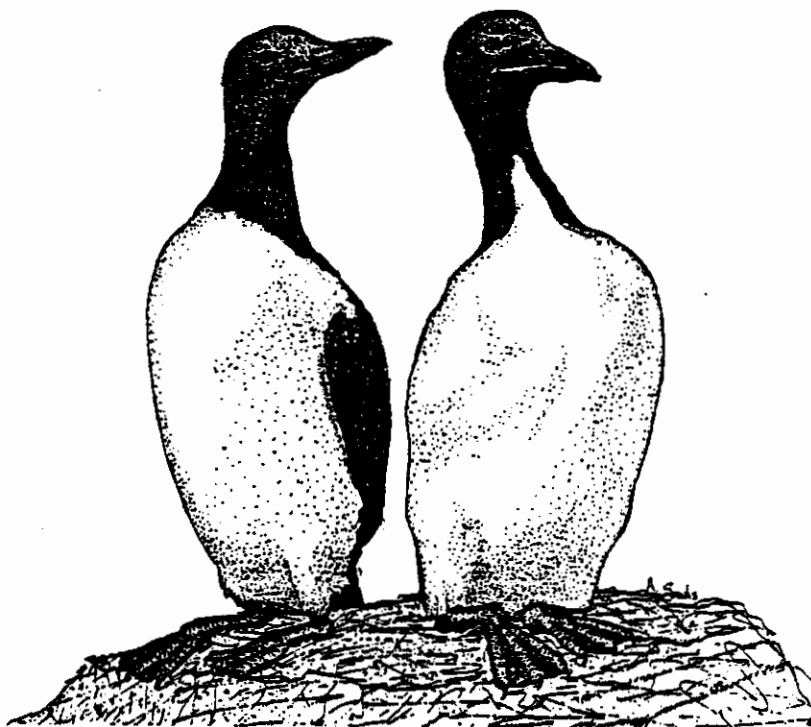


MARINE BIRD AND MAMMAL SURVEY OF THE
OUTER COAST OF SOUTHEAST ALASKA, SUMMER 1981

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ALASKA MARITIME NATIONAL WILDLIFE REFUGE
202 PIONEER AVE.
HOMER, ALASKA 99603

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Key Words: Seabirds, Marine Birds, Waterbirds, Marine Mammals;
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Abundance, Distribution

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Abstract

During the summer of 1981 seabird colonies were censused along the outer coast of southeastern Alaska. Twenty-nine previously unreported colonies were found and the first population estimates were derived for an additional sixteen previously reported sites. There are now 56 known sites with a total population of over 1,680,000 birds. Leach's and Fork-tailed Storm-Petrels are the two most abundant nesting seabirds with a total of nearly 1,300,000 birds. While numerically the most numerous species, storm-petrels are present at only seven locations. Storm-petrels nest almost exclusively in burrows dug into the soil. St. Lazaria and Petrel Island are the most important storm-petrel nesting areas. Rhinoceros Auklets (110,000), Tufted Puffins (99,000), Cassin's Auklets (67,000), and Ancient Murrelets (62,000) are of the next most abundant species. These species are also burrow-nesters, and most are concentrated into a few large colonies. Cliff- and surface-nesting species (Pelagic Cormorants, Glaucous-winged Gulls, Black-legged Kittiwakes, Common Murres, Thick-billed Murres and Pigeon Guillemots) occur in much lower numbers, but are distributed among a large number of small colonies. Range extentions are noted for Black-legged Kittiwakes and Thick-billed Murres. Small boat transects along the coast and bays showed that Marbled Murrelets are an important component of the marine avifauna fauna of southeast Alaska, although this species does not show up in colony surveys. Additional notes on terrestrial birds observed at St. Lazaria and marine mammals seen during the survey are summarized.

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INTRODUCTION

The U.S. Fish and Wildlife Service has been compiling information on seabird colonies for several years. This report presents the results of a seabird colony survey conducted along the outside coast of southeast Alaska in 1981. It adds significantly to our knowledge of seabird life in the area and indicates a need for further study.

While southeast Alaska has been visited by several ornithologists, few have attempted to catalog seabird colonies. Willett was well ahead of his time when he made estimates of the large seabird colonies at St. Lazaria Island (1912) and Forrester Island (1915). Only recently has additional colony cataloging been attempted. Patten and Patten (1975) cataloged several seabird colonies in Glacier Bay for the National Park Service, and some additional seabird information was provided by Rugh (1977) and Weisbrod (1980). DeGange et al. (1977, 1978) conducted intensive research, including cataloging, at Forrester Island in 1976 and 1977. Other than these few attempts at colony cataloging, most of our data for southeast Alaska comes from casual observations.

Our information will continue to improve with additional FWS surveys and information gathered from other sources. Changes in the numbers and distribution of seabirds may occur due to natural or man caused environmental changes. Hence it is important to have baseline information available so that changes can be analyzed. These 1981 surveys will be incorporated into the Catalog of Alaskan Seabird Colonies - Archives, maintained by the U.S. Fish and Wildlife Service in Anchorage. This file will be continuously updated with the goal of being able to provide the best information available for the protection of seabird colonies and the understanding of changes that occur.

METHODS

The 1981 field season in southeast Alaska was completed in two parts: (1) a cursory survey of the entire outer coast of southeast Alaska; (2) an intensive census of seabird colonies in the Sitka area. While this report summarizes the results of both parts of this survey, more intensive work is planned in 1982 for some of the areas where only cursory data was obtained.

