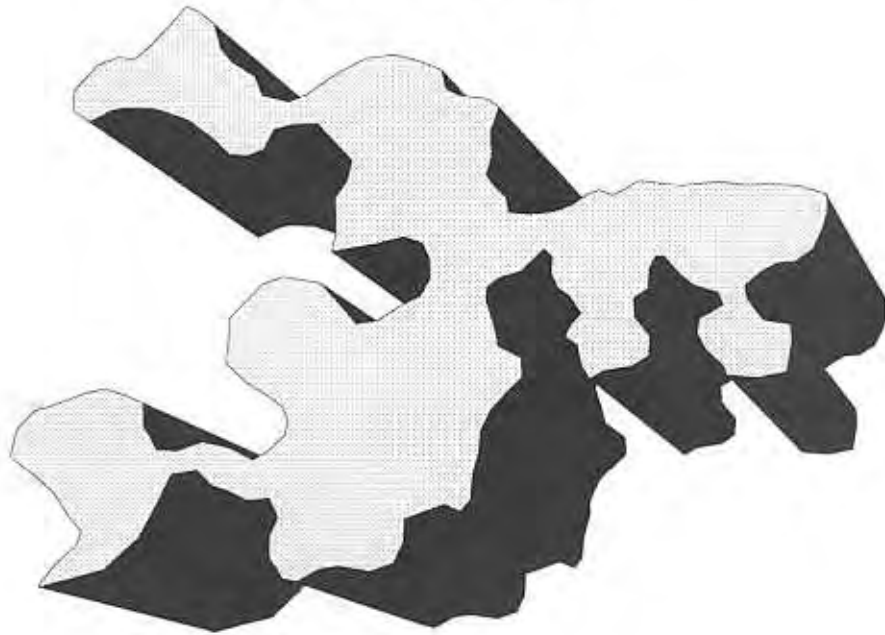


CROOKED LAKE, LAKE MANAGEMENT PLAN

MATANUSKA-SUSITNA BOROUGH
PLANNING DEPARTMENT

ADOPTED
AUGUST 15, 1995



CROOKED LAKE, LAKE MANAGEMENT PLAN

August 1995

by: John Duffy, Director of Planning

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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. 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 experience may decline. The most often cited complaint is noise generated from watercraft during the evening and night hours. 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 Crooked¹ Lake Management Plan provides management guidelines for:

- o The continued recreational enjoyment of Crooked Lake; and
- o The protection of the quality of life of residential development at Crooked Lake; and
- o The protection and enhancement of water dependent activities; and
- o The provision of controlled and maintained access; and
- o The protection and enhancement of fish and wildlife; and
- o The protection of the public health, safety and welfare.

1.2 Process

Lake management plans are typically initiated by individuals having concerns about a particular lake or who have experienced conflicts between user groups. These individuals request that the Planning Department of the Matanuska-Susitna Borough complete a lake management plan. With the concurrence of the Planning Commission which is vested with planning authority in the Borough, the Department collects background information on the lake and contacts adjacent property owners and users to participate in the planning process.

Meetings are held with adjacent property owners and users to: 1) identify any

¹ The U.S. Geological Survey's official name is actually Finger Lake.

problems that may exist, 2) develop 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 made. A meeting may be 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, 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.

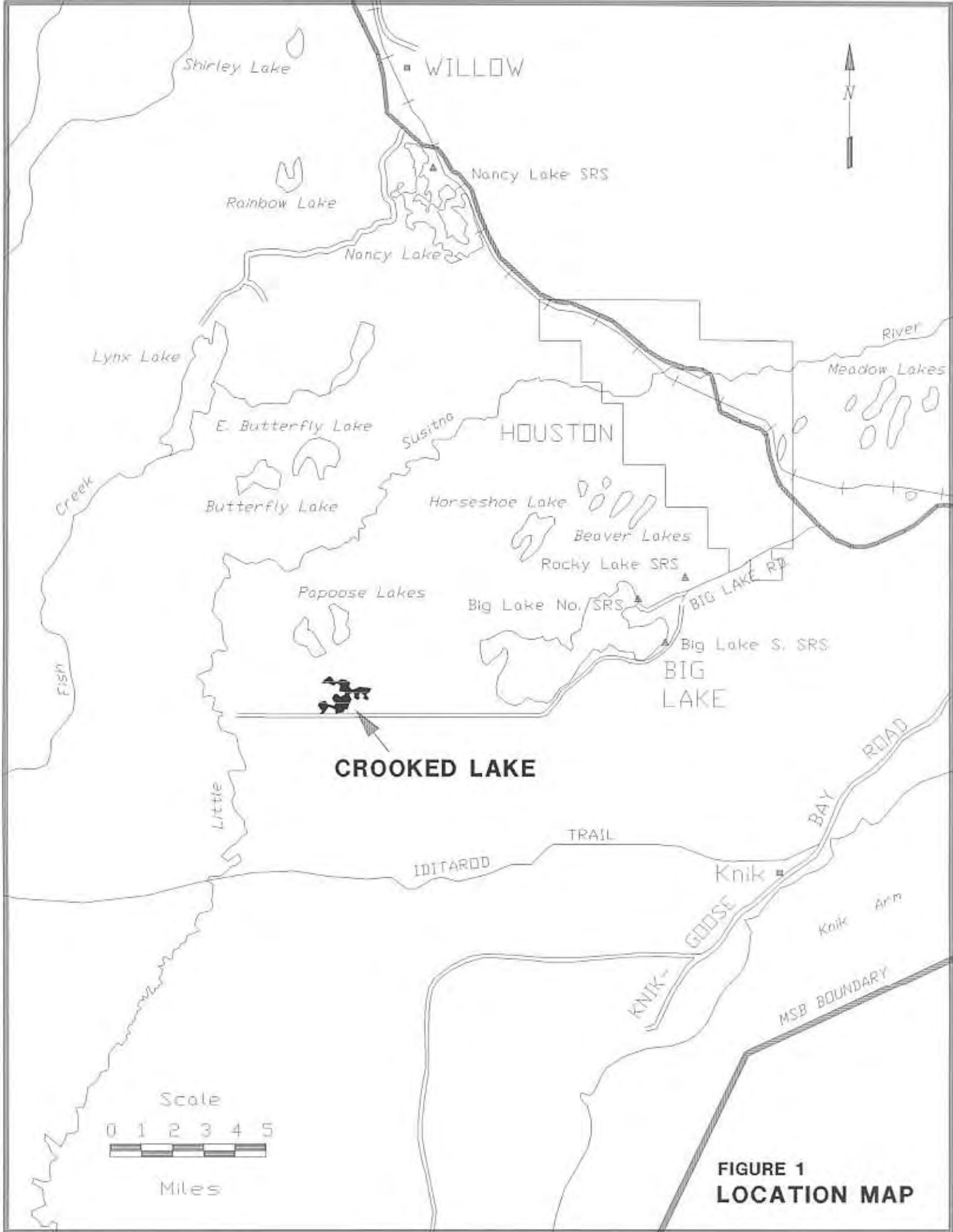
The Crooked Lake Management Plan was initiated by a request from Crooked Lake property owners. These property owners surveyed members of the Crooked Lake property owners association. A majority of the members supported the planning effort. The property owners then petitioned the Matanuska-Susitna Borough Planning Department and Planning Commission to develop a management plan for Crooked Lake.

Two meetings were held with adjacent property owners. At these meetings concerns and issues were discussed; these being, 1) legal and physical access, 2) access management, 3) protection of a loon nesting site 4) the lake's water level and 5) guidelines for public lands adjacent to the lake. The potential need for quiet hours also was discussed but a majority did not believe the issue required management actions. The need for quiet hours will be reviewed at some future time.

2 Inventory of Existing Conditions

2.1 Location

Crooked Lake is located approximately 12 miles from the George Parks Highway and is part of the greater Big Lake community (see Figure 1). Crooked Lake is accessed by South Big Lake road at about milepost 12.5 which is located directly south of the lake. The Crooked Lake area is located completely within the



boundaries of the Big Lake community council (see Figure 2).

2.2 Land Ownership

There are 160 lots within the Crooked Lake planning area. The lots range in size from the 0.18 acres to 199.82 acres (see Table 1). The average privately owned lot size is 2.33 acres. The land immediately adjacent to Crooked Lake is predominately privately owned, although the Borough owns several large tracts in the area (see Figure 3).

