



A CENSUS OF COLONIALY BREEDING WATERBIRDS ON LAKE LOUISE
AND SKILAK LAKE, ALASKA, 21-22 JULY 1981



by

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Cormorant, Herring Gull, Arctic
Tern;
Gulf of Alaska, Cook Inlet, Lake
Louise, Skilak Lake;
Abundance, Breeding Census

On Reserve

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Surveys of seabird breeding colonies conducted since the early 1970's have provided a good knowledge of Alaska's coastal seabird populations (Sowls et al. 1978, USFWS unpub. data). However, census information for inland colonies of these same and congeneric species is completely lacking. In this report we discuss our census of colonial waterbird sites at Lake Louise and Skilak Lake on 21 and 22 July 1981 respectively.

STUDY AREAS AND METHODS

Both Lake Louise and Skilak Lake are accessible from the south-central Alaska road system (Fig. 1), Lake Louise 55 km northwest of Glennallen and Skilak Lake 30 km east of Soldotna. Censuses were made from a small inflatable boat powered by an outboard motor. Nesting islands were circumnavigated while 3-4 observers counted the adult birds and chicks. In two cases observers were landed on islands to facilitate the counting of chicks. The results of our counts and additional colony information are given in the Colony Status Records (Appendix 1a-e). Breeding colonies on Skilak Lake are under the jurisdiction of the U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge. Lake Louise islands are privately owned but the gravel bar on which Arctic Terns (Sterna paradisaea) nest is probably owned by the State of Alaska.

RESULTS AND DISCUSSION

Double-crested Cormorant. Phalacrocorax auritus.

Both lakes support small populations of cormorants, 16-18 nests on Lake Louise and 2 nests on Skilak Lake (Appendix 1a,1c). Although no historical population information is available for Skilak Lake cormorants, the colony was previously reported by C.J. Rhode (in Gabrielson and Lincoln 1959). The breeding colony at Lake Louise was censused by Williamson and Peyton (1959) (Figure 2). It remains the most northerly known colony of this species. The appearance of the colony has changed little since 1958 (Figure 3). However, Williamson and Peyton (1959) found only five active nests.

Double-crested Cormorants have suffered serious population declines throughout much of their North American range. Where this species has come into contact with humans, it has not fared well. Toxic chemicals have been implicated indirectly for population declines in the Great Lakes (Scharf 1979) and directly for population declines along the coast of southern California (Gress et al. 1973). In both areas the species has made a comeback in the late 1970's.

Human disturbance of nest sites has probably contributed to population declines in many cases (Vermeer 1973, Gusev 1980). Studies of disturbance of several species of cormorant colonies have shown reduced breeding success (Kury and Gochfeld 1975, Trapp 1978) and in extreme cases complete nest failure (Ellison and Cleary 1978). In these studies attendant gull predation was a major cause of egg and chick loss. In addition, attempts at relaying were frustrated by repeated human intrusions at colony sites (Kury and Gochfeld 1975, Ellison and Cleary 1978). Double-crested Cormorants at Lake Winnipegosis in Canada declined in number from 18,000 breeding birds to fewer than 3,000 breeding birds between 1945 and 1969 (Vermeer 1973); human disturbance of breeding birds was the principle cause.

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A combination of factors (pollution, human disturbance, egg collecting, shooting, removal of prey species) was responsible for the catastrophic decline of the Great Cormorant (Phalacrocorax carbo) at Lake Baikal, Russia (Gusev 1980). This cormorant occurred in such great numbers that at one time a canned cormorant industry was proposed. By 1950 the species no longer nested on the lake. It was last seen at Lake Baikal in 1971.

Examples such as these illustrate the vulnerability of Double-crested Cormorant breeding colonies. Increased human use of freshwater lakes in Alaska could easily reduce or eliminate many breeding sites. To date there has been no effort to find and document the inland nesting locations of these birds.

Herring Gull. Larus argentatus.

Herring Gulls were found nesting at three sites on Skilak Lake and one site on Lake Louise (Appendix 1a, 1c, 1d, 1e). At the Lake Louise site we counted 65 adults and 72 chicks. This is down considerably from 1977 when Patten (1980) recorded 77 active nests. Patton (1980), banded 71 chicks in 1977 and 66 chicks in 1978. For the three colony sites on Lake Louise we recorded approximately 800 adult birds; almost 80% of these were on "Upper Skilak Rock" (Appendix 1d). Our estimate of 800 chicks was extrapolated from the accurate adult to chick ratio (1:1) obtained for the "Skilak Campground" colony.