During the first part of the field season (30 May - 10 June), Sowsls and Nysewander surveyed the outer coast of southeast Alaska, from Cape Muzon north to Palma Bay in Glacier Bay National Park. Surveys were conducted from a 17-foot Boston Whaler; on a few occasions a second small boat was used when numerous small islands made surveying difficult. The U.S. Fish and Wildlife Service's 65-foot Marine/Vessel Surfbird served as a support platform. The primary purpose of this part of the survey was to locate Peregrine Falcon (Falco peregrinus) nesting areas. Schempf (1982) summarizes the raptor data collected. Information gathered on seabird colonies was recorded on Colony

Status Records. These forms list the census methods used for each site. At some colonies, for certain species, we assigned Data Quality Codes to indicate the relative accuracy of estimates:

<u>Code</u>	<u>Definition</u>
I.	Total count of all nests (number of nests x 2 = number of breeding birds). Few if any errors were made in these counts. Any changes in the number of breeding birds in subsequent years can probably be detected.
II.	Count of nests. Because of possible omission or misidentification of nests, counts may be slightly higher or lower than actual numbers. Small or moderate changes in the number of breeding birds can probably be detected in subsequent years.
III.	An estimate of the size of a breeding population based on counts of nests and/or birds and on estimation of the amount of available nesting habitat. Census techniques vary considerably among species. Only large changes in populations can be detected in subsequent years.

In addition, all waterbirds seen while traveling along the coast were routinely recorded. While a standard transect width was not maintained, only those birds seen close enough to identify without stopping the boat or using binoculars were recorded.

During the second part of the field season (16 June - 12 July) a section of the coast near Sitka was intensively censused. This region included St. Lazaria Island, Sealion Islands and the Necker Islands. Trapp and Nelson joined Sows and Nysewander for this portion of the project. Two Zodiac rafts equipped with camping gear were used for transportation.

Aerial photographs were taken to aid in the delineation of habitat types. Photographs of Sealion Islands, St. Lazaria Island, Hazy Islands, Coronation Island, Cape Addington and Timbered Island were taken from U.S. Coast Guard helicopters on 3 and 10 July. These photos are filed with the seabird colony data base in the Regional Office, Anchorage.

In addition to colony surveys and shoreline transects, small boat transects were conducted to document the presence of all birds using the waters of Sitka Sound. These transects were an attempt to record the use of Sitka Sound by non-colonial and non-breeding seabirds, as well as colonial species censused in our colony surveys.

We routinely recorded all marine mammals sighted incidental to colony surveys and shoreline transects.

RESULTS

Summary of Colony Surveys

A total of 40 seabird colonies were surveyed during 1981, including 16 known colonies and 21 colonies not previously reported. The number of known

seabird colonies along the outer coast of southeast Alaska was increased by 100% (from 29 to 58) and the estimated population of breeding seabirds was increased by 45% (from 1.162 million to 1.682 million). Table 1 summarizes our knowledge of the distribution and abundance of breeding seabirds in southeast Alaska prior to and following the 1981 surveys. Figure 1 shows the locations of all known seabird colonies along the outer coast of southeast Alaska. Tables 2-5 summarize the 1981 colony census data by areas (U.S. Geological Survey topographic maps) and specific colony sites. Information on previously reported colonies not resurveyed in 1981 is found in SOWLS et al. (1978). Appendix A contains copies of all completed Colony Status Records and provides the most detailed information available for each site.

We found that previous data on the distribution and abundance of breeding seabirds in southeast Alaska was largely incomplete and inaccurate in several cases. This is not surprising since extensive seabird colony surveys had not been attempted before in southeast Alaska.

Colonies previously reported often listed one or two species present but gave no population estimates. We derived the first population estimates for 16 of these previously known sites (a total of 24,585 birds) and increased the species diversity four-fold. In the past obvious species such as gulls had been recorded, but nocturnals and crevice nesters were almost always missed.

At St. Lazaria we also conducted the first intensive census using plots (Appendix B). Our estimate of over 500,000 nesting seabirds is appreciably more than Willett's (1912) estimate of about 50,000 nesting seabirds. This makes it one of the larger seabird colonies in the state and perhaps the largest Fork-tailed Storm-Petrel colony (an estimated 262,300 birds) in the world.

In addition to improving the information for known colonies, we also censused 21 colonies not previously recorded. The largest of these new colonies, the Sealion Islands, supports 10 species of nesting seabirds with an estimated population of about 13,000. The total estimated population of all new sites is 18,662.

We documented extensions of breeding range in two species. Thick-billed Murres were found at St. Lazaria Island. Prior to our discovery of this colony, the easternmost breeding colonies in the Pacific Ocean were those at Wingham Island and at Middleton Island (SOWLS et al. 1978) 648 km and 687 to the northwest, respectively. Black-legged Kittiwakes were found nesting at several sites north of Sitka. Seven of the kittiwake colonies were at sites not previously reported.

Annotated Species Accounts of Waterbirds

This section briefly discusses each of the 45 species of waterbirds observed during the colony censuses and coastal surveys along the outer coast of southeast Alaska, May-July 1981. Specific accounts of the breeding seabirds are provided in Appendices A and B, and more detailed information on the distribution and abundance of birds observed during the coastal surveys is found in Appendices C and D.

Table 1. Number of each species at total known colonies along the outer coast of Southeast Alaska before 1981 (Sowls et al. 1977) and after the 1981 surveys.

