



## CORRESPONDENCE/MEMORANDUM

Date: June 12, 1979  
To: Anthony S. Earl

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From: James T. Addis



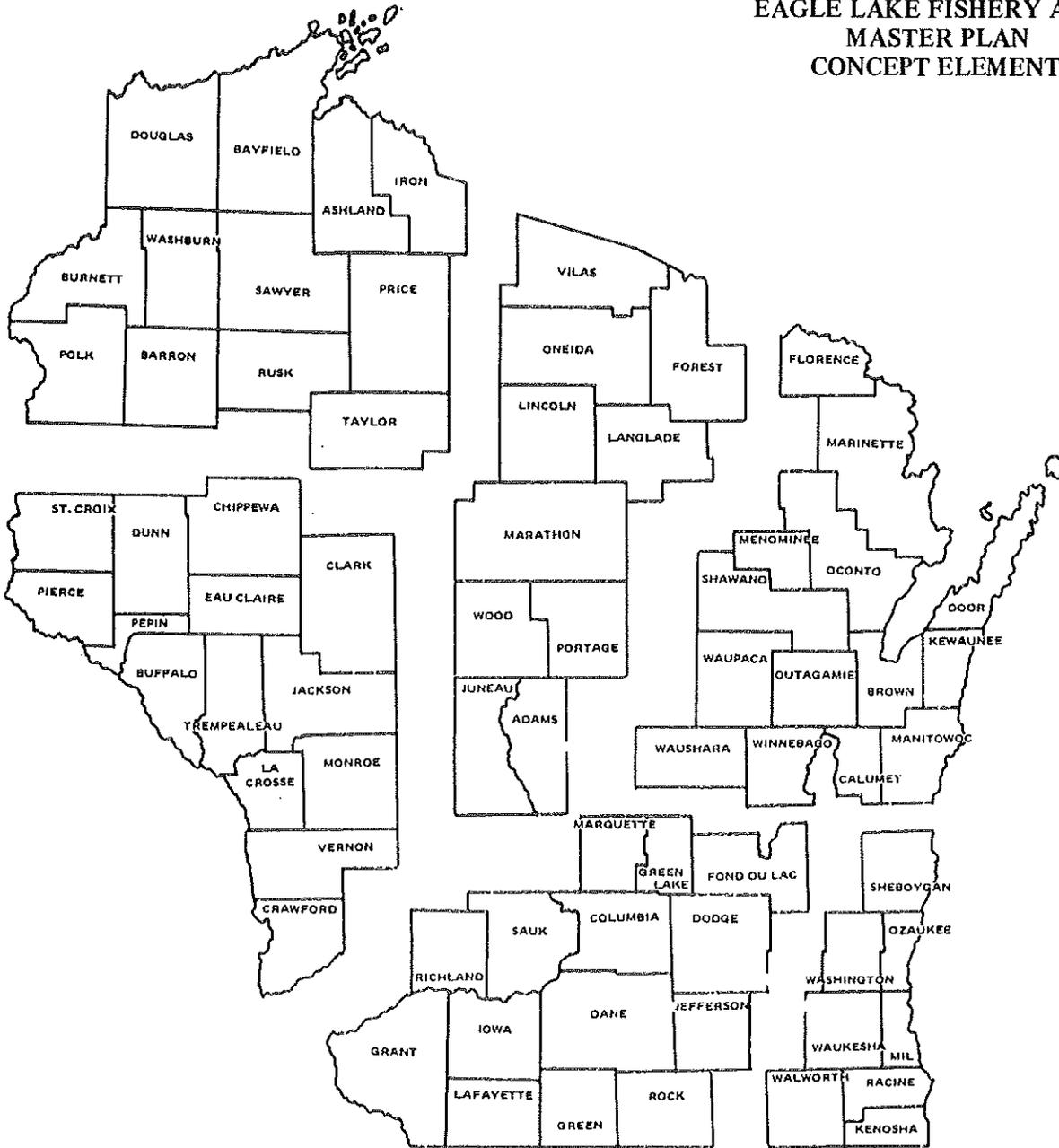
Subject: Master Plan for Eagle Lake Fishery Area - Racine County

Attached is a final draft of the Master Plan for Eagle Lake Fishery Area in Racine County. We propose to present this plan to the Natural Resources Board at its June meeting. Your approval to present the plan will be appreciated.

The Plan was subjected to 45-day review and no adverse comments were received. While the area is small by comparison with many fish and wildlife areas it looms important because it provides open space in an intensively developed area.

CWT:mg

EAGLE LAKE FISHERY AREA  
 MASTER PLAN  
 CONCEPT ELEMENT



PROPERTY TASK FORCE:

Leader - E. Randy Schumacher, Fish Management  
 Ronald Piening, Fish Management  
 Thomas Becker, Wildlife Management  
 David Shouder, Parks and Recreation

Submitted -

Approved by Natural Resources Board:

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Date

## Table of Contents

	<u>Page</u>
Introduction	1
Background Information	1
Goals and Objectives	4
Resource Capability	5
Justification of Ownership	5
Current and Potential Use	5
Vegetation, Soils and Geology	6
Fish and Wildlife	7
Resource Management Problems	8
Long Range Resources, Recreational Needs and Justification	9
Analysis of Alternatives	10
Management Program	11
Summary	12
Appendix I	
Figure 1 - County Location of Eagle Lake	
Figure 2 - Project Boundaries, Public Access and Resorts	
Figure 3 - Fish, Wildlife and Woodland Values and Basic Soil Types	
Figure 4 - Acquisition Priority Map	
Figure 5 - Zoning Map	
Appendix II	
Extracts from the Racine County Zoning Ordinance Pertinent to the Eagle Lake Fishery Area	
Appendix III	
Table 1 - Plants that May Be Found in the Eagle Lake Watershed	
Table 2 - Fish Species and Their Abundance in Eagle Lake	
Table 3 - Major Resident and Migratory Bird Species Using the Eagle Lake Fishery Area	
Table 4 - Mammals that May Be Found in the Eagle Lake Fishery Area	

## Introduction

Master plans are provided for Department properties to furnish information on their setting, the uses to which they are put, establish their capabilities, and to make plans for protection and development. Although the publicly owned acreage or lands planned for acquisition at Eagle Lake are relatively small, high population pressures raise their relative importance, and make them deserving of the master planning process.

## Background Information

Marshes adjoining a lake such as Eagle Lake are an integral part of the whole lake system. A discussion of potential land use and public lands therefore begins with a knowledge of the lake itself.

Eagle Lake covers 520 acres and is located in south-central Racine County as shown in Figure 1, Appendix I. The Eagle Lake fishery area consists of a series of marshlands adjacent to Eagle Lake. The nearest community is the unincorporated Village of Kansasville (population 500), located one mile to the south. The Eagle Lake fishery area is situated within 20 miles of the Cities of Racine and Kenosha, 30 miles from downtown Milwaukee, and 70 miles from the center of the City of Chicago. Included in Appendix I, the county highway map (Figure 1) and project map (Figure 2) locate the fishery area in its regional setting.

As the second largest natural lake in Racine County as well as one of the largest and most accessible in the immediate area, Eagle Lake is popular with both transient and local lake users. Public access and boat launching facilities are present in the form of an excellent 15.7-acre day-use county park on the north shore, with an improved launching ramp and parking for 30 car/trailer units. A town road ending on the west shore provides additional access and parking for approximately 10 car/trailer units. Together, they are considered to be adequate public access for fisheries management purposes.

Additional boat launching and rentals are available to the public through two resorts, which presently offer a total of 30 rental fishing boats. One owner anticipates buying more boats, and the number of rental fishing boats available is expected to increase to 45 by 1979. These resorts offer parking for 24 additional car/trailer units for boat owners choosing to use their fee ramps. Public access sites are shown on Figure 2, Appendix I.

Eagle Lake is generally shallow in nature, averaging 7.0 feet in depth, with 21% of its water area less than three feet in depth. The maximum depth is 15 feet.

Poff et al. (1969) notes that lake level is maintained principally from runoff within the 4,646.7-acre watershed. The principal source of runoff is Eagle Creek, an intermittent, straightened channel which enters Eagle Lake from the northeast and exits on the west side to join the Fox River south of Rochester. The watershed boundary along with general soils and wildlife values are described on Figure 3, Appendix I, reprinted from the 1969 Lake Use Report.

Historically, Eagle Lake held a reputation as a good producer of northern pike, walleye, and largemouth bass. Northern pike and largemouth bass are certainly native to the lake. Walleyes have been stocked occasionally since 1937, and some sources have documented limited natural reproduction (Mackenthun, 1947; Voigt, 1958; Anonymous, 1974). Since Eagle Lake had direct connection to the Fox River before dam construction, it seems reasonable to assume that walleyes were also native to the fishery. Unique to area lakes, Eagle Lake also supported a notable white bass fishery.

Although slightly less than the regional mean in total alkalinity (181 ppm), most of the lake area can be considered to be within the littoral zone, thus the capability for biological production is high. This high production potential was reflected in the lake's early reputation as a haven for diving ducks.

In their system for developing a Lake Condition Index (LCI), Uttormark and Wall (1975) developed a ranking system for lakes, based on penalty points assigned according to undesirable characteristics usually associated with eutrophication. In this system, Eagle Lake was assigned 20 out of a possible 23 points, and was the second most eutrophic of the nine lakes considered in Racine County.

In the 1950's, a deterioration in the fisheries habitat of Eagle Lake became apparent. Mackenthun (1947) observed submerged aquatic vegetation to 8 feet in depth. By 1956, rooted aquatic vegetation was present only to three feet in depth, and the water was noted to be very turbid (Threinen, 1956). These factors were interpreted as a sign of the incipient stage of a carp problem. The decline in rooted aquatic vegetation persisted into the late 1960's (Poff et al., 1969), and at this time a general deterioration in the fishery was noted. Reasons given for the deterioration in the fishery included excessive fertility from encroaching residential development and the buildup of a large carp population. In an attempt to remedy the situation, Conservation Department rough fish removal crews attempted carp removal almost annually from 1957-1967. By 1974, no rooted aquatic vegetation was observed during an October fisheries survey (Tills, 1974).

Bearing in mind that a sanitary sewerage system for the Eagle Lake area was scheduled to be completed sometime in 1979, it was decided that total chemical eradication of the existing fishery offered the only lasting means of correcting the carp problem. The chemical eradication took place in the fall of 1975. During the salvage operation, 300,499 pounds (578 pounds/acre) of carp and only 3,901 pounds of other fish were removed.

