

**AN AQUATIC
PLANT INVENTORY
FOR PINE LAKE**

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WISCONSIN**

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Special acknowledgment is due Dr. Jeffrey A. Thornton, CLM, SEWRPC Principal Planner, Ms. Christine M. Hinz, SEWRPC Planner, and Mr. Edward J. Schmidt, SEWRPC Research Analyst, for their contributions to the conduct of this study and the preparation of this report.

**MEMORANDUM REPORT
NUMBER 124**

**AN AQUATIC PLANT INVENTORY FOR PINE LAKE
WAUKESHA COUNTY, WISCONSIN**

Prepared by the

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Chapter I

INTRODUCTION

Pine Lake, located in the Village of Chenequa, Waukesha County, Wisconsin, is a valuable resource offering a variety of recreational and related opportunities to the resident community and its visitors. The Lake is an integral part of this lake-oriented community. However, the recreational and visual value of the Lake is perceived to be adversely affected by aquatic plant growth within the Lake. Seeking to improve the usability and to prevent deterioration of the natural assets and recreational potential of Pine Lake, the Village of Chenequa continues to undertake an annual program of lake and aquatic plant management.

This report sets forth an inventory of aquatic plant communities present within Pine Lake, and represents part of the ongoing commitment of the Village of Chenequa to sound planning with respect to the Lake. This inventory was prepared during 1996 and 1997 by the Southeastern Wisconsin Regional Planning Commission in cooperation with the Village of Chenequa and includes the results of field surveys conducted by the Commission in 1996 and field observations by Marine Biochemists, Inc. in 1997. The data gathered during this field program were designed to be used, in conjunction with oblique aerial photography acquired by the Village of Chenequa concurrently with the Commission's field surveys, as part of an ongoing aquatic plant monitoring and control program in Pine Lake specifically designed to control the growth and spread of the invasive aquatic plant, Eurasian water milfoil (*Myriophyllum spicatum*). The overall planning program was funded, in part, by a Wisconsin Department of Natural Resources Lake Management Planning Grant awarded to the Village of Chenequa under the Chapter NR 190 Lake Management Planning Grant program.

This inventory is intended to form an integral part of any future aquatic plant management plan, or comprehensive lake management plan, for Pine Lake. The scope of this report is limited to a consideration of the aquatic plant communities present within Pine Lake and the documentation of historic changes in this plant community based upon currently existing data and information. The preparation of a comprehensive lake management plan, or aquatic plant management plan, for Pine Lake may require additional data collection and will require further data analysis.

The recreational lake use goals and objectives for Pine Lake were developed in consultation with the Village of Chenequa. The goals and objectives are:

1. To protect and maintain public health, and to promote public comfort, convenience, necessity, and welfare, through the environmentally sound management of the vegetation, fishery, and wildlife populations in and around Pine Lake;
2. To provide for high-quality, water-based recreational experiences by residents and visitors to Pine Lake, and manage the Lake in an environmentally sound manner; and,
3. To effectively maintain the water quality of Pine Lake so as to better facilitate the conduct of water-related recreation, improve the aesthetic value of the resource to the community, and enhance the resource value of the waterbody.

This inventory, which conforms to the requirements and standards set forth in the relevant chapters of the Wisconsin Administrative Code,¹ should serve as an initial step in achieving these objectives over time.

¹This plan has been prepared pursuant to the standards and requirements set forth in Wisconsin Administrative Code Chapter NR 1, "Public Access Policy for Waterways;" Chapter NR 103, "Water Quality Standards for Wetlands;" and, Chapter NR 107, "Aquatic Plant Management."

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Chapter II

INVENTORY FINDINGS

INTRODUCTION

Pine Lake is located in the Village of Chenequa, Waukesha County (see Map 1). The Lake is a drainage lake with an inflow, comprising an unnamed stream entering the Lake from Beaver Lake along the eastern shore, and an outflow, comprising an unnamed stream discharging to Cornell Lake, and ultimately to North Lake and the Oconomowoc River, at the northern most portion of the Lake. The drainage area directly tributary to Pine Lake, situated wholly within Waukesha County, approximates 2,250 acres. The total tributary drainage area to Pine Lake, including those lands draining to Beaver Lake, similarly situated wholly within Waukesha County, approximates 3,690 acres. The surrounding land uses in these areas are residential in the lake riparian areas with the balance being primarily natural areas—wetlands, woodlands, and other open natural areas. Limited changes in land usage are anticipated within the lake drainage area under forecast buildout conditions.¹ Lake-oriented residential lands are, and will continue to be, the principle urban features of the Pine Lake drainage area.

WATERBODY CHARACTERISTICS

Pine Lake is a 703-acre waterbody, the hydrographical characteristics of which are set forth in Table 1. The Lake is a drainage lake, roughly elongate in aspect, having one large basin. A number of broad embayments are situated along the lakeshore. The waterbody has a maximum depth of about 85 feet, a mean depth of 38 feet, and a volume of about 27,000 acre-feet. The bathymetry of the Lake is shown on Map 2.

LAND USE AND SHORELINE DEVELOPMENT

Population

As of 1990, there were approximately 1,820 persons residing within the total drainage area tributary to Pine Lake. Of these persons, about 1,630, or 90 percent, were resident within the drainage area year around, and about 190 were resident for only part of the year. There were approximately 690 housing units located within the drainage area tributary to Pine Lake, about 605, or 88 percent, of which were occupied year around. About 85, or 12 percent, of housing units were occupied for part of the year.

Land Use

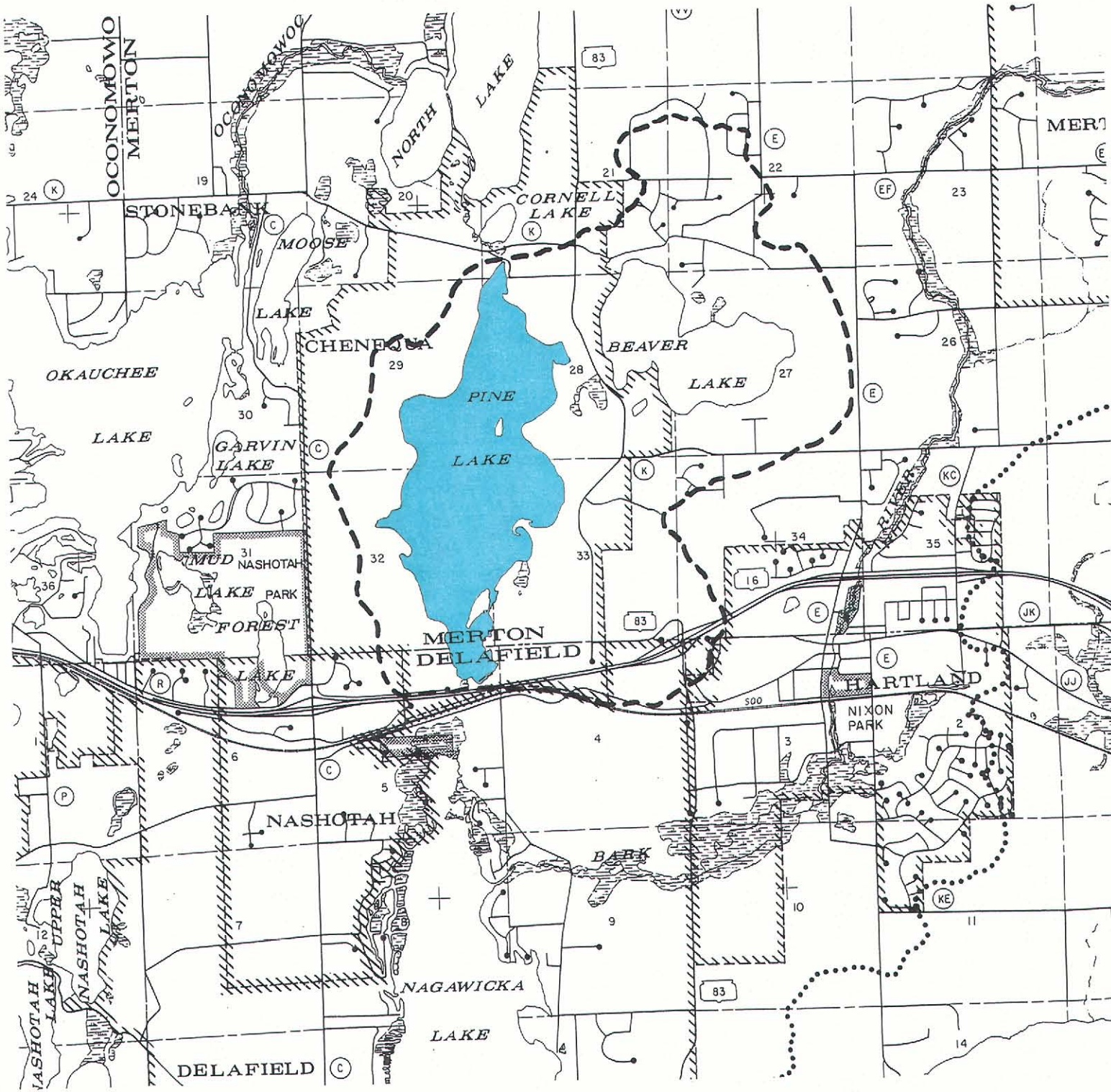
The riparian areas of Pine Lake are used primarily for urban residential development. As shown on Map 2, the Lake has one public access site located on the northern most bay of the Lake. The Lake is considered as having adequate public access in terms of the criteria set forth in Chapter NR1 of the *Wisconsin Administrative Code*.

The existing (1990) land use pattern in the drainage area tributary to Pine Lake is shown in Map 3 and quantified in Table 2. About 1,000 acres, or 30 percent of the total tributary drainage area, were devoted to urban uses. The dominant urban land use was residential, encompassing about 800 acres, or 80 percent of the area in urban use. About 2,600 acres, or 70 percent of the tributary drainage area, were still devoted to rural land uses. About 700 acres, or 28 percent of the rural area, were in agricultural and open land uses. Woodlands, wetlands, and surface water, including the surface area of Pine Lake, accounted for approximately 1,700 acres, or 65 percent of the rural land uses.

¹SEWRPC Community Assistance Planning Report No. 209, A Development Plan for Waukesha County, Wisconsin, August 1996; see also SEWRPC Planning Report No. 40, A Regional Land Use Plan for Southeastern Wisconsin—2010, January 1992.

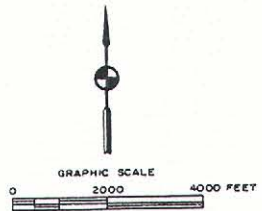
Map 1

TOTAL DRAINAGE AREA OF PINE LAKE



LEGEND

 TOTAL TRIBUTARY DRAINAGE AREA



Under year 2010 conditions, some additional conversion of rural land to urban land uses within the drainage area tributary to Pine Lake is envisioned in the regional land use plan.² The riparian residential areas and access sites may be considered to be largely developed with minimal potential for infilling on a limited number of platted lots. However, infilling of existing platted lots and additional low-density, single-family residential development within the drainage area and in the vicinity of the Lake is expected to occur.

In 1996, the Commission refined and extended the regional land use plan within Waukesha County under a county development plan.³ Forecast development within the drainage area tributary to Pine Lake under the recommended plan buildout conditions set forth in the Waukesha County development plan is similar to the recommended land use plan set forth in the regional land use plan, but includes a somewhat greater amount of conversion of rural lands for urban residential purposes.

RECREATIONAL USES AND FACILITIES

Pine Lake is a multi-purpose recreational use waterbody serving all forms of recreation, including boating, waterskiing, swimming, and fishing during the summer months; and ice fishing during the winter. Snowmobiling is prohibited on Pine Lake. The Lake is used year around as a visual amenity—walking, bird watching, and picnicking, being popular passive recreational uses of the waterbody.

A boat survey conducted in July of 1996 indicated that about 330 boats were either moored in the water or stored on land. The types of boats included 100 powered or ski boats, 66 fishing boats, 36 pontoon boats, 10 paddle boats, 24 canoes, 61 sail boats, 31 personal watercraft (jetskis), and one battery-powered electric boat. Public recreational boating access to Pine Lake is by way of an improved, handicapped-accessible launch on the northern shore of Pine Lake. The access site provides parking for 18 car-trailer units plus one handicapped accessible unit. During the winter months parking is provided for 30 vehicles without trailers. The Village of Chenequa maintains a boating patrol on the Lake during the summer.

Local Ordinances

Pine Lake is subject to a boating ordinance promulgated as Chapter 4: Lakes of the Village of Chenequa Code. This ordinance provides generally applicable rules for all waters within the jurisdiction of the Village, as well as specific regulations pertaining to the major waterbodies within the Village jurisdiction, as set forth in Appendix A. Sections 4.02: Boating - Pine Lake, 4.06: Regulation of Use of Pine Lake Public Boat Access Facility, and 4.07: Operation and Parking of Motor Vehicles on Ice - Pine Lake, are specifically applicable to Pine Lake. These rules limit the times during which boats may operate on Pine Lake. The ordinance provisions relating to the waters of the Village conform to State of Wisconsin boating and water safety laws pursuant to Chapter 30, *Wisconsin Statutes*.

At the present time, the Village has also adopted land use provisions within Chapters 5 and 6 of the Village of Chenequa Code that address land use activities which may have lake-related consequences; namely, the Village has promulgated Sections 5.17: Erosion Control Plan Approval, and 5.18: Land Disturbance of the Village Building

²SEWRPC Planning Report No. 40, A Regional Land Use Plan for Southeastern Wisconsin—2010, January 1992.

³SEWRPC Community Assistance Planning Report No. 209, A Development Plan for Waukesha County, Wisconsin, August, 1996.

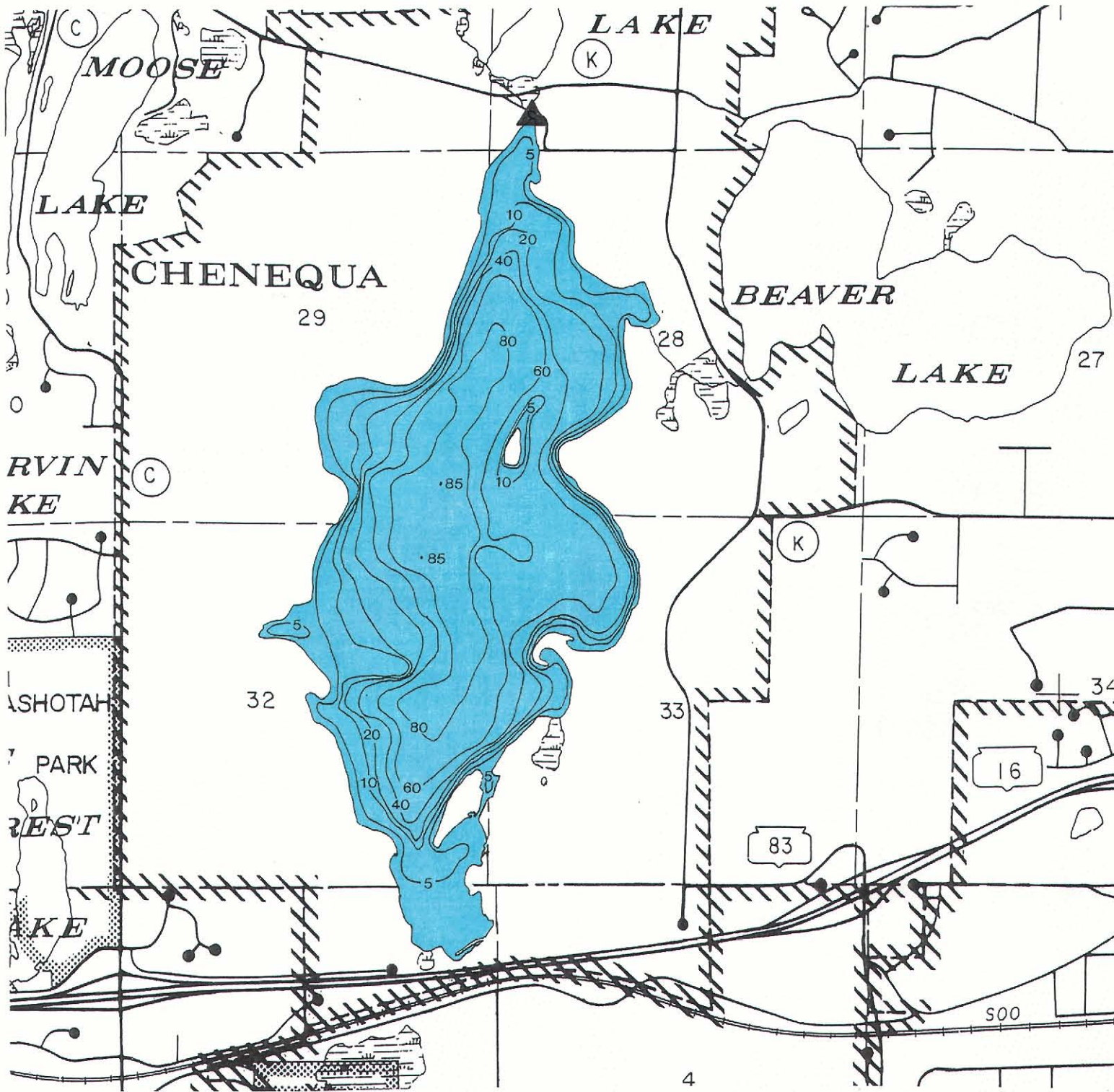
Table 1

HYDROGRAPHIC CHARACTERISTICS



Parameter	Measurement
Surface Area	703 acres
Mean Depth	38 feet
Maximum Depth	85 feet
Volume	27,000 acre-feet
Direct Drainage Area	2,250 acres
Total Tributary Drainage Area . . .	3,690 acres

Source: SEWRPC.

