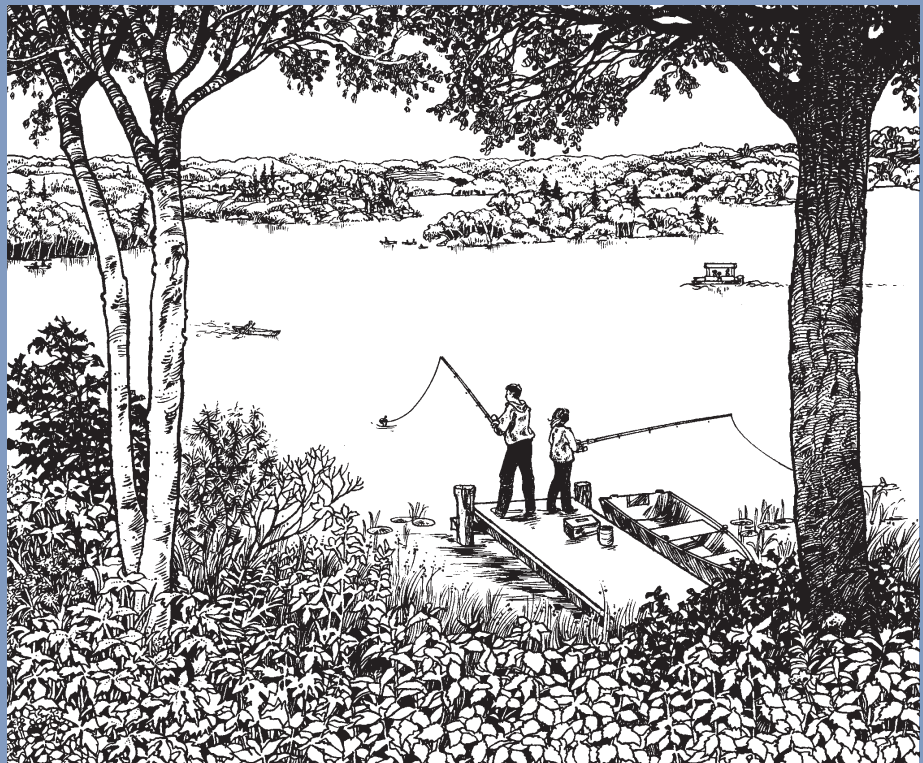


# A model lake plan for a local community



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# Contents

## PAGE

<i>ii</i>	<i>Preface</i>
<i>iii</i>	<i>Lake Hale—A historical preface</i>
<i>1</i>	<i>Why we care about the future—our goals for the Lake Hale community</i>
<i>2</i>	<i>Assessing needs and identifying problems</i>
	Concerns of district members
	Public users
	Public access
	Population changes
<i>6</i>	<i>What do we know about the lake? An inventory</i>
	Water cycle
	Water quality
	Watershed
	Fish
	Wildlife
	Boating regulations
	Shore development and natural beauty
<i>16</i>	<i>From considering options to making decisions</i>
	Option 1—Do nothing
	Option 2—Dredge channels in Lily Bay
	Option 3—Chemically treat excess plants
	Option 4—Harvest excess plants
	Option 5—Control alien species
	Option 6—Reduce agricultural runoff
	Option 7—Reduce construction site erosion
	Option 8—Conduct a sanitary survey
	Option 9—Purchase ecologically and aesthetically sensitive land
	Option 10—Lobby for stronger enforcement of county zoning laws
	Option 11—Operate a water safety patrol
	Option 12—Conduct an intensive educational effort
<i>25</i>	<i>Timelines summary</i>
<i>27</i>	<i>Have we been successful? Evaluating our efforts</i>
<i>28</i>	<i>A mini-directory</i>

## Preface

This publication was written for people who live on or use lakes, and for community officials involved in lake management. It sets forth a model management plan for the fictitious Lake Hale in Phantom County.

The Lake Hale model is designed to help communities care for local lakes in three ways:

1. By explaining the types of information needed to make decisions at the local level.
2. By offering a format for summarizing information and debating alternatives.
3. By furnishing an example of community commitment to a lake.

In each case, the model should be modified to fit the characteristics of the individual lake and the expectations of local residents and lake users. Keep in mind that Lake Hale is a fictitious lake with features commonly found in small to moderate-sized kettle lakes. (Large lakes and impoundments have substantially different characteristics.)

Some lake planning efforts have yielded more detailed reports than the example provided here. In fact, formal and technical documents may sometimes be necessary to meet external needs such as the Department of Natural Resources (DNR) Area-wide Water Quality Management Plans. In those cases, this model might provide a format for summarizing larger reports to distribute to community residents.

Many Wisconsin communities have received or are considering applying for a DNR Planning Grant. The information found in this model directly pertains to both the loan application process and the final report required under the grant.

The lake plan you generate will set the tone for management efforts on your lake for the next generation. You should review it every few years to determine if you are meeting your objectives on schedule and to re-evaluate your long-term goals. If you need assistance, call your DNR district inland lake coordinator or University of Wisconsin–Extension community resource development agent. (Some of these people helped produce this model by serving as reviewers.) To share ideas with other lake organizations and explore common interests, join the Wisconsin Association of Lakes.

Good luck in this important effort.

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## *Lake Hale—a historical preface*

The last glacier to visit Wisconsin created Lake Hale about 10,000 years ago. The glacier left an assortment of soil, boulders, stones and other debris as it retreated north. Occasionally, chunks of ice broke off and were buried in the glacial remains. When one large chunk melted, Lake Hale was born.

After several thousand years, small bands of Chippewa set up a summer camp at the site of the present day county park. Much later, in the 1870s, the region was extensively logged for pine. Areas that escaped the subsequent forest fires were logged again for hemlock and hardwoods. A small sawmill was built on the lakeshore between Sunset Point and Hale Creek in the early part of the 20th century. No efforts were made to protect the lake from sawdust or from the serious erosion following the forest fires.

Agricultural practices brought about additional sedimentation and nutrient enrichment of the lake. Wheat farming dominated in the 1880s, with a gradual switch to dairy farming by 1940, but sandy soils and harsh climate proved inhospitable to farming. Eight Norwegian farmers had established homesteads around the lake by 1900; by 1960, only four families remained. These farms, as well as the resort on Sunset Point, were subdivided for cottage sites in the 1960s and 1970s. The last and largest farm on the lake was owned by the Olson family; in 1989, it was developed as the Northern Heights subdivision.

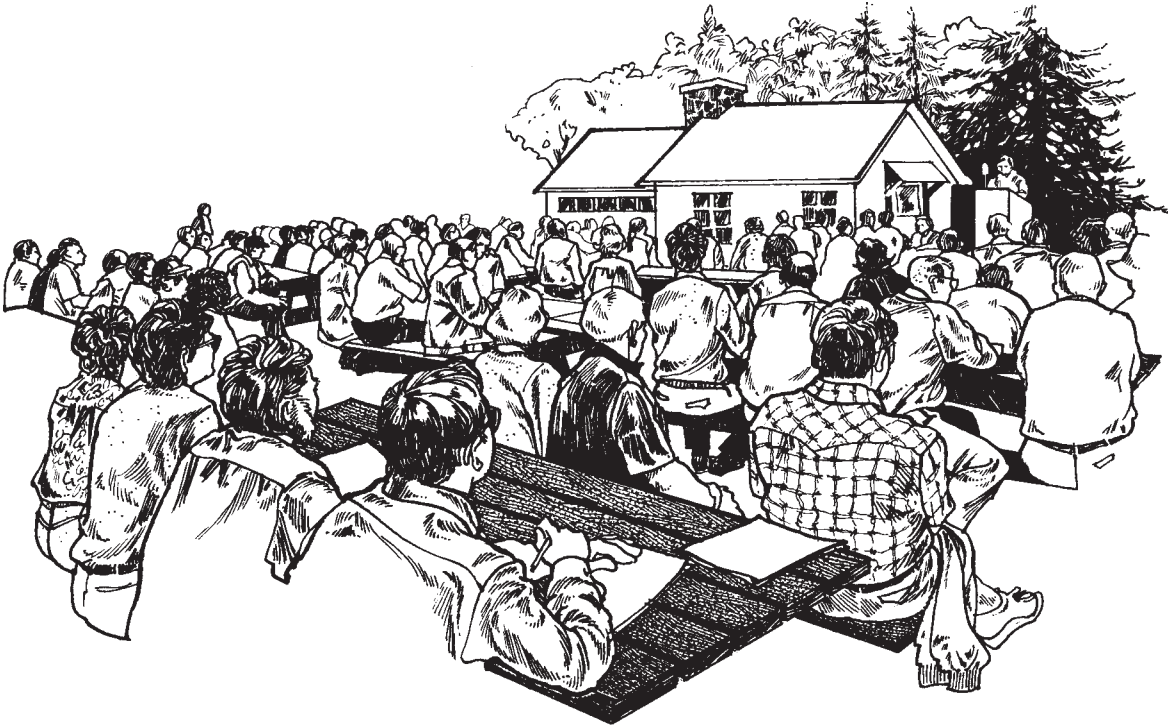
The first cottages were built on the lake in the 1950s. Many were concentrated right on the lake-front—where impacts on the lake are most direct. In the 1970s and 1980s, cottages were converted to winterized homes.

A lake association was organized in 1963 after a local resident was killed in a water skiing accident. The association persuaded the town board to establish a one-way circular skiing direction and prohibit water skiing in the north lobe.

Because of increasing concern about excessive plant growth and the potential negative impact of backlot development near the lake, a lake district was established by petition to the town board in 1985. Since its formation, the district has received three planning grants from the Wisconsin Department of Natural Resources. The district contracted for aquatic plant harvesting in 1987 and 1989–91.

Overall, land use in the watershed (the land that drains toward the lake) has changed dramatically in the past 130 years. These changes have damaged the lake. This plan, and recent aquatic plant harvesting efforts, are designed to help cope with those changes and protect the lake from further degradation.

## *Why we care about the future— our goals for the Lake Hale community*



Lake Hale and the creatures that live in and around it form an integral part of our community. We want the lake to be healthy so we can enjoy its natural beauty and use it for recreational activities. But more than that, we feel a sense of stewardship—a responsibility to protect and restore the integrity of the lake's ecosystem.

Our ultimate goal is to perpetuate the wildlife, natural beauty and recreational activities we enjoy for future generations of lake users. To meet that goal, we realize that we must develop a set of ethics for our interactions with the lake. Unless we are willing to limit the type and location of shoreline buildings we construct, the amount of shoreline we clear, the size of our boats and motors and the way we use them, the lake will no longer be the source of the natural beauty and recreational activities we enjoy today.

Specifically, we have three goals:

1. To maintain and restore the environmental integrity of the lake ecosystem.
2. To protect aesthetic opportunities for residents and visitors by preserving scenic lake views.
3. To maintain on-the-water recreational opportunities by discouraging behavior that interferes with the activities of other users.