Table 1
Land Ownership and Parcel Size

	Mat-Su Borough Leased	Mat-Su Borough Not Leased	CIRI	Kniknatu	State	Private
Number of Parcels	14	20	3	2	3	118
Total Acreage	45.4	382.88	246.56	70	9.64	274.37
Average Parcel Size	3.24	N/A	N/A	N/A	N/A	2.33
Smallest Parcel Size	1.11	0.31	13.22	5	2.23	0.18
Largest Parcel Size	4.97	199.82	228.34	65	5	6.84

N/A = Not Appropriate due to small sample size.

2.3 Existing Plans

State

State plans affecting the Crooked Lake area include the Willow Sub-Basin Plan and the Susitna Basin Recreation Rivers Management Plan. These plans provide management guidelines and designate classifications for State and Borough lands.

The Willow Sub-Basin Area plan, adopted in October 1982, contains management intent for State and Borough lands within the Willow Sub-Basin, an area of approximately 1,500 square miles. Crooked Lake is located within the Wasilla management unit. Generally speaking, the plan's intent for public lands within the Wasilla management unit is to encourage their use for settlement except for those lands adjacent to the Little Susitna River which the plan recommends be retained in public ownership. The plan also recommends that two publicly owned parcels be designated as fly-in waysides on Crooked Lake and be retained in public ownership (see Figure 4).

The Susitna Basin Recreation Rivers Management Plan, adopted in January 1991 by the Alaska State Legislature provides guidelines and management practices for

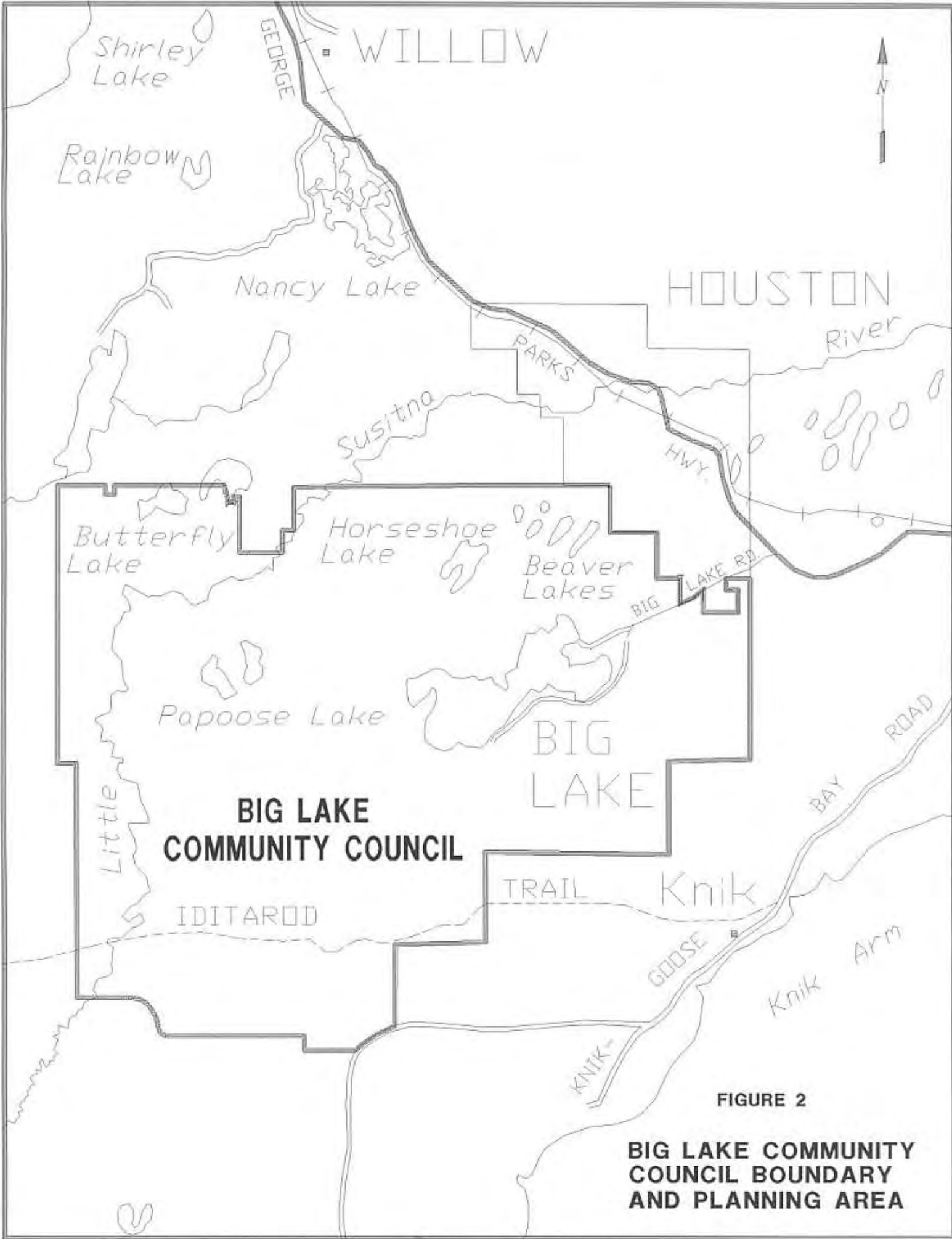


FIGURE 2

BIG LAKE COMMUNITY COUNCIL BOUNDARY AND PLANNING AREA

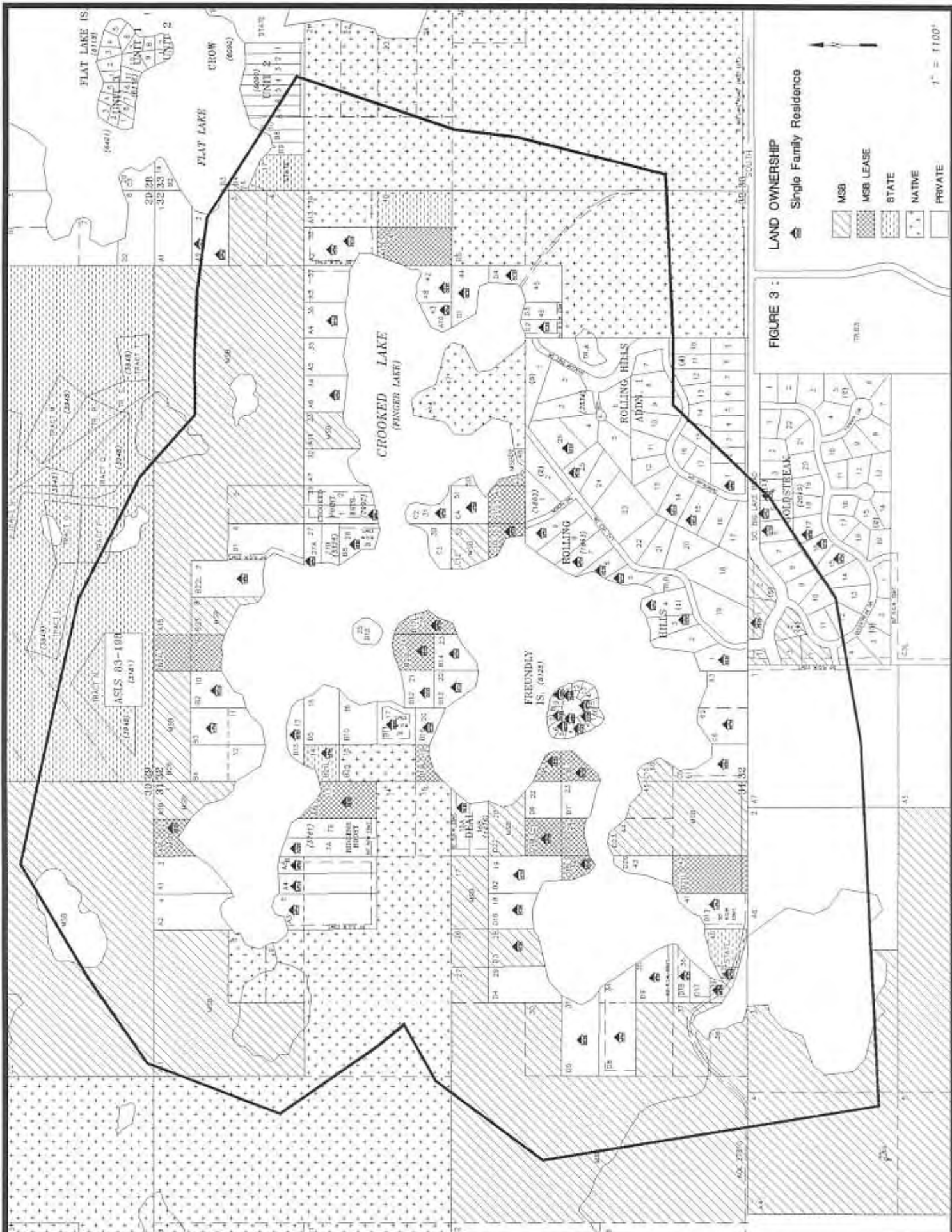


FIGURE 3 :

