ALASKA LOON WATCH

1987

ALASKA DEPARTMENT OF FISH AND GAME

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ALASKA LOON WATCH 1987

by

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NONGAME WILDLIFE PROGRAM REPORT

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SUMMARY

Six states in the Lower 48 no longer have loons as breeding species, and two other northeastern states have documented large declines due to human development and disturbance. This has led to concern about breeding loon populations in Anchorage and developed areas of the Matanuska-Susitna (Mat-Su) Valley.

The Alaska Department of Fish and Game began loon surveys in 1985. The Alaska Loon Watch 1987 collected information about loon use of 41 Anchorage lakes and ponds and 178 Mat-Su Valley lakes and ponds with the help of 134 volunteers. The average numbers of loon chicks surviving per pair in the main Anchorage and Mat-Su study areas were mostly within normal ranges (McIntyre 1986, Nilsson 1977), although actual numbers of breeding loons in Anchorage are low. Many lakes in Anchorage and the Mat-Su Valley are not used by breeding loons; this may be a cause for concern.

There is some evidence that human disturbance and development may be causing nest failure or abandonment of some lakes by breeding loons. Signs alerting lake users to the resident nesting loons were posted at public access points or near the nest sites to help reduce human disturbance. All six of the lakes with signs near the nest sites had successfully breeding loons this year, including two lakes where no chicks had been seen for four or five years.

INTRODUCTION

The distribution of nesting loons in North America has shrunk to more remote areas as human populations have increased in loon nesting areas (Klein 1985). Six states in the Lower 48 no longer have breeding loons (Pennsylvania, Indiana, Illinois, Iowa and California) and large declines due to human development and disturbance have been documented for New York and New Hampshire (McIntyre 1986). A growing human population in Anchorage and in the nearby Matanuska-Susitna (Mat-Su) Valley has substantially increased development and disturbance on lakes and ponds (henceforth called lakes), and this has led to concern about the future of loons in these areas.

To assess the distribution and nesting success of loons on Anchorage's lakes, a survey was begun in the summer of 1985. 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. In 1987, the survey included 41

Anchorage area lakes and 178 Mat-Su and Kenai lakes, with the help of 134 volunteers. Each year the survey has included all lakes used by loons in the greater Anchorage area (Potter Marsh to Chugiak).

The Anchorage area, with more than 250,000 people, is a summer home to a few nesting pairs of Common Loons (Gavia immer) and Pacific Loons (G. pacifica). Pacific Loons were formerly considered a subspecies of Arctic Loon (G. arctica pacifica). Based on contacts with wildlife agencies from all northern states and Canadian provinces, we have learned that Anchorage is the largest city in North America to have nesting loons. Developed areas of the Mat-Su Valley also have breeding populations of Common and Pacific Loons. Red-throated Loons (G. stellata) have been observed in Anchorage and the Mat-Su Valley, but no nesting has been documented yet. Red-necked Grebes (Podiceps grisegena) are common on lakes in Anchorage and the Mat-Su Valley, and the amount of overlap in lake use among loons are grebes is not well documented.

STUDY AREA AND METHODS

Observations were collected from 41 lakes larger than 2.4 acres in the Anchorage bowl area (Potter Marsh to Eklutna, Fig. 1). This is the smallest lake size known to have nesting loons in Anchorage (Pacific Loons on Turnagain Bog, Hogan and Tande 1983). In addition, 158 lakes in the main Mat-Su Valley study area (along the highway/road corridors from Sutton west to Willow, Fig. 1) were observed. Observations were also submitted from twenty additional Mat-Su and Kenai lakes.

Single or repeated ground-based 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. 2). Areas near 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. 3). Other generic signs (Fig. 4) were floated in the water near loon nesting sites on Anderson, Flat, and Long (in Willow) lakes in the Mat-Su Valley, and posted on the nesting island on Crystal Lake. In addition, a floating rope barricade was erected around the loon nest site on Flat Lake.

RESULTS

Anchorage

Common and Pacific Loons were seen on 59% (24 of 41) of the lakes surveyed in the Anchorage area (Table 1). Commons were seen on 41% (17 of 41) of the lakes and Pacifics on 37% (15 of 41) (Table 1). Known and possible breeding pairs[1] were found on 27% (11 of 41) of the lakes (one pair/lake) (Table 1). Non-resident Commons (possibly only 1) were infrequently observed on two lakes that had breeding Pacifics, but no Pacifics were observed on lakes with breeding Commons (Table 1). Non-resident Pacifics and Commons were seen on three of the same lakes (Table 1). There were eight lakes where no loons or grebes were observed (Table 1).

There were two known breeding pairs of Common Loons that fledged[2] a total of four chicks (Table 2). This resulted in a known reproductive rate[3] of 2.0 chicks/breeding pair, and a minimum reproductive rate[3] of 1.3 chicks/pair, which is the highest in three years (Table 2). One nest site was located (Table 1).

Signs (Fig. 2) were posted on the shoreline at Lower Sixmile and Otter Lakes, where Commons were again able to raise chicks (Table 2).

There were six known breeding pairs of Pacific Loons that fledged at least three (possibly four) chicks (Table 3). This resulted in a known reproductive rate[4] of at least 0.50 chicks/breeding pair, and a minimum reproductive rate[4] of 0.38 chicks/pair, which is slightly higher than last year's average (Table 3). Nest sites were located for four of the pairs (Table 1).

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[1] A "known" breeding pair was a pair seen with a nest, eggs, or chicks. A "possible" breeding pair was recorded when only a single adult or pair was seen during the nesting season (June and early July), or a pair (only) was seen during the summer.

[2] Fledging is defined as raising a chick to at least 1/2 adult size (Parker et al. 1986), unless later pre-flight mortality was documented.

[3] See Table 2.

[4] See Table 3.

The fishing restrictions, floating signs, and rope barricades erected May 15-July 15 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 last year when the fishing restrictions were not implemented. However, this year both pairs were able to fledge a chick (to at least >1/2 adult size) at each lake. Pacific Loons at Goose Lake, which were also unable to fledge chicks last year, again did not have any nesting success, despite shore-based signs posted at the public beach.

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

Thirty-nine of the 41 lakes were surveyed for Red-necked Grebes on at least one date. Grebes were seen on 62% (24 of 39) of the lakes, and were known breeders on 28% (11 of 39) of the lakes (Table 1). In addition, there were 3 lakes with possible breeders. Both lakes used by breeding Common Loon pairs were also used by breeding grebes, and a grebe was seen once on a lake used by a pair of possible breeding Common Loons (Table 1). However, the overlap of lake use between grebes and Pacific Loons was much less. Breeding grebes were only observed on two of the six lakes used by known breeding Pacific Loon pairs, and grebes were seen on one additional lake used by possible breeding Pacifics (Table 1).

Matanuska-Susitna Valley

Common, Pacific and Red-throated Loons were found on 73% (115 of 158) of the surveyed lakes in the main study area (Table 4). Commons were found on 58% (92 of 158) of the lakes, Pacifics on 18% (29 of 158), and Red-throateds on 1% (2 of 158). No visiting non-resident Commons were observed on lakes with known breeding Pacifics, and Pacifics were seen on only one lake with breeding Commons (Big Lake) (Table 4). Up to five Red-throateds were also known to visit two lakes used by breeding Commons (Big Lake and Flat Lake). Known and possible breeding Common and Pacific Loon pairs occurred on 54% (85 of 158) of the lakes (Table 4). There were 16 lakes where no loons or grebes were observed (Table 4).

There were 38 known breeding pairs of Common Loons on 37 lakes that fledged at least 31 chicks (Table 4). This resulted in a known reproductive rate[5] of 0.82 chicks/breeding pair (Table 5). In addition, there were 29

[5] See Table 5.

chicks/breeding pair (Table 5). In addition, there were 29 possible breeding pairs, for an overall minimum reproductive rate[5] of 0.46 chicks/pair (Table 5). The minimum reproductive rate is comparable to 1986 (Table 5) Nest sites for 20 pairs were located (Table 4).

All four lakes where signs were floated or posted near the loon nesting site had successfully breeding Common Loons this year, including two lakes (Flat and Anderson) that had not had loon chicks for four or five years.

Two juvenile Common Loons remained on Anderson Lake and one on Long Lake (in Willow) this year after freeze-up in late October. One of the juveniles on Anderson Lake could not fly because of a wing deformity, and its sibling, although healthy, did not migrate in time either. Local residents, concerned about the fate of these birds, captured them and surrendered them to ADF&G. These three loons were banded with federal migratory bird bands and released in open water near Seward.

There were 13 known breeding pairs of Pacific Loons on 13 lakes that fledged a total of 12 chicks (Table 4). This resulted in a known reproductive rate of 0.92 chicks/breeding pair (Table 5). In addition, there were 6 possible breeding pairs, for an overall minimum reproductive rate of 0.63 chicks/pair (Table 5). This was also comparable to 1986. Nest sites for five breeding pairs were located (Table 4).

No breeding Red-throated Loon pairs were located. Up to five adults were found flying in to feed in two lakes that were used by breeding Common Loons (Table 4).

