ALASKA LOON WATCH

1988

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF WILDLIFE CONSERVATION

NONGAME WILDLIFE PROGRAM

ALASKA DEPARTMENT OF FISH AND GAME

JUNEAU, ALASKA

STATE OF ALASKA

Steve Cowper, Governor

DEPARTMENT OF FISH AND GAME

Don Collinsworth, Commissioner

DIVISION OF WILDLIFE CONSERVATION (GAME)

W. Lewis Pamplin, Jr., Director

ALASKA LOON WATCH 1988

by

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NONGAME WILDLIFE PROGRAM REPORT

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SUMMARY

Of the 21 U.S. states with historical records of breeding Common Loons (Gavia immer), Alaska is one of only four with substantial loon populations remaining. Generally, the distribution of Common Loons in North America has shrunk to more remote areas as human populations have increased. Anchorage is the largest city in North America to still have nesting loons (both Common and Pacific, G. pacifica), yet disturbance and loss of nesting habitat threatens their future.

In 1985, ADF&G began loon surveys in Anchorage, and in subsequent years expanded these surveys to include developed areas of the Matanuska-Susitna Valley with the help of volunteers. In 1988, ADF&G collected observations from 36 Anchorage area lakes and 167 Mat-Su Valley lakes and ponds with the help of 156 volunteers. The numbers of loon chicks surviving per breeding pair in these areas have usually been within ranges to sustain a stable population, and loon chick production was generally high in 1988. However, the number of breeding loons remaining in Anchorage is low, and there were no surviving Common Loon young this year. At least four adult loons died in the survey area this year, however this will not affect the population size.

ADF&G has posted signs and restricted fishing at some loon nesting lakes in order to reduce human disturbance to breeding pairs and their young. Six of eight posted lakes had successfully nesting loons this year. For the first time, artificial nesting islands were built by volunteers for loons on three lakes, and one was used successfully by a pair of Common Loons. Maps of loon nesting areas used in the last four years in Anchorage have been given to the Municipality of Anchorage for protection through their wetland planning process.

Concern about lakes possibly abandoned by breeding loons prompted a study by a UAF graduate student begun this year. Preliminary results indicate that there are key habitat differences between lakes with successfully nesting loons and those with little or no use by loons.

Plans are to continue the Loon Watch in 1989 with the help of volunteers, and continue and expand efforts to protect loon nests from disturbance and development.

INTRODUCTION

Loons are significant and popular components of Alaska's wildlife because of their large size, beauty, haunting vocalizations and population status. The distribution of Common Loons in North America has shrunk to more remote areas as human populations have increased in loon nesting areas (Klein 1985). Thirteen of 21 U.S. states with historical records of breeding Common Loons either no longer have breeding loons or have greatly reduced populations (McIntyre 1988). Of the eight remaining states, only four, including Alaska, have substantial numbers of breeding Common Loons. In addition, Alaska is host to the other four species of loons found in the world - Pacific (G. pacifica), Arctic (G. arctica), Red-throated (G. stellata) and Yellow-billed (G. adamsii).

Loon population declines in other states have been related to habitat loss, disturbance and shooting (McIntyre 1986). The growing human population in Anchorage and in the nearby Matanuska-Susitna (Mat-Su) Valley during the 1970's and 1980's substantially increased development and disturbance on loon nesting lakes. This led to concern about the future of breeding loons in these areas.

To assess the distribution and nesting success of loons on Anchorage's lakes, ADF&G began surveys in the summer of 1985. After this, the survey area was expanded to the Mat-Su Valley between Sutton and Willow (including parts of Point McKenzie). In 1986, the survey included 45 Anchorage area lakes and 119 lakes in the Mat-Su Valley, with the help of more than 100 volunteer observers (Tankersley 1986). In 1987, the survey included 41 Anchorage area lakes and 158 Mat-Su lakes, with the help of 134 volunteers (Tankersley 1987). In 1988, the survey included 36 Anchorage area lakes and 167 Mat-Su Valley lakes with the help of 156 volunteers. Each year the survey has included all lakes used by nesting loons in the greater Anchorage area (Potter Marsh to Chugiak). Observations from a few lakes on the Kenai Peninsula and other areas of the Mat-Su Valley were also submitted by volunteers in 1987 and 1988.

The Anchorage area is a summer home to a few nesting pairs of Common Loons and Pacific Loons. Pacific Loons were formerly considered a subspecies of Arctic Loon. Based on contacts with wildlife agencies from all northern states and Canadian provinces, we have learned that Anchorage is the largest city (more than 240,000 people) in North America to have nesting loons. Lakes in the Mat-Su Valley also have breeding populations of Common and Pacific Loons. Red-throated Loons have been observed in Anchorage and the Mat-Su Valley, but no nesting has been documented in these surveys. Generally, Common Loons breed on lakes larger than 10 acres, Pacifics breed on lakes between 4.5 and 35 acres,

and Red-throateds breed on small ponds, less than 5 acres.

Red-necked Grebes (Podiceps grisegena), similar fish-eating divers, are also common on lakes in Anchorage and the Mat-Su Valley, and are sometimes misidentified as loons. Overlap in lake use between loons and grebes has not been well documented.

STUDY AREA AND METHODS

In early May 1988, packets of self-addressed, stamped observation cards (Figs. 1 and 2) and instructions were mailed to volunteers. The packets included drawings of loons and grebes to aid in identification. Observations were collected from 36 lakes in the Anchorage bowl area (Potter Marsh to Eklutna, Fig. 3). In addition, observations were collected from 156 lakes (plus 11 unnamed ponds < 3.5 acres) in the main Mat-Su Valley study area (along the highway/road corridors from Sutton west to Willow including Pt. McKenzie, Fig. 3). Observations were also submitted from twelve additional Mat-Su and Kenai lakes.

Observations were made at the lakes to determine, if possible: 1) the species and number of adult loons present; 2) the nest location (if accomplished without disturbance); 3) the number of loon chicks present; and 4) the number of Red-necked Grebe adults and chicks. Observers included lakeshore residents and other volunteer observers, and ADF&G employees (Tables 1, 4, and 6).

Signs were posted at the public access points on Goose, DeLong, Otter, and Lower Sixmile lakes to alert lake users to avoid disturbing the nesting loons (Fig. 4). Areas near Pacific Loon nesting sites on DeLong and Little Campbell were closed to fishing from May 15-July 15, and posted with shoreline and floating signs with rope barricades (Fig. 5). Other generic signs (Fig. 6) were floated in the water near Common Loon nesting sites on Anderson, Wolf, and Long (in Willow) lakes in the Mat-Su Valley, and posted on the nesting islands on Crystal Lake and Lake Lucille. In addition, artificial nesting islands were floated on Flat Lake, Big Lake and Seventeenmile Lake in the Mat-Su Valley.

RESULTS

Anchorage

Only one nesting pair of Common Loons was documented this year, although another territorial pair, with no nesting documented, resided on Otter Lake (that had a nesting pair in the past) (Table 1). At least one chick was seen on Lower Sixmile earlier in the summer, however no chicks survived to fledging (Table 1). This is the first year since the survey began that no Common Loon chicks have

survived in the Anchorage area (Table 2). Nonbreeding Commons were seen visiting 12 other lakes (Table 1).

There were at least eight breeding pairs of Pacific Loons on eight lakes that fledged six chicks (Tables 1, 3). This resulted in a relatively high reproductive rate compared to the past two years (Table 3). Nest sites were located for seven of the pairs (Tables 1,3). Nonbreeding Pacifics were seen visiting an additional 11 lakes (Table 1).

The fishing restrictions, floating signs, and rope barricades erected May 15-July 15 in 1987 and 1988 may have aided chick survival on DeLong and Little Campbell Lakes. Pacific Loons at both of these heavily used recreational lakes did not have any surviving chicks in 1986 when the fishing restrictions were not implemented. However, in 1987 and 1988 both pairs were able to fledge chicks at each lake. However, Pacific Loons at Goose Lake, which were also unable to fledge chicks in 1986 and 1987, again did not have any nesting success, despite shore-based signs posted at the public beach and a floating rope barricade with signs near the nest site.

An adult Pacific Loon died on Delong Lake on September 1 from ingesting a large number of rocks. It is not known whether this was one of the breeding pair. Loons typically ingest a few small rocks to aid in digestion, but the volume and size of rocks in this bird were abnormal.

No Red-throated Loon observations were submitted from the Anchorage area this year.

Thirty-four of the 36 lakes were surveyed for Red-necked Grebes on at least one date. Breeding grebes were found on 13 of these lakes, with nonbreeders seen on an additional six lakes (Table 1). Grebes were seen on both of the lakes used by breeding or territorial Commons, however breeding grebes were documented for only one of these lakes (Table 1). The overlap of lake use between grebes and Pacific Loons was much less because only two of the eight lakes used by breeding Pacific Loon pairs also had breeding grebes (Table 1).

Matanuska-Susitna Valley

Forty breeding pairs of Commons were found on 37 lakes in the study area (Tables 4, 5). Forty-three chicks survived to fledging from these pairs, which was the highest reproductive rate recorded in the past three years (Table 5). Individuals, pairs and groups of Common Loons (possible breeders and nonbreeders) were found on an additional 52 lakes. Four lakes, which have had nesting pairs in the last two years, had territorial pairs but no nesting activity

this year.

Ten breeding pairs of Pacifics were found on 10 lakes in the study area (Tables 4, 5). Eight chicks survived to fledging from these pairs, which was also the highest reproductive rate recorded for this species in the past three years (Table 5). Individuals, pairs and groups of Pacific Loons (possible breeders and nonbreeders) were found on an additional 28 lakes.

Only one lake (Anderson) of the six posted with loon nesting signs did not have successfully nesting Common Loons this year. Disturbance by people and dogs may have caused this loss. The artificial island on Flat Lake was used successfully by the resident pair, which had been hindered in the past by human disturbance and loose dogs. However, the artificial islands floated on Big Lake and Seventeenmile Lake were not used.

At least three adult Common Loons died in the study area this year. One of the breeding pair on Lake Lucille died in late July of lead poisoning, from ingesting lead fishing sinkers. This has been a cause of death of loons in other states as well (Locke, Kerr and Zoromski 1982). One of the breeding pair on Long/Twin Lakes was shot in early September, and the shooter apprehended by a volunteer and a Fish and Wildlife Protection officer. The third loon was found dying in a farmer's field in Pt. McKenzie, and died shortly after discovery. The cause of death is yet to be determined. These deaths will not impact the Mat-Su loon population, and will provide the opportunity to see how quickly the breeding territories are occupied by a nesting pair (possibly involving the surviving mate).

Up to five adult Red-throated Loons were found occasionally on three lakes in the Big Lake area (Table 4). However, no breeding Red-throated Loon pairs were located, despite checking of 11 small ponds in the Big Lake area by volunteer Gary Nilson.

Red-necked Grebes were checked on 120 of the 167 lakes and ponds on at least one date. Breeding grebes were found on 52 of these lakes, with nonbreeders seen on an additional 42 lakes and ponds (Table 4). Breeding grebes were seen on 16 of the 37 lakes that had breeding Commons, but on only two of the ten that had breeding Pacifics (Table 4).

Loon and grebe observations for 12 Mat-Su and Kenai lakes outside of the main study area are included in Table 6.

DISCUSSION AND FUTURE PLANS

The reproductive rate of Common Loons in the Mat-Su Valley

in 1988 was relatively high at 1.2 chicks/pair. Results of other studies from North America indicate that about 0.5 chicks/pair is average (McIntyre 1988). Chick production by Commons on the Kenai National Wildlife Refuge, Alaska, an area of loon abundance, ranged from 0.30-0.67 chicks/pair (Smith 1981). The reproductive rates for Commons in the Mat-Su Valley have been near or above these rates in the past three years, so it can be assumed that the Mat-Su population is at least stable.