LAND OWNERSHIP

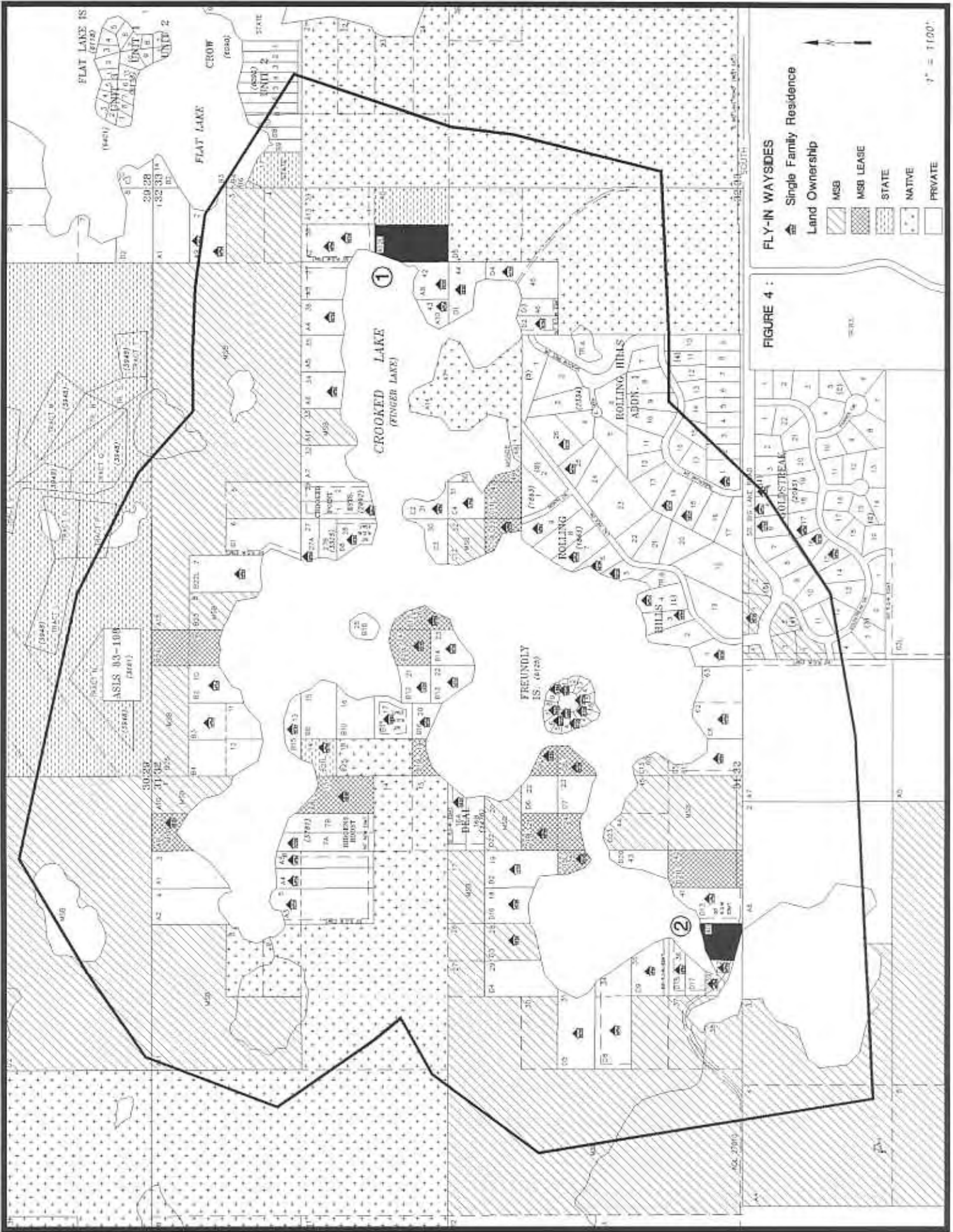
Single Family Residence

- MSB
- MSB LEASE
- BT STATE
- NATIVE
- PRIVATE



1" = 1100'





FLY-IN WAYSIDES

Single Family Residence

Land Ownership

- MSB
- MSB LEASE
- STATE
- NATIVE
- PRIVATE

FIGURE 4 :

1" = 1100'

State land within the mile wide corridors of six rivers within the Borough. The corridors include the Talkeetna, Talachulitna, Little Susitna and Deshka Rivers (also Kroto and Moose Creeks) and Alexander and Lake Creeks.

Crooked Lake is not within any of the corridors. The corridor closest to the lake is the Little Susitna River corridor (subunit 1a) which is located approximately four miles to the west. In regards to the Crooked Lake area, the plan provides guidelines for the proposed road extension of South Big Lake Road to and across the Little Susitna River (subunit 1a). A special management area (SMA) has been designated for the area where the proposed extension would meet and potentially cross the Little Susitna River. The SMA allows for the development of a public use site at the river with appropriate facilities, but restricts any boat launch to non-motorized boats only.

Borough

Borough plans that address Crooked Lake in some manner include the Borough-wide comprehensive plan, adopted in 1971; the Matanuska-Susitna Borough Coastal Zone Management Plan, as amended; the Big Lake comprehensive plan which is presently being developed and the Borough wide Long Range Transportation and Public Facilities plans.

The Borough-wide comprehensive plan does not make specific recommendations for Crooked Lake. Rather, the 1971 plan makes a series of general recommendations for the Big Lake area which include providing for the disposal of garbage and trash, and the need for public facilities, particularly, fire and school. Concern for the contamination of Big Lake, principally from upland development was also noted within the plan.

Crooked Lake lies within the Matanuska-Susitna Borough Coastal District (District), as defined within the Matanuska-Susitna Borough Coastal Management Plan, as amended. The Coastal Management Plan seeks to direct the course of local, state or federal development within the District in a manner that protects the important land and water resources of the District. The adopted policies of the Coastal Management Plan are used to evaluate development proposals vis-a-vis resource values in an effort to ensure that the proposals are consistent with the plan's goals and objectives. Local development includes actions that trigger a Borough subdivision, planning or zoning action. For example, a variance application to build a habitable structure or garage closer than 75 feet from the ordinary high water mark of Crooked Lake would be reviewed to determine whether or not it is consistent with the Coastal Zone Management Plan. Construction within water bodies are also reviewed for consistency with the plan. Uncovered floating or pile supported docks which do not extend more than 40

feet beyond the ordinary high water line and do not exceed 400 square feet in size may obtain a general concurrence. Metal drums, however, may not be used as floatation devices.

The Big Lake comprehensive plan is presently being developed for the Big Lake planning area (see Figure 2). The plan will provide recommendations for land use, transportation, public facilities and recreation. It is expected that the plan's recommendations will be implemented through a special use district and capital improvement program.

The Borough Long Range Transportation Plan was adopted in 1987 and is presently being updated. The plan identifies three road corridors in the vicinity of Crooked Lake. One of the corridors is the Houston-Knik corridor which was designated as part of the Knik Arm Crossing project which proposed to link Houston with Anchorage. This corridor is about 1.5 miles east of Crooked Lake. The second corridor includes the Big Lake Road extension which is located immediately south of Crooked Lake and would terminate at the Little Susitna River. The third corridor begins at the terminus of Big Lake Road and connects to the proposed Fish Creek Agriculture project located on the west side of the Little Susitna River. Of the three corridors, only the Big Lake road project is under consideration at this time.

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 Crooked Lake area in some way, but the Parks, Recreation and Open Space; and Trails elements would have the most impacts relative to the concerns of this management plan.

2.4 Existing Regulations - Public

This section describes the principle regulations affecting use and development in the Crooked 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 where "take" is defined to mean pursuing, killing, etc., migratory birds. Destruction of nest sites, eggs or the birds themselves is a violation of the Act.