Species	Number of Colonies		Population Estimates	
	Prior to 1981	After 1982	Prior to 1981	After 1982
Northern Fulmar	1 [?]	1 [?]	?	?
Fork-tailed Storm-Petrel	3	7	92,700	360,000
Leach's Storm-Petrel	3	6	729,400	935,800
Pelagic Cormorant	15	25	1,104	2,596
Double-crested Cormorant	1	1	100	100
Glaucous-winged Gull	19	36	3,490	13,950
Black-legged Kittiwake	2	8	1,600	3,134
unidentified murre	0	1	0	600
Common Murre	11	9	7,976	21,330
Thick-billed Murre	0	1	0	2,000+
Pigeon Guillemot	12	40	890	2,478+
Ancient Murrelet	3	5-7	60,000	61,700+
Cassin's Auklet	3	5	67,740	67,740+
Parakeet Auklet	0	1 [?]	0	2 [?]
Rhinoceros Auklet	4	4-6	108,180	110,280+
Tufted Puffin	<u>10</u>	<u>22</u>	<u>87,880</u>	<u>99,124+</u>
Totals	29	58	1,161,916	1,681,844

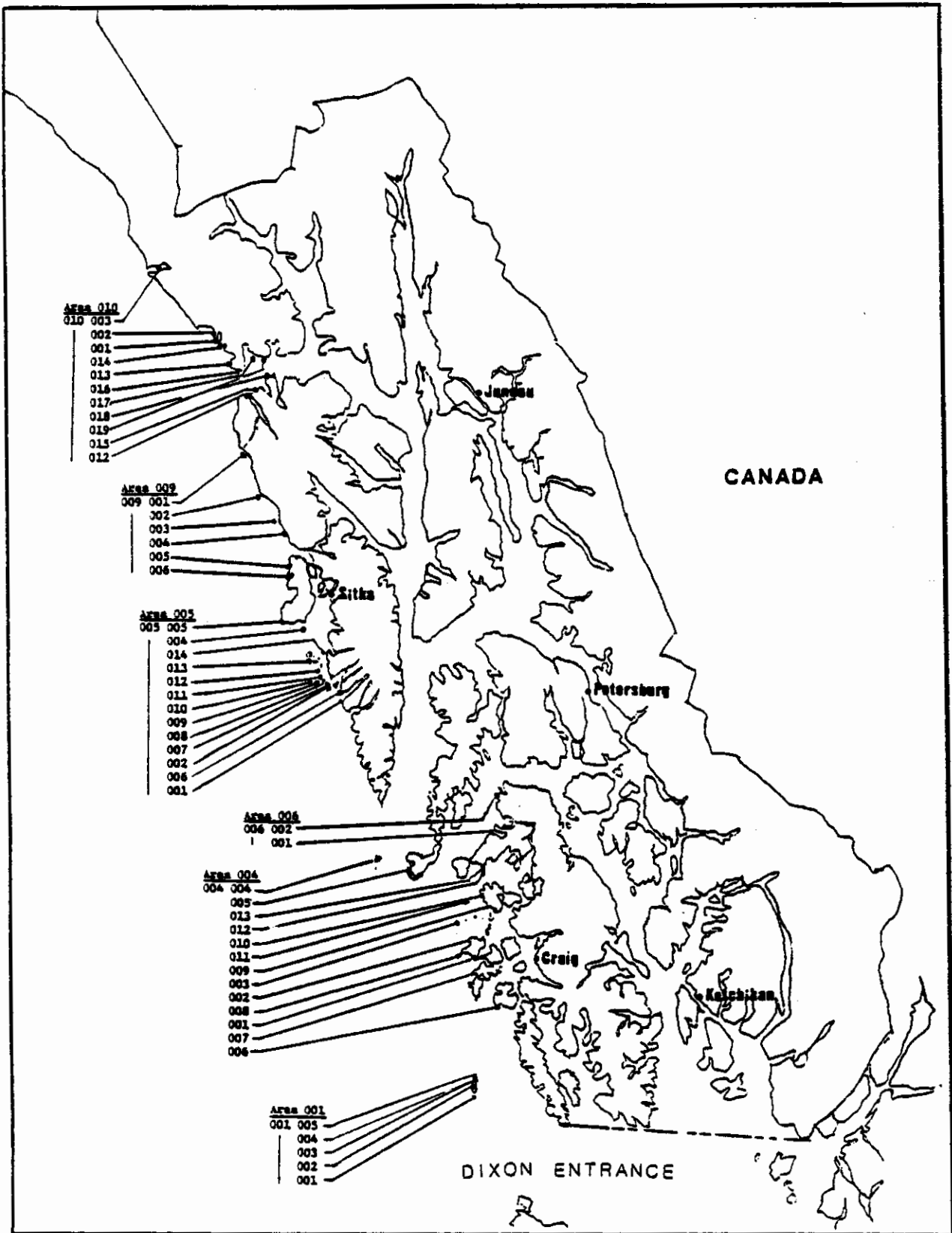


Figure 1. Locations of all known seabird colonies along the outside coast of southeast Alaska. Numbering system follows Catalog of Alaskan Seabird Colonies (Sowls et al. 1978).

Table 2. Summary of seabird colony data collected in Southeast Alaska during 1981 for Area 004.

