

WOLVERINE LAKE LAKE MANAGEMENT PLAN



ADOPTED
AUGUST 2004

Matanuska-Susitna Borough
Department of Planning and Land Use

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1 Introduction

1.1 Purpose

Lake management plans are developed for a variety of purposes. Most often lake front property owners request management plans because increased development or the provision of new public access brings about increased lake usage and a corresponding increase in user conflicts. As more people use a lake, conflicts among users may occur, bird-nesting sites (especially loons and grebes) may be disturbed, environmental degradation may occur, and the overall quality of the lake use experience may decline. The most often cited complaints are safety, noise generated from water craft during the evening and night hours, and inappropriate use of public access points. A lake management plan seeks to present policies and strategies which attempt to balance the various demands placed upon a lake, solve lake related problems, and protect the public health safety and welfare.

The Wolverine Lake Management Plan provides management guidelines for:

- ❖ The protection of the residential quality of Wolverine Lake; and
- ❖ The continued recreational enjoyment of Wolverine Lake; and
- ❖ The protection of Wolverine Lake's water quality; and
- ❖ The continued quiet character and use of Wolverine Lake; and
- ❖ The protection and enhancement of fish and wildlife; and
- ❖ The protection of the public health, safety and welfare.

1.2 Approaches to Lake Planning

Motorized Use of Water Bodies - There are two approaches that residents and property owners of the Matanuska-Susitna Borough may use to address lake related issues. One approach is to initiate a petition as authorized by 17.58 of the Borough Code. This ordinance, which was adopted by voter initiative in 1994, allows members of the public to seek either a prohibition of all motorized use on a waterbody or to establish quiet hours (11 p.m. to 8 a.m.), to establish a 100 foot no wake zone from the shoreline, to require mufflers on all piston driven engines used by water craft, and to allow special events by permit. Once a petition is filed, a report is drafted by the Department of Planning regarding the suitability of the ordinance for the lake in question and public hearings are then held on the matter by the Planning Commission and Assembly. As of April 1995, this ordinance is in effect for Wasilla, Cottonwood, and Finger lakes, while all motorized use is prohibited on Cottonwood Creek.

Lake Management Plan -The other approach that may be utilized for managing a lake is the lake management planning process. A lake management plan is developed with the input of local property owners and residents. The Borough's Department of Planning assists the planning effort by collecting background information, developing maps, etc., but it is the property owners and residents who decide policy

issues and develop goals and recommendations within the guidelines adopted by the Assembly with ordinance 99-103 (AM). The guidelines established by ordinance 99-03 (AM) are as follows:

LAKES 75 SURFACE ACRES OR LESS

May recommend the following guidelines:

- ✓ No wake zone - 100 feet from shoreline
- ✓ Quiet hours - 10 p.m. to 8 a.m.
- ✓ Personal watercraft restriction
- ✓ 10 horse power limit*
- ✓ No wake speed zone on lake*

* These options *may* be recommended on a daily time share basis.

LAKES MORE THAN 75 SURFACE ACRES TO 200 SURFACE ACRES

May recommend the following guidelines:

- ✓ No wake zone - 100 feet from shoreline
- ✓ Quiet hours - 10 p.m. to 8 a.m.
- ✓ Personal watercraft restriction
- ✓ 10 horse power limit**
- ✓ No wake speed zone on lake**

**These options *must* be on a daily time share basis.

LAKES MORE THAN 200 SURFACE ACRES

May recommend the following options:

- ✓ No wake zone - 150 feet from shoreline
- ✓ Quiet hours - 11 p.m. to 8 a.m.

FOR ALL LAKES

- ✓ Access recommendations will be consistent with traditional use and current level of access development.
- ✓ Quiet hours apply to repetitive recreational activities such as water skiing and racing or high speed activities NOT to moderate speed point to point transportation.
- ✓ No wake is defined as the slowest speed a boat or personal water craft can go and still maintain safe operation and maneuverability.
- ✓ Time share means restrictions do not apply on Thursday, Friday, Saturday, and all three day weekends mandated by federal holiday (Memorial Day, Fourth of July, and Labor Day).
- ✓ Ice house means a structure utilized for ice fishing and left on the frozen surface of a lake for more than 24 hours.

- ✓ Motor vehicles means automotive vehicles with rubber tires for use on highways.
- ✓ Motorized watercraft use means the operation of watercraft powered or propelled by a force other than human muscle power, gravity, or wind. This definition does not include airplanes as motorized watercraft when landing, taking off, or taxiing on a water body.
- ✓ Personal watercraft includes vehicles such as jet skis, wave runners, and similar acrobatic or stunt equipment.
- ✓ A wake is the track in the water left after the passage of watercraft or other vehicle.
- ✓ A special permit is a permit approved by the planning director for a special purpose and is limited to a specific time to conduct an event that would otherwise involve activities in violation of MSB 17.59.

These guidelines may be varied due to lake configuration, lake depth, or other considerations through the adoption of individual lake management plans.

1.3 Process

Lake management plans are typically initiated by individuals having concerns about a particular lake or who have experienced conflicts between user groups.

The process for developing and amending lake management plans is set out in MSB 15.24. The individuals interested in initiating a lake management plan request the necessary information from Department of Planning (Department) of the Matanuska-Susitna Borough to begin the petition process. The individuals are responsible for obtaining the required number of signatures on the petition. After a valid petition has been filed with the Department, a ballot is mailed to all property owners within 600 upland feet of the affected lake. This ballot serves as notice of the receipt of a valid petition and requests a vote, either in favor or not in favor, of beginning the lake management process. If the majority of property owners responding to the mailed notice are in favor of developing a lake management plan, a plan will be initiated. An informational meeting is held, at which the lake management process and guidelines are explained. The Department then collects the necessary background information on the lake and contacts adjacent property owners and users to participate in the planning process.

Meetings are held with lake front property owners and users to: 1) identify any problems that may exist, 2) develop a set of recommended alternatives, and 3) consider methods of implementing the recommendations. A draft plan is then developed and a public comment period is held to solicit comments on the draft plan. After the public comment period is closed, comments are reviewed and appropriate modifications are made. A meeting is held with adjacent property owners and users to discuss the comments and proposed modifications. Whether or not this meeting is held, depends on the comments received; if the comments call for minor changes or

none at all, a meeting is not likely to occur. On the other hand, if the comments seek major changes to the draft plan, a meeting is arranged to discuss the comments and proposed modifications.

After the draft plan has been reviewed by the public and community council, a public hearing on the plan is scheduled with the Borough Planning Commission. At the public hearing, anyone may comment on the plan. The Commission considers all oral and written comments received and either recommends to the Assembly adoption of the plan as is, or with modifications, or recommends Assembly disapproval of the plan. After Planning Commission action, the plan is scheduled for a public hearing by the Assembly. The Assembly considers all oral and written comments received and either adopts the plan as is, or with modifications, or disapproves the plan.

1.4 Ponds, Lakes, Reservoirs¹

There seem to be no universally accepted scientific definitions of the terms **pond**, **lake**, and **reservoir**. In general, water bodies that have a noticeable flow are termed either rivers or streams. “Ponded waters” have little or no current compared with rivers and streams.

A pond is usually described as a small shallow body of water, with uniform water temperature from top to bottom. There is little wave action and often, an abundance of aquatic plants. Although local definitions may vary, a pond is generally less than ten acres in area and ten feet in maximum depth.

A lake is usually larger than a pond. It may be quite large and deep, with an abundance of cold water at the bottom. It also may exhibit areas of rocky, wave-impacted shoreline as a result of exposure to prevailing winds. The area of land around the lake that contributes water to the lake is the **watershed**. The watershed may be large or small when compared to the area of the lake. Water may enter the lake from the watershed as streams and rivers, or through the ground as groundwater. The term watershed is used interchangeably with **catchment** or **drainage basin**, although the latter term can imply a larger area containing several watersheds or **sub-basins**. The boundaries of a watershed are defined by ridges and hills that divide or separate water movement into one drainage basin or another. The **lake basin** includes the lake bottom as well as the surrounding slopes.

¹ This section is taken from Diet for a Small Lake, prepared by the New York State Department of Environmental Conservation and the Federation of Lake Associations, Inc., 1990

1.5 Lake Life Span²

Lakes fill in, drain themselves, or just evaporate and disappear. They do not last forever. Although lakes seem permanent in our human time perspective, they are sediment traps, and it is natural for them to fill in gradually with sand, silt, and organic matter. Natural lake aging or **eutrophication** moves from a nutrient poor (**oligotrophic**) condition to an intermediate (**mesotrophic**) stage of nutrient availability and biological productivity, and finally to a nutrient rich or highly productive (**eutrophic**) state (figure 1). Eutrophication – the process of nutrient enrichment and basin filling – may take thousands of years, but it can be accelerated greatly by disruptions to the watershed. Human activities that increase nutrient and sediment loading to a lake are termed **cultural eutrophication** and include forest clearing, road building, construction, and wastewater discharges.