State

The Alaska Department of Environmental Conservation (DEC) provides regulations for waste water disposal. DEC waste water/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, river, 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 Department of Fish and Game. Activities which result in the construction of a dam which impounds water or places a weir, culvert or temporarily blocks a stream requires a Title 16 permit. In February, 1994 the Habitat and Restoration Division of Fish and Game issued a general permit allowing the vehicle movement on frozen water surfaces in southcentral Alaska. The permit allows certain motorized vehicles less than 2,000 pounds gross vehicle weight and wheeled vehicles less than 10,000 pounds gross vehicle weight to travel upon frozen water surfaces in southcentral Alaska without a special permit (see Appendix 1). Finally, the general Alaska Department of Fish and Game fishing regulations apply to Crooked Lake.

Navigable and public waters in Alaska have special public access requirements. A navigable or public water body includes water suitable for commercial navigation, floating of logs, land and takeoff of aircraft, and public boating, trapping, hunting waterfowl and aquatic animals, fishing or other public recreational purposes. Crooked Lake meets the definition of a public water body. Alaska statute (AS 38.05.128) requires that the public have access to the surface waters of any navigable or public water body of the State. This requirement is typically called a "to" easement. In addition, all navigable and public water bodies have a 50 foot easement along the water body; this easement is typically called an "along" easement. In regards to the actual ownership of the lands, the boundary between private and public ownership is the ordinary high watermark of a waterbody or watercourse. Therefore, an "along" easement may be used for

transportation or emergency landing purposes but not for overnight camping. These easements are created when the state or borough obtains patents to their lands and continue with the property when either entity disposes of lands.

Borough

Several Borough-wide ordinances address the development and use of land adjacent to Crooked 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. The adopted Coastal Management Plan described earlier, because of its enforceable criteria, also regulates development activities within and near Crooked Lake.

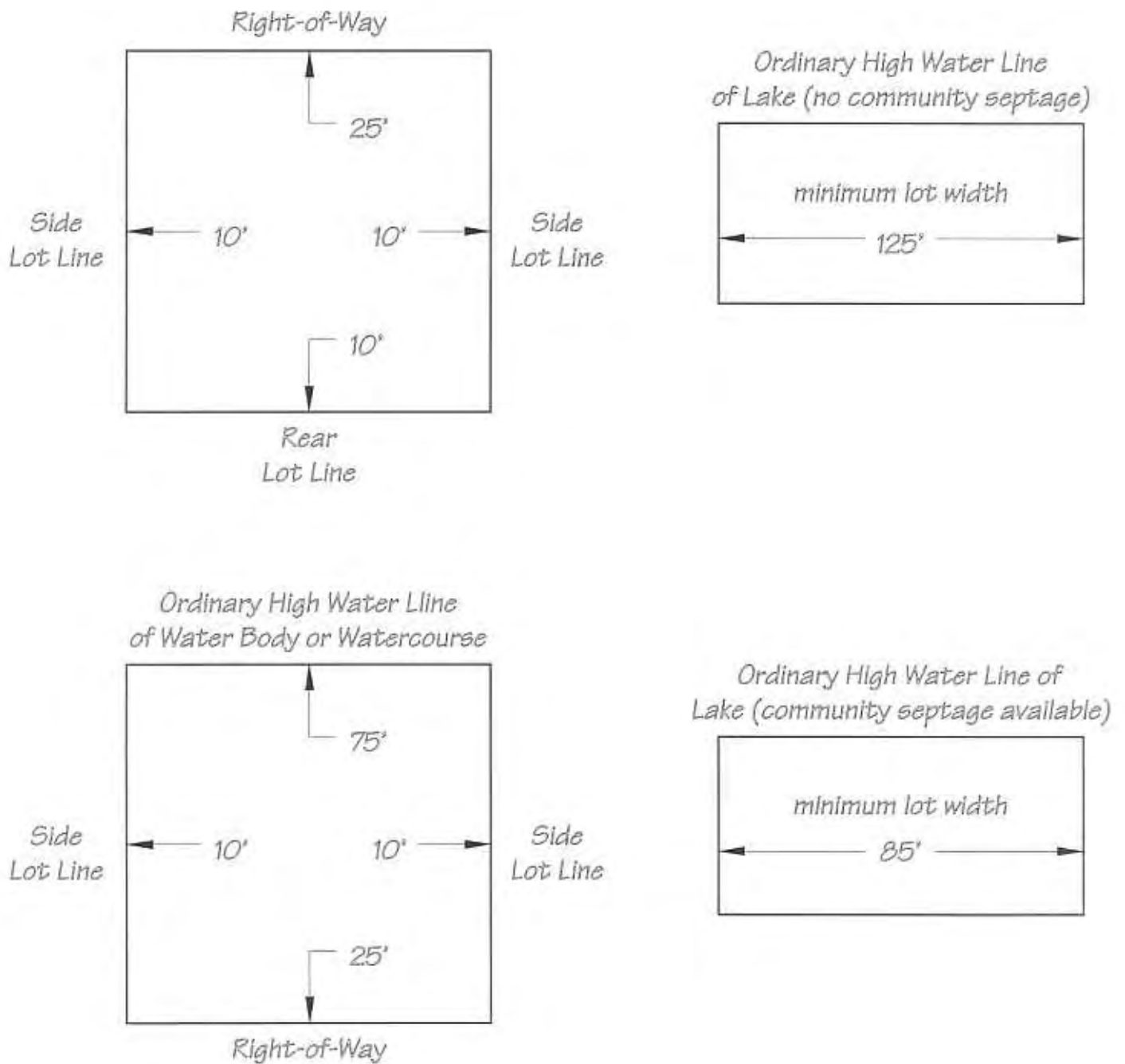
Title 15 establishes and describes the general functions of the Planning Commission (both planning and zoning functions) and Board of Adjustment and Appeals. Title 15 also describes the comprehensive plan and purposes. Once adopted, the Crooked Lake Management Plan will become an instrument of Borough 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 development at Crooked 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 septage is provided, then the minimum width may be eight-five feet (see Figure 5).

The Borough has a borough wide comprehensive plan which is implemented, in part, through the borough wide zoning ordinance. 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 Acknowledgement 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.
- 17.12 Palmer Special Land Use District.
- 17.17 Denali State Park Special Land Use District.
- 17.29 Flood Damage Prevention.
- 17.36 Residential Planned Unit Development.

Figure 5
**General Setback Requirements
 and
 Lot Size* Requirements**



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

- 17.40 Houston Land Use Ordinance.
- 17.45 Wasilla Special 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.
- 17.57 Non-conformities.
- 17.58 Regulation of Motorized Use of Certain Lakes and Waterways.
- 17.60 Conditional Uses.
- 17.65 Variances.
- 17.70 Regulation of Alcoholic Beverage Uses.
- 17.90 Regulation of Adult Oriented Businesses.
- 17.99 Fees.

Zoning regulations that are of special note to development activities at Crooked 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 a right-of-way and ten feet from all 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 waterbody or watercourse (see Figure 5). 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 waterbodies: 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 350,000 acres of land through the Municipal Entitlement Program. The Planning Department of the Borough manages and disposes of these lands through the policies and procedures described within Title 23. As of December, 1994, the Borough owned about 428 acres within the Crooked Lake area (see Table 1).

Existing Regulations - Private

Private regulations which exist in the Crooked Lake area consist of subdivision covenants. Only two subdivisions within the area have covenants these being Rolling Hills and Rolling Hills Addition Number 1. The covenants regulate dwelling size, dwelling type, limit land uses to residential or recreation and define nuisances within the aforementioned subdivisions.

2.5 Present Lake Usage

Crooked Lake is also known as Finger Lake. The lake contains 250 surface acres within its numerous coves and has just over 7 miles of shoreline (see Table 2). Figure 6 illustrates the lake's bathymetry. Salmon and trout are found in the lake and the lake contains two pairs often seen.

Table 2
Crooked Lake Characteristics

Surface Area	250 acres
Maximum Depth	35 feet
Mean Depth	14 feet
Shoreline Length	7.0 miles
Volume	3,418 acre feet

Source: State of Alaska, Department of Fish and Game

The present use of Crooked Lake may be characterized as being residential/recreational. There are few residents who live at the lake throughout the entire year. The majority of property owners either reside at the lake only during the summer or visit the lake during the weekends. Most lake front property owners have their principle place of residence in Anchorage.