Presently, the game fishery of Eagle Lake is in the process of being rebuilt through stocking. Recent surveys (Rebicek and Schumacher, 1977) indicate excellent initial survival of stocked walleye, largemouth bass, northern pike, and hybrid muskellunge. Water clarity has greatly improved, and rooted aquatic vegetation is once again present throughout most of the basin to approximately 10 feet in depth.

Because the lake is shallow and not protected from the wind, it is mixed completely by wind action during the ice-free seasons. This process results in little temperature variation from surface to bottom. Because of its shallowness, and the return of rooted aquatic vegetation after

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Because the lake is shallow and not protected from the wind, it is mixed completely by wind action during the ice-free seasons. This process results in little temperature variation from surface to bottom. Because of its shallowness, and the return of rooted aquatic vegetation after

chemical treatment, the potential exists for a winterkill situation to develop on Eagle Lake. Despite this potential, no past winterkills have been reported, and dissolved oxygen levels remained above 5 mg/L throughout the winter of 1976-1977, one of the most severe winters on record.

The 268-acre Eagle Lake fishery area project received formal Conservation Commission approval in 1959. At the time of its conception, fisheries personnel believed that land acquisition should provide for the preservation of the last remaining wet marshes on Eagle Lake (Schneberger, 1959). It was felt that preservation of these marsh areas was essential to maintain northern pike reproduction and provide waterfowl rearing and feeding areas. Early plans called for little or no development in these marshlands, since they functioned naturally as spawning areas during periods of high water. In addition to the value of the Eagle Lake marshlands for wildlife, we recognize the importance of these lands from the standpoint of flood water detention, runoff stabilization, nutrient trapping, and groundwater discharge and storage.

In 1974, developed areas in the Eagle Lake Manor Subdivision area were dropped from the project boundary and the "Candlin" property located on the northwest shoreline near the outlet of Eagle Lake was added to the project and purchased. The Candlin property is listed as parcel No. 3 on the Acquisition Priority Map, Figure 4, Appendix I. Despite these changes, the area within the project boundary remained at 268 acres. Prior to chemical treatment and after DNR purchase of the Candlin property in 1975, the outlet of Eagle Lake was moved to the Candlin property. This allowed construction of an adequate dam and carp barrier in preparation for the chemical treatment. The present project boundary and topographical features of the area are as described on the attached Eagle Lake fishery area project map, Figure 2, Appendix I.

As of May, 1979, the Department of Natural Resources has obtained warranty deed ownership to 54.92 acres or 20.5% of the authorized 268-acre project goal. Of the total 5,770 feet of lake frontage in the project area, 551 feet or 9.6% have been acquired. The cost of land purchased to date is summarized in Table 1.

Table 1. Cost and Acreage of Land Acquired as of May, 1979

<u>Purchased From</u>	<u>Acreage</u>	<u>Date Purchased</u>	<u>Cost/Acre</u>	<u>Parcel Ident. No.*</u>
Carl Enberg	18.20	1-13-64	\$ 137.36	5
Mabel Ferro	8.60	12-21-70	\$ 373.25	5
Paul Candlin	28.12	2-13-75	\$ 252.48	3

\*Parcel identification number refers to land parcels listed on acquisition priority map, Figure 4, Appendix I. More than one landowner may own land within a listed parcel.

In the fall of 1977, certain parcels were assigned priorities for acquisition purposes. The attached acquisition priority map, Figure 4, Appendix I, lists the parcel identification number along with the acquisition priority for each parcel.

To date, there has been no habitat manipulation on lands presently owned. Management practice has been to maintain these marshes as natural fish spawning areas. The area is occasionally spot-checked for litter, and shoreline areas have been posted with signs instructing waterfowl hunters that blinds must be removed at the end of hunting hours each day. With the increase in waterfowl usage of Eagle Lake due to the return of aquatic vegetation following chemical treatment, waterfowl hunting pressure on Eagle Lake has increased considerably. The present DNR ownership of only 500 feet of actual lake frontage at times results in crowded hunting conditions.

### Goals and Objectives

The Master Planning Committee has determined the primary goal of the Eagle Lake fishery area to be: The maintenance of the quality, productivity and diversity of the Eagle Lake ecosystem through management practices designed to preserve and restore fish and wildlife habitat.

Objectives that the committee has developed which we believe will accomplish the primary goal include:

- a) To purchase all parcels of land within the project boundary as they become available. This will allow for preservation of fish spawning grounds and nesting areas for waterfowl, shorebirds, and pheasants.
- b) To provide public hunting area for waterfowl and pheasants. Estimated use capacity is 675 man-days of waterfowl (4-5 duck blinds) and 900 man-days of pheasant hunting, if acquisition goals are realized.
- c) To enhance and preserve the water quality of Eagle Lake through maintaining stateowned marsh areas as a buffer zone against nutrient runoff from adjoining farm and residential lands.
- d) To optimize productivity of the acquired marshlands for fish spawning and wildlife habitat production through vegetation manipulation such as: controlled burning, brush cutting, and water level manipulation.
- e) To provide 500-750 man-days/year of nonconsumptive day use activities. Activities envisioned include: wildlife observation and photography, marshland nature interpretation for school groups, cross country skiing, snowshoeing, berry picking, mushroom picking, and hiking.
- f) To provide some undisturbed shore with natural vegetation as nursery ground for young fish.

### Management Policies

Our primary authority for acquiring fisheries lands and developing fisheries areas is Wisconsin Statute 23.09. The Eagle Lake fishery area will be managed as a public fishing ground, consistent with those regulations. In addition, the Eagle Lake fishery area will be managed to preserve and

protect the water, land, and associated flora and fauna of the Eagle Lake area as authorized by Administrative Code NR 1.43, "Acquisition of Fish and Game Lands Adjacent to Water". Actual management programs will follow procedures outlined in the Department's fish management handbook (Manual Code 3605.9) and other, approved management practices. The area is subject to Racine County zoning ordinances. The specific zoning laws are copied in Appendix 2.

### Resource Capability

#### I. Justification of Ownership

The entire Eagle Lake fishery area serves to protect and preserve the marshland resources of Eagle Lake from encroaching development, and functions as a habitat preservation area.

In 1969, it was observed that 75 percent of the shoreline was residentially developed (Poff et al., 1969). This development encompassed nearly all of the buildable upland shoreline area. Without DNR ownership, only Racine County zoning ordinances protect the remaining marshlands from potential destruction. Most of the land within the Eagle Lake fishery area is presently zoned as a resource conservation district (C-1) or general farming and residential district (A-2). C-1 zoning presently follows the 798-foot elevation contour which corresponds to the 100-year floodplain. Appendix II contains a description of the restrictions affecting C-1 and A-2 zones and development within floodplains. Figure No. 5 (zoning map), included in Appendix I, help illustrate present and potential uses of the Eagle Lake vicinity.

With completion of the sewerage system presently being installed in the Eagle Lake area, rezoning will take place. With rezoning, Racine County zoning officials anticipate a reduction in the minimum lot size for A-2 districts and increases in requests for conditional use permits in some areas presently zoned C-1. Under Section 7.0412 of the Racine County zoning ordinance, conditional uses which can be permitted in floodplains include: filling and excavation and construction of storage yards, storage buildings, and parking lots (see Appendix II). In addition to the possible loss of the Eagle Lake wetlands through the granting of conditional use permits, county zoning does not guard against the closure of these lands to the public or mechanical and chemical removal of desirable vegetation.

#### II. Current and Potential Use

Despite its close proximity to urban population centers, fishing was apparently the traditional major source of recreation pressure on Eagle Lake. Aerial boat count information from the late 1960's indicated that fishing pressure accounted for 84-88% of the daily boat usage of Eagle Lake (Poff et al., 1969). Although no comparable data is available for the years between 1969 and 1975 when chemical reclamation occurred, observations indicated fishing was still popular during this period.

The shallowness of Eagle Lake combined with historically turbid water probably are factors which combined to somewhat deter pleasure boat usage. Since chemical rehabilitation in the fall of 1975, the water clarity of Eagle Lake has greatly improved. From examining the numbers of boats charged launch fees from 1970-1976 as shown in Table 2, it appears that a resultant increase in boat launching has occurred.

Table 2 - Numbers of Motorized and Nonmotorized Boats Paying to Launch at the Eagle Lake County Park Access From 1970-1976.\*

<u>Year</u>	<u>Motorized Boats</u>	<u>Nonmotorized Boats**</u>
1970	1356	-
1971	1477	-
1972	1235	-
1973	888	-
1974	975	-
1975	871	125
1976	1327	170

\* Note: Fees charged from Memorial Day to Labor Day.

\*\* Nonmotorized boats were not charged prior to 1975.

1976 records indicate a 26.5% increase in nonmotorized boats and a 36% increase in motorized boat usage over 1975 levels. The increases are particularly significant when it is considered that in 1976 there was no fishable fish population in Eagle Lake. The increase in motorized boat launching is probably due to increased interest in Eagle Lake by pleasure boaters and water skiers. It is reasonable to project that as fishing again becomes popular on Eagle Lake, the combined influence of anglers and pleasure boaters will result in an even higher number of boat launches than occurred in 1971. The marshlands and shorelands that contribute to support of these activities are therefore very important.

During the summer of 1976, operators of the Eagle Lake County Park made observations of the numbers and types of boat usage on Eagle Lake. This work was done to obtain user pressure data for a new lake use report (James McNelly, personal communication, 1978). In these observations, no fishing boats were recorded, although boats involved in other types of recreation (pleasure boating, sailing, and water skiing) averaged 23 in June, 21 in July, and 12 boats in August per observation. Since 20-50 acres of water per boat is considered the minimum for safe pleasure boating, including water skiing, user pressure was critical in June and July, 1976. Further increases in motor boat launching can be anticipated when the fishing public regains interest in Eagle Lake.

Eagle Lake fishery area is located within five miles of the Bong Recreation Area. Future development plans for the Bong area include group camping facilities and water based activities (Brauer and Associates, 1976). Since the Bong area has very limited quality water resources, and no water area that can support high speed power boating, it is reasonable to assume that campers seeking an area for pleasure boat recreation would be likely to consider using Eagle Lake.

### III. Vegetation, Soils and Geology

Each parcel within the Eagle Lake fishery area contains similar vegetative communities. These communities or "zones" of vegetation can be expressed as a gradation from shallow marsh at the lakeshore to sedge meadow further inland to the willow-dogwood complex known as shrub-carr on the higher elevations and usually the interior of the property.