Species	Area 004												
	Timbered Is. (004 003)	Hazy Islands (004 004)	Coronation Is. (004 005)	Cape Felix (004 006)	Vera Bay (004 007)	Cape Addington (004 008)	Dead Tree Pt. (004 009)	Mt. Derrunda (004 010)	Gull Is. (004 011)	Shale Head (004 012)	"Last Rock" (004 013)	Total	
Fork-tailed Storm-Petrel	X												
Leach's Storm-Petrel	P												
Pelagic Cormorant	P	P											
Hald Kagle	4	2	800		240	800		7					
Black Oystercatcher	8		X 5	P									
Glaucous-winged Gull		1,800	2+	6									
Mirck-legged Kittiwake			1,000+										
Murre		600											
Common Murre		X	11,000+										
Thick-billed Murre													
Pigeon Guillemot	400	50+	116+	80									
Ancient Murrelet	P	P			P								
Cassin's Auklet	X												
Parakeet Auklet		P											
Melanerpes Auklet	P												
Tufted Puffin	100	200+	3,000+										
Horned Puffin	X	20+	100+										
Total	1,112	2,672	16,023	86	240	80	28	50	808	12	18		

X = present, P = probably present

Table 3. Summary of seabird colony data collected in Southeast Alaska during 1981 for Area 005.

AREA 005

Species	Guibert Islets (005 001)	Biali Rocks (005 002)	St. Lazaria (005 004)	Slate Rocks (005 006)	"Islets East Racket" (005 007)	John Is. (005 008)	Rodgers Is. (005 009)	Jacob Rock (005 010)	Urlof Is. (005 011)	Nameless Is. and Rocks (005 012)	Terbilon Is. (005 013)	Viesokoi Rocks (005 014)	Trabitsin Cove (005 015)
Fort-tailed Storm-Petrel			262,300										
Leach's Storm-Petrel			243,800										
Pelagic Cormorant													
Hald Eagle	6	6	2	6	6		214				30		
Black Oystercatcher	1,000	1,000	96	150	350	140	14	70	200	P	P	70	
Glaucous-winged Gull													
Black-legged Kittiwake													
Murre													
Common Murre			3,000										
Thick-billed Murre			2,000										
Pigeon Gull	100	50	100	10+	40	20		16	60	P		100	
Ancient Murrelet			1,500										
Cassin's Auklet													
Parakeet Auklet			2,000										
Rhinoceros Auklet													
Tufted Puffin	400	60	11,000		20			16	30				
Horned Puffin		4						2	10				
Total	1,506	1,120	525,804	166	416	160	228	104	302	P	30	172	304

X = present, P = probably present

Table 4. Summary of seabird colony data collected in Southeast Alaska during 1981 for Area 006 and 009.

Species	AREA 006			AREA 009		
	Bluff Is. (006 001)	Orey Rocks (009 001)	White Sisters (009 002)	Outer Rock (009 003)	Sealion Is. (009 004)	Pt. Amelia (009 005)
Fork-tailed Storm-Petrel					9,000	
Leach's Storm-Petrel					2,600	
Pelagic Cormorant	52	16				
Bald Eagle	2				2	
Black Oystercatcher		6			6	
Glaucous-winged Gull		260	360	10	266	
Black-legged Kittiwake				152	82	520
Murre						
Common Murre					7	
Thick-billed Murre						
Pigeon Gull	7	6	120	40	300	
Ancient Murrelet					200	
Cassin's Auklet					7	
Parakeet Auklet					100	
Mitlenereos Auklet					400	
Tufted Puffin		2	2		20	
Horned Puffin						
Total	54	270	482	202	12,956	520

X = present, P = probably present

Table 5. Summary of seabird colony data collected in Southeast Alaska during 1981 for Area 010.

Species	AREA 010									
	Astrolabe Peninsula (010 001)	Soussole Head (010 002)	Yakobi Rock (010 012)	Graves Rocks (010 013)	Sugarloaf Is. (010 014)	"Althrop Rock" (010 015)	Cape Spencer Rocks (010 016)	"Taylor Islet" (010 017)	"Indian Islet" (010 018)	"E. Fern Harbor Rock" (010 019)
Fork-tailed Storm-Petrel										
Leach's Storm-Petrel										
Pelagic Cormorant	10	84								
Hald Eagle										
Black Oystercatcher	P	20								
Glaucous-winged Gull			50							
Black-legged Kittiwake		73 1/2	600							
Murre										
Common Murre										
Thick-billed Murre										
Pigeon Guillemot			1							
Ancient Murrelet				60						
Cassin's Auklet				1						
Parakeet Auklet										
Rhinoceros Auklet										
Tufted Puffin		50+								
Horned Puffin		P								
Total	30	868	650	710	2	270	466	330	464	280

X = present, P = probably present

Red-throated Loon (Gavia stellata)

A few individuals were seen on three dates between 28 May and 9 June.

Arctic Loon (Gavia arctica)

This was the most frequently observed species of loons. Flocks ranging in size from 21 to 36 were seen along the outer coast from 29 May to 5 June. Smaller numbers of birds were seen through 9 June.

Common Loon (Gavia immer)

Small numbers of scattered individuals were seen along the outer coast during the end of May and beginning of June.

Yellow-billed Loon (Gavia adamsii)

One bird was seen on 26 May between Juneau and Petersburg.

Red-necked Grebe (Podiceps grisegena)

One bird was seen on 29 May on the outer coast of Dall Island.

Northern Fulmar (Fulmarus glacialis)

This species was seen on two occasions when the surveys extended into waters above the continental shelf: near the Hazy Islands and near Cape Addington.