Lake front property owners are the predominant users of Crooked Lake. They boat, swim and fish at the lake. The use of personal watercraft (jetskis) also occurs on Crooked Lake and has been reported to cause some wake conflicts at the boat launch and loon nest site. During the summer months the lake is visited by non-property owners who use the lake for recreational purposes. At times, these visitors inadvertently block passage to the boat launch with their vehicles and also camp at the launch/parking area.

3 **Goals**

Goals describe the future expectations of Crooked Lake residents, property owners and users for the Crooked Lake area. The following goals reflect the aspirations of Crooked Lake residents, property owners and users and address their principal concerns: water quality, access, wildlife and the residential/recreation character of the area. The goals are not shown in priority order as they are interdependent.

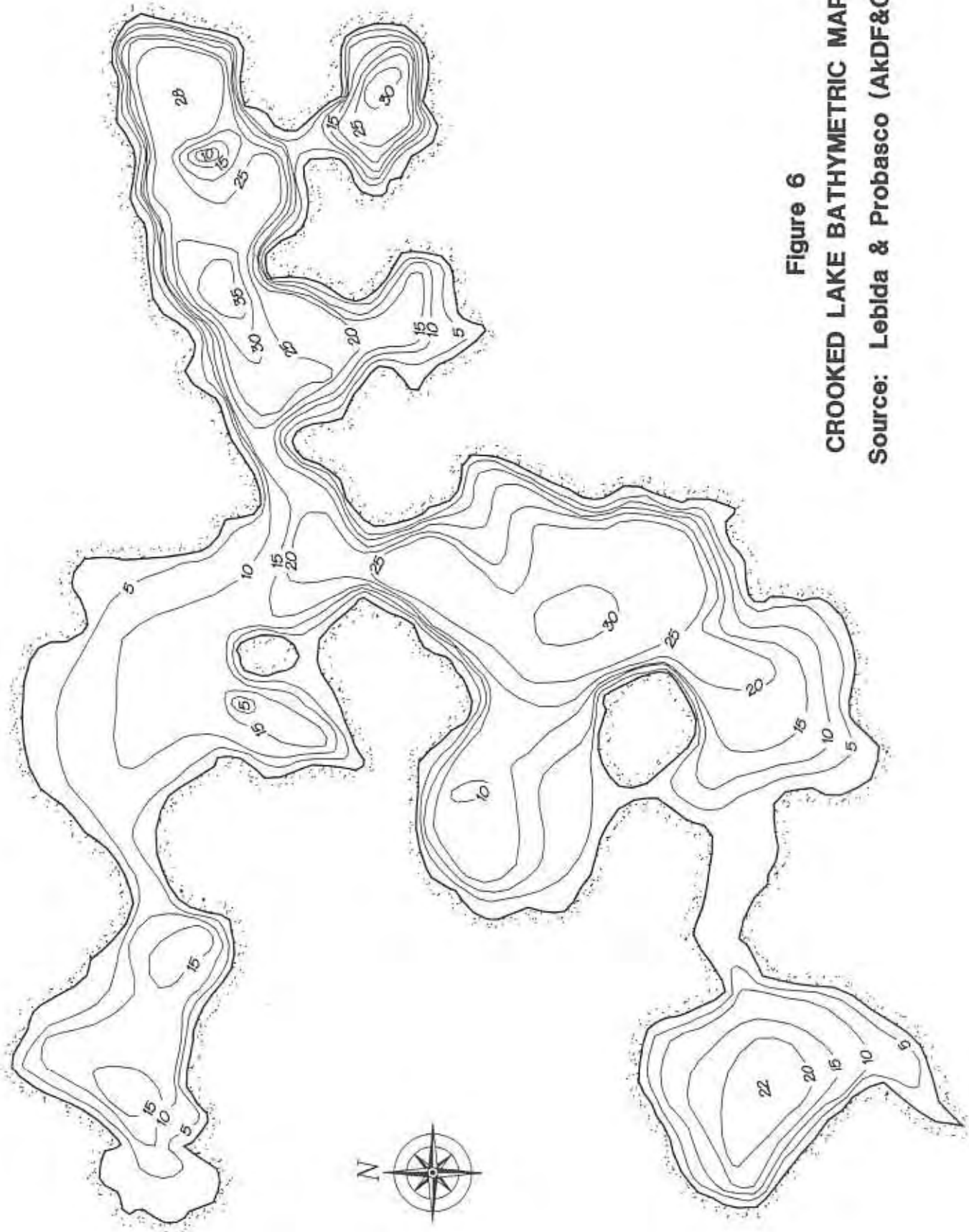
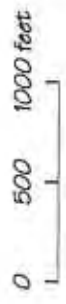


Figure 6
CROOKED LAKE BATHYMETRIC MAP
Source: Lebida & Probasco (AKDF&G)



3.1 Water Quality

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

The historical water level of Crooked Lake should be returned to its natural level which will enhance the recreational uses of the lake.

3.2 Recreation and Residential Character

The variety of recreational opportunities offered by Crooked Lake should be maintained and enhanced.

Crooked Lake offers a unique setting for residential use and this quality should be protected and preserved.

3.3 Wildlife

The ability of Crooked Lake to remain a migratory bird (loon) nesting site should be preserved and enhanced.

3.4 Access

Legal and physical access to the lake should be assured for all residents and property owners.

Public access should be inventoried and assessed as to its adequacy and measures should be developed to ensure pollution or other degradation of the lake and uplands does not occur.

4 **Management Issues, Alternatives and Recommendations**

4.1 Water Level

Management Issue The present water level of the lake is about 7 inches below its historical level. It is believed by local residents and property owners that the lake level has lowered due to disturbance within an outlet located in the southwest portion of the lake. As a result of the lower water level, docks have become inconvenient for launching or landing boats and certain areas of the lake have become too shallow for motorized boats.

Alternatives One alternative is to let the lake remain at its current level. This

alternative is very easy to implement as nothing new needs to be done; however, further disturbance of the outlet must be halted or the lake's water level will be further reduced. Another alternative is to change the location of the outlet stream in such a manner as to reduce the outward flow of water.

Another alternative is to place an outlet control structure within the outlet stream to bring the lake back up to its historical level. The outlet control structure may be constructed by the Borough or by the Crooked Lake Property Association. However, prior to placing the structure in the stream several steps are required. The first step is obtaining a consensus from the lake's adjacent property owners that the lake's level should be raised; this step has been accomplished as members attending the two meetings on the management plan have agreed that the lake should be about seven inches higher. Other steps that need to be accomplished include obtaining the necessary permits and reviewing the impacts of a higher water level on property setbacks. For example, a permit from the Alaska Department of Fish and Game is required to work within the stream as well as place the structure in it. Also, a water right may be required from the Alaska Department of Natural Resources. Additionally, the impact of the new water level must be reviewed in terms of positive impacts on Department of Environmental Conservation and Matanuska-Susitna Borough setback requirements for waste water systems and structures, respectively.

A final alternative is to perform limited redesign of the outlet channel. The redesign would restrict outlet flow yet provide for fish passage. This alternative, which is supported by the State of Alaska, Department of Fish and Game², is the least costly and less environmentally disruptive alternative.

Recommendation It is recommended that a review of higher water levels on property and structure setbacks be performed. After completing this review, and should the review indicate no negative impact, permit applications should be filed with the necessary agencies to redesign the outlet channel in order to bring the lake up to its historical level, approximately seven inches higher than present.

4.2 Access

Management Issue Presently there is no legal and physical overland access to Crooked Lake. The present access that is utilized is privately owned. Access to Crooked Lake is necessary for transportation and recreation purposes. Access must also be provided to the lake to fulfill the state's legal requirement of providing public access to a public water body. In order to facilitate these needs,

² Gnath, Dennis G. Letter to author, January 24, 1995.

the access should be legal, that is, legally established by deed and physically feasible, that is, both possible and not cost prohibitive to construct.

Alternatives Legal and physical overland access is necessary for Crooked Lake. There are six potential points of access to the lake from South Big Lake Road (see Figure 7). Three of points of access, identified as Access #1, #2 and #3 in Figure 7, legally exist and connect the lake to South Big Lake road within Section 31 but these access points are undeveloped. Additionally the lake is shallow near these access points and unsuitable for a boat launch. A fourth point of access, Access #4 Figure 7, is located at the end of Lac Viex Drive but would require road construction and property acquisition. Due to the topography near the lake past the terminus of Lac Viex Drive, construction costs could be substantial. Lac Vex Drive is not constructed to its platted terminus.