Red-necked Grebe observations were made on 128 of the 158 lakes in the main Mat-Su study area. Grebes were seen on 58% (74 of 128) of the lakes, and were known breeders on 38% (48 of 128) of the lakes (Table 4). In addition, there were 10 lakes with possible breeding grebes. Seven lakes used by breeding Common Loons were also used by breeding grebes, and 13 lakes with possible breeding Commons were also used by grebes (Table 4). Again, the overlap of lake use between grebes and Pacific Loons was much less. Breeding grebes were only observed on two of the 13 lakes used by breeding Pacifics, and grebes were seen on 3 additional lakes that had possible breeding Pacifics (Table 4).

Loon and grebe observations for 20 Mat-Su and Kenai lakes outside of the main study area are included in Table 6.

DISCUSSION AND FUTURE PLANS

In other areas of Common Loon abundance, it is considered normal for territorial pairs to raise an average of 0.5 chicks/pair (McIntyre 1986). Chick production by Commons on the Kenai National Wildlife Refuge, an area of loon abundance, has ranged from 0.30-0.67 chicks/pair (Smith 1981). The reproductive rates for Commons in the Mat-Su Valley are near or above these rates, so it can be assumed that the Mat-Su population is at least stable. However, the extremely low numbers of Commons in Anchorage make them susceptible to disappearance as a breeding species in this area.

Pacific Loon production in Anchorage in 1987 remained a little low at 0.38 chicks/pair (Table 3). 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). If the Anchorage population has a similar adult mortality rate to the Scandinavian Arctic Loons (estimated at 11%), the continued low reproductive rates of 1986 and 1987 may be inadequate to sustain the Anchorage population.

Another area of concern is the large number of lakes not used by breeding loons. In Anchorage, no more than 27% of the 41 lakes surveyed were used by known or possible breeding loon pairs. In the Mat-Su Valley, only 54% of the 158 surveyed lakes in the main study area were used by known or possible breeding loon pairs.

The effect of human disturbance and development may be causing abandonment of some lakes by breeding pairs. In 1982, two Anchorage lakes (Turnagain Bog and Basher Lake) were used by breeding Pacific Loons (Hogan and Tande 1983); however they have not been used for nesting during at least the past three summers. 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 other lakes, abandonment may not be attributed to all unoccupied lakes.

Further investigation is needed to determine why loons are feeding and nesting on some lakes but not others. Preliminary efforts to correlate loon use of Anchorage lakes in 1985 with characteristics of those lakes (use by motor boats, float planes, other recreational use, residential and industrial development, shoreline fill, presence of nesting islands, and fish stocking) were not successful. More information on effects of these and other factors such as lake size and configuration, length of undeveloped shoreline, water clarity, use by grebes, predator and prey abundance may yield more clues. Plans are developing to

investigate these and other lake characteristics on certain Mat-Su lakes in 1988 and 1989.

More information is also 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 1988 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. Observations of grebes may provide clues to loon nesting efforts.

Protecting breeding habitat components (fish, clear water, marshy nest site, and a chick rearing area) and controlling human disturbance is 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. Plans for the summer of 1988 include maintaining the fishing restrictions near loon nest sites at Little Campbell and DeLong Lakes, and erection of signs and floating rope barricades at some Anchorage and Mat-Su lakes.

ACKNOWLEDGEMENTS

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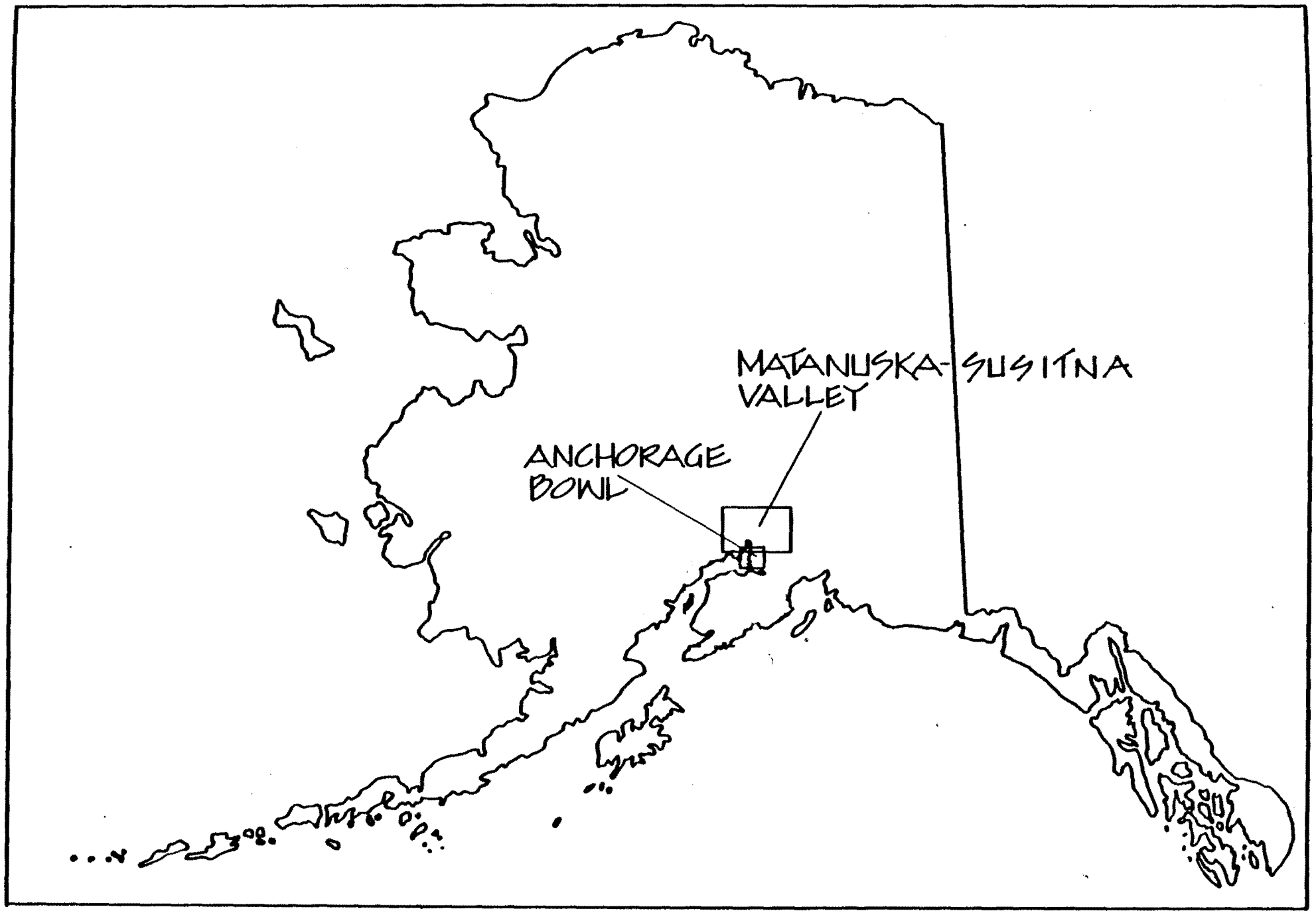
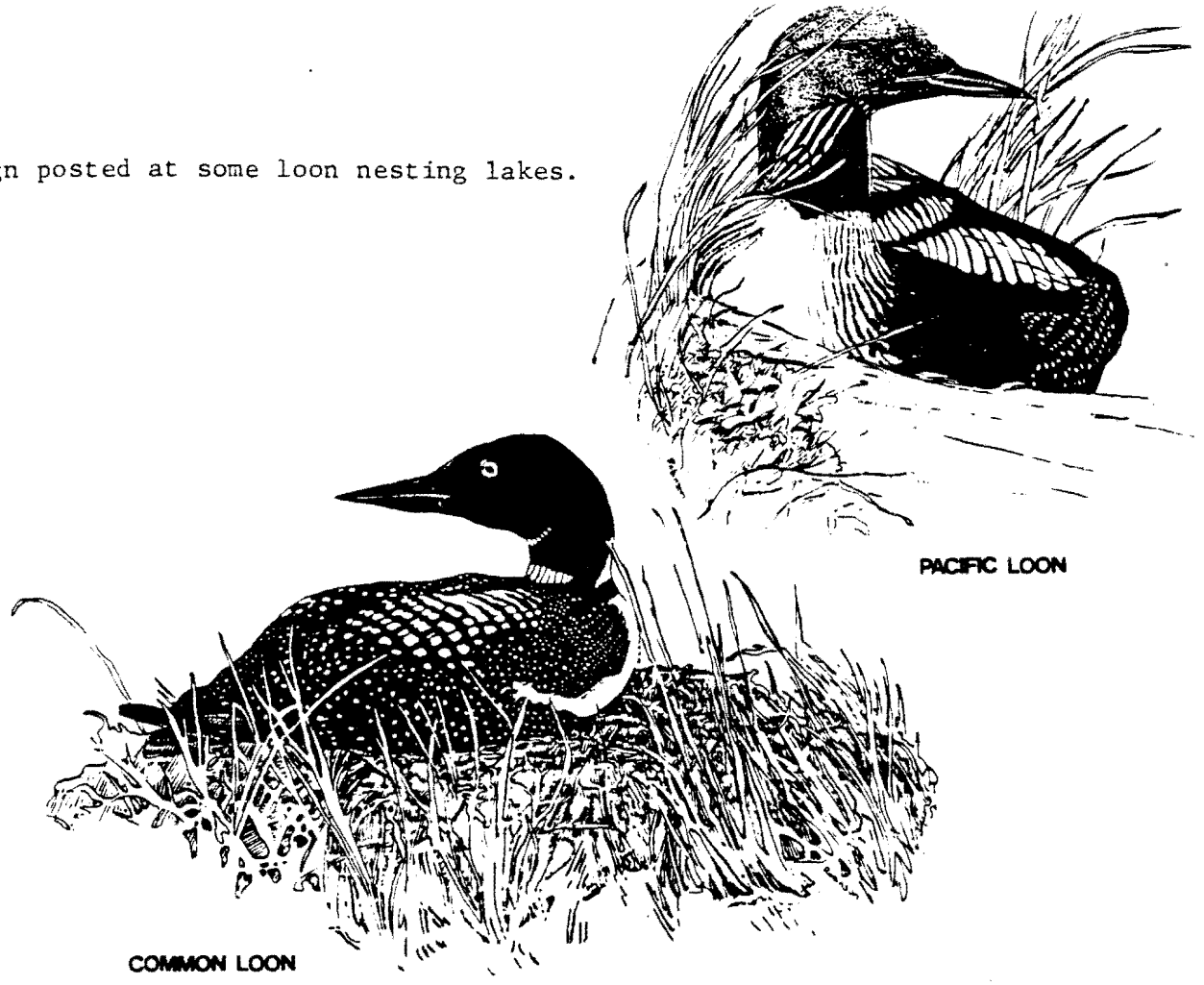


