Lake Use Report No. ML-6

RANDOM LAKE

SHEBOYGAN COUNTY, WISCONSIN

Department of Natural Resources Madison, Wisconsin 1974

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(This report is No. 64 in the Department of Natural Resources series of Lake Use Reports.)

RANDOM LAKE

Sheboygan County, Wisconsin

An Inventory With Planning Recommendations

This report is a product of the lake and stream classification activity pursued in accordance with Section 23.09 (7) (m), Wisconsin Statutes, and preparation of this report was financed in part through a planning grant to the Southeastern Wisconsin Regional Planning Commission from the U. S. Department of Housing and Urban Development under the provisions of Section 701 of the Housing Act of 1954 as amended.

Lake Use Report No. M1-6

Prepared By

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For the

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1974

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INTRODUCTION

Random Lake is a medium-sized drainage lake of rather shallow depths in the Town of Sherman, Sheboygan County, Wisconsin. It has a surface area of 209.0 acres and a water volume of 1,279.6 acre-feet at a surface water elevation of 867.64 feet above mean sea level. The lake borders the Village of Random Lake. Due to its size and recreational value, Random Lake has provided multiple use for many years. Fishing, swimming and boating are its major recreational assets. To retain these assets, provisions must be made for the protection, development and wise use of Random Lake.

PHYSICAL DESCRIPTION

Lake Basin

Random Lake is an elongate, semi-circular lake with a large main basin at the south end and a smaller basin at the opposite end at its outlet. The southern half of the lake is located, geologically, in the terminal moraine of the Lake Michigan lobe of the Wisconsinan glacier. The northern part of the lake is located in an outwash of sand and gravel left by both the Lake Michigan and the Green Bay glacial lobes. The point of land jutting into the lake from the west is a drumlin formed by the Green Bay lobe.

The deepest point in the lake is in the main basin (21 feet), while the maximum depth in the smaller basin is 10 feet. The shoreline is mostly bordered by uplands, but has several wetlands, located along the inlet from Spring Lake, the outlet and the northeast and northwest bays. A hydrographic map (Map 1) illustrates the configuration of the lake basin.

About 14 percent of the lake area is under 3 feet deep, while only 4 percent of the lake area is over 20 feet deep. The lake's mean depth is 6 feet. The lake bottom has a gradual slope from shore. The shore development figure is 1.78, indicating an irregular lake shape. There are 91 feet of shoreline per acre of water.

Basic hydrologic and morphologic data are presented in Table 1.

Shore Characteristics

Sand and gravel predominate on most of the lake bottom near shore. Exceptions to this are the large bays at the ends of the lake where soft deposits of muck and detritus are found. The areas of hard bottom are exposed to winds and are affected by wave action, along with motor boat wash to some extent, and have be-

TABLE 1

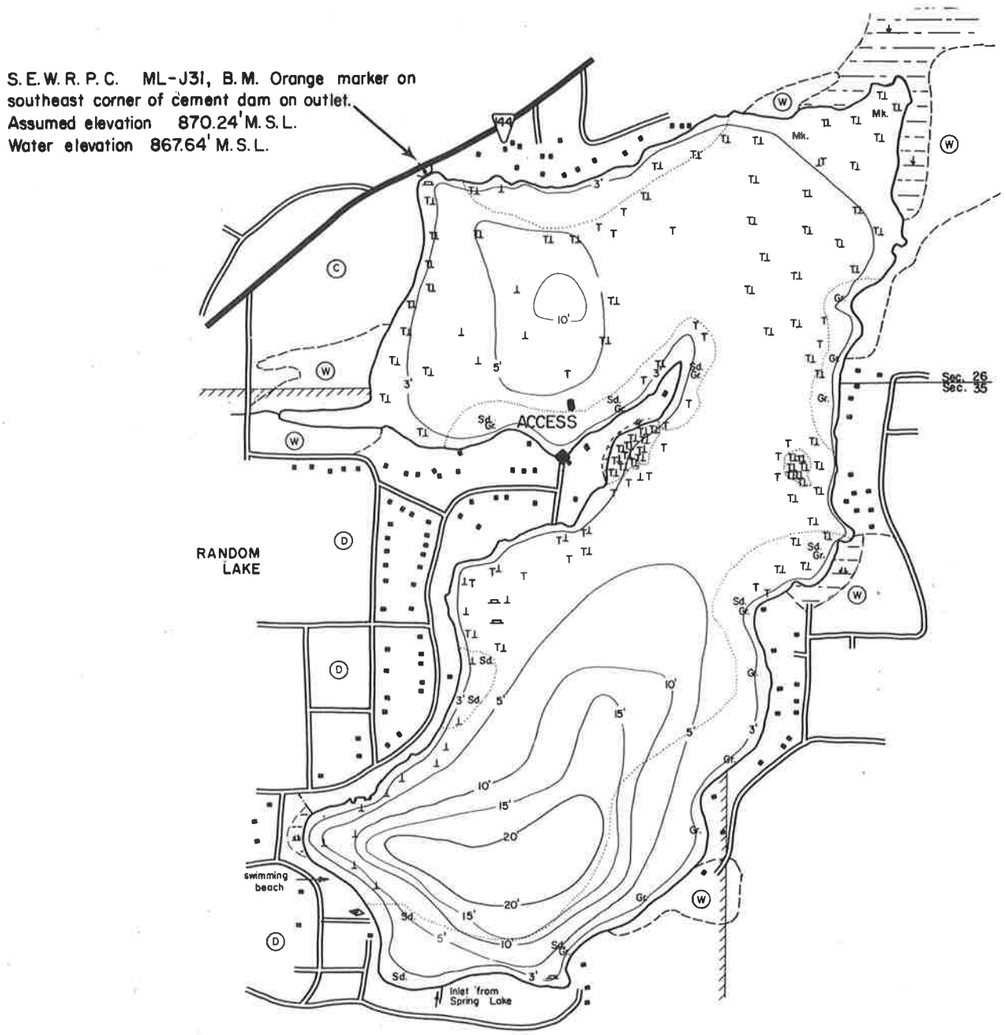
Hydrography and Morphology of Random Lake,
Sheboygan County, Wisconsin, 1969

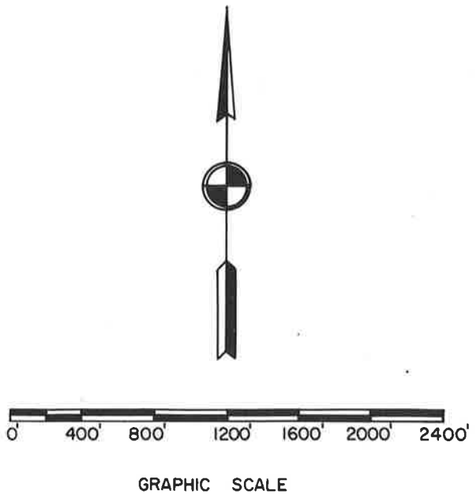
Parameter	Measurement
Size	
Area	
of Lake	209.0 acres (0.327 sq. miles)
of Watershed and Lake	2,535 acres
Ratio	
of Area (sq. miles) to Shore Length	0.091:1
of Watershed Area to Lake Area	12.13:1
Percent of Area	
Less than 3 Feet Deep	14 percent
More than 20 Feet Deep	4 percent
Volume	1,279.6 acre-feet
Exchange Time	unknown*
Shape	
Shore	
Length	19,008 feet (3.6 miles)
Development Factor**	1.78
Depth	
Mean	6 feet
Maximum	21 feet
Length (Maximum)	5,680 feet (1.08 miles)
Width (Maximum)	2,560 feet (0.48 miles)
Frontage	
Public	
Intensive Use	7.2 percent
Wild	0.2 percent
Open Space	0 percent
Private	
Intensive Use	54.4 percent
Wild	13.0 percent
Open Space	25.2 percent

*The exchange time for Random Lake is unknown since the lake's outlet is intermittent and, therefore, annual flow from this outlet cannot be measured.