BATHYMETRIC MAP OF PINE LAKE

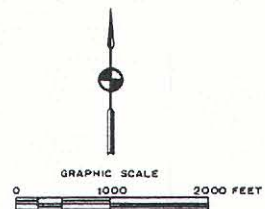


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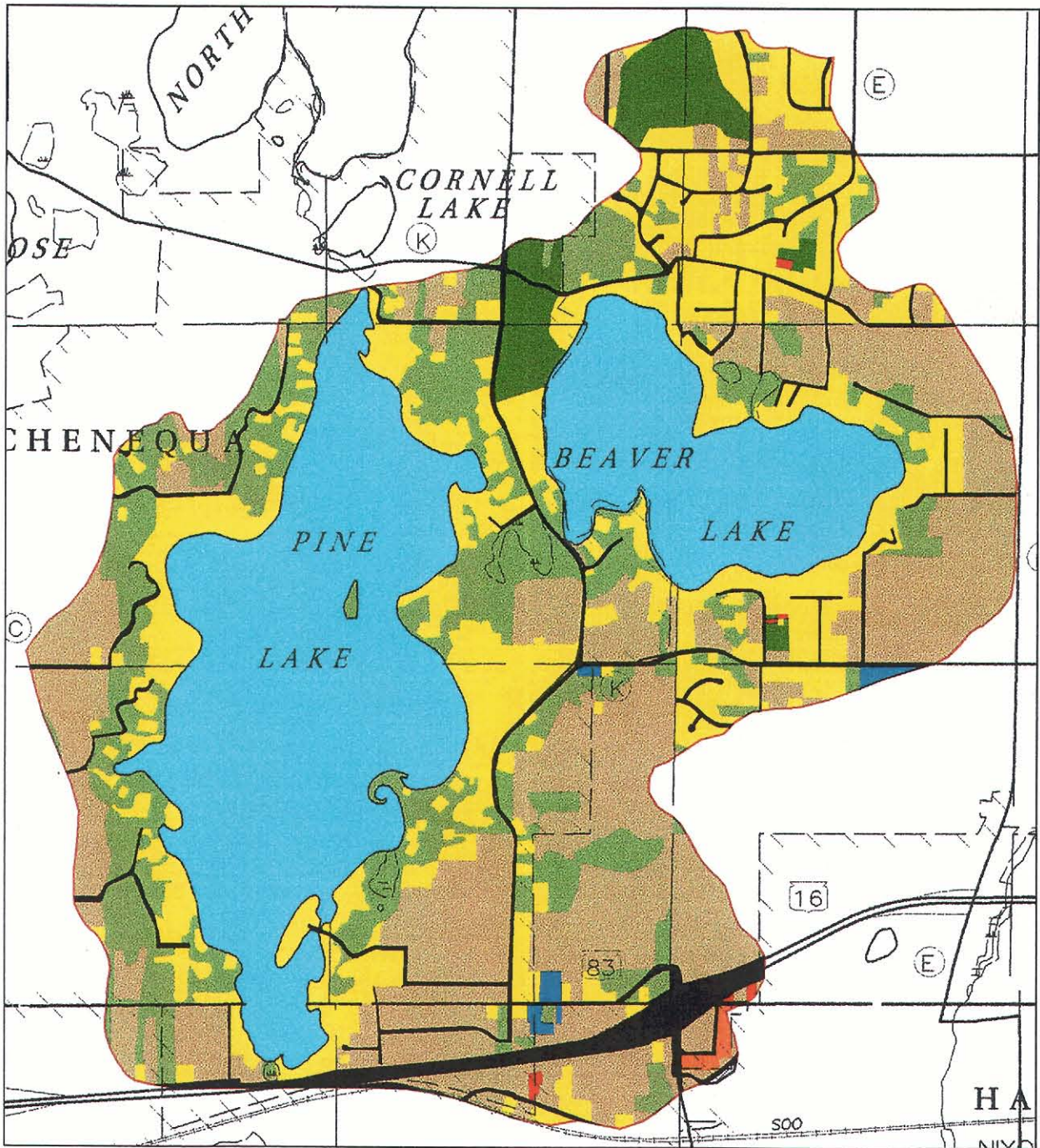
-  20 WATER DEPTH CONTOUR IN FEET
-  PUBLIC ACCESS SITE

6












Source: SEWRPC.

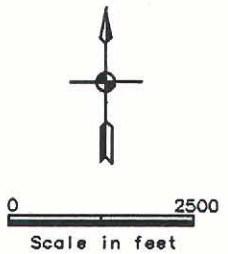


GENERALIZED LAND USE WITHIN THE TOTAL TRIBUTARY DRAINAGE AREA TO PINE LAKE: 1990



LAND USE CATEGORIES

- | | |
|--|--|
|  Single-family residential |  Recreation |
|  Multi-family residential |  Surface water |
|  Commercial |  Wetlands and woodlands |
|  Industrial |  Agricultural, unused, and other open lands |
|  Transportation, communications, and utilities |  Extractive and landfill |
|  Government and institutional | |



Source: SEWRPC.

Table 2

EXISTING AND RECOMMENDED LAND USE WITHIN THE TOTAL TRIBUTARY DRAINAGE AREA TO PINE LAKE

Land Use Categories ^a	1990		2010	
	Acres	Percent of Drainage Area	Acres	Percent of Drainage Area
Urban				
Residential	844	22.9	1,264	34.3
Commercial	5	0.1	39	1.0
Industrial	--	--	--	--
Governmental	14	0.4	14	0.4
Transportation and Utilities	60	1.6	60	1.6
Recreational	113	3.1	124	3.4
Subtotal	1,036	28.1	1,501	40.7
Rural				
Agricultural	747	20.3	468	12.7
Wetlands	30	0.8	30	0.8
Woodlands	581	15.8	581	15.8
Water	1,076	29.2	1,076	29.2
Landfill	--	--	--	--
Other Open Land	216	5.8	30	0.8
Subtotal	2,650	71.9	2,185	59.3
Total	3,686	100.0	3,686	100.0

^aStreet and parking areas are included in the associated land use categories.

Source: SEWRPC.

Ordinance, in order to limit construction site erosion from sites of 5,000 square feet or larger, and, at the discretion of the building inspector, on smaller sites where there is danger of erosion due to topographic or other factors. The ordinance is administered and enforced by the building inspector in both the shoreland and nonshoreland areas of the Village of Chenequa. In addition, Section 6.12: Removal of Shore Cover, controls the degree to which natural vegetation can be removed from the lakeshore, within the 75 foot shore zone, and along the shoreline. This ordinance is administered and enforced by the village forester. Both Chapters of the Village Code are subject to permit requirements administered by the Village Clerk-Treasurer and are consistent with the relevant Chapters of the *Wisconsin Administrative Code*.

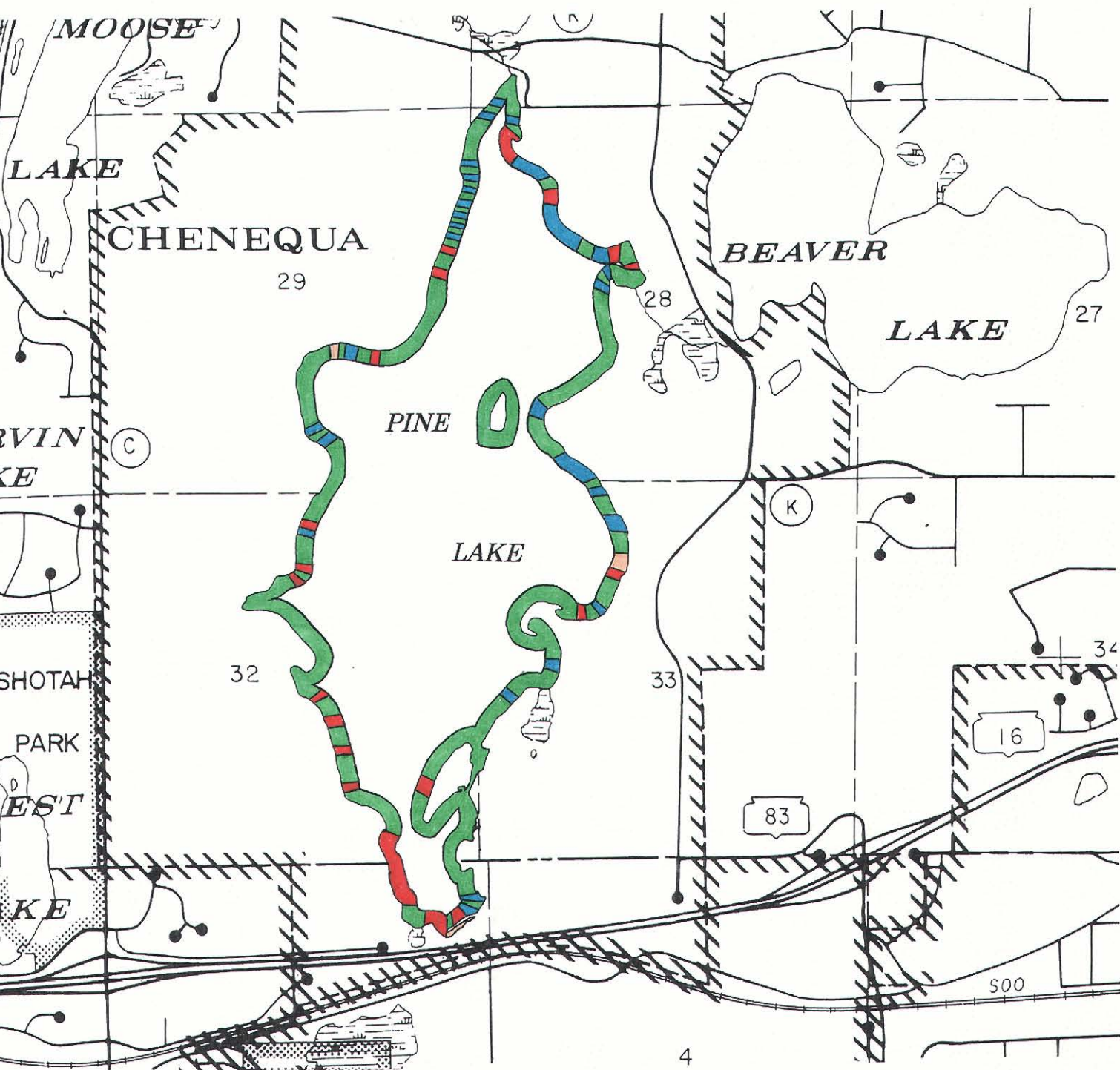
Shoreline Protection Structures

The need for maintenance of the shoreline in order to avoid erosion is important to protect the structure and functioning of the aquatic ecosystem of the Lake, and especially, to preserve the nearshore and wetland aquatic vegetation in and around the Lake. Erosion of shorelines results in the loss of land, damage to shoreland infrastructure, and interference with lake access and use. Such erosion is usually caused by wind-wave erosion, ice movement, and motorized boat traffic. A survey of Pine Lake shoreline, conducted by Commission staff in July 1996, identified many regions of natural shorelines, as shown on Map 4. No obvious erosion-related problems were encountered.

WATER QUALITY

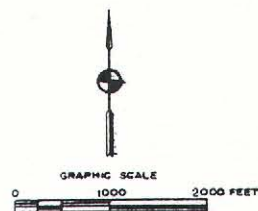
Based on Secchi-disk transparency measurements obtained by the U.S. Environmental Protection Agency during the National Eutrophication Survey conducted in 1972, in addition to subsequent data collected by the Wisconsin Department of Natural Resources (WDNR) during the periods September 1973 to July 1977 and May 1979 to

SHORELINE PROTECTION CONDITIONS ON PINE LAKE: 1996



LEGEND

-  RIPRAP
-  BEACH
-  BULKHEAD
-  NATURAL



September 1981, Pine Lake has fair to good water quality.⁴ In contrast, the Lake has a Wisconsin Trophic State Index⁵ value of 61, based on total phosphorus data, indicating the Lake is an eutrophic waterbody. This status, however, is not supported by the transparency and chlorophyll-*a* data shown in Table 3 and Figure 1. Eutrophic lakes are fertile lakes that support abundant aquatic plant growths and may support productive fisheries. Nuisance growths of algae and plants are typically exhibited by eutrophic lakes. In contrast, mesotrophic lakes, while relatively fertile and supporting abundant aquatic plant growths and productive fisheries, generally do not exhibit nuisance growths of algae and plants. Many of the cleaner lakes in Southeastern Wisconsin are classified as mesotrophic.⁶

The dichotomy between the nutrient status and biotic response in Pine Lake has been noted during previous studies by the Wisconsin Department of Natural Resources⁷ and Aqua-Tech, Inc., consultants to the Village of Chenequa.⁸ The U.S. Environmental Protection Agency ascribed this dichotomy to probable inhibition of plant growth, citing metals concentrations of 20 micrograms per liter ($\mu\text{g/l}$) of lead, 8 $\mu\text{g/l}$ of zinc, and 164 $\mu\text{g/l}$ of arsenic, and noting that Pine Lake had been treated extensively for aquatic plant control.⁹ Notwithstanding, the Wisconsin Department of Natural Resources has more recently identified the cause of the observed dichotomy as arsenic interference with the analytical technique used to measure phosphorus concentrations in lake water,¹⁰ which results in an over-estimation of the phosphorus concentration.¹¹ As a result, the Wisconsin Department of Natural Resources has determined Pine Lake to be a mesotrophic waterbody. This is consistent with the Wisconsin Trophic State Index value of about 45 determined for Pine Lake based upon observed transparency and chlorophyll-*a* concentrations.¹²

FISHERIES

Wisconsin Department of Natural Resources Publication No. PUBL-FM-800-95 REV, *Wisconsin Lakes*, 1995, indicates that largemouth bass and panfish are abundant and that northern pike and smallmouth bass are present in Pine Lake.

⁴U.S. Environmental Protection Agency, *National Eutrophication Survey Working Paper Series*, Report on Pine Lake, Waukesha County, Wisconsin, EPA Region V, Working Paper No. 72, July 1975.

⁵R.A. Lillie, S. Graham, and P. Rasmussen, "Trophic State Index Equations and Regional Predictive Equations for Wisconsin Lakes," Research and Management Findings, *Wisconsin Department of Natural Resources Publication No. PUBL-RS-735 93*, May 1993.

⁶See R.A. Lillie, and J.W. Mason, *Limnological Characteristics of Wisconsin Lakes*, *Wisconsin Department of Natural Resources Technical Bulletin No. 138*, 1983; also see *SEWRPC Memorandum Report No. 93*, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.

⁷L.A. Lueschow, *Biology and Control of Aquatic Nuisances in Recreational Waters*, *Wisconsin Department of Natural Resources Technical Bulletin No. 57*, 1972; also see L.A. Lueschow, J.M. Helm, D.R. Winter, and G.W. Karl, "Trophic Nature of Selected Wisconsin Lakes," *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, Volume 58, pp. 237-264.

⁸Aqua-Tech, Inc., *Limnological Survey of Pine Lake for the Determination of Water Quality*, August 1973.

⁹U.S. Environmental Protection Agency, *National Eutrophication Survey Working Paper No. 72*, op. cit.

¹⁰H.L. Golterman, and R.S. Clymo, *Methods for Chemical Analysis of Fresh Waters*, *International Biological Programme Handbook No. 8*, Blackwell Scientific Publications, Edinburgh, 1971.

¹¹Wisconsin Department of Natural Resources Publication No. PUBL-WR-194-86, A Nonpoint Source Control Plan for the Oconomowoc River Priority Watershed Project, March 1986.

¹²SEWRPC Memorandum Report No. 93, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.

Table 3

WATER QUALITY DATA FOR PINE LAKE: 1972-1981

Date	Transparency (meters)				Total Phosphorus (mg/l)				Chlorophyll-a (µg/l)			
	Minimum	Maximum	Mean	Number of Samples	Minimum	Maximum	Mean	Number of Samples	Minimum	Maximum	Mean	Number of Samples
June 1972 to November 1972	0.5	3.0	1.1	3	0.02	0.04	0.03	17	1.9	16.8	7.5	3
September 1973 to July 1977	--	--	--	--	0.08	0.23	0.17	22	--	--	--	--
May 1979 to September 1981	2.4	4.5	3.3	47	0.02	0.40	0.08	32	4.0	8.5	5.4	19

Source: Wisconsin Department of Natural Resources and SEWRPC.

Based upon a 1975 lake inventory conducted by the WDNR, the fish community was comprised of bluegills, pumpkinseeds, yellow perch, logperch, green sunfish, banded kilifish, blackchin shiner, blacknose shiner, mimic shiner, golden shiner, bluntnose minnow, black crappie, lake chubsucker, common carp, brook silverside, northern pike, and largemouth bass.¹³ Previous surveys conducted by the Department of Natural Resources in 1911 and 1917 found cisco and rock bass, the presence of the former species being confirmed in a 1984 survey conducted by the WDNR.¹⁴ Numerous areas along the less steeply sloping shores of the Lake present suitable habitats for the spawning of bass and northern pike. Spawning takes place in spring, between the time of the spring thaw and mid-June. The carp population of Pine Lake currently does not appear to be a serious threat to the lake ecosystem, but should continue to be monitored.