Herring Gulls nesting on interior lakes present an interesting taxonomic problem. Williamson and Peyton (1963) found that gull colonies at Lake Iliamna and Upper Cook Inlet contained hybrids between Herring Gulls and Glaucous-winged Gulls (L. glaucescens). Many of the Skilak Lake adults showed evidence of hybridization. Lake Louise birds appear to be pure Herring Gulls. Based on the evidence of hybridization and other factors, Patten (1980) feels the Glaucous-winged Gull should be reduced to semispecies status with the name Larus [argentatus] glaucescens.

Arctic Tern. Sterna paradisea.

Arctic Terns were discovered nesting on a gravel bar in Lake Louise (Figure 4). The elevation of the breeding "island" was less than 0.5 m. Patten (pers. comm.) says that the lake level fluctuates more than that from year to year, so the gravel bar is probably under water in some years. Thirty-three adults and fifteen volant young were counted (Appendix 1b). It is possible that some young and adults had already left the area.

Proper management and protection of the interior breeding sites of gulls and terns, including Mew Gulls (L. canus) and Bonaparte's Gulls (L. philadelphia), requires that nesting locations be documented. Increased disturbance of colony sites will almost certainly cause reproductive losses (Gillett et al. 1975, Robert and Ralph 1975). On the other hand, increases in the size of several populations of large gulls have been directly attributed to the availability of human waste and sewage (Vermeer 1963, Drury 1969, Hunt 1972). Herring Gulls in eastern North America have increased in number and caused substantial damage to tern and Common Puffin (Fratercula arctica) colonies by usurping nesting habitat, and predating chicks and eggs (Nettleship 1972, Nisbet 1973). Similar population changes in Alaska will be apparent only if baseline colony census information is available.

Recommendations

These are the recommendations of the authors and do not necessarily represent policies of the U.S. Fish and Wildlife Service.

Our census of colonial waterbirds on Lake Louise and Skilak Lake was a first attempt to document inland breeding sites for these species. Many other potential sites exist throughout the interior of Alaska. While we do not recommend a major effort to census inland nesting populations a start must be made. The following are our specific recommendations:

- (1) An attempt should be made to collect information from various resource agency personnel working in the field each summer. Much information could be obtained by opportunistic surveys in conjunction with other studies. Field personnel need to be made aware that there is a central place for archiving this important miscellaneous information.
- (2) The files of the Catalog of Alaskan Seabird Colonies (maintained by ARD/WOP) should be used for archiving colony data on inland nesting waterbirds.
- (3) Baseline breeding colony data should be gathered for those areas where disturbance is most likely to be a problem. These areas include Lake Iliamna, Lake Louise, Skilak Lake and other large lakes in south-central Alaska. Other surveys should include known freshwater sites for colonies listed in the Catalog of Alaskan Seabird Colonies (Sowls et al. 1978)

Aerial photography should be the primary means of census. Color slides should be taken from the open window of a small plane at about 200 m. elevation. A zoom telephoto of about 70-200 mm and a fast shutter speed of 1/1000 or 1/500 sec. is recommended. Photographs should be taken between the end of May and early June.

- (4) Skilak Lake colonies should be censused annually. A minimum effort should include complete aerial photographs during the incubation period [early June] of Herring Gull x Glaucous-winged Gulls and Double-crested Cormorants. Nest counts could then be made from the slides. To gather yearly productivity information, chick counts from a small boat should be made just prior to fledging, 15-25 July. Additionally, we recommend an annual banding program for these unique hybrid gulls. Both metal bands and color leg bands should be used to facilitate fall and winter sightings. Virtually all chicks could be banded in a 2-3 day period around 20 July.

Thought should be given to placing breeding bird information signs at boat launches around Skilak Lake. Signs should be positive. Boaters should be educated to the damaging effects of human disturbance as well as given some information on avian biology.

- (5) Lake Louise colonies should be censused in early June if possible and certainly in late July. Productivity and perhaps some measure of human disturbance could be deduced from this information.