At least four pairs in Mat-Su maintained territories, but did not nest this year, although pairs on these lakes in the past two years have nested. Other studies have indicated that this occurs about one year out of every four or five (Sutcliffe 1980, Strong et al. 1987).

In Anchorage, only two breeding pairs of Commons remain, consequently, they are vulnerable to disappearance as a breeding species in this area. After several productive years, it appears that one pair did not nest this year, and the other pair lost their chicks. Efforts will be made to protect their nest sites from any additional disturbance and development, however both pairs use popular recreational lakes.

Pacific Loon production in the Mat-Su Valley was also the highest recorded in three years, although the number of breeding pairs included in the survey is only a quarter of the number of Commons. This may be because there are fewer smaller lakes in the study area, and not as many small lakes are included in the survey.

Pacific Loon production in Anchorage rebounded to 0.67 chicks/pair in 1988. This may compensate for the low chick production during 1986 and 1987. The reproductive rate necessary to maintain a stable population of Arctic Loons in Scandinavia (once considered the same species as Pacific Loons) was estimated at 0.4-0.5 chicks/pair (Nilsson 1977). As in 1987, there was a low amount of overlap in use on lakes between breeding Red-necked Grebes and breeding Pacific Loons. This information may help indicate loon nesting efforts on lakes included in future ground and aerial surveys.

An area of concern has been the large number of lakes not used by breeding loons, including those known to be abandoned. Lakes formerly used by breeding loons in the Anchorage area include Turnagain Bog (Hogan and Tande 1983) and Westchester Lagoon (W. Mills, pers. commun.), and there are probably others (Jewel, Sand, Sundi, Spenard, Hood). Similar patterns may be occurring in the Mat-Su Valley where several lakes appear to have been abandoned by breeding loons (e.g. Seymour, Beverly, and Wasilla lakes; personal commun. by lake residents). However, without historical

data for many lakes, abandonment may not be attributed to all unoccupied lakes.

A study was begun in 1988 by UAF graduate student Anne Ruggles to determine differences between lakes that had successfully nesting loons, and those that had little or no loon use. Preliminary results indicate that the amount of marshy shoreline, shallow water and the abundance of fish are key differences. So, many lakes without breeding loons may not contain suitable habitat for nesting or raising young.

Ruggles' study also revealed that successfully nesting loons often had a nearby nesting pair of Bonaparte's Gulls, which aggressively defended the area against hawks, eagles and owls, which prey on eggs or chicks. Loons appear to benefit from these gulls, which do not prey on loon eggs or chicks.

More information is needed to document nesting attempts and chick survival of loons on Anchorage and Mat-Su lakes, so that breeding and non-breeding pairs occupying lakes can be confirmed. Volunteers in 1989 will be encouraged to observe lakes primarily during late July and August to document chick survival, and to a lesser extent during June to document nesting efforts, if this can be accomplished without disturbing the pair.

Protecting breeding habitat components (fish, clear water, marshy nest site, and a chick rearing area) and controlling human disturbance are important for the future of breeding loons in these areas. Fishing restrictions, floating signs, and rope barricades near loon nest sites appear to have benefitted loon production on several lakes. The use of artificial nesting islands this year had mixed success. Artificial nesting islands do not attract new nesting pairs to a lake (McIntyre and Mathisen 1977), and may not induce nesting if other critical habitat features are missing. This may be why the islands on Big Lake and Seventeenmile Lake were not used.

Plans for the summer of 1989 include maintaining the fishing restrictions near loon nest sites at Little Campbell and DeLong Lakes, and erection of floating signs and rope barricades at some Anchorage and Mat-Su lakes. In addition, signs will be made available for volunteers to post at public access points on lakes that have nesting loons. Also, handouts on loon biology and ways to avoid disturbing nesting loons will be available for volunteers to distribute to lakeshore residents and recreationists.

Loons traditionally nest in the same area year after year and protection of these sites is important to maintaining breeding loons on lakes (Strong et al. 1987). Maps of loon nesting sites from the past three years were given to the

Municipality of Anchorage for protection through their wetland planning process. Loon nest sites documented in the Mat-Su Valley from the past three years will be submitted to ADF&G's Division of Habitat and the Mat-Su Borough for protection from disturbance and development.

ACKNOWLEDGEMENTS

This report would not have been as complete without the information from all the volunteer observers. Gary Nilson especially deserves thanks for submitting extensive observations of many lakes in Anchorage and in the Mat-Su Valley. Other people who deserve thanks are Scott Ronzio for building floating sign platforms; Mike Duxbury, Earl Becker, Curt Shuey and Carl Grauvogel (all ADF&G) and the Goose Lake lifeguards for field assistance; Wayne Williams, George Windle and Mark Niver for building artificial nest islands; Anne Ruggles, Ray Ferguson, George Badger, Rod Cottle and Bettina Williams for posting loon signs; Jim Scott, D.V.M. for X-rays of loons, Debbie McKinney (Anchorage Daily News), Dirk Miller and Joe Hunt (Anchorage Times), and Sheila Nickerson (ADF&G) for media coverage and publicity; and Anne Ruggles, Kiana Koenen (ADF&G), and Jim Moen (FWP) for assistance with the volunteer meeting. This study was funded by State of Alaska funds through the Nongame Wildlife Program, Division of Game, Alaska Department of Fish and Game.

LITERATURE CITED

Hogan, M. and Tande, G. F. 1983. Vegetation types and bird use of Anchorage wetlands. U. S. Dept. Inter. Fish and Wildl. Serv. Anchorage, AK. 134 pp.

Klein, T. 1985. Loon magic. Paper Birch Press, Inc. 130 pp.

Locke, L.N., S. M. Kerr, and D. Zoromski. 1982. Lead poisoning in Common Loons (Gavia immer). Avian Dis. 26: 392-396.

McIntyre, J. W. and J. Mathisen. 1977. Artificial islands as nest sites for Common Loons. J. Wildl. Manage. 41: 317-319.

_____. 1986. Common Loon. Pp. 678-695 IN Audubon Wildlife Report, R. L. DiSilvestro, ed. National Audubon Society, N. Y.

_____. 1988. The Common Loon, spirit of northern lakes. U. Minn. Press.

Nilsson, S. G. 1977. Adult survival rate of the black-throated diver Gavia arctica. Ornis Scand. 8 (2):193-195.

Smith, E. L. 1981. Effects of canoeing on Common Loon production and survival on the Kenai National Wildlife Refuge, Alaska. M. S. Thesis. Colo. State Univ., Ft. Collins. 53 pp.

Strong, P. I. V., J. A. Bissonette, and J. S. Fair. 1987. Reuse of nesting and nursery areas by Common Loons. J. Wildl. Manage. 51: 123-127.

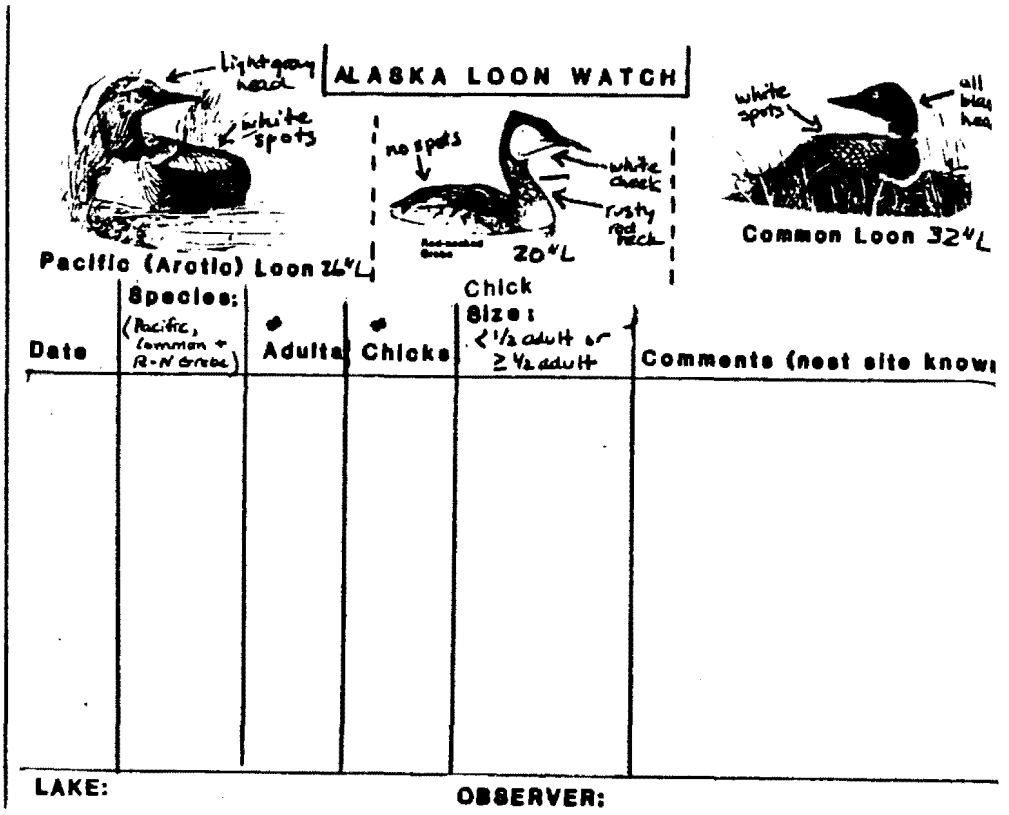
Sutcliffe, S. A. 1980. Aspects of the nesting ecology of Common Loons in New Hampshire. M. S. thesis. Univ. New Hamp., Durham. 95 pp.

Tankersley, N. 1986. Alaska Loon Watch 1986. Alaska Dept. Fish and Game. Mimeo, 19 pp.

_____. 1987. Alaska Loon Watch 1987. Alaska Dept. Fish and Game. Mimeo, 27 pp.

PERSONAL COMMUNICATION

William M. Mills, Jr., M.D., 1544 Hidden Lane, Anchorage, AK 99501.



Return Address

_____

_____

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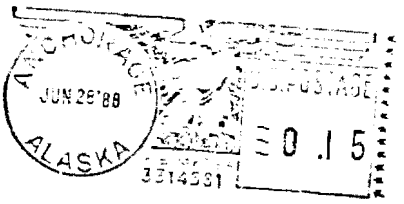


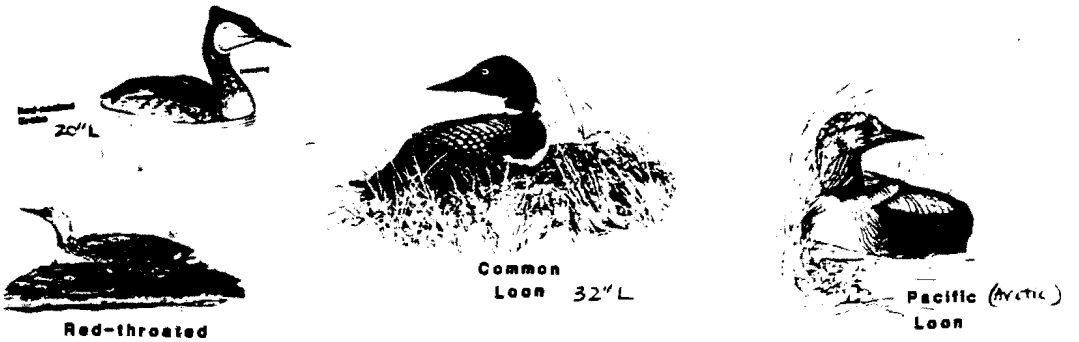
TO:

NANCY TANKERSLEY
ALASKA DEPT FISH & GAME
333 RASPBERRY RD
ANCHORAGE, AK 99518

Mail-in dates:

June 1 (include late May observation-territorial pair?)
July 1
Aug 1 (include mid-July observation-chicks?)
Sept 1 (include late Aug. observation-# chicks surviving)
Oct 1

Fig. 1. Data cards used by volunteers to submit observations monthly.