## Assessing needs and identifying problems

### Concerns of lake district members

As part of the 1989 annual meeting, Jennifer Bates, our county Extension community resource development agent, conducted a “nominal group process” that rank-ordered the major concerns of lakeshore property owners. The concerns were:

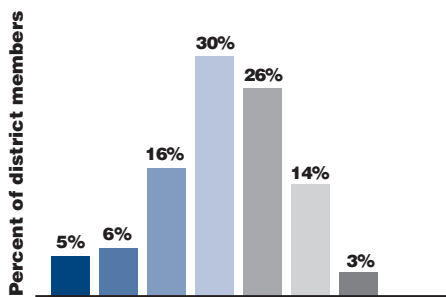
1. too much noise from boats and neighbors
2. too many aquatic plants
3. crowding and lack of boating safety on weekends
4. poor fishing
5. water quality degradation
6. unattractive shoreline structures
7. litter on the lake (summer and winter)
8. harassment of waterfowl.

We included these concerns in a standard questionnaire which was sent to each family owning or renting property within the district. The newslet-

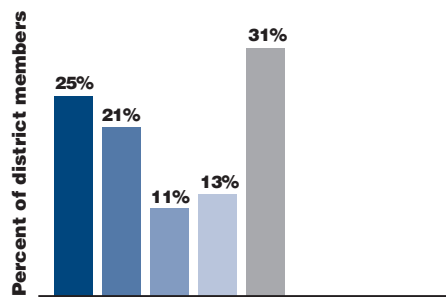
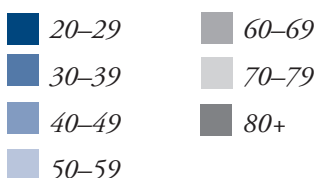
ter carried a reminder to complete the questionnaire, and postcard reminders were sent to each address. One hundred of the 150 families responded. The information in figures 1-5 was obtained from that survey.

Most members of the lake district are more than 50 years old and are full-time residents (outnumbering seasonal residents). Of those still working, a large percentage commute to the Twin Cities.

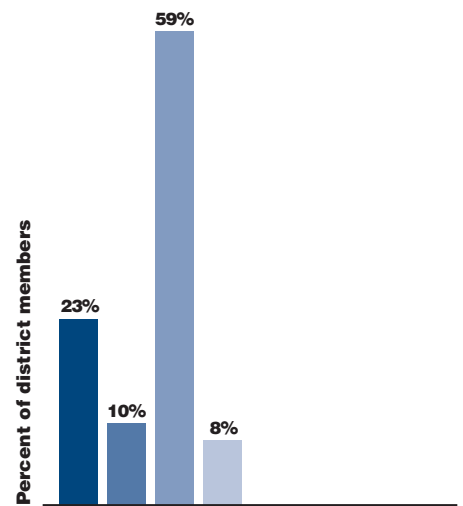
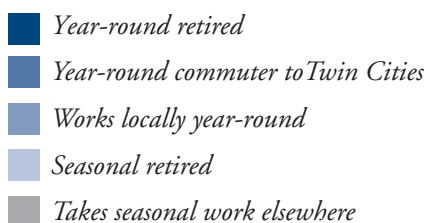
It is clear that Lake Hale’s beauty is what attracts district members; they enjoy the lake primarily for its aesthetic value and fishing. But district members also use the lake for motorized activities that often conflict with other expressed expectations. The concerns of district members reflect the increased use of the lake, as well as concern for water quality. Loss of natural vegetation on the shoreline and too much vegetation in the water are other major concerns.



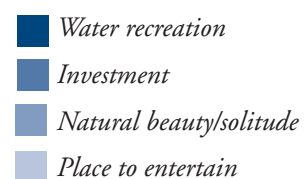
**FIGURE 1. Age of head of household.**



**FIGURE 2. Residency and employment status.**



**FIGURE 3. Principal reason for purchasing property.**



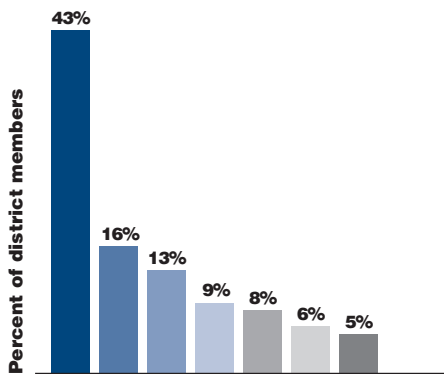
Additional information on the feelings, activities and characteristics of members of the Lake Hale District can be found in the report entitled “Lake Hale District Membership Survey.” That report is available from Paul O’Malley, our secretary, and at the public library in Phantom City.

We obtained a full report on each of the types of users, how long they used the lake, and their attitudes about their experiences. (The information is available in the “Lake Hale Public User Study.”) Some summary graphs that combine all public users are provided in figures 6-10.

### Public users

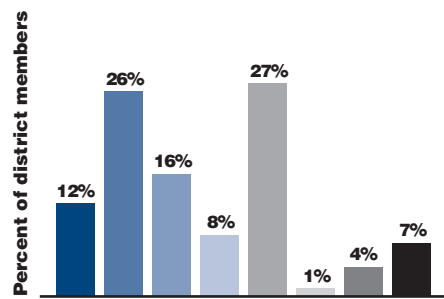
We hired Horace Billings, a sociologist from the University of Wisconsin–Superior to help determine the activities and preferences of people who use the public boat ramp, the public beach, the trails, the campground and the picnic area at the Lake Hale County Park. The preferences of people who stopped at the State Highway 762 overlook were also included in the study.

Billings devised a procedure to sample users at each public facility on the lake. He modified the questionnaire we used for our membership survey and hired college students to interview users on specific weekdays, weekends and holidays.



**FIGURE 4. Primary water recreation activities.**

- Fishing
- Swimming/diving
- Motorized boating
- Jet skiing
- Water skiing
- Canoeing/rowing
- Sailing/windsurfing



**FIGURE 5. Most serious problem relating to Lake Hale.**

- Noise
- Weeds/algae
- Crowding/boating conflicts
- Poor fishing
- Unattractive shoreline
- Litter
- Harassment of wildlife
- Water level



Lisa Manley volunteered to coordinate the counting of public users according to a schedule developed by Horace Billings. She enlisted the help of lifeguards at the county beach, who provided park, beach-user, pier fishing and boating counts. Unfortunately, the summer of 1992 was very cold, which reduced the swimming counts by approximately 50% and may have reduced the number of other users as well.

Between 3 to 5 p.m. on an average summer weekday, 107 people were at the park (76 of whom were using the beach), 9 boats were on the water, 6 people were fishing from the public pier, and 28 people stopped at the overlook on Highway 762. On the weekend, the numbers jumped to 229 people in the park with 135 using the beach, 24 boats on the water, 12 people on the public fishing pier, and 44 people at the overlook.

Bud Langley conducted monthly fishing counts on Saturdays from 7 to 9 a.m. Angler numbers were greatest on Saturday mornings in December (175), January (118), and May (62).

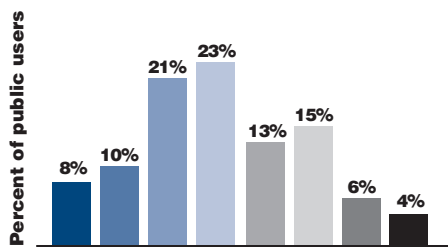
With the help of some students who did several all-day counts, Horace calculated the following annual estimates:

Park users	19,000*
Motorized boaters	2,700
Non-motorized boaters	1,000
Overlook users	7,000
Anglers—all types	<u>5,200</u>
Total users	34,900

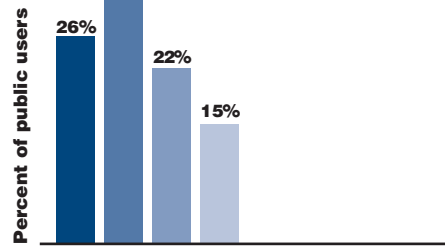
*\*Beach users accounted for 9,000 of this total.*

### Public access

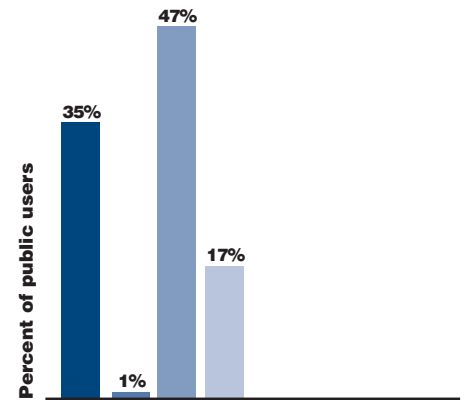
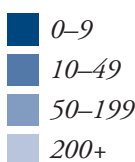
The ramp at the County Park has parking spaces for 17 vehicles and trailers. Under the new policy for boat access, Lake Hale possesses 387 acres of open water. (Those parts of Shelter Bay and Lily Bay with emergent vegetation visible from an aerial photo are not counted.) The Department of Natural Resources codes indicate that a lake affords reasonable public boat access if it maintains one parking space for each 20 to 30 acres of open water. The current boating access is more than adequate under the new code.



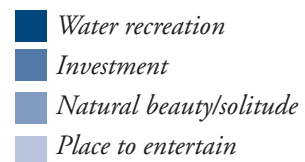
**FIGURE 6. Age of group leader.**



**FIGURE 7. Origin in miles from Lake Hale.**



**FIGURE 8. Reason for visiting Lake Hale.**



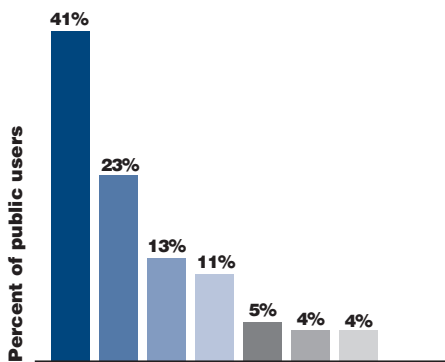
**TABLE 1. Population levels and rates of change, 1980-1990.**

	1970 pop	Change since 1960	1980 pop	Change since 1970	1990 pop	Change since 1980
<b>Town of Meadowview</b>	<b>576</b>	<b>+6%</b>	<b>651</b>	<b>+13%</b>	<b>782</b>	<b>+20%</b>
<b>Phantom City</b>	<b>2817</b>	<b>+2%</b>	<b>2873</b>	<b>+2%</b>	<b>2959</b>	<b>+3%</b>
<b>County of Phantom</b>	<b>27,002</b>	<b>+4%</b>	<b>28,429</b>	<b>+5%</b>	<b>31,865</b>	<b>+12%</b>

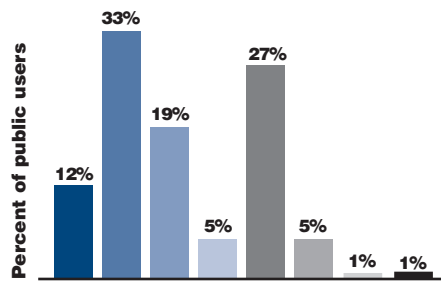
Additional public access is provided at the Highway 762 overlook and at the county park by the 500-foot beach, 30-unit campground, fishing pier, picnic area and hiking trails.