The banding of Herring Gull chicks began by Sam Patten in 1976 and 1977 should be continued. Annual banding of the entire year class would take only a few hours. From his sketchy band recoveries, Patten feels that these inland nesting gulls may leap-frog coastal Glaucous-winged Gull populations and winter to the south in California. A banding program and subsequent sightings would identify the migration routes and wintering grounds for this colony. Both metal and colored leg bands should be used.

ACKNOWLEDGEMENTS

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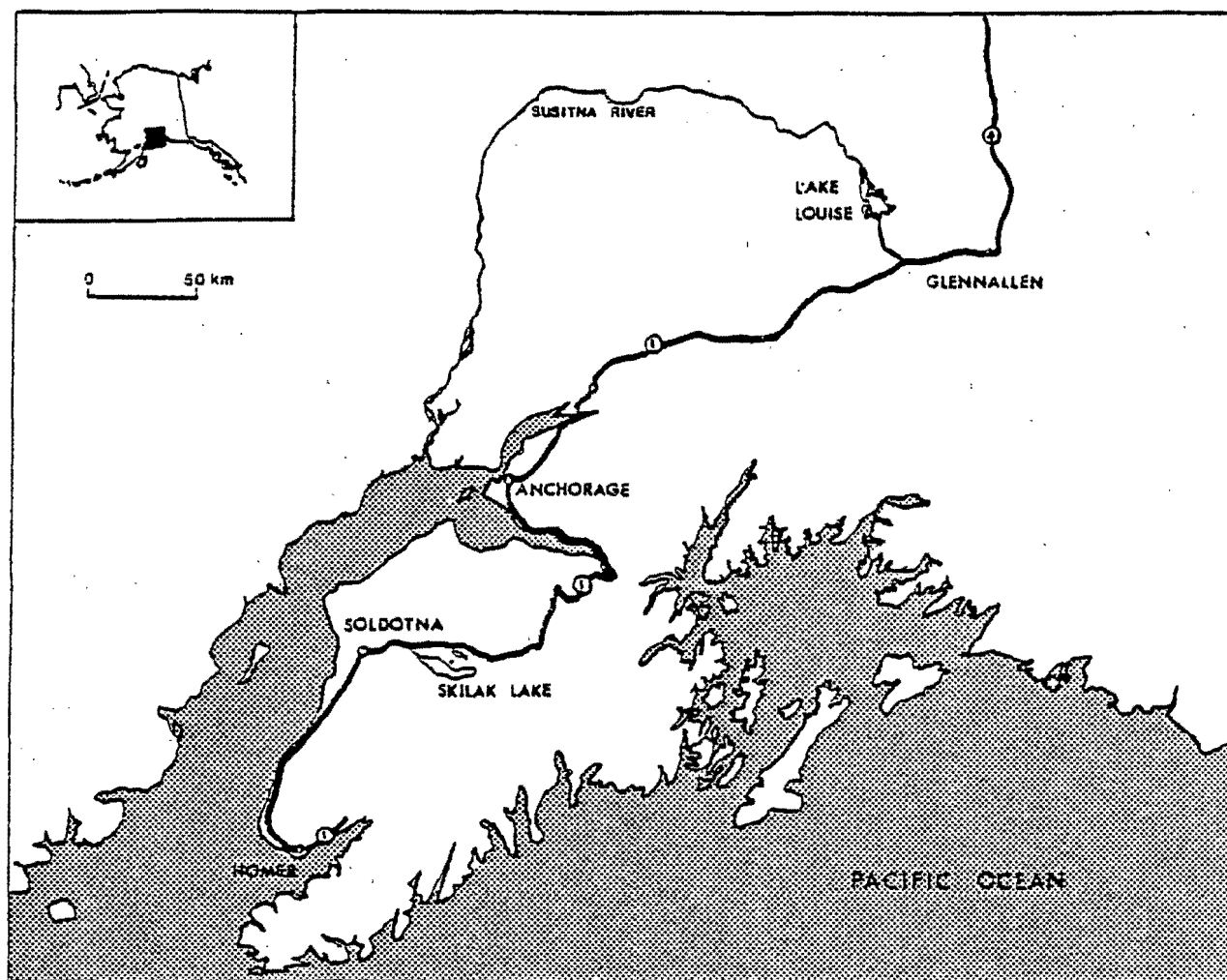


Figure 1. Location of Lake Louise and Skilak Lake in southcentral Alaska.