Fig. 1. Observations included 41 lakes in the Anchorage bowl and 153 lakes in the Matanuska-Susitna Valley.

Fig. 2. 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 youn 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

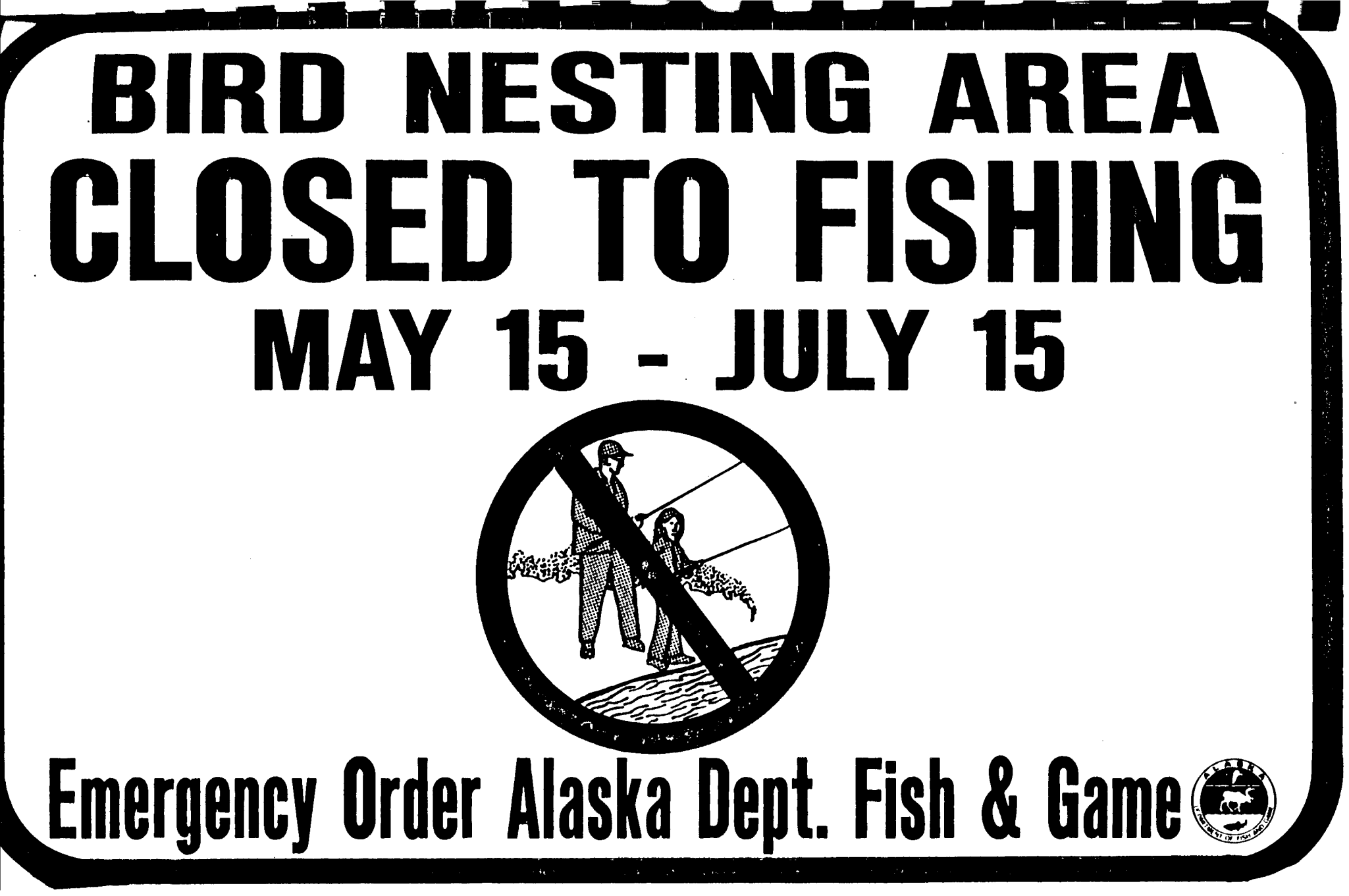


Fig. 3. Sign posted and floated on loon nesting lakes where fishing restrictions applied.

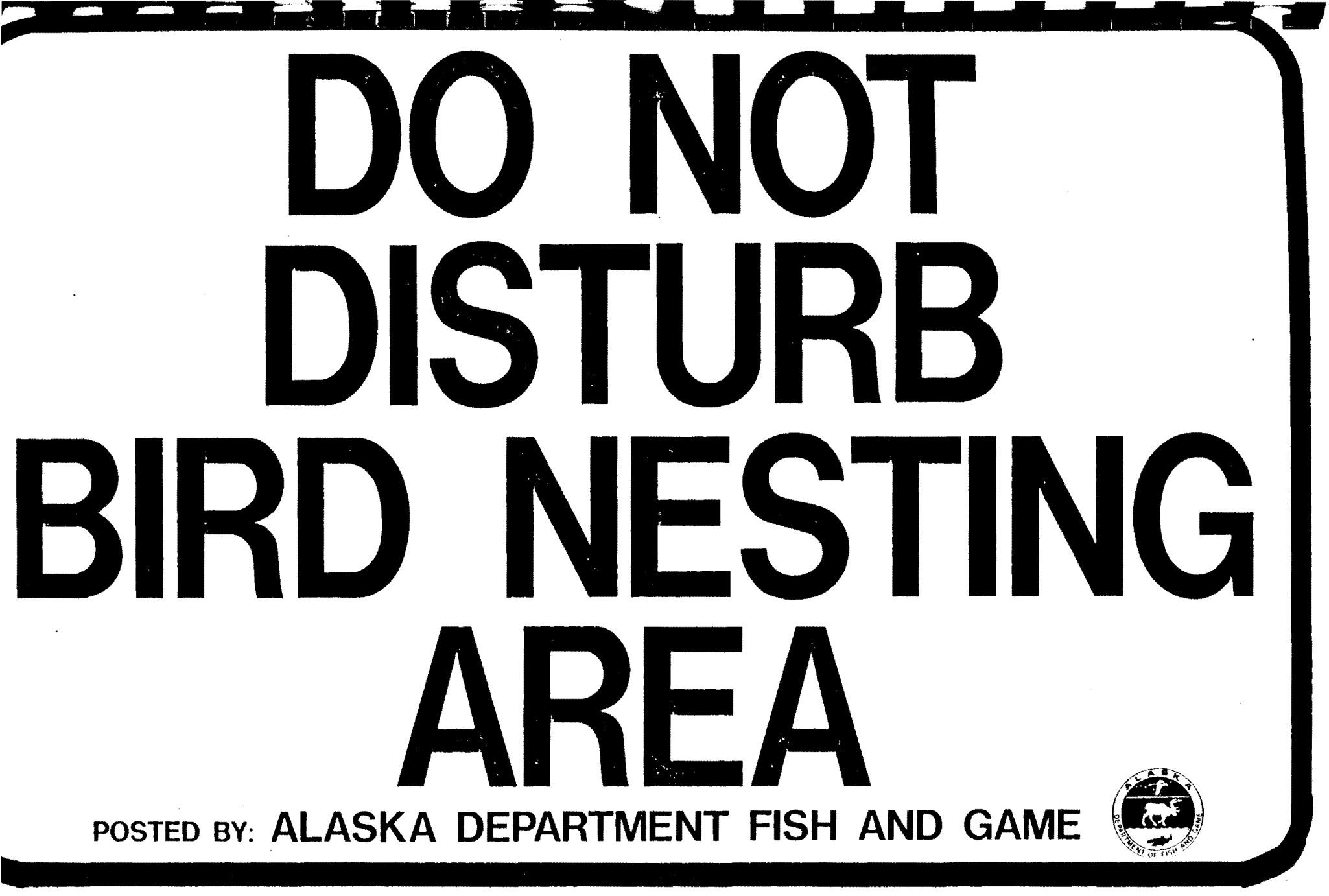


Fig. 4. Sign floated or posted near loon nesting sites on some lakes.