1988
ALASKA LOON WATCH

Your Name: _____ Address: _____

Day Phone: _____ _____

Please fill out a separate sheet for each lake. Write or phone for more forms, if needed.

Lake _____ Locality _____

Cabins or homes on shore (circle one): 0 1 2 3 4 5 more than 5 Camp Campground

Use by people during May-September. Circle highest value that applies. (Please circle only ONE).

0. None (fall hunting only counts as none).
1. No boats.
2. Boating or canoeing irregularly (nonmotorized).
3. One or two boats or canoes daily (nonmotorized).
4. Daily use of boats, canoes, or sailboats; no boat motors or floatplanes.
5. Occasional use of boats with motors, and/or floatplanes.
6. Daily use of one or two boats with motors, and/or floatplanes.
7. Frequent use of boats with motors, and/or floatplanes.

Date of your first visit this year _____
Date water open sufficient for loon use _____
Date loon(s) first came to lake _____
Number on lake as above date _____ Species _____
Are loons present throughout the summer (circle one) yes no irregularly
Total number of adult loons remaining on lake throughout the summer _____ Species _____
Total number of nesting pairs _____
Do you know where this year's nesting site is? _____ (If yes, please enclose map)
(If no, please do not disturb birds to locate)

Total number of young birds hatched by these pairs _____
Total number of young which survived through summer _____
Date young first seen _____
Size of young on this date (circle one)
1. Less than 1/3 length of adult
2. 1/3 to 2/3 length of adult
3. More than 2/3 length of adult
Date loons last seen _____
Date of your last visit _____
Number of young raised on this lake last year in which you observed young _____
What year was this? _____ Last year you checked lake _____

Are grebes seen on lake? _____
Do grebes nest on lake? _____
When? _____
How many? _____
How many grebe chicks survived this year? _____

Return by 9/30/88 to:
Nancy Tankersley
Alaska Dept. of Fish and Game
Nongame Wildlife Program
333 Raspberry Road
Anchorage, AK 99518

Phone: 267-2149 (collect)

Please add any additional remarks on the back.

(OVER)

Fig. 2. Data form used by volunteers to submit observations.

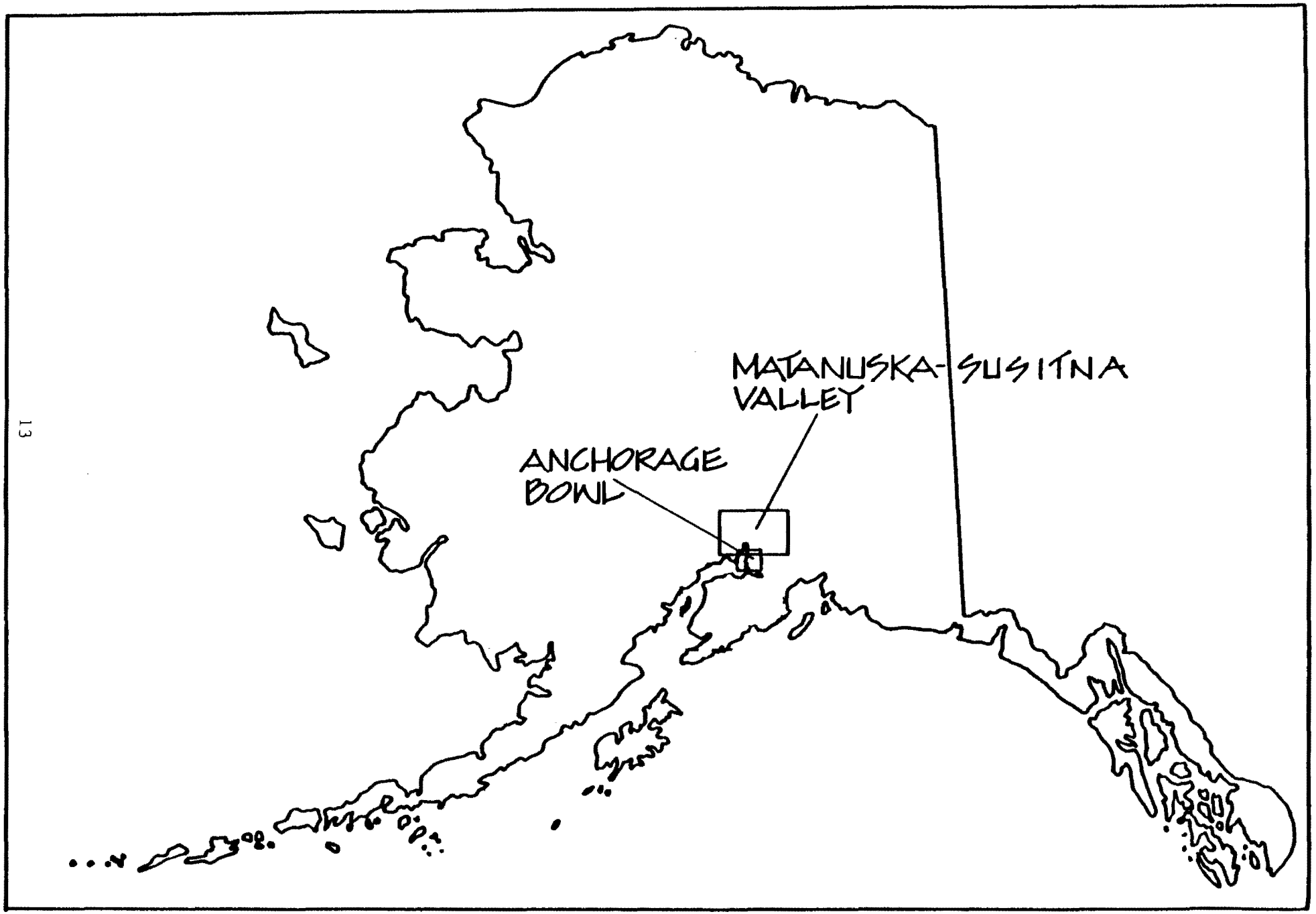
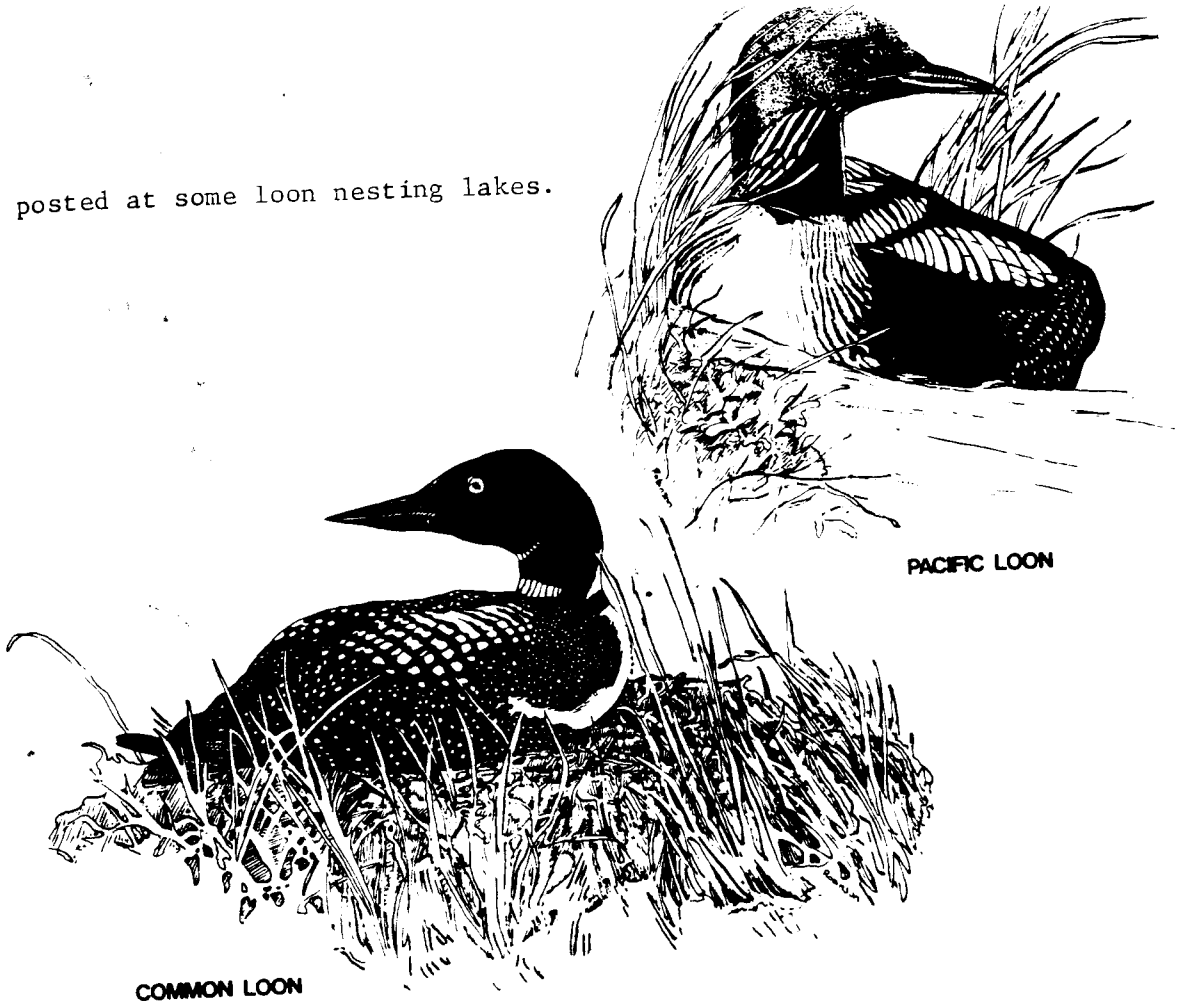


Fig. 3. Surveys included 36 lakes in the Anchorage Bowl and 156 lakes in the Matanuska-Susitna Valley.

Fig. 4. Sign posted at some loon nesting lakes.



LOON NESTING SANCTUARY

State laws protect nesting loons and other birds.

1. Loon eggs and young may die from chilling or being eaten by predators while adult loons defend their nest or young from disturbance.
2. Keep your dog on a leash.
3. Pick up litter, especially fishing line and plastic 6-pack holders, which can strangle and kill loons and other wildlife.