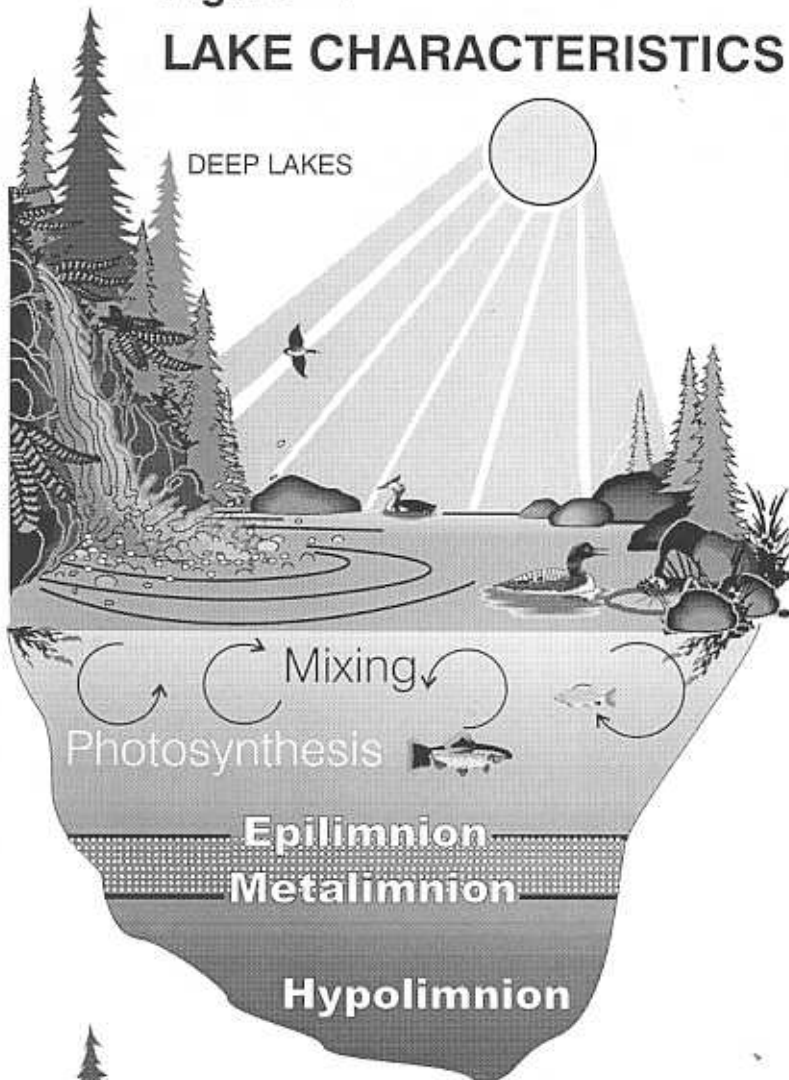
Trophic conditions in lakes are relative, not absolute – that is, there is no definitive line between oligotrophic and mesotrophic, or between mesotrophic and eutrophic. However, each trophic state has characteristic conditions. Oligotrophic lakes have a low level of organic productivity, clear water, and low nutrient levels. These lakes are often characterized by deep water and steep basin walls. Water in mesotrophic lakes contains a moderate supply of nutrients and organic production. Eutrophic lakes are characterized by a very high level of nutrients which causes a significant increase in plant growth. As a result, water clarity is greatly reduced, and oxygen depletion is common during the summer months. Eutrophic lakes tend to be shallow and typically, have elevated water temperatures.

Identification of a lake's trophic status is a useful way to determine its general "health" or biological status, from one-year to the next and in comparison with other lakes. If a potential problem is identified in a lake, the trophic status can also be used to evaluate management alternatives.

A few lakes are naturally eutrophic. Many lakes and reservoirs are located in naturally fertile watersheds where soil is highly erodible. Unless the soil remains undisturbed, these lakes have little chance of being anything but eutrophic. Users of these lakes need to recognize and accept the fact that manmade systems (such as laws, property, or zoning) may not "correct" the conditions. Residents and visitors should adjust their expectations for the appearance and use of such eutrophic lakes.

² This section is taken from Diet for a Small Lake, prepared by the New York State Department of Environmental Conservation and the Federation of Lake Associations, Inc., 1990.

Figure 1
LAKE CHARACTERISTICS



Epilimnion

The upper layer of water in a lake that is comprised of uniformly warm water that may be well mixed.

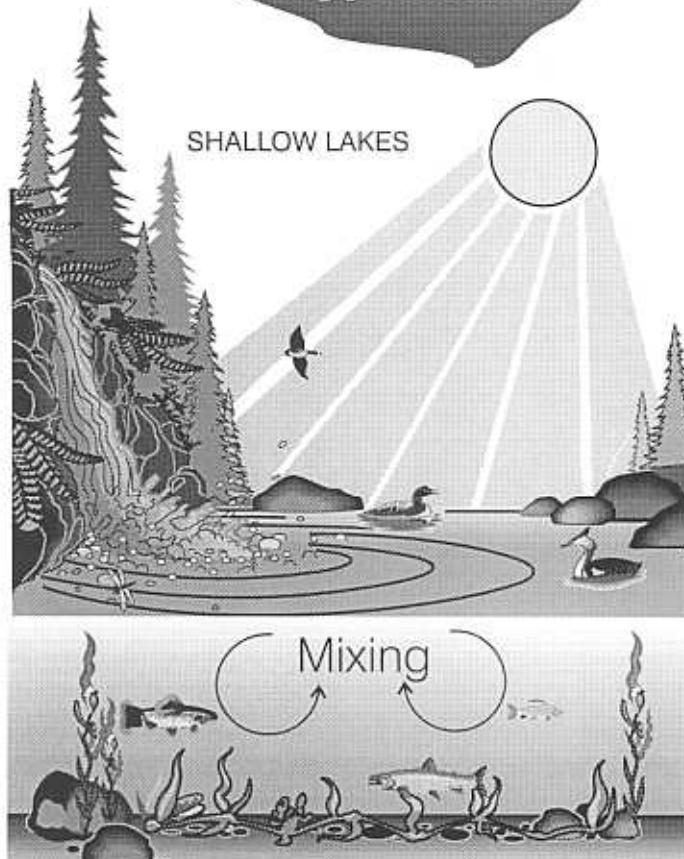
Metalimnion

The middle layer of water in a lake that marks the transition between top and bottom layers, where temperature changes rapidly with depth.

Hypolimnion

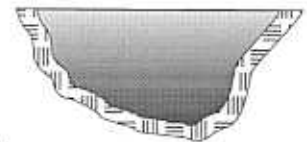
The bottom layer of water in a lake that is comprised of uniformly cold and relatively undisturbed water.

Source: A Citizen's Guide
To Understanding and Monitoring Lakes and Streams
By Joy P. Micha



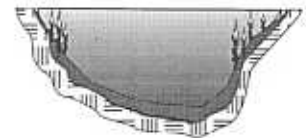
Oligotrophic

Clear water, low productivity
very desirable fishery of large game fish



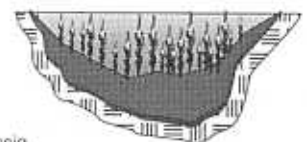
Mesotrophic

Increased production
Accumulated organic matter
Occasional algal bloom
Good fishery



Eutropic

Very productive
May experience oxygen depletion
Rough fish common



Source: A Lake Leaders
Handbook, 1995
UWEX-LAKES PROGRAM
Understanding Lake Data
By Bryon Shaw, Christine
Machenich and Lowell Klessig

2. Inventory of Existing Conditions

2.1 Location

Wolverine Lake is located off the Old Glenn Highway, accessed by Clark/Wolverine Road (figure 2).

2.2 Physical Characteristics of the Lake

Wolverine Lake contains 55 surface acres and has 1.8 miles of shoreline. The mean depth of the lake is 2.2 feet and the maximum depth is 7 feet (table 1). The lake is home to nesting loons and grebes. The lake lies in the basin of Wolverine Valley.