Table 1. Common (CO) and Pacific (PA) Loon, and Red-necked Grebe (GR) observations from the greater Anchorage area during 1987.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
ANCHORAGE	BASHER SW POND	0		7/8			N.T., A. WIELAND
	BEHM	2	GR*	7/8	2	?	N.T.
	CAMPBELL	0-1	CO[1]	5/14-6/28,9/5			E. HARRIS, W&L BROOKS, R. MARSON, B. PASSAGE
		1	PA	6/28,7/?,8/10			R. MARSON, L. BROOKS, T. CHOATE
		2-MANY	GR* (N)	DATES 5/14-9/5	1	0	E. HARRIS, W&L BROOKS, R. MARSON, B. PASSAGE
	CHENEY	1	CO	7/11			T. CHOATE (MATE ? SHOT IN EARLY JUNE)
		1-4	GR* (N)	DATES 5/15-7/28	0	?	T & S & K FINK, C. THOMPSON
	CONNORS	1-6	PA*	DATES 5/6-8/31	0	0	G. NILSON, T. CHOATE, N.T.
		1	CO[1]	6/2			G. NILSON
		0-4	GR*	DATES 5/14-8/19	1	1	G. NILSON
	DELONG	1-3	PA* (N)	5/5-9/9	1	1	E. SCHEFFEL, A. CHANDONNET, B. PASSAGE, G. NILSON
		1	CO	5/12,14,16,18,19			E. SCHEFFEL, G. NILSON, B. PASSAGE
		0	GR	5/5-9/9			(SIGNS AND ROPE ERECTED)
	GOOSE	1-2	PA* (2N)	DATES 5/10-9/17	0	0	C. EANES, W. JONES, T. CHOATE, S. FINLEY, N.T.
		0-4	GR*	DATES 5/15-8/27	0	?	C. EANES, W. JONES, S. FINLEY (SAW DEAD ONE 5/26)
	HIDEAWAY	0-2	GR	5/25,6/12,19, JULY			J & M MCCONNAUGHY
	JEWEL	1-3	CC[1]	DATES 5/7-8/2,8/21			B. PASSAGE, Y. MERRILL, N.T.
		1-2	PA	5/10,12,14,16,29,6/8			B. PASSAGE
		1-6	GR*?	5/10-31,6/25,7/10	0	?	B. PASSAGE, N.T.
	LITTLE CAMPBELL	2	PA* (N)	DATES 5/30-9/9	1	0-1?	B. PASSAGE, J&M MCCONNAUGHY, R. MARTH, N.T. (CHICK >2/3 SIZE NOT SEEN W/ADULTS AFTER 8/10)
		0	GR	DATES 5/30-9/9			B. PASSAGE, J&M MCCONNAUGHY, N.T. (SIGNS AND ROPE ERECTED)
	MEADOW	0-2	PA*	DATES 5/4-8/31	1	1	G. NILSON
		0	GR	DATES 5/4-8/31			G. NILSON
	POTTER	2	PA	5/6			A. WIELAND
		>8	GR*	MOST OF SUMMER	?	?	N.T.
	SAND	1-2	PA	5/28,31,6/12,25			A. PASCH, B. PASSAGE, N.T.
		>1	GR	6/25			N.T.
	SPENARD/HOOD	1-2	PA	DATES 5/10-8/9			R. MEACHER, B. PASSAGE, SEEING EYE
		2	GR	5/10,17,27,31,6/8			B. PASSAGE
	SUNDI	1-4	PA	DATES 5/27-9/30			C. ASHLEY
		1-2	CO[1]	DATES 5/27-6/30			C. ASHLEY
		2	GR* (N)	5/27-7/31	0	0	C. ASHLEY
	TAKU	1	PA	3 DAYS IN JUNE			D. HARKNESS, LOCAL FISHERMAN
		0	GR	7/1			N.T.
	TUDOR/BRAGAW	0	PA,CO	7/8			N.T.
		?	GR	7/8			N.T.
	TURNAGAIN BOG	2	PA	5/15			B. ANDERSON
		1	PA	EARLY JUNE			M. DALTON
		0	GR	5/15,7/1,8/4			B. ANDERSON, N.T.
	UAA ADMIN POND	0		6/25			N.T.
EAFB	FISH	0		5/18			R. ARCHBOLD
	GREEN	0-1(2)	CO	DATES 5/12-8/22			K. REINKE, R. ARCHBOLD
		?	GR				
	HATCHERY POND	0		5/18,22			R. ARCHBOLD
	HILLBURG	1	CO	5/27			K.REINKE
		0-2	GR	DATES 5/8-8/25			K. REINKE, R. ARCHBOLD

Table 1. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	LOWER SIXMILE	2	CO* (I)	DATES 5/16-8/18	2	2	K. REINKE, R. ARCHBOLD, P. STEFANICH, N.T.
		1-6	GE* (I)	DATES 5/16-6/25	2	?	R. ARCHBOLD, P. STEFANICH, K. REINKE
	OVAL	2	PA*?	7/2	0	0	R. ARCHBOLD
		0	GR	7/17			N.T.
	SPRING	0		DATES 5/12-8/20			K. REINKE, R. ARCHBOLD
	TRIANGLE	0		5/16,22			R. ARCHBOLD
	UPPER SIXMILE	0-1	CO	ALL SUMMER			R. ARCHBOLD
		1	GR	5/16,22			R. ARCHBOLD
FT. RICE	CLOUDBERRY	1	GR	7/17			N.T.
	CLUBIE	2	GR*?	DATES JUNE-JULY	0	?	N.T., K. REINKE
	QUEE	1	CO?	6/7			K. KARTH
		1-6	GR*	6/7,7/17,8/17	2	2	K. KARTH, J. TENCZA, N.T.
	OTTER	2	CO*	DATES 5/11-9/25	2	2	K. STULL, K. REINKE, J. TENCZA, N.T.
		2-4	GR*	5/14,8/17	4	4	J. TENCZA, K. REINKE
	THOMPSON	0		7/17			N.T.
	WALDON	1	GR	7/17			N.T.
		0	PA,CO	DATES JUNE, JULY			K. REINKE
CHUGIAK	BEACH	1-2	CO*?	7/16,23	0	0	N.T., RUTH HOULTON
		0-1	GR	7/16,23			N.T., RUTH HOULTON
	EDLUNDS	0-1	CO	7/16,23			N.T., RUTH HOULTON
		0-1	GR	7/16,23			N.T., RUTH HOULTON
	EKLUTNA	0		7/23			N.T., RUTH HOULTON
	LOWER FIRE	2-19	GR* (I)	5/28,7/16	4	?	BOUNTY EDWARDS, N.T.
	MIRROR	0-1	CO	7/16,23			N.T., RUTH HOULTON
		16	GR*?	7/16,23	?	?	N.T., RUTH HOULTON
	PEARL	2	PA* (I)	DATES 5/8-8/8	1	1	M. BAUMAN, N.T.
		0	GR	DATES 5/8-8/8			M. BAUMAN, N.T.
	UPPER FIRE	2	GR	7/16			N.T.

TOTALS	41	LAKES SURVEYED FOR LOONS
	17	LAKES WHERE CO SEEN
	2	CO BREEDING PAIRS
	1	POSSIBLE BREEDING PAIR CO
	15	LAKES WHERE PA SEEN
	6	PA BREEDING PAIRS PA
	1	POSSIBLE BREEDING PAIR PA
	39	LAKES SURVEYED FOR GREBES
	24	LAKES WHERE GREBES SEEN
	11	LAKES WITH BREEDING GREBES
	3	LAKES WITH POSSIBLE BREEDING GREBES

1 = probably same bird
* = breeding pair (nest, eggs, or chicks seen)
*? = possible breeding pair (pair seen)
(I) = nest site known
? = no data

Table 2. Common Loon chick production from Anchorage area lakes where one or more Common Loons were observed in 1985, 1986 and/or 1987.

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

* = Breeding pair (nest, eggs, or chicks seen)
*? = Possible breeding pair (pair only seen)
** = No Common Loon adults seen
*** = Breeding Pacific Loons present
(N) = Nest site known

Table 3. Pacific Loon chick production from Anchorage area lakes where one or more Pacific Loons were observed in 1985, 1986 and/or 1987.

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

[a] Chick (>1/2 adult size) not seen with adults after 8/10.
[b] Breeding Pacific Loons raised 1 chick here in 1982 (Hogan and Tande 1983).