### Population changes

Based on population data that Jennifer Bates (UW–Extension) obtained, the farm population of the Town of Meadowview and Phantom County continues to decline. However, the overall population has grown consistently for three decades. As shown in table 1, 1980–90 exhibited the fastest growth. The new freeway to the Twin Cities has increased both residential development and public use of the lake. Both pressures are likely to increase.



**FIGURE 9. Primary water recreation activities.**



**FIGURE 10. Most serious problem relating to Lake Hale.**

- Fishing
- Swimming/diving
- Motorized boating
- Water skiing
- Jet skiing
- Canoeing/frowing
- Sailing/windsurfing

- Noise
- Weeds/algae
- Crowding/boating conflicts
- Poor fishing
- Unattractive shoreline
- Litter
- Harassment of wildlife
- Water level

## What do we know about the lake? An inventory

### Water cycle

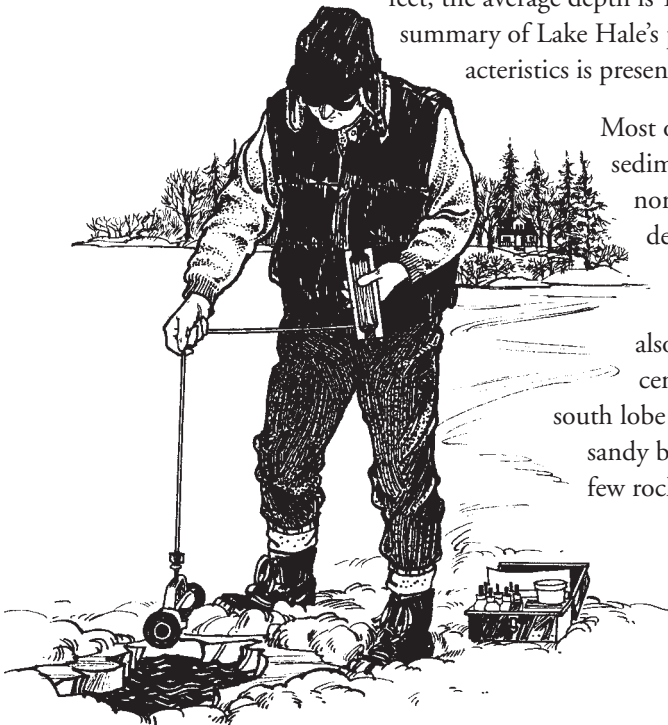
The lake's official size is 413 acres according to the *Wisconsin Lakes* bulletin. The watershed that drains to Lake Hale is 3,054 acres. Hale Creek drains a large part of the watershed to the north and east of the lake into Lily Bay. Small, intermittent streams drain the other areas of the watershed. Groundwater inflow was measured by Dartmouth Environmental Consultants as part of their water quality study. By putting gauges on the inlet creek and the outflowing river, and adjusting for precipitation and evaporation, they concluded that over 30% of the water entering the lake comes through the ground via springs.

On average, water entering the lake remains about two years before it exits through the Hale River.

Most of the north lobe is less than 10 feet deep. The south lobe is much deeper, with only a narrow band of shallow water (littoral zone) along the shore as can be seen on the hydrographic map (fig. 11). The maximum depth is 62 feet; the average depth is 14 feet. A

summary of Lake Hale's physical characteristics is presented in table 2.

Most of the bottom sediments in the north lobe are decayed plant remains, or muck. Muck is also found in the center of the south lobe surrounded by sandy beaches and a few rocky areas.



**TABLE 2. Lake Hale's physical characteristics.**

<b>Watershed</b>	. . . .	<b>3054 acres</b>
<b>Lake area</b>	. . . .	<b>413 acres</b>
<b>Maximum depth</b>	. . . .	<b>62 ft.</b>
<b>Average depth</b>	. . . .	<b>14 ft.</b>
<b>Volume</b>	. . . .	<b>5782 acre-ft.</b> (~2 billion gal.)
<b>Residence time</b>	. . . .	<b>1.9 yrs.</b>
<b>Rainfall</b>	. . . .	<b>30 in.</b>
<b>Water budget input:</b>		
<b>groundwater</b>	. . . .	<b>32%</b>
<b>Hale Creek</b>	. . . .	<b>35%</b>
<b>other surface runoff</b>	. . . .	<b>16%</b>
<b>direct rainfall</b>	. . . .	<b>17%</b>
<b>Water budget exit:</b>		
<b>groundwater</b>	. . . .	<b>9%</b>
<b>Hale River</b>	. . . .	<b>75%*</b>
<b>evaporation</b>	. . . .	<b>16%</b>

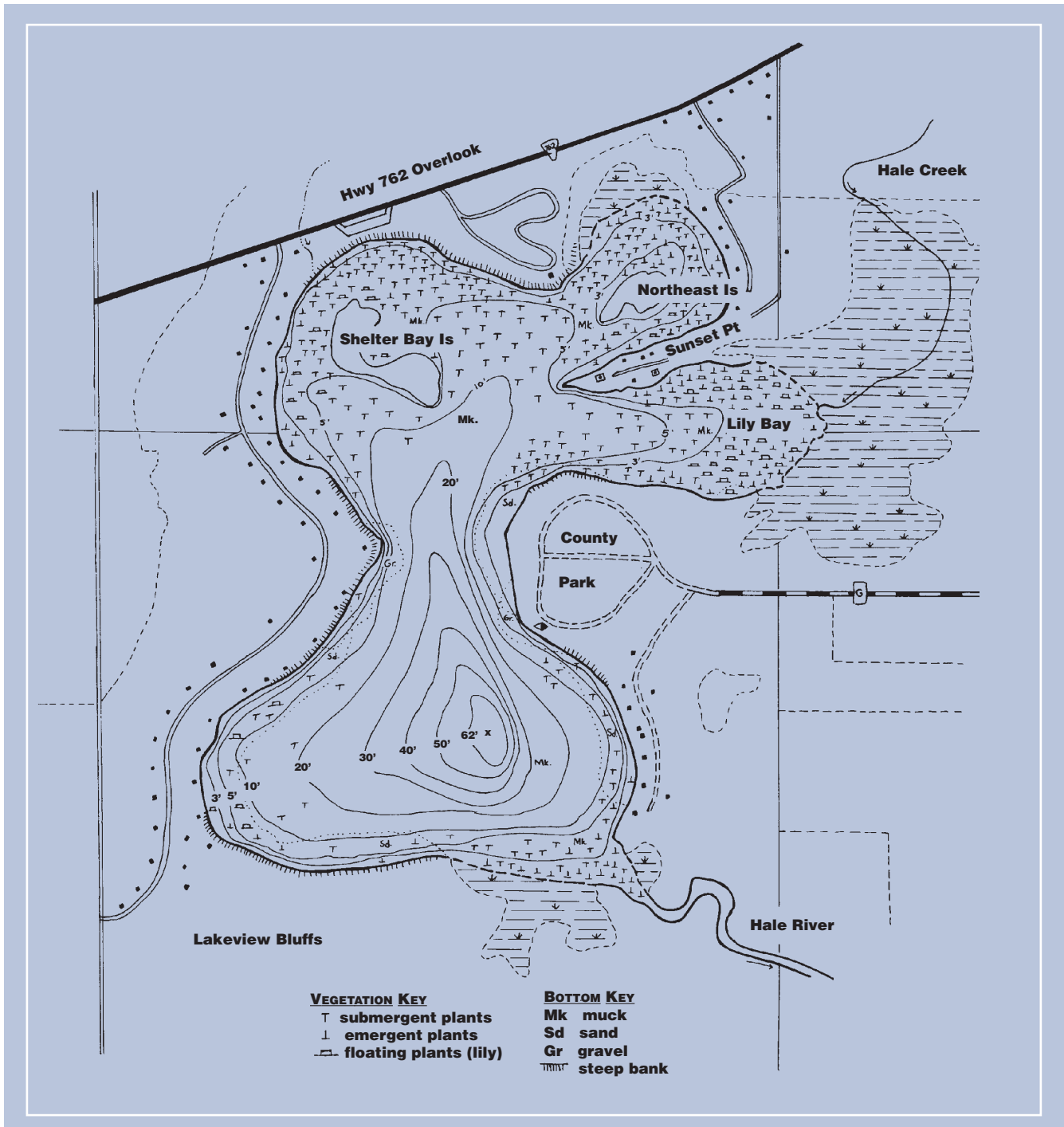
\*Hale River flow = 3 cubic ft.  
per second

### Water quality

A summary of our water quality studies and monitoring is presented in this section. Additional detail can be found in the consultant's reports on "Lake Hale Water Quality" and the DNR reports of Kathie Jansen's volunteer monitoring efforts. *Understanding Lake Data* (G3582), a more detailed explanation of lake water quality information, is available at the UW-Extension office.

**DISSOLVED OXYGEN.** When the amount of oxygen in the water drops below four parts per million, some fish species are stressed or killed. Lake Hale has not experienced lake-wide fish kills. Oxygen levels were measured in 1992 and at several earlier dates as shown in table 3.

**FIGURE 11. Hydrographic map of Lake Hale.**



**TABLE 3. Dissolved oxygen in parts per million (ppm).\***

Year	Date	Organization	Location	Depth	DO level
1963	Jan 4	DNR	Mid south lobe	4 ft.	9
1981	Mar 2	DNR	Mid south lobe	4 ft.	8
			Shelter Bay	4 ft.	1
1992	Jan 2	Consultant	Mid south lobe	4 ft.	10
			Shelter Bay	4 ft.	2
	Mar 4	Consultant	Mid south lobe	4 ft.	8
			Shelter Bay	4 ft.	0.5
	May 22	Self-help monitor	Mid south lobe	4 ft.	9
			Mid south lobe	40 ft.	9
	June 20	Self-help monitor	Mid south lobe	4 ft.	9
			Mid south lobe	40 ft.	7
	July 31	Self-help monitor	Mid south lobe	4 ft.	8
			Mid south lobe	40 ft.	4
	Sept 1	Self-help monitor	Mid south lobe	4 ft.	8
			Mid south lobe	40 ft.	1

*\*ppm = mg/liter*

In late winter, oxygen becomes depleted in Shelter Bay and possibly other parts of the north lobe. While oxygen levels are adequate for our present fishery, the lack of summertime oxygen in the hypolimnion (below 25 feet) is a critical indicator that water quality has gradually deteriorated. Cisco, a fish that needs cold, deep water to survive, has not inhabited Lake Hale since 1970. As oxygen levels continue to decrease, phosphorus (an important nutrient for algae growth) in the sediments will become available for algae blooms in fall. When oxygen is present in the water, phosphorus is less soluble and remains in the sediment.

**TEMPERATURE.** With encouragement and training from Daryl Roberts (DNR), our self-help monitoring volunteer Kathie Jansen has taken temperature profiles of the lake at different depths. The numbers in

table 4 show that the lake stratified into thermal layers from about the middle of June until October. During that time the water did not mix (turn over).