**Shore development factor is defined as the ratio of shoreline to the circumference of a circle with the same area as the lake.

Source: Wisconsin Department of Natural Resources





LEGEND

TOPOGRAPHIC SYMBOLS

B	BRUSH		STEEP SLOPE
PW	PARTIALLY WOODED		INDEFINITE SHORELINE
W	WOODED		MARSH
C	CLEARED		SPRING
P	PASTURED		INTERMITTENT STREAM
A	AGRICULTURAL		PERMANENT INLET
BM	BENCH MARK		PERMANENT OUTLET
■	DWELLING		DAM
▣	RESORT		

LAKE BOTTOM SYMBOLS

P	PEAT	R	RUBBLE
Mk	MUCK	BR	BEDROCK
C	CLAY	T	SUBMERGENT VEGETATION
M	MARL	⊥	EMERGENT VEGETATION
Sd.	SAND		FLOATING VEGETATION
St	SILT		STUMPS & SNAGS
Gr.	GRAVEL		

◇ ACCESS ONLY ◆ ACCESS WITH PARKING ◆ BOAT LIVERY

SPECIES OF FISH	ABUNDANT	COMMON	RARE
MUSKIE			
N. PIKE		X	
WALLEYE			X
L.M. BASS		X	
S.M. BASS			
PANFISH	X		
TROUT			

WATER AREA 209.0 ACRES
UNDER 3 FT. DEPTH 14 %
OVER 20 FT. DEPTH 4 %
VOLUME 1279.6 ACRE FT.
TOTAL ALK. 167 P.P.M.
SHORELINE 3.60 MILES
MAXIMUM DEPTH 21 FT.

MAPPED: NOV. 1968
REVISED:
EQUIPMENT: RECORDING SONAR
SURFACE WATER ELEVATION: 867.64' M.S.L.

MAP 1

HYDROGRAPHIC MAP

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T-13-N. R-21-E.

D.N.R., DEC. 1969

come free of finer soft sediments. Rooted aquatic vegetation is common at all depths in the lake above 8 feet, while Chara is found in heavy mats below this depth.

Drainage Characteristics

Random Lake drains north, via Silver Creek, into the north branch of the Milwaukee River. The outlet flow is, however, only seasonal. It becomes intermittent in mid-summer and usually remains such until the following spring. A low-head dam prevents outlet cutting and helps maintain the lake's water level. A small, permanent stream of low volume feeds Random Lake from Spring Lake.

The total surface drainage area of the watershed to the outlet of Random Lake is 2,518 acres. This figure also includes the watershed area of Spring Lake, 294 acres, which also drains into the Random Lake watershed system by a small stream. The Spring Lake watershed is described in a separate lake use report for that lake. The remaining 2,224 acres consist of the direct drainage inflow of the Random Lake watershed, excluding Spring Lake. Of this 2,224 acres of watershed, water and wetlands comprise 379 acres (17 percent) and the uplands comprise 1,845 acres (83 percent).

The watershed shape is an elongated, northeast to southwest, rolling plain with a number of wet depressions. Lowlands around the lake indicate that the groundwater table is close to the surface of the land. The water table surface slopes gently, declining in the direction of flow of the outlet stream, Silver Creek.

Climate and Hydrology

Climatological data for the Plymouth station approximates conditions at Random Lake. These, and corroborating data from other stations in the nearby watersheds, are presented in Table 2. Data from regional stations, which relate to runoff and lake surface evaporation rates, are also included for reference.

About 53 percent of the average annual precipitation falls as rain from May through September, when vegetation growth occurs. About 42 percent falls from December through May as snow or as rain, and is expressed as spring runoff.

The Random Lake watershed receives about 5,289 acre-feet of water from precipitation each year and about 180 acre-feet from the outlet flow from Spring Lake, for a total of 5,469 acre-feet. About 512 acre-feet will evaporate directly from the lake surface during the year. An additional 4,166 acre-feet are lost by evapo-transpiration from the wetlands and the upland areas of the watershed surrounding the lake. A surplus of 791 acre-feet remains to be contributed to the small intermittent outlet flow and to the groundwater table.

TABLE 2

Climatological Data for the Random Lake Area, Sheboygan County, Wisconsin

Location & Parameter	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
TEMP. & PRECIP. DATA													
Milwaukee Station													
Temp. (F)													
Mean Monthly	21.9	24.2	33.3	44.3	54.3	64.9	71.3	69.9	62.6	51.4	37.3	25.7	46.8
Precip. (inches)													
Mean Monthly	1.58	1.32	2.19	2.39	2.98	3.22	2.43	2.62	3.33	1.97	2.11	1.48	27.62
Days w/Precip.*	10	9	11	11	13	11	9	9	8	8	10	10	119
Plymouth Station													
Temp. (F)													
Mean Monthly	19.9	21.3	30.6	44.1	55.3	65.3	71.0	69.9	61.6	50.6	35.9	24.4	45.8
Precip. (inches)													
Mean Monthly	1.52	1.41	1.90	2.66	3.03	3.50	2.88	2.73	3.00	2.13	2.10	1.48	28.34
Days w/Precip.**	4	4	5	6	6	6	5	5	6	5	5	4	61
Germantown Station													
Temp. (F)													
Mean Monthly	20.1	23.1	32.7	45.8	55.2	65.3	70.2	69.9	61.5	52.1	36.2	24.6	46.4
Precip. (inches)													
Mean Monthly	1.12	0.99	1.82	2.87	2.93	3.86	3.19	2.93	2.60	1.90	2.05	1.31	27.57
Days w/Precip.**	3	3	5	7	7	7	6	5	5	4	4	4	60
West Bend Station													
Temp. (F)													
Mean Monthly	20.2	22.3	31.5	44.8	56.5	66.6	71.8	70.2	61.9	51.0	36.0	24.4	46.4
Precip. (inches)													
Mean Monthly	1.68	1.36	2.01	2.54	2.98	3.96	3.34	2.89	3.16	2.21	2.13	1.50	29.76
Days w/Precip.**	5	4	5	6	7	7	5	5	5	4	5	4	62
MONTHLY AVG. RUNOFF													
Milwaukee R., Milw.													
Runoff (inches)	0.40	0.54	1.34	1.55	0.85	0.44	0.40	0.29	0.59	0.60	0.59	0.52	8.11
RATIO OF RUNOFF TO PRECIP.													
Milwaukee R. Watershed	0.27	0.43	0.68	0.59	0.29	0.12	0.14	0.10	0.20	0.29	0.28	0.36	0.29
EVAP. FROM LAKE SURFACE													
Rockford, Ill.													
Evap. (inches)	0.31	0.57	1.75	2.90	4.03	4.37	5.09	4.05	2.95	2.15	0.89	0.34	29.40

*Number of days with 0.01 inch or more of precipitation.
**Number of days with 0.10 inch or more of precipitation.