AQUATIC PLANTS, DISTRIBUTION, AND MANAGEMENT AREAS

A survey of aquatic plant species in the lake basin was conducted by Commission staff during June 1996. The results of this survey are presented in Table 4, and graphically depicted on Map 5. Illustrations of the common aquatic plants found in Pine Lake are included in Appendix B. Concurrent with the plant survey conducted by Commission staff, the Village of Chenequa commissioned a series of oblique aerial photographs of the lake surface for the purpose of potentially monitoring the Lake's aquatic plant community over time by comparing aerial photographs from year-to-year.

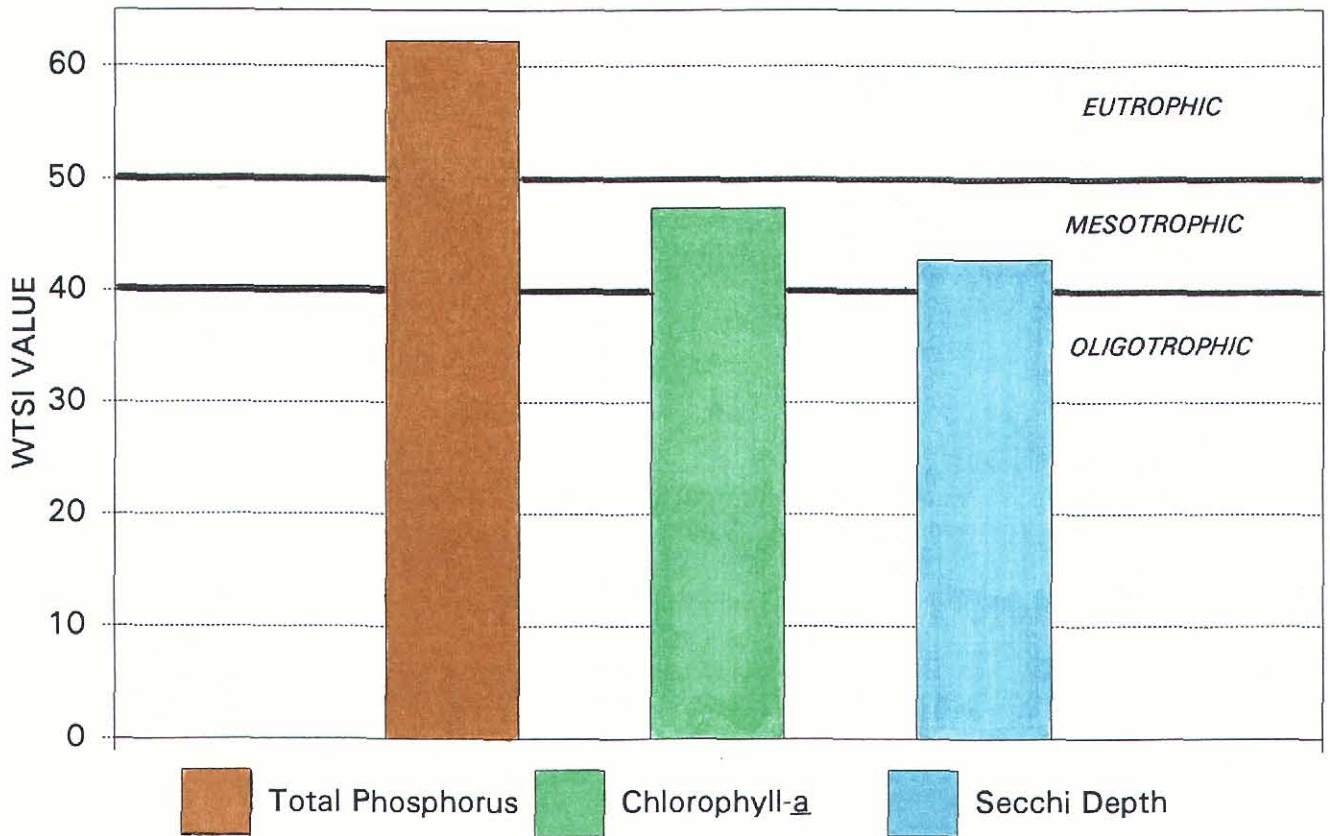
Prior to the Commission survey in 1996, the Wisconsin Department of Natural Resources conducted aquatic plant surveys in 1978, 1980, and 1981, shown on Maps 6 through 8, respectively. Combined, the four aquatic plant surveys conducted on Pine Lake within the last 20 years depict the changes which are likely the consequence, in part, of an extensive aquatic plant management program that has been carried out in a documented manner since 1950, when records of aquatic plant management efforts were first maintained by the Wisconsin Department of Natural Resources. Prior to 1950, previous aquatic plant management interventions are likely to have occurred to some extent, but were not recorded. The aquatic plant control program conducted on Pine Lake can be categorized as chemical macrophyte control and chemical algal control.

¹³D. Fago, Wisconsin Department of Natural Resources Research Report No. 148, Retrieval and Analysis System Used in Wisconsin's Statewide Fish Distribution Survey, Second Edition, December 1988.

¹⁴Ibid.

Figure 1

WISCONSIN TROPHIC STATE INDEX FOR PINE LAKE: 1979-1981



Source: Wisconsin Department of Natural Resources and SEWRPC.

Between 1950 and 1969, 17,434 pounds of copper sulphate and 129,877 pounds of sodium arsenite were applied to Pine Lake.¹⁵ In addition, the Wisconsin Department of Natural Resources reported 2,578 gallons of 2,4-D, 1,802 gallons of Aquathol-K, 488 pounds of Diquat, and 55 pounds of Silvex as being applied to Pine Lake during the period from 1958 through 1995. These applications, and subsequent applications through 1994, are summarized in Table 5. Pine Lake received the fourth largest amount of sodium arsenite applied to the 167 lakes receiving sodium arsenite for aquatic plant control, and the 18th largest amount of copper sulphate applied to the 130 lakes receiving copper sulphate for algal control in the State of Wisconsin, as shown in Table 6.

In the 1996 Commission survey, the southern portions of the lake basin contained areas with the most abundant flora, although the better habitat areas and areas of greatest plant diversity in the Lake were primarily in the northern portions of the waterbody. As noted in Table 3, 18 species of aquatic plants were recorded within the lake basin. All of the observed plants are commonly observed in lakes within the Southeastern Wisconsin Region. The dominant aquatic plant within the Lake was milfoil, *Myriophyllum* spp., as shown in Table 7. The most commonly occurring

¹⁵L.A. Lueschow, *Biology and Control of Aquatic Nuisances in Recreational Waters*, Wisconsin Department of Natural Resources Technical Bulletin No. 57, 1972.

Table 4

AQUATIC PLANT SPECIES PRESENT IN PINE LAKE AND THEIR POSITIVE ECOLOGICAL SIGNIFICANCE

Aquatic Plant Species Present	Relative Abundance ^a	Ecological Significance ^b
<u>Ceratophyllum demersum</u> (coontail)	Scarce	Provides good shelter for young fish and supports insects valuable as food for fish and ducklings
<u>Chara vulgaris</u> (muskgrass)	Common	Excellent producer of fish food, especially for young trout, bluegills, small and largemouth bass; stabilizes bottom sediments; and has softening effect on the water by removing lime and carbon dioxide
<u>Elodea canadensis</u> (waterweed)	Common	Provides shelter and support for insects; valuable as fish food
<u>Heteranthera Dubia</u> (water star grass)	Scarce	Provides food and shelter for fish and is locally attractive to wildfowl
<u>Myriophyllum spicatum</u> (Eurasian water milfoil)	Common	None known
<u>Myriophyllum</u> sp. (native milfoils)	Common	Provides shelter and is a valuable food producer supporting many insects eaten by fish; fruits eaten by many wildfowl; a few wildfowl eat foliage; sparingly eaten by muskrats and moose
<u>Najas flexilis</u> (bushy pondweed)	Common	Stems, foliage, and seeds important wildfowl food and produces good food and shelter for fish
<u>Najas Marina</u> (spiney naiad)	Scarce	Provides shelter and is a good food producer for fish; stems, foliage, and seeds important for ducks
<u>Nuphar</u> sp. (yellow water lily)	- - ^c	Leaves, stems, and flowers are eaten by deer; roots eaten by beavers and porcupines; seeds eaten by wildfowl; leaves provide harbor to insects, in addition to shade and shelter for fish
<u>Nymphaea</u> sp. (White water lily)	- - ^c	Provides shade and shelter for fish; seeds eaten by wildfowl; rootstocks and stalks eaten by muskrats; roots eaten by beaver, deer, moose, and porcupine
<u>Potamogeton amplifolius</u> (large-leaf pondweed)	Scarce	Provides support for insects and produces good food supply for fish and ducks
<u>Potamogeton crispus</u> (curly-leaf pondweed)	Scarce	Provides food, shelter, and shade for some fish and food for wildfowl
<u>Potamogeton illinoensis</u> (Illinois pondweed)	Scarce	Provides some food for ducks and shelter for fish
<u>Potamogeton natans</u> (floating-leaf pondweed)	Scarce	Rootstocks and nutlets provide good food for ducks and provides good environment for fish
<u>Potamogeton nodosus</u> (long-leaved pondweed)	Common	Provides support for insects eaten by fish; sometimes important for wildfowl
<u>Potamogeton pectinatus</u> (sago pondweed)	Scarce	Is the most important pondweed for ducks. in addition to providing food and shelter for young fish
<u>Potamogeton zosteriformis</u> (flat-stemmed pondweed)	Scarce	Provides some food for ducks
<u>Vallisneria americana</u> (water celery or eel grass)	Scarce	Provides good shade and shelter; supports insects; and is valuable fish food

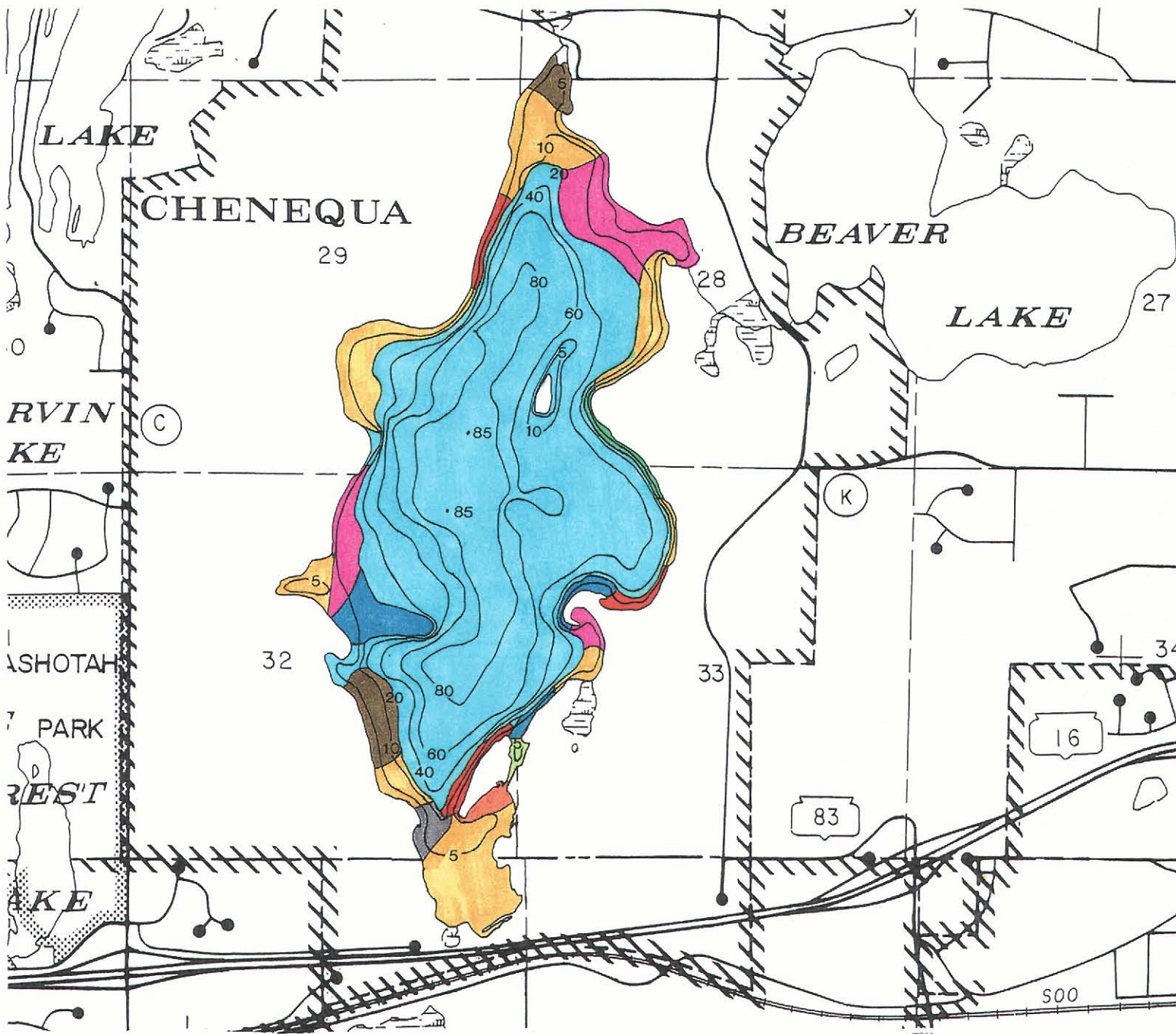
^a Species mean density rating for all sample points including sample points where a particular species did not occur in Pine Lake: A = abundant (density rating = 4 to 5), C = common (density rating = 2 to 3), S = scarce (density rating = 1), and T = absent (density rating = 0).

^b Information obtained from *A Manual of Aquatic Plants* by Norman C. Fassett and *Guide to Wisconsin Aquatic Plants*, Wisconsin Department of Natural Resources.










^c Abundance not measurable using the Jessen and Lound method.

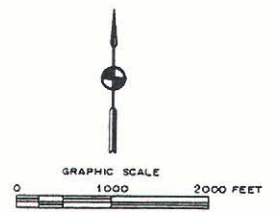
Source: SEWRPC.

AQUATIC PLANT COMMUNITY DISTRIBUTION FOR PINE LAKE: 1996

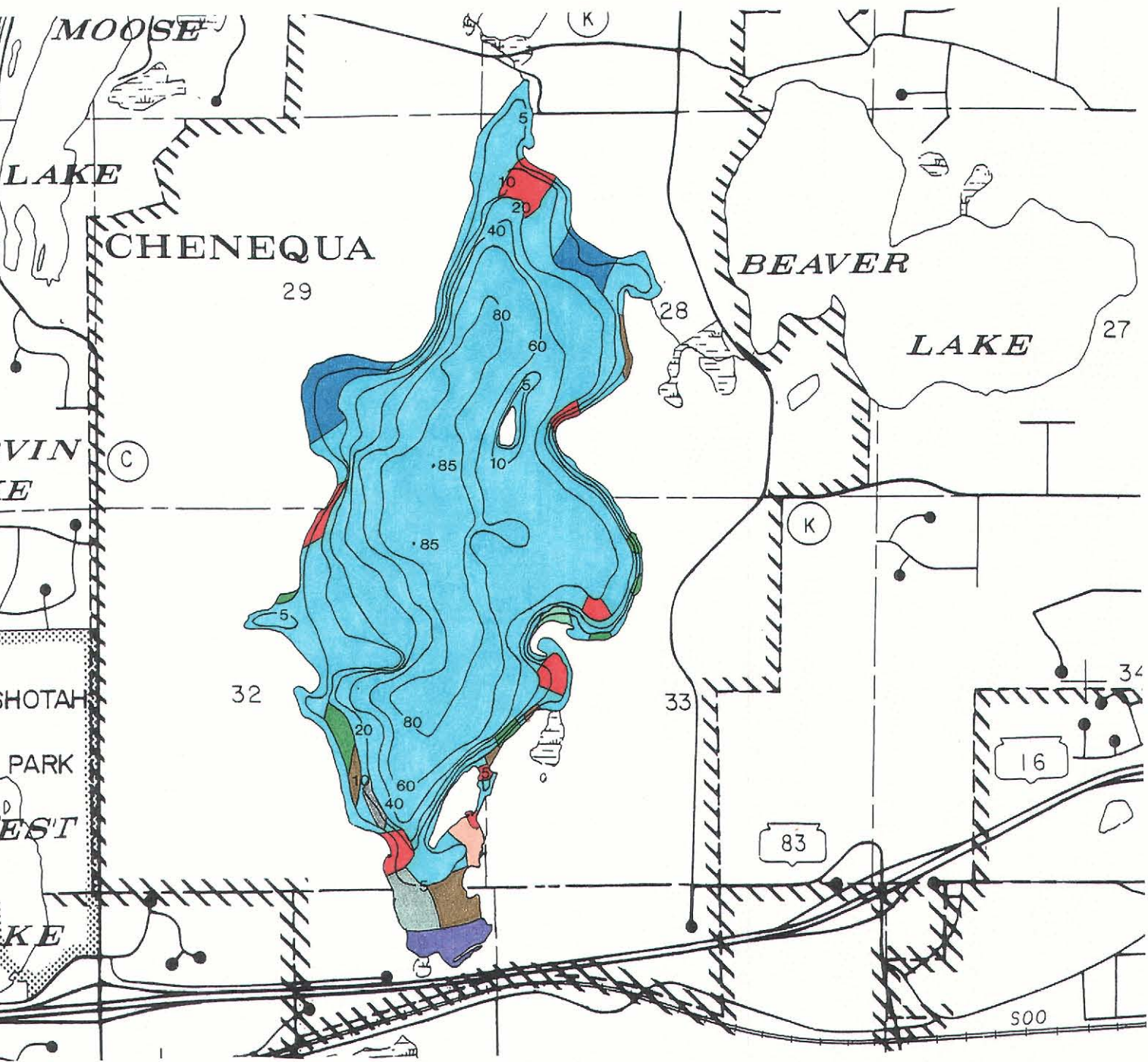


LEGEND

- | | | | |
|---|--|---|---|
|  | PONDWEEDS |  | CHARA, PONDWEEDS, COONTAIL, AND EURASIAN WATER MILFOIL |
|  | EURASIAN WATER MILFOIL |  | PONDWEEDS, ELODEA, AND EURASIAN WATER MILFOIL |
|  | CHARA AND EURASIAN WATER MILFOIL |  | PONDWEEDS, COONTAIL, ELODEA AND EURASIAN WATER MILFOIL |
|  | PONDWEEDS AND EURASIAN WATER MILFOIL |  | CHARA, PONDWEEDS, COONTAIL, ELODEA, EEL GRASS, AND EURASIAN WATER MILFOIL |
|  | CHARA, PONDWEEDS, AND EURASIAN WATER MILFOIL | | |