The shallow marsh shoreline areas are characterized by cattails, softstem bulrush, needlerush, pickerelweeds, lake sedge, and in some areas, abundant stands of Phragmites. Sedge marsh areas contain an abundance of the tussock sedge and some bludejoint grass along with interspersed Phragmites. On the upper elevations, red-osier dogwood, nightshade, willows, and an abundance of great ragweed. A list of plants, shrubs and trees to be found in the communities above is attached as Table 1, Appendix III.

The primary aquatic vegetation present in Eagle Lake is the algae Chara vulgaris, also known as muskgrass. Some curlyleaf pondweed, Potamogeton crispus has been observed, and it appears to be increasing. A small amount of yellow water lily, Nuphar advena is also present. Species diversity has declined slightly from that reported by Belonger (1969), although density, especially of muskgrass and curlyleaf pondweed has notably increased. We expect desirable macrophytes such as wild celery, Vallisneria americanus and sago pondweed, Potamogeton natans to become reestablished as post-chemical treatment recolonization takes place.

Soils of the Eagle Lake fishery area are of the Houghton muck and Markham marsh series and are best suited for wildlife. Limitations exist for wildlife species that require burrows and nesting sites because of flooding in some places (Department of Agriculture, 1970). Best use is for waterfowl and furbearers. Moderate limitations exist for use by upland game birds, songbirds, small mammals, and deer.

Eagle Lake lies in the geographical province of Wisconsin known as the "eastern ridges and lowlands", an area which derived its present day geographical features from past glacial modification. The lake has been described as a modest irregularity in glacial drift, bordered on several sides by marsh deposits (Poff et al., 1969). For the size of the lake, the watershed area is rather small (low watershed to lake area ratio). The shoreline of the lake is only slightly irregular (possessing a low shoreline development factor). Sand predominates on wave-swept eastern shores, and covers 26.7% of the shoreline. Gravel is found on 15.5% of the shoreline, mostly where peninsulas of firm soil jut into the lake. Muck bottom is found along 57.8% of the shoreline, mostly along shoreline areas that border wetlands. Muck predominates along the shoreline of all parcels within the Eagle Lake fishery area.

#### IV. Fish and Wildlife

Since chemical rehabilitation, fish management is attempting to restore a balanced, diversified fish population. It is particularly important to maintain an excellent predatory fish population to control an unknown, but thought to be a small, number of carp that swam into the lake during 1978 when high water eroded a passage around the fish barrier. Spring, 1977 surveys, after one full growing season following chemical treatment, revealed a dense northern pike population of approximately 9,000 fish, representing a standing crop of 17.3 pounds per acre (Schumacher, 1978). Walleyes and largemouth bass introductions have also survived, but appear to be less abundant than the northern pike.

Periodic future studies of the lake will monitor the crop of predator species and supplementary plants will be made to maintain numbers to restrict increases in the carp population. Annual plants of 1-2 hybrid

muskellunge will also be made to supply a trophy fish with rapid growth potential. Recent surveys also confirm the presence of other species including bluegills, green sunfish, pumpkinseeds, black bullheads and fathead minnows and all species present are shown in Table 2, Appendix III. The associated wetlands have 36.7 acres of flooded or floodable marsh, which, when completely under public control, should be capable of producing up to 2,400 northern pike fingerlings per acre using accepted management methods (Fago, 1977).

Waterfowl species present at various times throughout the year include: mallard, blue-winged teal, wood duck, widgeon, scaup, ring-necked duck, red head, canvasback, goldeneye, Canada goose, gadwall, shoveler, and coot. The area also serves as a nesting and feeding location for shore birds during spring and fall migrations. All parcels within the project boundary are utilized as nesting areas by mallards and blue-winged teal. The area also has a resident pheasant population, the status of which is unknown. These, and other birds using the area are shown in Table 3, Appendix III. None of the parcels within the project area are used extensively by white-tailed deer, although sightings are not uncommon. The entire area harbors raccoon, muskrat, and mink. Table 4, Appendix III lists all animals which could potentially be found in the project area.

#### Resource Management Problems

All parcels within the project boundaries are subject to residential encroachment on the adjacent uplands. This problem will no doubt be amplified within the next ten years, as sewer service to the area allows more buildable land. Difficulties with fire control and vandalism can be anticipated to intensify as residential development of the area increases. The close encroachment of residential development makes any attempt to artificially maintain high spring water levels over spawning marshes difficult. Some private residences near the project area were built before zoning restricted building in floodplains. Maintaining high water levels could cause adverse public relations with these landowners. Additionally, the new county-owned dam does not have the capability to fluctuate water levels, since the crest is fixed at 795.37 feet above mean sea level. With these considerations in mind, it appears that any future water level maintenance will have to be carefully controlled and affect only small tracts of wetland.

All parcels within the Eagle Lake fishery area are too small and close to adjacent residential developments to be developed wildlife refuges. These characteristics inhibit the sustained use of the area by waterfowl and some species of terrestrial wildlife. Species of wildlife tolerant of the close encroachment of development, such as opossum and pheasant, are best adapted to the area. The center of Eagle Lake itself serves somewhat as a waterfowl refuge during the hunting season.

An additional problem, that to some degree is already present is the adverse reaction of adjacent landowners to public hunting on state-owned parcels. It is likely that at some time in the future, a township ordinance limiting firearm usage will be drafted. To maintain public hunting area within the project, the completion of the project goal of 268 acres under state ownership is essential.

Long Range Resources, Recreational Needs and Justifications

Indications are that in the future, recreational demand upon Eagle Lake as well as the other major lakes in southeastern Wisconsin will intensify. Some authors speculate that possible fuel shortages in the future could even accelerate the demand upon southeastern Wisconsin's lakes, since households which would normally bypass southeastern Wisconsin to recreate further north could be forced to use nearby lakes (Bauer and Rubin, 1977).

The extent of present and future population impingement on the Eagle Lake vicinity can be illustrated using the concept of "potential accessibility" as described by King (1975). Using this method, "potential accessibility" is defined as the number of people potentially able to reach a given point within a specified driving time. Present potential accessibility was calculated using 1970 census data and projected 1990 potential accessibility calculated from population projections. Realistically for the Eagle Lake area, the northeastern Illinois urban area was also considered in determining accessibility. Approximate 1970 accessibility to the Eagle Lake area is summarized in Table 3.

Table 3 - Potential Accessibility (in Thousands of People) to the Eagle Lake Fishery Area in 1970

<u>Driving Time (Hrs.)</u>	<u>Potential Accessibility</u>
0.5	700
1.0	1,800
2.0	9,300
3.0	10,000

From reviewing King's maps, it appears that accessibility to the area will increase by an average of 100,000 people over the 0.5 to 3.0-hour driving times by 1990.

Although it is evident that Eagle Lake itself is currently subject to user pressure at or above optimum levels, the lake ecosystem will be required to absorb additional user pressure in the future.

The increased user pressure will include increased demand by hunters, fishers, wildlife observers, swimmers, pleasure boaters, water skiers, sailors, etc. The Eagle Lake fishery area will directly benefit both consumptive and nonconsumptive users of wildlife, by serving to maintain productive and scarce habitat types important to the preservation of the wildlife resources of the Eagle Lake area. The fishery area will indirectly benefit other users of Eagle Lake, through its role in the preservation of the quality of the lake ecosystem. Recent studies (James McNelly, pers. comm. 1978) of nutrient loading to Eagle Lake have shown that a high percentage of the nutrient and sediment load is delivered to the lake during the spring runoff period. Marshes within the Eagle Lake fishery area will function to retard runoff velocity, thus encouraging sedimentation within the marsh. Marsh vegetation will also serve to strip nutrients from runoff passing over the marsh.

If acquisition goals are realized, the Eagle Lake fishery area will encompass over 90% of the lands recommended for inclusion in conservancy districts and public wildlife areas in the ultimate recreational use plan of the 1969 Lake Use Report (Poff et al., 1969). This will result in approximately 25% of the shoreline of Eagle Lake being in public ownership.

It is anticipated that future user pressure upon the Eagle Lake ecosystem will surpass the natural productive capacity of the Eagle Lake fishery area. Some artificial introduction of fish and game will probably be required to satisfy the needs of the future hunting and fishing public. The fishery area will help to maintain a native, genetically adapted population of fish and wildlife to ensure continuance of native species in the Eagle Lake area.

The increased demand upon the lake ecosystem by the nonwildlife-oriented users (waterskiing, swimming, etc.) will need to be addressed both on the local level, through safe boating ordinances, and on the state level, using recommendations of the Lake Use Task Force. We encourage the establishment of a "no motors" zone in the northwest bay as outlined in the 1969 Lake Use Report. Since this area of the lake is very shallow, has a muck bottom, and is adjacent to marsh shoreline, minimal disturbance from outboard motors is desirable.

#### Analysis of Alternatives

Alternatives considered include:

- 1) Manage the area specifically to provide nesting cover for pheasants and waterfowl. Allow no chemical aquatic plant or swimmers itch control so an adequate supply of desirable aquatic plants remains available for food for resident and migrating waterfowl. Control burning on a rotation basis as needed to revert area to a wet prairie vegetation stage. Use mower and tractor for mechanical removal of woody vegetation. No water level manipulation is recommended. Install wood duck nest boxes and mallard nest baskets. Seek legislation for a buoyed-off no motor zone in the center of the lake to provide a resting area for waterfowl during migration periods.

Impact: This proposal is generally consistent with fish and wildlife management interests. Without water level manipulation, usage of the marshes by spawning northern pike will be retarded during years of low runoff. A buoyed-off area in the center of the lake is not needed at present, since disturbance by boaters in spring and fall is not intense.

- 2) Manage the area to provide optimum winter cover for pheasants and woodcock. Encourage cattails and allow woody brush to grow. Control burning to a minimum. Provide food patches and add hedgerows for winter cover.

Impact: The area is too small and residential development of the area too intense to provide optimum results. This alternative will provide poor northern pike spawning habitat.

- 3) Promote public access and use of the area. Construct public access and use facilities including public fishing piers and boat launch sites. Build brush shelters to attract fish.

Impact: Too much user pressure is already present on public lands in the area. Public access is adequate and expansion will destroy productivity of the area. The lake is too shallow for brush shelters.

- 4) Leave property in its natural state. Practice no vegetation control. Use no pesticides or herbicides. Promote no water level manipulation.

