboygan County Marsh property.

SCOPE OF THE PROJECT:

The project as I imagine it, is the restoration of the original house or reconstruction of that house as it looked on June 28, 1911, the day he was murdered. Many pictures are available, showing both the inside and outside of the house and property, to aid the restoration or reconstruction. I picture the house and site as being a type of walk-up-to-museum similar to "Old Milwaukee" at the Milwaukee Museum, where a visitor could read an account of the John Sexton history and the relating Sheboygan County Marsh history on a board outside his house, and then by walking the John Sexton site and peering in the windows, relive that interesting point in time.

ORIGINAL SEXTON HOUSE:

As far as I can determine as of this date, the original Sexton house was moved around 1938 to the Henschel property just to the north on County Road MM and incorporated into the present residence or used as an outbuilding. In any case, it is still in existence.

HISTORICAL SIGNIFICANCE OF JOHN SEXTON:

- County Pioneer
- Post Master
- Philosopher and Discoverer
- Sheboygan County's first school teacher
- Sheboygan County's most celebrated murder case

RELATIONSHIP TO SHEBOYGAN COUNTY MARSH AND RHINE MILLS:

The John Sexton House was located on a road that connected the Sheboygan Marsh and the nearby lime quarry. Rhine Mills was a village that was platted originally in 1870 by John Bertschy, the first in a line of land developers who harbored dreams of turning the vast Sheboygan Marsh into some kind of productive venture. Bertschy hoped to drain the marsh and sell the reclaimed land as farmland, as did a later company, the Sheboygan Valley Land and Lime Co. That company constructed the kilns at Rhine Mills to manufacture lime from the native limestone, using the tamarack logs they felled in the marsh to burn the limestone. With both developers concentrating on their marsh projects, the village at Rhine Mills never really developed. Workers from the lime quarry traveled past the site of John Sexton's house while harvesting the tamarack logs. John Sexton, who was rumored to be a wealthy hermit, was brutally murdered by one of the workmen of the quarry project.

AS AN ATTRACTION TO SUPPLEMENT OTHER HISTORICAL FEATURES IN THE AREA:

The Sexton House would add greatly in bringing people to the immediate area, which is already rich in historic attractions. For example, the Sheboygan Marsh is a jewel on its own, but now has the interesting Indian diggings going on on adjacent property. The Wade House and Jung Carriage is a major state historical attraction. I feel the Sexton House would be an additional plum on an already richly laden tree.

PAST LOCAL INTEREST:

- 1911 John Sexton brutally murdered in his log cabin.
- 1930s Site was purchased by Charles Broughton and donated to county for park purposes.
- 1941 Historical marker erected on site.
- 1952 Memorial Forest planted on site.

SITE:

The site is located on County Road J, a hundred yards north of the entrance to the Sheboygan County Marsh. The original John Sexton homestead was purchased by Charles E. Broughton and then donated to Sheboygan County for use as a public place in conjunction with the development of the Sheboygan County Marsh park and marsh preservation project. The site of John Sexton's homestead is currently owned by Sheboygan County.

Currently, the Sheboygan County Highway Department is investigating the replacement of the bridge on County Road J, near the entrance of the Marsh. One scheme has the bridge being moved to the east. Placement of the bridge and road in that direction could destroy part or all of the original Sexton homestead. The Highway Department has been made aware of the historical significance of the Sexton site.

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APPENDIX D.

ENVIRONMENTAL IMPACTS OF A SUMMER DRAWDOWN OF THE SHEBOYGAN MARSH

Environmental Analysis and Decision on the Need for an Environmental Impact Statement (EIS)

Southeast Region

Type List Designation – NR 150.03(8)(f)8.a

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The assessment includes a description of the proposal and the effected environment.

Environmental Effects and Their Significance

This is an evaluation of the significance of the environmental effects that would result from a complete summer drawdown of the Sheboygan Marsh flowage. This was proposed as part of the update of a master plan completed in 2002. Previous environmental assessments (EA) were written in 1984 on the impacts of partial summer drawdowns and in 1987 to evaluate a complete summer drawdown, plus chemical treatment of the Sheboygan Marsh. The Sheboygan Marsh 7,414 acres of public lands owned by Sheboygan County and 752 acres of state owned lands. This management proposal is in response to issues identified at public meetings in 2000.