The only developed point of access to Crooked Lake is provided at the end of Shadow Tree Drive (Access #5); however, not all of this access is dedicated to public use. Shadow Tree Drive connects to a 50 foot wide easement about 75 feet south of the lake. This 75 foot portion of the easement is not constructed. Most of the present users, property owners and residents actually park their vehicles, launch and land their boats on (from) a privately owned lot identified as 2334B03L001 (see Figure 7).

The sixth point of access, Access #6 Figure 7, is located along the section line easement between sections 32 and 33. Access #6 would require construction of over 3,000 feet of road and property acquisition to legally connect to the lake.

Of the six alternatives, Access #5 provides the best opportunity for legal and physical access to Crooked Lake. There are two ways in which Access #5 could be made to satisfy both legal and physical requirements. One method is to purchase or obtain a public easement dedication of the land presently used for parking and boat launching/landing from the appropriate property owner(s). An order of magnitude purchase price is \$1,100³. Should the present owner be willing to sell a portion of the property, the property will then need to be subdivided and replatted at a cost of approximately \$4,500. The order of magnitude cost is therefore about \$5,500, excluding closing costs, etc. A public easement dedication would have substantially lower subdivision costs, approximately \$500; hence, the estimated cost of a public easement dedication is about \$2,600.

The other manner of using Access #5 to provide legal and physical access from

³ Lot 2334B03L001 is 2.51 acres in size and has an assessed value of \$22,800. The parking and launch area is approximately 5,000 square feet. Therefore $\$22,800 / (2.51 \times 43,560) = \0.21 . $5,000 \times \$0.21 = \$1,100$.

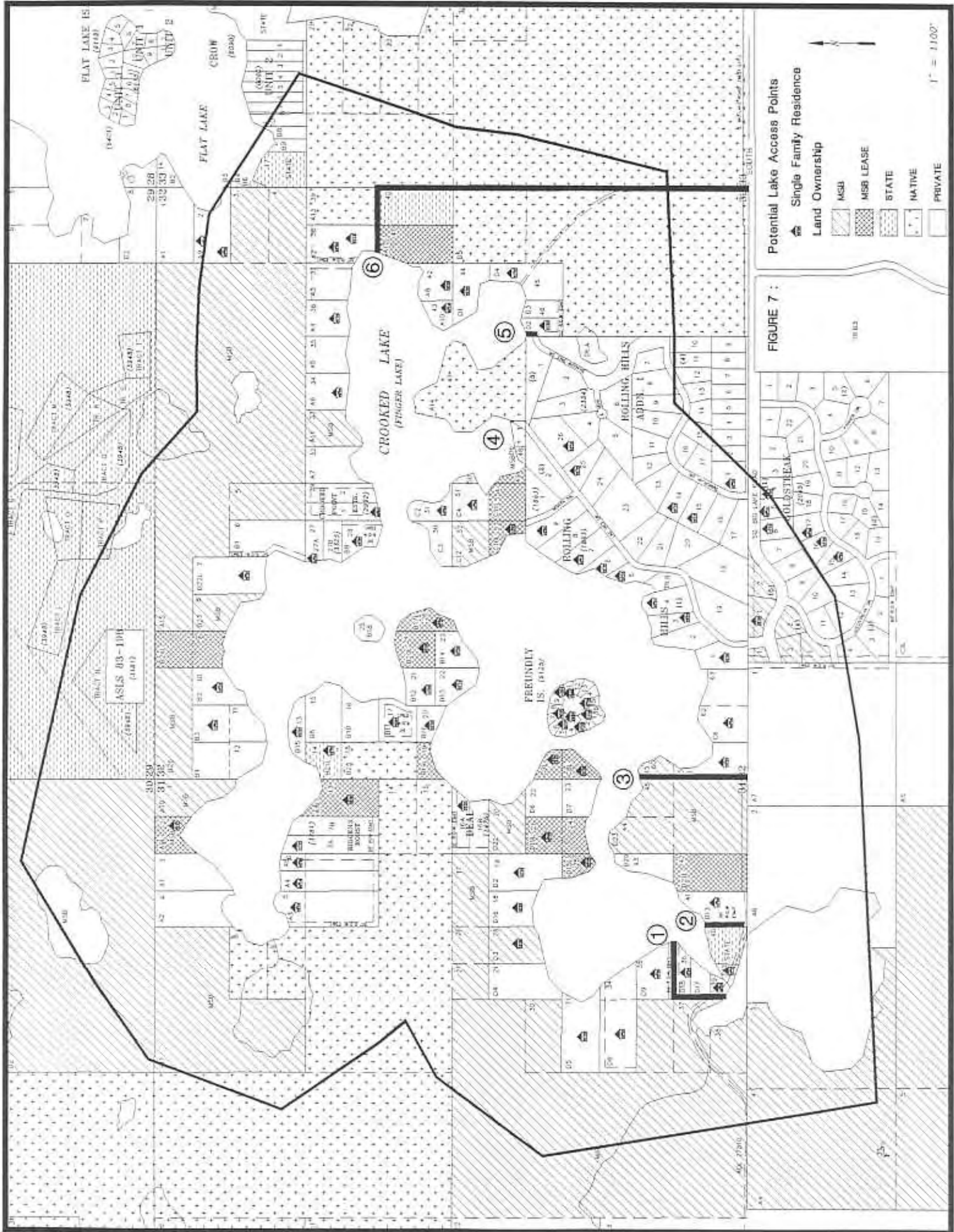


FIGURE 7 :

- Potential Lake Access Points
- ☛ Single Family Residence
- Land Ownership
- MSB
 - MSB LEASE
 - STATE
 - NATIVE
 - PRIVATE



Shadow Tree Drive is to clear the existing 50 foot wide easement which connects to the lake and make it suitable for parking and improve the site for a dock. An order of magnitude cost for these improvements is \$10,000⁴ (this estimate includes fencing).

Recommendation The estimated costs of the three alternatives vary from a low of \$2,600 to a high of about \$10,000. However, the estimated cost of the two alternatives for using Access #5 could rise substantially if the present owner wishes a higher sale price. The alternatives for using Access #5 could also be eliminated if the owner does not wish to sell or provide a public use dedication. It is recommended that a public use easement be obtained as it is the least costly alternative and least environmentally disruptive. If the existing 50 foot easement must be used, funds to improve the present easement should be requested from the Alaska Department of Fish and Game which funds lake access improvements through the Dingell-Johnson program.

Management Issue The present access point to the lake is not maintained or supervised. As a result, vehicles are parked haphazardly, trash is left at the site, trespass on nearby private property occurs and overnight campers tend to block access to the boat dock. Presently, the unmaintained and unsupervised nature to the access point makes it difficult to access and enjoy the lake for visitors and property owners alike. Environmental degradation has occurred and unsanitary conditions exist.

Alternatives If the current state of affairs is not addressed the environmental degradation, trespass and access conflicts will continue. Therefore some proactive measures should be taken. Since the vast majority of the public will obey the rules and laws if they know them, one alternative is to provide the appropriate information to the public and property owners. Eliminating public access to Crooked Lake is not an alternative as it would violate State law.

Recommendation It is recommended that public awareness information be provided at the access point to the lake. "No Overnight Camping and No Open Fires" signs should be placed at the parking and boat dock areas. A "No Wake Zone" sign should be mounted near the boat dock to enhance safety. A weather protected signboard should be placed near the dock area where information about the lake, birdlife and general "rules of the area" could be reviewed by all. The information at the signboard should also identify where nearby overnight camping is permitted.

⁴ Estimate obtained by using proposed cost of doing similar work at Seymour Lake, dock construction costs not included. Seymour Lake improvements include parking and launch pad and are being paid by Fish and Game, Ducks Unlimited and the Resource Conservation and Development Corporation.

4.3 Wildlife

Management Issue The principle wildlife of concern to Crooked Lake residents and property owners is the retention and protection of loon nesting sites. Presently the lake has had three sites that the one resident pair has used for nesting, although they prefer to use the little island off parcels B6-15. The remainder of this section will discuss alternatives for preserving and protecting the existing loon nest site.

Loon nesting sites and successful breeding may occur on lakes having development and recreational use if sufficient habitat is available and the nesting sites are not repeatedly disturbed. Loons will nest on shore although islands offer the optimal nest sites. Crooked Lake has an island that has had an active nest for years. Nesting periods generally begin in late May through late June, however, if a nest is abandoned a loon pair may attempt a new nest and this second nesting period runs through late July. In order to retain and protect the existing nest site, lake users need to become informed of how recreation and development affects loons, as well as avoid the nest site during the critical nesting/mating/rearing periods.