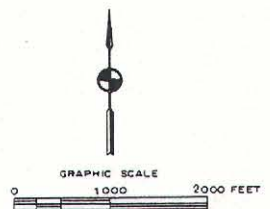


AQUATIC PLANT COMMUNITY DISTRIBUTION FOR PINE LAKE: 1978



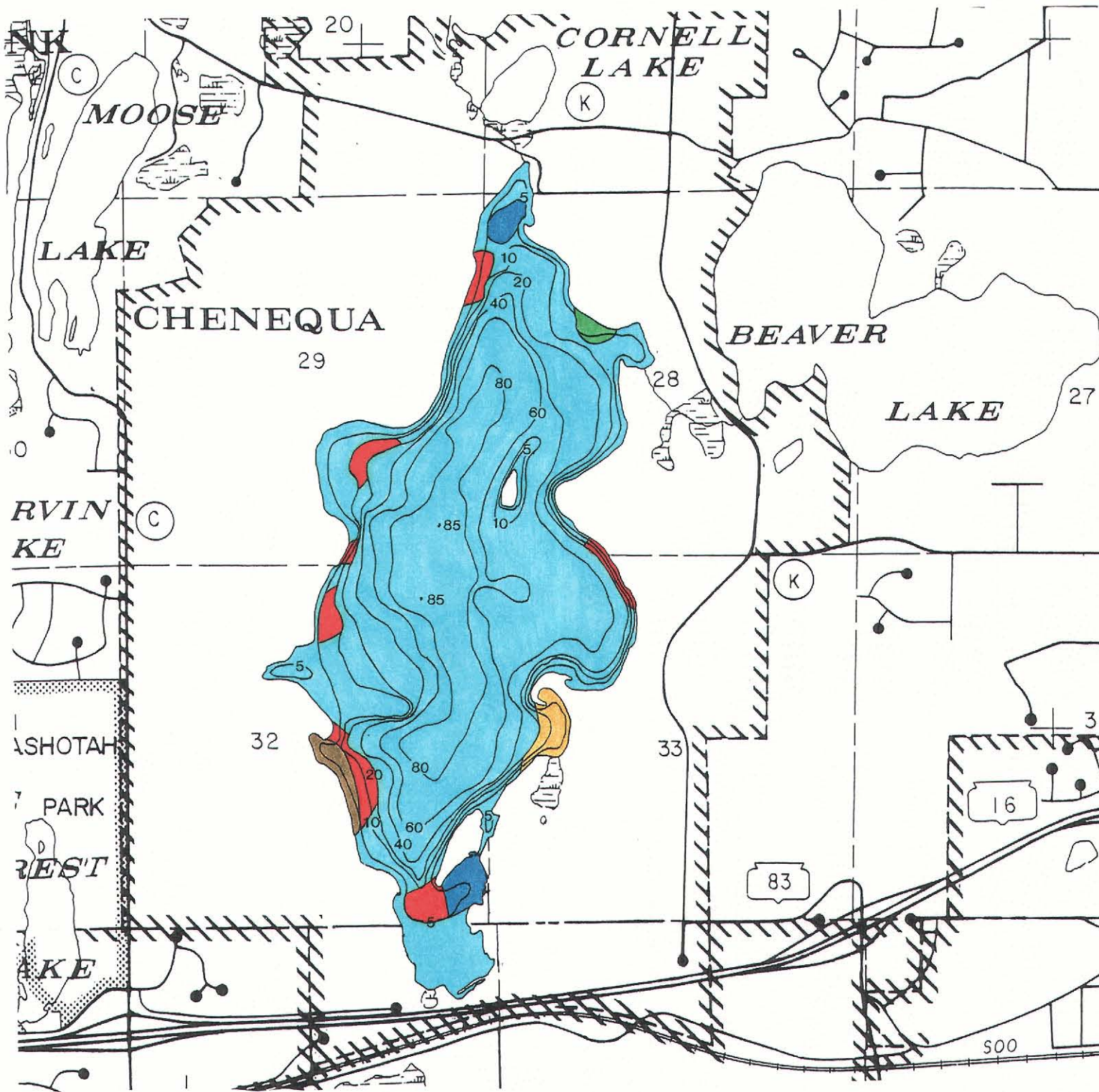
LEGEND

- | | | | |
|--|---------------------------|--|--|
| | CHARA | | CHARA AND EURASIAN WATER MILFOIL |
| | PONDWEEDS | | PONDWEEDS AND EURASIAN WATER MILFOIL |
| | WATER LILIES | | COONTAIL, WATER LILIES, AND EURASIAN WATER MILFOIL |
| | EURASIAN WATER MILFOIL | | COONTAIL AND EURASIAN WATER MILFOIL |
| | COONTAIL AND WATER LILIES | | |








Source: Wisconsin Department of Natural Resources and SEWRPC.

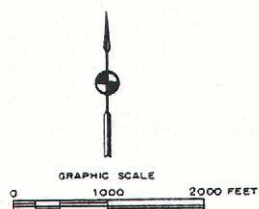
AQUATIC PLANT COMMUNITY DISTRIBUTION FOR PINE LAKE: 1980



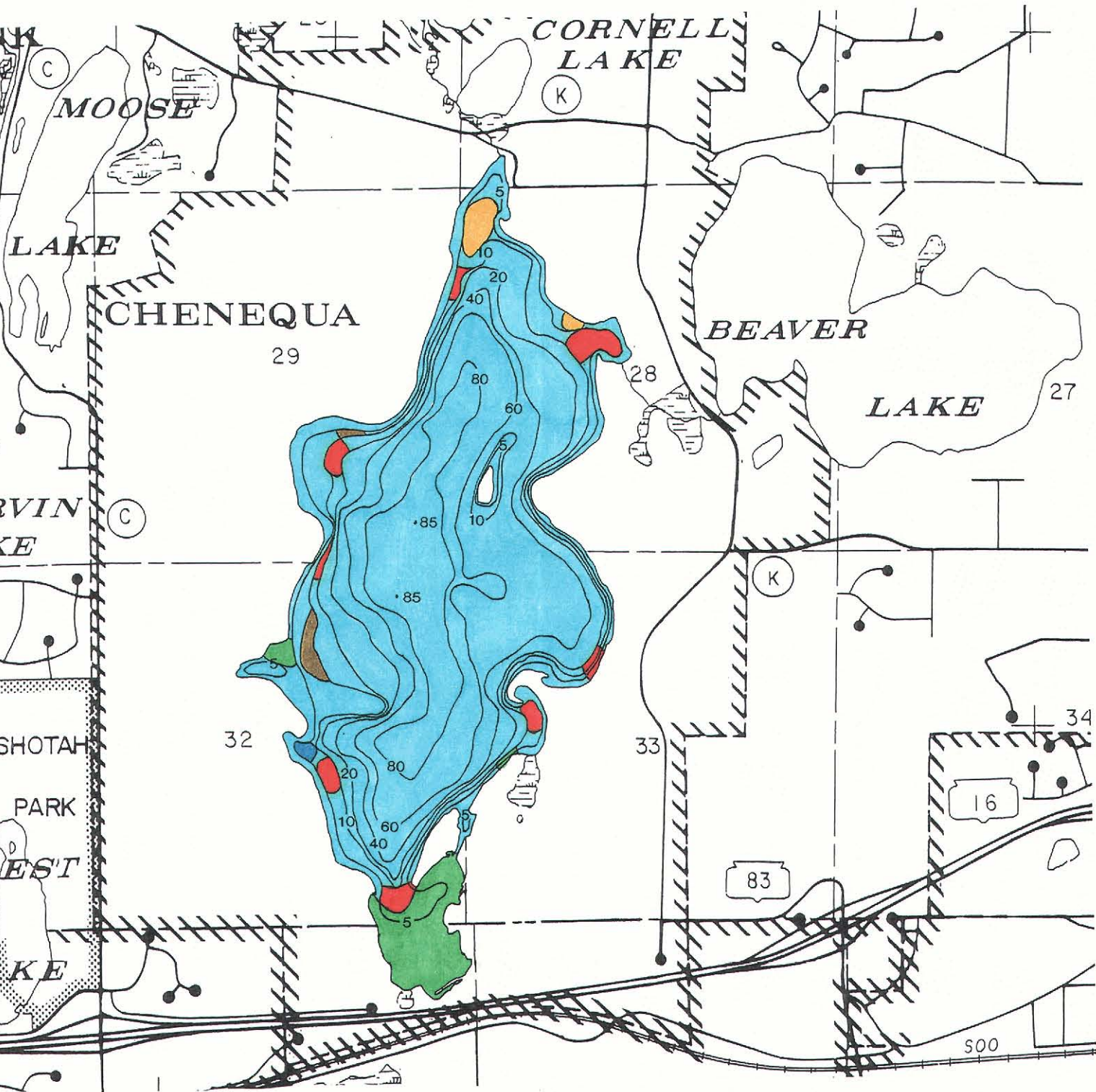
LEGEND

- | | | | |
|---|----------------------------------|---|--|
|  | CHARA |  | PONDWEEDS AND EURASIAN WATER MILFOIL |
|  | EURASIAN WATER MILFOIL |  | CHARA, PONDWEEDS, AND EURASIAN WATER MILFOIL |
|  | CHARA AND EURASIAN WATER MILFOIL | | |

16



AQUATIC PLANT COMMUNITY DISTRIBUTION FOR PINE LAKE: 1981



LEGEND

- | | | | |
|--|----------------------------------|---|--|
|  | CHARA |  | PONDWEEDS AND EURASIAN WATER MILFOIL |
|  | EURASIAN WATER MILFOIL |  | CHARA, PONDWEEDS, AND EURASIAN WATER MILFOIL |
|  | CHARA AND EURASIAN WATER MILFOIL | | |

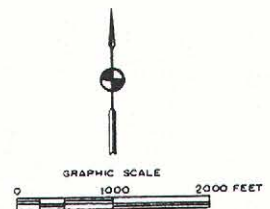


Table 5

HISTORIC CHEMICAL CONTROLS ON PINE LAKE: 1951-1994

Year ^a	Macrophyte Control					Algal Control	
	Sodium Arsenite (pounds)	Diquat (gallons)	Aquathol K (gallons)	2,4-D (gallons)	Silvex (pounds)	Copper Sulfate (pounds)	Cutrine-Plus (gallons)
1950	2,600	0	0	0	0	450	0
1951	3,920	0	0	0	0	800	0
1952	4,400	0	0	0	0	800	0
1953	3,360	0	0	0	0	1,500	0
1954	30,432	0	0	0	0	1,200	0
1955	7,240	0	0	0	0	400	0
1956	9,660	0	0	0	0	2,180	0
1957	10,980	0	0	0	0	2,050	0
1958	10,260	0	0	0	0	450	0
1959	9,600	0	0	0	0	800	0
1960	4,020	0	0	0	0	995	0
1961	4,032	0	0	0	0	1,175	0
1962	450	0	0	0	0	802	0
1963	3,570	0	13	30	0	850	0
1964	2,970	0	0	0	0	570	0
1965	2,475	0	9	0	12	330	0
1966	1,908	0	54	0	0	1,057	0
1967	18,000	0	13	0	7	1,025	0
1968	0	40	0	580	0	0	0
1969	0	348	55	4	36	0	0
1970	0	35	25	105	0	0	0
1971	0	0	270	79	0	0	0
1972	0	10	180	0	0	0	0
1973	0	55	223	0	0	0	0
1974	0	0	0	230	0	0	0
1975	0	0	0	180	0	0	0
1976	0	0	0	0	0	0	0
1977	0	0	50	185	0	0	5
1978	0	0	850	0	0	0	0
1979	0	0	5	138	0	0	0
1980	0	0	4	161	0	0	0
1981	0	0	0	0	0	0	0
1982	0	0	2	167	0	0	8
1983	0	0	0	0	0	0	0
1984	0	0	33	136	0	0	18
1985	0	0	4	48	0	0	1
1986	0	0	5	64	0	0	4
1987	0	0	7	28	0	0	6
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0
1991	0	0	0	85	0	0	0
1992	0	0	0	29	0	0	0
1993	0	0	0	0	0	0	0
1994	0	0	0	329	0	0	0
1995	0	0	0	0	0	0	0
Total	129,877	488	1,802	2,578	55	17,434	42

^aDuring years not included, no chemical controls were used.

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 6

**LAKES RECEIVING THE LARGEST AMOUNTS OF SODIUM ARSENITE
AND COPPER SULPHATE IN WISCONSIN FOR AQUATIC MACROPHYTE CONTROL: 1950-1969**

Herbicide	Lake	County	Pounds of Herbicide
Sodium Arsenite	Pewaukee	Waukesha	312,908
	Okauchee	Waukesha	181,580
	Big Cedar	Washington	179,164
	Pine	Waukesha	129,877
	Fowler	Waukesha	87,456 ^a
Total	--	--	890,445 ^b
Copper Sulphate	Waubesa	Dane	256,174
	Kegonsa	Dane	217,154
	Chetek Chain	Barron	139,025
	Pewaukee	Waukesha	125,454
	Nepco	Wood	103,750
	Wapogasset	Polk	102,740
	Half Moon	Eau Claire	93,135
	Delavan	Walworth	81,113
	Monona	Dane	48,100
	Menomin	Dunn	40,700
	Okauchee	Waukesha	36,983
	Little St. Germain	Vilas	28,400
	Big Cedar	Washington	21,440
	Mirror	Sauk	19,505
	Geneva	Walworth	18,915
	Delton	Sauk	18,650
	Bear Trap	Polk	18,600
	Pine	Waukesha	17,434
Whitewater	Walworth	14,970	
Big Butternut	Polk	14,050	
Total	--	--	1,416,292 ^c

^aIncludes applications of sodium arsenite to the Oconomowoc River near Fowler Lake.

^bThis amount of sodium arsenite constitutes 41 percent of the total amount of sodium arsenite applied to a total of 167 lakes and streams in Wisconsin from 1950 through 1969.

^cThis amount of copper sulphate constitutes 89 percent of the total amount of copper sulphate applied to a total of 130 lakes and streams in Wisconsin from 1950 through 1969.

Source: Wisconsin Department of Natural Resources and SEWRPC.

milfoil species, *Myriophyllum spicatum* (Eurasian water milfoil), was fairly widespread. Eurasian water milfoil is one of eight milfoil species found in Wisconsin and the only one that is known to be exotic or nonnative. Because of its nonnative nature, Eurasian water milfoil has few natural enemies and can exhibit "explosive" growth under suitable conditions, such as the presence of organic-rich sediments, or in areas where the lake bottom has been disturbed, displacing the native plant species. This plant, which reproduces by rooting of plant fragments, has been known to cause severe recreational use problems in lakes within the Southeastern Wisconsin Region. In addition, the Lake contained numerous species of pondweed, *Potamogeton* spp., which provide good fish and aquatic wildlife habitat and little interference with the recreational use of the Lake. Pondweed-dominated plant communities tended to be situated in the shallow water zones of the Lake, with fringing beds of milfoil in the deeper, offshore areas of up to 15 feet in depth.

Table 7

**FREQUENCY OF OCCURRENCE AND DENSITY
RATINGS OF MAJOR PLANT SPECIES IN PINE LAKE: JULY 1996**

Plant Species	Sites Found	Frequency of Occurrence	Density of Sites Found	Density in Whole Lake
<u>Ceratophyllum demersum</u> (coontail)	16	12.2	1.6	0.2
<u>Chara vulgaris</u> (muskgrass)	31	23.7	2.3	0.5
<u>Myriophyllum</u> sp. (water milfoil)	72	55.0	2.6	1.4
<u>Najas flexilis</u> (bushy pondweed)	12	9.2	2.0	0.2
<u>Potamogeton illinoensis</u> (Illinois pondweed)	9	6.9	1.6	0.1
<u>Potamogeton crispus</u> (curly-leaf pondweed)	8	6.1	1.2	0.1
<u>Potamogeton pectinatus</u> (sago pondweed)	13	10.0	1.7	0.2
<u>Potamogeton zosteriformis</u> (flat-stemmed pondweed)	10	7.6	1.8	0.1

Source: SEWRPC.