Impact: Optimization of production potential for fish and wildlife will not occur. Area will revert to woodcock and rabbit habitat while nesting and spawning potential will be inhibited.

- 5) Develop a day-use recreation area. Increase the project boundary to include upland areas suitable for park purposes. Add at least 40 acres and 1,000 feet of suitable shoreline to the project boundary. Construct boat launch facilities and swimming facilities.

Impact: Adequate public access and day-use facilities are already present. Adding choice upland to the project is not realistic because of costs. Nearby camping and recreation facilities are being developed at Bong Recreation Area.

- 6) Abandon further acquisition. Manage water levels on presently owned parcels primarily for northern pike reproduction and secondarily for waterfowl and pheasant nesting cover. Promote limited, short-term flooding of marshlands. Use controlled burning and mechanical mowing as needed to keep the area in a wet meadow vegetation community.

Impact: Present land holdings are too small for water level control. Any attempt will likely flood adjacent private lands. Without further marshland acquisition, the preservation of the remaining Eagle Lake marshlands as sites for wildlife and fish production and nutrient and sediment trapping cannot be guaranteed.

- 7) Pursue long-term leases instead of warranty deed ownership.

Impact: Leases would have to prohibit any private development of the marshland and allow public usage. Very little potential for long-term leases with such conditions exist.

### Management Program

As we attempt to provide optimum productivity of Eagle Lake marshlands to meet expanding public demand for fishing, hunting, and nonconsumptive uses of Eagle Lake wildlife, management programs must retain the marshes at the stages of vegetative succession which are most productive for the species of wildlife desired. Since northern pike are the primary Eagle Lake fish species requiring marsh habitat for spawning, vegetation management will need to provide suitable spawning habitat for this species. Priegel (1975) described suitable northern pike spawning areas as consisting of vegetation such as wild celery, grasses, and sedges which break down to form a dense mat of vegetation in spring. Since shoreline areas in the Eagle Lake fishery area contain abundant stands of cattail, Phragmites and bulrush, species which do not break down to

form mats of vegetation, management practices on these areas should promote increases in desirable sedges, needlerush, and wetland grasses. Vegetation management of this type will also serve to enhance nesting cover for pheasants and waterfowl. A general timetable has been developed (Table 4) which compares project goals and objectives to an estimated implementation date.

Table 4 - Tentative Timetable for Development - Eagle Lake Fishery Area

<u>Date</u>	<u>Action</u>
Present (1979)	Monitor developing fish populations and correlate stocking as required.  Use mechanical means (brush cutting) to retain productive vegetation types.
By 1980-1981	Acquire priority I parcels. Initiate controlled burning if needed. Initiate water level control practices if feasible (pending land ownership). Continue to monitor developing fish populations.
By 1990	Acquire all parcels within project boundary. Adequately post boundaries of area (possibly survey area). Continue controlled burning. If feasible, control water levels during spring runoff to optimize usage of marshes by northern pike.  Conduct fish management surveys as required.

Since all land within the project boundary is basically marsh lowland, we can anticipate paying from \$350.00 to \$500.00 per acre. To ensure preservation of the Eagle lake marshlands, it is recommended that all land acquired remain permanently in Department ownership.

#### Summary

Eagle Lake is an intensively developed lake in Racine County with heavy use of its resources. The preservation of wetlands adjacent, to preserve and enhance this heavily used aquatic ecosystem by providing spawning grounds for fish and nesting and feeding areas for wildlife is required. Plan recognizes the need to acquire a total of 268 acres of lands to meet the future increasing demands on the environment of Eagle Lake. Approval to acquire the lands by fee title is recommended by the task force.

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FISH, WILDLIFE AND WOODLAND VALUES AND BASIC SOIL TYPES  
EAGLE LAKE, RACINE COUNTY, WISCONSIN

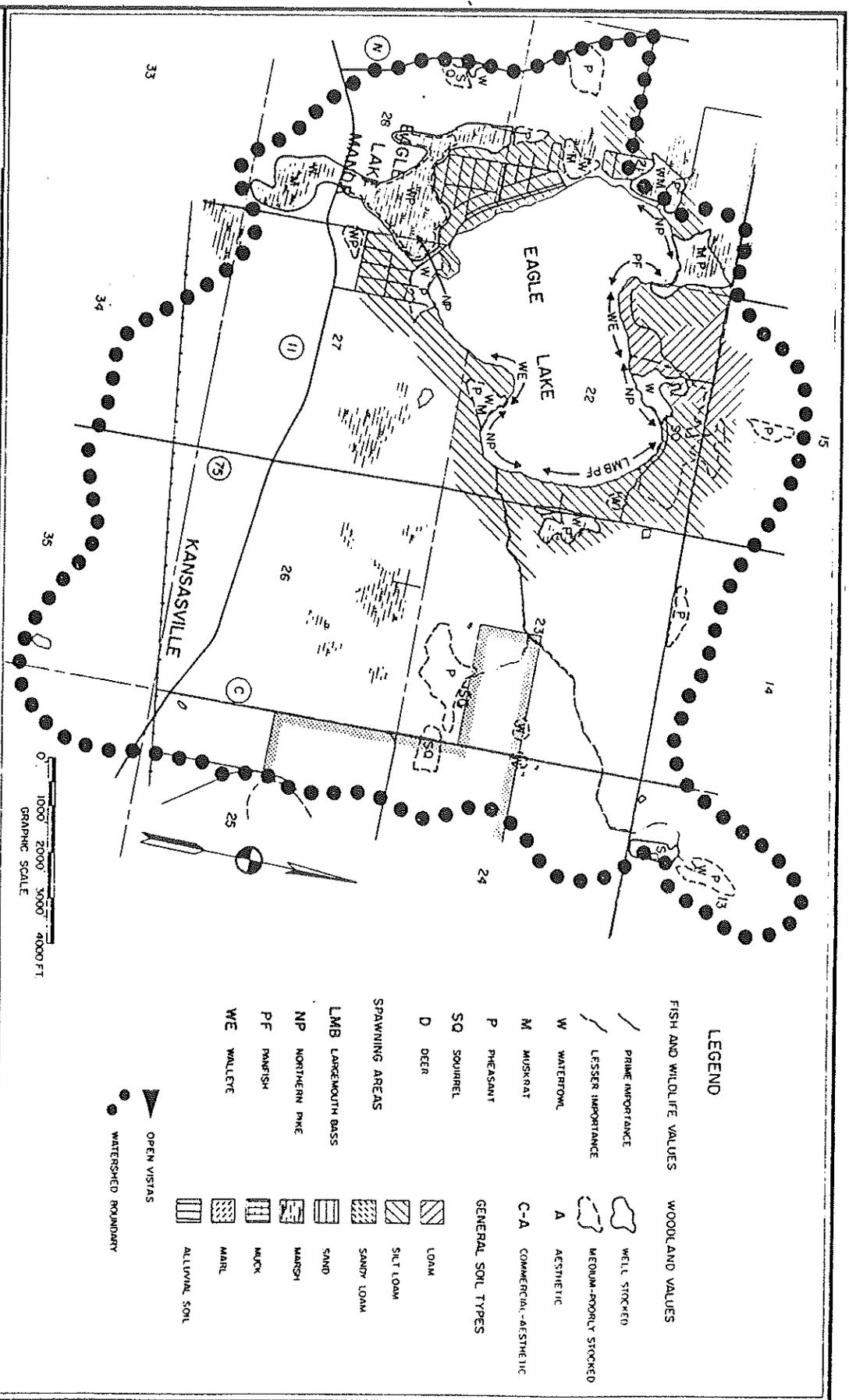
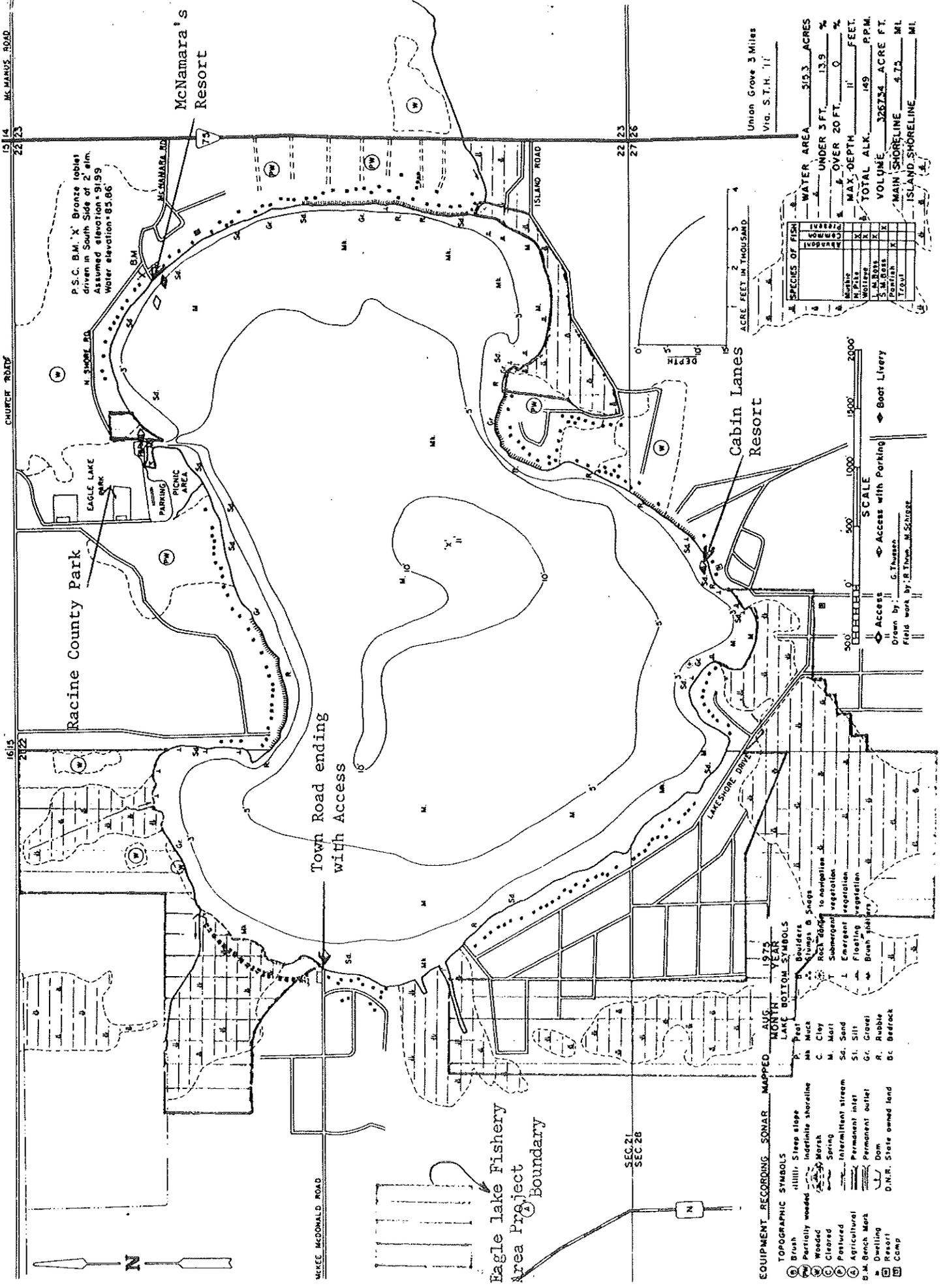


Figure 2 - Project Boundaries, Public Access Sites and Resorts

EAGLE LAKE COUNTY  
RACINE COUNTY

SEC. 21, 22, 2129 T. 3 N. R. 20 E.