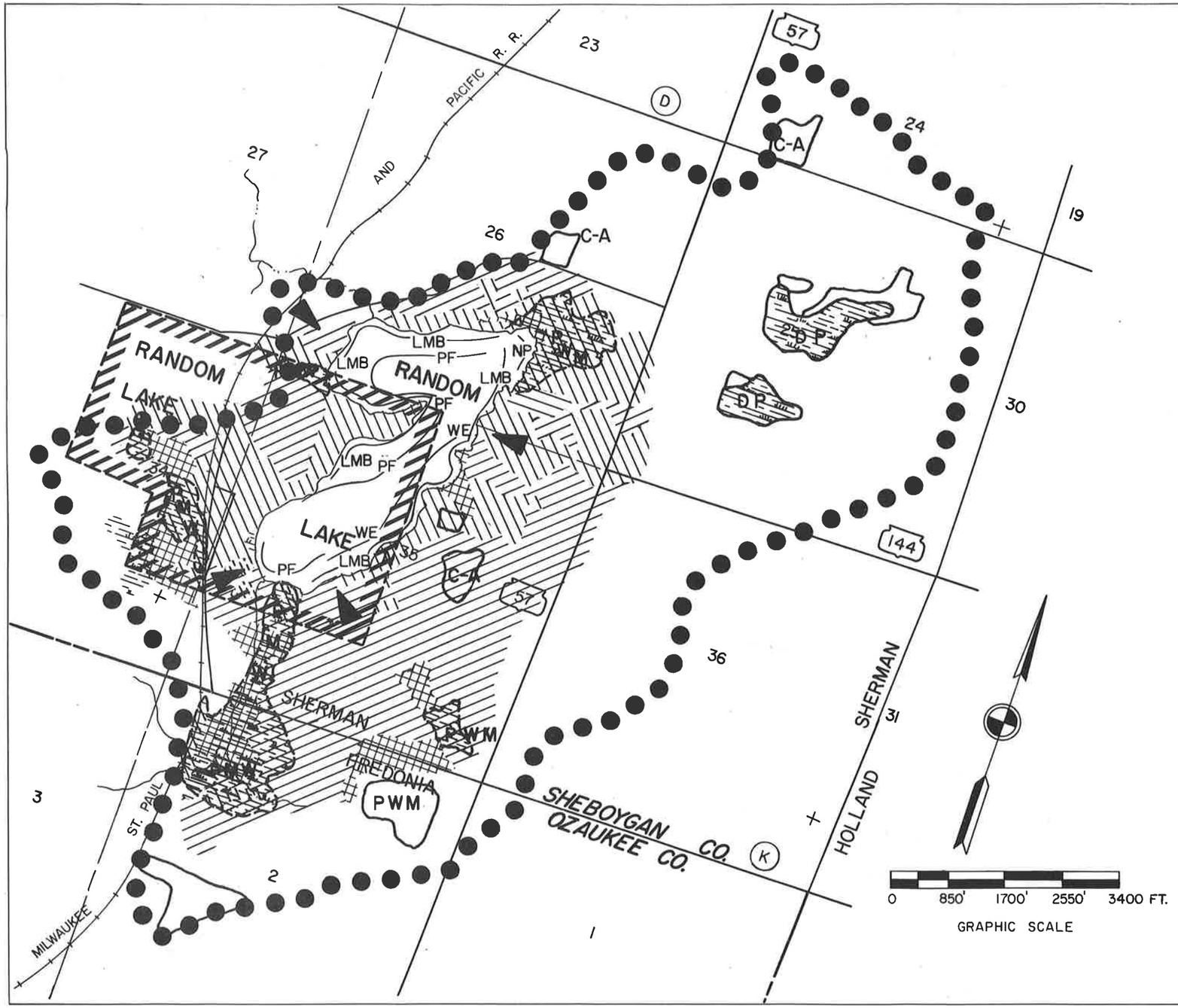
Source: Temperature and precipitation data are taken from Wisconsin Climatological Data, 1961, U. S. Weather Bureau. Remaining data on runoff and evaporation are taken from Lake Evaporation in Illinois by W. J. Roberts and J. B. Stall, 1967, Ill. Rep. of Invest. No. 57.

Soils

The predominating soil types surrounding Random Lake are the silt loam and loam soils of the uplands and the muck soil of the bordering wetlands. Part of the south shoreline is sandy loam. The general distribution of soil types is illustrated on Map 2.

WATER QUALITY

Selected chemical analyses for spring and mid-summer of 1968 (Tables 3A and B) are a basis for evaluating the present water quality of Random Lake. Temperature and oxygen profiles also have been utilized as additional aids to the water quality interpretation (Fig. 1).



LEGEND

FISH AND WILDLIFE VALUES

- PRIME IMPORTANCE
- LESSER IMPORTANCE
- **W** WATERFOWL
- **M** MUSKRAT
- **P** PHEASANT
- **SQ** SQUIRREL
- **D** DEER

SPAWNING AREAS

- **LMB** LARGEMOUTH BASS
- **NP** NORTHERN PIKE
- **PF** PANFISH
- **WE** WALLEYE

WOODLAND VALUES

- WELL STOCKED
- MEDIUM-POORLY STOCKED
- **A** AESTHETIC
- **C-A** COMMERCIAL–AESTHETIC

GENERAL SOIL TYPES

- LOAM
- SILT LOAM
- SANDY LOAM
- SAND
- MARSH
- MUCK
- MARL
- ALLUVIAL SOIL

- OPEN VISTAS
- WATERSHED BOUNDARY

0 850' 1700' 2550' 3400 FT.

GRAPHIC SCALE

MAP 2

FISH, WILDLIFE AND WOODLAND VALUES AND BASIC SOIL TYPES

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T.–13–N. R.–21–E.

D.N.R., JUNE 1970

TABLE 3A

Selected Water Quality Parameters of Random Lake,
Sheboygan County, Wisconsin, 1968

Parameter*	3 ft. (4-4-68)	6 ft. (7-8-68)	18 ft. (7-8-68)	Dolomitic Mean**
pH (units)	7.9	8.5	7.7	8.20
Tot. Alk.	172.0	158.0	171.0	179.60
Sp. Cond. (micro-mhos/cm^2 at 25 C)	400.0	329.0	390.0	414.90
Ca	13.2	14.4	19.2	29.20
Mg	30.9	34.2	33.7	28.00
Na	12.0	6.3	6.5	4.93
K	1.8	2.1	1.9	2.08
Fe (tot)	0.02	---	---	0.12
PO_4 (tot)	0.01	0.17	0.06	0.24
PO_4 (dis)	0.01	0.01	0.03	0.14
Cl	16.3	13.3	12.8	9.50
SO_4	41.0	39.8	44.0	43.00

*All parameters are expressed in milligrams per liter unless otherwise noted.

**Represents mean water quality data for all southeastern Wisconsin lakes under which dolomite is found. (From the Chemical Composition of Wisconsin Lake Waters, 1970, Department of Natural Resources, Manage. Rep. No. 30.)

TABLE 3B

Phosphorous and Phosphate Analyses
for Random Lake, Sheboygan County, Wisconsin

Parameter	Measurement
Water	0.17 mg/l PO_4 (tot) 0.01 mg/l PO_4 (dis)
Vegetation*	
Potamogeton pectinatus	0.32 percent P

*Plant tissue analyses were made June, 1968, and are expressed as dryweight percentages.