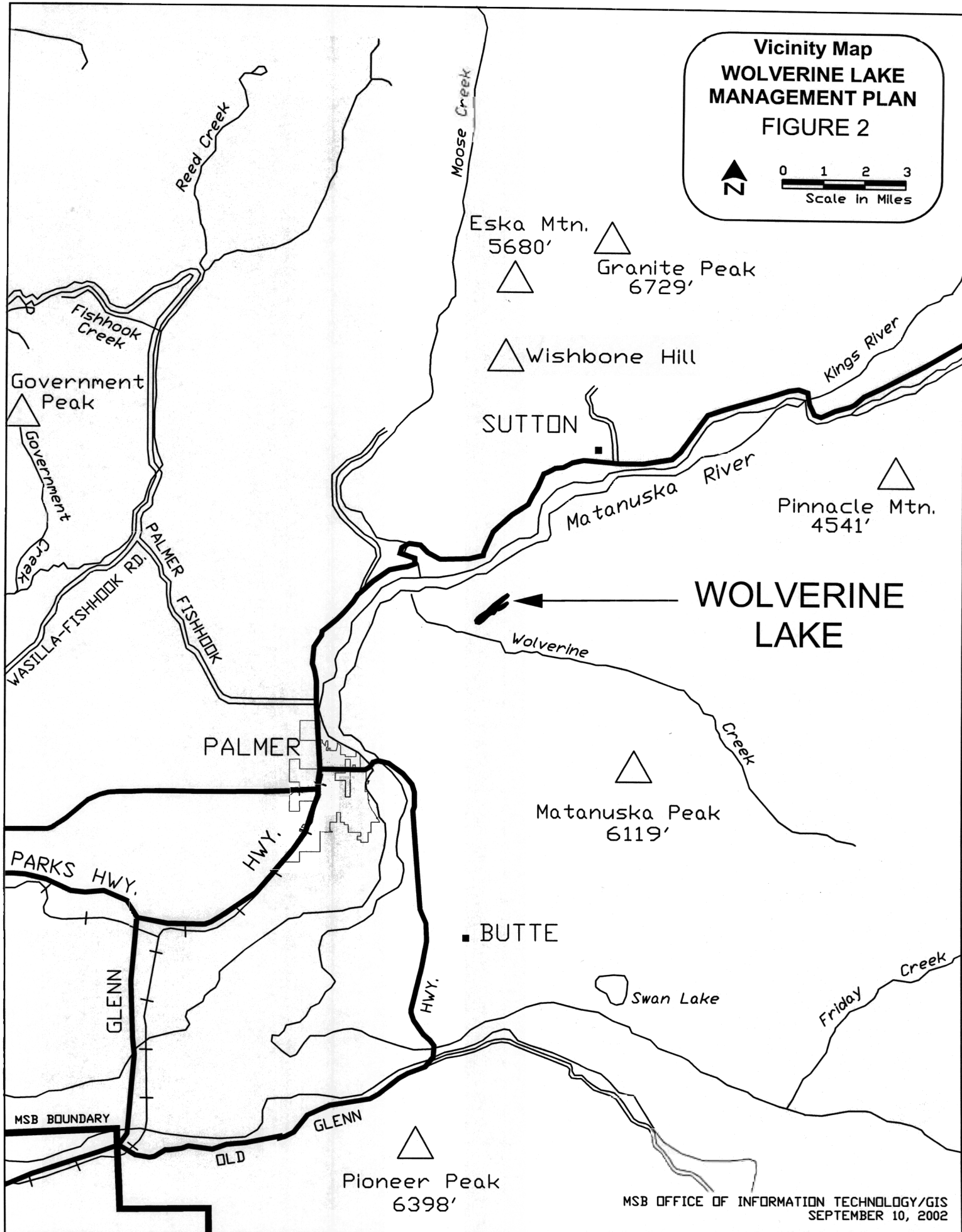
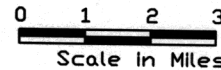
The trophic status of the Wolverine Lake has not yet been identified.

Table 1
Wolverine Lake Characteristics

Surface Acres	55
Volume	120 acre feet
Mean Depth	2.2 feet
Maximum Depth	7 feet
Shoreline Length	1.8 miles

Source: Alaska Department of Fish and Game

Vicinity Map
**WOLVERINE LAKE
 MANAGEMENT PLAN**
 FIGURE 2



2.3 Land Use and Land Ownership

There are 47 lots with shoreline on Wolverine Lake (figure 3 and table 2). The Borough owns three parcels adjacent to the lake, and the Alaska Mental Health Trust Authority owns five, one of which is the small island in the middle of the lake. The majority of lots with shoreline on Wolverine Lake are privately owned. There are 37 lots within the 600 upland feet for the shoreline that were eligible to both sign the petition and vote for initiating or not initiating a lake management plan.

Most of the private lots immediately adjacent to the lake have been developed for residential or recreational use. The borough lands adjacent to the shoreline are located at the north east end of the lake. They have been classified as forest management land, and are under review for reclassification. The existing and traditional public access is via a State of Alaska RS 2477 trail, through a private parcel at the south west end of the lake. Potential relocation of this trail is currently being negotiated between the property owner, the borough, and the State of Alaska Department of Natural Resources, as the State is the controlling agency for RS 2477 trails.

Table 2
Wolverine Lake
Land Ownership and Parcel Size
(within 600 upland feet)

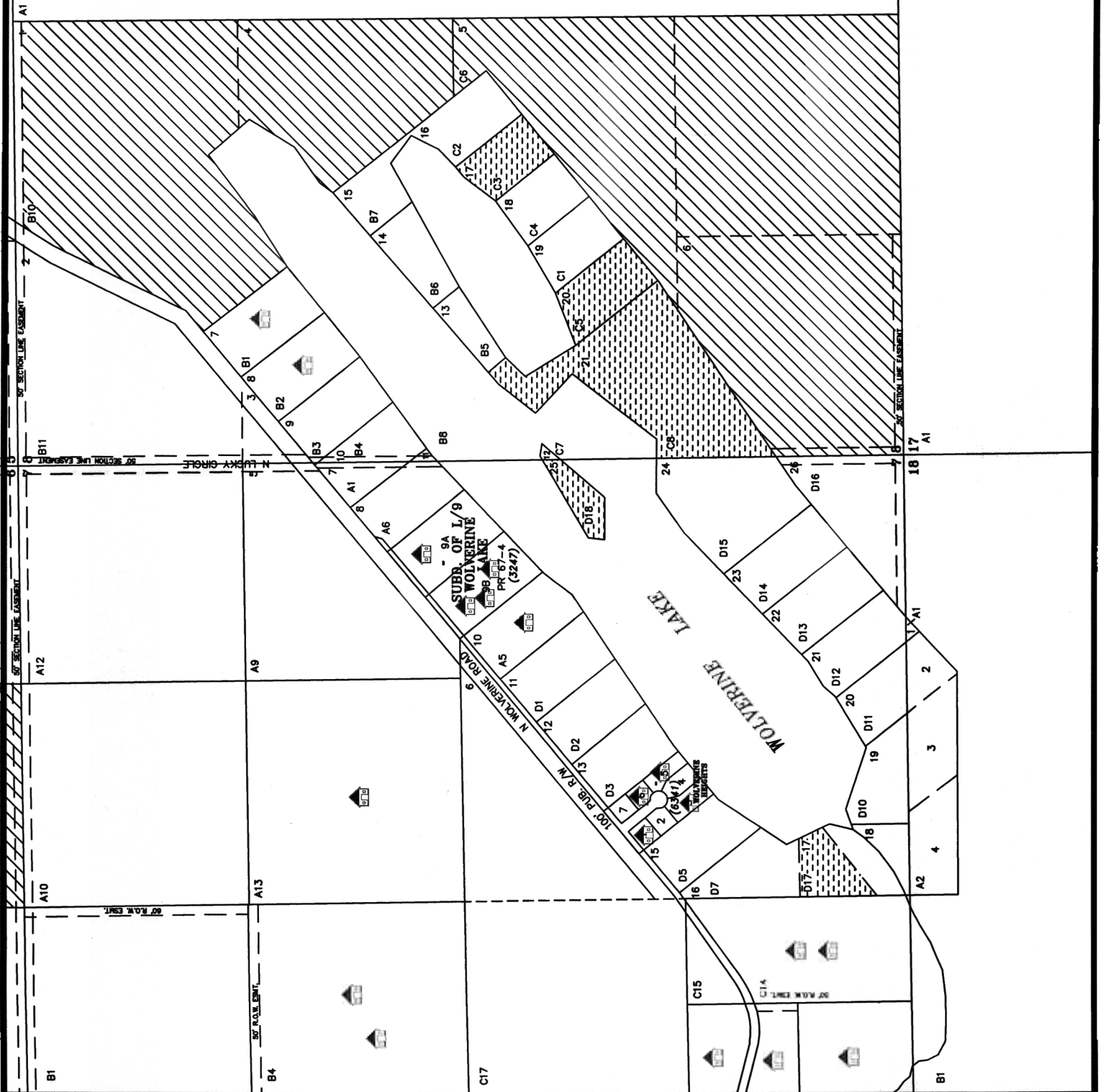
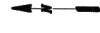
	Private	Mat-Su Borough	State Mental Health Trust	Federal
Number of Parcels	37	3	5	2
Total Acreage	325.34	489	32.85	610
Average Parcel Size	9.29	162	6.57	-
Smallest Parcel	.43	66.2	1.13	-
Largest Parcel Size	160	320	17.46	-