APPENDIX I



P.S.C. B.M. 'X' Bronze tablet driven in South Side of 2' elm. Assumed elevation - 91.99. Water elevation - 85.86

Union Grove 3 Miles  
Via. S.T.H. 11'

SPECIES OF FISH		ACRE FEET IN THOUSAND	
Species	1973	1974	1975
Walleye	100	100	100
Yellow Perch	100	100	100
Rock Bass	100	100	100
White Sucker	100	100	100
Bluegill	100	100	100
Smallmouth Bass	100	100	100
Trout	100	100	100
Other	100	100	100
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>

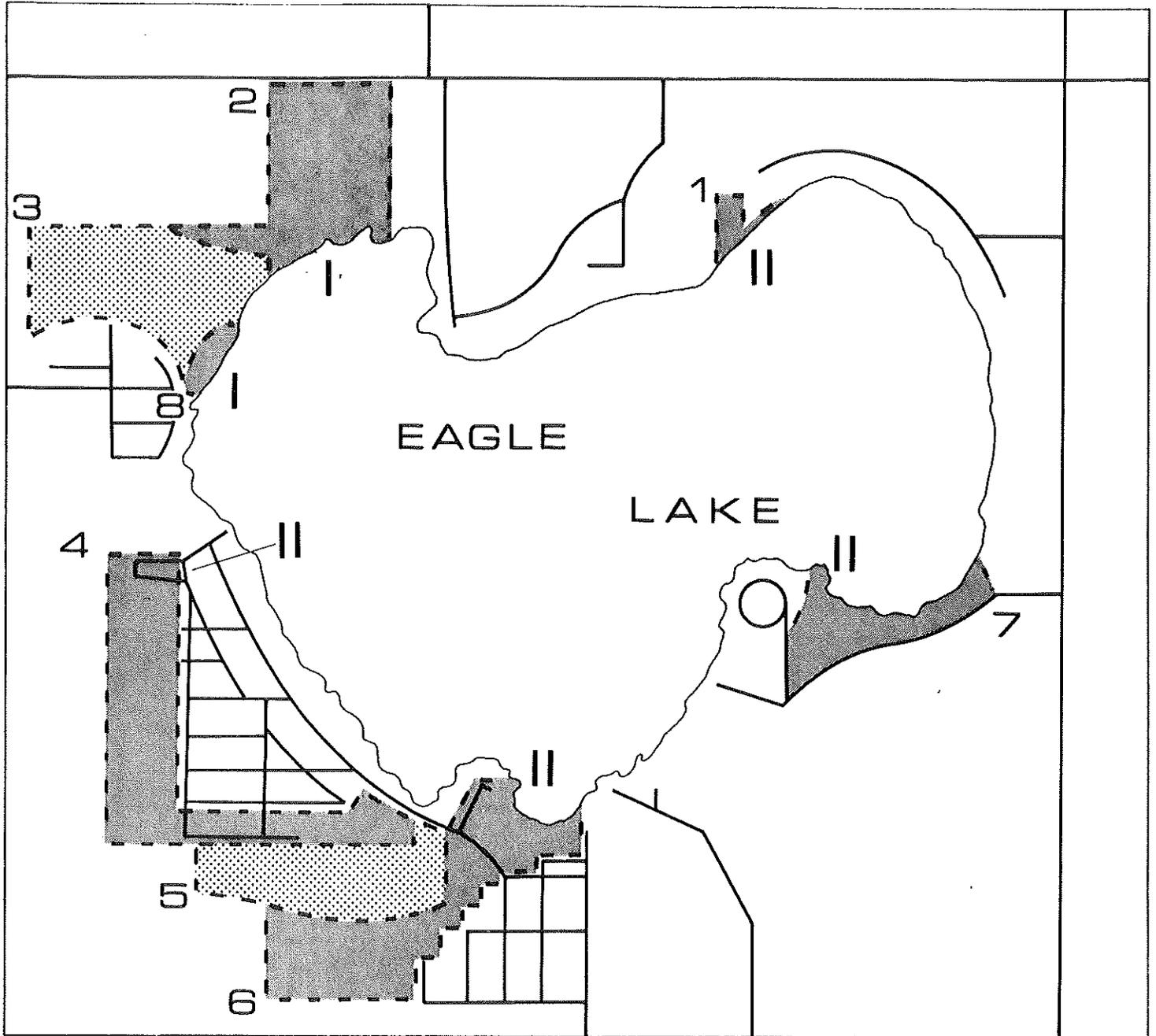
WATER AREA		ACRES	
Category	1973	1974	1975
Under 3 FT	13.9	13.9	13.9
Over 20 FT	0	0	0
<b>TOTAL</b>	<b>13.9</b>	<b>13.9</b>	<b>13.9</b>
<b>VOLUME</b>	<b>32813</b>	<b>32813</b>	<b>32813</b>
<b>MAIN SHORELINE</b>	<b>4.72</b>	<b>4.72</b>	<b>4.72</b>
<b>ISLAND SHORELINE</b>	<b>0</b>	<b>0</b>	<b>0</b>

TOPOGRAPHIC SYMBOLS	
Brush	Steep slope
Partially wooded	Indefinite shoreline
Wooded	Marsh
Cleared	Spring
Pastured	Intermittent stream
Agricultural	Permanent inlet
B.M. Bench Mark	Permanent outlet
Dwelling	Dom.
Resort	D.N.R. State owned land
Camp	Dc Bedrock

LAKE BOTTOM SYMBOLS	
P. Peat	B. Boulders
Mh. Muck	W. Woods & Snags
C. Clay	Rock Zings to navigation
M. Mud	Submerged vegetation
Sd. Sand	Emergent vegetation
Sl. Silt	Floating vegetation
G. Gravel	Brush shelves
R. Rubble	
Dc Bedrock	

EQUIPMENT RECORDING SONAR MAPPED	
1973	1974
Access	Access with Parking
Access with Parking	Boat Livery

Drawn by: G. Thuesen  
Field work by: B. Thompson, M. Schrage



- I,II LAND ACQUISITION PRIORITIES
- 5 PARCEL I.D. NUMBER
- LAND NOT STATE OWNED
- ▨ STATE OWNED LAND

FIGURE 4. ACQUISITION PRIORITY MAP

## APPENDIX II

### EXTRACTS FROM THE RACINE COUNTY ZONING ORDINANCE PERTINENT TO THE EAGLE LAKE FISHERY AREA

#### 7.028 Floodland Regulations

In addition to any other applicable use, site, or sanitary regulations, the following regulations shall apply to floodlands:

Dumping, filling (except as permitted in Section 7.0415), on-site sewage disposal facilities, residential uses, basements, permanent public assembly structures, and permanent sheltering and restricted confining of animals are prohibited within the floodplains.

In addition to the above stated regulations within the floodplains, all structures are prohibited within the floodways except navigational structures, public water measuring and control facilities, bridges, and utilities.

In addition to the above stated regulations within the floodplains and floodways, the erection of all structures in any channel shall require a permit from the state agency having jurisdiction pursuant to Section 30.12(2) of the Wisconsin Statutes. All bulkheads, wharves, and piers shall comply with bulkhead lines established by any municipality pursuant to Sections 30.11 or 30.13 of the Wisconsin Statutes.

All other structures and improvements not prohibited above are conditional uses requiring review, public hearing, and approval in accordance with Sec. 7.040 of this Ordinance.

With respect to the application of this Section during such time period, if any, when any Racine County Town shall not have adopted this Ordinance and a related zoning map, see Sec. 7.017 of this Ordinance.

The boundaries of all floodways and floodplains shall be determined through the use of flood profiles. The floodwater surface elevations shown on the one hundred (100) year recurrence interval flood profile and the ten (10) year recurrence interval flood profile shall determine the limits of the floodplain and floodway respectively. All floodland uses permitted under this Ordinance shall, as specified in Section 7.0412, use as a flood protection elevation a height corresponding to two (2) feet above the flood profile for the particular area. All flood profiles now existing or to be prepared for lakes, rivers, and streams in Racine County and approved by the State Department of Natural Resources are hereby attached to and made a part of the official zoning map created in Section 7.032.

## Appendix II

Compliance with the provisions of this Ordinance shall not be grounds for the removal of lands from the floodland regulatory areas unless such lands are filled to a height of at least two (2) feet above the elevation of the one hundred (100) year recurrence interval flood and are contiguous to other lands lying outside the floodland regulatory areas. Such filling, however, shall only take place under a conditional use permit obtained in compliance with Section 7.0415.

### 7.029 Shoreland Regulations

In addition to any other applicable use, site, or sanitary regulations, the following restrictions, and regulations shall apply to shorelands:

Tree cutting and shrubbery clearing are prohibited except for home and park site development, access roads, path and trail construction, timber stand improvement, customary trimming, dead tree removal, stream and drainage projects approved by the Soil and Water Conservation District Supervisors, and managed timber harvesting under the State District Forester's Plan within the following distance from the high-water elevation:

Lake Michigan	400 feet
Lakes 50 acres or more in area	300 feet
Lakes less than 50 acres in area	200 feet
Navigable streams	100 feet
All other streams	50 feet

Site, road (except roads used primarily for agricultural purposes), path, and trail development and all other cutting and trimming within the shoreland area are conditional uses requiring review, public hearing, and approval by the County Planning Committee under Section 7.040 of this Ordinance.