DO NOT DISTURB NESTING LOONS OR THEIR YOUNG

POSTED BY: ALASKA DEPARTMENT FISH AND GAME

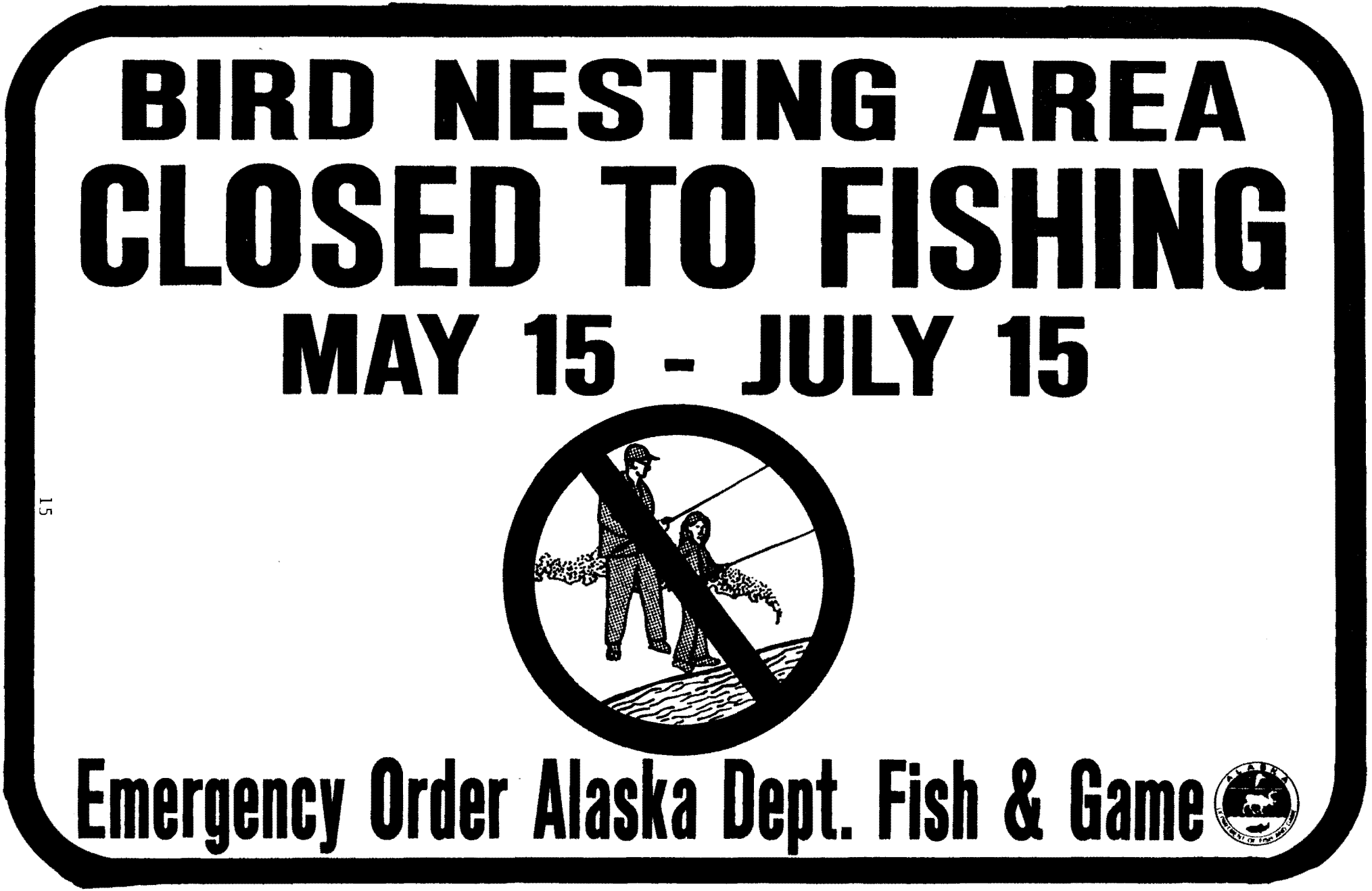


Fig. 5. Sign posted and floated on loon nesting lakes where fishing restrictions applied.

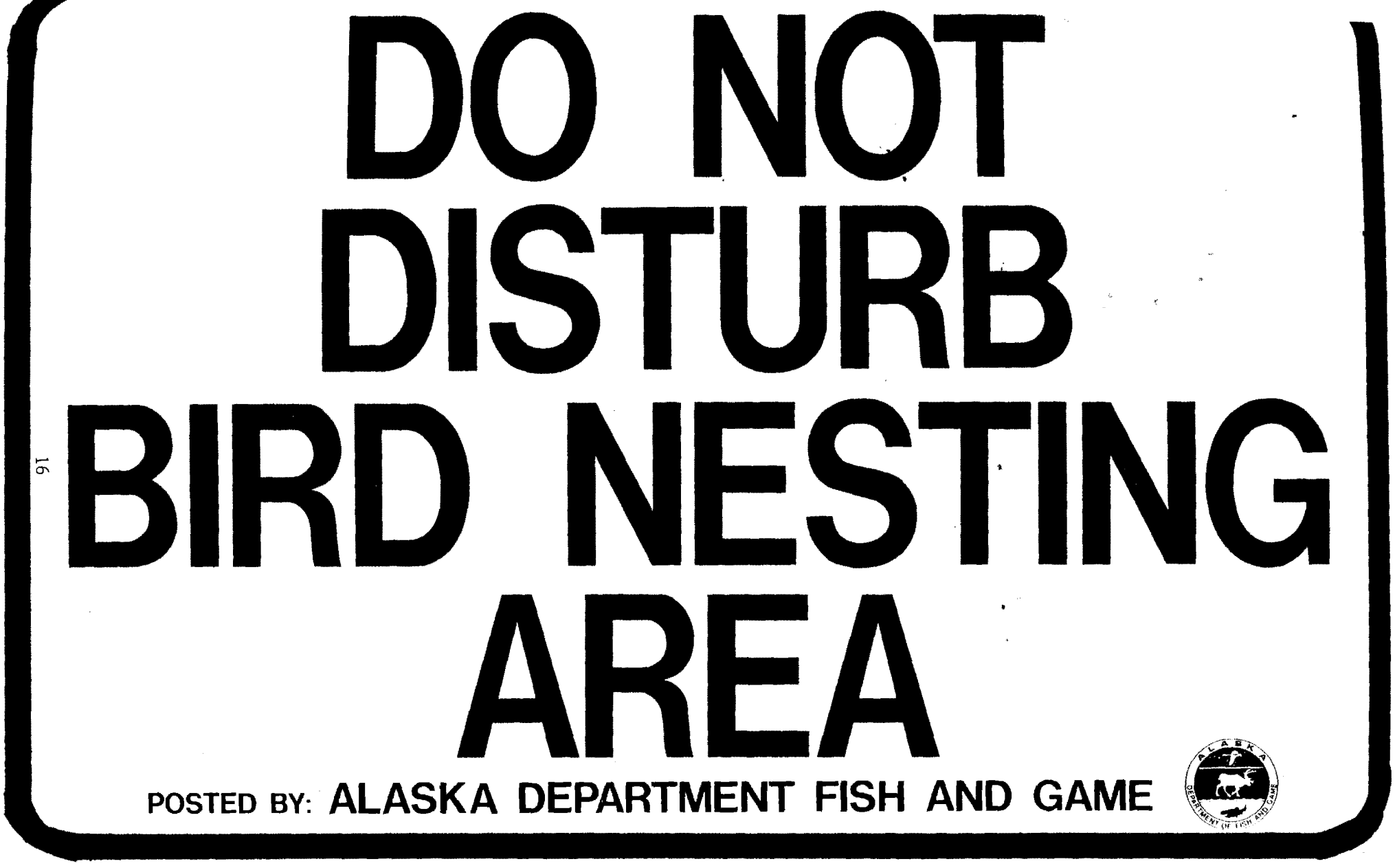


Fig. 6 . Sign floated or posted near loon nesting sites on some lakes.

Table 1. Common (CO) and Pacific (PA) Loon, and Red-necked Grebe (GR) observations from the greater Anchorage area during 1988.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
ANCHORAGE	BASHER SW POND	0		7/25			N.T.
	BAXTER BOG	1-2	GR* (N)	5/4,17,22,31	0	?	C. BERG, P. EGGLESTON
	BEHM	5	GR*?	8/?	?	?	N.T.
	CAMPBELL	0-1	CO	5/23-6/16			B&L BROOKS, B. PASSAGE
		2-6	GR* (N)	DATES 5/6-9/26	2	1?	B&L BROOKS, B. PASSAGE, D. GRANSBURY
	CHENEY	0-1	CO	DATES 6/4-7/1			M. SUTTON, C. THOMPSON
		2-12	GR* (N)	DATES 5/7-8/3	7	5?	FINK/SUTTON/EGGLESTON/THOMPSON
	CONNORS	1-3	PA* (N)	DATES 5/1-8/24	1	0	G. NILSON, M. DALTON, C. BERG
		1	CO	5/25			D. HERTER
		0-6	GR*	DATES 5/1-8/18	1	0	G. NILSON
	DELONG	1-5	PA* (N)	DATES 5/1-9/11	2	1	SCHEFFEL/CHANDONNET/PASSAGE/NILSON/HAGGART/LEWIS
		0	GR	(1 PA DIES 9/1)			(SIGNS AND ROPE ERECTED 5/25-7/15)
	GOOSE	1-2	PA* (N)	DATES 5/2-8/21	1	0	W. JONES, D. MALONEY, MOA LIFEGUARD, N.T.
		0	GR	DATES 5/2-8/21			W. JONES, D. MALONEY, MOA LIFEGUARD, N.T.
	HIDEAWAY	0	GR	5/20,6/8			J & M MCCONNAUGHY
	JEWEL	0-3	CO	DATES 5/1-9/6			B. PASSAGE, M. SUTTON, J. WESTLUND
		2	PA	7/9, 9/11-16			B. PASSAGE
		1-4	GR	7/3,9,8/21,28-9/6			B. PASSAGE
	LITTLE CAMPBELL	2	PA* (N)	DATES 5/7-9/21	2	2	PASSAGE/MCCONNAUGHY/VAN DAELE/DALTON/N.T.
		0	GR	DATES 5/7-9/21			(CHICKS LAST SEEN 8/28 WITH 2 ADULTS)
	MEADOW	0-4	PA* (N)	DATES 5/1-9/2	1	1	G. NILSON
		0	GR	DATES 5/1-9/2			G. NILSON
	POTTER	0-2	PA* (N)	5/18,19,6/11,19	0	0	P. EGGLESTON, M. SUTTON, N.T.
		2-7	GR* (N)	DATES 5/18-6/17	0	?	P. EGGLESTON, B. PASSAGE, N.T.
	SPENARD/HOOD	1	PA	5/22			D. HERTER, P. EGGLESTON
		?	GR				
	SUNDI	0-4	PA	5/6-9/15			C. ASHLEY
		0-5	CO	5/21-8/30			C. ASHLEY
		2	GR* (N)	5/6-8/30	2	2?	C. ASHLEY
	TAKU/CAMPBELL	0-1	PA	MOST OF SUMMER			J. HEAPE, D. HARKNESS, J. WESTLUND, J. PARSONS
		2	GR*	MOST OF SUMMER	1	?	J. HEAPE
	TURNAGAIN BOG	0-4	PA	DATES 5/3-6/17			C. BERG, M. DALTON, N.T.
		0	GR	DATES 5/3-6/17			C. BERG, M. DALTON, N.T.

Table 1. (cont.)

EAFB	GOLF COURSE	1	PA	6/21			E. SANDIFORD, A. RICHMOND
		1	CO	MID-JUNE			A. RICHMOND
		0	GR	MID-JUNE			A. RICHMOND, E. SANDIFORD
	GREEN	1-2	CO	DATES 5/23-8/3			A. RICHMOND, E. SANDIFORD, N.T.
		1	GR	8/3			N.T.
	HILLBURG	1-2	PA	7/9,8/3			E. SANDIFORD, N.T.
		1	GR*	8/3	2	2?	N.T.
	LOWER SIXMILE	1-2	CO* (N)	5/9-EARLY SEPT.	1-2	0	A. RICHMOND, E. SANDIFORD, M. MCDONALD
		1	PA	6/28			E. SANDIFORD / FROM OVAL?
		1-2	GR	5/3,7,6/8			P. STEFANICH, K. REINKE
	OVAL	2	PA*	8/2,3	1	1	A. RICHMOND, N.T.
		0	GR	8/2,3			A. RICHMOND, N.T.
	SPRING	1	PA	8/3			N.T. / MATE FROM OVAL?
	UPPER SIXMILE	1-2	CO	5/9,23,6/28			M. MCDONALD, A. RICHMOND, E. SANDIFORD
		?	GR				
FT. RICH	CLOUDBERRY	0		8/3			N.T.
	CLUNIE	1-2	CO	5/7,8/3			K. REINKE, N.T.
		0	GR	8/3			N.T.
	GWEN	1	CO	8/3			N.T.
		0	GR	8/3			N.T.
	OTTER	1-4	CO*?	DATES 5/14-9/9			R. STEEN, K. REINKE, J. WESTLUND
		4-8	GR* (N)	DATES 5/3-6/9	?	?	R. STEEN, K. REINKE
	WALDON	1-2	CO	5/8,30,8/3			K. REINKE, N.T.
		3	GR	8/3			N.T.
CHUGIAK	BEACH	0		8/8,9			N.T.
		0	GR				N.T.
	EDMONDS	2	PA*?	8/3			N.T.
		2	GR* (N)	SUMMER	0	0	D. SEVERIN
	EKLUTNA	1	PA	6/4			R. TWETEN
		3	GR	6/4			R. TWETEN
	LOWER FIRE	2	CO	6/4,5			G. OLIVER
		>12	GR*	8/3	6	6?	N.T.
	MIRROR	1	CO	5/?,10/8 ONLY			D. SASSER
		12	GR*	8/3	5	5?	N.T.
	PSALM	2	PA* (N)	SUMMER-9/7	2	1	J & M. NAUMAN, N.T.
		0	GR	8/8			N.T.
	UPPER FIRE	1	GR*	8/3	2	2?	N.T.