Sooty Shearwater (Puffinus griseus)

This species was only observed near the Hazy Islands on 4 June.

Fork-tailed Storm-Petrel (Oceanodroma furcata)

At least 360,000 breeding birds are now known from at least seven colony sites. Prior to the 1981 surveys, the three known colonies in southeast Alaska were estimated to have 92,700 breeding birds. Most of the numerical increase came from the intensive burrow censuses conducted on St. Lazaria Island. We estimated 262,300 Fork-tailed Storm-Petrels to be breeding there, and similar censusing found 9000 individuals breeding on the Sealion Islands. These were the only colonies found in our intensive surveys of the area between Salisbury Sound and Whale Bay on the west shores of Kruzof and Baranof islands.

Although no islands were checked at night in the earlier cursory seabird surveys (30 May to 10 June 1981) associated with the Peregrine Falcon aerie surveys, several islands were checked for burrows during the day. Fork-tailed

Storm-Petrels were removed from burrows on Timbered Island and Graves Rocks. These occupied burrows were found among root systems at the base of trees. Even though river otters (Enhydra lutra) or signs of their presence were seen on almost every small island on the southeast coast, the storm-petrel burrows near trees appeared to best survive predation attempts. The sighting at Graves Rocks, incidentally, is the first record of breeding storm-petrels in Glacier Bay National Monument. More intensive checks of several other sites like the pinnacles near Helm Point on Coronation Island, Wooden Island near Cape Ommaney, and the more outlying islands on the west coast of Chichagof Island may produce additional breeding records. However, any new colonies discovered will certainly be small (1000 birds).

Leach's Storm-Petrel (Oceanodroma leucorhoa)

At least six colony sites in southeast Alaska are now known to contain a minimum of 935,800 breeding birds. The three previously known colony sites were estimated at 729,400 breeding birds. Again the greatest numerical increases came from the revisions of estimates for St. Lazaria Island. Leach's Storm-Petrels were less common than Fork-tailed Storm-Petrels at all colonies except for portions of St. Lazaria and Petrel islands. See the accounts for studies on St. Lazaria and Sealion Islands (Appendices A and B).

American White Pelican (Pelecanus erythrorhynchos)

One bird had been in the vicinity of the small boat harbor at Petersburg for several days by the time we saw it on 26 May.

Double-crested Cormorant (Phalacrocorax auritus)

Birds in juvenile plumage were observed at Gull Island on 2 June, at Urey Rocks on 8 June, at Vitskari Island on 21 June, and in Cross Sound on 10 June.

Pelagic Cormorant (Phalacrocorax pelagicus)

This species was commonly seen along the outer coast. Nest building was just beginning on 1 June, hence our surveys were too early to pinpoint many nesting sites. However, 13 colonies were located and 9-12 other sites are probable nesting areas. Almost all of these sites were unknown prior to the 1981 surveys. The largest colonies seen in 1981 were those at Pt. Amelia on Kruzof Island and on Coronation Island.

As mentioned, our surveys tended to underestimate the numbers of nesting cormorants along the entire coast. This was most clearly illustrated by our observations of birds from Dall Island to Summer Strait, on 29 May to 2 June. By 2 June we had found only 160 nests whereas close to 3000 birds, many in breeding plumage, were seen in flocks on the water along this same shoreline. Forrester Island (20-60 miles from any portion of this coast) has a breeding population of 150 birds. More detailed surveys at a later time will undoubtedly reveal a greater number of cormorant colonies along the southern outer coast of southeast Alaska.

Great Blue Heron (Ardea herodias)

Several birds were seen along the east shore and inlets of Prince of Wales Island. Three birds were seen on 2 June along the northern shore of Coronation Island, the only sighting of this species on the outer coast.

Brant (Branta bernicla)

Twelve Black Brant were seen near Point St. Albans on 2 June.

Canada Goose (Branta canadensis)

Flocks ranging in size from 8 to 19 birds were seen in the vicinity of Petersburg, the east side of Prince of Wales Island, and Low Island near Sitka on 26-28 May and 7 June. All appeared to be the Vancouver race (B. c. fulva).

Mallard (Anas platyrhynchos)

On 24 June one bird was flushed from a stream entering Sealion Cove on the west side of Kruzof Island.

Harlequin Duck (Histrionicus histrionicus)

Individual birds or pairs were occasionally seen along the entire outer coast of southeast Alaska. The largest flock of 9 birds was observed along the Dall Island coast on 30 May.

Surf Scoter (Melanitta perspicillata)

A few individuals were seen along the outer coast, especially the northern portion. Three small flocks ranging from 11 to 30 birds were seen along the north shore of Coronation Island, near Cape Ommaney, and near Taylor Island between 2 and 10 June. The 20 birds seen near Taylor Island were closely associated with a larger flock of White-winged Scoters.

White-winged Scoter (Melanitta fusca)

Flocks and individuals were seen in low numbers through 5 June near Petersburg, Prince of Wales Island, and along the outer coast. Subsequent sightings were of larger flocks: 90 birds near Kruzof Island on 7 June and 106 birds east of Taylor Island on 10 June. By 7-11 July, numbers continued to increase and small boat surveys in Sitka Sound recorded a total of 276 birds. Our estimates show over 1800 birds in that survey area at that time.

Barrow's Goldeneye (Bucephala islandica)

This species was frequently seen on 28 May in the eastern inlets of Prince of Wales Island. On 29 May it was common in low numbers in Port Bazan on Dall Island. On 24 June several individuals were flushed along streams on the west coast of Kruzof Island. More birds would undoubtedly have been seen if we had frequented the rivers and streams of the larger islands.