Source: Wisconsin Department of Natural Resources

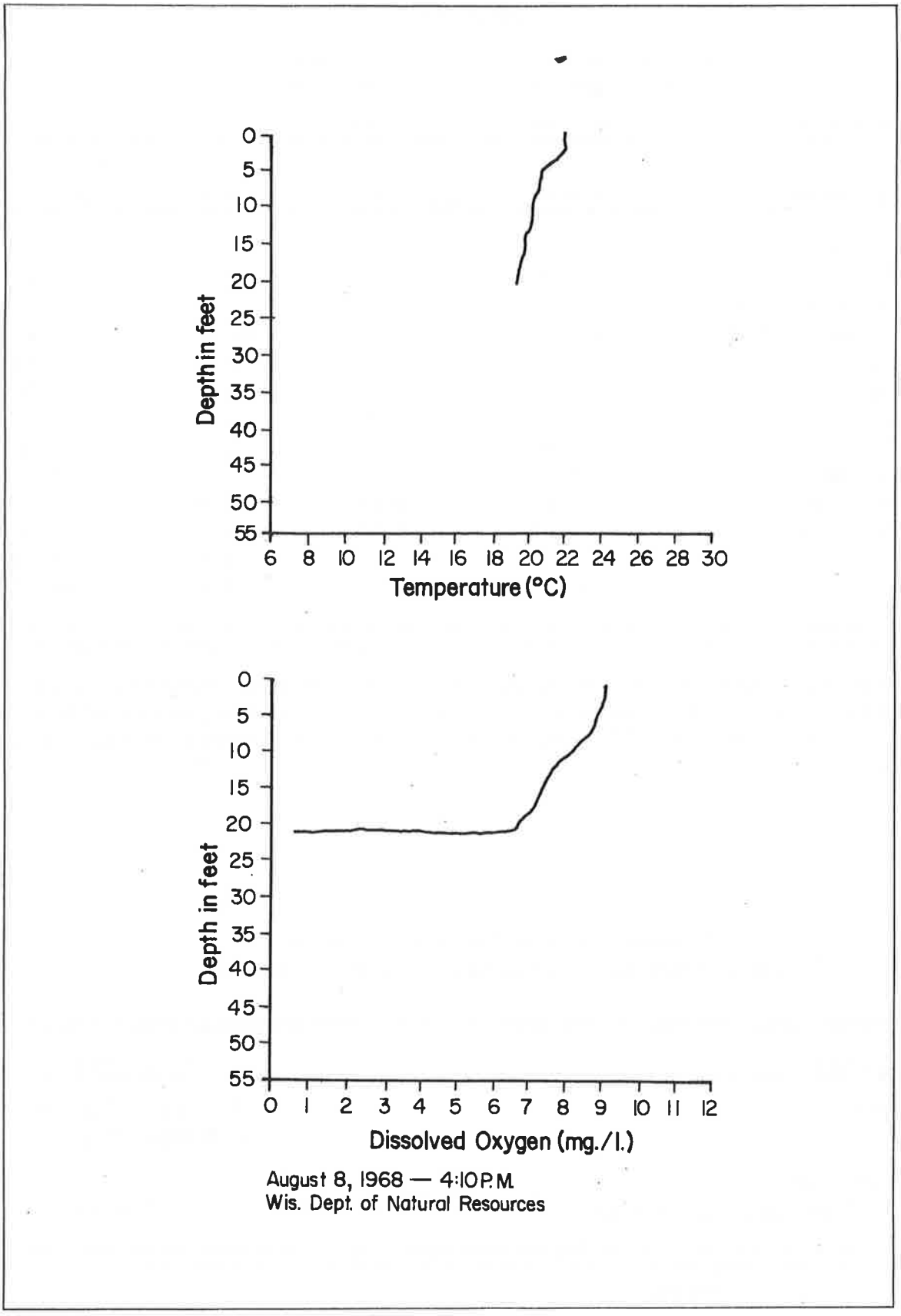


FIGURE 1. Temperature and oxygen profiles.

The lake is average in total alkalinity for lakes in the Milwaukee River watershed. It has low fertility based on spring phosphate levels and moderate fertility based on alkalinity. Of those ions indicative of pollution (chloride, sulphate, sodium and potassium), all except potassium are present in quantities above the regional mean concentrations for these ions during mid-summer.

Sufficient oxygen (2.0 mg/l or more) is available during open-water periods to sustain most forms of aquatic life to a depth of nearly 21 feet. Of the total volume, 99 percent is adequately oxygenated in mid-summer. The water volume with its oxygen reserve is not adequate in some winters to prevent depletion of oxygen and resultant fish mortality. Thermal stratification does not occur in Random Lake in mid-summer. The lake's secchi disk transparency is 8.5 feet in early summer (5-14-68), but decreases to 3 feet in late summer (8-28-68), and is due mainly to an algal bloom.

RESOURCES

Aquatic Plants

Aerial surveys and intensive water reconnaissance revealed the extent of growth of rooted aquatic vegetation. The general distribution of emergent, submergent and floating vegetation is illustrated in Map 1. Dominant species and the extent of their growth in the basin are presented in Table 4.

The shallower northwestern basin has the greatest concentration of vegetation. However, most of the lake contains submergents at all depths. The maximum depth at which rooted aquatics were located was 8 feet. There are only two small areas where depth of the lake is greater than 8 feet--the center of the northwest basin and the southern end of the lake.

Chara is the dominant submergent. It occurs in heavy mats which are scattered. The eastern shore contains very little Chara. Most is concentrated in the northern portion of the lake. Potamogeton pectinatus is also found in the northern half of the lake in large stands. Of all the aquatics present in the lake, Chara and P. pectinatus make up over 50 percent of the total population and are important in maintaining the stability of the lake's soft bottom. Prior to chemical treatment in 1959, this vegetation was absent due to the activity of carp. Several other Potamogeton spp. and Najas spp. are present, but scarce.

Large concentrations of Scirpus validus are located in the northern area. The stands along shore are in moderate to heavy abundance, while in the water

TABLE 4

Dominant Species of Aquatic Vegetation in Random Lake, Sheboygan County, Wisconsin, 1968*

Scientific Name**	Common Name**	Growth Character	Extent in Basin
Acorus calamus	Sweetflag	Emergent	Common along west shore
Chara sp.	Muskgrasses	Submergent	Scattered in mats
Najas flexilis	Naiad	Submergent	Scarce early in year; common in late summer
N. marina	Spiny naiad	Submergent	Scarce early in year; common in late summer
Najas spp.	Naiads	Submergent	Scarce
Nuphar sp.	Yellow water-lilies	Floating-leaves	Scattered in north basin and off the west shore
Nymphaea tuberosa	White water-lily	Floating-leaves	Scattered in north basin and off the west shore
Potamogeton pectinatus	Sago pondweed	Submergent	Common in north basin
Potamogeton spp.	Pondweeds	Submergent	Scarce
Scirpus validus	Softstem bulrush	Emergent	Found in stands in the north basin
Typha sp.	Cattails	Emergent	Abundant near shore in north basin and along west shore peninsula

*Results of an intensive survey conducted July 19, 1968.

**Nomenclature taken from Under Water and Floating-leaved Plants of the United States and Canada, 1967, Bur. Sport Fish. & Wildl., Resour. Publ. 44, 124 p. and Common Marsh Plants of the United States and Canada, 1970, Bur. Sport Fish. & Wildl., Resour. Publ. 93, 99 p.

Source: Wisconsin Department of Natural Resources

the abundance of S. validus ranges from scattered to moderate. The bulrushes occur all over the northern area. Behind the bulrushes are thick heavy stands of Typha spp. which fringe the northern part of the lake and the peninsula jutting from the west shore. This is the only area where Typha spp. occurs. Along the western shore, sweetflag, Acorus calamus, is common. This sedge closely resembles Sparganium, but can be separated by its distinctive flower.

Nymphaea and Nuphar are only present in scattered abundance. Nymphaea tuberosa beds are common in the northern basin and along the western shore. Nuphar spp. can be found in the same areas except that it occurs nearer shore.

Fish Resources

The management of the Random Lake fishery has been aimed toward maintenance of its walleye, northern pike, largemouth bass and panfish populations. Several physical and biological problems exist here that require intensive management to overcome. Occasional winterkills, extreme abundance of aquatic vegetation contributing to a stunted panfish population, algal blooms and carp are some of this lake's problems.

The lake was treated in 1959 in order to remove stunted panfish and carp. It furnished good bass, northern pike and walleye fishing until a severe winterkill occurred in the winter of 1962-63. Since the winterkill, the lake has had a serious overpopulation of black bullheads, bluegills, pumpkinseeds and yellow perch, but the gamefish--walleye, northern pike and largemouth bass--are recovering. There is also an abundant white sucker population, and a few carp are still present, but do not yet constitute problems for the lake's fishery. Besides the species of fish already mentioned, there are also a few green sunfish, black crappies, yellow bullheads and golden shiners in Random Lake.