N.D. = No data
* = Breeding pair on lake (nest, eggs, or chicks seen)
*? = Possible breeding pair on lake (pair seen)
** = No Pacific Loon adults seen
*** = Breeding Common Loons 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 1987.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
SUTTON	DRILL	2	PA	5/15,6/2			E. GRAHAM
		4-14	GR* (N)	DATES 5/15-9/22	>3	3	E & D GRAHAM
	FISH	6	GR*?	5/17			C. BAER
	IDA	3	GR*?	8/24			N.T., K. KOENEN
	SEVENTEENMILE	2	CO*?	5/15-8/24	0	0	N.T., K. KOENEN, B. ROBINSON, C. THOMPSON
		2	GR	5/15			C. THOMPSON
PALMER	BRADLEY	3	GR*	7/30,8/11	1	?	N.T.
	CANOE	0-2	GR* (N)	5/15,19-21,7/30	0	?	C. BAER, N.T.
	ECHO	10	GR*	7/30	3	?	N.T.
	HIGH RIDGE	1-2	CO?	DATES 6/2-9/6			K. NEWBURY
		>2	GR*?	DATES 6/2-9/6			K. NEWBURY
	IRENE	0-1(2)	CO	6/1-9/1			H. ASHLEY
		2-5	GR*	6/1-9/1	1-3	3	H. ASHLEY, N.T.
	JOHNSON	1	CO	8/24			N.T., K. KOENEN
		0	CR	8/24			N.T., K. KOENEN
	KEPLER	1	CO	7/30,8/11			N.T., D. MILLER
		2	GR*	7/30,8/11	2	1?	N.T., D. MILLER
	KLAIRE	1	GR*	8/11	1	?	N.T., D. MILLER
	LONG	7	GR*	8/11	>3	?	N.T., D. MILLER
	MATANUSKA	1	CO	7/30,8/11			N.T., D. MILLER
		2	GR*	7/30	1	?	N.T.
	MEIRS (MCLEOD)	1	GR	5/15,6/6			C. THOMPSON
	SLIVER	2	GR*	5/4-8,8/11	3	?	C. BAER, N.T., D. MILLER
	VICTOR	1	GR*	8/11	1	?	N.T., D. MILLER
WASILLA	ANDERSON	2	CO* (N)	5/11-9/5	2	2[a]	B. LEBIDA, R. FERGUSON, N.T./ (FLOATING SIGNS)
		2	GR	5/22			B. LEBIDA; NESTED ON DUFF'S POND
	BLACK	1	GR*	8/7	1	?	N.T.
	CHIGNAKI	2	PA*	8/7	2	2	N.T.
		0	GR	8/7			N.T.
	CORNELIUS	1-4	CO* (N)	5/2-9/25	0	0	P. ARNOLD, J. EAKIN
		1	GR	4/26,5/11-16,30			P. ARNOLD, J. EAKIN
	COTTONWOOD	>17	GR*?	8/4	?	?	N.T.
	DRY (EAST)	1	CO	8/4			N.T.
		1	GR	8/4			N.T.
	DRY (WEST)	0		8/4			N.T.
	DUFF'S POND	2	GR*	?	?	?	B. LEBIDA
	FINGER	1	CO	4/27,7/30,31			N.T., S. WALKER
		30-100	GR*	7/30-31	MANY	?	N.T., S. WALKER
	GAIL DR. POND	0		8/7			N.T.
	GOODING	>6	GR*?	7/30	?	?	N.T.
	HART	1	PA	8/4			N.T.
		0	GR	8/4			N.T.
	JACOBSEN	2(7,9)	CO*	4/26-9/15	0	0	V & G COGHLAN/ (ONLY 2ND NEST FAILURE IN 20 YRS)
		?	GR				

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	KENNEDY	0		8/4			N.T.
	KINGS	1	CO*	8/4	2	2	N.T.
		?	GR				
	LOBERG	1	CO	8/7			N.T.
		2	GR*	8/7	1	?	N.T.
	LUCILLE	2-9	CO* (N)	5/23-8/15	0	0	R. COTTLE, G. NILSON/ (DEAD LOON FOUND LATE JULY;
		?	GR				SIGNS POSTED ON NEST ISLAND)
	MEIER	2	GR*	8/4	1	?	N.T.
	MEMORY	2	CO*	ALL SUMMER	2	1	C. MENARD, C. BRENT
		2	GR*	ALL SUMMER	4	4	C. MENARD
	MI 46 POND	0		8/12			N.T.
	MUD	>2	GR	8/4			N.T.
	MUD POND	0		8/4			N.T.
	NEKLASON	1-4	CO*?	ALL SUMMER	0	0	R & A TORDOFF, N.T.
		>19	GR*	7/30	?	?	N.T.
	PARADISE	3	GR*	8/4	1	?	N.T.
	REED	0		8/4			N.T.
	WALBY	9	GR*	7/30	2	?	N.T.
	WALLACE (CLEAR)	2	CO* (N)	PERIODS 4/24-10/15	1	1	J. BOLM, T. MARSHALL, R. ROBINSON II
		?	GR				
	WASILLA	1	CO	ALL SUMMER			A. CURTIS
		26	GR*	8/7	?	?	N.T.
	WOLF	2	CO* (N)	ALL SUMMER	0	0	J & J EAKIN/ (PROBABLY 2 NESTING ATTEMPTS)
		1	GR	4/26			J & J EAKIN
PT. MCKENZ	CARPENTIER	2	CO*	8/14	1	1	C. BAER
		?	GR				
	FARMER	2	PA*?	5/11-14	0	?	C. BAER
		0	GR	5/11-14			C. BAER
	LORRAINE	2	CO*?	6/24-25	0	?	C. BAER
		?	GR				
	THREEMILE	1-3	CO* (N)	5/20-10/2	2	2	J. KING & GIRL SCOUTS
		6	GR*	5/20-6/18	?	0	J. KING & GIRL SCOUTS
	TWIN ISLAND	2-6	CO*?	6/25-26	0	?	C. BAER
		?	GR				
MEADOW	AIROLO	0		8/23			K. KOENEN, S. WALKER
	BAPTIST	0		8/12			N.T./ (BOYS SHOOTING FIRECRACKERS FROM DOCK)
	BEAR PAW	1	PA	8/20			N.T., K. KOENEN
		0	GR	8/20			N.T.
	BEHNKE	0-1	CO	DATES 5/12-6/30			M & P BEHNKE
		1-2	GR*	DATES 5/12-8/1	2	1-2	M & P BEHNKE
	BEAVER POND	2	PA*	DATES 5/5-8/1	2	2	M. BEHNKE
		2-5?	GR	5/12,19,26			M. BEHNKE
	BEVERLY	2-4	CO	5/5-9/17			J. BOCHENEK/ (NO CHICKS SINCE 1980)
		0-?	GR	5/5-9/17			J. BOCHENEK
	BLODGETT	1-2	CO	7/30,31,8/12			S. WALKER, N.T.
		3-10	GR*	7/30,31,8/12	2-4	?	S. WALKER, N.T.
	BRUCE	2	PA*	8/12	1	1	N.T.
		0	GR	8/12			N.T.
	CAROUSEL	3	GR*	8/12	2	?	N.T.
	CHERI	<18	GR*	8/20	>2	?	N.T., K. KOENEN
	CLOUDY	2	PA* (N)	ALL SUMMER	0	0	S. PHILLIPS