Figure 2. "Lake Louise" colony (083 001) from the southwest (cont.)

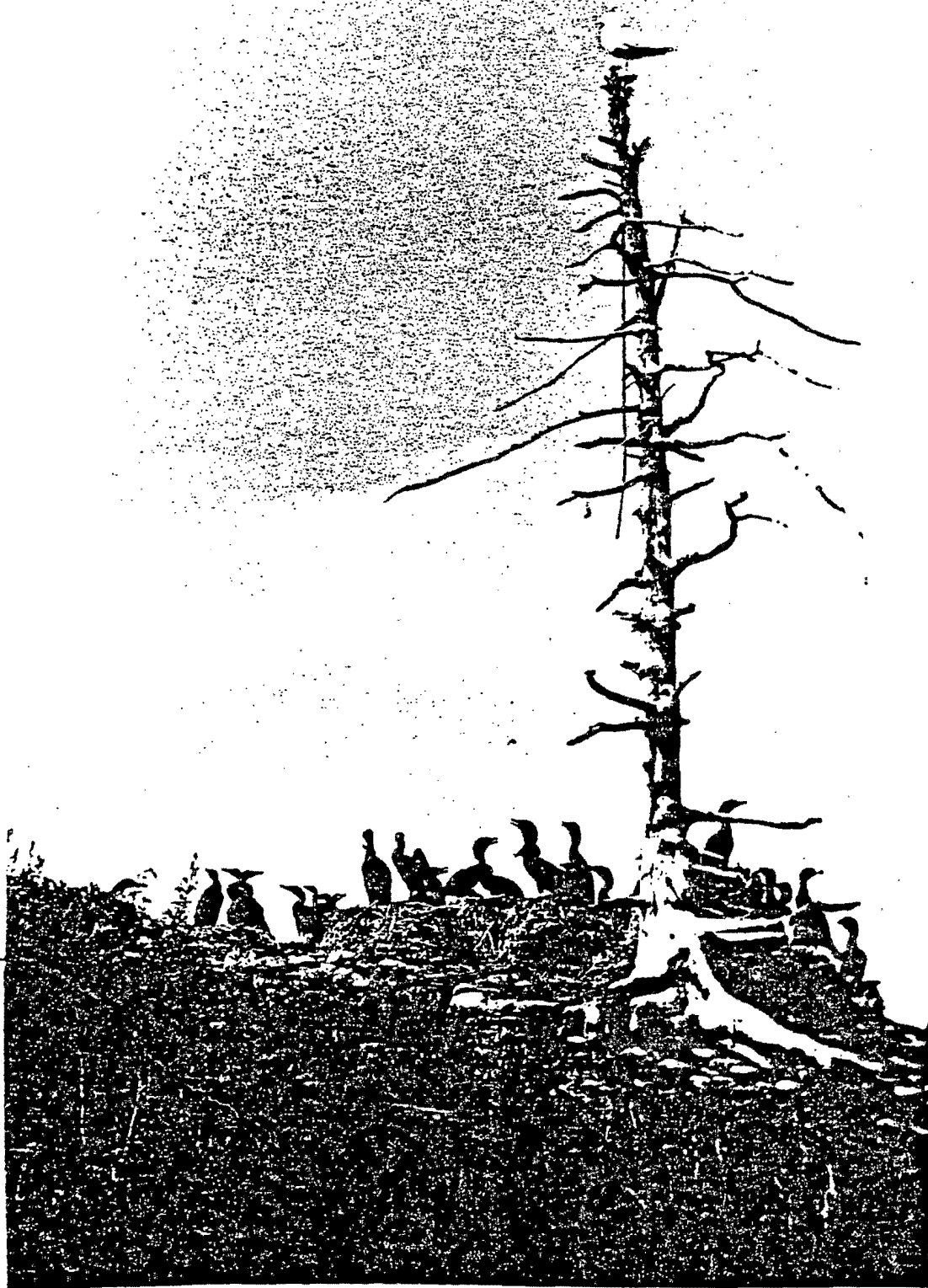


Figure 2. (Continued) and close up of the "Lake Louise" Double-crested Cormorant colony.