Pleasure Boating

Only 32 percent of the lake area (68 acres) has water deep enough to support motor-driven boats without hazard (5 feet). Use of motor boats is also hampered by the irregular shape of the lake and by an overabundance of rooted vegetation. For these reasons, the lake is probably more suitable for canoeing and rowing. A public access is available at the southwest end of the lake. During the summer, the Village of Random Lake charges a launching fee at this access for all boats except for small fishing boats. Winter access is also available at a site off the west peninsula.

Game Resources

Wildlife areas totalling 227 acres have been identified on Map 2. The wetlands are moderately important as waterfowl, pheasant and furbearer habitat. The

most northeasterly wetland is also used by deer. The lake is a resting and feeding stop for waterfowl during migration and is used for waterfowl hunting. None of the wetlands are in public ownership.

Aesthetic Features

Open vistas are marked on Map 2. Many areas of the lake have been developed for residential purposes, and the bog-marsh edge has been developed into poor-quality wading and swimming areas. But despite the lake's biological problems, it is still greatly appreciated and used by local residents and has fair aesthetic qualities.

LAKE USE

Fishing

Fishing pressure is below average for lakes in this region. Fish harvest is also lower than the watershed average, particularly in the catch of game fish. Several factors account for this: winterkills of fish populations, use conflict between anglers and fast boaters and an abundance of rooted vegetation and algal blooms. Of the aerial boat counts made in recent years, skiing and pleasure boats outnumber fishing boats by 3 to 2. On peak use days, there were as many as 10 fishing boats at one time on the lake.

Annually, the lake receives an estimated 68 man hours of fishing pressure per acre of water. This figure is below the regional average of 174 hours per acre. Most fishing pressure is during the summer months, but winter fishing constitutes 30 percent of the total hours. Northern pike provide the most popular fishing sport during winter.

Fishermen harvest an estimated 45 fish per acre annually--31 per acre in summer and 14 in winter. The mean harvest for the major lakes in this watershed is 115 annually--88 in summer and 27 per acre in winter. Of the fish caught, 40 are panfish and 5 are walleye, northern pike and largemouth bass. The rate of catch at Random Lake in 1968 was 0.65 fish per hour, while the average catch for all lakes in the Milwaukee River watershed was 0.58 per hour during the same year.

Hunting, Trapping, Wildlife Observation

These uses have not been quantitatively assessed; however, some waterfowl hunting and fur trapping does take place in the watershed. The lake and its

remaining wetlands are well suited for outdoor study. The variety and density of the aquatic plant communities are definite assets for the observation of wildlife. The preservation of Random Lake's remaining wild qualities is necessary for any significant continuation of its aesthetic uses.

Swimming

The Village of Random Lake maintains a public swimming beach on the southwest shore of the lake. Its facilities include a bathhouse, swimming float and buoyed swimming area along with a park and picnicking area. The 300 feet of beach can accommodate 150 people per day. Water quality is good early in the year; however, as summer progresses, water quality deteriorates as a result of algal blooms and periodic outbreaks of swimmer's itch. The latter problem has been reduced by chemical control measures.

Cottages and Homesites

Cottages and homes occupy over 54 percent of the shoreline of Random Lake. Another 13 percent is wetland shore and about 7 percent is in public use. The remaining 25 percent is wild, undeveloped upland. Thus, there is some shoreline remaining for homesite construction, but not all of it is suitable for development. Further development could well increase the problems already occurring with the present intensive use of the lake.

Boating

Aerial observations indicate that on weekdays, an average of 5 boats may be counted at one time, while on weekends, an average of 13 boats are in use at one time. Use level was observed to be as high as 16 boats in use at one time, mostly skiing boats and pleasure craft, rather than fishing boats. The total annual boat use is estimated to be 8,300 hours. Boat use on Random Lake is primarily for fishing (3,400 hours), pleasure (2,800 hours) and skiing (2,100 hours).

RECREATIONAL RATING

A desirable planning element is a rating of the lake's value in terms of primary use categories. The recreational base of Random Lake has been assessed numerically in Table 5. The lake is rated medium in fish production, swimming and aesthetics, and low in boating potential. With 46 out of a possible 72 points, Random Lake can be described as having somewhat below average recreational value due to the lake's extensive shallow waters.

TABLE 5

Recreational Rating of Random Lake, Sheboygan County, Wisconsin, 1969

Quality Category	Number of Points for Each Rating*		
	Six	Four	Two
Fish	__High production __No problems	X Medium production X Some problems such as infrequent winterkill, small rough fish problems, etc.	__Low production __Serious problems such as frequent winterkill, carp activities, excessive fertility, etc.
Swimming	X Sand or gravel (>50%) __Clean water __No algae or weed problems	__Sand or gravel (25-50%) X Moderately clean water __Moderate algae or weed problems	__Sand or gravel (<25%) __Turbid or darkly stained water X Frequent algae or weed problems
Boating	__Adequate depths (75% of basin >5' deep) __Adequate size for extended boating (>1,000 acres) __Good water quality	__Adequate depths (50-75% of basin >5' deep) X Adequate size for some boating (200-1,000 acres) X Adequate water quality with some inhibiting factors such as a few weedy bays, algae blooms, etc.	__Adequate depths (50% of basin >5' deep) __Inadequate size for boating (<200 acres) __Poor water quality with overwhelming inhibiting factors such as extensive weed beds
Aesthetics	__Extensive wild shore (>25%) __Varied landscape __Few nuisances such as excessive algae, carp, dumps, etc.	X Some wild shore (<25%) X Moderately varied landscape X Moderate nuisances	__No wild shore __Unvaried landscape __Many nuisances

*All ratings are 6,4 and 2 points each except for those in the fish category which are 9, 6 and 3 points each.

Source: Wisconsin Department of Natural Resources

EXISTING LAND USE

Land use for the watershed is summarized by quarter section in Table 6. The total watershed area of Random Lake is 2,224.42 acres. Agriculture comprises the largest single land use--60.23 percent. Open lands, such as wetlands, cleared and wooded areas, along with the surface waters, encompass 25.47 percent of the watershed. Residential development and transportation land use amounts to 12.26 percent of the watershed, while the remaining land is used for industrial, commercial, recreational and institutional purposes. Existing land use in the Random Lake watershed is illustrated in Map 3, as interpreted and adjusted from the 1967 SEWRPC land use inventory.

EXISTING PROTECTIVE MEASURES

Sewage Disposal

Downstream from the lake, the Village of Random Lake, provides public sewerage disposal for that part of the lake within the village limits (along the west and south shores). The treatment system is a trickling filter sewage treatment plant. The discharge is to an intermittent stream tributary to Silver Creek. Since part of the shoreline of Random Lake is still unsewered, runoff from overflowed septic tanks can enter the lake.

Shoreland Zoning

Shoreland zoning is in effect within the unincorporated lands adjacent to Random Lake (Map 3A). These regulations are administered through the Sheboygan County zoning office located at the courthouse in Sheboygan. Sanitary regulations are also in effect in shoreland areas and will control the installation of on-site sewage disposal systems.

Water Zoning

There are no local ordinances for the control of boating on Random Lake (Table 7). Since boat use is heavy on the lake, it will be soon necessary to formulate some sort of restrictive motor boat use control here in order to keep boating conflicts and hazards to a lower level.