The aquatic plant communities observed during 1996 were significantly more abundant and more diverse than the plant communities reported during previous surveys conducted by the Wisconsin Department of Natural Resources. Comparison of Map 5 with Maps 6 through 8 provides a graphic demonstration of the resurgence of the native aquatic plant community in Pine Lake. During the 1970s and 1980s, when the previous surveys were conducted, the relatively sparse aquatic plant community was dominated by milfoil. The paucity and poor quality of the plant communities observed during this period may reflect the residual effects of aquatic plant control measures, or the combined effects of these control measures and other disturbances, such as dredging, that are known to have occurred in the Lake at this time. It is noteworthy that, in 1978, the greatest plant diversity was observed in the southern portions of the Lake, an area that subsequently has become less diverse. In particular, it would appear that the water lilies, *Nymphaea* sp., may have fallen victim to the aquatic herbicides used to control Eurasian water milfoil in this area. Water lilies and milfoil are both dicotyledon plants, and, hence, susceptible to the same herbicides.¹⁶ It is also apparent that Eurasian water milfoil continues to spread within the Lake, although the monospecific stands of Eurasian water milfoil that were observed during the 1970s and 1980s seem to be interspersed with native plant species, indicating a shift to a healthier, more diverse plant community. This is especially true in the northwest quadrant and east central portion of the Lake where Eurasian water milfoil was first reported in 1980, continued to be present in 1981, and appeared more widespread in 1996.

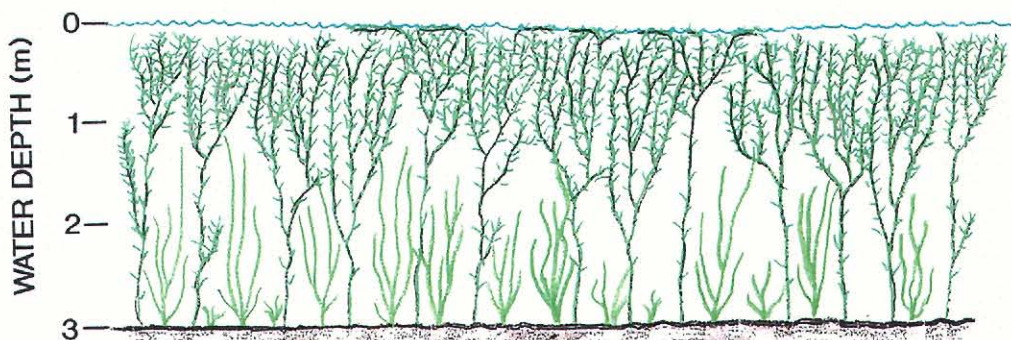
The 1996 aerial photographic record clearly shows areas of Eurasian water milfoil growth, and less clearly records the presence of other plants, in the Lake. Eurasian water milfoil is most visible because of its growth strategy of rapid upward growth to the lake surface and development of a spreading canopy, shown diagrammatically in Figure 2. Because of this growth strategy, Eurasian water milfoil within Pine Lake can effectively mask underlying native plants from this type of aerial surveillance. Thus, regularly conducted on-lake aquatic plant surveys must continue to form the basis for aquatic plant management decisions. Notwithstanding, aerial surveys could provide a means of Eurasian water milfoil crop assessment in years when no on-lake surveys are conducted. To illustrate the utility of the aerial surveys, the Commission staff examined the aquatic plant communities in two embayments, as shown on Figure 3.

Figure 4 sets forth a schematic representation of the aerial appearance of one particular Eurasian water milfoil community, located adjacent to the embayment along the southwestern shore of Pine Lake indicated in Figure 3. The distribution of Eurasian water milfoil within this area was identified using field data obtained by Commission staff during 1996, and is shown in Figure 4 superimposed onto the photographic image. This portion of the Pine Lake aquatic plant community was of interest because of the manner in which the Eurasian water milfoil was observed to

¹⁶D.R. Helsel, "Important Reasons to Be Cautious about Choosing Aquatic Pesticides," *LakeLine*, Volume 17, Number 1, pp. 16-17, 45-48, 1997.

Figure 2

EURASIAN WATER MILFOIL CANOPY DEVELOPMENT



LEGEND



NATIVE PLANTS



EURASIAN WATER MILFOIL

NOTE: Removing the canopy of Eurasian water milfoil may allow native species to reemerge.

Source: Wisconsin Department of Natural Resources and SEWRPC.

be growing, which was approximately circular in aspect. Given this unusual growth pattern, Commission staff carried out several additional measurements in the vicinity of this milfoil bed in an attempt to identify the reason for the observed growth pattern. Commission staff obtained a series of temperature measurements across the bed in an effort to identify water temperature changes that might be indicative of the presence of a spring. No such temperature anomalies were observed, the water temperature being 76°F both within and outside of the milfoil bed. Commission staff also obtained sediment core samples at various points across the plant bed in an effort to identify differences in sediment texture that might indicate a change in substrate composition which would affect the ability of various plant species to grow. This analysis suggested some changes in sediment texture within the site compared with the sediment texture of the surrounding lakebed. The sediment within the plant bed may be described as a soft silt containing shell fragments, while the sediment texture of the surrounding lakebed may be described as sand. Given the preference of the milfoil for organic rich substrates, this change in sediment texture could account for the observed abrupt change in plant distribution in this area. Citizen reports of in-lake disposal of dredge spoils from the dredging of an access channel to the embayment might suggest a possible cause for the change in substrate texture. Similar growths of milfoil were observed within the reportedly dredged access lanes in the southern bay of the Lake, as shown in Figure 5. Further investigation of these phenomena may be of interest as part of an ongoing Eurasian water milfoil control program and could be of academic interest in providing insight into the relationship of selected in-lake management measures to aquatic plant growth.

Figure 3

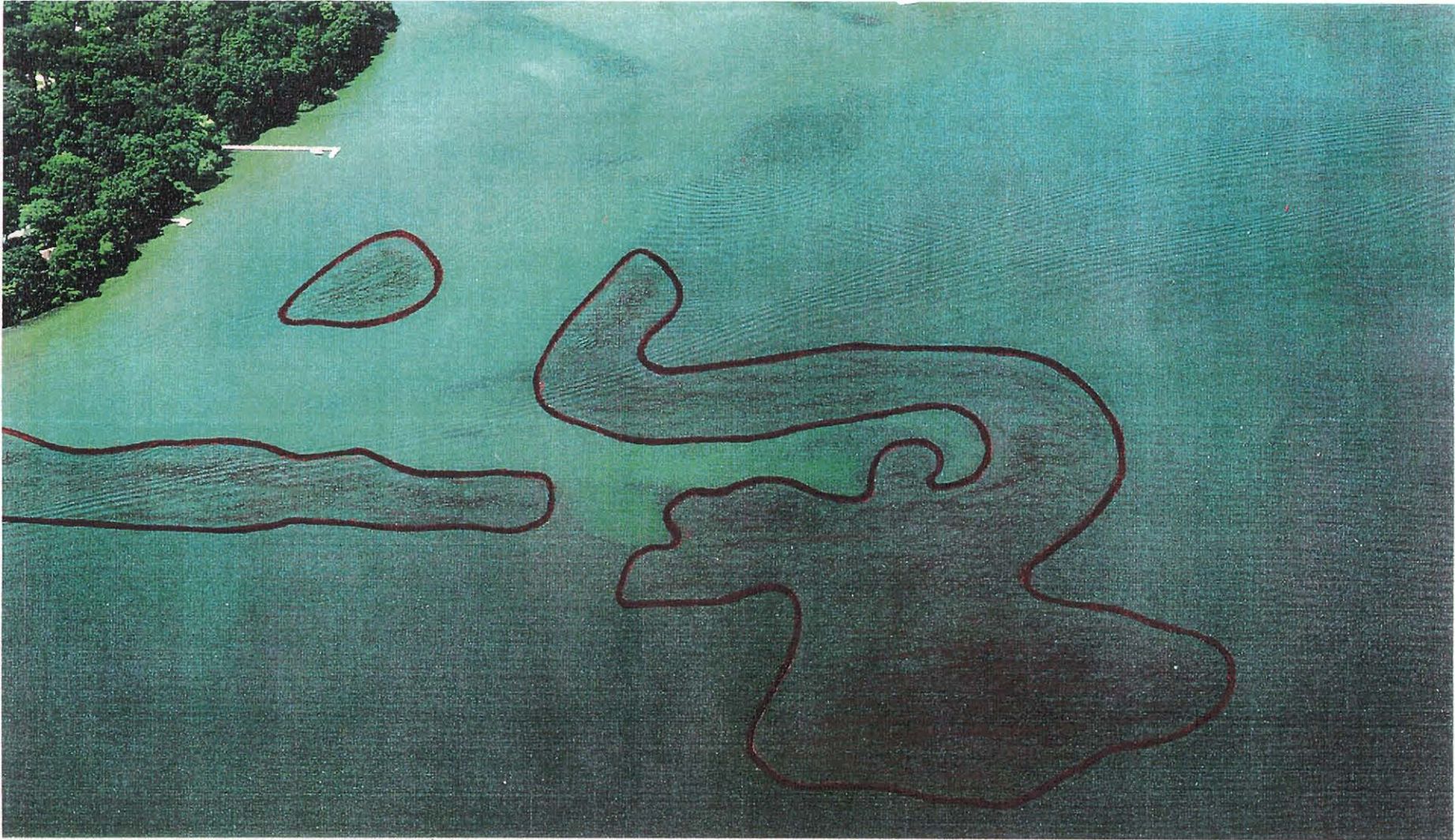
OBLIQUE AERIAL PHOTOGRAPH OF PINE LAKE: 1996



Source: Robert T. McCoy Aerial Photography and SEWRPC.

Figure 4

EXAMPLE OF EURASIAN WATER MILFOIL CANOPY IDENTIFICATION USING OBLIQUE AERIAL PHOTOGRAPHY: 1996

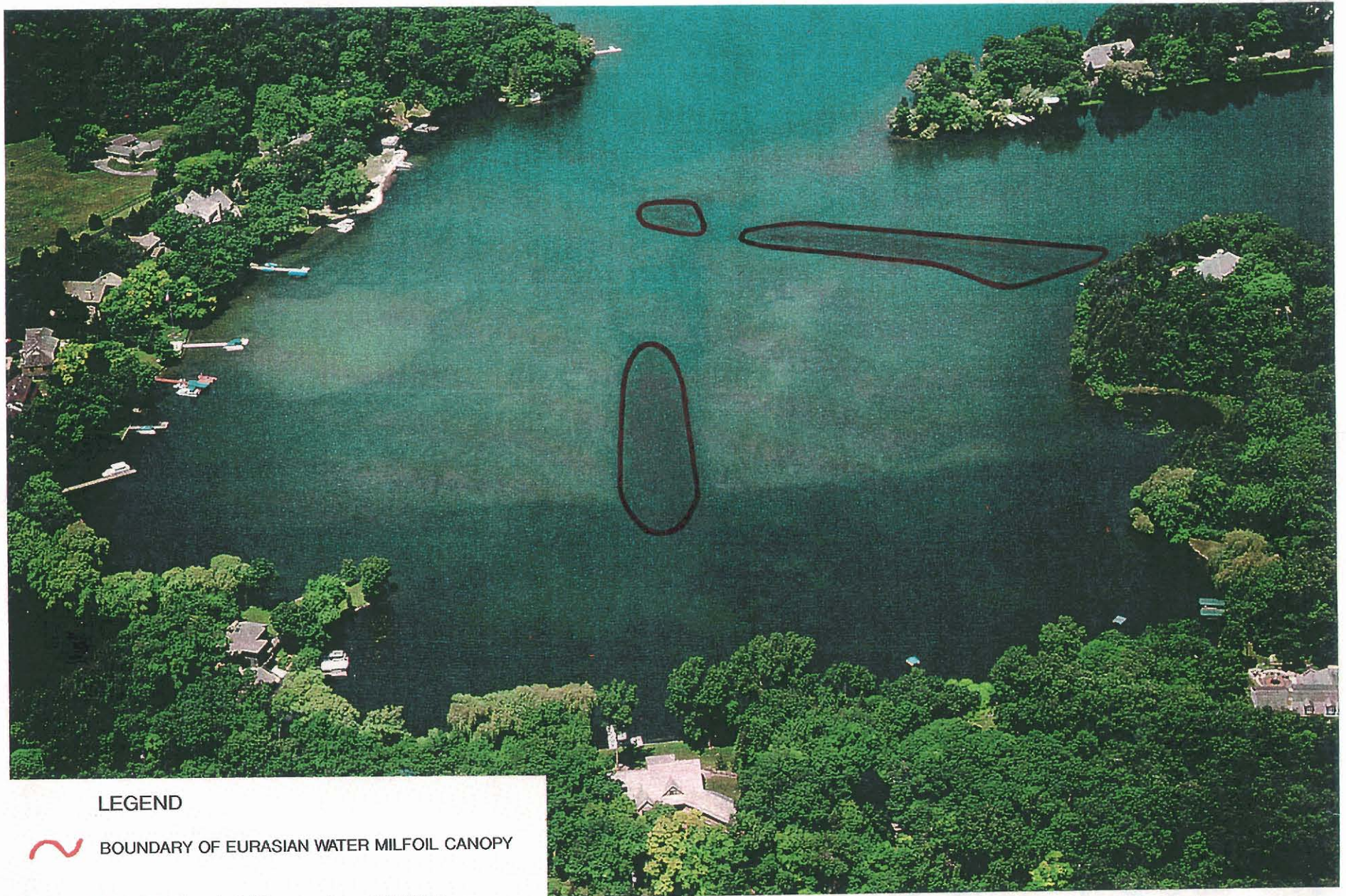


LEGEND

— BOUNDARY OF EURASIAN WATER MILFOIL CANOPY

Figure 5

EXAMPLE OF EURASIAN WATER MILFOIL CANOPY WITHIN CHANNEL IDENTIFICATION USING OBLIQUE AERIAL PHOTOGRAPHY: 1996



LEGEND

 BOUNDARY OF EURASIAN WATER MILFOIL CANOPY

Source: Robert T. McCoy Aerial Photography and SEWRPC.

Chapter III

SUMMARY

This inventory report documents the findings of an aquatic plant study completed by Commission staff at the request of the Village of Chenequa. The data gathered during this field program were designed to be used, in conjunction with the oblique aerial photography acquired by the Village as part of an ongoing aquatic plant monitoring program in Pine Lake, specifically designed to identify the growth and spread of Eurasian water milfoil.

Pine Lake is a 703-acre waterbody located in the Village of Chenequa, Waukesha County. The Lake has been found to be a drainage lake of relatively good water quality, located in close proximity to the Milwaukee metropolitan area and adjacent to a rapidly urbanizing part of Waukesha County in which the Pine Lake total tributary drainage is wholly located. The Lake is a through-flow or drainage lake with an inflow from an unnamed stream entering the Lake from Beaver Lake along the eastern shore, and an outflow, comprising an unnamed stream discharging to Cornell Lake, and ultimately to North Lake and the Oconomowoc River, at the northern most portion of the Lake. The Lake has a direct drainage area of about 2,250 acres and a total tributary drainage area of about 3,690 acres.

The following inventory findings were noted:

- The 1990 resident population of the drainage area tributary to Pine Lake was estimated by the Commission at about 1,630 persons. In addition to the year around population there were, as of 1990, about 190 seasonal residents within the drainage area tributary to Pine Lake.
- As of 1990, urban land uses occupied about 1,000 acres, or 30 percent of the drainage area tributary to Pine Lake. The dominant urban land use was residential encompassing about 800 acres, or 80 percent of the area in urban use.
- As of 1990, about 2,600 acres, or 70 percent of the total tributary drainage area to Pine Lake, were still in rural land uses. About 700 acres, or 28 percent of the rural area, were in agricultural and open land uses. Woodlands, wetlands, and surface water, including the surface area of Pine Lake, accounted for approximately 1,700 acres, or 65 percent of the area in rural use.
- Forecast development under year 2010 conditions set forth in the regional land use plan and under full buildout conditions under the Waukesha County development plan envisioned additional urban residential development but no significant changes in land use conditions within the Pine Lake drainage area. Some infilling of existing platted lots and some backlot development may also be expected to occur.
- Pine Lake is a multi-purpose recreational use waterbody serving all forms of recreation, including boating, waterskiing, swimming, and fishing during summer months; and ice fishing during winter.
- A boat survey conducted in 1996 indicated that about 330 boats were either moored in the water or stored on land.
- Public access is provided through a boat launch operated by the Village of Chenequa located on the northern most embayment of the Lake. This is considered adequate public access under Chapter NR1 of the *Wisconsin Administrative Code*.
- Pine Lake is subject to a boating ordinance promulgated by the Village of Chenequa which limits the times during which boats may operate on Pine Lake.

- Pine Lake has been determined to be a mesotrophic waterbody as indicated by the Wisconsin Trophic State Index value of 45.
- Wisconsin Department of Natural Resources Publication No. PUBL-FM-800-95REV, *Wisconsin Lakes*, 1995, indicated that largemouth bass and panfish are abundant and that northern pike and smallmouth bass are present in Pine Lake; previous inventories indicates a more diverse group of fish species, including both game and forage fish.
- During June 1996, the southern portions of the lake basin contained the areas with the most abundant flora, however, the areas with the greatest plant diversity were primarily in the northern portions of the Lake.
- Eighteen species of aquatic plants were recorded within the lake basin, all of which are commonly observed in lakes within the Region; Eurasian water milfoil was found to be the most dominate plant within the Lake.
- Previous studies conducted indicated that during the 1970s and 1980s, the aquatic plant community was also dominated by Eurasian water milfoil. However, the aquatic plant communities noted in these earlier studies were more sparse and less diverse than those observed during the 1996 survey.
- Aerial photographs were taken in concert with the 1996 aquatic plant survey in an effort to define areas of Eurasian water milfoil from an aerial view. Eurasian water milfoil was more visible than most other aquatic plants from an aerial view because of its nature to form a spreading canopy on the surface of the Lake.
- Aerial surveys could provide a means of Eurasian water milfoil crop assessment in years when no on-lake surveys are conducted.
- Further investigation of defined areas of Eurasian water milfoil with peculiar distribution patterns may be of interest and could provide insight into the relationship of selected in-lake management measures to aquatic plant growth.