Table 1. (cont.)

TOTALS	36	LAKES SURVEYED FOR LOONS
	15	LAKES WHERE CO LO SEEN
	1	BREEDING PAIRS CO LO
	1	POSSIBLE BREEDING PAIR CO LO
	19	LAKES WHERE PA LO SEEN
	8	BREEDING PAIRS PA LO
	1	POSSIBLE BREEDING PAIR PA LO
	34	LAKES SURVEYED FOR GREBES
	19	LAKES WHERE GREBES SEEN
	13	LAKES WITH BREEDING GREBES
	1	LAKES WITH POSSIBLE BREEDING GREBES

* = breeding pair (nest, eggs, or chicks seen)

*? = possible breeding pair (pair only seen)

(N) = nest site known

1 = probably the same individual(s)

Table 2. Common Loon chick production from Anchorage lakes where Common Loons have been seen during 1985-1988.

AREA	LAKE	1985 # CHICKS	1986 # CHICKS	1987 # CHICKS	1988 # CHICKS
ANCHORAGE	CAMPBELL	0**	0	0	0
	CHENEY	0**	0	0	0
	CONNORS	0***	0***	0***	0***
	DELONG	0***	0***	0***	0***
	JEWEL	0	0	0	0
	SAND	0**	0	0	N.D.
	SPENARD/HOOD	0**	0	0	0**
	SUNDI	0**	0**	0	0
EAFB	GREEN	0**	0**	0	0
	HILLBURG	0**	0**	0	0**
	LOWER SIXMILE	1*(N)	1*(N)	2*(N)	0*(N)
	UPPER SIXMILE	0	0**	0	0
FT. RICH	CLUNIE	0**	0	0**	0
	GWEN	0**	0	0	0
	OTTER	1*	1*	2*	0*?
CHUGIAK	BEACH	0*?	0*?	0*?	0**
	EDMONDS	0**	0**	0	0
	MIRROR	0**	0	0	0**
TOTAL # CHICKS		2	2	4	0
TOTAL # BREEDING PAIRS		2	2	2	1-2
TOTAL # POSSIBLE BREEDING PAIRS		1	1	1	0
MINIMUM PRODUCTION # chicks/known + possible breeding pairs		0.67	0.67	1.3	0
KNOWN PRODUCTION # chicks/known breeding pairs		1.0	1.0	2.0	0

* = BREEDING PAIR (NEST, EGGS OR CHICKS SEEN)
*? = POSSIBLE BREEDING PAIR (PAIR ONLY SEEN)
** = NO COMMON LOON ADULTS REPORTED
*** = BREEDING PACIFIC LOONS PRESENT
(N) = NEST SITE KNOWN

Table 3. Pacific Loon chick production during 1985-88 from Anchorage area lakes where Pacific Loons have been recently seen.

AREA	LAKE	1985 # CHICKS	1986 # CHICKS	1987 # CHICKS	1988 # CHICKS
ANCHORAGE	BASHER [a]	0**	0**	0**	0**
	CAMPBELL	0	0*?	0	0
	CONNORS	1*	1*	0*	0*(N)
	DELONG	1*(N)	0*(N)	1*(N)	1*(N)
	GOOSE	1*	0*(N)	0*(2N)	0*(N)
	JEWEL	0**	0	0	0
	LITTLE CAMPBELL	N.D.*?	0*(2N)	1*(N)	2*(N)
	MEADOW	0*	1*(N)	1*	1*(N)
	POTTER	0	0	0	0*(N)
	SAND	0**	0**	0	N.D.
	SPENARD/HOOD	0*?	0*?	0*?	0
	SUNDI	0**	0	0	0
	TAKU	0	N.D.	0	0
	TURNAGAIN BOG [b]	N.D.	0**	0	0
	WESTCHESTER LAGOON [c]	0	0	0	0
EAFB	LOWER SIXMILE	0***	0***	0**	0***
	OVAL	N.D.	1*	0*?	1*
CHUGIAK	PSALM	2*	0*	1*(N)	1*(N)
	EDMONDS	0*?	0**	0**	0
TOTAL # CHICKS		5	3	3-4	6
TOTAL # BREEDING PAIRS		5	7	6	8
TOTAL # POSSIBLE BREEDING PAIRS		3	2	2	1
MINIMUM PRODUCTION					
# chicks/known + possible breeding pairs		0.63	0.33	0.38	0.67
KNOWN PRODUCTION					
# chicks/breeding pair		1.0	0.43	0.50-0.67	0.75

[a] = Pacific Loons seen in 1982 (Hogan and Tande 1983)
[b] = Breeding Pacific Loons here in 1982 (Hogan and Tande 1983)
[c] = used in 1978, 1976 and previous years by breeding Pacific Loons (W. Mills, pers. comm.)
N.D. = NO DATA
* BREEDING PAIR ON LAKE (NEST, EGGS, OR CHICKS SEEN)
*? POSSIBLE BREEDING PAIR ON LAKE (PAIR SEEN)
** NO PA LO ADULTS SEEN
*** BREEDING CO LO PRESENT
(N) NEST SITE KNOWN
(2N) 2 NESTS FOUND

Table 4. Common (CO), Pacific (PA), and Red-throated (RT) Loon and Red-necked Grebe (GR) observations from the main Mat-Su Valley study area during 1988.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
SUTTON	DRILL	0-1	PA	SUMMER			E & D GRAHAM
		0-2	CO	SUMMER			E & D GRAHAM
		8-10	GR* (N)	SUMMER	8	2-5?	E & D GRAHAM
	SEVENTEENMILE	1-3	CO	5/13-9/1			B. ROBINSON, L. WINDLE / 2 RAFTS NOT USED
		2	GR* (N)	5/13-7/15	0	0	B. ROBINSON / GREBE ON NEST KILLED BY OWL
PALMER	BRADLEY	--		8/17			N.T.
	ECHO	4	GR*	8/17	1	1?	N.T.
	IRENE	0-1	CO	5/25-9/9			H. ASHLEY
		2	GR* (N)	6/3-9/9	2	1	H. ASHLEY
	JOHNSON	0-1	CO	6/8,7/16,8/17			T. BRADLEY, A. RUGGLES, N.T.
		0	GR	7/16,8/17			A. RUGGLES, N.T.
	KEPLER	0-2	CO	8/1,17			D. & J. AMON (ST. PK. VOLUNTEERS), N.T.
		0	GR	8/17			N.T.
	LONG	0-1	CO	6/19,7/16			A. RUGGLES
		2	GR* (N)	7/16	0	?	A. RUGGLES
	MATANUSKA	0-4	CO	7/16-9/1			A. RUGGLES, D. & J. AMON, N.T.
		3-11	GR* (N)	7/16,8/17	?	?	A. RUGGLES, N.T.
	MEIRS (MCLEOD)	2	GR	5/4			C. THOMPSON
	SLIVER	2	GR	5/10			C. BAER
WASILLA	ANDERSON	2-8	CO* (2N)	4/29-9/15	0	0	R. FERGUSON, A. RUGGLES / SIGNS DON'T PREVENT
		2	GR* (N)	5/3-9/20	3	2	LOON NEST DISTURBANCE BY PEOPLE & DOGS
	BLACK	--		8/11			N.T.
	CHIGNAKI	2	PA*	8/17	2	2	N.T.
		0	GR				N.T.

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	CORNELIUS	1-3	CO* (N)	4/30-9/28	2	2	P. ARNOLD, A. RUGGLES, J. EAKIN
		2	GR* (N)	4/14-7/15	0	0	P. ARNOLD, A. RUGGLES, J. EAKIN
	COTTONWOOD	>15	GR* (N)	8/17	?	?	N.T. / RES. HASN'T SEEN LOON CHICKS FOR 4-5 YRS
	DINKEL/WEINIE	1-3	CO	5/4-AUGUST			T. OLIGER
		2-4	PA	AUGUST			T. OLIGER / 1ST TIME SEEN IN 40 YRS
		8-12	GR*?	5/4-AUGUST			T. OLIGER
	DRY (EAST)	--		8/31			N.T.
	DRY (WEST)	1	GR*	8/31	1	1	N.T.
	FINGER	0-3	CO	5/6,7/9,8/17			J. FRAZIER, A. RUGGLES, N.T.
		>21	GR*	7/9,8/17	>1	?	N.T., A. RUGGLES
	GOODING	2	GR	8/11			N.T.
	HART	4	GR?	8/17			N.T.
	JACOBSEN	2	CO* (N)	SUMMER	2	0	RUGGLES/COGHLAN - 2 CHICKS DISAPPEARED 8/4
		0	GR	SUMMER			A. RUGGLES, V. & G. COGHLAN
	KINGS	2	CO* (N)	6/23-8/19	2	2	A. RUGGLES
		4	GR* (N)	6/23-8/19	2	2?	A. RUGGLES
	LOBERG	1	CO	8/31			N.T.
		1	GR*	8/31	2	2	N.T.
	LUCILLE	1-4	CO* (N)	SUMMER	1	1	COTTLE/CARNEY-1 PARENT DIED 7/24- LEAD POISONING
		>30	GR*	SUMMER	?	?	COTTLE (SIGNS POSTED ON NEST ISLAND)
	MEIER	2	GR	5/21			P. EGGLESTON
	MEMORY	2	CO (T)	JUNE, JULY			A. RUGGLES/PR MAINTAINED TERR. BUT DIDN'T NEST
		6	GR* (N)	JUNE, JULY			A. RUGGLES
	MUD	1	CO	7/9			A. RUGGLES
	NEKLASON	1-6	CO	6/23-AUGUST			R & A TORDOFF, A. RUGGLES
		12	GR* (N)	6/23-AUGUST	8	?	R & A TORDOFF, A. RUGGLES
	PARADISE	2	GR*	8/31	2	2	N.T.
	REED	--		8/31			N.T.
	WALBY	4-6	GR* (N)	5/17,7/9	0	?	A. RUGGLES, C. BAER
	WALLACE	2	CO* (N)	5/9-10/10	2	2	T. MARSHALL, A. RUGGLES
		0	GR	5/31-10/1			
	WASILLA	1	CO	8/11,12,OTHER DATES			A. CURTIS, A. RUGGLES, N.T.
		>10	GR*	8/11	?	?	N.T.