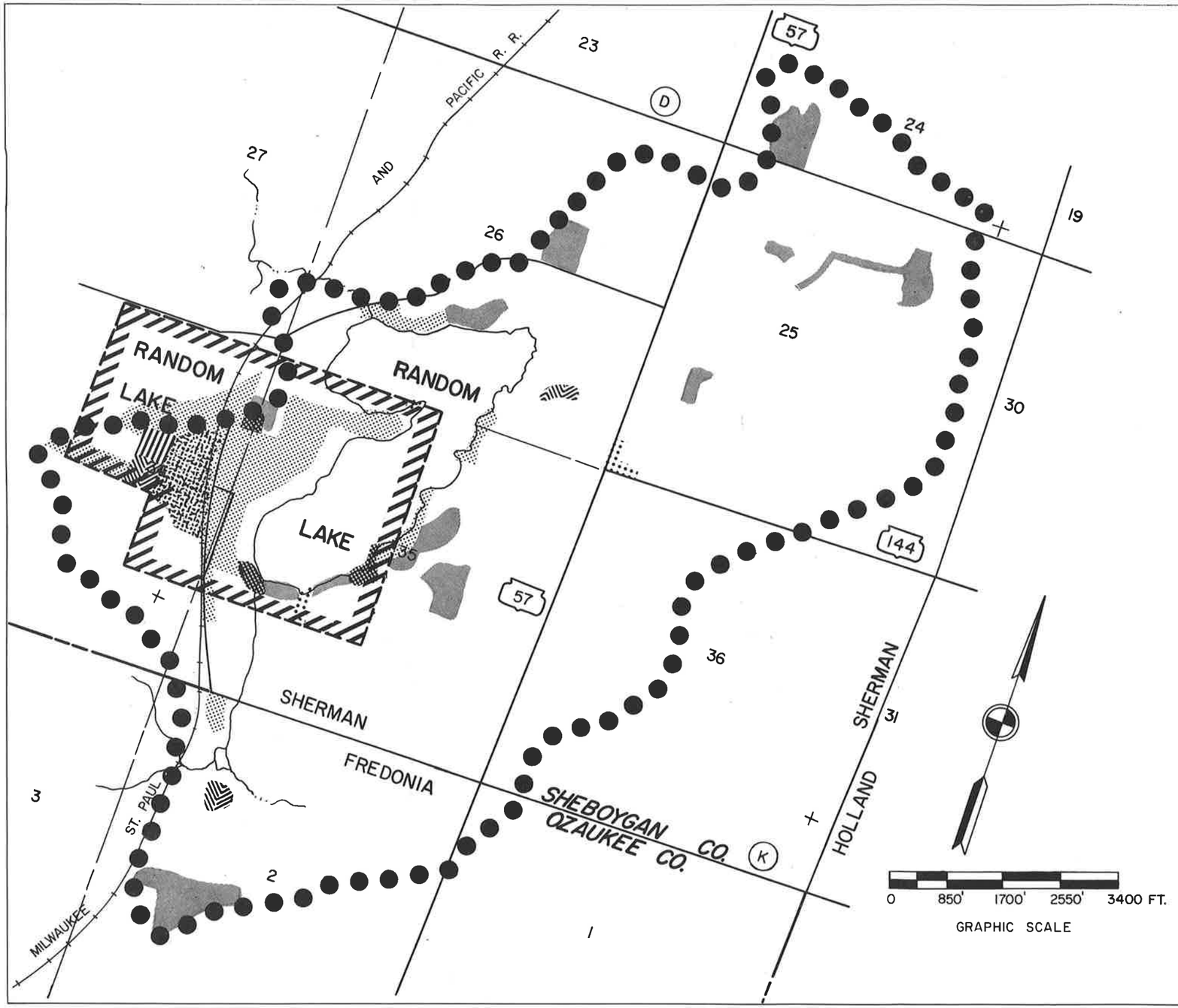
TABLE 6

Existing Land Use in the Random Lake Watershed,
Sheboygan County, Wisconsin, 1967

Land Use		Area	Total	Percent
Major	Detailed	(in Acres)	Acreage	of Watershed
Residential		122.63	122.63	5.51
Commercial		11.69	11.69	0.53
Industrial	Major	0.00		
	Mining	12.14		
	Other	7.24	19.38	0.87
Transportation and Communication		150.15	150.15	6.75
Government and Institutional		6.77	6.77	0.30
Recreational	Public	0.00		
	Private	0.00		
	Other	7.42	7.42	0.33
Openland	Wetland	379.48		
	Unused land	58.18		
	Woodland	128.92	566.58	25.47
Agricultural	Crops	1,339.80		
	Other	0.00	1,339.80	60.23
TOTAL*		2,224.42	2,224.42	100.00

*Summarized to the nearest whole U. S. Public Land Survey quarter section.

Source: SEWRPC Existing Land Use Inventory, 1967



LEGEND

- LOW DENSITY RESIDENTIAL (0.5-7.2 PERSONS PER RESIDENTIAL ACRE)
- MEDIUM DENSITY RESIDENTIAL (7.3-22.8 PERSONS PER RESIDENTIAL ACRE)
- HIGH DENSITY RESIDENTIAL (22.9-59.2 PERSONS PER RESIDENTIAL ACRE)
- RETAIL AND SERVICES
- WHOLESALE AND STORAGE
- TRANSPORTATION, COMMUNICATION & UTILITY
- MANUFACTURING & QUARRYING
- GOVERNMENTAL & INSTITUTIONAL
- WOODLAND
- WETLAND
- PARK & RECREATIONAL
- WATER
- AGRICULTURE AND AGRICULTURE-RELATED
- WATERSHED BOUNDARY

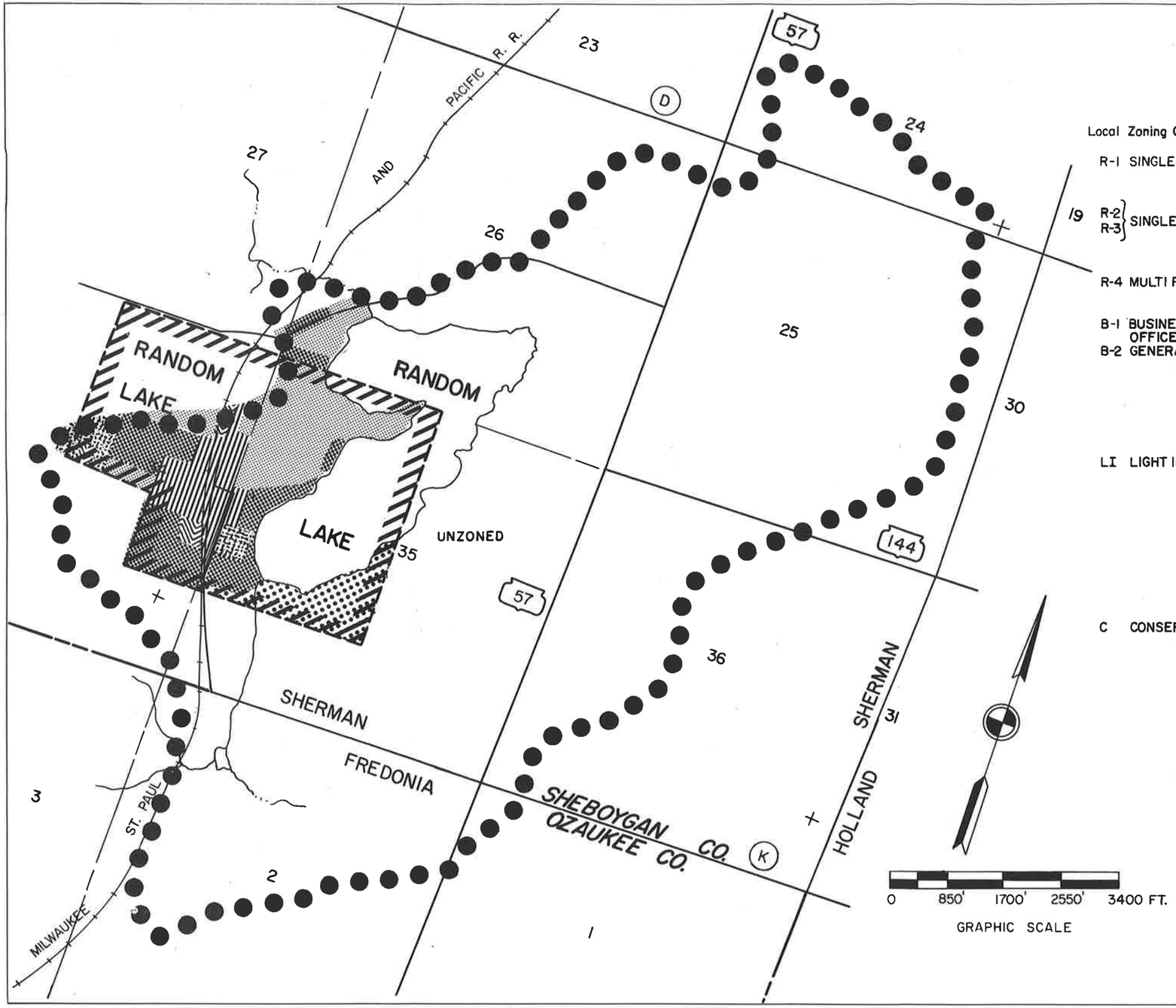
MAP 3

EXISTING LAND USE, 1967

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T.-13-N. R.-21-E.