**TABLE 4. Temperature (in degrees F) profile of Lake Hale (south lobe) in 1992.**

DATE	DEPTH					
	3'	6'	10'	15'	20'	40'
April 16	39°	39°	39°	39°	39°	39°
May 22	47°	47°	46°	45°	45°	45°
June 20	58°	58°	49°	47°	47°	47°
July 31	69°	68°	55°	48°	47°	47°
Sept. 1	75°	75°	56°	48°	48°	48°
Oct. 1	52°	54°	54°	48°	48°	48°
Nov. 15	39°	39°	39°	39°	39°	39°

As expected, the lake had the same temperature from top to bottom as it mixed in mid-April when the ice melted, and again in mid-November just before the ice developed.

**NUTRIENTS.** The lake possesses moderate levels of phosphorus. Dartmouth Environmental Consultants, under their first contract in 1991, measured phosphorus levels at turnover and found 20 micrograms per liter in spring and 28 micrograms per liter in fall. These phosphorus levels will produce some algae, but are not likely to yield nuisance blooms of blue-green algae. However, if summertime oxygen loss in deep waters becomes more pronounced, the sediments will release more phosphorus and fall algae blooms can be expected to increase. If phosphorus levels increased beyond 30 micrograms per liter, Lake Hale would experience regular algae blooms.

Limnologists (scientists who study freshwater life and phenomena) use a number of indicators to classify lakes according to their nutrient richness, or level of eutrophication. On a trophic status index, Lake Hale was oligotrophic (nutrient poor) in 1850 before lumbering, farming and home building occurred around the lake. Now it is mesotrophic, or generally midway along the range as shown in table 5. This means that Lake Hale is

healthy overall, but that phosphorus, which entered the lake through soil erosion, has burdened the lake with excess nutrients. Further nutrient enrichment from the watershed will trigger a release of phosphorus from the lake bottom and the lake will become eutrophic.

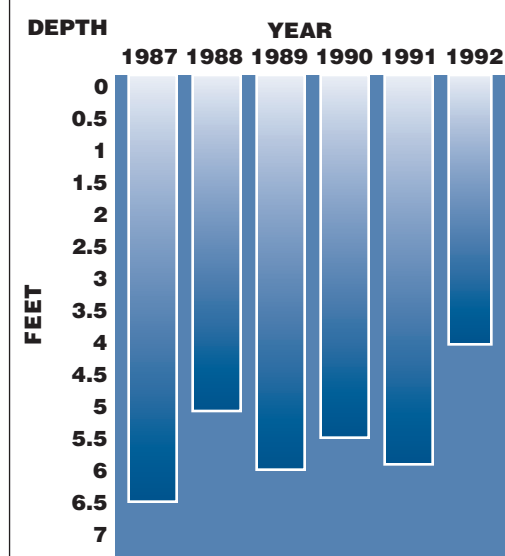
Dartmouth Environmental Consultants measured total nitrogen at 250 micrograms per liter. This is within the normal range and should not stimulate algae growth. However, nitrogen—from septic systems, lawns and agricultural practices in the watershed—is very soluble and can fertilize rooted aquatic plants, leading to excess vegetation. Nitrogen availability might also encourage the spread of Eurasian water milfoil, an exotic invader.

**TRANSPARENCY.** The Secchi disc measures water clarity by gauging the amount of algae in the water. Turbidity from soil erosion or a tan color from decaying vegetation also affect Secchi disc readings. Lake Hale has a slight tea color from natural tannic acids that drain from the wetland along Hale Creek. Art Belder, our first self-help monitor, took Secchi disc readings for four years. After he moved, Kathie Jansen continued the effort. The measurements Art and Kathie collected show a slight, but inconclusive, reduction in transparency (fig. 12).

**TABLE 5. Trophic classification of Wisconsin lakes.**

Trophic Class	Total phosphorus (µg/l)	Chlorophyll a (µg/l)	Secchi Disc (ft)
<b>Oligotrophic</b>	3	2	17
	10	5	8
<b>Mesotrophic</b>	18	8	6
	27	10	6
	30	11	5
<b>Eutrophic</b>	50	15	4

**FIGURE 12. Annual average transparency.**



**VEGETATION.** Excess rooted aquatic vegetation (macrophytes or weeds) currently appears to be a more serious problem than algae. According to the consultant's macrophyte survey, the most dense growth is concentrated in the north lobe. Eurasian water milfoil has become established south of the boat ramp along the east shore of the south lobe and around Sunset Point. Pond weeds are the primary species. Lily pads dominate in Lily Bay.

Aquatic plants are measured by harvesting all the plants in a square meter and weighing them after they have been dried. Our consultants found that biomass per square meter (approximately 11 square feet) was 250 grams in Lily Bay, 215 grams around Northeast Island, and 180 grams in the area around Shelter Bay Island, while the average for the south lobe was only 80 grams dry weight (454 grams = 1 pound).

Dense growths of coontail occupy several locations in the north lobe. They become a nuisance by early August and hamper fishing. But aggressive Eurasian water milfoil is likely to pose the greatest control challenge. Daryl Roberts from the DNR office in Eau Claire will advise us on how to keep milfoil in check as part of an overall aquatic plant management strategy.

**HARDNESS.** Lake Hale is not susceptible to damage from acid rain. The surrounding soils contain enough limestone and dolomite to buffer acidic precipitation. Measurements made by the environmental consultants in 1991 indicate an average hardness of 82 ppm with a dip following spring runoff.

**SEDIMENTATION.** Dartmouth Environmental Consultants took a 5-foot sediment core from the deep hole in the south lobe to determine whether water quality had deteriorated over the last 250 years. (The sediment core measures the rate of sedimentation over time.) The sample indicated that water quality steadily declined from the 1870s into the 1940s. During those years, the watershed was logged and then farmed. Water quality has declined at a much more rapid rate since the 1940s because of the watershed's intensive agricultural use and real estate development along the shorelands.

## *Watershed*

The boundary of the watershed is shown in figure 13, prepared by Ted Walinski of the County Land Conservation Department. Lake Hale drains about 3,000 acres of land; the watershed to lake area ratio is thus about 7:1. The larger the ratio, the more the watershed will have an impact on the lake through nutrient, pesticide and soil runoff. (Impoundment ratios usually average more than 100:1.) A land use survey was conducted by our original Land Use Committee with advice from Ted, using the protocol provided by Jennifer Bates.

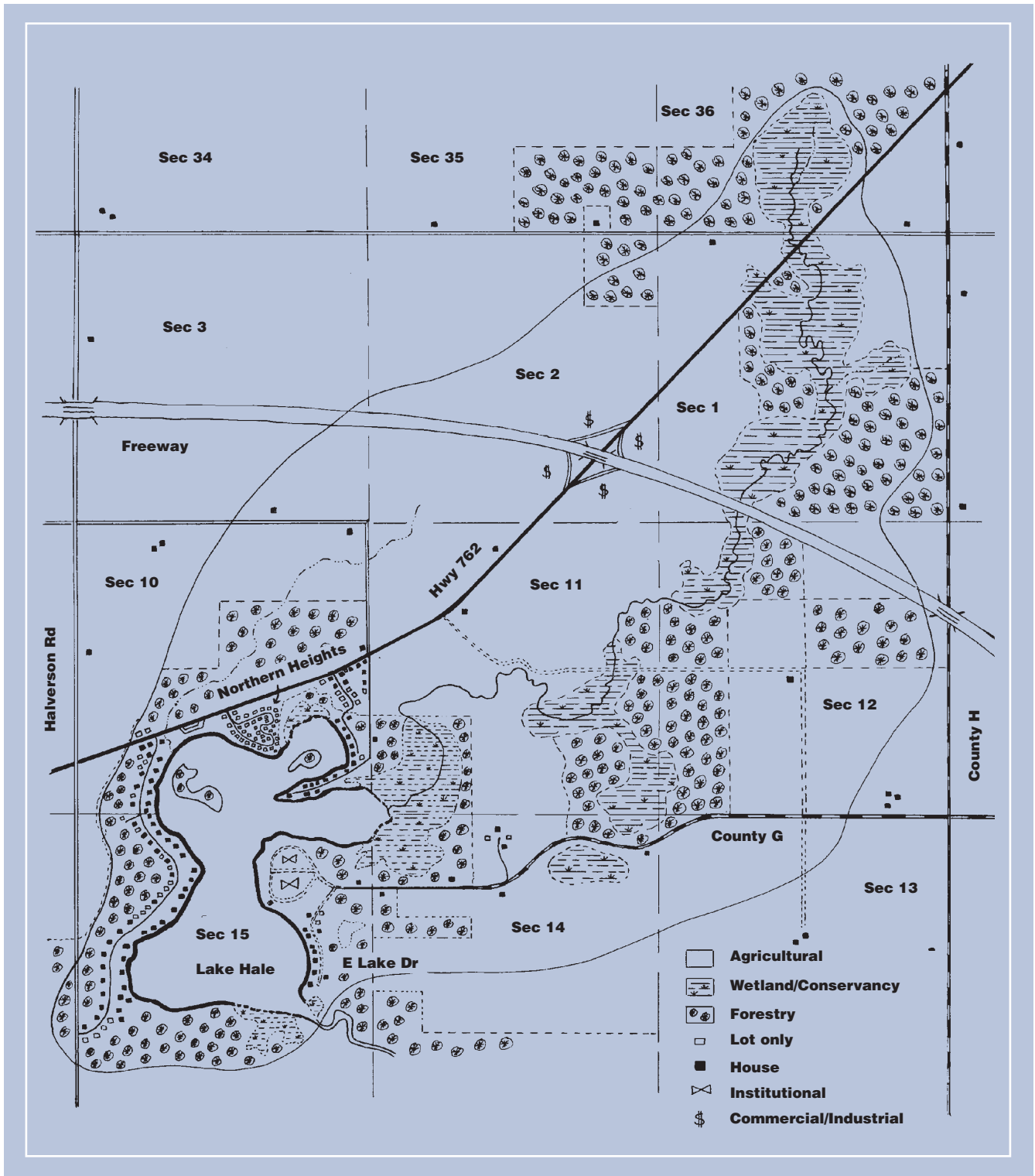
Almost half (1,380 acres) of the watershed is used for agriculture, although none of the original shoreline farms still operate. The shoreline areas have been converted to lots. Residential areas, woodlands and wetlands each contribute over 500 acres to the total land use. The overlook and county park occupy 66 acres; the filling station, restaurant and video store cover 10 acres at the intersection of Highway 762 and the freeway.

In their land use report, the committee warned that backlot development was beginning. The report stated that several large areas of the watershed could potentially be developed with a common access (funnel) to the lake. Large numbers of homeowners without lake frontage would be able to dock boats and use a single riparian lot for lake access. Land use in 1991 is shown in figure 13 and summarized in table 6.

**TABLE 6. Land use in the watershed.**

	Acres
<b>Agricultural</b>	<b>1380 (45%)</b>
<b>Forestry</b>	<b>555 (18%)</b>
<b>Residential</b>	<b>541 (18%)</b>
<b>Commercial/industrial</b>	<b>10 (1%)</b>
<b>Institutional</b>	<b>66 (2%)</b>
<b>Wetland/conservancy</b>	<b>502 (16%)</b>
<b>TOTAL</b>	<b>3054 (100%)</b>

FIGURE 13. Land use within Lake Hale's watershed.