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	WOLF	2	CO* (N)	SUMMER	2	2	J & J EAKIN, A. RUGGLES
		1?	GR	4/29			J & J EAKIN
	FARMER	2	PA*?	5/19-20	0	?	C. BAER, T. BRADLEY
		?	GR				
	LORRAINE	2	CO*?	5/21	0	?	C. BAER
		?	GR				
	THREEMILE	2	CO* (N)	6/28,8/1	2	2	J. KING & GIRL SCOUTS
		1	GR	8/1			J. KING & GIRL SCOUTS
MEADOW	BAPTIST	--		8/11			N.T. / 1 INJURED PA LO IN ROAD IN SEPT.
	BEHNKE	0-2	CO	SUMMER			P. BEHNKE
		0-2	PA	SUMMER			P. BEHNKE
		2	GR* (N)	5/4-MAY	0	0	P. BEHNKE / LEFT WHEN CABIN BUILT NEARBY
	BEAVER POND	1-2	PA*	5/4,6/1,7/8,8/8	2	1	M. BEHNKE
		1	GR	8/8			M. BEHNKE
	BEVERLY	2-6	CO	5/1-10/12			J. BOCHENEK/ (NO CHICKS SEEN 1980-88)
		0-2	GR	8/1-9/1			J. BOCHENEK
	BLODGETT	1	CO	8/18			C. GRAUVOGEL, N.T.
		>15	GR*	8/18	>6	>6	C. GRAUVOGEL, N.T.
	BRUCE	2	PA*	5/24,8/11,AUG & SEPT	2	1	T. BRADLEY, N.T., P. NELSON (RES)
		0	GR	8/11,AUG & SEPT			N.T., P. NELSON (RES)
	CAROUSEL	0-1	CO	6/3,8/6,8/11			M. CARLSON, N.T.
		2	GR	8/11			N.T.
	CHERI	1	PA	8/25			N.T.
		>9	GR*	8/25	>5	>5?	N.T.
	CLOUDY	2	PA* (N)	EARLY MAY - 8/18	2	2	S. PHILLIPS, N.T., C. GRAUVOGEL
		2	GR* (N)	EARLY MAY - 8/18	2	0?	S. PHILLIPS, N.T., C. GRAUVOGEL
	DOUBLOON	0-2	PA	JUNE,8/?,8/18,9/5,14			L. SUDKAMP, N.T.
		1-2	GR	JUNE,8/?,8/18			L. SUDKAMP, N.T.
	FOREST (MI 52.5)	--		8/18			N.T., C. GRAUVOGEL
	FROG	1	CO	7/13,8/18			A. RUGGLES, N.T.
		2	GR* (N)	7/13,8/18	3	3?	A. RUGGLES, N.T.

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	FULLER	2	CO*?	8/11			N.T.
		0	GR	8/11			N.T.
	ISLAND	1-2	CO*?	DATES 5/8-9/16			PAPPERT/SUDKAMP-1 COLD EGG FOUND, LAST YR'S?
		2	GR*	7/11,17,23,31	2	2?	R. & G. PAPPERT
	JUNE	1-2?	CO	SPRING			L. RUDD (RES)
		1	GR	8/11			L. RUDD (RES), N.T., C. GRAUVOGEL
	KALMBACH	2	CO* (N)	6/17,25,8/19,20	2	2	A. RUGGLES, B. SMITH (RES)
		0	GR	6/17,25,8/19,20			A. RUGGLES, B. SMITH (RES)
	LALEN	2	CO* (N)	DATES 5/21-9/25	2	2	J. HINES, A. RUGGLES, M. WOHLGEMUTH
		2	PA	9/25			J. HINES
		0	GR	DATES 5/21-9/25			J. HINES, A. RUGGLES, M. WOHLGEMUTH
	LITTLE	?	GR	8/18	1	1?	N.T., C. GRAUVOGEL
	LOON	1	PA	8/25			N.T.
		4	GR*	8/25	3	3	N.T.
	MARYBELLE	1	CO	8/18			N.T., C. GRAUVOGEL
		0	GR	8/18			N.T., C. GRAUVOGEL
	MISTY	--		8/25			N.T.
	MOVRO	2	CO* (N)	6/16,7/10,8/18	2	2	A. RUGGLES, J. DRINGEL
		2	GR* (N)	6/16	0	?	A. RUGGLES
	PRATOR	0-1	CO	7/10,8/18			A. RUGGLES, N.T.
		3-8	GR*	7/10,8/18	3?	2	A. RUGGLES, N.T.
	RAINBOW	2(-5)	CO* (N)	DATES 5/23-8/28	2	1	EAGLE/KLEINKAUF/BERGER/D.CARLSON - PLANE KILLS
		2-MANY	GR* (N)	6/22,7/5	?	?	A. RUGGLES, R. EAGLE CHICK
	RAINBOW POND	1	GR	8/11			N.T.
	SCOTT	2-9	CO (T)	DATES 5/3-9/18			B. BUZBY / NO NESTING KNOWN THIS YEAR
		2	GR*	DATES 5/3-9/18	2	1-2	B. BUZBY
	SEYMOUR	2-3	CO	DATES 5/5-JULY			A. RUGGLES, R. MOULTON
		>30	GR*	7/20	>13?	?	A. RUGGLES
	SHERWOOD	2	PA* (N)	5/13-8/16	1	1	J. MOSES / LOONS LEAVE 8/16
		4	GR* (N)	5/13-8/16	6	6?	J. MOSES
	TOAD	2	CO*	8/18	2	2	N.T.
		0	GR	8/18			N.T.
	VISNAW	2(1-6)	CO (T)	JUNE-10/2			A. RUGGLES, M. CARLSON, T. LITECKY - NO NESTING

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		2	GR* (N)	6/10	0	?	A. RUGGLES
BEAVER	BEAVERHOUSE	1-3	CO*?	6/7,7/3,8/5-9/15			G. & S. FAIT / 1 ADULT DISAPPEARED 8/5
		2	GR* (N)	6/7	0	?	G. & S. FAIT
	BEAVERTAIL	3	PA	7/20			T. BRADLEY
		?	GR				
	BIG BEAVER	0-1	CO	5/12,7/22, 8/25			A. MAHURIN, N.T.
		2	PA	7/22			A. MAHURIN
		>10	GR*?	8/25	?	?	N.T.
	BOTTLE	2	PA*?	8/25			N.T.
		0	GR	8/25			N.T.
	GODIN'S POND	2	PA*?	6/7,7/3,8/5			G. & S. FAIT
	(W. AIRSTRIP)	2	GR*?	6/7			G. & S. FAIT
	HORSESHOE	1	CO	8/25			N.T.
		>20	GR*	8/25	>7	>7?	N.T.
	HOURGLASS	1	CO	8/25			N.T.
		5	GR*	8/25	1	1	N.T.
	LAZY	1-2	PA*	DATES 5/7-9/12	2	0	B. RICHARDS, J. MCCORD
		1-2	CO	5/6,7			B. RICHARDS, J. MCCORD
		0	GR	DATES 5/7-9/12			B. RICHARDS, J. MCCORD
	LITTLE BEAVER	1-2	CO*?	7/18,20			T. BRADLEY
		?	GR				
	LITTLE HORSESHOE						
	(WEST)	0-8	CO	MAY-AUGUST			K. SAVAGE
		1	PA	7/24			K. SAVAGE
		6-20	GR*(N)	MAY-9/30	9	9?	K. SAVAGE
	LONG/TWIN	2 **	CO* (N)	SUMMER	2	2	J. EDER/ **1 PARENT SHOT 9/4
		2	GR* (N)	SUMMER	2	2?	J. EDER
	LYNDA	--		8/25			N.T.
	STEPAN	>6	GR*	8/25	>1	>1?	N.T.
BIG LAKE	BIG LAKE-BASIN 2	2	CO* (N)	DATES 6/7-7/23	0	0	G.NILSON, J. HAXBY
	BIG LAKE-BASIN 5	2	CO* (N)	DATES 6/7-10/8	1	1	G. NILSON, M. NIVER, D. FOX
	BIG LAKE	2-14	CO	DATES 5/19-9/16			MOCKERMAN, NIVER, NILSON, FOX, RONZIO

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		0-5	PA	DATES 5/27-9/14			G. NILSON, S. RONZIO, D. FOX
		0-5	RT	DATES 6/17-7/30			G. NILSON, D. FOX
		6-128	GR* (N)	DATES 5/19-9/20	?	?	NIVER, FOX, MOCKERMAN,NILSON (TOTAL SURVEY 5/28)
	BL #1	--		7/31			G. NILSON
	BL #2	3	GR*	7/31	1	1?	G. NILSON
	BL #3	0-1	PA* (N)	6/8,25,7/24,30	0	0	G. NILSON
		?	GR				
	BL #4	1-2	PA	6/8,25			G. NILSON
		?	GR				
	BL #5	--		6/25			G. NILSON
	BL #6	--		6/25			G. NILSON
	CROOKED	2	CO*(2N)	MAY-9/26	2	2	F. DAHL, M. HILL, N.T.
		0	GR	MAY-9/26			F. DAHL, N.T.
	CROOKED OUTLET	0-2	CO	6/25,7/3,16,17			N.T., G. NILSON
		0	GR	7/3,16,17			N.T.
	DAWN	0-2	CO	7/?,8/25			L. KAYE, N.T.
		0	GR	7/?,8/25			L. KAYE, N.T.
	DIAMOND	2	CO* (N?)	DATES 7/9-9/17	2	0	J. & L. PINNEO, T. BRADLEY / BA EAGLE PREDATION?
		0	GR	DATES 7/9-9/17			J. & L. PINNEO
	DUSK	--		8/25			N.T.
	EAST PAPOOSE	--		6/25			G. NILSON
		?	GR				
	ECHO	1-5	CO	5/5-8/13			J. SHOCKLEY
		2	PA	8/14			J. SHOCKLEY
		4	GR* (N)	6/24	1	0	J. SHOCKLEY
	FLAT	1-13	CO* (N*)	DATES 5/7-10/16	1	1	J. NILSON, W. WILLIAMS/1 EGG DIDN'T HATCH
		1-2	RT	7/30,8/14,20,9/3			J. NILSON
		1-5	GR* (N)	JUNE-10/16	1	1	J. NILSON
	HOMESTEAD	1-3	PA	DATES 5/29-9/24			G. NILSON
		?	GR				
	KATHLEEN	2	PA*?	6/25			G. NILSON
		?	GR				
	MARION	2-3	CO* (N)?	5/6-8/5	0	0	D. HERSCHBACH, D. FOX

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		0	GR	6/26			D. FOX
	MARION POTHOLE	2	RT	7/1,11			D. FOX
		0	GR	7/1,8,11			D. FOX
	NEVER-NEVER	--		5/28,7/31			G. NILSON
	ORCHID	2	PA*?	7/25			T. BRADLEY
		?	GR	7/25			
	ROCKY	0-5	CO	MAY-AUGUST			A. LAWLER, A. RUGGLES
		8-10	GR* (N)	JUNE	2	?	A. LAWLER, A. RUGGLES
	SARA	0-1	CO	5/22,27,28,29			G. NILSON
		2-4	GR* (N)	5/22,27,28,29	0	?	G. NILSON
	SEVENMILE	2	CO*	7/14	1	1?	J. SHOCKLEY / CHICK <1/2 SIZE
		?	GR	7/14			
	SPICKY	--		7/31			G. NILSON
	STEPHAN (LOWER)	2	CO*?	5/1-9/10			B. WELCH
		?	GR	MAY			B. WELCH
	(UPPER)	2	CO*?	5/1-9/10			B. WELCH
		?	GR	MAY			B. WELCH
	SUSAN	2	CO* (N)	DATES 5/22-10/15	2	2	G. NILSON
		0	GR	DATES 5/22-10/15			G. NILSON
	"TRANQUILITY"	2	PA*	DATES 5/29-9/24	1	1	G. & J. NILSON/ 1 EGG HATCHED 7/10-24
		?	GR				
WILLOW	ARDAW	2	CO*?	5/31			S. CHARLES
		?	GR	5/31			S. CHARLES
	BALD	2	CO*?	5/30			J. WENGER
		?	GR	5/30			J. WENGER
	BIG NOLUCK	--		5/31			S. CHARLES
	BUCKLEY	2	CO*?	9/5			A. BARTLEY (NLSRA VOLUNTEER)
		?	GR	9/5			A. BARTLEY (NLSRA VOLUNTEER)
	BUTTERFLY	2	CO*?	9/5			A. BARTLEY (NLSRA VOLUNTEER)
		?	GR	9/5			A. BARTLEY (NLSRA VOLUNTEER)
	CANDLESTICK	2	CO*?	9/5			A. BARTLEY (NLSRA VOLUNTEER)
		?	GR	9/5			A. BARTLEY (NLSRA VOLUNTEER)