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		4	GR* (N)	ALL SUMMER	5	0	S. PHILLIPS/ (BALD EAGLE PREDATION SUSPECTED)
	DAWN	1	CO	5/28			C. BAER
		2	PA?	6/27			J. BOSTWICK
		2	GR	5/28,29,8/12			N.T., C. BAER
	DOUBLOON	3	GR*	8/7	2	?	N.T.
	DUSK	0		8/12			N.T.
	FOREST (MI 52.5)	?	GR	7/1			J. BOSTWICK/ (NO LOONS SINCE AT LEAST 1981)
	FROG	2	CO*?	8/20	0	0	N.T., K. KOENEN
		1	GR?	8/20			N.T., K. KOENEN
	FULLER	1	CO	8/7			N.T.
		0	GR	8/7			N.T.
	HAWK LANE	0		8/20			N.T., K. KOENEN
	ISLAND	2	CO*?	ALL SUMMER	0	0	R&G PAPPERT, N.T./ (NO CHICKS SINCE AT LEAST 1983)
		2-6	GR* (N)	AT LEAST 6/7-8/7	2	0?	R & G PAPPERT, N.T.
	JUNE	2-3	GR	8/7			N.T.
	KABN TOWER POND	0		8/12			N.T.
	KALMBACK	2	CO* (N)	6/1-2,8/1,12	1	1	C. BAER, J. NELSON, N.T.
		0	GR	8/12			N.T.
	LALEN	2	CO* (N)	5/22-9/5	0	0	J. HINES, S. WALKER, T. BRADLEY
		?	GR				
	LITTLE	0		8/24			N.T., K. KOENEN
	LOON	4	PA*?	8/20	0	0	N.T., K. KOENEN
		1	CO	8/20			N.T., K. KOENEN
		4	GR*	5/8,8/20	1	1	N.T., K. KOENEN, S. WALKER, T. BRADLEY
	MARYBELLE	1-2	CO*?	ALL SUMMER	0	0	J & H BOCHENEK
		0	GR	ALL SUMMER			J & H BOCHENEK
	MEADOW LKS CORNER	0		8/12			N.T.
	MISTY	0		8/12			N.T.
	MOVRO	2	CO* (N)	8/18	1	1	J. DRINGEL
		?	GR				
	PRATOR	3	PA*?	8/20	0	0	N.T., K. KOENEN
		10	GR*?	8/20	?	?	N.T., K. KOENEN
	RAINBOW	2-13	CO* (N)	5/2-9/12	0	0	R. EAGLE, C. KLEINKAUF, B. BERGER
		2-4	GR*	6/13-9/12	3	?	C. KLEINKAUF, R. EAGLE
	RAINBOW POND	1	GR*	8/12	1	1	N.T.
	RR-PITTMAN POND	2	GR*	8/12	1	1	N.T.
	SCOTT	2	CO* (N)	5/1-10/5	0	0	B. BUZBY (0 CHICKS 1985-86; KNOWS USUAL NEST SITE)
		2	GR*	ALL SUMMER	1	1	B. BUZBY
	SHERWOOD	1-2	PA* (2N)	5/19-9/8	0	0	J. MOSES
		4-6	GR* (N)	5/19-8/5	3	?	J. MOSES
	SEYMOUR	1-12	CO	DATES 4/29-10/7			M & P SWEENEY, R. MOULTON
		20-50	GR* (N)	MAY-JUNE	?	?	M & P SWEENEY, R. MOULTON
	TOAD	2	CO*	8/20	1	1	N.T., K. KOENEN
		0	GR	8/20			N.T., K. KOENEN
	VISNAW	2	CO*	7/23,24,8/14	1	?	S. WALKER, T. LITECKY
		?	GR				
BEAVER	BEAVERHOUSE	1-2	CO*	7/28,29,8/21	1	1	S. WALKER, K. KOENEN, N.T.
		0-2	GR	7/26,29			S. WALKER/ (GREBES IN INLET STREAM), N.T.
	BIG BEAVER	0-3	CO*?	ALL SUMMER	0	0	A. MAHURIN
		>12	GR*	8/21	>2	?	N.T., K. KOENEN
	BOTTLE	2	PA*?	8/21	0	0	N.T., K. KOENEN

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		0	GR	8/21			N.T., K. KOENEN
	COLT	0		8/21			N.T., K. KOENEN
	HORSESHOE	2	CO*?	8/21	0	0	N.T., K. KOENEN
		>22	GR*?	8/21	?	?	N.T., K. KOENEN
	HOURGLASS	2	CO*?	8/21	0	0	N.T., K. KOENEN
		<17	GR*	8/21	>1	?	N.T., K. KOENEN
	LAZY	1-7	PA*	DATES 5/9-9/8	2	2	B. RICHARDS, J. MCCORD
		2	CO	5/23,6/?			B. RICHARDS, J. MCCORD
		6	GR	DATES 5/9-30			B. RICHARDS, J. MCCORD
	LITTLE BEAVER	2	CO*	7/29,8/21	1	1	S. WALKER, K.KOENEN, N.T.
		0	GR	8/21			N.T., K. KOENEN
	LITTLE HORSESHOE (WEST)	2-10	CO*?	MID-MAY-10/2	0	0	K. SAVAGE
		2-5	PA	7/13-8/30			K. SAVAGE
		6-22	GR*	8/21-9/13	4	4?	K. SAVAGE
	LONG-LARAE RD	2	CO[b]	DATES 5/29-8/28			J. EDER/ (PAIR NESTED ON TWIN LAKE)
		2	GR*	5/29-?	?	0	J. EDER
	LYNDA	1	PA	8/21			N.T., K. KOENEN
		2	GR*	BEFORE 8/21	2	?	R. O'MARY
	ROGERS RD CORNER	0		8/21			N.T., K. KOENEN
	STEPAN	2	CO*?	8/20	0	0	N.T.
		0	GR	8/20			N.T.
	TWIN	2	CO*[b] (N)	6/1,7/31	1	1	S. WALKER, J. EDER/ (SAME PAIR AS LONG-LARAE RD)
		?	GR				
	WEST AIRSTRIP	1	PA	8/21			N.T., K. KOENEN
		0	GR	8/21			N.T., K. KOENEN
	WEST BEAVER	4	GR*?	8/21	?	?	N.T., K. KOENEN/ (RES SAYS LOTS OF GREBES HERE)
BIG LAKE	BIG LAKE-BASIN 2	2	CO*	DATES JUNE-9/21	2	1	S. WALKER, T. BRADLEY, C. KERKVLIET, G. NILSON,
	BIG LAKE-BASIN 5	2	CO* (N)	PERIODS 7/4-9/16	1	1	M. FRAZIER, S. WALKER, G. NILSON
	BIG LAKE	2-8	CO	DATES 5/7-10/22			G. MOCKERMAN, M. NIVER, WALKER/BRADLEY/KERKVLIET
		0-18	PA	DATES 5/25-9/23			G. NILSON, G. MOCKERMAN, WALKER/BRADLEY/KERKVLIET
		1-5	RT	DATES 6/18-8/19			G. NILSON, S. WALKER
		38-200	GR*	DATES 5/16-8/15	>6	?	G. NILSON, S. WALKER
	BIRCH	0-3	PA	6/26,8/20			J. BOSTWICK, K. KOENEN, N.T.
		4	GR*	8/20	>1	1?	N.T., K. KOENEN
	CROOKED	2	CO*(2N)	DATES 5/7-9/20	2	1-2?	F. DAHL, M. MCDERMOTT, N.T.
		0	GR	DATES 5/7-9/20			F. DAHL, N.T.
	CROOKED OUTLET	0-1	CO	5/22,8/16			N.T.
		0	GR	5/22,8/16			N.T.
	ECHO	1-3	CO	7/4,5,17,18,30,31			J. SHOCKLEY
		8	GR*	7/4,5,17,18,30,31	5	?	J. SHOCKLEY
	FLAT	1-4	CO* (N)	DATES 6/16-8/29	1	1	G. NILSON, W. WILLIAMS/ (FLOATING SIGNS AND ROPE)
		1-3	RT	DATES 6/27-8/15			G. NILSON
		4-9	GR* (N)	DATES 6/16-8/29	1	1?	G. NILSON
	MARION	1-7	CO*?	DATES 5/26-9/23	0	0	C. FAER, D. HERSCHBACH
		?	GR				
	ROCKY	12	GR*?	8/20	?	?	N.T.
	SARA	3	CO	7/4			G. NILSON
		3-5	GR*	5/16,6/28,7/4	1	?	G. NILSON
	STEPHAN (LOWER)	2	CO*?	PERIODS 5/15-10/4	0	0	B. WELCH
		?	GR				

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
	(UPPER)	2	CO*?	PERIODS 5/15-10/4	0	0	B. WELCH
		?	GR				
	SUSAN	2	CO*	DATES 5/16-8/30	2	2	G. NILSON
		?	GR				G. NILSON
	WOODY	1-2	CO	ALL SUMMER			G. CAVANAUGH
		2	GR*?	ALL SUMMER	?	?	G. CAVANAUGH
WILLOW	AIRDAW	1-2	CO*?	5/15,31,6/2,7/5	0	?	K & M HEACOX, C. GREEN, S. CHARLES
		1	GR	6/2			S. CHARLES
	BAINS	2	GR*?	5/15	0	?	C. GREEN
	BALD	1	PA*?	6/6	0	0	J. WENGER
		1	CO	8/19			J. WENGER
		0	GR	5/25,6/6,8/19			J. WENGER
	BIG NOLUCK	1	CO*?	7/5	0	?	S. CHARLES
		?	GR				
	BOOT	1?	CO	9/6,28			B. MERRELL/ (LOON HEARD, NOT SEEN)
		?	GR				
	BROOKS (MI 68.3)	2	PA*	6/27-7/21	2	1	B. SHURTLEFF
		?	GR				
	BUCKLEY	2	CO*?	5/15,7/4	0	?	C. GREEN, NLSRA RANGER
		0	GR	5/15			C. GREEN
	BUTTERFLY	2	CO*?	5/15,30	0	?	C. GREEN, K & M HEACOX
		0	GR	5/15,30			C. GREEN, K & M HEACOX
	CHARR	1-2	CO*?	6/7,7/5	0	?	A. MEINERS, S. CHARLES
		2	GR*	7/5	2	?	S. CHARLES
	CHICKEN	2	CO*	6/2,7/5	1	?	S. CHARLES
		?	GR				
	CRYSTAL	1-2	CO*	5/9-10/28	2	2	S. CHARLES, G. BADGER/ (FLOATING SIGN)
		?	GR	8/22			S. CHARLES
	ECHO PONDS	1	CO*?	7/4			NLSRA RANGER
		?	GR				
	FLORENCE	2	CO*	5/22-25,8/25,9/5-7	1	1	S. CHARLES, JANE JOHNSON
		?	GR				
	(BIG) FRAZIER	2	CO*?	5/15,31	0	?	C. GREEN, K & M HEACOX
		0	GR	5/15,31			C. GREEN, K & M HEACOX
		0		6/2			S. CHARLES
	HONEYBEE	2	CO* (N)	DATES 5/5-9/27	1	1	D. BLANCHARD, C. THOMPSON
		0	GR	5/5,11,20,30			D. BLANCHARD
	JACK	2	CO*	7/4,9/13	1	1	E. LYNCH
		4	GR*	7/4,9/13	7	2	E. LYNCH
	JACKNIFE	1	CO	7/5			S. CHARLES
		2	PA	8/15			J. TENCZA
		?	GR				
	JAMES	0-2	CO*?	5/15,6/2,7/5	0	?	C. GREEN, S. CHARLES
		0	GR	5/15			C. GREEN
	JOHN	2	CO* (N)	5/10,7/22,9/7	1	1	S. CHARLES
		?	GR				
	JW#1 (NANCY #1)	1-2	PA* (N)	5/17,5/25,8/19	0	0	J. WENGER
		0	GR	5/17,5/25,8/19			J. WENGER
	JW#2 (NANCY #2)	2	PA*	5/17,8/?,8/19	2	2	J. WENGER, R. SEPPI
		0	GR	5/17,8/?,8/19			J. WENGER, R. SEPPI
	JW#3 (NANCY #3)	0-2	PA* (N)	DATES 5/17-8/19	2	0	J. WENGER, D. HEIKES/ (SIGN POSTED)