Source: Matanuska-Susitna Borough

FIGURE 3 WOLVERINE LAKE

LEGEND

- Single Family Residence
- Land Ownership
 - PRIVATE
 - MSB
 - STATE



2.4 Social/Demographic – Usage

The present human use of Wolverine Lake may be characterized as being primarily quiet, recreational and residential. Developed public access to the lake is presently via an RS 2477 trail at the south west end of the lake, which runs through private property. There is a borough owned parcel at the north end of the lake that residents would prefer access be provided through, and that access be managed as walk in only.

2.5 Existing Plans

State

The State plan affecting the Wolverine Lake area is the Susitna Area Plan (SAP). The SAP, adopted in June 1985, contains management intent for State and Borough lands within the SAP, an area of approximately 15.8 million acres. Wolverine Lake is located within the Glenn Highway-Palmer Management Unit. Generally speaking, the plan's intent for public lands within this management unit is to provide a mixture of land for settlement, public recreation, habitat protection and personal use timber sales.

Borough

Borough plans that address Wolverine Lake in some manner include the Borough-wide Comprehensive Plan, adopted in 1971, the Borough-wide Long Range Transportation Plan, Public Facilities Plan, and the MSB Recreational Trails Plan.

The Borough-wide comprehensive plan does not make specific recommendations for Wolverine Lake. Rather, the 1971 plan makes a series of general recommendations for the Palmer and Butte areas which include recommending the established centers of residential development be expanded to accommodate population growth and to provide a full range of community utilities and public services, and the need for a lower grade school in the Butte. The maps used in the plan that reference planning areas do not include Wolverine Lake.

The Borough Long Range Transportation Plan was adopted in 1987 and was updated in September 1997 with the adoption of the Long Range Transportation Plan. The plan identifies Wolverine Lake Road as a recommended road to provide an alternate emergency access route and staging areas for evacuating residents in time of emergencies. The route is suggested to extend Wolverine Lake Road to the Glenn Highway in the vicinity of 58 Mile Road or to provide a staging area in Wolverine Lake area.

The Borough Public Facilities Plan makes recommendations on a regional basis for the provisions of public services including the development of public facilities necessary to the provision of those services. Services included in the plan include

public safety (fire protection, emergency medical services, and emergency preparedness); library; historical preservation; governmental administration; education; parks, recreation and open space; trails; and utilities. All of these elements affect the Wolverine Lake area in some way, but the Parks, Recreation, and Open Space; and Trails elements have the most impact relative to the concerns of this management plan.

The Matanuska-Susitna Borough Recreational Trails Plan identifies Wolverine Creek Trail as an established trail, approximately 6 miles long, which begins at Wolverine Road, through private property, at the south west end of the lake, then travels through state land for the duration. The state has researched the history of this trail and believes there is sufficient historical documentation to assert that an RS 2477 easement was granted. The plan's recommendations for the trail are to acquire public access through the private property, to design the trail in a manner that it provides buffering to adjacent private property owners, to install "trail etiquette" signage, and signs instructing trail users to park at the turnaround at the end of the maintained portion of Wolverine Road. It is recommended that public access to the lake be provided on the Borough parcel identified as B10.

2.6 Existing Regulations

This section describes the principle regulations affecting use and development in the Wolverine Lake area. This section is **NOT** meant to provide an all-encompassing description of all activities and uses that require permits or approvals from local, state, or federal agencies. Prior to undertaking any development activity, individuals should contact the appropriate local, state, and federal agencies and obtain the required permits and approvals.

Federal

Any work which results in the dredging or placing of structures or fills in tidal (ocean) waters streams, lakes or wetlands requires a 404 permit from the U.S. Army Corps of Engineers.

Migratory birds, which include loons and grebes, are protected by the Migratory Bird Treaty Act. The Act, among other things, prohibits the "take" of migratory birds. Destruction of nest sites, eggs, or the birds themselves are a violation of the Act.

State

The Alaska Department of Environmental Conservation (DEC) provides regulations for wastewater disposal. DEC wastewater/septage regulations [18 AAC 72.015(f)] state that no holding tank, septic tank, soil absorption system, seepage pit, privy, or other waste water collection, treatment, or disposal system may be within 100 feet, measured horizontally, of the mean annual high water level of a lake, stream, spring, slough, or the mean higher high water level of coastal waters.

In addition to the U.S. Army Corps of Engineers 404 permit requirements, any activity within streams and certain work within lakes requires a Title 16 permit from the Alaska Department of Fish and Game (ADF&G). Activities which result in the construction of a dam that impounds water or places a weir, culvert, or temporarily blocks a stream requires a Title 16 permit. The Habitat and Restoration Division of ADF&G issues a one-year general permit, which has been renewed annually since 1994, allowing vehicle movement on frozen water surfaces in south-central Alaska without a special permit (appendix 2). Finally, the general ADF&G fishing regulations apply to Wolverine Lake.

A navigable or public waterbody includes water suitable for commercial navigation, floating of logs, land and take off of aircraft, and public boating, trapping, hunting of waterfowl and aquatic animals, fishing, or other public recreational purposes. Wolverine Lake meets the definition of public waterbody.

Land that has been or is currently owned by the State of Alaska, and is adjacent to a navigable or public waterbody has special access requirements. Alaska Statute (AS 38.05.127) requires access to the surface waters of navigable and public waterways, typically through a “to” easement. Additionally, land adjacent to navigable or public waters may be subject to an “along” easement, which provides a 50-foot public use easement along the waterway adjacent to the ordinary highwater mark. These easements are created when the State or Borough obtains patents to their lands and stay with the property when the land is disposed of. State and Borough lands transferred prior to the adoption of AS 38.05.127 are not usually subject to the “to” and “along” easements. Also, lands patented by the federal government are not usually subject to the “to” and “along” easements.

Borough

Several Borough-wide ordinances address the development and use of land adjacent to Wolverine Lake. The regulations are contained within the Borough’s planning (Title 15), subdivision (Title 16), zoning (Title 17), and real property management (Title 23) ordinances.

Title 15 establishes and describes the general functions of the Planning Commission (both planning and zoning functions) and the Board of Adjustment and Appeals. Title 15 also describes the comprehensive plan and purposes. Once adopted, the Wolverine Lake, Lake Management Plan will become an instrument of Borough policy similar to the other plans adopted by the Borough Assembly.

Title 16 provides the subdivision development standards within the Borough and establishes the Platting Board. Two of Title 16’s requirements that are of special note to the development at Wolverine Lake include a minimum lot size of 40,000 square feet, and a minimum lot width when measured at the lake’s water line of one hundred twenty-five feet, unless community seepage is provided, then the minimum

width may be eighty-five feet (figure 4).

The Borough has a Borough-wide comprehensive plan which is implemented, in part, through zoning. Presently, the Borough undertakes its comprehensive planning on a community by community basis. As most comprehensive plans are implemented through a zoning ordinance, a number of different zoning ordinances exist within the Borough and are identified as Special Use Districts. For example, the cities of Houston, Palmer, and Wasilla all have their own comprehensive plans and all have zoning ordinances unique to their cities. Title 17 contains these various zoning ordinances of the Borough. A list of Title 17's chapters follows.