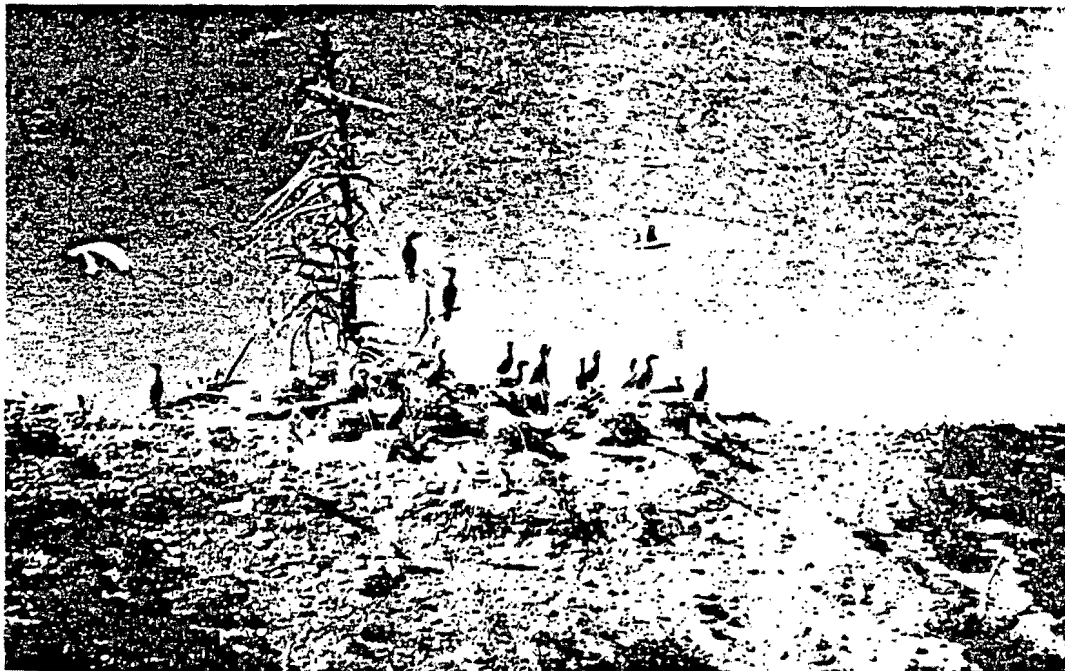


Figure 3. Double-crest cormorant colony as photographed in 1958 (top, Williamson and Peyton 1958) and in 1981 (bottom).

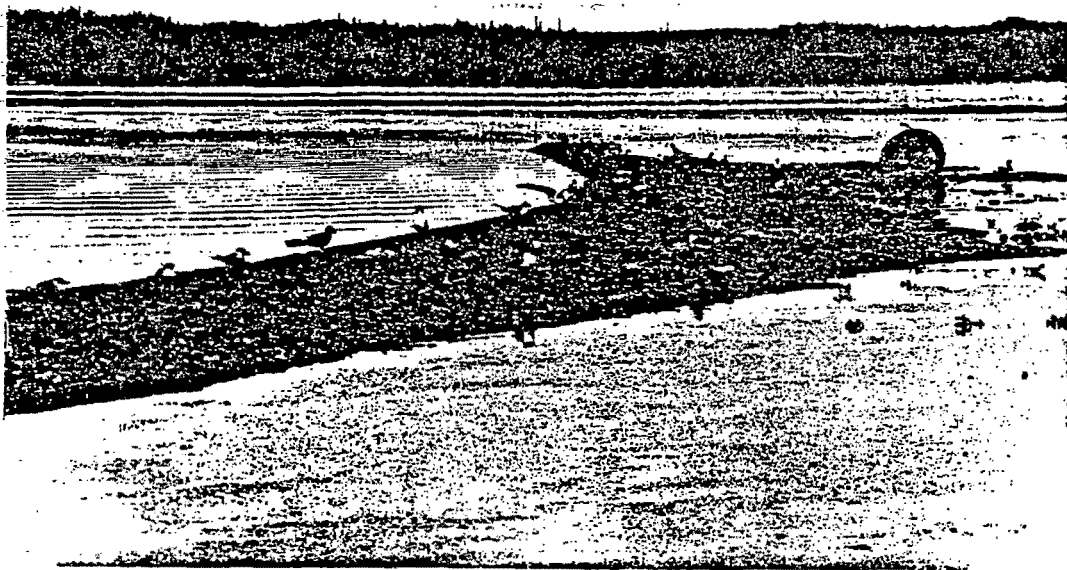


Figure 4. Arctic Terns at "Lake Louise Gravel Bar" colony (083 002).