Nest sites and breeding may be disturbed in a number of ways. Steady activity that comes near a nest site, whether motorized or non-motorized, may cause the nest to be abandoned. High motorized activity near a nest site may cause chick mortality due to separation from the adult or wakes caused by motorized craft may destroy the nest or wash away the eggs. In addition to damaging a nest, activities occurring too close to a nest will cause loons to leave an active nest thereby allowing predators such as gulls and ravens to eat the unprotected eggs or chicks. Discarded mono-filament line presents another threat to loons and other birds as it may entangle birds and chicks and ultimately kill them through starvation predation, or by drowning.

Alternatives If nothing is done to inform lake users of the sensitivity of loons to water borne activities and development, active nests will not be found on Crooked Lake in the future. Indeed, a proactive approach is needed because since 1986 the active loon nest has been abandoned due to disturbance at least 5 times (the re-nested four of those years). In order to maintain reproductive loons at Crooked Lake, it is necessary that some pro-active steps be implemented.

Recommendations Most individuals will not disturb a nest site if they are informed of its location and the proper behavior when near it. It is recommended that a number of techniques be employed to provide the public with information about loons. First, the existing island where regular loon nests have occurred should be encircled by a number of buoys marked with "Loon Nesting Site - Do Not Approach" placed at least 150 feet (200 feet preferred) from the island's

shoreline. Appendix #2 provides an illustration of a low cost, effective buoy. These buoys may be obtained from the State of Alaska, Department of Fish and Game. Loon alert notices and general information about loons should be posted at a weather protected signboard at the lake's access point to inform the public about proper "loon etiquette" (see Appendix #2).

4.4 Public Lands

Management Issue The Borough received lands under Municipal Entitlement Lands program of the Alaska Lands Act for four distinct purposes. In addition to obtaining lands from the state the Borough obtains title to properties through tax foreclosures, donations and purchases. Within the Crooked Lake area the Borough owns about 425 acres including seven lots with water frontage. Four of these lots connect to, or are a part of, large Borough parcels. The Borough is also obtaining, through tax foreclosure, a lake front lot with a cabin.

The Borough attempts to balance a number of uses of its public lands. Some lands are sold or leased for revenue generation while other lands are retained for public purposes such as schools and parks. Borough lands at lakes provide several management opportunities: recreation, private ownership and habitat protection. Borough lands may also be used to comply with state requirements to provide access to all public waterbodies. Briefly stated then, the management issues in regards to Borough lands are: What amount of Borough lake front property should be retained in Borough ownership and how should the retained lands be managed?

The Susitna Area Plan (SAP) contains guidelines for lake shore management and while SAP does not directly apply to Crooked Lake, it's guidelines may be used for discussion purposes. The SAP has three types of lakes: 1) wilderness 2) recreation and 3) general development. Each lake type has different management guidelines. Because most of the lake front property of Crooked Lake is in private ownership, Crooked Lake would be considered a General Development Lake by SAP standards. General development lakes are managed to allow a mixture of natural and developed uses. In addition, SAP guidelines note that general development lakes having significant⁵ recreation values should have 50% of the public lands retained in public ownership, for public uses. Crooked Lake would not be considered to have significant recreation values because the lake does not have an existing commercial recreational enterprise on the lake, the area's major recreation activities are located elsewhere, i.e., Big

⁵ The term "significant" is not defined within SAP but Webster's defines the word significant as: "something momentous, of importance, critical".

Lake; the upland development is primarily residential-recreation and there is no well developed public recreation access to or recreation activities occurring on the lake. However, the Willow Sub-Basin Area Plan recommends the retention in public ownership of two publicly owned parcels located on the east and west sides of the lake to be used as fly-in waysides.

The Borough Assembly and Planning Commission have also developed policies for Borough lands. An overall policy directive from both the Assembly and Planning Commission is to increase the number of land disposals in order to place more lands in private ownership and increase revenues through sale and tax receipts. The Planning Department seeks to balance the need to retain lands for public purposes and the need to increase revenues through land disposals.

Alternatives There are three alternatives to be considered; these are: 1) retain all lands, 2) disposal of all lands and 3) dispose of some lands while retaining others. Alternatives one and two are not consistent with the Department's mission to retain lands for public purposes and increase revenues through disposals. Therefore the management alternative is to determine which parcels and how many of them should be retained or sold.

Recommendations Parcels providing direct access from South Big Lake Road to Crooked Lake should be retained for public access reasons. Parcels that provide access to the lake for larger Borough parcels should also be retained for lake access purposes. The decision to dispose of the larger Borough parcels surrounding the lake but not fronting on the lake would be made on a case by case basis. Parcels obtained through tax foreclosures will be sold unless they have some unique characteristics because they were already in private ownership. Using these criteria five parcels would be available for disposal on Crooked Lake, these are illustrated in Figure 8.

5.0 Implementation

Plans may be implemented in a number of ways but are typically implemented through capital improvement programs and subdivision and zoning ordinances. Within the Borough, residents may also petition for motorized use restrictions on lakes and this ordinance may be used to implement a lake management plan. This ordinance was discussed by Crooked Lake property owners and found not to be needed at this time. Plans may also provide for private implementation through public information campaigns and a list of best management practices that may be used by the public. The problems facing Crooked Lake at this time do not warrant a special zoning or subdivision ordinance nor do they warrant implementation of the Borough's motorized use of lakes ordinance. Therefore, this plan will utilize a combination of capital improvements, public information

and best management practices to implement the plan. In addition should a Lake Management ordinance⁶ be adopted containing a general provisions section that provides limited guidelines, e.g., wildlife protection and bans on overnight camping the Crooked Lake Property Owners Association should be contacted to determine whether or not Crooked Lake should be included in such a ordinance. A description of the implementation proposals follow.

Loons To protect loons it is recommended that buoys be placed a minimum of 150 feet (200 feet preferred) around the island to inform lake users of the next site. Appendix #2 provides information on buoy construction and placement. These buoys may also be obtained from the State of Alaska, Department of Fish and Game. Additionally, a weather protected informational signboard should be constructed at the preferred access point and information about lake usage and proper behavior near active loon nests e.g. "Loon Alert!" The Crooked Lake Property Owners Association and Borough should cooperate in implementing the loon protection program. Additionally, the harassment of loons and other lake related wildlife such as grebes may become subject to fines under the proposed lake management ordinance described above.

Lake Level The Borough should undertake an analysis of property setbacks prior to redesigning the outlet channel in the southwest outlet to increase the lake level by seven inches. If the analysis does not indicate setback problems the Borough should pursue the funding and construction of the outlet channel by the State of Alaska, Department of Fish and Game.

Borough Lands A limited number of Borough lands with lake frontage should be sold. Parcels that do not connect to South Big Lake Road or to a larger Borough parcel may be sold. Parcels obtained through tax foreclosure should be returned to private ownership through sales.

Lake Access The existing access point is the most suitable location for access to the lake. A dedicated public access easement should be obtained from the existing property owner to obtain permanent access. The Borough, Crooked lake Property Owners and the Alaska Department of Fish and Game should cooperate in obtaining the dedication. Further, in order to promote safe operations and convenience at the public boat dock a 50 foot No Wake Zone should be established.

Trash and Fireworks Information should be posted at the information signboard

⁶ Note: Due to the diversity of lakes in the Borough and the many requests for lake management plans and guidelines that have been received, a Borough-wide ordinance consisting of a general provisions section containing rules for all lakes, e.g., don't litter and a more specific provisions section containing several lake categories with different guidelines ranging from none to several is being considered.

at the public access point informing users to pack out what they pack in. "Bear proofed" trash receptacles should also be provided at the access point if the Borough can guarantee regular trash removal. Signs should be posted stating "No Overnight Camping - Do Not Litter". The information, receptacles and signs should be provided by the Borough, although the Property Owners Association should assist on emptying the receptacles.

Firework displays are illegal without a special permit issued by the Borough Planning Department; never-the-less individuals generally display fireworks throughout the Borough. Firework displays create two problems, noise from explosions and trash from the fireworks. Firework displays may also start forest fires. The Borough does not have the resources to actively police the illegal use of fireworks and such use is a low priority for the Alaska State Troopers. However the Borough should advise property owners of the law and inform them, by correspondence, to be considerate of their neighbors, avoid polluting the lake with debris and avoid forest fires and disturbance of waterfowl.

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.