Earth movements such as grading, topsoil removal, filling, road cutting, construction, altering, or enlargement of waterways, removal of stream or lake bed materials, excavation, channel clearing, ditching, dredging, lagooning, and soil and water conservation structures are conditional uses requiring review, public hearing, and approval by the County Planning Committee in accordance with Section 7.040 of this Ordinance, in addition to the permit required from the State agency having jurisdiction under Sections 30.11, 30.12, 30.19, 30.195, and 30.20 of the Wisconsin Statutes.

## Appendix II

### Section

#### 7.030 MAPS AND DISTRICTS

##### 7.031 Establishment

For the purpose of this Ordinance, the County of Racine, Wisconsin, is hereby divided into the following twenty-five zoning districts:

- R-1 Country Estate District
- R-2 Suburban Residential District (Unsewered)
- R-3 Suburban Residential District (Sewered)
- R-4 Urban Residential District (I)
- R-5 Urban Residential District (II)
- R-6 Two Family Residential District
- R-7 Multi-Family Residential District
- R-8 Planned Residential District
- P-1 Institutional Park District
- P-2 Recreational Park District
- C-1 Resource Conservation District
- B-1 Neighborhood Business District
- B-2 Community Business District
- B-3 Commercial Service District
- B-4 Planned Business District
- B-5 Highway Business District
- B-6 Water Oriented Business District
- A-1 General Farming District I
- A-2 General Farming and Residential District II
- A-3 General Farming District III
- A-4 Truck Farming District
- M-1 Light Industrial and Office District
- M-2 General Industrial District
- M-3 Heavy Industrial District
- M-4 Quarrying District

Boundaries of these districts are hereby established as shown on a series of maps entitled "Zoning Maps, County of Racine, Wisconsin," dated \_\_\_\_\_ which accompany and are a part of this Ordinance. Unless otherwise noted on the Zoning Map, such boundaries shall be construed to follow: corporate limits; U. S. Public Land Survey lines; lot or property lines, centerlines of streets, highways, alleys, easements, and railroad rights-of-way or such lines extended. Where a C-1 Resource Conservation District is delineated on the zoning district map a linear form along a perennial or intermittent water course, the district boundaries shall be construed to be the following unless otherwise noted on the zoning district map:

- A. 100 feet from the banks of perennial streams.
- B. 50 feet from the banks of intermittent streams.

Vacation of public streets and alleys shall cause the land vacated to be automatically placed in the same district as the abutting side to which the vacated land reverts.

Appendix II

7.034 Park Districts

P-1 Institutional Park District

Principal Uses. Public and private institutional uses, such as schools; colleges; universities; hospitals; sanitariums, religious, charitable, and penal institutions; cemeteries; and crematories.

Conditional Uses. The location and site plans of all structures and improvements which serve the principal use. See also Sections 7.044 and 7.0411.

<u>Development</u>	Area	Minimum	20 acres
<u>Structure</u>	Height	Maximum	50 feet
<u>Yards</u>	Shore	Minimum	400 feet
	Street	Minimum	100 feet
	Rear	Minimum	100 feet
	Side	Minimum	100 feet

P-2 Recreational Park District

Principal Uses. Public and existing private recreational uses, such as arboretums, bathing, boating, cycling, fishing, horse riding, marinas, swimming, skating, sledding, skiing, nature trails, and hiking.

Conditional Uses. Extension of existing, or the creation of new, private recreational uses; all private recreational or assembly structures; golf courses; camp grounds; playgrounds; driving ranges; polo fields; swimming pools; zoological and botanical gardens; athletic fields; lodges; picnic areas; and archery and firearm ranges. See also Section 7.044.

<u>Development</u>	Area	Minimum	10 acres
<u>Structure</u>	Height	Maximum	35 feet
<u>Yards</u>	Shore	Minimum	100 feet
	Street	Minimum	100 feet
	Rear	Minimum	100 feet
	Side	Minimum	100 feet

7.035 C-1 Resource Conservation District

Principal Uses. Fishing; flood overflow and floodwater storage; hunting; navigation; pedestrian and equestrian trails; preservation of scenic, historic, and scientific areas; public fish hatcheries; soil and water conservation practices; sustained yield forestry; stream bank and lake-shore protection; water retention ponds; and wildlife areas.

## Appendix II

Conditional Uses. Boating, drainageways, game farms, grazing, orchards, shooting preserves, swimming, truck farming, utilities, water measurement and water control facilities, and wildcrop harvesting. The above uses shall not involve drainage; dumping; filling; tilling; mineral, soil, or peat removal; or any other use that would substantially disturb or impair the natural fauna, flora, watercourses, water regimen, or topography. See also Section 7.044.

Structures None permitted except accessory to the principal or conditional uses.

### 7.036 Business Districts

#### B-1 Neighborhood Business District

Principal Uses. The following uses provided that they shall be retail establishments, selling and storing only new merchandise; bakeries, barber shops, bars, beauty shops, business offices, clinics, clothing stores, clubs, cocktail lounges, confectioneries, delicatessens, drug stores, fish markets, florists, fraternities, fruit stores, gift stores, grocery stores, hardware stores, house occupations, hobby shops, lodges, meat markets, optical stores, packaged beverage stores, professional offices, restaurants, self-service and pickup laundry and dry cleaning establishments, soda fountains, sporting goods, supermarkets, tobacco stores, and vegetable stores. Lots or land on which there is an existing residence shall not be subdivided or transferred in such a way as to cause the parcel on which it stands to fail to comply with the lot, area and yard requirements of the R-4 Residential district. Existing residences may be expanded and repaired in compliance with the applicable requirements of the R-4 Residential District but no new residences may be built.

Conditional Uses. See Sections 7.044 and 7.047.

### 7.037 Agricultural Districts

#### A-1 General Farming District I

Principal Uses. Agriculture; dairying; floriculture; forestry; grazing; greenhouses; hay; livestock raising; orchards; paddocks; pasturage; plant nurseries; poultry raising; raising of cash grain crops, mint, grass, seed crops, silage, tree fruits, nuts and berries, and vegetables; stables; truck farming, and viticulture. Farm dwellings for those resident owners and laborers actually engaged in a principal use are accessory uses to the farm operation but shall comply with all the provisions of the R-2 Residential District. Existing dwellings not accessory to any farm operation and farm dwellings remaining after consolidation of neighboring farms are permitted but shall comply with all the provisions of the R-2 Residential District. Not more than one (1) roadside stand on any one farm shall be permitted as an accessory use. Principal uses shall include truck farming permitted in the A-4 District, subject to the size and height requirements provided therein.

Appendix II

Conditional Uses. Airports; airstrips; animal hospitals; commercial egg production; commercial raising of animals, such as dogs, foxes, goats, mink, pigs and rabbits; condenseries; creameries; feed lots; hatching or butchering of fowl; landing fields; migratory laborers' housing; and sod farming. See also Sections 7.044, 7.048 and 7.049.

<u>Farm</u>	Area	Minimum	40 acres
<u>Structure</u>	Height	Maximum	50 feet
<u>Yards</u>	Shore	Minimum	400 feet
	Street	Minimum	100 feet
	Rear	Minimum	100 feet
	Side	Minimum	100 feet

A-2 General Farming and Residential District II

Principal Uses. All uses permitted in General Farming District I plus one and two family dwellings, whether or not accessory to farm operations.

Conditional Uses. All conditional uses permitted in General Farming District I. See also Sections 7.044, 7.048 and 7.049.

<u>Farm</u>	Width	Minimum	300 feet
	Area	Minimum	10 acres
<u>Dwelling Lot (public sewer)</u>	Width	Minimum	150 feet
	Area	Minimum	40,000 sq. feet per family
<u>Dwelling Lot (septic tank)</u>	Width	Minimum	150 feet
	Area	Minimum	40,000 sq. feet per family plus such acreage as is required by anti-pollution regulations or ordinances
<u>Buildings</u>	Height	Maximum	35 feet or 2½ stories
<u>Yards</u>	Shore	Minimum	400 feet
	Street	Minimum	100 feet
	Rear	Minimum	75 feet
	Side	Minimum	25 feet one story 35 feet two story

## Appendix II

### A-3 General Farming District III - Holding District

Legislative Purpose. The Racine County Board and Town Boards of Supervisors adopting this Ordinance find that urbanization is taking place in certain areas of the county at a rapid pace, that scattered urbanization can greatly increase the public cost of installing public facilities, such as sewers and schools required to service such growth, and therefore that the public interest will be best served by channelling such development to suitable Racine County areas only at such time as it is economically feasible to plan, budget and commit to construction the necessary supporting public services and facilities. Consequently, some Racine County areas of potential growth will be placed in so-called holding districts where nonagricultural development will be deferred until the appropriate legislative bodies determine that it is economically feasible to provide public services and facilities for uses other than those permitted in the holding district. It is intended that the status of all holding districts will be reviewed by the County Planning Committee no less frequently than every five years in order to determine whether, in light of the foregoing general standards, there should be a transfer of all or part of a holding district to some other use district. Any such review will consider the need for permitting other uses on such land, the nature of the use or uses to be permitted and the cost and availability of the public services and facilities which will be necessitated by such new use or uses.

Principal Uses. All uses permitted in A-1 General Farming District I.

Conditional Uses. Same as in A-1 General Farming District I.

Lots, Buildings, Yards. Same as in A-1 General Farming District I.

### 7.0412 Floodland Uses

The following uses are conditional uses and may be permitted as specified:

Floodplain uses not prohibited in Sec. 7.028 of this Ordinance provided they are permitted in the zoning district and the applicant can show that such use or improvement will not impede drainage, will not substantially reduce the floodwater storage capacity of the floodplain, will not cause ponding, and will not significantly raise floodwater elevations. This is based on the assumption that there will be an equal degree of encroachment extending for a significant reach on both sides of the stream. Such uses shall not involve the storage of materials that are buoyant, flammable, explosive, or injurious to human, animal, or plant life. All structures shall be floodproofed; and all buildings shall have their lowest floor and their heating, electrical, and other vital utility facilities constructed at an elevation of no less than two (2) feet above the level of the one hundred (100) year recurrence interval flood or, if this is unknown, five (5) feet above the maximum flood of record.