- 17.01 Acknowledgment of Existing Land Use Regulations
- 17.03 Public Notification
- 17.04 Nancy Lake State Recreation Area Special Land Use District
- 17.08 Hay Flats Recreation Area Special Land Use District
- 17.15 Palmer Special Land Use District
- 17.17 Denali State Park Special Land Use District
- 17.18 Chickaloon Special Land Use District
- 17.19 Glacier View Special Land Use District
- 17.23 Point MacKenzie Port Special Use District
- 17.25 Talkeetna Special Land Use District
- 17.27 Sutton Special Land Use District
- 17.29 Flood Damage Prevention
- 17.36 Residential Planned Unit Development
- 17.41 Houston Land Use Ordinance
- 17.45 Wasilla Special Land Use District
- 17.48 Mobile Home Park Ordinance
- 17.52 Residential Land Use District
- 17.55 Setbacks and Screening Easements
- 17.56 Violations and Enforcement
- 17.58 Motorized Uses on Lakes and Waterways
- 17.59 Lake Management Plan Implementation
- 17.60 Conditional Uses
- 17.61 Core Area Conditional Use Permit Requirements
- 17.63 Race Track Regulations
- 17.65 Variances
- 17.70 Regulation of Alcoholic Beverage Uses
- 17.75 Single-Family Residential (SFR) Land Use District
- 17.76 Large Lot Single Family Residential Land Use District
- 17.80 Nonconforming Structures
- 17.90 Regulation of Adult Businesses
- 17.99 Fees

Zoning regulations that are of special note to development activities at Wolverine Lake include setback requirements and a petition process to limit or eliminate

motorized use of lakes and conditional use permits. Presently, all structures must be a minimum of twenty-five feet from the right-of-way and ten feet from side and rear lot lines. In addition, the voters of the borough approved by initiative, a requirement that all habitable structures and garages must be located at least seventy-five feet from the ordinary high water mark of any waterbed or water course (figure 4). In 1994, the voters of the borough also adopted by initiative, an ordinance that allows by petition and subsequent adoption by the Assembly the following restrictions to be placed on lakes and water bodies: 1) limiting or elimination of motorized use of lakes, 2) establishment of quiet hours, and 3) establishment of a one hundred foot no wake zone from the ordinary high water mark. The Borough also requires that any development which seeks to establish or operate a mobile home park, junkyard, refuse area or landfill, or dispense alcohol must first obtain a conditional use permit.

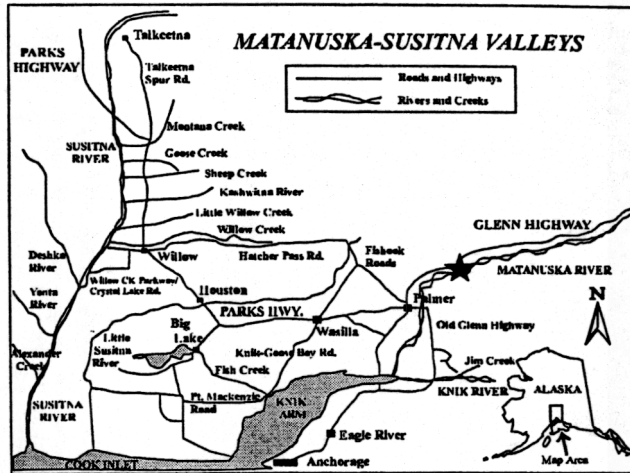
The Borough received approximately 355,000 acres of land through the Municipal Entitlement Program. The Community Development Department of the Borough manages and disposes of these lands through the policies and procedures described within Title 23. To retain borough-owned land in public ownership, it may be classified by the borough assembly. The process of classification of borough owned land is also set out in Title 23. As a part of this classification process, the Borough Division of Land Management is required to prepare a highest and best use analysis and recommend to the Assembly a land classification. The final decision is made by the Assembly. There are two parcels of Borough land at Wolverine Lake. Both borough lots have been set aside by Assembly resolution as public access. The act of being set aside by resolution is not as binding as being classified by borough ordinance.

Private

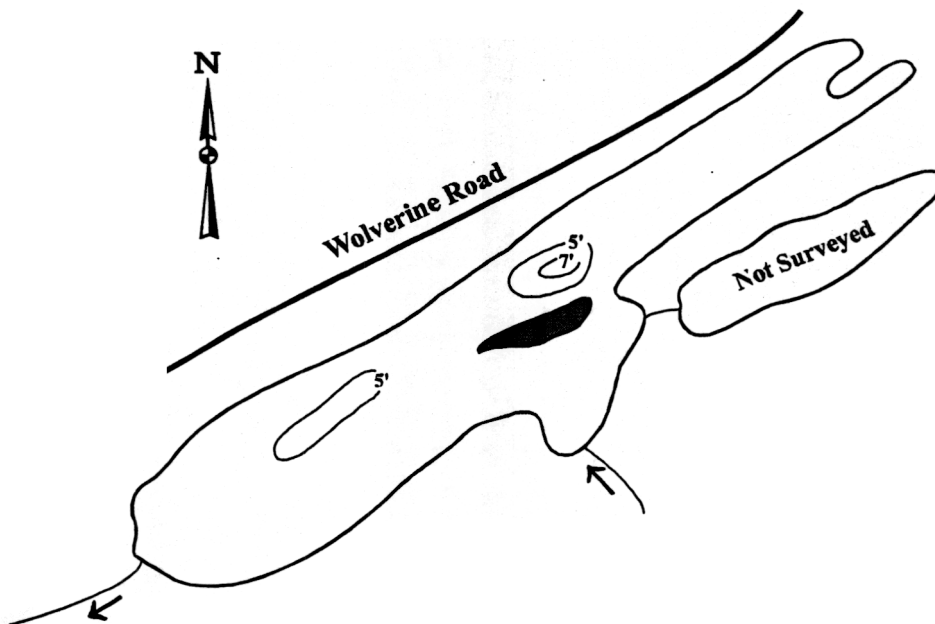
Private regulations which exist in the Wolverine Lake area would be in the form of subdivision covenants. Wolverine Heights, which consists of 6 lots, is located adjacent to the lake. The Borough files to not contain a copy of any recorded covenants for land adjacent to Wolverine Lake. However, this does not mean that they do not exist. For current information about covenants, the reader is referred to the State of Alaska Recorders Office.

SOUTHCENTRAL LAKES MAP SERIES

State of Alaska
 Department of Fish and Game
 Sport Fish Division
 1800 Glenn Hwy #4
 Palmer, AK 99645
 (907) 746 - 6300



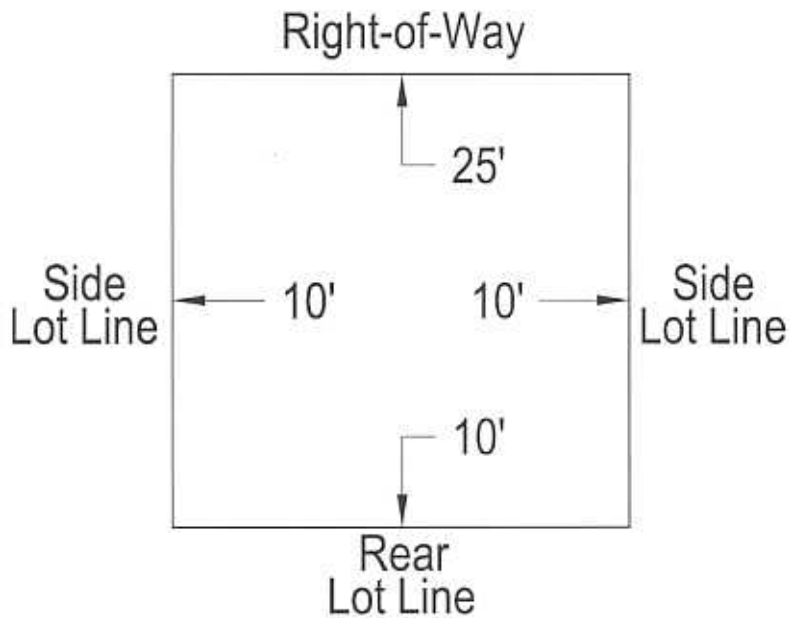
WOLVERINE LAKE ★



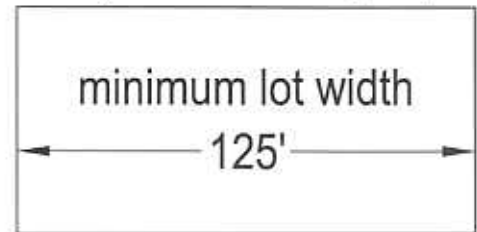
U.S.G.S. Map Ref.	Anch. C-6, T18N, R3E, S8	Geographic Location	61°40'N, 148°58'W
Elevation	900'	Surface Acres	55
Volume	120 Acre Ft.	Maximum Depth	7'
Mean Depth	2.2'	Shoreline Length	1.8 Miles
Game Fish Present	Rainbow Trout, Dolly Varden, Coho Salmon		

WOLVERINE LAKE PUBLIC ACCESS: Mile 42.1 Glenn Hwy. South on Arctic Avenue through Palmer on the Old Glenn Hwy. 2.5 miles to Clark-Wolverine Road. Left on Clark-Wolverine approximately 7.5 miles. Borough property exists on the east end of lake. There is no well-defined trail. **NOTE:** Majority of shoreline is privately owned. Please respect private property. Keep lake and access sites free of litter.