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	CHARR	2	GR*?	5/31			S. CHARLES
	CHICKEN	2	CO*?	5/29,31			S. CHARLES, A. MEINERS
		?	GR	5/29,31			S. CHARLES, A. MEINERS
	CRYSTAL	2	CO*(N)	5/10-10/3	1	1	G. BADGER/ (FLOATING SIGN)
		0	GR	5/10-10/3			G. BADGER
	FLORENCE	2-6	CO* (N)	DATES 6/6-9/5	0	0	S. CHARLES, JANE JOHNSON
		?	GR	DATES 6/6-9/5			S. CHARLES, JANE JOHNSON
	(BIG) FRAZIER	1	CO	5/31			S. CHARLES
		?	GR	5/31			S. CHARLES
	HONEYBEE	2	CO* (N)	DATES 5/9-6/30	?	?	D. BLANCHARD, C. THOMPSON
		?	GR				D. BLANCHARD, C. THOMPSON
	JACK	2	CO* (N)	5/7-AUGUST	0	0	E. LYNCH
		2	GR* (N)	5/7-AUGUST	0	0	E. LYNCH / RAVEN TOOK GREBES
	JACKNIFE	1	CO	5/31			S. CHARLES
		?	GR	5/31			S. CHARLES
	JAMES	0-2	CO*	5/29,31,8/10	1	1?	A. MEINERS, S. CHARLES, R. RAYMOND
		?	GR	5/29,31,8/10			A. MEINERS, S. CHARLES, R. RAYMOND
	JOHN	2	CO* (N)	SUMMER	0	0	S. CHARLES
		?	GR				
	JW#1 (LONG LK RD)	1-2	PA*?	8/10, OTHERS			J. WENGER, R. SEPPI, T & C. PARGETER
		0	GR	8/10			J. WENGER
	JW#2 (LONG LK RD)	1-2	PA*?	8/10, OTHERS			J. WENGER, R. SEPPI, T & C. PARGETER
		0	GR	8/10			J. WENGER
	JW#3	2	PA*	8/10	1	1?	J. WENGER / CHICK 1/2 SIZE - SIGN?
		?	GR	8/10			J. WENGER
	JW#4	2	PA*	8/10	1	1?	J. WENGER / CHICK 1/2 SIZE
		?	GR	8/10			J. WENGER
	KELLY	1-2	CO	5/8-9/15			P. COOK, J. NEWMAN, P. FOLTA
		?	GR				P. FOLTA / NESTING GREBES IN '86 & '87
	LITTLE FRAZIER	0-2?	CO*	5/31,9/5	1	1	S. CHARLES, A. BARTLEY (NLSRA VOLUNTEER)
		0	GR	5/31			S. CHARLES
	LITTLE NOLUCK	2	PA*?	5/31,9/5			S. CHARLES, A. BARTLEY (NLSRA VOLUNTEER)
		?	GR	5/31,9/5			S. CHARLES, A. BARTLEY (NLSRA VOLUNTEER)

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	LONG	2-5	CO* (N)	DATES 6/16-9/12	2	2	K. ROGNESS, B. WILLIAMS/(FLOATING SIGN)
		2-16	GR*	DATES 6/16-9/12	1-?	1-?	K. ROGNESS, L. SELTENREICH
	LYNNE	2-11	CO* (N)	DATES 5/10-9/29	0	0	M. L. MAYFIELD / NEST W/2 EGGS ABANDONED
		0-2	GR	SUMMER			M. L. MAYFIELD
	LYNX	0-5	CO* (N)	DATES 5/27-9/24	1	1	S. CHARLES, A. MEINERS, B. BELLRINGER
		2	PA	7/11-8/12,9/25			B. BELLRINGER
		4	GR* (N)	7/11-8/12	4	?	B. BELLRINGER
	MILO	1	PA	5/31			S. CHARLES
		?	GR				
	NANCY	6-8	CO*?	8/21	0	?	J. THOMAS
		0-1	PA	5/29,6/17,18			R. & B. BRITCH
		2	GR* (N)	6/17,18	0	?	R. & B. BRITCH
	NORTH ROLLY	2	CO*	9/5	1	1	A. BARTLEY (NLSRA VOLUNTEER)
		?	GR				
	OWL	1-2	CO*	5/31,8/10	1	1?	S. CHARLES, R. RAYMOND
		?	GR				
	RAINBOW	1-2	CO* (N)	DATES 6/3-9/17	2	2	T. & C. PARGETER
		2	GR* (N)	DATES 6/3-9/1	5	5	T. & C. PARGETER
	RED SHIRT	8	CO*	6/13,9/5	6	6	C. THOMPSON, A. BARTLEY
		12	GR* (N)	6/13	0	?	C. THOMPSON
	SHIRLEY	2-3	CO (T)	5/14-8/29			M. VALLIANT, JE. JOHNSON, S. CHARLES/NO NESTING
		1-2	GR	8/27-8/29			J. JOHNSON, S. CHARLES
	TANAINA(DENAINA)	2	CO*?	5/31			S. CHARLES
		?	GR				S. CHARLES
	VERA	1-3	CO* (N)	DATES 5/28-9/18	1	0	B. MERRELL
		?	GR				
	WILLOW	2(-8)	CO* (N)	5/4-9/30	1	1	M. UPTON, V. RICHEY, D & L DAFOE
		1-2	GR* (N)	5/30-6/24,JULY	0	0	V. RICHEY, M. UPTON
HAT. PASS	SANDALWOOD (HP-1)	0-2	PA (T)	DATES 5/23-9/23			R. WITTSHIRK
		0	GR	DATES 5/23-9/23			R. WITTSHIRK
	HP-2	--		DATES 5/23-7/20			R. WITTSHIRK
	HP-3	1-3	PA	DATES 5/23-9/23			R. WITTSHIRK

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		0	GR	DATES 5/23-9/23			R. WITTSHIRK
	HP-4	--		DATES 5/23-7/20			R. WITTSHIRK
	HP-7 (CABIN LK)	1	GR	6/16			R. WITTSHIRK
	SUMMIT	1	CO	6/25			J. EAKIN

* = breeding pair
*? = possible breeding pair
(N) = nest site known
(N*) = nest on artificial island
(2N) = 2 nests found
(T) = territorial pair, but no nesting
N.D. = no data

Table 5. Loon observations from Mat-Su lakes in the main study area observed during 1986-88.

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
SUTTON	DRILL		(CO,PA)		(PA)		(PA,CO)	
	FISH		N.D.		--		N.D.	
	IDA	46	N.D.		--		N.D.	
	SEVENTEENMILE	100	CO*?	0	CO*?	0	(CO)	
PALMER	BAIRDS		(PA)		N.D.		N.D.	
	BRADLEY	13	--		--		--	
	CANOE	21	--		--		N.D.	
	ECHO	23	--		--		--	
	HIGH RIDGE		--		(CO?)		--	
	IRENE	18	--		(CO)		(CO)	
	JOHNSON	40	N.D.		(CO)		(CO)	
	KEPLER	45	CO*	0	(CO)		(CO)	
	KLAIRE	9	--		--		N.D.	
	LONG	74	--		--		(CO)	
	MATANUSKA	62	--		(CO)		(CO)	
	MEIRS (MCLEOD)	17	--		--		--	
	SLIVER	7	--		--		--	
	VICTOR	14	--		--		N.D.	
WASILLA	ANDERSON	135	CO*(N)	0	CO*(N)	2 [b]	CO*(N)	0 [b]
	BLACK		--		--		--	
	CHIGNAKI		--		PA*	2	PA*	2
	CORNELIUS	48	CO*(N)	1	CO*(N)	0	CO*(N)	2
	COTTONWOOD	262	CO*?	0	--		--	
	DINKEL/WEINIE		N.D.		N.D.		(CO,PA)	
	DRY (EAST)		N.D.		(CO)		--	
	DRY (WEST)		--		--		--	
	FINGER	362	(CO)		(CO)		(CO)	
	GAIL DR. POND		--		--		N.D.	
	GOODING	58	--		--		--	

Table 5 (cont.)

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
	HART		(PA)		(PA)		--	
	JACOBSEN		CO*(N)	1-2	CO*	0	CO*(N)	0
	KENNEDY		N.D.		--		N.D.	
	KINGS	154	CO*(N)	1	CO*	2	CO*(N)	2
	LOBERG		--		(CO)		(CO)	
	LUCILLE	362	CO*(N)	1	CO*(N)	0 [b]	CO*(N)	1 [b]
	MEIER		--		--		--	
	MEMORY	84	CO*(N)	2	CO*	1	CO (T)	
	MI 46 POND		--		--		N.D.	
	MUD	55	--		--		(CO)	
	MUD POND		N.D.		--		N.D.	
	NEKLASON	72	CO*	0	CO*?	0	(CO)	
	PARADISE		--		--		--	
	REED	20	--		--		--	
	WALBY	54	--		--		--	
	WALLACE		CO*(N)	0	CO*(N)	1	CO*(N)	2
	WASILLA	374	(CO)		(CO)		(CO)	
	WOLF	62	CO*(N)	1	CO*(2N)	0	CO*(N)	2
PT. MCKENZ	CARPENTIER	176	N.D.		CO*	1	N.D.	
	FARMER	21	N.D.		PA*?	?	PA*?	
	LORRAINE	132	N.D.		CO*?	?	CO*?	
	THREEMILE		CO*(N)	1	CO*(N)	2	CO*(N)	2
	TWIN ISLAND	151	N.D.		(CO)		N.D.	
MEADOW	AIROLO		--		--		N.D.	
	BAPTIST		(PA)		--		--	
	BEAR PAW	45	(PA)		(PA)		N.D.	
	BEHNKE		PA* (CO)	2	(CO)		(CO,PA)	
	BEAVER POND		N.D.		PA*	2	PA*	1
	BEVERLY	42	(CO)		(CO)		(CO)	
	BLODGETT	58	--		(CO)		(CO)	
	BRUCE	27	PA*	2	PA*	1	PA*	1
	CAROUSEL		--		--		(CO)	
	CHERI		--		--		(PA)	
	CLOUDY		PA*	2	PA*(N)	0	PA*(N)	2
	DOUBLOON		PA*?	0	--		(PA)	
	FOREST (MI 52.5)		--		--		--	

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
	FROG		--		CO*?	0	(CO)	
	FULLER		--		(CO)		CO*?	
	HAWK LANE		--		--		N.D.	
	ISLAND		CO*?	0	CO*?	0	CO*?	
	JUNE		--		--		(CO)	
	KABN TOWER POND		N.D.		--		N.D.	
	KALMBACH	125	CO*	1	CO*(N)	1	CO*(N)	2
	LALEN	92	CO*(N)	1	CO*(N)	0	(PA),CO*(N)	2
	LITTLE		--		--		--	
	LOON	108	PA*?	0	(PA,CO)		(PA)	
	MARYBELLE		CO*?	?	CO*?	0	(CO)	
	MEADOW LKS CNR.		--		--		N.D.	
	MISTY		N.D.		--		--	
	MORVRO	87	CO*	0	CO*(N)	1	CO*(N)	2
	PRATOR	98	--		(PA)		(CO)	
	RAINBOW		CO*(N)	1	CO*(N)	0	--	
	RAINBOW POND		--		--		--	
	RR-PITTMAN POND		--		--		N.D.	
	SCOTT		CO*(N)	1	CO*(N)	0	CO (T)	
	SEYMOUR	229	(CO)		(CO)		(CO)	
	SHERWOOD		PA*	0	PA*(2N)	0	PA*(N)	
	TOAD		CO*?	0	CO*	1	CO*	2
	VISNAW	131	CO*(N)	1	CO*	1	CO (T)	
BEAVER	BEAVERHOUSE	33	CO*	N.D.	CO*	1?	CO*?	
	BEAVERTAIL	27	N.D.		N.D.		(PA)	
	(BIG) BEAVER	161	--		CO*?	0	(CO,PA)	
	BOTTLE		N.D.		PA*?	0	PA*?	
	COLT		N.D.		--		N.D.	
	GODIN'S POND		N.D.		(PA)		PA*?	
	HORSESHOE	160	N.D.		CO*?	0	(CO)	
	HOURGLASS		CO*?	0	CO*?	0	(CO)	
	LAZY	23	PA*	2	PA*	2	(CO),PA*	0
	LITTLE BEAVER	44	N.D.		CO*	1	CO*?	
	LITTLE HORSESHOE (WEST)		N.D.		CO*?	0	(CO,PA)	
	LONG/TWIN	44/63	CO*	0	CO*(N)	1	CO*(N)	2

Table 5 (cont.)