APPENDICES

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Appendix A

BOATING ORDINANCES APPLICABLE TO PINE LAKE

6.09 **BUILDING LINE SET BACK.** No building shall be erected in any district whose street wall is nearer than seventy-five (75) feet to the line of any public highway.

6-10 **PLATS.** Each application for a building permit shall be accompanied by a plat in duplicate, drawn to scale showing the actual dimensions of the lot to be built upon, the size and location of the building to be erected, and such other information as may be necessary to provide for the enforcement of these regulations. A careful record of such applications and plats shall be kept in the office of the Building Inspector.

6.11 **BUILDING PERMITS.** No structural work shall be started by any person without first receiving a permit from the Building Inspector, who shall issue such permit in accordance with the laws of the State of Wisconsin and the ordinances of the Village of Chenequa,

No permit for excavation of any structure shall be issued before the Building Inspector has been satisfied that such structure and its location will conform to all the requirements of this ordinance.

When required by the Building Inspector, a copy of the complete plans and specifications for the erection or alteration of any structure within the Village of Chenequa, together with a statement of ownership, shall be filed with the Building Inspector at least ten days prior to the starting of such work; such plans to include all information necessary for the completion of the work, together with a map of the property showing thereon the exact location of all existing and proposed structures.

No structure shall be so enlarged as to exceed the area or volume requirements for the district in which it is located, nor shall any lot be so reduced in area that the square feet of open space about said structure will be less than that required for the district in which it is located.

The Building Inspector shall be permitted to refer any application for a building permit to the Plan Commission, and, in such event, the building permit will not be issued unless the Plan Commission makes the finding(s) required under Section 5.02(i) as if such improvement were deemed to be a structure thereunder.

6.12 REMOVAL OF SHORE COVER

(1) **PURPOSE.** The purpose of tree and shrubbery cutting regulations applicable to the shoreland area is to protect scenic beauty, control erosion and reduce effluent and nutrient flow from the shoreland. These provisions shall not apply to the removal of dead, diseased or dying trees or shrubbery at the discretion of the landowner, or to silvicultural thinning upon recommendation of the Village Forester.

(2) **SHORELINE CUTTING.** Tree and shrubbery cutting in a strip paralleling the shoreline and extending seventy-five feet (75') inland from all points along the ordinary high-water mark of the shoreline shall be limited in accordance with the following provisions:

(a) No more than thirty feet (30') in any one hundred fifty feet (150'), as measured along the ordinary high-water mark, shall be clear cut to the depth of the seventy-five foot (75') strip.

(b) Natural shrubbery shall be preserved as far as practicable and, where removed, it shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion and preserving natural beauty.

(3) **PATHS.** Any path, road or passage within the seventy-five foot (75') strip shall be constructed and surfaced as to effectively control erosion.

(4) **CUTTING PLAN.** As an alternative to subsection (2) above, a special cutting plan allowing greater cutting may be permitted by the Village Forester. In applying for such a plan, the lot owner shall submit a sketch of his lot to the Clerk-Treasurer, including the following information: location of parking, gradient of the land, existing vegetation, proposed cutting, and proposed replanting. The Village Forester may allow such a plan only if he finds that such special cutting plans:

(a) Will not cause undue erosion or destruction of scenic beauty, and

(b) Will provide substantial shielding from the water of dwellings, accessory structures and parking areas. Where the plan calls for replacement plantings, the Village Forester may require the submission of a bond which guarantees the performance of the planned tree or shrubbery planting by the lot owner.

(5) **CUTTING MORE THAN SEVENTY-FIVE FEET INLAND.** From the inland edge of the seventy-five foot (75') strip to the outer limits of the shoreland, the cutting of trees and shrubbery shall be allowed when accomplished using accepted forest management practices and sound soil conservation practices which protect water quality.

5.17 EROSION CONTROL PLAN APPROVAL.

(1) **APPROVAL REQUIRED.** Unless specifically exempted by the provisions of this Code, no land owner or land user may undertake a land disturbing activity as defined in section 5.18 of this Code without receiving approval of an erosion control plan from the Building Inspector prior to commencing the proposed land disturbing activity.

(2) **APPLICATION.** Applications for approval of erosion control plans shall be made in writing upon a form furnished by the Village Clerk-Treasurer. Applications shall be made prior to or at the same time as the application for a building permit (if required) and shall be prepared in duplicate and include for the purpose of proper enforcement of this chapter the following data:

(a) A plan to control surface water drainage and storm water runoff.

(b) A plan to control erosion and runoff resulting from land disturbing activity during and after development. The erosion control plan shall contain a map with the existing site and adjacent lands, a plan of final site conditions after completion of land disturbing activity and a description and schedule of planned land disturbing activities and corrective measures, all of which shall contain specific information as set forth in a document entitled "contents of erosion control plans" which shall be prepared and from time to time updated by the Building Inspector. Copies may be obtained from the Village Clerk-Treasurer.

(c) **SOIL CONSERVATION SERVICE APPROVAL.** The Building Inspector may require approval of the erosion control plan by the Waukesha County Soil Conservation Service.

5.18 LAND DISTURBANCE.

(1) **LAND DISTURBING ACTIVITIES SUBJECT TO EROSION CONTROL.** Land disturbing activities are subject to the erosion control provisions of this Code when an area of 5,000 square feet or greater will be disturbed by removal of vegetation, excavation, grading, filling or other earth moving activities, resulting in a temporary or permanent absence of protective ground cover or vegetation. It is acknowledged that even though a land disturbing activity may come within the provisions of this definition, by reason of topography or other

factors there may be no danger of erosion. In such case the Building Inspector may waive the requirement for plan approval. The Building Inspector may enforce the erosion control provisions of this Code in the case of land disturbing activities involving an area of 5,000 square feet or less, if there is danger of erosion.

(2) **GENERAL DESIGN PRINCIPLES.** Control measures shall apply to all aspects of the proposed land disturbance and shall be in operation during all stages of the disturbance activity. The following principles shall apply to soil erosion and sediment control.

(a) Stripping of vegetation, grading or other soil disturbance shall be done in a manner which will minimize soil erosion.

(b) No site shall be cleared of top soil, trees and other natural features before the commencement of building operations. Whenever feasible, natural vegetation shall be retained and protected. Only those areas approved for the placement of physical improvements may be cleared. The extent of the disturbed area and the duration of its exposure shall be kept within practical limits.

(c) Either temporary seeding, mulching or other suitable stabilization measures shall be used to protect exposed critical areas during construction or other land disturbance.

(d) Drainage provisions shall accommodate increased runoff resulting from modified soil and surface conditions, during and after development or disturbance. Such provisions shall be in addition to all existing requirements.

(e) Water runoff shall be minimized and retained on site whenever possible to facilitate ground water recharge.

(f) Sediment shall be retained on site.

(g) Diversions, sediment basins and similar required structures shall be installed prior to any on-site grading or disturbance.

(3) **MAINTENANCE.** All necessary soil erosion and sediment control measures installed under this Code shall be adequately maintained until such measures are permanently stabilized, as determined by the Building Inspector. The Building Inspector shall give the applicant upon request a certificate indicating the date on which the measures called for in the approved plans were completed.

CHAPTER 4: LAKES

4.01 PROHIBITING PARKING OF BOATS.

(1) The parking or fastening of boats upon public property in the Village of Chenequa for longer than two hours consecutively is hereby prohibited, and declared unlawful.

(2) Any person violating the provisions of this section 4.01 shall be punished by a fine of Fifteen Dollars (\$15.00) and the cost of prosecution.

(3) Police officers of the Village are authorized to remove any boat found parked for more than twenty-four hours in violation of this section 4.01 and to destroy or otherwise dispose of the same unless redeemed by the payment of the fine and costs for violation of this section 4.01 including hauling and storage, within thirty days from the date of seizure.

4.02 BOATING - PIKE LAKE.

(1) **PURPOSE.** The Village Board of the Village of Chenequa determine and declare it to be in the interest of the public health, safety and welfare to adopt regulations relative to water traffic, boating and water sports on Pine Lake in the Village of Chenequa.

(2) **APPLICABILITY.** The provisions of this section 4.02 shall apply to the waters of Pine Lake in the Village of Chenequa.

(3) **STATE BOATING AND WATER SAFETY LAWS ADOPTED.** The statutory provisions describing and defining regulations with respect to water traffic, boats, boating and related water activities in the following enumerated sections of the Wisconsin statutes are hereby adopted and by reference made a part of this ordinance as if fully set forth herein. Any act required to be performed or prohibited by the provisions of any statute incorporated by reference herein is required or prohibited by this section 4.02.

- 30.50 Definitions
- 30.501 Capacity plates on boats
- 30.51 Certification of number and registration; requirements; exemptions
- 30.52 Certificate of number and registration; application; certification and registration period; fees; issuance
- 30.523 Certification or registration card to be on board; display of stickers or decals and identification number
- 30.541 Transfer of boat titles
- 30.55 Notice of abandonment or destruction of boat or change of address
- 30.60 Classification of motorboats
- 30.61 Lighting equipment
- 30.62 Other equipment
- 30.625 Rental of personal watercraft
- 30.64 Patrol boats
- 30.65 Traffic rules
- 30.66 speed restrictions
- 30.67 Accidents and accident reports
- 30.675 Distress signal flag
- 30.68 Prohibited operation
- 30.681 Intoxicated boating
- 30.682 Preliminary breath screen test
- 30.683 Implied consent
- 30.684 Chemical tests
- 30.686 Report arrest to department
- 30.687 Officer's action after arrest for violating intoxicated boating law
- 30.69 Water skiing
- 30.70 Skin diving
- 30.71 Boats equipped with toilets

(4) **SPEED RESTRICTIONS**

(a) **WITHIN TWO HUNDRED (200) FEET OF SHORELINE.** A person operating a motorboat shall operate at slow-no-wake speed when within two hundred (200) feet of a shoreline.

(b) **BOATS PASSING SWIMMERS, BOATS OR OTHER OBJECTS.** A person operating a motorboat shall operate at slow-no-wake speed when within one hundred (100) feet of a swimmer, diving flag, canoe, rowboat, sail boat, non-operating motorboat or raft.

(c) **AT NIGHT TIME.** No person shall operate a motorboat at a high rate of speed from one hour after sunset each day until one hour before sunrise of the next day.

(d) **OPERATION IN CIRCUITOUS COURSE.** No person shall operate or use a motorboat or personal watercraft repeatedly in a circuitous course with a diameter of less than 200 feet at a speed in excess of slow-no-wake speed.

(5) **SAFE OPERATION REQUIRED.** No person shall operate, direct or handle a boat in such manner as to unreasonably annoy, unnecessarily frighten or endanger the occupants of his or other boats.

(6) **RACING PROHIBITED.** No person shall operate a motorboat in a race or speed contest with any other motorboat, except as provided in section 4.02(9).

(7) **WATER SKIING.**

(a) **DISTANCE FROM SWIMMERS, BOATS OR OTHER OBJECTS.** No person on water skis, aquaplane, surfboard or similar device shall pass, and no person operating a boat which is pulling or towing such skier or rider shall cause such skier or rider to pass within one hundred (100) feet of a swimmer, diving flag, canoe, row boat, sailboat, non-operating motorboat, raft or pier, except in the course of the skier or rider taking off from, or landing at, such pier.

(b) **HOURS.** No person shall operate a boat, while towing a person on water skis, aquaplane, surfboard or any similar device, at any time from sunset to sunrise.

(c) **OCCUPANTS OF BOAT.** No person shall operate a boat while pulling or towing any person on water skis, aquaplane, surfboard or any similar device, or permit himself to be towed for such purpose, unless there are two persons over 12 years of age in such boat, and the operator of the boat shall maintain a forward lookout.

(d) **EXEMPTIONS FROM SPEED RESTRICTIONS.** The following are exempt from the speed restrictions in section 4.02(4)(a): (i) a boat commencing to tow a person on water skis, aquaplane, surfboard or similar device, or landing such person, and (ii) a boat towing a water skier to make a jump over a ski jump platform anchored in the water within 200 feet from a shoreline, provided the location of such platform is approved in a permit issued therefore by the Chief of Police.

(8) **ANCHORAGES AND STATIONARY OBJECTS.**

(a) **MOORING LIGHTS REQUIRED.** No person shall moor or anchor any boat more than 100 feet from the shoreline between one hour after sunset and one hour before sunrise unless there is prominently displayed thereon a white light of sufficient size and brightness to be visible from any direction for a distance of 1500 feet on a dark night with clear atmosphere.

(b) **RAFTS AND BUOYS.** No person shall erect or maintain any raft, platform or buoy more than 100 feet from the shore unless it is so anchored that it has at least 10 inches of free board above the water line, and either (i) is painted white and has attached thereto not less than 12 inches from each corner or projection a red reflector in good condition not less than 3 inches in diameter, or (ii) is painted with a band at least three inches in width of luminous paint so as to be visible from any direction.

(9) RACES, REGATTAS, SPORTING EVENTS, EXHIBITIONS, COURSES AND JUMP PLATFORMS.

(a) **PERMIT REQUIRED.** No person shall direct or participate in any boat race, regatta, water ski meet, or other water sporting event or exhibition, nor shall any person set up or use a boat or waterski course or jump platform, unless such event, course or jump platform has been authorized and a permit issued therefor by the Chief of Police.

(b) **PERMIT.** A permit issued under this section shall specify the course or area of water to be used by the permittee for such event, course or jump platform and the permittee shall be required to place markers, flags or buoys approved by the Chief of Police designating the specified area. Any waterway markers authorized by the Chief of Police must meet the size and shape requirements as set forth in NR 5.09(7)(b), Wis. Adm. Code, or any successor thereto. Permits shall be issued only if in the opinion of the Chief the proposed use of the water can be carried out safely and without danger to or substantial obstruction of other watercraft or persons using the lake. Permits shall be valid only for the hours and areas specified thereon.

(c) **RIGHT OF WAY PARTICIPANTS.** Boats, waterskiers and participants in any such permitted event or who have received a permit to set up and use a boat or waterski course or jump platform shall have the right of way on the marked area and no other person shall obstruct such area during the race, event or other permitted use or interfere therewith.

(10) **LITTERING WATERS PROHIBITED.** No person shall deposit, place or throw any cans, paper, bottles, debris, refuse, garbage, solid or liquid waste into the water of, or upon the ice of, the lake.

(11) **SPEAR GUNS.** No person shall have in his possession any loaded spear gun.

(12) **MARKERS AND NAVIGATION AIDS; POSTING ORDINANCE.**

(a) **DUTY OF CHIEF.** The Chief of Police is authorized and directed to place and maintain suitable markers, navigation aids and signs in such water areas as shall be appropriate to advise the public of the provisions of this ordinance and to post and maintain a copy of this ordinance at all public access points within the jurisdiction of the village.

(b) **STANDARD MARKERS.** All markers placed by the Chief or any other person upon the waters of the lake shall comply with the regulations of the Wisconsin Department of Natural Resources.

(c) **INTERFERENCE WITH MARKERS PROHIBITED.** No person shall without authority remove, damage or destroy or moor or attach any watercraft to any buoy, beacon or marker placed in the waters of the lake by the authority of the United States, state or village or by any private person pursuant to the provisions of this ordinance.

(13) **PENALTIES.** Any person violating any provision of this Section 4.02 shall upon conviction thereof be subject to the penalties provided in Section 30.80 of the Wisconsin Statutes, which is hereby adopted and by reference made a part of this ordinance as if fully set forth herein, except that all references to fines are amended to forfeitures and all references to imprisonment deleted. Any violation of this Section 4.02 for which no specific penalty is provided in Section 30.80 of the Wisconsin Statutes shall be subject to the penalties provided in Section 30.80(1) of the Wisconsin Statutes.

4.03 BOATING - NORTH LAKE AND BEAVER LAKE.

(1) **PURPOSE:** The Town Board of the Town of Merton, and the Village Board of the Village of Chenequa, each being a municipality as defined in Chapter 30 of Wisconsin Statutes, and each having jurisdiction of a portion of North Lake and Beaver Lake, both being inland lakes, located in Waukesha County, do ordain jointly and identically in conformity with sections 30.77 and 30.81 of the Wisconsin Statutes, as follows:

(2) **INTENT.** The intent of this ordinance is to provide safe and healthful conditions for the enjoyment of aquatic recreation consistent with public rights and interest and the capability of the water resource.

(3) **APPLICABILITY AND ENFORCEMENT.** The provisions of this ordinance shall apply to the waters of North Lake and Beaver Lake, within the jurisdiction of the Town of Merton and Village of Chenequa. The provisions of this ordinance shall be enforced by the officers of the Water Safety Patrol of the Town of Merton and/or the Village of Chenequa.

(4) **STATE BOATING AND WATER SAFETY LAWS ADOPTED.** The statutory provisions describing and defining regulations with respect to water traffic, boats, boating and related water activities and safety in the following enumerated sections of the Wisconsin Statutes, exclusive of any provisions therein relating to the penalties to be imposed or the punishment for violation of said statutes, are hereby adopted and by reference made a part of this ordinance.