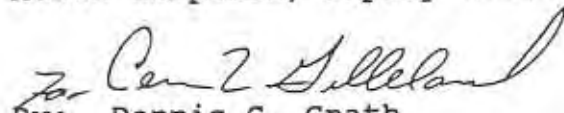
In addition to the penalties provided by law, this general permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game 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

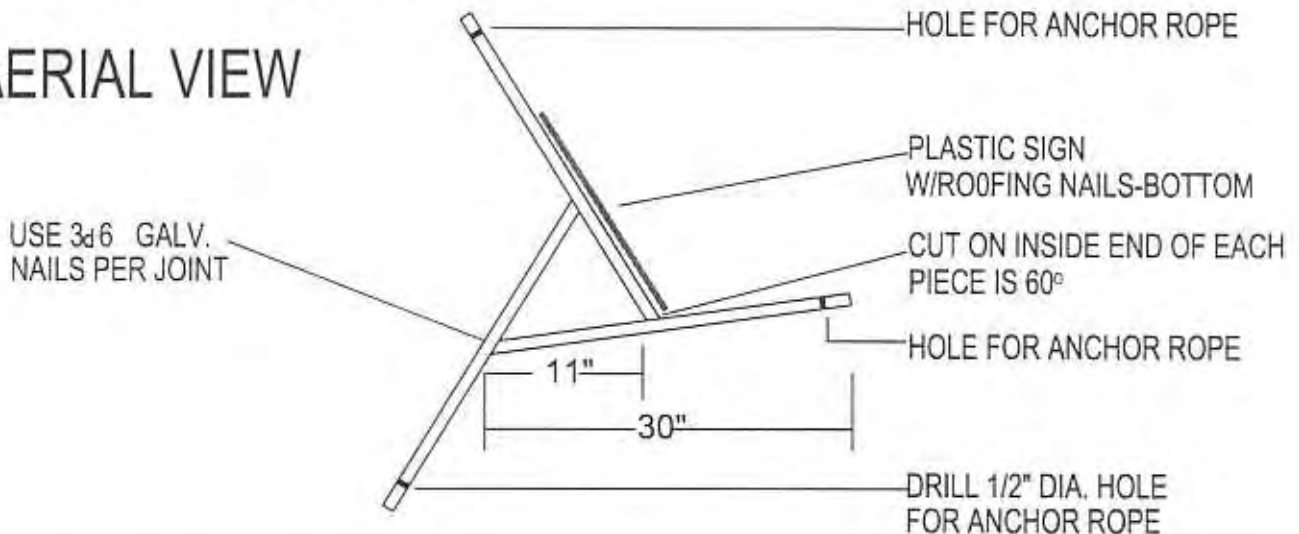
cc: R. Thompson, DNR/DL
A. Samet, DNR/DL
D. Kelley, DNR/DL
S. Dunaway, DNR/DM
P. Pinard, DEC
P. Brna, SPCO
D. Webster, MSB
W. Wrede, City of Cordova
M. Pearsall, KPB
D. Dengel, City of Valdez

APPENDIX #2

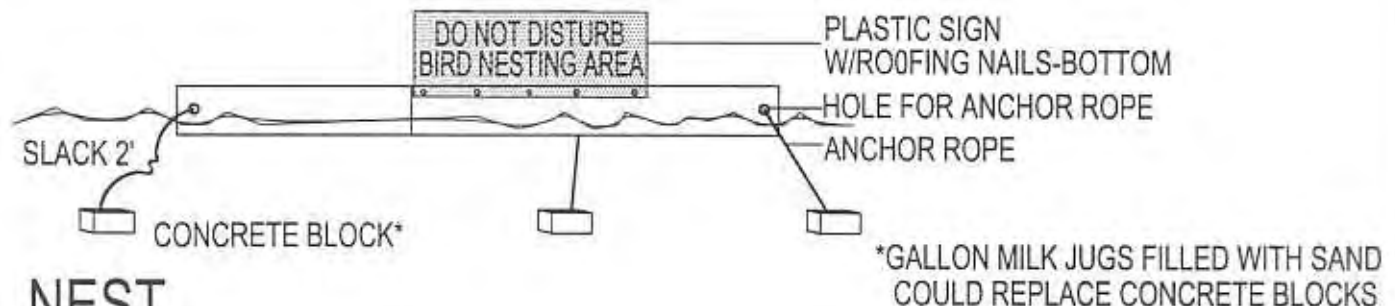
SIGN FLOAT FOR LOON NESTS

(NOT LIKELY TO TURN OVER
IN THE STRONGEST WIND)

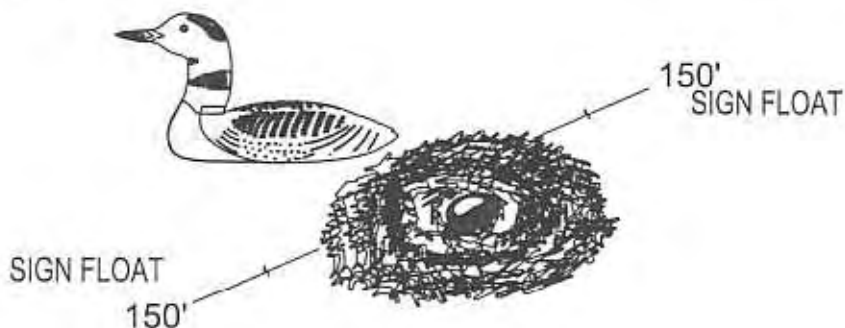
AERIAL VIEW



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

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.

DESIGNED BY:
HERB COLLEY, PO BOX 348 TUPELO POINT, BOWLAKE, MORTWOOD, N.H. 03261

ENHANCED BY:
MATANUSKA-SUSITNA BOROUGH SUPPORT SERVICE 1995

LOON ALERT



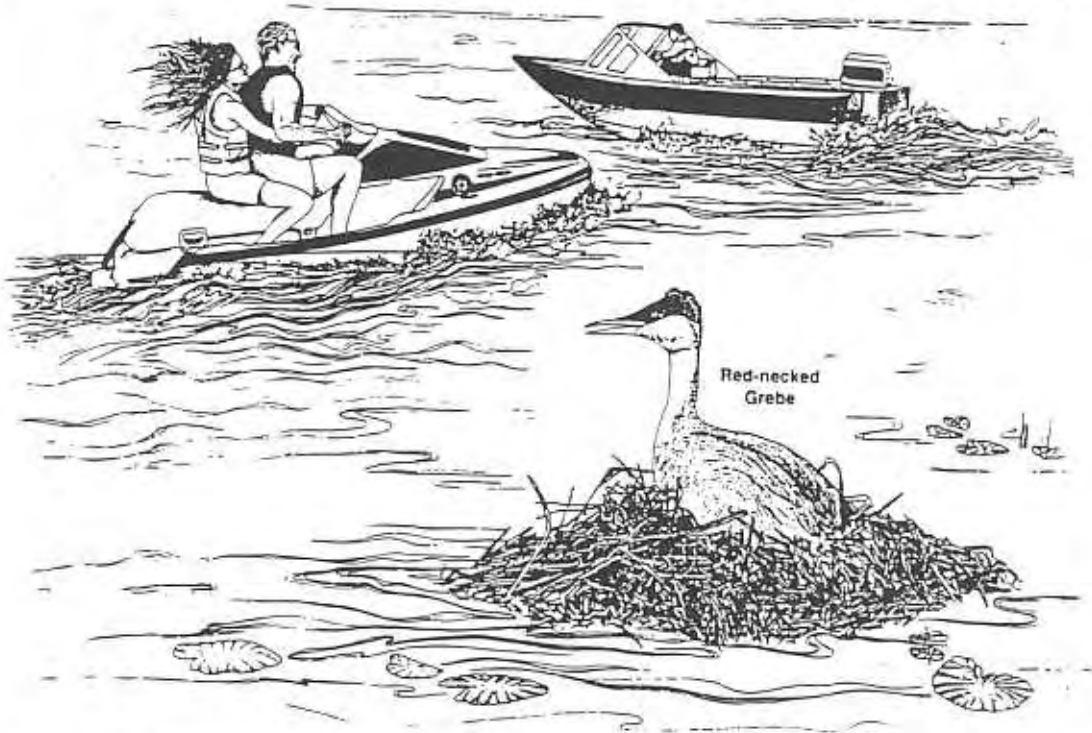
**Help keep this lake safe
for loons and other wildlife:**

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.



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