Sheboygan Marsh is an extensive lake/impoundment and wetland complex in northwestern Sheboygan County. Flow of water into the marsh is mainly from the Sheboygan River, but also from an outlet of Big Elkhart Lake, St. Anna Creek, and several unnamed tributaries within a 133 square mile watershed. The total open water acreage is divided into the main “lake” (~368 acres), Sheboygan River (130 acres), St. Anna Creek (29 acres), and 21 miles of drainage ditches (147 acres). There is an additional approximately 1,000 acres of flooded cattail within the marsh. Over 75 percent of the natural surface waters are less than 3 feet deep and maximum depth is 3.5 feet. The dredged channels range in depth from 3 to 9 feet with a 5-foot average depth. These surface waters and flooded ditches are a result of a dam that was installed in 1938 to restore original water levels to an artificially drained wetland complex.

The dam is 8 foot wide and 65 foot wide. In 1968 a 250 foot, 5 feet diameter bypass pipe was installed just north of the dam to facilitate raising and lowering the water levels. There is a slide gate assembly on the upstream side that controls water entry, and that is operated manually with a worm gear and pinion.

- ◆ A revised water level management regime included in a revised master plan (2002) includes complete summer drawdowns on a “as needed basis”. Complete summer drawdowns were completed on this marsh in 1968 and 1987. In addition, the marsh had been in drawdown for a number of years between 1921 and 1937 when it was drained. The results from those drawdowns, and scientific literature on drawdowns, can be used to predict the likely results from intermittent drawdowns.
 - The drawdown will begin in the first week of May, when the bypass slide-gate will be raised to allow bottom drawn water to drain additional water from the marsh. Under normal rainfall conditions, the water levels should drop at a rate of about 1 foot per week, bringing the marsh down to normal river level by late May (down to ~ 4 feet below the spillway of the dam).
 - Water levels will be kept down until mid-September, and then slowly brought back up by installing additional boards in front of the bypass. At least 25 percent of normal flow must be maintained downstream of the dam/bypass to allow continued biological functions of the river just downstream of the bypass. Given normal fall precipitation conditions, water levels should be back to normal levels by mid to late October.
 - During the drawdown there will be an attempt to remove cattail blockages from the south ditch and river channel, north of the main ditch, to improve navigation and water flow.

- It is expected that a summer drawdown would help stabilize cattail mats and allow establishment of other aquatic plants. There would be an increase in the diversity of plants and animals using the marsh, and an increase in related recreational uses for 3 to 5 years following a drawdown. Increased aquatic plants would help reduce suspended sediments and improve water clarity and quality. Production of wetland dependent wildlife and fish species would be reduced during the years of complete drawdowns but improved habitat conditions in subsequent years more than makes up for those losses for wildlife species. There would also be a reduction in the abundance of invertebrates, mollusks, and herptiles during the years of full drawdowns; increased vegetation and nutrient release resulting from drawdowns should increase production and diversity of these organisms in subsequent years.
- ◆ Water level management during other times of the year, and during years without drawdowns would be similar to what was done since 1984. Closer monitoring is planned through the caretaker at the Marsh Lodge, but other operations would be the same. If peak flows in the spring can be moderated as proposed, there may be a slight reduction in northern spawning success compared to allowing natural fluctuations to occur.

Significance of Cumulative Effects

No adverse cumulative effects are anticipated. The purpose of the proposed drawdown is to stabilize emergent vegetation, increase diversity of aquatic plants and animals, improve water quality and wildlife habitat.

Significance of Risks

Significant risks associated with the proposed intermittent summer drawdowns, include:

- Fish populations would experience significant reductions during the drawdown and would take 4 – 5 years to fully recover through reproduction and stocking.
- Potential fish die-offs when fish are trapped in unconnected pool areas, or concentrated in remaining water areas. Past drawdowns resulted in localized die-offs of fish and movement of fish downstream to Kiel Marsh.
- Potential for a botulism outbreak in birds caused by decaying fish or invertebrates. Conditions will be monitored by airboat and standard response procedures would be followed, if problems occur.
- Potential for a substantial increase in cattail growth, and subsequent problems with floating cattail mats, if a drought causes another drawdown the year after a managed drawdown.
- Not being able to restore water levels in the fall of a drawdown year, for migratory waterfowl use and hunter access. Environmental effects would be minimal but public response could be significant; news releases and public appearances should stress the potential for poor access during the fall.