## *Fish*

The local DNR fish manager, Betsy Olson, has met with us periodically and presented reports at the annual meeting. Betsy is concerned about excess vegetation which allows panfish to evade predators and overpopulate the lake. Increased fishing pressure on predator fish like bass and northern may also exacerbate the trend toward overpopulation of certain species. She prepared a comprehensive report for us to use in developing this plan.

The native fishery for our lake consists of large-mouth bass, northern pike, cisco, black crappie, bluegill, pumpkinseed, perch, white sucker, and an assortment of forage fish (minnows). Walleye, muskie and lake trout were planted at various

times. Bluegills and pumpkinseed use Shelter Bay as the primary spawning site, while northern spawn in the shallows and wetlands behind Northeast Island. Muskie spawn later and are effectively preyed upon by the northern fry. Walleye do not reproduce very well because the lake has few rocky areas. Walleye and muskie are planted biennially as shown in table 7. Our Fisheries Committee (Herb Latman, Albert Nice and Bo Hintz) assists the DNR with stocking and shocking activities.

Stocking rates for walleye range up to 50 fingerlings per acre. Muskie rates are 1 to 2 fish per acre on an every-other-year basis.

The fish census (table 8) taken along the shoreline in 1975, 1983 and 1990 indicated generally healthy numbers and mixes of year classes, but showed reduced panfish size. Betsy Olson noticed that the fish were much denser along the shorelines where natural vegetation was retained. Few fish were found in front of homes where the owner had "cleaned up" the shoreline.

**TABLE 7. Lake Hale fingerling stocking schedule.**

	Walleye	Muskie
<b>1980</b>	<b>15,000</b>	<b>800</b>
<b>1982</b>	<b>20,000</b>	<b>600</b>
<b>1984</b>	<b>10,000</b>	<b>1,000</b>
<b>1986</b>	<b>20,000</b>	<b>800</b>
<b>1988</b>	<b>20,000</b>	<b>500</b>
<b>1990</b>	<b>10,000</b>	<b>800</b>

## *Wildlife*

Two active eagles' nests are located in other parts of the town and the occupants regularly visit Lake Hale. Osprey visits are less common. Until 1960, the lake supported a family of loons, but these birds now appear only during migration and occasionally during the summer. Lowell North, our local Loon Ranger, participates in the

**TABLE 8. Fish shocking census.**

Species	1980		1985		1990	
	lbs/acre	% over 6"	lbs/acre	% over 6"	lbs/acre	% over 6"
<b>Largemouth bass</b>	<b>38</b>	<b>—</b>	<b>42</b>	<b>—</b>	<b>50</b>	<b>—</b>
<b>Northern pike</b>	<b>16</b>	<b>—</b>	<b>13</b>	<b>—</b>	<b>10</b>	<b>—</b>
<b>Walleye</b>	<b>11</b>	<b>—</b>	<b>7</b>	<b>—</b>	<b>10</b>	<b>—</b>
<b>Muskie</b>	<b>1 fish</b>	<b>—</b>	<b>1 fish</b>	<b>—</b>	<b>1 fish</b>	<b>—</b>
<b>Panfish</b>	<b>120</b>	<b>10%</b>	<b>130</b>	<b>7%</b>	<b>150</b>	<b>5%</b>



regional Loon Watch program of the Sigurd Olson Environmental Institute at Northland College in Ashland. He believes that disturbance from boat traffic is the reason loons no longer nest on the lake.

Frog numbers seem to be down sharply; acid rain or another atmospheric pollutant is the suspected reason. Other amphibians are experiencing similar downtrends.

### *Boating regulations*

The Town of Meadowview has prohibited powerboating at speeds greater than “slow-no-wake” in Lily Bay and behind both Northeast Island and Shelter Bay Island. Water skiing is not allowed in the north lobe and must follow a clockwise direction in the south lobe. The level of compliance with the regulations varies. Jennifer Bates helped the lake district and town prepare an application for the placement permit and state cost-sharing of the buoys. Neither the lake district nor the town has a patrol boat.

### *Shore development and natural beauty*

Most of us bought property here so we could enjoy Lake Hale’s cool blue beauty. But some of our activities have tarnished and threaten to further reduce the area’s attractiveness. During its survey, our Land Use Committee noted areas that were especially beautiful or ecologically fragile and thus warranted special protection.

The committee suggested that areas shown in table 9 and figure 14 be considered for special protection. It also noted spots that looked unappealing and needed a face lift. Duane Peters, the county code (zoning) administrator, assisted in these efforts.

The Land Use Committee also wanted to register the group’s concern about practices that large numbers of residents currently engage in that diminish the lake’s beauty (shown in table 10). Many of these practices have been prohibited since 1970 under the Phantom County Shoreland Zoning Ordinance.

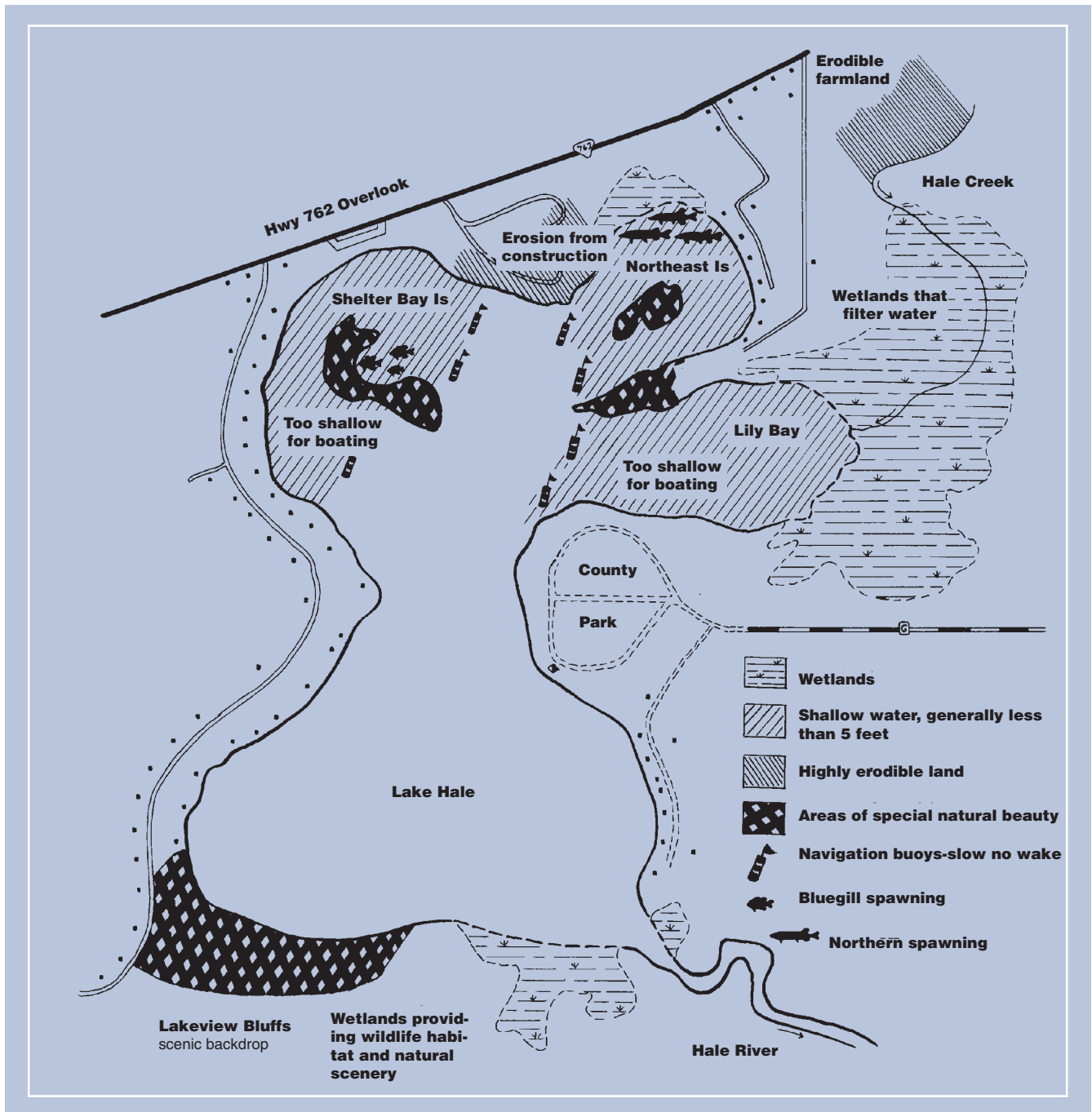
**TABLE 9. Areas of special beauty or ecological significance.**

<b>Area</b>	<b>Distance from water</b>	<b>Acres</b>	<b>Current ownership</b>
SUNSET POINT PARK	<i>Narrow peninsula</i>	1	<i>Common property of people who purchased the old resort parcels</i>
MOUTH OF HALE RIVER	<i>On the shore</i>	40	<i>County land—unmanaged and used by off-road recreation vehicles</i>
HALE CREEK MARSH	<i>Extends 3 miles upstream</i>	200	<i>Area farmers</i>
LAKEVIEW BLUFFS	<i>Off-shore with single lake-access lot</i>	100	<i>Dream Estates—land development company from St. Paul</i>
NORTHEAST ISLAND	<i>Surrounded by water</i>	7	<i>Northern Heights Subdivision Assn.</i>
SHELTER BAY ISLAND	<i>Surrounded by water</i>	16	<i>Alice Knight from Minneapolis</i>

**TABLE 10. Practices that diminish the beauty of Lake Hale.**

<b>Practice</b>	<b>Estimated number</b>	<b>Legal status</b>
<i>Constructing buildings closer than 75 feet from shore</i>	22	<i>Prior to 1970—grandfathered. After 1970—illegal without variance.</i>
<i>Improving nonconforming structures within the 75-foot setback more than 50%</i>	16	<i>After 1970—illegal.</i>
<i>Placing septic fields closer than 50 feet from shore</i>	21	<i>Prior to 1970—grandfathered. After 1970—illegal without variance.</i>
<i>Clearing more than 30% of each 100 ft. (first 35 feet from water)</i>	25	<i>Prior to 1970—no regulation. After 1970—illegal.</i>
<i>Painting buildings bright colors so that they are highly visible from or across the lake</i>	35	<i>No regulation.</i>
<i>Placing excessive night lighting on dock, lawn and buildings</i>	23	<i>No regulation.</i>
<i>Planting large lawns and other exotic vegetation that doesn't blend into the forested shoreline</i>	36	<i>No regulation.</i>
<i>Building or improving a wet boathouse</i>	10	<i>Prior to 1979—grandfathered. After 1979—illegal.</i>
<i>Maintaining general clutter on property</i>	41	<i>No regulation except that two or more junk vehicles on a lot violates general county zoning ordinances.</i>

FIGURE 14. Sensitive areas in the water and on the land.