## Appendix II

Floodway uses not prohibited in Sec. 7.028 of this Ordinance, such as outdoor recreation, parking lots, storage yards, navigational structures, public water measuring and control facilities, bridges and utilities, provided such uses are permitted in the zoning district and the applicant can show that such use or improvement will not obstruct the floodway, increase flood flow velocities, increase the flood stage, or retard the movement of floodwaters. All structures shall be floodproofed and constructed so as not to catch or collect debris nor be damaged by floodwaters. Such uses shall not involve the storage of materials that are buoyant, flammable, explosive, or injurious to human, animal, or plant life.

Where floodproofing is required under this section, the applicant shall submit a plan or document certified by a registered professional engineer that the floodproofing measures are consistent with the flood velocities, forces, depths, and other factors associated with the one hundred (100) year recurrence interval flood level for the particular area.

The County Planning Committee shall request a review of each such floodland use by the State Department of Natural Resources and await their recommendations before taking final action but not to exceed sixty (60) days. A copy of the committee's decision on such application shall be forwarded by the Secretary of the Board to the Department of Natural Resources and the Region 2 Water Resources Advisory Board within ten (10) days of such decision.

### 7.0413 Shoreland Uses

The following uses are conditional uses and may be permitted as specified:

Tree cutting and shrubbery clearing not prohibited in Sec. 7.029 of this Ordinance, provided that such cutting and clearing shall not exceed thirty (30) percent of the lot or tract and shall be so regulated as to prevent erosion and sedimentation, preserve and improve scenic qualities, and during foliage substantially screen any development from stream or lake users. Paths and trails shall not exceed ten (10) feet in width and shall be so designed and constructed as to result in the least removal and disruption of shoreland cover and the minimum impairment of natural beauty.

The County Planning Committee shall request a review of such tree cutting and shrubbery clearing in excess of one (1) acre by the State Department of Natural Resources and await their recommendations before taking final action but not to exceed sixty (60) days.

## Appendix II

Earth movements, such as grading, topsoil removal, stream course changing, road cutting, waterway construction or enlargement, removal of stream or lake bed materials, excavation, channel clearing, ditching, dredging, lagooning, and soil and water conservation structures, provided that such uses are so regulated as to prevent erosion and sedimentation and to least disturb the natural fauna, flora, watercourse, water regimen, and topography.

The County Planning Committee shall request a review of such earth movement by the County Soil and Water Conservation District Supervisors and the State District Fish and Game Managers and a review of each such cutting and clearing from the State District Forester and await their recommendations before taking final action but not to exceed sixty (60) days.

A copy of the Committee's decision on such application shall be forwarded by the Secretary of the Board to the Department of Natural Resources and the Region 2 Water Resources Advisory Board within ten (10) days of such decision.

### 7.0414 Banded Racing Pigeons

The keeping and racing of banded racing pigeons shall be allowed as a conditional use in all use districts.

### 7.0415 Limited Floodland Boundary Adjustment

Upon application, the County Planning Committee may permit as a conditional use an applicant to adjust by excavation and filling the floodplain and floodway boundaries as determined by flood profiles provided:

1. The excavation shall take place prior to or simultaneously with the filling and shall be in areas either within the floodlands or contiguous thereto;
2. The filling of the floodlands shall be to an elevation of at least two (2) feet above the elevation of the one hundred (100) year recurrence interval flood;
3. The excavated earth material, if suitable for reuse in the area to be filled, shall be so used and, if not suitable or if insufficient in quantity for the fill required, the applicant may be permitted to utilize suitable fill obtained from land other than that which is being excavated;
4. There shall be created by the excavation floodwater storage and conveyance capacity at least equal to that which shall be lost by filling.

It is the express legislative purpose of this section to allow, after careful review, limited excavation and filling in and immediately adjacent to floodlands so as to create more useable and functional parcels in and adjacent to floodlands while not reducing the floodwater storage and conveyance capacity then existing in the floodlands. Before issuing a conditional use permit under this section, the County Planning Committee shall make a specific written determination that the proposed excavation and filling complies with each of the foregoing four standards as well as the standards applicable to conditional

## Appendix II

uses under Section 7.042B. In making such determinations, the County Planning Committee may request an advisory review by a duly constituted watershed committee of the Southeastern Wisconsin Regional Planning Commission.

The County Planning Committee shall request a review of each such floodland adjustment application by the State Department of Natural Resources and await their recommendation before taking final action but not to exceed sixty (60) days. A copy of the Committee's decision on such application shall be forwarded by the Secretary of the Committee to the State Department of Natural Resources and the Region 2 Water Resources Advisory Board within ten (10) days of such decision.

APPENDIX III

TABLE I - PLANTS THAT MAY BE FOUND  
IN THE EAGLE LAKE WATERSHED

Vascular Plants:

LIST KEY: Upland Forest (UF), Wetland Swamp (WS), Wetland Marsh (WM),  
Open Field (OF) and Artificially Introduced (Art)

<u>Grouping</u>	<u>Genus, Species (if known)</u>	<u>Common Name</u>
UF	<u>Rhamnus cathartica</u>	Common Buckthorn
UF	<u>Parthenocissus quinquefolia</u>	Woodbine
UF	<u>Virburnum acerifolium</u>	Mapleleaf Viburnum
UF	<u>Circaea quadrisulcata</u>	Enchanters Nightshade
UF & OF	<u>Acer negundo</u>	Box Elder
OF & UF	<u>Vitis spp.</u>	Grape
UF	<u>Ulmus fulva</u>	Red or Slippery Elm
UF	<u>Ulmus americana</u>	American Elm
UF	<u>Prunus serotina</u>	Black Cherry
OF & UF	<u>Lonicera sp.</u>	Honey Suckle
Art & WS	<u>Alnus glutinosa</u>	European Alder
UF	<u>Geum allepicum</u>	Yellow Avens
OF & UF	<u>Rubus spp.</u>	Raspberry
OF & UF	<u>Rubus spp.</u>	Blackberry
UF	<u>Quercus macrocarpa</u>	Burr Oak
UF	<u>Quercus borealis</u>	Red Oak
UF	<u>Quercus alba</u>	White Oak
OF & UF	<u>Prunella sp.</u>	Heal All
OF	<u>Euphorbia sp.</u>	Spurge
OF & WM	<u>Polygonum sp.</u>	Knotweed
UF & OF	<u>Taraxacum officinalis</u>	Common Dandelion
OF	<u>Hieracium sp.</u>	Hawkweed
OF	<u>Monarda fistulosa</u>	Wild Bergamat (mint)
OF	<u>Lespediza sp.</u>	Bush Clover
OF & UF	<u>Populus tremuloides</u>	Quaking Aspen
WS, OF & UF	<u>Populus deltoides</u>	Cottonwood
OF	<u>Rudbeckia hirta</u>	Black-eyed Susan
OF	<u>Setaria sp.</u>	Foxtail grass
WS	<u>Salix nigra</u>	Black Willow
WS & WM	<u>Salix interior</u>	Sandbar Willow
OF & UF	<u>Equisetum sp.</u>	Horsetail or Scouring Rush
OF	<u>Arctium sp.</u>	Burdock
UF	<u>Leonurus cardiaca</u>	Motherwort
UF & OF	<u>Nepeta sp.</u>	Catnip
OF	<u>Chenopodium album</u>	Lambsquarters (Goosefoot)
OF & UF	<u>Solanum dulcamara</u>	Nightshade (Bittersweet)
OF	<u>Echinocystis lobata</u>	Wild Cucumber
UF	<u>Morus rubra</u>	Mulberry
OF	<u>Physalis sp.</u>	Ground Cherries
OF, UF & WM	<u>Solidago spp.</u>	Goldenrod
OF & WM	<u>Asclepias sp.</u>	Milkweed

## Appendix III

<u>Grouping</u>	<u>Genus, Species (if known)</u>	<u>Common Name</u>
OF	<u>Asclepias verticillata</u>	Milkweed
WM	<u>Asclepias incarnata</u>	Milkweed
OF	<u>Sonchus (Lactuca)</u>	Sow-thistle
OF	<u>Potentilla sp.</u>	Cinquefoil
OF	<u>Plantago sp.</u>	Plantain
OF	<u>Amaranthus sp.</u>	Pigweed
OF	<u>Achillea millefolium</u>	Yarrow
WM & WS	<u>Typha sp.</u>	Cattail
WM & WS	<u>Scirpus validus</u>	Softstem Bolansh
WM & WS	<u>Eleocharis acicularis</u>	Needlerush
WM & WS	<u>Pontederia cordata</u>	Pickerelweed
WM & WS	<u>Dulichium arundinaceum</u>	Three-way Sedge
UF	<u>Fraxinus americana</u>	White Ash
OF	<u>Melilotus alba</u>	Sweet Clover
UF & OF	<u>Crataegus spp.</u>	Hawthorne
OF	<u>Medicago sativa</u>	Alfalfa
OF	<u>Ambrosia artemesiifolia</u>	Common Ragweed
OF & WM	<u>Ambrosia trifida</u>	Great Ragweed
OF	<u>Lepidium sp.</u>	Peppergrass
OF	<u>Capsella bursa-pastoris</u>	Shepherds Purse
UF	<u>Amphicarpa bracteata</u>	Hog Peanut
UF	<u>Prenanthes sp.</u>	White Lettus
UF	<u>Geranium maculatum</u>	Wild Geranium
UF	<u>Galium concinnum</u>	Bedstraw
OF & UF	<u>Oxalis sp.</u>	Wood Sorrel
UF	<u>Podophyllum peltatum</u>	Mayapple
UF	<u>Carya ovata</u>	Shagbark Hickory
OF & UF	<u>Erigeron sp.</u>	Fleabane
UF	<u>Quercus velutina</u>	Black Oak
OF & WM	<u>Cirsium spp.</u>	Thistle
OF	<u>Tragopogon sp.</u>	Oyster Plant
OF & WM	<u>Verbena sp.</u>	Vervains
WM	<u>Urtica dioica</u>	Stinging Nettle
OF	<u>Hypericum sp.</u>	Johnswort family
UF & OF	<u>Polygonatum commutatum</u>	Solomon's Seal
UF & OF	<u>Smilacina racemosa</u>	False Solomon's Seal
OF	<u>Smilacina stellata</u>	Starry False Solomon's Seal
UF	<u>Geum canadensis</u>	White Avens
OF	<u>Oenothera sp.</u>	Evening Primrose
UF	<u>Berberis sp.</u>	Barberry
UF	<u>Phryma leptostachya</u>	Lopseed
WM & OF	<u>Helianthus sp.</u>	Sunflower Family
UF	<u>Betula papyrifera</u>	Paper Birch
WS & UF	<u>Acer saccharinum</u>	Silver Maple
UF	<u>Acer saccharum</u>	Sugar Maple
UF	<u>Robinia pseudo-acacia</u>	Black Locust
UF	<u>Gleditsia triacanthos</u>	Honey Locust
WM & WS	<u>Impatiens biflora</u>	Touch Me Not
OF & UF	<u>Rhus glabra</u>	Smooth Sumac
WS	<u>Rhus radicans</u>	Poison Sumac
UF & WM	<u>Sambucus canadensis</u>	Elderberry