Hooded Merganser (Lophodytes cucullatus)

Schempf sighted one bird in Port Bazan on Dall Island 30 May.

Common Merganser (Mergus merganser)

This was the more common breeding merganser seen in this region. Several individuals were seen in late May on the outer bays of Dall Island and two broods of eight and three young were found with females on streams near Sealion Cove on Kruzof Island 24 June. Undoubtedly this species would have been seen more if we had frequented the streams of the larger islands.

Red-breasted Merganser (Mergus serrator)

This species was not seen until July when a number of birds returned to this region, possibly after breeding. Small boat surveys in Sitka Sound recorded 41 birds on 7-9 July and 260 birds were estimated to be in the survey area.

Black Oystercatcher (Haematopus bachmani)

Breeding pairs were seen in low numbers along the entire outer coast on the smaller offshore islets. The largest concentration was 56 birds on Graves Rocks on 10 June.

Wandering Tattler (Heteroscelus incanus)

Widely scattered individuals were recorded along the outer coast between 2 and 8 June. On 7 June we observed a Peregrine Falcon stoop and make a near miss on a tattler flushed from the intertidal zone as our boat entered Trubitzin Cove.

Spotted Sandpiper (Actites maculari)

Several birds were seen along streams leading into Sealion Cove, Kruzof Island on 24 June.

Whimbrel (Numenius phaeopus)

On 6 June one bird was seen on shoreline transects between Biali Rock and Rachek Island. On 29 June we observed 4 individuals on the northern portion of the Slate Islands.

Red-necked Phalarope (Phalaropus lobatus)

More than 1000 birds were moving and feeding just north of Snow Pass on 27 May. This species reappeared 8-9 July in small flocks in Sitka Sound.

Bonaparte's Gull (Larus philadelphia)

A few adults were seen near Petersburg on 26 May. This species was not seen again until 10 June when over 2000 Bonaparte's Gulls constituted the major portion of a large feeding flock of gulls seen near Pt. Adolphus in Icy Straits. Most of these were immature birds. Also present were immature Mew Gulls, Black-legged Kittiwakes, and Glaucous-winged Gulls. A few adults of each species were present. We could not determine what they were feeding on even though the feeding flock passed by our boat. Humpbacked Whales were also seen in the immediate vicinity the same day.

Mew Gull (Larus canus)

Immature birds along with occasional adults were sighted in Petersburg, on protected marine waters, and along the outer coast from 26 May to 10 June. During this cursory survey, the entrance to Frederick Sound and Icy Straits contained some of the larger flocks of immature birds seen. While anchored in Graves Harbor on 9 June, at least 18 adult Mew Gulls were noted frequenting the streams that entered the harbor. These adults often disappeared up the stream drainages toward lakes and it is possible that these adults were breeding on the lake or streams. Closer investigation of drainages on the larger islands and mainland of southeast Alaska would undoubtedly reveal more breeding pairs or small colonies. The small boat survey in Sitka Sound on 7-9 June indicated that numbers of post-breeding adults were beginning to return to the coast.

Herring Gull (Larus argentatus)

An occasional adult and low numbers of immature birds were seen in Petersburg and along the outer coast between 26 May and 29 June. The small boat surveys in Sitka Sound on 7-9 July recorded only a few individual birds.

Glaucous-winged Gull (Larus glaucescens)

Prior to 1981, the 19 colonies known for southeast Alaska were estimated to contain approximately 3500 birds. We found at least 13,950 birds breeding at 36 sites. The eight largest breeding colonies now known in southeast Alaska are the Hazy Islands (1800 birds), Coronation Island (over 1000), Guibert Islets (1000), Biali Rocks (1000), the Forrester Island complex (800), Gull Island (700), Timbered Island (600), and Graves Rocks (600).

Sizeable concentrations of immature birds (up to 1500) were recorded on the outside of Noyes Island (1 June), Urey Rocks (8 June), in feeding flocks near Pt. Adolphus in Icy Straits (10 June), and throughout the northern Sitka Sound-Kruzof Island area (18-23 June). However, productivity did not appear favorable since we noted that nests at several different gull colonies contained no eggs as late as the second week of June. Either phenology was quite late in 1981 or river otter predation was taking a toll on production. River otters were seen at several of the gull colonies during our surveys.

Black-legged Kittiwake (Rissa tridactyla)

Prior to our survey, only two colonies estimated at 1600 birds were known along the outside coast of southeast Alaska. Eight colonies containing 3134 breeding adults have now been documented. Five of the six newly-found colonies are clustered around the entrance to Cross Sound. The sixth new colony, found on Sealion Islands, extends the known breeding range of kittiwakes about 160 km further southeast along the outer coast of southeast Alaska. There were only 41 nests on Sealion Islands, but immature birds were abundant. On 7 June, 350 immature kittiwakes were seen around the islands while on 23 June, over 6400 immature birds were in the island vicinity. The farthest south that kittiwakes were seen was in Sitka Sound where occasional individuals were seen in both June and July.

Caspian Tern (Sterna caspia)

Two adults flew overhead on the small boat surveys conducted in Sitka Sound on 9 July.

Arctic Tern (Sterna paradisaea)

This species was seen only near Petersburg on 26 May.