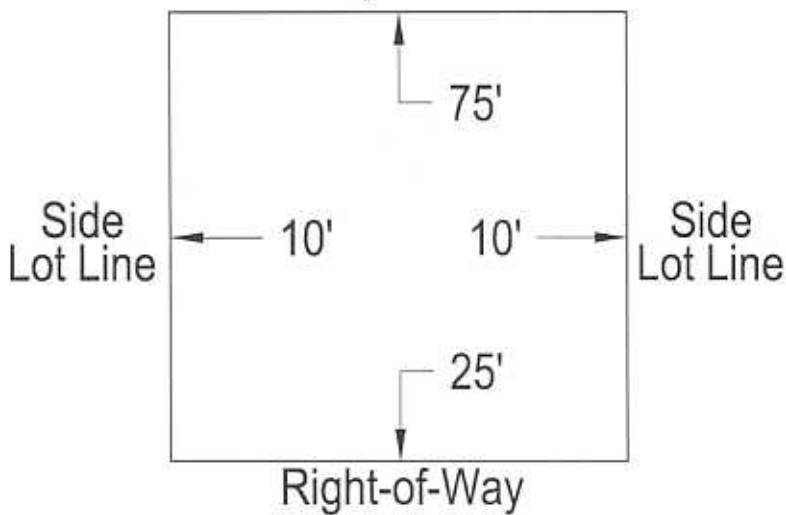
Figure 5
General Setback Requirements
and
Lot Size* Requirements



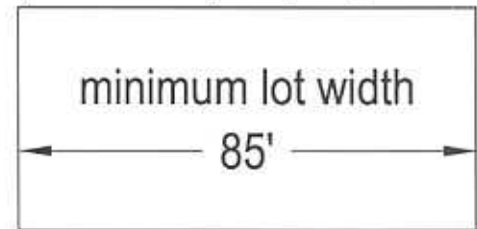
Ordinary High Water Line
of Lake (no community septage)



Ordinary High Water Line
of Water Body or Watercourse



Ordinary High Water Line of
Lake (community septage available)



*All lots must be a minimum of 40,000 sq. ft.

3. Issues and Concerns

3.1 General Lake Issues and Concerns

This section describes some of the most common concerns and issues that have been raised by residents and property owners of the Borough. There are three main categories of lake-related concerns and issues. One category is water quality related. Activities within the shore land area can have a direct impact on lake water quality. Shore land means the land within 500 to 1,000 feet of the normal mean watermark of a lake or pond. The placement of septic systems in unsuitable soils or too close to the lake or the lack of sanitary facilities at public access points can introduce nutrients and pathogens into the lake. Inadequate soil erosion control during upland construction can increase the sediment loading of the lake and thereby create turbid conditions. Removal of vegetation along the shoreline or at unsupervised public access points may also increase erosion of the bank and loss of its ability to filter runoff.

Another category of concerns is related to the surface use of the lake. Some uses may conflict with one another such as fishing and water-skiing because it is difficult for both activities to occur at the same time and in the same location. Other uses may cause conflicts by the nature of how the use occurs such as becoming a nuisance by creating noise during normal sleeping hours. Some uses of the surface water may create shoreline erosion, and hence, increase sediment loading of the lake, and cause the loss of upland property.

The last category of lake issues regards the impact of recreational use on wildlife and wildlife habitat. Unsuccessful nesting or above average mortality may occur during the nesting season of loons and grebes if the nests are harassed, frequented by water craft, or swamped by wave action.

3.2 Wolverine Lake Issues and Concerns

The Wolverine Lake, Lake Management Plan was initiated by a request from lake property owners. Two meetings were held with residents and lake front property owners. At these meetings concerns and issues were discussed, as well as the proposed lake management guidelines. The issues identified include:

- ✓ The creation of noise, especially in the evening and early morning hours;
- ✓ Protection of the quiet residential/recreational character of the lake;
- ✓ The desire to maintain the lake's good water quality;
- ✓ Protection of the wildlife and wildlife habitat;
- ✓ The potential for erosion caused by wakes;

It is the desire of a majority of those attending the meetings that the quiet, residential character of the lake be protected. The present state of the lake may be characterized as having residential upland development, having a quiet quality, and having active

loon nests. Some property owners are concerned that if public access to the lake is improved to the point of providing launch capabilities, the lake will be used increasingly by watercraft with large motors and jetskis/waverunners. The increased use of the lake by watercraft with large motors or jetskis/waverunners is believed to create several negative impacts. Residents of the area believe these uses are incompatible because of the shallowness, small size, and narrow configuration of the lake, because wildlife is threatened by wakes and noise, turbid water conditions are created, shoreline erosion is caused by wakes, noise is generated by the use of large engines, all of which detract from the quality of life and residential atmosphere of the lake. Additionally, residents state the steep slope in the area creates an amphitheatre effect, thus amplifying noise created on the lake.

4.0 Goals

Goals describe the future expectations of residents, property owners, and users of a lake. The following goals reflect the aspirations of Wolverine Lake residents, property owners, and users and address their principle concerns: quality of experience, recreational character of the area, wildlife and water quality. The goals are not shown in priority order as they are interdependent.

4.1 Water Quality

Wolverine Lake is a significant natural resource and it is the desire of property owners, residents, and users of Wolverine Lake to maintain or improve the lake's water quality.

4.2 Recreational and Residential Character

The recreational opportunities at Wolverine Lake should be maintained and enhanced but suited to the lake's particular characteristics and should not detract from the quiet quality of experience at the lake.

Wolverine Lake offers a unique natural setting for part and full time residential use and day use recreationalists. This quality should be protected and preserved.

Upland development should occur in an appropriate manner to ensure that pollution, noise, or other environmental degradation of the lake and uplands does not take place.

Uses of the lake should be compatible, or of the kind that enhance the present quality of the lake which is of a low-impact, quiet recreational nature.

4.3 Wildlife

The ability of Wolverine Lake to remain a migratory bird nesting site should be preserved. Recreational use of the lake should be compatible with wildlife nesting.

5.0 Recommendations

5.1 Water Quality

Certain watercraft, such as personal watercraft (a.k.a. jetskis) have a tendency to create wakes which may contribute to shoreline erosion. Residents and property owners recommend a ban of personal watercraft on Wolverine Lake.

Additionally, residents and property owners are encouraged to continue participating in the borough's volunteer water quality monitoring program.

A shoreline left, or restored, to a natural vegetated state, including wetlands, provides functions such as bank stabilization, erosion control, filtering of surface runoff, and food and habitat for fish, birds and other wildlife.

5.2 Recreational and Residential Character

Residents and property owners of the area initiated the lake management planning process to protect the quiet recreational and residential use of the lake. The majority of those attending the meeting wish to establish regulations for watercraft motors that may be used on the lake as a means of reducing noise, reducing wakes, and promoting safety, by potentially specifying use of electric motors only, seven days a week. However, others attending the meeting prefer a horsepower restriction of 10 hp seven days a week, or preferably, 8 hp. They are aware this does not fit within the guidelines adopted by the Assembly. All residents and property owners who have attended the public meetings support a prohibition of personal "motorized" watercraft.

Those attending the meetings recommended there be no commercial floatplane operations at Wolverine Lake due to the small size of the lake.

5.3 Wildlife

Most individuals will not disturb a nest site when or if they are informed of its location and the proper behavior when near it. A number of techniques can be employed to provide the public with information about loons and grebes. First, existing nests where regular loon or grebe nests have occurred could be encircled by a number of buoys marked with "Loon (or Grebe) Nesting Site - Do Not Approach" placed at least 150 feet (200 feet preferred) from the nest's boundary. Appendix #2 provides an illustration of a low cost, effective buoy. Loon and Grebe alert notices

and general information about loons and grebes should be posted at a weather protected signboard at the lake's public access point to inform the public about proper "loon or grebe etiquette" (Appendix #2). Residents and property owners agreed they prefer not to identify individual nests; however, they support informational/educational signage at access points.