Appendix III

<u>Grouping</u>	<u>Genus, Species (if known)</u>	<u>Common Name</u>
OF	<u>Agropyron repens</u>	Quackgrass
UF	<u>Ostrya virginiana</u>	American Hornbeam
OF	<u>Phleum pratensis</u>	Timothy
WM	<u>Vernonia sp.</u>	Ironweed
UF	<u>Tilia americana</u>	Basswood
OF & UF	<u>Populus alba</u>	Boleana Poplar
OF	<u>Verbascum thlipsis</u>	Mullein
OF, UF & WM	<u>Aster spp.</u>	Aster
UF	<u>Populus grandidentata</u>	Big Tooth Aspen
UF	<u>Pilea pumila</u>	Clearweed
OF	<u>Asparagus officinalis</u>	Asparagus
OF	<u>Apocynum androsaemifolium</u>	Spreading Dogbane
OF	<u>Anemone cylindrica</u>	Long-headed Thimbleweed
WM	<u>Heracleum</u>	Parsley (Cow Parsnip)
OF & WM	<u>Rumex sp.</u>	Sorrel (Buckwheat Family)
OF	<u>Antennaria sp.</u>	Pussytoes
OF	<u>Daucus carota</u>	Wild Carrot
OF	<u>Convolvulus sp.</u>	Bindweed
OF	<u>Tanacetum vulgare</u>	Common Tansy
UF	<u>Osmorhiza sp.</u>	Sweet Cicely
OF & UF	<u>Fragaria sp.</u>	Strawberry
UF	<u>Viola spp.</u>	Violet Family
OF	<u>Vicia sp.</u>	Purple Vetch
WM	<u>Veronicastrum virginicum</u>	Culver's Root
WM	<u>Calamagrostis</u>	Bluejoint
OF	<u>Cichorium intybus</u>	Chicory
WM	<u>Carex stricta</u>	Tussock Sedge
OF	<u>Cornus stolonifera</u>	Red Osier Dogwood
OF	<u>Bromus sp.</u>	Brome Grass
OF	<u>Triosteum sp.</u>	Feverwort
OF	<u>Saponaria sp.</u>	Bouncing Bet
OF	<u>Poa sp.</u>	Bluegrass
OF	<u>Trifolium repens</u>	White Clover
OF	<u>Trifolium gratensis</u>	Clovers

TABLE II - FISH SPECIES AND THEIR ABUNDANCE IN EAGLE LAKE

<u>Scientific Name</u>	<u>Common Name</u>	<u>Abundance*</u>
<u>Ictalurus melas</u>	Black Bullhead	P
<u>Lepomis macrochirus</u>	Bluegill	A
<u>Cyprinus carpio</u>	Carp	P
<u>Pimephales promelas</u>	Fathead minnow	P
<u>Lepomis cyanellus</u>	Green sunfish	C
<u>Esox lucius x E. masquinongy</u>	Hybrid muskellunge	P
<u>Micropterus salmonides</u>	Largemouth bass	C
<u>Esox lucius</u>	Northern pike	A
<u>Lepomis gibbosus</u>	Pumpkinseed	A
<u>Stizostedion vitreum vitreum</u>	Walleye	A
<u>Perca flavescens</u>	Yellow perch	P

\*A = Abundant  
C = Common  
P = Present

## Appendix III

TABLE III. MAJOR RESIDENT AND MIGRATORY BIRD SPECIES  
USING THE EAGLE LAKE FISHERY AREA

<u>Common Name</u>	<u>Scientific Names</u>	<u>Abundance *</u>
Pied-Billed Grebe	<u>Podilymbus p. podiceps</u>	M
Whistling Swan	<u>Cygnus columbianus</u>	M
Canada Goose	<u>Branta canadensis</u>	P
Snow Goose	<u>Chen hyperborea</u>	M
Great Blue Heron	<u>Ardea herodias</u>	C
Green Heron	<u>Butorides v. virescens</u>	C
Black-Crowned Night Heron	<u>Nictycorax h. hoactli</u>	C
Least Bittern	<u>Ixobrychus e. exilis</u>	C
Mallard	<u>Anas p. platyrhynchos</u>	C
Black Duck	<u>Anas rubripes</u>	M
Gadwall	<u>Anas strepera</u>	M
Pintail	<u>Anas acuta tzitzioha</u>	M
Green-Winged Teal	<u>Anas carolinensis</u>	M
Blue-Winged Teal	<u>Anas discors</u>	C
Baldpate	<u>Mareca americana</u>	M
Shoveller	<u>Spatula clypeata</u>	M
Wood Duck	<u>Aix sponsa</u>	P
Redhead	<u>Aythya americana</u>	M
Ring-Necked Duck	<u>Aythya collaris</u>	M
Canvas-Back	<u>Aythya valisneria</u>	M
Greater Scaup Duck	<u>Aythya marica nearctica</u>	M
Lesser Scaup Duck	<u>Aythya affinis</u>	
American Goldeneye	<u>Glaucionetta clangula americana</u>	M
Buffle-Head	<u>Glaucionetta albeola</u>	M
Ruddy Duck	<u>Erismatura jamaicensis rubida</u>	M
Hooded Merganser	<u>Lophodytes cucullatus</u>	M
American Merganser	<u>Mergus merganser americanus</u>	M
Red-Breasted Merganser	<u>Mergus serrator</u>	M
Red-Tailed Hawk	<u>Buteo jamaicensis</u>	C
Marsh Hawk	<u>Circus cyaneus hudsonius</u>	P
Osprey	<u>Pandion halioetus carolinensis</u>	M
Sparrow Hawk	<u>Falco sparverius</u>	C
Ring-Necked Pheasant	<u>Phasianus colchicus torquatus</u>	C
Sandhill Crane	<u>Grus canadensis</u>	M
Virginia Rail	<u>Rallus l. limicola</u>	M
Purple Gallinule	<u>Porphyryula martinica</u>	M
Coot	<u>Fulica americana</u>	M
Killdeer	<u>Charadrius v. vociferus</u>	C
Woodcock	<u>Philohela minor</u>	M
Wilson's Snipe	<u>Capella gallinago delicata</u>	C
Spotted Sandpiper	<u>Actitis macularia</u>	M
Greater Yellow-Legs	<u>Totanus melanoleucus</u>	M
Lesser Yellow-Legs	<u>Totanus flavipes</u>	M
Common Tern	<u>Sterna h. hirundo</u>	P, M
Black Tern	<u>Chlidonias nigra surinamensis</u>	M
Mourning Dove	<u>Zenaidura macroura</u>	C
Screech Owl	<u>Otus asio</u>	P
Great Horned Owl	<u>Bubo virginianus</u>	P
Short-Eared Owl	<u>Asio flammeus</u>	P
Saw-Whet Owl	<u>Aegolius h. acadia</u>	P
Nighthawk	<u>Chordeiles minor</u>	P

Appendix III

<u>Common Name</u>	<u>Scientific Names</u>	<u>Abundance*</u>
Ruby-Throated Hummingbird	<u>Archilochus colubris</u>	P
Belted King Fisher	<u>Megaceryle a. alcyon</u>	P
Flicker	<u>Colaptes auratus</u>	P
Red-Headed Woodpecker	<u>Melanerpes e. erythrocephalus</u>	C
Downy Woodpecker	<u>Dendrocopus pubescens</u>	P
Eastern Kingbird	<u>Tyrannus tyrannus</u>	P
Purple Martin	<u>Progne s. subis</u>	C
Tree Swallow	<u>Iridoprocne bicolor</u>	C
Crow	<u>Corvus brachyrhynchos</u>	C
House Wren	<u>Troglodytes aedon</u>	C
Long-Billed Marsh Wren	<u>Telmatodytes palustris</u>	C
Robin	<u>Turdus migratorius</u>	A
Starling	<u>Sturnus v. vulgaris</u>	A
English Sparrow	<u>Passer d. domesticus</u>	A
Meadowlark	<u>Sturnella magna</u>	C
Yellow-Headed Blackbird	<u>Xanthocephalus xanthocephalus</u>	M
Red-Wing	<u>Agelaius phoeniceus</u>	A
Baltimore Oriole	<u>Icterus galbula</u>	P
Purple Grackle	<u>Quiscalus quiscula</u>	C
Cowbird	<u>Molothrus a. ater</u>	C
Cardinal	<u>Richmondia cardinalis</u>	P
Common Goldfinch	<u>Spinus tristis tristis</u>	C
Vesper Sparrow	<u>Poecetes g. gramineus</u>	P
Chipping Sparrow	<u>Spizella p. passerina</u>	P
Fox Sparrow	<u>Passerella i. iliaca</u>	C
Swamp Sparrow	<u>Melospiza melodia</u>	C
Song Sparrow	<u>Melospiza melodia</u>	C

\* M = Migratory  
A = Abundant

C = Common  
P = Present

## Appendix III

TABLE IV. MAMMALS THAT MAY BE FOUND IN THE  
EAGLE LAKE FISHERY AREA

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abundance *</u>
Eastern Cottontail	<u>Sylvilagus floridanus</u>	A
White-Tailed Deer	<u>Odocoileus virginianus</u>	P
Gray Fox	<u>Urocyon cinereoargenteus</u>	P
Red Fox	<u>Vulpes fulva</u>	P
13 Lined Ground Squirrel	<u>Citellus tridecemlineatus</u>	C
Mink	<u>Mustela vison</u>	P
Star-Nosed Mole	<u>Condylura cristata</u>	P
Meadow Mouse	<u>Microtus pennsylvanicus</u>	C
Muskrat	<u>Ondatra zibethica</u>	P
Opossum	<u>Didelphis virginianus</u>	P
Raccoon	<u>Procyon lotor</u>	C
Short-Tailed Shrew	<u>Blarina brevicauda</u>	C
Striped Skunk	<u>Mephitis mephitis</u>	C
Weasel	<u>Mustela noveboracensis</u>	P
Woodchuck	<u>Marmota monax</u>	P