Common Murre (Uria aalge)

No new colony sites were discovered in 1981, but the numbers of breeding birds was increased from 8000 to at least 22,000. The biggest colony was on Coronation Island on the southwest cliffs of Helm Point and immediately to the west. On 4 June approximately 11-12,000 birds were both on the cliffs and in the water below them. The circling and landing behavior of these murrres appeared to be that of breeding birds. Murre attendance at colonies is known to be highly variable, but we were not able to check this colony again.

During our shoreline transects on the outer coast between 29 May and 9 June, murrres were common in low numbers between Dixon Entrance and Sitka Sound. The larger concentrations occurred near the entrance to Frederick Sound and along Dall Island in the vicinity of Forrester Island.

Thick-billed Murre (Uria lomvia)

This species was documented for the first time as breeding in southeast Alaska. This extends the known breeding range in Alaska by 648 km east of Middleton Island. The 2000 birds seen on St. Lázaria Island on 18 June were seen with 1300 Common Murrres on the southeast cliffs. Thick-billed Murrres may also occur on both Hazy and Coronation islands. Weather and water conditions during our visit to each of these prevented us from closely examining murre colonies.

Pigeon Guillemot (Cephus columba)

At least 2478 breeding adults are now known from 40 sites on the outer coast of southeast Alaska. Only 890 birds at 12 sites were previously recorded. Islands that contained 100 to 400 birds included Gull, Timbered, Coronation, Hazy, White Sisters, Sealion, and portions of the Necker Islands.

Marbled Murrelet (Brachyramphus marmoratus)

This species was seen all over southeast Alaska. It was most abundant during our survey of the outer coast when we entered more protected waters and bays such as Bucareli Bay, Sitka Sound, Summer Strait, and Icy Strait. Our small boat surveys in Sitka Sound in July indicated that there were at least 5000 birds, with a density of 7.7 birds/km².

Ancient Murrelet (Synthliboramphus antiquus)

Only two colonies were found in our intensive studies on the outer coast of Kruzof and Baranof Islands. Up to 1500 birds breed on St. Lazaria Island and possibly 200 birds breed on Sealion Islands. Ancient Murrelets were seen on the water in the Hazy Islands. This species may breed on islands in other portions of southeast Alaska where storm-petrels are breeding such as Graves Rocks or Timbered Island, but our brief examinations of burrows during the day did not reveal any evidence of breeding. The intensive part of our surveys was conducted late in 1981 after fledging may have already peaked. Nevertheless, our general impression is that Ancient Murrelets are not as common along this section of the coast as they are along Forrester Island and the Queen Charlotte Islands. This species was not usually seen during the day, but it was common along the north shore of Dixon Entrance between Cape Chacon and Cape Muzon on 29 May.

Cassin's Auklet (Ptychoramphus aleuticus)

An egg, a chick, and an adult were pulled from burrows on 2 June on the smaller southwestern island at the Timbered Island group. The chick was approximately two weeks old and the burrow was located in the midst of a gull colony.

The only other sighting of this species was on 4 June at the Hazy Islands. Ten birds were found near the southeast rock. There is not much soil on the Hazy Islands, but the southeastern-most island appears most suitable for burrowing.

Parakeet Auklet (Cyclorhynchus psittacula)

On 25 June two adults were heard and later seen swimming along the north shore of the Sealion Islands. Eventually they landed on the rocks and rested near a number of Pigeon Guillemots, offering us an excellent view. Even though these birds appeared to be in breeding plumage, we felt they were non-breeding birds.

Rhinoceros Auklet (Cerorhinca monocerata)

None were seen along the inside passage from Juneau to Dixon Entrance, May 25-29. Upon reaching Cape Chacon, where the inside passage intersects with Dixon Entrance, Rhinoceros Auklets began to appear both flying and on the water. Scattered numbers were seen from Cape Chacon to Cape Muzon.

From Cape Muzon north during our shoreline reconnaissance of the outer coast of southeast Alaska, they were the most abundant bird on our transects (Appendix C) with a relative abundance of 26.7%. Large feeding flocks accounted for the majority of the birds seen, but widely scattered individual auklets were also seen. The larger flocks were seen along the coasts of Dall, Suemez, and Baker islands.

It is our impression that the majority of these birds were from large colonies some distance away. Birds seen from Noyes Island south (transects 1-12) were likely from Forrester Island. Birds seen in the Coronation Island vicinity (transects 13-25) were likely from the Hazy Islands. Rhinoceros Auklets seen near Kruzof Island (transects 28-30) and in Sitka Sound (Appendix C) were most likely from St. Lazaria.

Rhinoceros Auklets were noted off Takanis Bay, Yakobi Island at dusk 8 June. While these birds may indicate a colony in the general area we found none present. We visited this part of the coast only briefly and no nights were spent on islands; therefore it is entirely possible that we may have missed some nocturnal colonies.

Two burrows of Rhinoceros Auklet size were found on the smaller of the Black Islands west of Chichagof Island. We were unable to reach the ends of the burrows. Rhinoceros Auklets and other burrowing species may nest here in low numbers. River otter sign was abundant and may be the reason burrowing species do not nest here in high numbers, although the habitat appears ideal.

During the intensive part of our surveys on the outer coasts of Kruzof and Baranof islands, we found this species breeding only on St. Lazaria and Sealion islands. Appendix B contains additional information on the 200 birds breeding at St. Lazaria, and Appendix A describes the 100 birds estimated to breed on Sealion Islands.

Tufted Puffin (Fratercula cirrhata)

Tufted Puffins were seen only in the vicinity of their breeding colonies during our survey along the outer coast. This is not surprising since we were always nearshore and Tufted Puffins generally feed offshore (Cody 1973).