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
	LYNDA	11	--		(PA)		--	
	ROGERS RD CORNER		N.D.		--		N.D.	
	STEPAN	60	--		CO*?	0	--	
	WEST BEAVER	103	--		--		N.D.	
BIG LAKE	BIG LAKE	2998	3 CO*, (PA,RT)	0,1,2	2 CO*(N) (PA,RT)	1,1	2 CO*(N), (PA,RT)	0,1
	BIRCH		N.D.		(PA)		N.D.	
	BL #1		N.D.		N.D.		--	
	BL #2		N.D.		N.D.		--	
	BL #3		N.D.		N.D.		PA*(N)	0
	BL #4		N.D.		N.D.		(PA)	
	BL #5		N.D.		N.D.		--	
	BL #6		N.D.		N.D.		--	
	CROOKED	250	CO*(N)	2	CO*(2N)	2	CO*(N)	2
	CROOKED OUTLET		N.D.		(CO)		(CO)	
	DAWN	12	N.D.		(CO,PA?)		(CO)	
	DIAMOND	139	N.D.		N.D.		CO*	0
	DUSK		N.D.		--		--	
	EAST PAPOOSE		N.D.		N.D.		--	
	ECHO		CO*?	0	(CO)		(CO,PA)	
	FLAT	296	(CO,RT)		CO*(N)	1 [b]	CO*(N*),(RT)	1 [b]
	HOMESTEAD		N.D.		N.D.		(PA)	
	KATHLEEN		N.D.		N.D.		PA*?	
	MARION	113	N.D.		CO*?	0	CO*	0
	MARION POTHOLE S.		N.D.		N.D.		(RT)	
	NEVER-NEVER	31	N.D.		N.D.		--	
	ORCHID	19	N.D.		N.D.		PA*?	
	ROCKY	59	--		--		(CO,PA)	
	SARA	44	(CO)		(CO)		(CO)	
	SEVENMILE	158	N.D.		N.D.		CO*	1?
	SPICKY		N.D.		N.D.		--	
	STEPHAN-LOWER		N.D.		CO*?		CO*?	
	STEPHAN-UPPER		N.D.		CO*?		CO*?	
	SUSAN		CO*(N)	1	CO*	2	CO*(N)	2
	"TRANQUILITY"		N.D.		N.D.		PA*	1
	WOODY		N.D.		(CO)		N.D.	
WILLOW	ARC		--		N.D.		N.D.	

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
	ARDAW		CO*?	0	CO*?	?	CO*?	
	BAINS		N.D.		--		N.D.	
	BALD		PA*	0	PA*?(CO)	0	CO*?	
	BIG NOLUCK	68	PA*	1	CO*?	?	--	
	BOOT		N.D.		(CO)		N.D.	
	BROOKS (MI 68.3)		PA*	N.D.	PA*	1	N.D.	
	BUCKLEY		N.D.		CO*?	?	CO*?	
	BUTTERFLY	295	N.D.		CO*	1	CO*?	
	CANDLESTICK		N.D.		N.D.		CO*?	
	CHARR		--		CO*?	?	--	
	CHICKEN	138	(CO)		CO*	1?	CO*?	
	CRYSTAL	132	CO*(N)	1	CO*	2 [b]	CO*(N)	1 [b]
	ECHO PONDS		N.D.		(CO)		N.D.	
	FLORENCE	55	CO*?	?	CO*	1	CO*(N)	0
	(BIG) FRAZIER		CO*?	0	CO*?	?	(CO)	
	HONEYBEE	58	CO*?	?	CO*(N)	1	CO*(N)	?
	JACK		N.D.		CO*	1	CO*(N)	0
	JACKNIFE		(PA)		(CO,PA)		(CO)	
	JAMES	104	(CO)		CO*?	?	CO*	1?
	JOHN		CO*(N)	0	CO*(N)	1	CO*(N)	0
	JW#1 (LONG LK RD)		PA*(N)	0	PA*(N)	0	PA*?	
	JW#2 (LONG LK RD)		PA*(N)	0	PA*	2	PA*?	
	JW#3 (MI 1 NLSRA)		PA*(N)	0	PA*(N)	0	PA*	1?
	JW#4		PA*(2N)	0	PA*?	0	PA*	1?
	KELLY	30	N.D.		CO*	0	(CO)	
	LITTLE FRAZIER		--		CO*?	?	CO*	1
	LITTLE LONELY	56	N.D.		(CO?)		N.D.	
	LITTLE NOLUCK	34	PA*	1	PA*	1?	PA*?	
	LONG		CO*(N)	0	CO*(N)	1 [b]	CO*(N)	2 [b]
	LYNNE	70	CO*(N)	0	CO*(N)	0	CO*(N)	0
	LYNX		N.D.		(PA,CO)		CO*(N),(PA)	1
	MILO	60	--		CO*?	?	(PA)	
	NANCY	761	N.D.		CO*	0?	CO*?,(PA)	
	NORTH ROLLY		N.D.		N.D.		CO*	1
	OWL	60	CO*?		CO*?	?	CO*	1?
	RAINBOW		(CO)		N.D.		CO*(N)	2

Table 5 (cont.)

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
	RED SHIRT	1183	N.D.		N.D.		4 CO*	6
	SHIRLEY		CO*(N)	0	CO*	0	CO (T)	
	SKEETNA	66	--		CO*?	?	N.D.	
	SOUTH ROLLY	108	CO*	1	CO*?	?	N.D.	
	TANAINA(DENAINA)		(CO)		CO*?	0	CO*?	
	VERA	111	N.D.		CO*	0	CO*(N)	0
	WILLOW	143	CO*	0	CO*(N)	2	CO*(N)	1
HAT. PASS	SANDALWOOD		N.D.		N.D.		PA (T)	
	HP-2		N.D.		N.D.		--	
	HP-3		N.D.		N.D.		(PA)	
	HP-4		N.D.		N.D.		--	
	HP-7 (CABIN LK)		N.D.		N.D.		--	
	SUMMIT		N.D.		N.D.		(CO)	
	TWELVEMILE	56	N.D.		PA*	2	N.D.	

[a] = chicks seen >1/2 adult size
[b] = signs placed near nest site
CO = Common Loon(s)
PA = Pacific Loon(s)
(CO) or (PA) = nonbreeder(s) seen only
CO* or PA* = breeding pair
CO*? or PA*? = possible breeding pair
(N) = nest site known
(N*) = nest on artificial island
(T) = territorial pair, but no nest

AREA	LAKE	ESTIMATED SURFACE AREA (ACRES)	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]	1988 SPECIES	1988 # CHICKS SURVIVING [a]
TOTAL # LAKES SURVEYED			119		158		156 (plus 11 <3.5 ac)	
# LAKES USED BY COMMONS			53 (44%)		90 (57%)		89 (57%)	
# LAKES USED BY BREEDING COMMONS			29 (24%)		37 (23%)		37 (24%)	
# CO BREEDING PAIRS			31		39		40	
# POSSIBLE CO BREEDING PAIRS			12		28		15	
# TERRITORIAL PAIRS WITH NO NEST			N.D.		N.D.		4	
# CO CHICKS				21		31		43*(from 36 pairs)
KNOWN COMMON LOON REPRODUCTIVE RATE								
# chicks/# breeding pairs				0.68		0.85		1.2
MINIMUM COMMON LOON REPRODUCTIVE RATE								
# chicks/# known + possible + terr. breeding pairs				0.49		0.48		0.78
# LAKES USED BY PACIFICS			22 (18%)		29 (18%)		38 (24%)	
# LAKES USED BY BREEDING PACIFICS			13 (11%)		12 (8%)		10 (6%)	
# PA BREEDING PAIRS			13		13		10	
# POSSIBLE PA BREEDING PAIRS			2		6		7	
# TERRITORIAL PAIRS WITH NO NEST			N.D.		N.D.		1	
# PA CHICKS				10		12		8 (from 8 pairs)
KNOWN PACIFIC LOON REPRODUCTIVE RATE								
# chicks/# breeding pairs				0.77		0.92		1.0
MINIMUM PACIFIC LOON REPRODUCTIVE RATE								
# chicks/# known + possible + terr. breeding pairs				0.67		0.63		0.44

Table 6. Common (Co), and Pacific (PA) Loon, and Red-necked Grebe (GR) observations submitted from outside the main study area during 1988.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS/COMMENTS
KENAI	BEAR COVE (KACH.)	2	CO*	DATES 5/14-7/31	2	2?	D. FARNSWORTH
	BISHOP	0-3?	CO	SUMMER			N. EVANSON
		YES	GR	SUMMER			N. EVANSON
	JEROME	1	CO	7/19			B. PASSAGE
		0	GR	7/19			B. PASSAGE
	LITTLE (MACKEY)	2	PA* (N)	5/8,28,7/14,22	1	0	A. FRANZMANN/BALD EAGLE ATE CHICK
	MARIE	2	CO* (N)	5/7-OCT	2	1	N. EVANSON
		0	GR	5/7-OCT			N. EVANSON
MAT-SU	TRINITY	1	CO	7/16			J. GRANSBURY
TALKEETNA	LIFE - MI. 127	2	CO*?	5/30			L. D. O'CALLAGHAN
NO. WILLOW	MIDDLE CASWELL	2	CO*	SUMMER	2	2	M. BIGGAR
		3	GR	7/30			M. BIGGAR
NW. WILLOW	DIVENS (UNNAMED)	2	PA*?	9/4			D. & M. DIVENS
	FLORINE	2(-8)	CO*	DATES 5/13-9/16	1	1	D. LAW
		2(-6)	GR* (N)	DATES 5/13-9/16	1	1	D. LAW
	SEVENMILE	2-4	CO*?	DATES 5/27-8/28			J. & B. COLES/LAST CHICKS SEEN IN 1984
		0	GR	DATES 5/27-8/28			J. & B. COLES
	WARNIERS(UNNAMED)	4	PA*	DATES 5/28-8/?	4	4	J & P. WARNIERS, J. LAUB
		0	GR	DATES 5/28-8/?			J & P. WARNIERS