## *From considering options to making decisions*

The following options were developed by Jerry Van Syke of Environmental Consultants after a series of meetings with the board, Jennifer Bates (UW–Extension), Daryl Roberts (DNR inland lake coordinator), Duane Peters (county code administrator) and Ted Walinski (County Land Conservation Department). The Board of Commissioners presented their recommendations to the Lake Hale District at a special meeting on April 3, 1993. **The Lake Hale Plan consists of the options adopted at that meeting.**

### **OPTION 1**

#### *Do nothing.*

This alternative does not require spending money and, in the short run, allows us to continue to enjoy the lake rather than worry about the future. Few people voiced this opinion, and the option was not seriously debated.

### **OPTION 2**

#### *Dredge channels in Lily Bay.*

Dredging channels would remove about 20,000 cubic yards of material at a cost of \$4 to \$10 per yard. While fishery habitat and boat access would be improved, the project could damage the native plant community if it was not carefully designed. A disposal area and permits would be required.

*Vote to adopt: 33 yes, 106 no.*

### **OPTION 3**

#### *Chemically treat excess plants.*

With a permit from the Department of Natural Resources (Aquatic Plant Management), the district could hire a certified applicator and treat areas within 150 feet of shore. Application cost would be about \$225/acre per summer.

*Vote to adopt: 47 yes, 91 no.*

### **OPTION 4**

#### *Harvest excess plants.*

The excess vegetation in the north lobe could be harvested by a contractor who would charge \$100 an hour, or we could purchase equipment and do the work ourselves. The Wisconsin Waterways Commission shares half the cost of equipment purchases. The estimated price of a 5-foot harvester plus conveying equipment is about \$40,000. The cost of cutting 100 acres between June 20 and August 20 will run to about \$10,000 per season. This option requires a feasibility analysis.

A vegetation management strategy has been prepared with assistance from Daryl Roberts of the DNR. The vegetation management strategy does not include herbicides. It focuses on physical methods to remove plant material and on better protection for native plant communities. It has a lower potential for controversy and divisiveness.

The Vegetation Management Map is shown in figure 15. A full statement of goals, objectives and implementation procedures is available from the board. The strategy includes cutting lanes for anglers and predator fish, cutting access across the north lobe twice a year, and cutting the shoreline vegetation along homeowners' property and the county park once a year.

After considering this option, the group decided to amend it to provide for three years of contract harvesting. It was then left to the 1995 annual meeting to decide whether to purchase a harvester, continue contracting, or revise the strategy for controlling excessive vegetation.

*Vote to adopt: 98 yes, 39 no.*

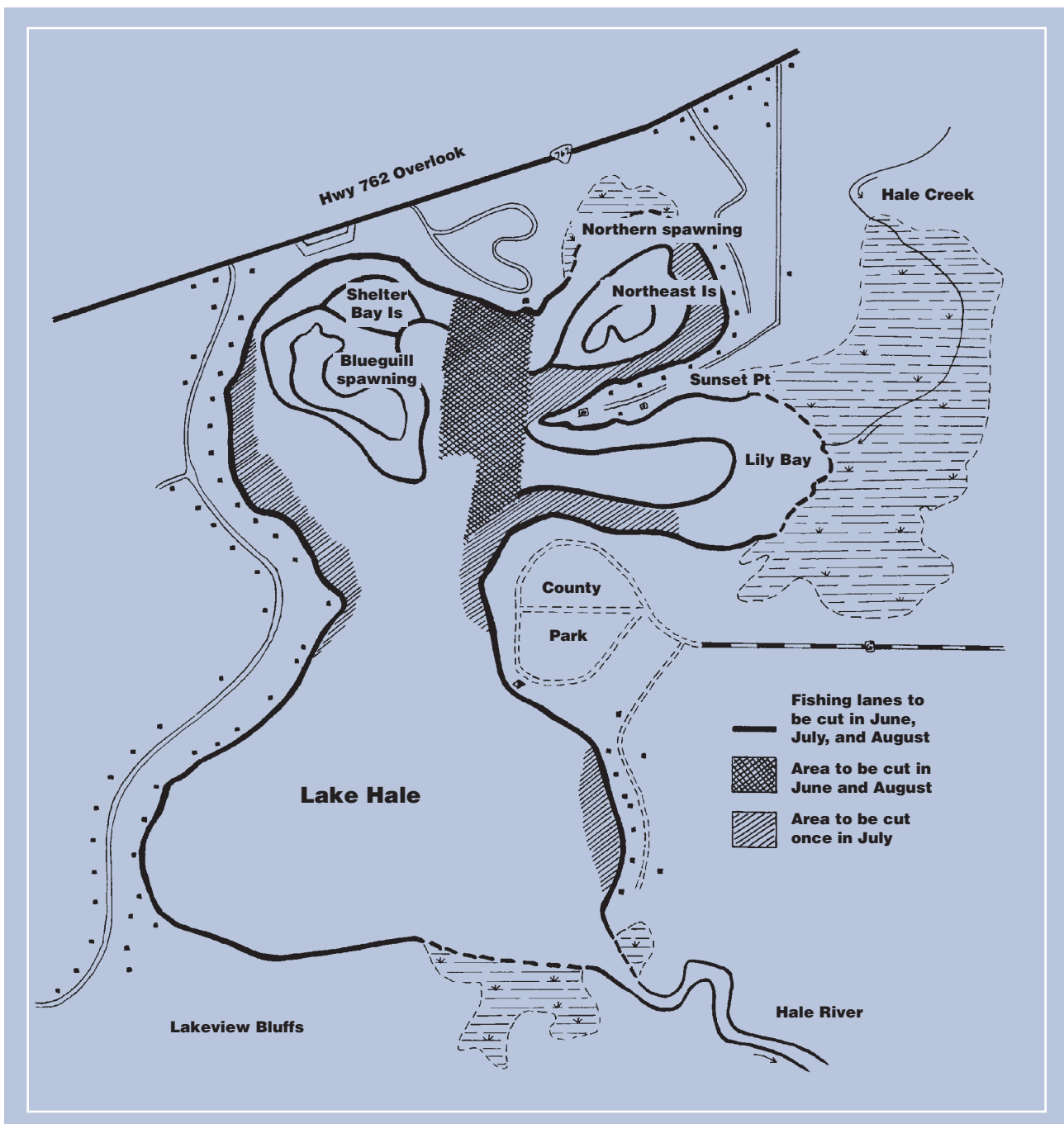
#### *Implementation*

- The Vegetation Management Committee, chaired by Sam Horsemann, will solicit a weed harvesting contractor based on the budget provided by the annual meeting. As

part of a feasibility analysis, the committee will visit at least three communities that operate their own equipment and then make a recommendation to the annual meeting about purchasing equipment for Lake Hale. They will also provide information on the likelihood of the district receiving cost-sharing funds from the Wisconsin Waterways Commission.

- About 50-100 acres, primarily in the north lobe, will be cut one to three times each summer. The newsletter will provide free advertising for anyone offering or desiring shoreline clean-up services of individual lots (good employment opportunity for teens).
- The 1995 annual meeting will decide whether to purchase equipment.

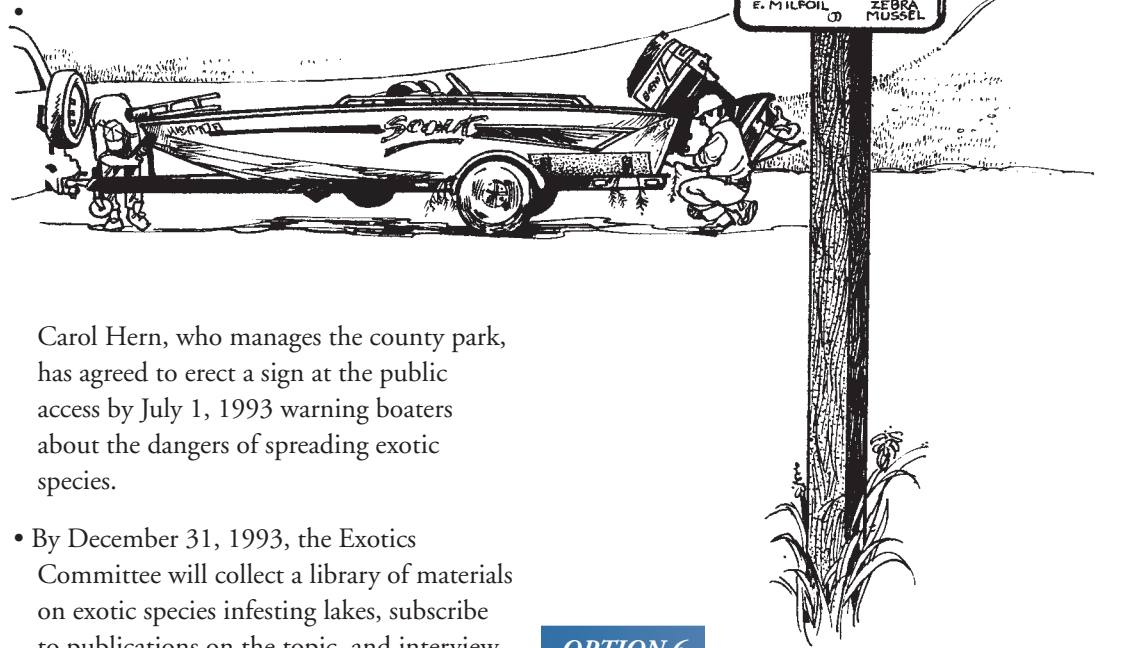
**FIGURE 15. Vegetation management map.**



**OPTION 5***Control alien species.*

Eurasian water milfoil and purple loosestrife have invaded the lake and surrounding wetlands. Rusty crayfish and zebra mussels may also damage the aquatic ecosystem. The district could systematically monitor these invasions and develop prevention and control strategies as appropriate.

*Vote to adopt: 139 yes, 0 no.*

*Implementation*

Carol Hern, who manages the county park, has agreed to erect a sign at the public access by July 1, 1993 warning boaters about the dangers of spreading exotic species.

- By December 31, 1993, the Exotics Committee will collect a library of materials on exotic species infesting lakes, subscribe to publications on the topic, and interview state and local officials about the situation in Minnesota.
- Starting in 1995, the committee will submit an article on exotic species for each issue of the newsletter.
- The Exotics Committee, under the leadership of Dr. Selma Kirkson, will develop a strategy for controlling alien species by 1996.
- The committee will also prepare an annual report to the board.
- The self-help monitor may be trained to systematically look for problem species.

**OPTION 6***Reduce agricultural runoff.*

The Wisconsin Nonpoint Source Pollution Abatement Program is a statewide effort to protect lakes and streams from pollution not directly associated with industries or sewage treatment plants (point sources). With help from Ted Walinski (County Land Conservation Department) and Daryl Roberts (DNR), Lake Hale might be designated a Priority Lake when the St. Croix River Basin Area-wide Water Quality Plan is updated. Funds from the program could be used to reduce runoff from farms in the watershed.

*Vote to adopt: 110 yes, 21 no.*

### Implementation

- Commissioner Elder Tobatz has volunteered to provide leadership for this effort; as a county board member, he sits on the Land Conservation Committee. Ted Walinski will provide staff assistance.
- The district will apply for Lake Hale's designation as a Priority Lake during 1994.
- Priority Lake designation will be obtained and contracts signed by July 1, 1995.
- University of Wisconsin–Extension will provide educational support on best management practices for landowners with property in the watershed.
- Cost-sharing agricultural practices will begin by April 1, 1996.