Table 4. (cont.)

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
		0	GR	DATES 5/17-8/19			J. WENGER, D. HEIKES
	JW#4 (NANCY #4)	0-2	PA*?	5/17,24,8/19	0	0	J. WENGER/ (SIGN POSTED, THEN MISSING)
		0	GR	5/17,24,8/19			J. WENGER
	KELLY	2-7	CO*	DATES 5/10-9/21	1	0	P. COOK
		2	GR	5/10-31			P. COOK
	LITTLE FRAZIER	1	CO*?	7/5	0	?	S. CHARLES
		?	GR				
	LITTLE LONELY	2	CO?	8/14			C. FAER
		?	GR				
	LITTLE MCLUCK	2	PA*	6/2,6,7/5	1	1?	S. CHARLES, A. MEINERS
		?	GR				
	LONG	2-5	CO* (N)	DATES 5/22-9/6	2	1 1	K. ROCKNESS, E. WILLIAMS/ (FLOATING SIGN)
		0	GR	5/22			K. ROCKNESS
	LYNNE	2-6	CO* (N)	5/9-9/17	2	1	M. L. MAYFIELD
		6	GR	5/9-5/31			M. L. MAYFIELD
	LYNX	6-1	CO	ALL SUMMER			S. CHARLES, A. MEINERS, B. BELLRINGER
		6-5	HG	ALL SUMMER			B. BELLRINGER
		1	GR	7/5			B. BELLRINGER
	MI 1 KLSIA EKLY	2	PA* (N)	5/23-31	0	?	C. GREEN
		0	GR	5/23-31			
	MILO	1-2	CO*?	5/31,6/2,7/5	0	?	K & M HEACOX, S. CHARLES
		0	GR	5/31			K & M HEACOX
	NANCY	2	CO*	7/4	1	0?	R. C. MEACHER
		2	GR	9/27			V. MENDENHALL
	OWL	0-2	CO*?	6/2,7/5	0	?	S. CHARLES
		?	GR				
	SHIRLEY	2-8	CO* (N)	DATES 5/1-8/18	0	0	M. VALLIANT, JEANNE JOHNSON, S. CHARLES
		1-2	GR	5/1,6/1-30,7/4			M. VALLIANT
	SKEETNA	2	CO*?	5/15,30	0	?	C. GREEN, K & M HEACOX
		0	GR	5/15,30			C. GREEN, K & M HEACOX
	SOUTH ROLLY	1	CO*?	6/11-12	0	?	C. FAER
		?	GR	6/11-12			C. FAER
	TANAINA(DENAINA)	1-3	CO*?	6/2,6/7,7/5,8/14	0	0	S. CHARLES, A. MEINERS, J. TENCZA
		3	GR	7/5			S. CHARLES
	TWELVEMILE	2	PA*	9/5-7	2	2	T. WARD
		?	GR				
	VERA	1-5	CO*	DATES 6/2-10/4	1	0?	B. MERRELL/ (CHICK 1/3 SIZE 10/4)
		?	GR				
	WILLOW	2	CO* (N)	DATES 5/20-10/3	2	2	N. UPTON, V. RICHEY, D & L DAFOE, B. MORRIS, G. GARDNER
		0	GR	6/21-10/3			V. RICHEY, B. MORRIS

1 = juveniles captured, banded and transported to Seward after being iced-in on lake
2 = same pair
* = breeding pair (nest, eggs, or chicks seen)
*? = possible breeding pair (single adult seen in June or early July, or pair only seen)
(N) = nest site known
(2N) = 2 nests found
? = no data

Table 5. Loon observations from Mat-Su lakes in the main study area observed during 1986 and 1987.

AREA	LAKE	1986		1987	
		SPECIES	# CHICKS SURVIVING [a]	SPECIES	# CHICKS SURVIVING [a]
SUTTON	DRILL	(CO,PA)		(PA)	
	FISH	N.D.		--	
	IDA	N.D.		--	
	SEVENTEEN ILE	CO*?	0	CO*?	0
PALMER	BAIRDS	(PA)		N.D.	
	BRADLEY	--		--	
	CANOE	--		--	
	ECHO	--		--	
	HIGH RIDGE	--		(CO?)	
	IRENE	--		(CO)	
	JOHNSON	N.D.		(CO)	
	KEPLER	CO*	0	(CO)	
	KLAIRE	--		--	
	LONG	--		--	
	MATANUSKA	--		(CØ)	
	MEIRS (MCLEOD)	--		--	
	SLIVER	--		--	
	VICTOR	--		--	
WASILLA	ANDERSON	CO* (N)	0	CO* (N)	2 [b]
	BLACK	--		--	
	CHIGNAKI	--		PA*	2
	CORNELIUS	CO* (N)	1	CO* (N)	0
	COTTONWOOD	CO*?	0	--	
	DRY (EAST)	N.D.		(CO)	
	DRY (WEST)	--		--	
	DUFF'S POND	N.D.		--	
	FINGER	(CO)		(CO)	
	GAIL DR. POND	--		--	
	GOODING	--		--	
	HART	(PA)		(PA)	
	JACOBSEN	CO* (N)	1-2	CO*	0
	KENNEDY	N.D.		--	
	KINGS	CO* (N)	1	CO*	2
	LOBERG	--		(CO)	
	LUCILLE	CO* (N)	1	CO* (N)	0
	MEIER	--		--	
	MEMORY	CO* (N)	2	CO*	1
	MI 46 POND	--		--	
	MUD	--		--	
	MUD POND	N.D.		--	
	NIKLASON	CO*	0	CO*?	0
	PARADISE	--		--	
	REED	--		--	
	WALBY	--		--	

Table 5. cont.

AREA	LAKE	1986		1987	
		SPECIES	# CHICKS SURVIVING [a]	SPECIES	# CHICKS SURVIVING [a]
	WALLACE (CLEAR)	CO* (N)	0	CO* (N)	1
	WASILLA	(CO)		(CO)	
	WOLF	CO* (N)	1	CO* (2N)	0
PT. MCKENZ	CARPENTIER	N.D.		CO*	1
	FARMER	N.D.		PA*?	?
	LORRAINE	N.D.		CO*?	?
	THREEMILE	CO* (N)	1	CO* (N)	2
	TWIN ISLAND	N.D.		(CO)	
MEADOW	AIROLO	--		--	
	BAPTIST	(PA)		--	
	BEAR PAW	(PA)		(PA)	
	BEHNKE	PA* (CO)	2	(CO)	
	BEAVER POND	N.D.		PA*	2
	BEVERLY	(CO)		(CO)	
	BLODGETT	--		(CO)	
	BRUCE	PA*	2	PA*	1
	CAROUSEL	--		--	
	CHERI	--		--	
	CLOUDY	PA*	2	PA* (N)	0
	DAWN	N.D.		(CO,PA?)	
	DOUBLOON	PA*?	0	--	
	DUSK	N.D.		--	
	FOREST (MI 52.5)	--		--	
	FROG	--		CO*?	0
	FULLER	--		(CO)	
	HAWK LANE	--		--	
	ISLAND	CO*?	0	CO*?	0
	JUNE	--		--	
	KABN TOWER POND	N.D.		--	
	KALNBACK	CO*	1	CO* (N)	1
	LALEN	CO* (N)	1	CO* (N)	0
	LITTLE	--		--	
	LOON	PA*?	0	(PA,CO)	
	MARYBELLE	CO*?	?	CO*?	0
	MEADOW LKS CORNER	--		--	
	MISTY	N.D.		--	
	MOVRO	CO*	0	CO* (N)	1
	PRATOR	--		(PA)	
	RAINBOW	CO* (N)	1	CO* (N)	0
	RAINBOW POND	--		--	
	RP-PITTMAN POND	--		--	
	SCOTT	CO* (N)	1	CO* (N)	0
	SHERWOOD	PA*	0	PA* (2N)	0
	SEYMOUR	(CO)		(CO)	
	TOAD	CO*?	0	CO*	1
	VISNAW	CO* (N)	1	CO*	1?
BEAVER	BEAVERHOUSE	CO*	N.D.	CO*	1?
	BIG BEAVER	--		CO*?	0
	BOTTLE	N.D.		PA*?	0
	COLT	N.D.		--	
	HORSESHOE	N.D.		CO*?	0
	HOURGLASS	CO*?	0	CO*?	0

Table 5. cont.