Since Wolverine Lake is a small and shallow lake it is very easy to create wakes and turbid conditions. Wake action may cause loon mortality by swamping active nests or by separating parents from chicks. While a majority of those in attendance at the meetings recommend the use of electric motors only, the agreement was not unanimous. One lake user recommended the horse power restriction to no more than 8 hp. To be consistent with the guidelines set forth by the assembly, while accommodating the shallow nature of the lake and manage noise generation, it is recommended that no watercraft using piston driven motors be allowed at the lake in order to reduce wakes, turbidity, and shoreline erosion and manage noise generation.

6.0 Implementation

Lake management plans are implemented through a combination of regulations, public information, and best management practices. MSB 17.59 Lake Management Plan Implementation, implements adopted lake management plans, using the borough's citation authority. Specific recommendations of the lake management plans that are implemented through MSB 17.59 are: quiet hours, no wake zones, motorized water craft use, special permits, winter motor vehicles, and ice house registration. When the Wolverine Lake, Lake Management Plan is adopted, MSB 17.59 will be amended to include the recommendations of the plan. Those recommendations of the plan that are not included in MSB 17.59 will be implemented through public information and best management practices.

A description of the implementation proposals follows:

Personal Motorized Watercraft Ban - It is recommended that personal motorized watercraft (a.k.a. jetskis) be banned from Wolverine Lake. Use of personal motorized watercraft is not a traditional use of Wolverine Lake and is incompatible with the quiet recreational and residential uses of the lake. Furthermore, they pose a safety hazard for swimmers and boaters. Their wakes contribute to shoreline erosion and disturb nesting birds.

Quiet Hours - To maintain the existing quiet nature, residential quality and low impact use of the lake, quiet hours are established between the hours of 10 p.m. and 8 a.m. Sunday through Saturday.

Electric motors only – Wolverine Lake is a relatively small, shallow and narrow lake and not suitable for watercraft with large motors. The historical use of Wolverine Lake has generally not included high powered motorized watercraft. Residents living adjacent to the lake seek to have their shorelines protected from erosion caused by large wakes. Loon and grebe nesting on a small lake are at an increased risk of disturbance from wakes caused by

watercraft with large horsepower engines. Additionally, the steep valley in which the lake is located creates an amphitheatre affect for noise. Therefore, an electric only motor limitation is recommended for Wolverine Lake.

Commercial Aircraft Operations - Local residents point out that Wolverine Lake is not conducive to accommodating airplane traffic, due to its small size. Therefore, it is recommended that no commercial floatplane operations be allowed to operate at Wolverine Lake.



APPENDIX 1

STATE OF ALASKA

WALTER J. HICKEL, GOVERNOR

DEPARTMENT OF FISH AND GAME

HABITAT AND RESTORATION DIVISION

333 RASPBERRY ROAD
ANCHORAGE, ALASKA 99518-1599
PHONE (907) 344-0541
FAX (907) 349-1723

FISH HABITAT PERMIT FG 93-II-0803

ISSUED: February 23, 1994
EXPIRES: December 31, 1994

General Public

Re: Vehicle movement on frozen water surfaces within southcentral Alaska

Pursuant to AS 16.05.870(b), the Alaska Department of Fish and Game (ADF&G) has determined that both the public interest and the proper protection of fish and game would be served through the issuance of a general permit (GP) authorizing the use of certain categories of motorized wheeled and tracked vehicles on the frozen waters of various specified rivers, lakes, and streams within the southcentral region (see attached map).

Categories of motorized vehicles covered by this GP include: any wheeled, tracked, or other ground effect motorized vehicles less than 2,000 pounds gross vehicle weight (GVW) such as snow machines, 3 and 4 wheelers, coots, etc.; and wheeled vehicles less than 10,000 pounds GVW. The use of any ground effect motorized vehicle on specified frozen waters: (1) with GVWs other than indicated above; (2) within State of Alaska Refuges, Critical Habitat Areas, or Sanctuaries (see attached maps); (3) by Alyeska Pipeline Service Company (APSC) for activities along the pipeline corridor, or (4) outside of the described area is not allowed, except by individual Fish Habitat Permit, other general permit, or Special Area Permit issued by the ADF&G, Habitat and Restoration Division, or by the State Pipeline Coordinator's Office for the APSC.

This GP does not authorize cross-country movement of equipment on state land or other activities not generally authorized by the Alaska Department of Natural Resources.

Various rivers, lakes, or streams within the described area have been specified as being important for the spawning, rearing, or migration of anadromous fish pursuant to AS 16.05.870(a). They are utilized by salmon and other anadromous fish for spawning, rearing, or migration, and by resident fish species.

In accordance with AS 16.05.870(d), access to, use and crossings of, or egress from any specified waters, as described above, is hereby authorized provided the stipulations contained herein are adhered to.

1. The ice cover shall be of sufficient thickness to support the weight bearing load of the authorized vehicle(s).
2. There shall be no vehicles or equipment operated in the open water of any specified river, lake, or stream under this GP.
3. The use of snow or ice bridges, access ramps, cribbing to cross any specified river or stream is prohibited unless specifically approved, in writing, by the ADF&G, Habitat and Restoration Division.
4. Access to or egress from frozen waters shall occur only at locations with gently or gradually sloping banks. There shall be no access to or egress from frozen waters at locations with sheer or cut banks.
5. The bed or banks of any specified river, lake, or stream shall not be altered or disturbed in any way to facilitate use of, access to, or egress from their frozen surfaces.
6. Vehicles or equipment shall not be left unattended while on the frozen surface of any specified river, lake, or stream.
7. No vehicles shall be fueled or serviced while on the frozen surface or below the ordinary high water line of any specified river, lake, or stream.

The permittee is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved stream crossings. For any activity that significantly deviates from the approved plan, the permittee shall notify the ADF&G, Habitat and Restoration Division, and obtain written approval in the form of an individual permit before beginning the activity. Any action taken by the permittee or an agent of the permittee that increases the scope of the activity or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this general permit will be deemed a significant deviation. The final determination as to the significance of any deviation and the need for an individual permit is the responsibility of the ADF&G, Habitat and Restoration Division. Therefore, it is recommended that the ADF&G, Habitat and Restoration Division, be consulted immediately when a deviation from the approved activity is being considered.

This letter constitutes a general permit issued under the authority of AS 16.05.870. Please be advised that this approval does not relieve you of the responsibility for securing other permits: state, federal, or local.

February 23, 1994

Pursuant to 6 AAC 80.010 (b), the conditions of this general permit are consistent with the Alaska Coastal Management Program.

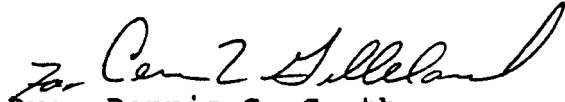
In addition to the penalties provided by law, this general permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the authorized activity which were a direct result of the failure to comply with this general permit or any applicable law.

The recipient of this general permit (the permittee) shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or the permittee's performance under this general permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

This general permit decision may be appealed in accordance with the provisions of AS 44.62.330--44.62.630.

Sincerely,

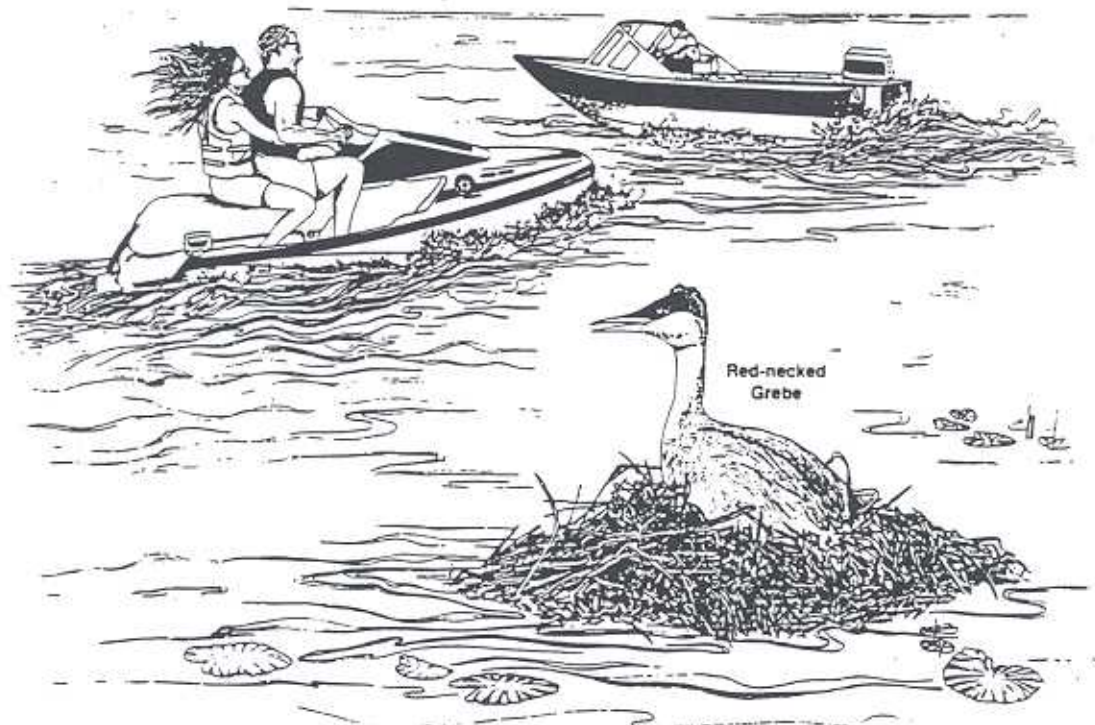
McKie Campbell, Deputy Commissioner


By: Dennis G. Gnath
Habitat Biologist
Habitat and Restoration Division
(907) 267-2284