### OPTION 7

#### *Reduce construction site erosion.*

The lake district does not have the authority to regulate land use or construction practices. However, it can apply for a lake planning grant to hire legal experts to develop ordinances regulating construction site erosion control and stormwater management. The draft ordinances would then be considered by the Town of Meadowview Board and the Phantom County Board.

*Vote to adopt: 126 yes, 10 no.*

### Implementation

- Jennifer Bates (UW–Extension) and Daryl Roberts (DNR) will help the district develop the planning grant application by August 1, 1994.
- A private attorney will be hired to draft the ordinances. Jennifer and Daryl will provide examples from other communities. Ordinances will be drafted by May 1, 1996.
- Jennifer and Duane Peters (code administrator) will hold educational sessions for local officials and interested builders and citizens.

- Duane Peters will be asked to advise the commission on the best strategy to get ordinances adopted. The ordinances will be adopted by September 30, 1996.

### OPTION 8

#### *Conduct a sanitary survey.*

The Lake Hale District can request sanitary powers from the Town of Meadowview. Such powers allow the district to physically inspect septic systems, bore in drainfields, or use “snooper” equipment in the water in front of homes. Since correction orders would be issued through the Environmental Health Department, the county sanitarian would be involved; she might potentially involve the private sewage consultant from the Wisconsin Department of Industry, Labor, and Human Relations. A DNR lake planning grant could fund 75% of the effort.

*Vote to adopt: 62 yes, 74 no.*

### OPTION 9

#### *Purchase ecologically and aesthetically sensitive land.*

Five parcels of land need protection.

- 1) The Sunset Point Park Association is largely defunct and the property owners are looking for a stronger organization to manage their private park.
- 2) Undeveloped shoreland between Sunset Point and Hale Creek and the wetlands immediately behind the shore berm are valuable fish and wildlife areas. Currently, two private owners hold these lands.
- 3) Alice Knight is willing to consider donating Shelter Bay Island to a responsible organization under a deed restriction that prevents the erection of any buildings on the island.
- 4) The Northern Heights Subdivision Association owns Northeast Island; covenants prevent any human activity on the island.



- 5) Lakeview Bluffs development, proposed for the southwest corner of the lake, would provide 185 homesites with a clubhouse and marina on the waterfront. The owners of these lots would overburden the lake and the construction would destroy an important vista.

Lake protection grants, available through the DNR Lake Management Program, could pay up to 50% of the appraised value of such properties.  
*Vote to adopt: 115 yes, 19 no.*

#### *Implementation*

- Elicia Horace, a Minneapolis attorney who knows Alice Knight, has volunteered to negotiate the donation of Shelter Bay Island to the district and expects to complete the transfer to lake district ownership by January 30, 1996.
- Bob Lark, a long-time resident of Sunset Point, will work with Elicia to obtain a consensus among the old Sunset Point Homeowners Association members to transfer the park to district ownership and management by July 1, 1997.
- Bob and Elicia will also pursue purchase or easements on the low land between Sunset Point and Hale Creek. They will also seek state lake protection grant funds for this purpose, which has a projected completion date of July 1, 1998.
- The Land Use Committee is so concerned about the potential development of backlots on Lakeview Bluff that it wants to continue fund-raising to purchase the property. A state grant and foundation support will be pursued, and the Nature Conservancy contacted. The committee hopes to complete the purchase by January 1, 1999, and pay off any mortgage by January 1, 2009. If possible, an option-to-purchase agreement will be negotiated immediately.

#### **OPTION 10**

### *Lobby for stronger enforcement of county zoning laws.*

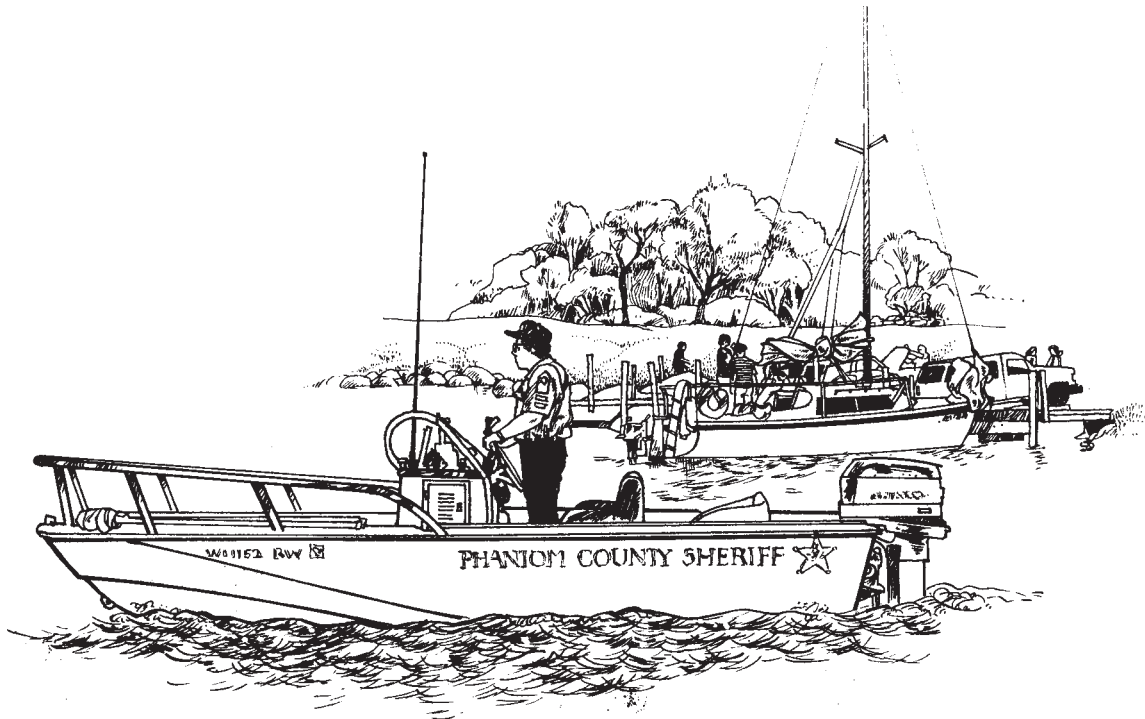
This option proposes that the Land Use Committee meet regularly with Duane Peters of the County Planning and Zoning Department to report illegal construction around the lake and share other concerns. Committee members could testify when variances are requested from the County Board of Adjustment or when rezoning cases go before the County Zoning Committee. For example, Dream Estates may attempt to have the Bluffs in Section 15 rezoned from a forestry to a residential area. Attempts may also be made to convert some farmland zoned A1 for “Exclusive Agriculture” to “Residential.”

The Lake Hale District might join with other county lake organizations to follow up on stronger shoreland ordinances and more aggressive enforcement by the zoning office and the district attorney. Periodically, a formal zoning audit could be conducted with the assistance of the DNR. The Wisconsin Association of Lakes could advocate for stronger state legislation.

*Vote to adopt: 112 yes, 25 no.*

#### *Implementation*

- If the district is unable to prevent rezoning or to purchase the Lakeview Bluff property owned by Dream Estates, the Land Use Committee will carefully monitor the development process and perhaps negotiate a development layout less damaging to the natural beauty of the bluffs and shoreline below. The committee will advocate that an independent lake capacity study be commissioned by the county and paid for by the developer.
- The Land Use Committee will serve as a Shoreland Watch and be expanded to seven members. The committee will regularly inform Duane Peters, the county code administrator, of building or remodeling that may not conform to shoreland zoning or other regulations. The committee will meet with Duane at least twice a year.



- Elder Tobatz, our county supervisor, is being encouraged to ask for a seat on the County Planning and Zoning Committee.
- The Land Use Committee will attempt to get one of its members appointed to the next vacancy on the County Board of Adjustment. At least one member of the committee will attend all County Planning and Zoning meetings and Board of Adjustment meetings.
- A zoning audit will be completed by December 31, 1995 and again by December 31, 2005. The county district attorney will prosecute at least one shoreland zoning violation each year. All wet boathouses will be removed from the lake by 2020.

**OPTION 11**

*Operate a water safety patrol.*

State funds are available to share the cost of operating a water safety patrol. If the Town of Meadowview delegated its authority to the Lake Hale District, the district could adopt its own

ordinances and operate the patrol. A trained law enforcement officer, a patrol boat, and a citation system would be needed. The lake could be zoned for different uses as shown on the proposed lake use map (fig. 16). Some of these regulations already exist through the Town of Meadowview, but lack enforcement. Jennifer Bates (UW-Extension) could help the community arrive at a consensus. The ordinances would be reviewed by the DNR boating safety specialist.

Members amended this option to direct the commissioners to study the seriousness of lake use conflicts and report their findings and recommendations at the 1996 annual meeting.

*Vote to adopt: 89 yes, 41 no.*

*Implementation*

- A new Recreational Use Committee will be established to monitor the conflicts between lake users—both on the water and between water and shoreland users. The committee will provide complaint forms, summarize the results, add its own observations, and make recommendations to the board and the annual meeting. The district may recommend changes in the operations