Significance of Precedent

These proposed activities are not irreversible or precedent setting. Results of management activities will continue to be monitored and evaluated. The effects of drawdowns normally last for three to five years, and hopefully stabilize cattail mats for a longer period, but environmental conditions will return to pre-drawdown conditions in five to ten years.

Significance of Controversy Over Environmental Effects

There is likely to be controversy over the proposed water level regime, especially the complete summer drawdowns. In the past the controversy related to:

- Concerns over the loss of water based recreation & business during the drawdown.
- Concerns over the loss of fish production and fishing recreation as a result of the drawdown.
- Debate over the efficacy of drawdowns in controlling/stabilizing floating cattail mats.
- Debate over the benefits of drawdowns to wetland wildlife species; change in wetland characteristics from an open, deep-water marsh to a hemi-marsh (more emergent wetland plants).
- Controversy over the change in flow downstream from the dam; concerns include increased siltation during the drawdown, loss of water flow during re-fill, and impacts to fish and wildlife from water level changes in the river.

Alternatives

Suggestions from citizens to address the identified issues were gathered during two public informational meetings held in 2000 and 2001. All suggestions were considered by the technical and project management teams working on revising the master plan for the Sheboygan Marsh, and responses are summarized in chapter 5 of the plan. More detailed analysis of suggestions that the technical and project teams determined to be feasible are discussed in chapters 4 & 5 of the plan.

The effect of no action or status quo would require the county and the WDNR to continue to operate under the 1984 master plan and management agreement. Although functional in many aspects, the strategy for water level management has not been as effective as desired in controlling floating cattail mats or maintaining wetland habitat. The county and state would have to continue the costly removal of cattail mats from in front of the dam, and the wetland habitat conditions would continue to deteriorate. An analysis of alternatives for water level management is detailed in chapter 4 of the plan; a brief summary is presented below:

- Maintain normal water levels, without using the bypass to intervene with water level changes on the marsh. Likely impacts include – decreased wetland habitat for wildlife and fish, reduced plant and animal diversity, and continued problems with floating cattail mats at the dam.
- Maintain normal water levels, except for bypassing water during peak flows in spring and fall. Likely impacts similar to the previous with more of a time lag and less spawning habitat for fish.
- Lower average water levels by 0.5 to 1.0 foot. Likely impacts difficult to predict but this level would be different than historical levels. Impacts may include increased cattail growth with similar or aggravated problems with floating cattail, reduced plant and animal diversity over time, loss of boating access, but increased tree, shrub, and emergent plant growth.
- Winter drawdowns for spring flood storage. Efficacy of winter drawdown in reducing impacts from spring runoff is questionable. Loss of aquatic plant and animal life as a result of freezing and habitat loss during the winter. Potential hazards to persons using ditches and rivers for snowmobiling and ATV use during the winter.
- Partial summer drawdowns (water levels down ~ 1.5 feet from late-May until mid- June). Likely impacts include improved wetland habitat for fish and wildlife, with loss of fish production during the drawdown year. Increases in both diversity and quantity of wetland wildlife occur following a partial summer drawdown. Increased aquatic vegetation improves water quality and clarity. Boating opportunities are reduced during the drawdown years. Partial drawdowns provide more “reserve” areas for aquatic invertebrates and mollusks during the drawdown, resulting in a faster re-population by these species after the drawdown. Results from 1984 and 1995 indicate that the stabilization of cattail mats and improved plant diversity lasts for 2 to 3 years.
- Complete summer drawdowns (water levels down ~ 3 feet from late-May to mid-June). Experience from complete drawdowns in 1968 and 1987, plus the restoration of water levels in 1938, indicates that the likely impacts are similar to those seen in partial summer drawdowns but with longer lasting effects. Cattails were stabilized for 6 to 10 years, or more. The impacts to boating opportunities and fish reproduction would be more severe.

Compliance with the Wisconsin Environmental Policy Act

Decision

In accordance with s. 1.11, Stats., and Ch. NR 150, Adm. Code, the department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Chapter NR 150, Wis. Admin. Code.

EIS Process Not Required

The attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the department on this project.

Signature of Evaluator

Date Signed

Noted: Bureau Director

Date Signed

Number of responses to news releases or other notice: ____.

Certified to be in Compliance with WEPA

Regional Director or
Director of BEAR (or designee)

Date Signed

Notice of Appeal Rights

This notice is provided pursuant to section 227.48 (2), Stats. If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review department decisions must be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the department, to file your petition with the appropriate circuit court and serve the petition on the department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent. To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Note: Not all department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.

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