R. Thompson, DNR/DL
A. Samet, DNR/DL
D. Kelley, DNR/DL
S. Dunaway, DNR/DM
P. Pinard, DEC
P. Brna, SPCO
D. Webster, MSB
W. Wrede, City of Cordova
M. Pearsall, KPB
D. Dengel, City of Valdez

APPENDIX 2

STEER CLEAR!



**BOATERS – Stay at least 100 feet away
from nesting Red-necked Grebes.**

Grebes are duck-sized birds that nest on floating vegetation and debris in shallow water.

Wakes from watercraft will destroy their nests and kill their eggs and chicks.

Go slowly along shorelines and avoid nesting areas.

– HELP PROTECT ALASKA'S WILDLIFE –

Wildlife harassment is illegal. Report violations to Fish and Wildlife Protection (State Troopers) or call (800) 478-3377.

This sign was produced by a grant to the Alaska Watchable Wildlife Trust Fund, c/o Alaska Conservation Foundation, 430 W. 7th Avenue #215, Anchorage AK 99501 (907) 276-1917.

POSTED BY ALASKA DEPT. FISH AND GAME



LOON ALERT



**Help keep this lake safe
for loons and other wildlife:**

1. Watch loons from a distance.
2. Pick up fishing line and other litter that may entangle loons.
3. Keep your dog on a leash.

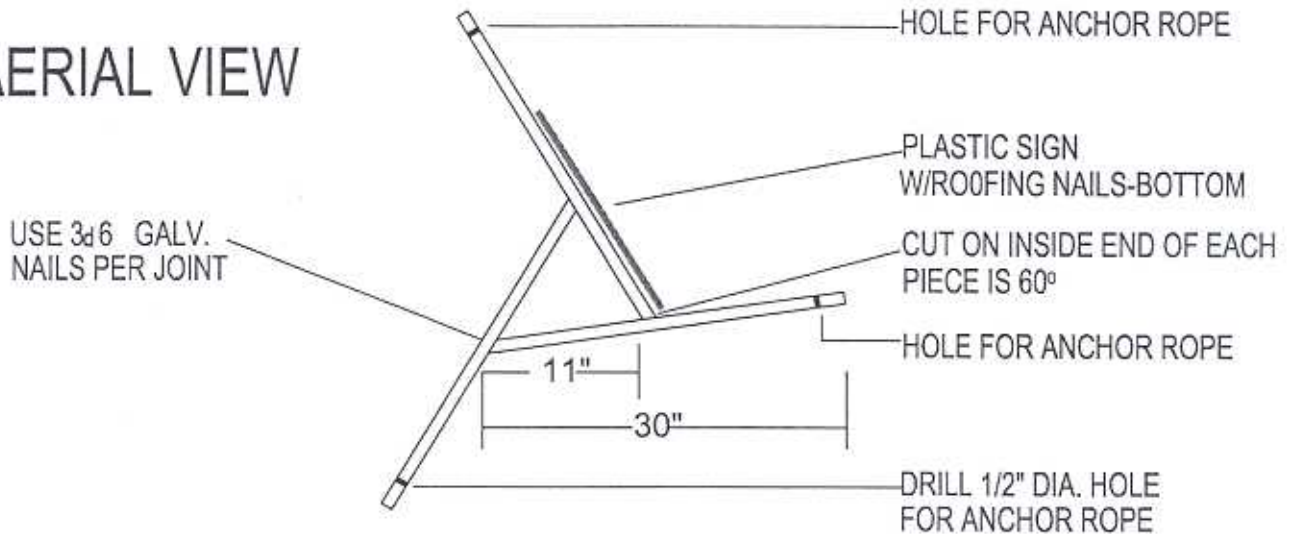
Breeding loons have declined or disappeared from other U.S. states due to human disturbance and habitat loss. Wildlife harassment is illegal. Please report violations to Fish and Wildlife Protection (State Troopers) or call (800) 478-3377. For loon information write: Alaska Department of Fish and Game, Division of Wildlife Conservation, 333 Raspberry Road, Anchorage, AK 99518.



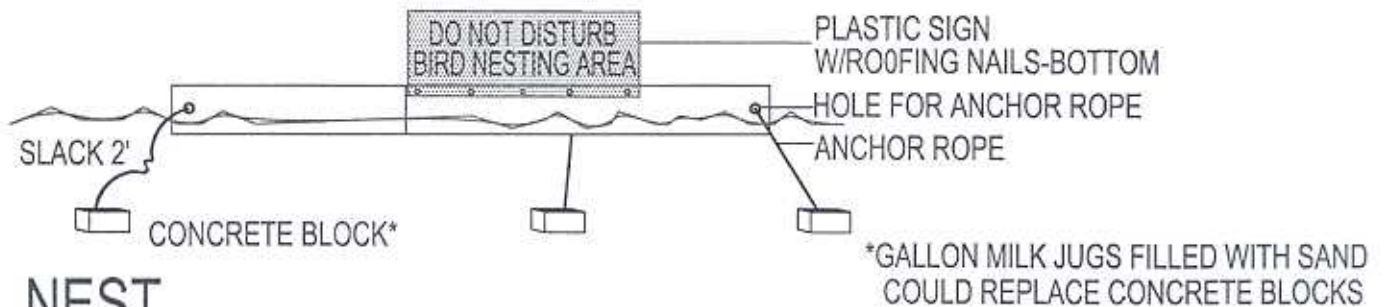
SIGN FLOAT FOR LOON NESTS

(NOT LIKELY TO TURN OVER
IN THE STRONGEST WIND)

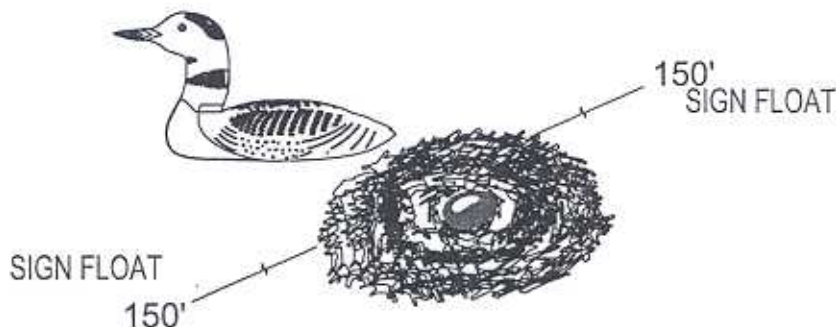
AERIAL VIEW



VIEW FROM WATER



NEST



MATERIALS LIST

3 - 1"x 4"x 30"
WHITE PINE OR
NO. WHITE CEDAR

9 - 6d. GALV BOX NAILS

5 - 1" ROOFING GALV. NAILS

1 - LOON SIGN

2 - 3 CONCRETE BLOCK *
FOR ANCHORS

ENOUGH 1/4" NYLON ROPE
TO REACH BOTTOM OF LAKE
FOR ANCHOR

DESIGNED BY:
HERB CALLEY, PO BOX 348 TUPELO POINT, BOWLAKE, NORTHWOOD, N.H. 03261

ENHANCED BY:
MATANUSKA-SUSITNA BOROUGH SUPPORT SERVICE 1995

The platforms should be attached with two anchors a minimum of 150 feet from the nest (more, if needed to avoid disturbing the loons) and be clearly visible, yet not be a boating hazard. Signs should be removed after nesting is completed (usually by mid-July) each year to preserve their use. Signs should be stored over the winter in a dry area.