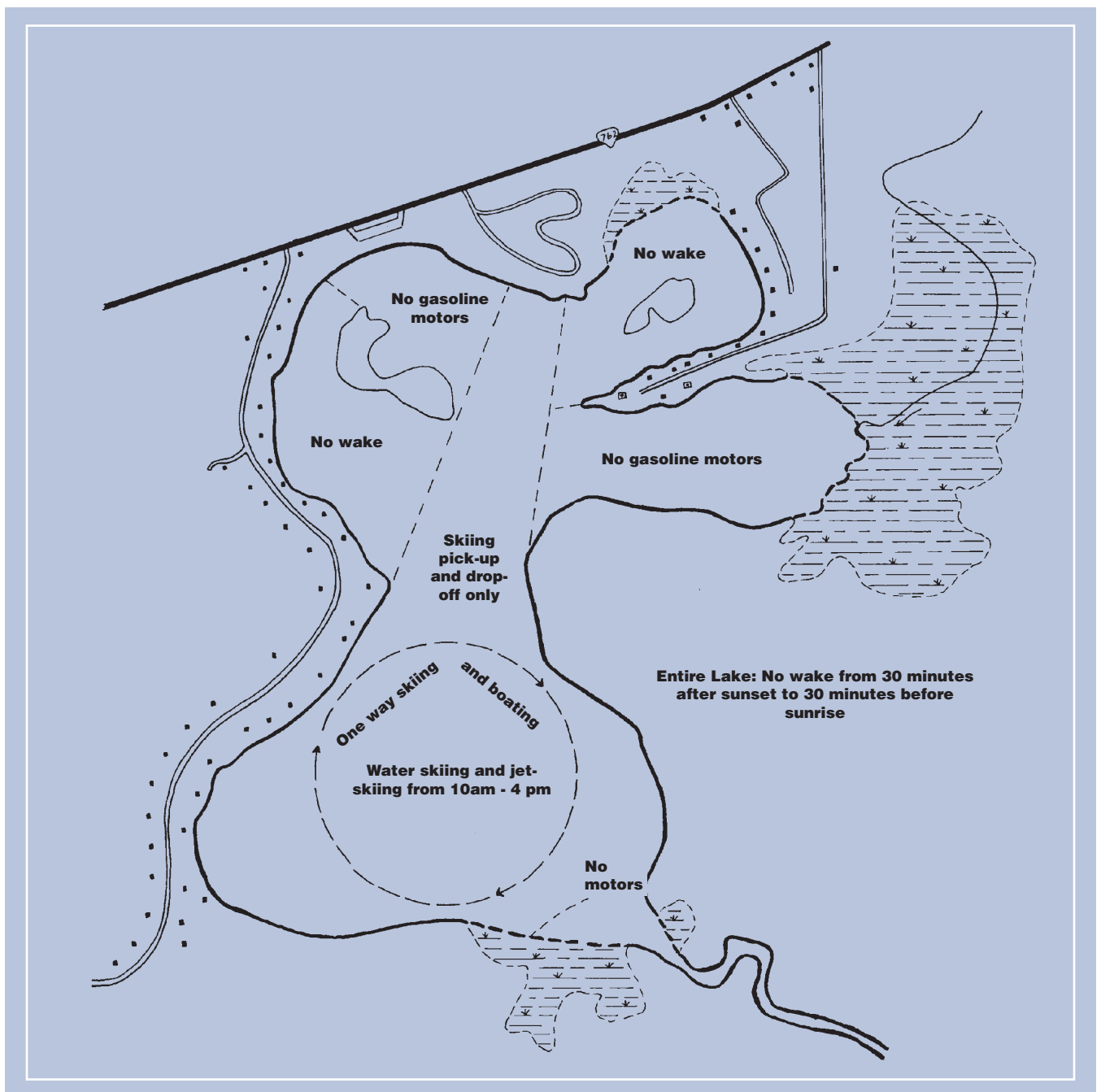
of the county park and in patrolling by the DNR warden, or the county sheriff's deputies. Subject to approval at the annual meeting, the committee may seek authority from the Town of Meadowview to adopt a more detailed lake use ordinance.

- Complaint forms to register conflicts between lake users will be available at the county park bulletin board (1995) and in

the lake district newsletter (1994-95). The forms will be tabulated to document user conflict and indicate trends for discussion by the 1996 annual meeting.

- Residents are also being encouraged to videotape boating violations for review by the committee and the DNR conservation warden.

**FIGURE 16. Lake use map.**



**OPTION 12***Conduct an intensive educational effort.*

Shoreland property owners and public users often unwittingly damage the lake ecosystem, making the recreational experiences of others less enjoyable. Many people would probably change their behavior if they realized they were harming the lake or other people. While such education does not cost very much in terms of dollars, it requires a long-term commitment and a lot of persistence. To educate our members, we could publish a newsletter, continue our monitoring efforts, include an educational element in each annual meeting agenda, and circulate videos on lake-related issues. To educate our leaders, we could require that they attend the Wisconsin Lakes Convention. To educate the general public, we could maintain an informational bulletin board and stock brochures at the county park and the Lake Hale overlook.

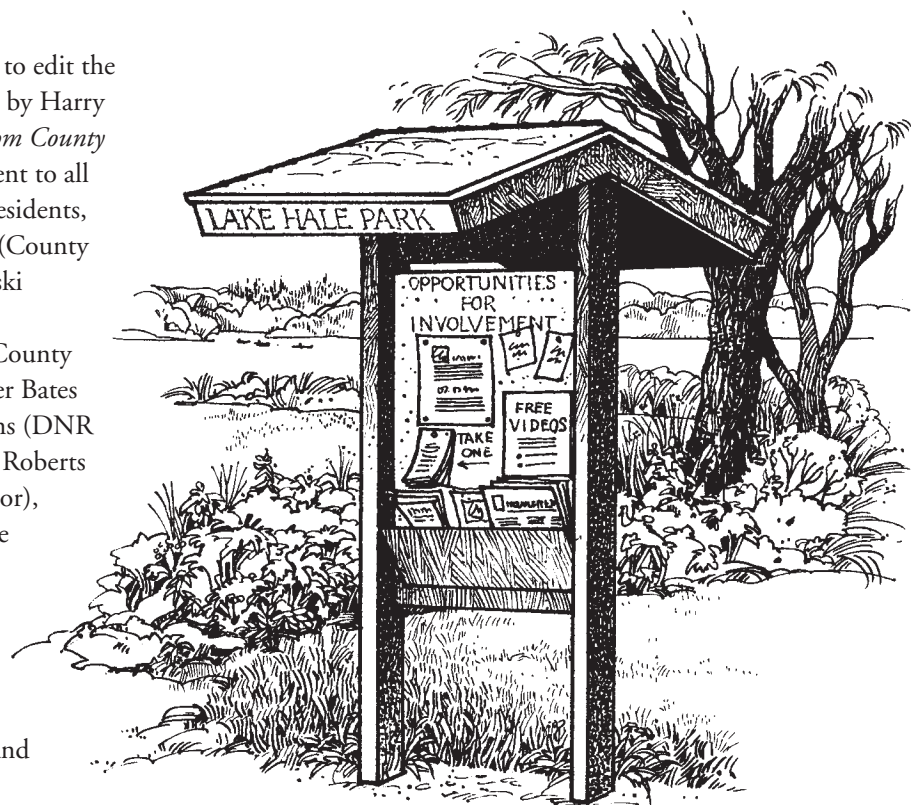
*Vote to adopt: 136 yes, 3 no.*

*Implementation*

- Susan Bukoltz has volunteered to edit the newsletter. She will be assisted by Harry Holtz, publisher of the *Phantom County Reporter*. Newsletters will be sent to all district property owners and residents, the town board, Elder Tobatz (County Board Supervisor), Ted Walinski (County Land Conservation Department), Duane Peters (County Planning and Zoning), Jennifer Bates (UW-Extension), Chris Harms (DNR Conservation Warden), Daryl Roberts (DNR Inland Lake Coordinator), and staff of the Extension Lake Management Program, UW-Stevens Point, in May, August and January. The problems identified in the 1989 nominal group process and the surveys that followed will

receive special attention. The newsletter will direct readers to further sources of information such as the BBS-Lakes electronic bulletin board available at 800/562-5552.

- Kathie Jansen will continue as the self-help volunteer. She and Art Belder have taken more than 85 readings in the past six years. Hank Arnold has agreed to assist with the expanded program of water chemistry analysis. The DNR will continue to store the information and provide an annual report.
- The secretary will be responsible for arranging a 20- to 40-minute educational program at each annual meeting with Jennifer's assistance.
- Tiny Starr will contact public agencies and conservation groups to obtain a video library. "All Night Video" at the intersection of the freeway and Highway 762 has agreed to house and distribute the educational videos free of charge, beginning in August 1994.



- At its fall meeting, the board will provide funding for four district representatives to attend the annual spring meeting of the Wisconsin Association of Lakes held in conjunction with the Wisconsin Lake Convention. Other interested citizens will also be encouraged to attend.
- Joyce Sears and Elder Tobatz will contact the county about establishing a bulletin board at the county park. Permission to build the board will be obtained by March, 1995, and construction completed May 15, 1996. Harold Route, who just retired as district engineer with the Wisconsin Department of Transportation, will contact the department about erecting a display at the Highway 762 overlook. Permission to build a display at the overlook will be obtained by December 31, 1994, and the display will be built by July 1, 1995. Hilary Opitz has agreed to provide the commission with a draft design for the display. Wes Dirkson will draft a brochure which will be available by May 1, 1995.
- By January 1 of each year, four community leaders will have agreed to attend the Wisconsin Lake Convention.



*Timelines summary (continued)*

Activity	Year completed or continuing										
	1993	1994	1995	1996	1997	1998	1999	2000	2005	2010	2020
21. Construction site erosion and stormwater management ordinances drafted											
22. Sign contracts for Priority Lake work											
23. Decision on purchasing harvester											
24. Zoning audit conducted											
25. Transfer Shelter Bay Island to lake district											
26. Cost share ag practices under Priority Lake grant											
27. Recreational Use Committee recommendations on conflict management											
28. Present strategy to control exotic species											
29. Construction site erosion and stormwater management ordinances adopted											
30. Transfer Sunset Point Park to lake district											
31. Purchase lands or easements between Sunset Point and Hale Creek											
32. Purchase Lakeview Bluff											
33. Pay off mortgage for Lakeview Bluff											
34. All wet boathouses will be removed											

## *Have we been successful? Evaluating our efforts*



We have put forward an ambitious effort to protect Lake Hale. Our success will depend on the volunteer efforts of many people, and each of us will have a highly personalized perception of our success.

A more objective evaluation of our efforts can be made by checking the implementation boxes in the timelines summary. It will be fairly easy to

determine if we have achieved these objectives. Of course, we will not meet all of them according to our timelines. We may not meet some of them at all. But such an evaluation will help us understand how well we have done. More importantly, it will help the next generation, entrusted with the stewardship of this lake, to plan for the care of Lake Hale—as we are doing on our watch.



## Mini-directory

### OUR COMMISSIONERS

***Joyce Sears, Chair***

OFFICE PHONE: 612-414-2220  
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*Phone: 888-2627*

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*Phone: SAME*

***Paul O'Malley, Sec.***

LAKE ADDRESS: 4271 W. Lakeshore (*Lake Hale resident*)  
*Phone: 888-1841*

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*Phone: SAME*

***Peter Synch, Treas.***

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LAKE ADDRESS: 18 Northern Hgts  
*Phone: 888-1401*

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*Phone: 612/776-4748*

***Sarah Robertson, Town of Meadowview***

OFFICE PHONE: 721-2018  
HOME ADDRESS: 1801 Halverson Rd.  
*Phone: 888-4678*

***Elder Tobatz, Phantom County***

OFFICE PHONE: 721-2018  
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### OUR TOWN BOARD MEMBERS

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*Phone: 888-4678*

***Dave Tobatz***

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*Phone: 888-4678*

***Adolph (Tiny) Tonnes***

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*Phone: 888-2686*

### OUR COUNTY BOARD REPRESENTATIVE

***Elder Tobatz***

HOME ADDRESS: 1879 Halverson Rd.  
*Phone: 888-7172*

### COUNTY OFFICES

***Land Conservation, Ted Walinski***

Rm 14 Courthouse, Phantom City  
*Phone: 721-1818*

***Planning & Zoning, Duane Peters***

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Rm 184 Courthouse, Phantom City  
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***University of Wisconsin-Extension, Jennifer Bates***

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### WISCONSIN DEPARTMENT OF NATURAL RESOURCES

***Conservation Warden, Chris Harms***

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***DNR Inland Lakes Coordinator, Daryl Roberts***

DNR District Office, Eau Claire WI  
*Phone: 467-1531*

*Editor's note: For the actual names, addresses and telephone numbers of community leaders and agency resource people in your locality, request a copy of the Lake List from your county Extension office.*

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