D. N. R., JUNE 1970



LEGEND

Local Zoning Classification

- R-1 SINGLE FAMILY RESIDENCE
- R-2, R-3 SINGLE FAMILY RESIDENCE
- R-4 MULTI FAMILY RESIDENCE
- B-1 BUSINESS OR PROFESSIONAL OFFICES
- B-2 GENERAL BUSINESS
- LI LIGHT INDUSTRIAL
- C CONSERVANCY

Regional Land Use Classification

- LOW DENSITY RESIDENTIAL (0.5-7.2 PERSONS PER RESIDENTIAL ACRE)
- MEDIUM DENSITY RESIDENTIAL (7.3-22.8 PERSONS PER RESIDENTIAL ACRE)
- HIGH DENSITY RESIDENTIAL (22.9-59.2 PERSONS PER RESIDENTIAL ACRE)
- RETAIL AND SERVICES
- WHOLESALE AND STORAGE
- TRANSPORTATION, COMMUNICATION & UTILITY
- MANUFACTURING & QUARRYING
- GOVERNMENTAL & INSTITUTIONAL
- WOODLAND
- WETLAND
- PARK & RECREATIONAL
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- AGRICULTURE AND AGRICULTURE-RELATED
- WATERSHED BOUNDARY

MAP 3A

PRESENT ZONING, 1969

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T.-13-N. R.-21-E.

D.N.R., JUNE 1970

TABLE 7

Degree of Protection Afforded by Boat Control Ordinances to Random Lake, Sheboygan County, Wisconsin, 1970

Criterion	Suggested Limitations	Degree of Protection	
		Adequate	Inadequate
Motors	Lakes < 50 acres should be limited to boats without motors.	X	
Shore zone	Speed should be restricted to < 5 mph within 200' of shore.		X
Cabin craft mooring	Boats on which persons are living, sleeping or camping should be prohibited from mooring, drifting or overnight anchoring.		X
Mooring at landings	Mooring should be prohibited at public landings for > 24 hours except in designated areas.		X
Speed limits	On 50- to 200-acre lakes, speed should be limited to 5 mph or less.		X
Passing	Within 200' of another object, speed should be limited to 5 mph or less.		X
Shore preservation	Twenty-five percent of shore should remain in wild state.		X
Weed preservation	Vital aquatic vegetation beds should be located and marked off limits to boating.		X

Source: Wisconsin Department of Natural Resources

RECREATION AND RESOURCE-RELATED PROBLEMS

Water Quality

The eutrophication of Random Lake is advancing rapidly, as indicated by its abundant rooted aquatic vegetation and its accompanying algal blooms. The problem is aggravated by the lake's shallow waters and by excess nutrients entering the lake. The nutrient enrichment also tends to complicate and stimulate other environmental problems here, such as winterkill and stunted panfish.

Fishery

Occasional severe winterkills of fish populations and the tendency of the panfish to stunt are serious problems here that have no easy solutions. The lake has been stocked with species of predator fish, since natural spawning cannot adequately compensate for the lake's periodic winterkill of walleye and northern pike. A small carp population could grow to serious proportions again, if this has not already occurred. In this event, another drastic rehabilitation program may become necessary to re-establish balanced game and panfish populations.

Wildlife Habitat

There is only a limited amount of undeveloped marsh shore remaining on Random Lake. If any semblance of these wild qualities are to exist in the future, more adequate steps must be employed for the protection of this shoreline for its aesthetic and habitat assets.

Public Use Opportunities

This lake has facilities for public use--namely, swimming, fishing and boating access facilities. Swimming is a major use, although the lake suffers from occasional outbreaks of "swimmer's itch". This, however, can be alleviated by chemical treatment. The pleasure boating use has grown beyond the capacity of the lake, since fishing from boats is also a major and conflicting use. Local ordinances must be implemented in order to overcome the hazards to boating use.

RECOMMENDED RESOURCE PROTECTION AND ENHANCEMENT MEASURES

The following specific recommendations have been formulated for the protection and enhancement of the Random Lake recreational resource base:

1. Shoreland zoning should recognize the marshy character and the poor drainage capabilities of the soils on the remaining undeveloped shore, and restrict homesite construction to uplands away from these marshlands and silt and muck soil types. The marshes should be protected as conservancy district and some narrow strips of land between roadways and lakeshore should be set aside as open space park lands.

2. The extensive marsh on the northeast shore should be publicly owned as a wildlife area in order to insure preservation of its undeveloped, aesthetic wildlife aspects.

3. The removal of aquatic rooted vegetation should be strictly limited to present areas where removal is allowed. The rooted plant growth acts as a buffer against excessive algal growth that is now increasing.

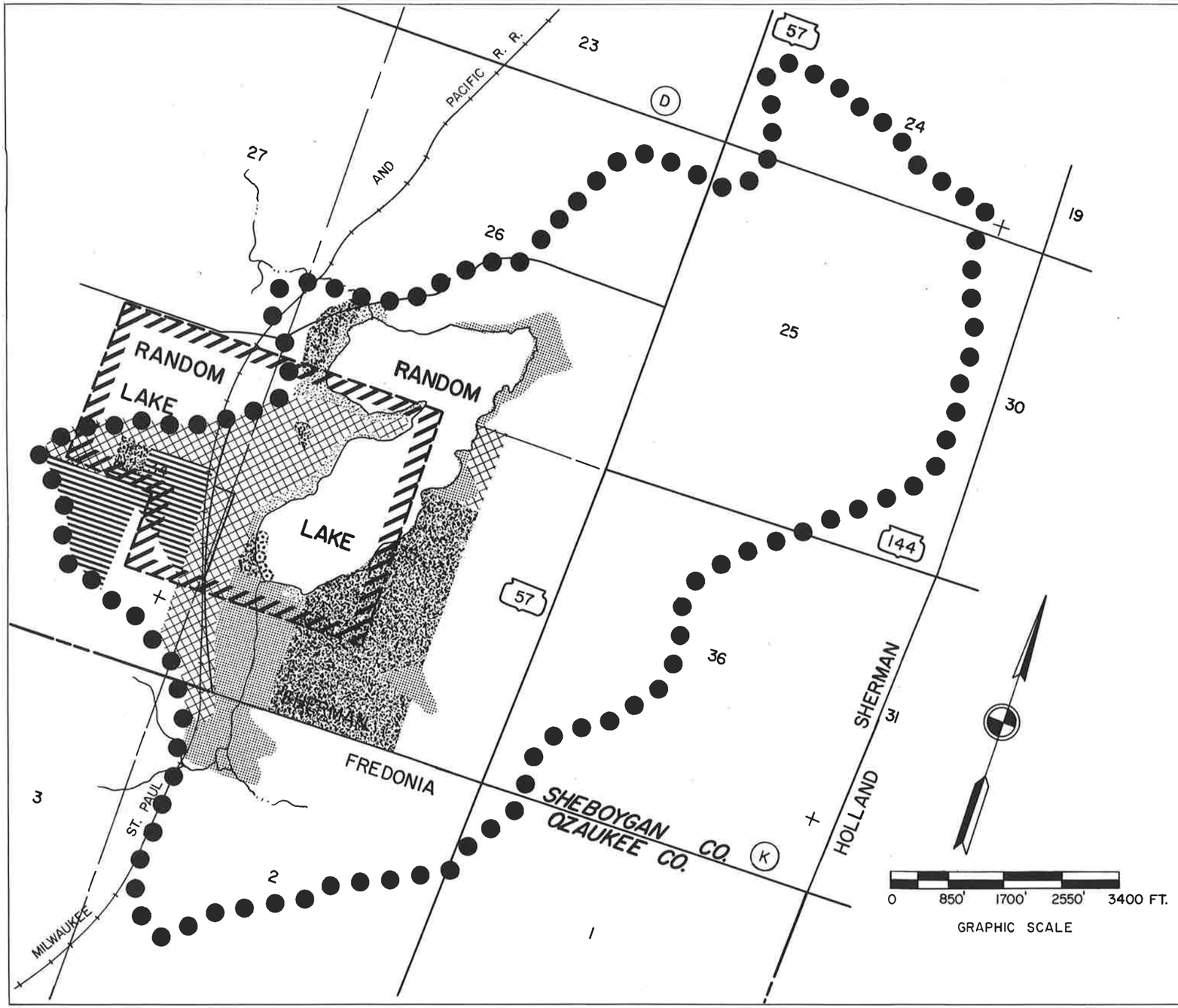
4. In view of the hazards to fast boating (i.e., the extensive shallow waters of Random Lake), a 5-mph boat speed limitation should be established.