- 30.50 Definitions
- 30.51 Operation of unnumbered motorboats prohibited
- 30.52 Certificate of number
- 30.523 Identification number to be displayed on boat; certificate to be carried
- 30.541 Transfer of ownership of numbered boat
- 30.55 Notice of abandonment or destruction of boat or change of address
- 30.60 Classification of motorboats
- 30.61 Lighting equipment
- 30.62 Other equipment
- 30.635 Motorboat prohibition
- 30.64 Patrol boats exempt from certain traffic regulations
- 30.65 Traffic rules
- 30.66 Speed restrictions
- 30.67 Accidents and accident reports
- 30.675 Distress signal flag
- 30.68 Prohibited operation
- 30.681 intoxicated boating
- 30.682 Preliminary Breath Screening Test
- 30.683 Implied Consent
- 30.684 Chemical Tests
- 30.686 Report Arrest to Department
- 30.687 Officers Action After Arrest for Violating 30.681
- 30.69 Water skiing
- 30.70 Skin diving
- 30.71(l) Boats equipped with toilets

All deletions, addition and amendments which may be made to the sections of the state laws enumerated under subsection 4.03(4) above are hereby adopted and incorporated herein by reference as of the time of their respective effective dates, as if they were to be set out herein verbatim.

(5) **DEFINITIONS.**

(a) "Swimming zone" means an authorized area marked by regulatory markers to designate a swimming area.

(b) "Designated anchorage" means an area of water established and marked as an anchorage by lawful authority.

(c) "Public access" means any access to the water by means of public property.

(d) "Navigation lane" means an area designated by authorized aids to navigation.

(e) "Slow-no-wake" is defined as the slowest possible speed so as to maintain steerage.

(6) **SPEED RESTRICTIONS.**

(a) **NIGHT LIMIT.** No person shall operate a boat at a speed in excess of slow-no-wake speed from one hour after sunset each day until one hour before sunrise of the next day.

(b) **SPEED LIMIT - MAXIMUM.** No person shall operate a boat at a speed in excess of 35 miles per hour on North Lake at any time.

(c) **SPEED LIMIT - TURTLE BAY OF SHAVER LAKE.** No person shall operate a boat at a speed in excess of slow-no-wake or at any time to exceed a maximum speed of three (3) miles per hour in Turtle Bay.

(d) **OPERATION IN CIRCUITOUS COURSE.** No person may operate or use a motor boat or personal watercraft repeatedly in a circuitous course with a diameter of less than 200 feet at a speed in excess of slow-no-wake speed.

(7) **PROHIBITED OPERATION. INTOXICATED PERSON NOT TO RIDE IN BOATS.** No person shall permit any person who is so intoxicated or under the influence of a controlled substance who would be unable to provide for his own safety, to be a passenger in a boat operated by him, except in a case of emergency.

(8) **CAPACITY RESTRICTIONS.** No person shall operate or loan, rent or permit a boat to leave the place where it is customarily kept for operation on the waters covered by this ordinance with more passengers or cargo than a safe load.

(9) **STATIONARY OBJECTS.**

(a) **REFLECTORS REQUIRED,** All piers, rafts, ski jumps or other stationary objects, extending into and/or located upon the waters covered by this ordinance, shall have red reflector signals on each side thereof and in the case of piers, such reflectors shall not be less than three (3) feet from the outer limits thereof and shall be at least three (3) inches in diameter,

(b) **RAFTS.** No person shall erect or maintain any raft or platform more than 100 feet from the shore unless it is so anchored that it has at least 10 inches of free board above the waterline, and either (i) is painted white and has attached thereto on each side above the waterline one or more reflectors in good condition not less than 3 inches in diameter, or (ii) is painted with a band at least three (3) inches in width of luminous paint so as to be visible from any direction.

(c) **PERMITS REQUIRED.** No water ski jump shall be placed upon the waters covered by this ordinance at any time unless a permit is obtained from the Water Safety Patrol. No raft or other stationary object shall be placed more than 100 feet from the shore unless a permit is obtained from the Water Safety Patrol.

(d) A permit issued under this section shall specify the location of the ski jump, raft or other structure. and in the case of ski jumps, the area of water to be used by users of such jump. Permits shall be issued only if in the opinion of the Water Safety Patrol, the proposed use of the water and location of the structure is such so as not to interfere with or obstruct navigation and other uses of the water.

(10) **SAFE OPERATION REQUIRED.** No person shall operate, direct or handle a boat in such manner as to unreasonably annoy, unnecessarily frighten or endanger the occupants of his or other boats.

(11) **SWIMMING REGULATIONS.** Any persons swimming more than 150 feet from the shoreline of the lakes covered by this ordinance and more than 50 feet from a diving raft anchored more than 100 feet from the shoreline of said lakes shall be accompanied by a boat for the protection of the swimmer and as an aid to other boats in determining the location of the swimmer and such swimmer shall be not more than 50 feet from the boat accompanying him.

(12) **LITTERING AND POLLUTING PROHIBITED.** No persons shall deposit, place or throw from any boat, raft, pier, platform or similar structure or from the shore, any cans, paper, bottles, debris, refuse, garbage, solid or liquid waste, into the water.

(13) **RACES, REGATTAS, SPORTING EVENTS AND EXHIBITIONS.**

(a) **PERMIT REQUIRED.** No person shall direct or participate in any boat race, regatta, water ski meet or other water sporting events or exhibition unless such event has been authorized and a permit issued therefor by the Water Safety Patrol.

(b) **PERMIT.** A permit issued under this section shall specify the course of area or water to be used by participants in such event and the permittees shall be required to place markers, flags or buoys approved by the Water Safety Patrol, designating the specified area. Permits shall be issued only if in the opinion of the Water Safety Patrol, the proposed use of the water can be carried on safely and without danger to or substantial obstruction of other watercraft or persons using the lakes. Permits shall be valid only for the hours and area specified thereon.

(c) **RIGHT-OF-WAY OF PARTICIPANTS.** Boats and participants in any such permitted events shall have the right-of-way on the marked area and no other person shall obstruct such area during the race or event or interfere therewith.

(14) **WATER SKIING.**

(a) **HOURS.** No person shall water ski and no person shall operate a boat while towing a person on water skis aquaplane, surfboard or any similar device at any time between sunset of any day and 9:00 A.M. of the following day.

(b) All persons water skiing, aquaplaning, surfboarding or using any similar device must wear a personal flotation device.

(c) No persons shall water ski and no person shall operate a boat while towing a person on water skis, aquaplane, surfboard or any similar device on North Lake unless in a counter-clockwise direction. This restriction shall not apply to the operator of a boat attempting to pick up a skier who has fallen.

(d) No person shall tow another who is either barefoot or on water skis, aquaplane, kneeboard or other similar device, nor shall any person tow another on tubes, torpedoes or other similar inflated appliances, unless such person is wearing a Coast Guard approved personal flotation device or a wetsuit having flotation capabilities.

(15) MARKERS AND NAVIGATION AIDS: POSTING ORDINANCE.

(a) The Water Safety Patrol is authorized and directed to place and maintain suitable markers, navigation aids and signs in such water areas as shall be appropriate to advise the public of the provisions of this ordinance and to post and maintain a copy of this ordinance at all public access points on waters covered by this ordinance.

(b) **STANDARD MARKERS.** All markers placed by the Water Safety Patrol or any other person upon the waters covered by this ordinance shall comply with the regulations of the Department of Natural Resources.

(c) **INTERFERENCE WITH MARKERS PROHIBITED.** No person shall without authority remove, damage or destroy or moor or attach any watercraft to any buoy, beacon, or marker placed on the waters of any lake covered by this ordinance, by the authority of the United States, State, County or Town or by any private person, pursuant to the provisions of this ordinance.

(16) PENALTIES AND DEPOSITS.

(a) Any person violating any provision of this section 4.03 for which a penalty is not provided by subsection (b) below shall, upon conviction thereof, forfeit not more than Fifty (\$50) Dollars together with the cost of prosecution and in default of payment of such forfeiture and costs, shall be imprisoned in the county jail until full payment thereof is made, but not to exceed thirty (30) days.

(b) Any persons violating subsection 30.67(1) or 30.68(1), adopted by reference in subsection 4.03(4) of this ordinance, shall, upon conviction thereof, forfeit not more than Two Hundred (\$200) Dollars, together with the cost of prosecution and in default of such forfeiture and costs, shall be imprisoned in the county jail until full payment thereof is made, but not to exceed sixty (60) days.

(c) Any person violating sections 30.681 or 30.684(5) of the Wisconsin Statutes, as adopted by this ordinance, shall, upon conviction thereof, forfeit not less than \$150 nor more than \$300 together with the costs of prosecution and in default of such forfeiture and costs, shall be imprisoned in the county jail until full payment thereof is made, but not to exceed 60 days. In addition to any penalty, the court shall enter the orders required by subsections 30.80(6)(d) and (e) of the Wisconsin Statutes.

(d) **MONEY DEPOSITS.** Any officer arresting a person for violation of a provision of this ordinance who is unable to bring the person arrested before the proper court without unnecessary delay shall permit such person to make a money deposit as provided in section 30.76 of the Wisconsin Statutes. Such deposit shall be made to whom and at the office designated by the Water Safety Patrol officer.

(17) WISCONSIN STATUTES DEFINED. Whenever used in this ordinance the term "Wisconsin Statutes" shall mean the Wisconsin Statutes of 1973 and all amendments thereof.

(18) REPEAL OF CONFLICTING ORDINANCES. All ordinances regulating water traffic, boats, boating or water sports upon the waters covered by this ordinance and all ordinances or parts of ordinances in conflict with this ordinance, heretofore enacted by the Town Board of the Town of Merton and the Village Board of the Village of Chenequa, are hereby repealed.

(19) SEVERABILITY. The provisions of this ordinance shall be deemed severable and it is expressly declared that the Town Board of the Town of Merton and the Village Board of the Village of Chenequa would

have passed the other provisions of this ordinance irrespective of whether or not one or more provisions may be declared invalid and if any provisions of this ordinance or the application thereof to any person or circumstances is held invalid, the remainder of the ordinance and the application of such provisions to other persons or circumstances shall not be affected thereby.

4.04 AUTOMOBILES AND TRUCKS ON NORTH LAKE.

(1) The Town Board of the Town of Merton and the Village Board of the Village of Chenequa, each being a municipality as defined in Chapter 30 of the Wisconsin Statutes, and each having jurisdiction of a portion of North Lake, an inland lake located in Waukesha County, do ordain jointly and identically in conformity with 530.77 and 530.81, Stats., as follows:

(2) No person shall operate or park or permit to be operated or parked any automobile or truck upon the ice of North Lake.

(3) The definitions contained in Chapter 340 and any amendments thereto are hereby incorporated by reference as if fully set forth herein.

(4) Any person violating any provision of this ordinance shall, upon conviction thereof, forfeit an amount set forth in the general penalties section of the General Code of Ordinances of the Town of Merton and the Municipal Code of the Village of Chenequa.

(5) All ordinances or parts of ordinances contravening or inconsistent with the provisions of this ordinance be and they are hereby repealed.

(6) Should any section, clause or provision of this ordinance be declared to be invalid, the same shall not affect the validity of the ordinance as a whole or any part thereof, other than the part so declared to be invalid. (5/10/93)

4.05 OPERATION AND PARKING OF MOTOR VEHICLES ON ICE - CORNELL LAKE.

(1) **PURPOSE.** The Village Board of the village of Chenequa determine and declare it to be in the interest of the public health, safety and welfare to prohibit the use, operation and parking of motor and other motorized vehicles, including without limitation snowmobiles, on the ice surface of Cornell Lake in the Village of Chenequa.

(2) **PROHIBITING USE AND PARKING OF MOTORIZED VEHICLES.** No person shall use, operate or park a motor or other motorized vehicle, including without limitation snowmobiles, on the ice surface of Cornell Lake in the Village of Chenequa. (5/10/93)

4.06 REGULATION OF USE OF PINE LAKE PUBLIC BOAT ACCESS FACILITY.

(1) **FACILITY HOURS.** The public boat access facility located on Pine Lake in the village of Chenequa (the "Facility") shall be open from 6:00 A.M. to 10:00 P.M., except on the general fishing opening weekend when the Facility shall be open on that first Saturday and Sunday from 4:00 A.M. to midnight. No boat or equipment incident to navigation (hereinafter referred to collectively as "boat") may be launched during a time the Facility is not open, but a boat on the lake at the, applicable closing time may be retrieved from the lake after such closing time and a vehicle in the designated parking area at such closing time may remain there until the boat transported by such vehicle is retrieved. Except as set forth above, no person shall enter or remain on the Facility premises and no parking shall be allowed on the Facility premises at a time when the Facility is not open.

(2) USE OF PUBLIC LAUNCH SITE RESTRICTED. No person shall launch a boat from the Facility launch site unless (a) at the time of such launching, there is an available parking place in the designated parking area for the vehicle which transported the boat and (b) such vehicle is then parked in a parking place in the designated parking area; provided, however, to assure that parking in the designated parking area is limited to the general public, no owner or tenant of property on Pine Lake shall be required or permitted to park in the designated parking area after launching a boat owned by such person at the Facility's launch site.

(3) USE OF PARKING AREA RESTRICTED. A person shall only park a vehicle in the Facility's designated parking area provided that:

(a) the vehicle is being used to transport a boat for use on Pine Lake or to transport persons for the purposes incident to navigation on Pine Lake,

(b) the person remains in the Facility or upon Pine Lake the entire time the vehicle remains in the designated parking area, and

(c) the vehicle is parked in a marked parking place in the Facility's designated parking area.

(4) USE OF FACILITY RESTRICTED. The Facility shall be used only for the launching of boats on Pine Lake and for providing access for purposes incident to navigation on Pine Lake and for parking associated therewith. The Facility shall not be used for fishing, hunting, camping, picnicking, swimming, sunbathing, fish cleaning, maintenance of boats and/or motors or for other recreational purposes not expressly permitted above, or sales of products and services except for collection of fees for launching of boats and parking.

(5) PARKING FEES. Fees for parking of vehicles and vehicles with trailers at the Facility's designated parking area may be charged by the Village in amounts determined from time to time by the Village Board of the Village, but in no event shall such fees exceed the fees permitted under Sections NR 1.91 through 1.93 of the Wisconsin Administrative Code.

(6) PENALTY. Any person found guilty of a violation of any of the terms or provisions of this ordinance shall be subject to a fine of not less than \$20.00 and not more than \$200.00 for each violation.

(7) These Code provisions shall be in full force and effect upon the opening of Facility, as determined by the President of the Village of Chenequa, and publication as provided by law.

4.07 OPERATION AND PARKING OF MOTOR VEHICLES ON ICE PINE LAKE

(1) PURPOSE. The Village Board of the Village of Chenequa determine and declare it to be in the interest of the public health, safety and welfare to prohibit the use, operation and parking of motor and other motorized vehicles, including without limitation snowmobiles, on the ice surface of Pine Lake in the Village of Chenequa.

(2) PROHIBITING USE AND PARKING OF MOTORIZED VEHICLES. No person shall use; operate or park a motor or other motorized vehicle, including without limitation snowmobiles, on the ice surface of Pine Lake in the village of Chenequa.