AREA	LAKE	1986		1987	
		SPECIES	# CHICKS SURVIVING [a]	SPECIES	# CHICKS SURVIVING [a]
	LAZY	PA*	2	PA*	2
	LITTLE BEAVER	N.D.		CO*	1
	LITTLE HORSESHOE (WEST)	N.D.		CO*?	0
	LONG/TWIN	CO*	0	CO*(N)	1
	LYNDA	--		(PA)	
	ROGERS RD CORNER	N.D.		--	
	STEPAN	--		CO*?	0
	WEST AIRSTRIP	N.D.		(PA)	
	WEST BEAVER	--		--	
BIG LAKE	BIG LAKE	3 CO* (PA,RT)	0,1,2	2 CO*(N) (PA,RT)	1,1
	BIRCH	N.D.		(PA)	
	CROOKED	CO*(N)	2	CO*(2N)	2
	CROOKED OUTLET	N.D.		(CO)	
	ECHO	CO*?	0	(CO)	
	FLAT	(CO,RT)		CO*(N)	1
	MARION	N.D.		CO*?	0
	ROCKY	--		--	
	SARA	(CO)		(CO)	
	STEPHAN	N.D.		2 CO*?	0,0
	SUSAN	CO*(N)	1	CO*	2
	WOODY	N.D.		(CO)	
WILLOW	ARC	--		N.D.	
	ARDAW	CO*?	0	CO*?	?
	BAINS	N.D.		--	
	BALD	PA*	0	PA*?(CO)	0
	BIG MOLUCK	PA*	1	CO*?	?
	BOOT	N.D.		(CO)	
	BROOKS (MI 68.3)	PA*	N.D.	PA*	1
	BUCKLEY	N.D.		CO*?	?
	BUTTERFLY	N.D.		CO*?	?
	CHARR	--		CO*?	?
	CHICKEN	(CO)		CO*	1?
	CRYSTAL	CO*(N)	1	CO*	2
	ECHO PONDS	N.D.		(CO)	
	FLORENCE	CO*?	?	CO*	1
	(BIG) FRAZIER	CO*?	0	CO*?	?
	HONEYBEE	CO*?	?	CO*(N)	1
	JACK	N.D.		CO*	1
	JACKNIFE	(PA)		(CO,PA)	
	JAMES	(CO)		CO*?	?
	JOHN	CO*(N)	0	CO*(N)	1
	JW#1 (NANCY #1)	PA*(N)	0	PA*(N)	0
	JW#2 (NANCY #2)	PA*(N)	0	PA*	2
	JW#3 (NANCY #3)	PA*(N)	0	PA*(N)	0
	JW#4 (NANCY #4)	PA*(2N)	0	PA*?	0
	KELLY	N.D.		CO*	0
	LITTLE FRAZIER	--		CO*?	?
	LITTLE LONELY	N.D.		(CO?)	
	LITTLE MOLUCK	PA*	1	PA*	1? [b]
	LONG	CO*(N)	0	CO*(N)	1
	LYNNE	CO*(N)	0	CO*(N)	1

Table 5. cont.

AREA	LAKE	1986 SPECIES	1986 # CHICKS SURVIVING [a]	1987 SPECIES	1987 # CHICKS SURVIVING [a]
	LYNX	N.D.		(PA,CO)	
	MI 1 NLSRA PKWY	N.D.		PA*(N)	N.D.
	MILO	--		CO*?	?
	NANCY	N.D.		CO*	0?
	OWL	CO*?		CO*?	?
	RAINBOW	(CO)		N.D.	
	SHIRLEY	CO*(N)	0	CO*	0
	SKEETNA	--		CO*?	?
	SOUTH ROLLY	CO*	1	CO*?	?
	TANAINA(DENAINA)	(CO)		CO*?	0
	TWELVEMILE	N.D.		PA*	2
	VERA	N.D.		CO*	0
	WILLOW	CO*	0	CO*(N)	2
TOTAL # LAKES SURVEYED		119		156	
# COMMON BREEDING PAIRS		31		38	
# POSSIBLE COMMON BREEDING PAIRS		12		29	
# COMMON CHICKS			21		31
KNOWN COMMON LOON REPRODUCTIVE RATE # chicks/# breeding pairs			0.68		0.82
MINIMUM COMMON LOON REPRODUCTIVE RATE # chicks/# known + possible breeding pairs			0.49		0.46
# PACIFIC BREEDING PAIRS		13		13	
# POSSIBLE PACIFIC BREEDING PAIRS		2		6	
# PACIFIC CHICKS			10		12
KNOWN PACIFIC LOON REPRODUCTIVE RATE # chicks/# breeding pairs			0.77		0.92
MINIMUM PACIFIC LOON REPRODUCTIVE RATE # chicks/# known + possible breeding pairs			0.67		0.63

a = Chicks seen >1/2 size adult
b = Juveniles captured, banded and transported to Seward after being iced-in on lake
* = Known breeders (nest, eggs, or chicks seen)
*? = Possible breeders (single adult seen during June or early July, or pair only seen)
() = Non-breeding loons seen
N.D. = No data
(N) = Nest site known
(2N) = 2 nests found

Table 6. Common (CO) and Pacific (PA) Loon and Red-necked Grebe (GR) observations from outside the main study area in the Mat-Su Valley and Kenai during 1987.

AREA	LAKE	LOONS & GREBES #	SPECIES	OBSERVATION DATES	# CHICKS SEEN	# CHICKS SURVIVING	OBSERVERS / COMMENTS
NO. WILLOW							
	CASWELL	2	PA*?	DATES IN AUGUST	0	0	D. DAPOE
		?	GR				
	MIDDLE CASWELL	2	CO* (N)	5/21-10/3	2	2?	M. WALSH
		2?	GR	AUGUST			M. WALSH
	FLORINE (REMOTE)	2	CO*	5/23,7/21,8/28,9/21	1	1	D. LAW/ (0 LOON CHICKS IN 1983-86)
		4	GR*	8/28	2	2	D. LAW
TALKEETNA	BENKA	2	CO*	9/21-22	1	1	C. BAER
		?	GR				
	BYERS	4	CO*	?	1	?	D. PORTER
		?	GR				
	DENALI-MI 126.5	2-3	CO*?	8/12,17	0	0	R. ERNST/ (HAS SEEN CHICKS IN PAST YRS)
		?	GR				
	QUESTION	0	CO*	11/5	2	2?	M. DALTON/ (CHICKS ICED IN)
	SEPT-MI 118	2-4	CO	5/10-9/15			J. KAUPP/ (NO NEST; NO CHICKS IN 1986; 2 SWANS)
		1-2	PA	6/18, DATES 8/3-9/6			J. KAUPP
		?	GR				
	SOUTH FRIEND	2	CO*?	8/10	0	0	C. BAER
		?	GR				
	SUNSHINE	2	CO*?	6/12			J. KAUPP
		?	GR				
	EAST SUNSHINE	2	CO*?	SUMMER	0	0	L. BUSKIRK/NO CHICKS IN 5 YRS-SOME NESTING SEEN
	(3.5MI TALK SPUR)	?	GR				
	LIFE - MI 127	1-2	CO* (N)	DATES 5/15-10/14	1	1	K. CASSITY
		?	GR				
	CHELATNA	2	CO*	6/7-15	0	?	BUSKEVICH
		?	GR				
KENAI	TERN	2	CO*	5/11, MID-JULY	1	?	B. PASSAGE, G. NILSON, N.T.
		?	GR				
	BISHOP/MARIE	2	CO*	MID-JULY	1	?	N. EVANSON/ (PR NESTING HERE FOR 17 YRS)
		?	GR				
	ORPHEA	2	CO*?	8/26,29,9/1,2	0	0	B. PASSAGE
		?	GR				
	SKILAK	37	CO?	7/12			E. LOLLY
		?	GR				
YENTNA	UPPER FISH	2	CO*?	DATES 6/8-8/23	0	0	T. CHOATE/ (2 CHICKS IN 1984)
	UPPER FISH POND	2	PA	8/14,15			T. CHOATE
EUREKA	WHITE ALICE	2	PA*?	5/6,7	0	?	T. CHOATE

* = breeding pair (nest, eggs, or chicks seen)
*? = possible breeding pair (pair seen)
(N) = nest site known
? = no data