Colony Status Record

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Area Number 083 001

to be assigned by office

Jay Nelson

Art SOWLS

Colony Name Lake Louise Field No. Observer(s) Amy Zabioudil

Map Gulkana (B-6) Lat. 68° 18' N Long. 146° 34' W Time 1500 Date 7/21/81

Species	No. Nests <small>see notes below</small>	No. Birds	Remarks (estimated minimum & maximum, egg & chick status, etc.)
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant	C 16-18	46	Nests on top-center of island under dead spruce tree. Exact count of nests could not be made without causing disturbance. At least two of which were abandoned. A total of 20 chicks were counted. Chicks were 3/4 grown and had downy heads and feathered bodies. At least 46 adults were in the general area. Count quality = II.
Pelagic Cormorant			
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull			
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot			
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Herring Gulls	E 35	65	Chicks about 1/2 grown with 1 st and some body feathers in. Chicks walking around and capable of swimming. Counted 72 chicks and probably more were hiding in vegetation. Well-developed gull paths. Data quality = II-III.
Surf Scoters		X	Seen on lake.

Recommended Classification: Colony Complex Colony Sub-colony Roost Area

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 See these abbreviations to describe surveys. See C & E worksheet for details, and P & L.
 C = count, E = estimate, P = probably present (adults roosting under vegetation), I = present
 N = nest, L = breeding, etc. = non-breeding

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Colony Name "Upper Skilak Rock" Field No. Observer(s) Sows, Zabloudil

Map Kenai (B-1) Lat. 60°25'N Long. 150°14'W Time 18:00 Date 7/22/81

Use these abbreviations to describe numbers. Use C & Z whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under numbers), X = present
or = pairs, b = breeding, nb = non-breeding

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Colony Status Record

U.S. Fish & Wildlife Service

Area Number 062 007

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Nelson, Portner

Colony Name "Skilak Camoground" Field No. _____ Observer(s) Sowls, ZabloudilMap Kenai (B-1) Lat. 60° 27' N Long. 150° 20' W Time 17:45 Date 7/22/81

Species	No.	No.	Remarks (estimated minimum & maximum, egg & chick status, etc.)
	Nests <small>use codes below</small>	Birds	
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant			
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull			
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot			
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Herring Gull			
Glaucous-winged hybrids	E 50	100	Chicks counted = 100 (counts of 100; 98; 101; 99). Chicks almost able to fly (some chicks glided off island). Adults harder to count since milling around. We estimated 100. Adults varied from pure looking Herring to pure or nearly pure Glaucous-winged Gulls. The Herring Gull type appeared to be much more abundant than Glaucous-winged type.

Recommended Classification: Colony Complex _____ Colony X Sub-colony _____ Roost Area _____

Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & T.
 C = count, E = estimate, P = probably present (state reason under remarks), T = present
 pr = pairs, b = breeding, nb = non-breeding

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Colony Status Record

U.S. Fish & Wildlife Service

Area Number 062 006

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Nelson, Portner

Colony Name "South Skilak" Field No. Observer(s) Sowls, ZabloudilMap Kenai (B-1) Lat. 60°24'N Long. 150°22'W Time 19:00 Date 7/22/81

Species	No. Nests	No. Birds	Remarks
			(estimated minimum & maximum, egg & chick status, etc.)
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant		R	Eleven roosting.
Pelagic Cormorant			
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull			
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot			
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Herring			Saw 5 chicks, 2 were on the mainland! They probably swam over from small offshore rocks. 1 chick was on offshore rock and 2 swam out in the lake. This appeared marginal nesting habitat.
Glaucous-winged	E 3	C 32	
Gull hybrids			

Recommended Classification: Colony Complex Colony Y Sub-colony Roost Area

Use these abbreviations to describe numbers. Use C & E whenever possible. Avoid P & X.
 E = count, E = estimate, P = probably present (state reason under remarks), X = present
 pr = pairs, b = breeding, nb = non-breeding

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