Appendix B

ILLUSTRATIONS OF COMMON AQUATIC PLANTS IN PINE LAKE



Eel Grass/ Wild Celery (*Vallisneria americana*)



Flat-stem Pondweed (Potamogeton zosteriformis)



Floating Leaf Pondweed (Potamogeton natans)



Curly Leaf Pondweed (Potamogeton crispus)



Illinois Pondweed (Potamogeton illinoensis)



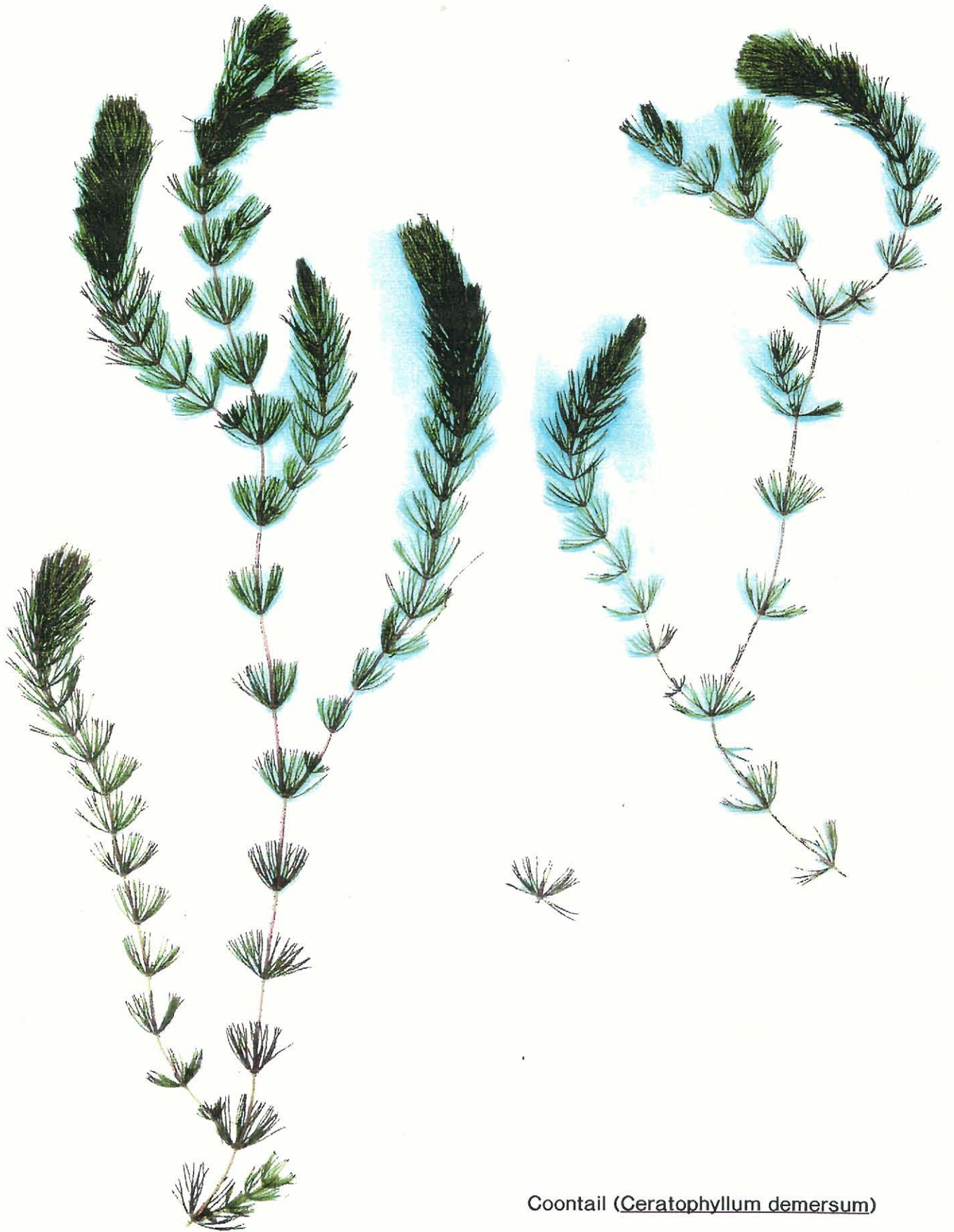
Sago Pondweed (Potamogeton pectinatus)



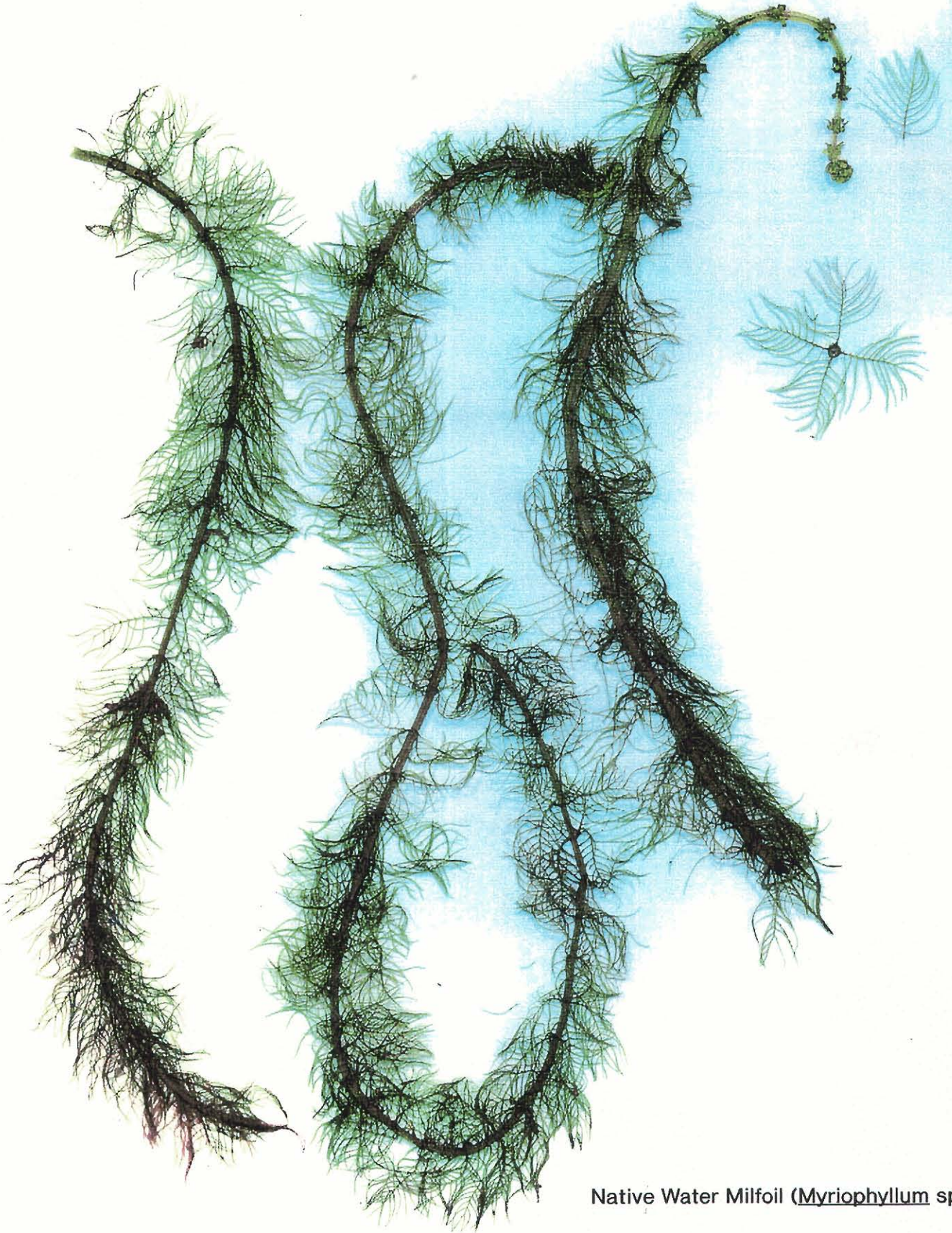
Spiney Naiad (*Najas marina*)



Bushy Pondweed (Najas flexilis)



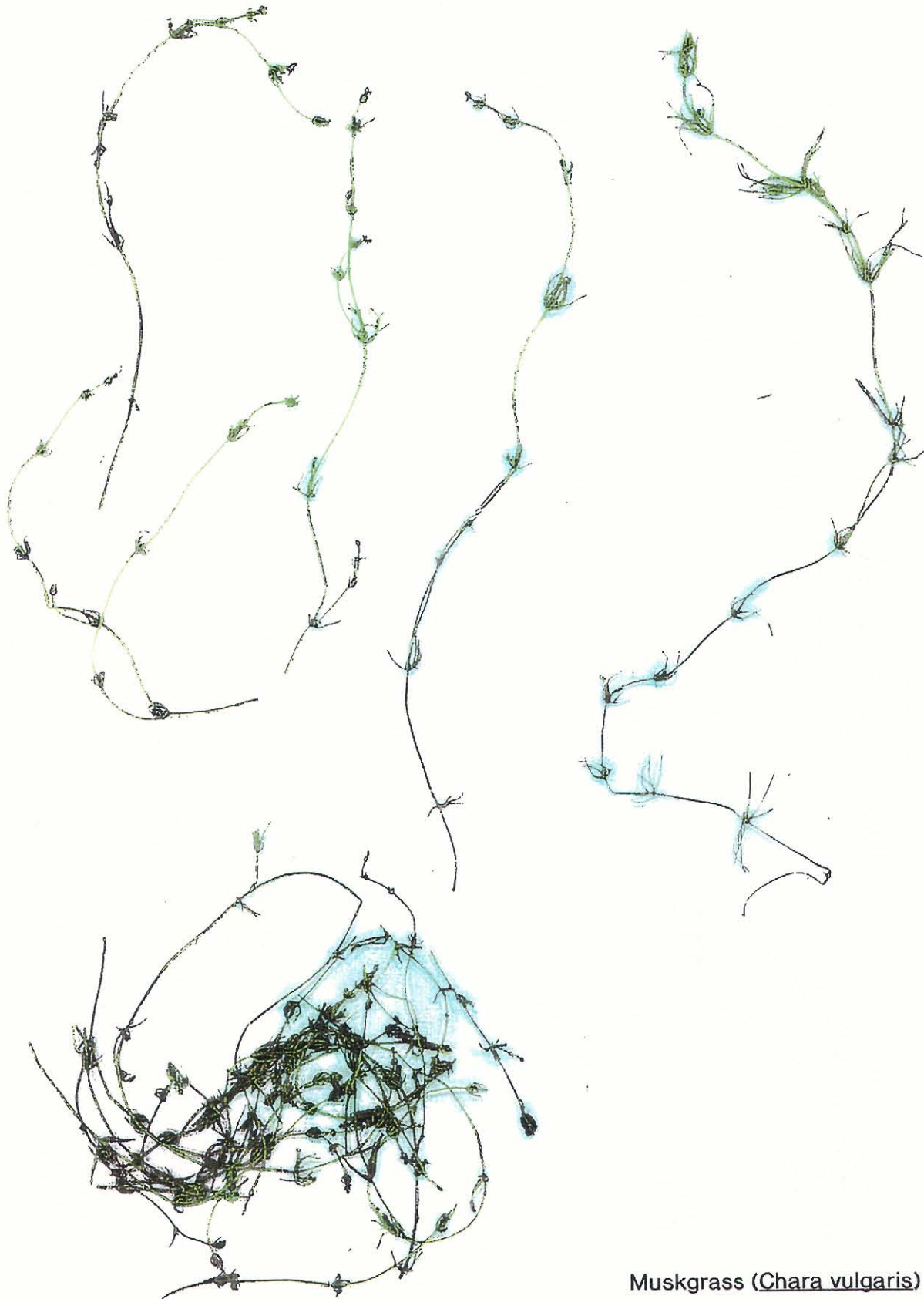
Coontail (Ceratophyllum demersum)



Native Water Milfoil (Myriophyllum sp.)



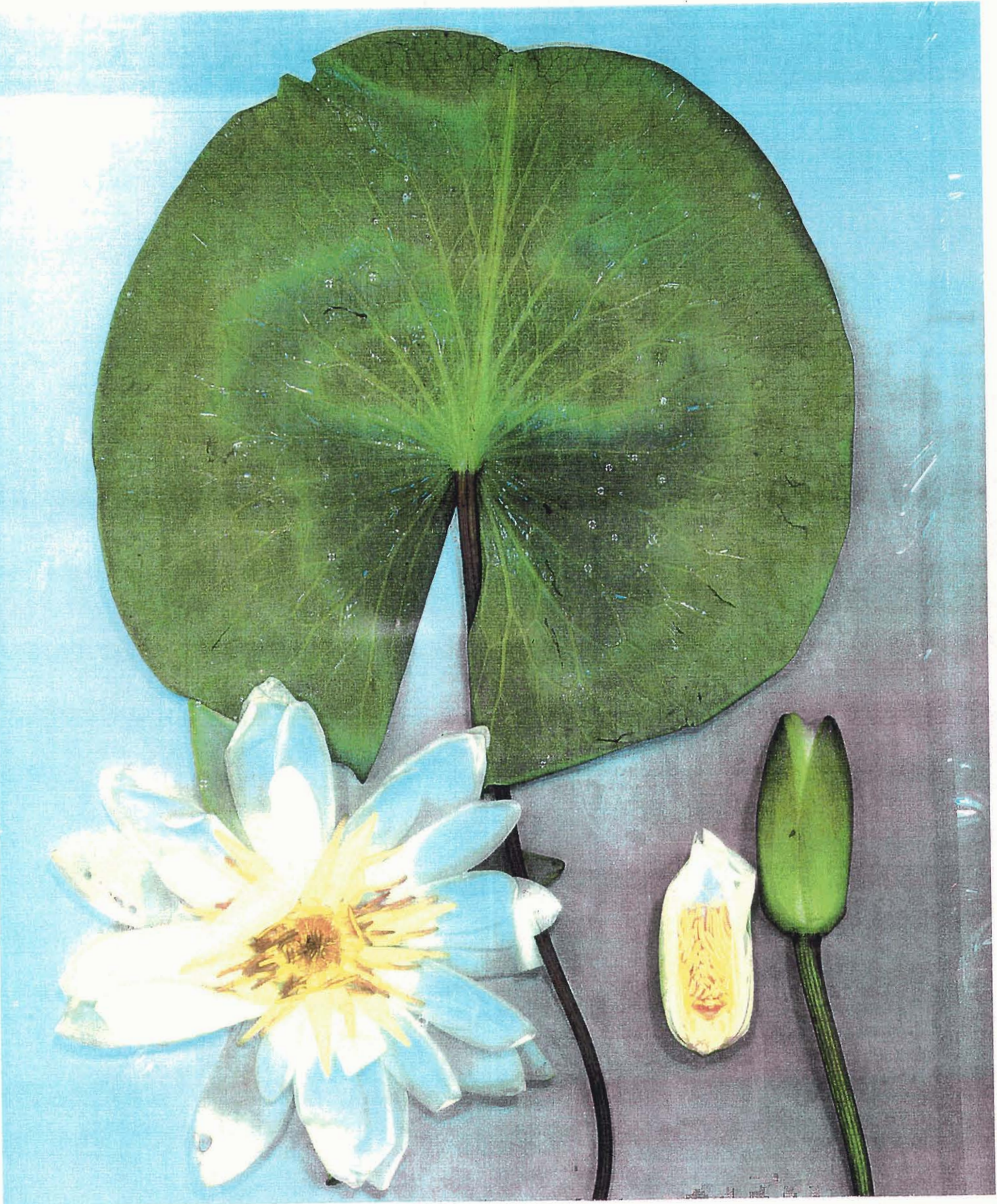
Eurasian Water Milfoil (*Myriophyllum spicatum*)



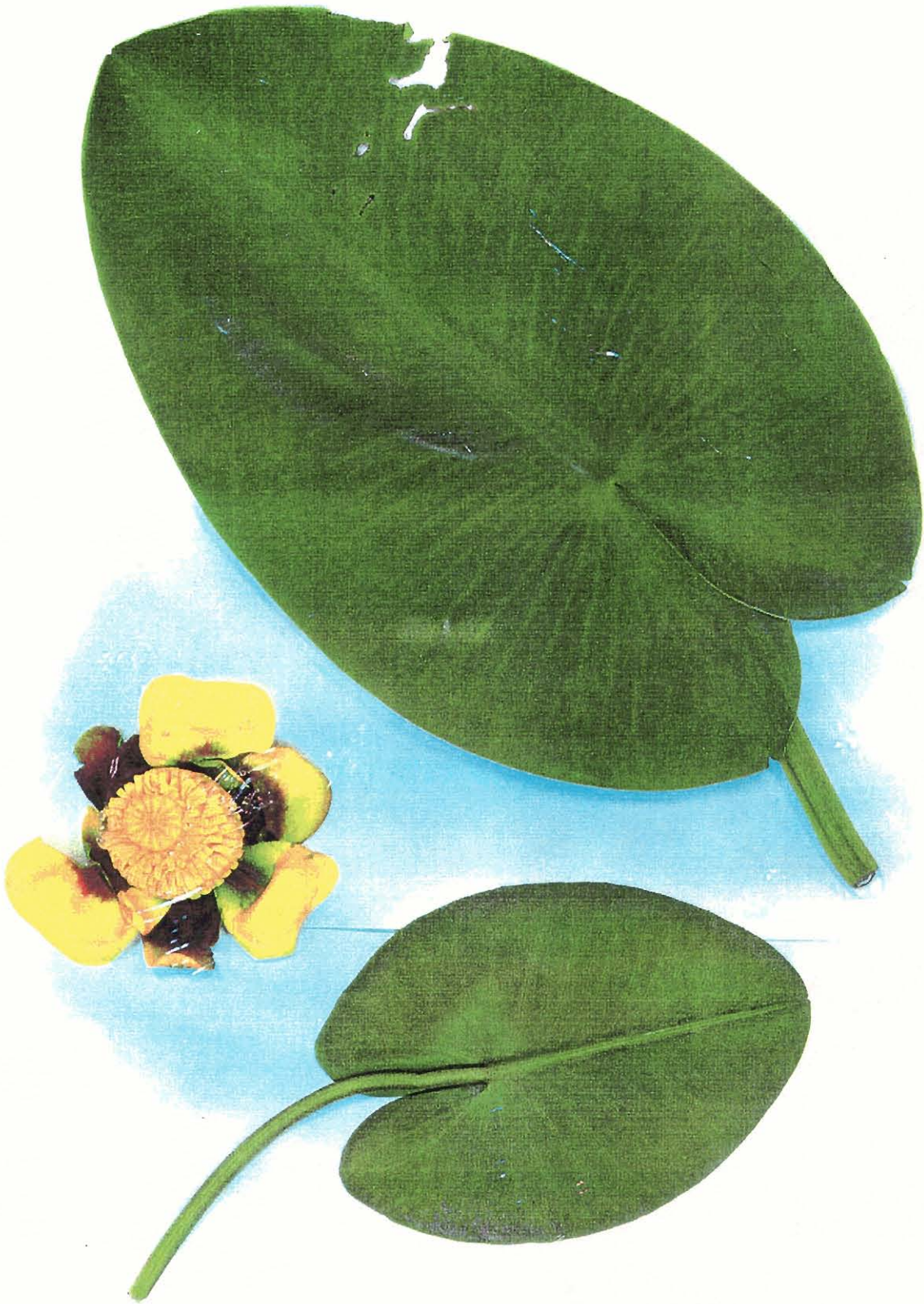
Muskgrass (*Chara vulgaris*)



Waterweed (Elodea canadensis)



White Water Lilly (Nymphaea tuberosa)



Yellow Water Lilly (Nuphar variegatum)