5. Rehabilitation of the lake's fish population by chemical means may again become necessary should winterkill, stunted panfish or carp reach problematic proportions.

6. A community park on the northwest shore is desirable; the silt loam soil of this area is more suitable for this type of use. The park and picnicking facilities offered by the present swimming beach area can be considered inadequate for the size of the Random Lake community.

7. Public sewer service should be extended from the existing Village of Random Lake sewerage system to provide sewer service to all shoreline development presently served by private sewage disposal facilities and to future developments around Random Lake.

8. Although a master plan of development is not within the scope of this lake use report, recreational use plans have been formulated and are recommended herein. Intermediate resource conservation objectives are illustrated in Map 4, while ultimate objectives are shown in Map 5.



LEGEND

- CONSERVANCY DISTRICT
- INTENSIVELY DEVELOPED PARK LAND (BEACH & FACILITIES)
- EXTENSIVE PARK LANDS
- COMMERCIAL FACILITIES
- RESIDENTIAL
- BEACH IMPROVEMENTS
- PUBLIC WILDLIFE AREA
- AGRICULTURE AND AGRICULTURE-RELATED
- WATERSHED BOUNDARY

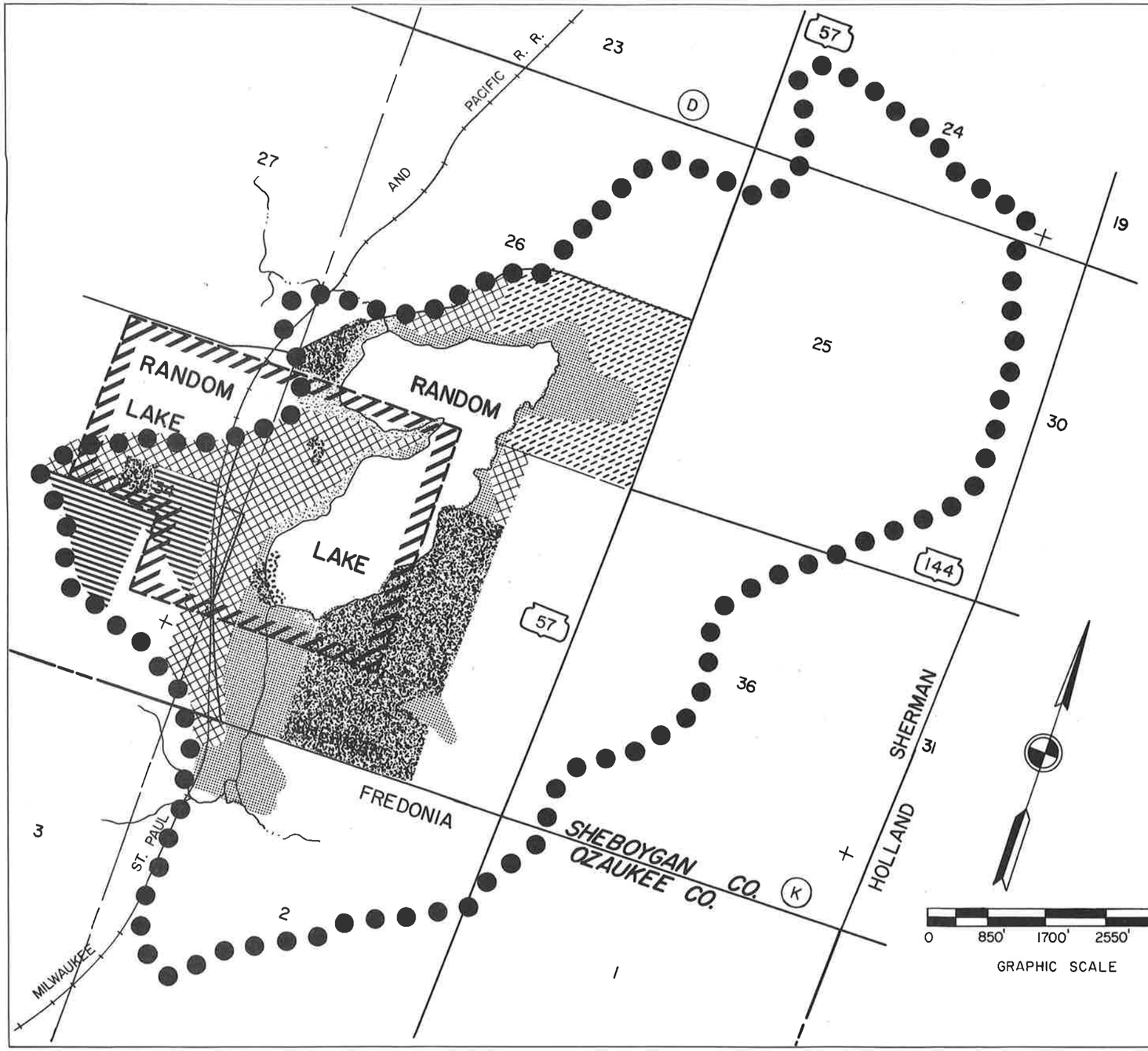
MAP 4

INTERMEDIATE RECREATIONAL USE PLAN

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T.-13-N. R.-21-E.

D.N.R., JUNE 1970



LEGEND

- CONSERVANCY DISTRICT
- INTENSIVELY DEVELOPED PARK LAND (BEACH & FACILITIES)
- EXTENSIVE PARK LANDS
- COMMERCIAL FACILITIES
- RESIDENTIAL
- BEACH IMPROVEMENTS
- PUBLIC WILDLIFE AREA
- AGRICULTURE AND AGRICULTURE-RELATED
- WATERSHED BOUNDARY

MAP 5

ULTIMATE RECREATIONAL USE PLAN

RANDOM LAKE, SHEBOYGAN COUNTY, WISCONSIN

T.-13-N. R.-21-E.

D.N.R., JUNE 1970