A number of previously undocumented colonies of this species were found in 1981 and more quantified census data were collected on previously known locations (Appendix A). We now know that at least 99,000 puffins breed at 22 colonies. This increases the total estimate for this species in southeast Alaska by only 12,000 birds from prior estimates, but the number of known

colony sites increased 120 percent. However, at a number of these locations Tufted Puffins nested in low numbers. Soil was either absent or thin at several locations, and Tufted Puffins were using rock crevices instead of burrows for nesting.

Horned Puffin (Fratercula corniculata)

This species reaches the southern limit of its breeding range in southeastern Alaska and British Columbia. They were far less abundant than Tufted Puffins at the colonies we censused. At many sites they may be competing with Tufted Puffins for nesting sites. Tufted Puffins were found to be using crevices in rocks at several sites, a nesting habitat more typical of Horned Puffins.

Prior to 1981, 8 colonies in southeast Alaska were estimated to contain 856 breeding birds. Our data show at least 1010 birds breeding at 15 sites. While we found several locations where they had not been reported, previous census data was so poor overall that we cannot judge if populations have changed. At St. Lazaria Islands Horned Puffins apparently have disappeared since Willett's (1912) surveys (Appendix B).

Belted Kingfisher (Ceryle alcyon)

One individual was seen on 28 May in Cholmondeley Sound on Prince of Wales Island.

Observations of Marine Mammals

At least eight species of marine mammals were observed: Harbor Porpoise, Dall's Porpoise, Minke Whale, Humpback Whale, River Otter, Sea Otter, Harbor Seal, Steller's Sea Lion. All sightings of marine mammals are summarized in Appendix E. Additional information (particularly for River Otters, Harbor Seals, and Steller's Sea Lions) is found in the Colony Status Records (Appendix A).

RECOMMENDATIONS

1. Further inventory work should be done for storm-petrels at St. Lazaria Island, Sealion Island, and Forrester Island since these sites offer an excellent opportunity to monitor these species.
2. Bay and fiord surveys should be done to document bird use in southeast Alaska. This is particularly important since southeast Alaska has large numbers of Marbled Murrelets. The nesting habitat of this species in old-growth forest is rapidly being reduced by clear-cutting timber practices.
3. The "inside passage" of southeast Alaska probably does not have enough seabird colonies to justify surveys primarily for cataloging, but opportunistic collection of data should be encouraged. The Glacier Bay area is an exception since it has significant nesting areas and offers possibilities for population monitoring sites.

4. St. Lazaria, an island managed by the Fish and Wildlife Service, is by far the largest seabird colony near a population center in Alaska. While present numbers of people visiting appear to be few, they are likely to increase with a growing local population and increased interest in natural history. The soil burrowing habitat of St. Lazaria is particularly vulnerable to trampling by people while on the island.

While unaware individuals could cause much destruction, large numbers of informed people could visit the island to view this massive wildlife spectacle with no appreciable disturbance. Decisions on visitation restrictions to St. Lazaria should consider the fact that there is virtually no chance for enforcement. Permits and restrictions tend to discourage the conscientious and well-informed individuals but do not deter misuse of the resource by other less concerned people. Protection for St. Lazaria will come from well-informed residents who recognize the value of this unique island. We recommend that:

a. The U.S. Fish and Wildlife Service provide a convenient contact for visitor information. FWS-Ecological Services currently has one employee in Sitka. Refuges should set up an agreement with Ecological Services, the National Park Service, or the U.S. Forest Service to act as a local agent to provide visitor information about St. Lazaria.

b. A plaque containing information on seabirds, and advising visitors to remain on the unvegetated portions of the island, be placed at landing sites or attached to a floating buoy in the lee of the island. Signs should be informative, educational and stress the positive. An explanation should be provided as to why people should remain on the rocky portion of the island. Permits should not be required for casual visitor use of the island.

c. Information about the island and Fish and Wildlife Service regulations pertaining to public use be communicated to the Alaska Department of Fish and Game, National Marine Fisheries Service, U.S. Coast Guard, U.S. Forest Service, the City and Borough of Sitka, and the U.S. Fish and Wildlife Service (Ecological Services) office in Sitka. Each of these offices should be made aware of the need to monitor access to St. Lazaria.

d. Each year prior to the nesting season a press release be issued on St. Lazaria providing information on regulations and seabird biology. The refuge pamphlet on St. Lazaria should be corrected and updated to provide accurate information on the island's avifauna.

e. A public information display on St. Lazaria be developed to increase local awareness of the island. If set up in a high public use area such as the airport or Centennial Building, it could reach a tremendous number of people.

ACKNOWLEDGEMENTS

The 1981 surveys were greatly facilitated by the Raptor Management Studies of U.S. Fish and Wildlife Service in Juneau: specifically Phil Schempf and Jack Hodges. We appreciated their help on the seabird surveys and found their raptor surveys educational. The use of the Surfbird, was a logistical luxury

we do not often enjoy and we thank the skipper, Andy Anderson, for his support, skill, and good company.

In Sitka, William Hughes, Ecological Services, provided us with office and storage space and was a great help during our intensive studies on the outer coast of Kruzof and Baranof islands. We also thank the Sitka contingent of the U.S. Coast Guard for allowing us to accompany a helicopter flight crew on a routine patrol of the outer coast. Daria Carle offered many editorial improvements. Terry Finigan and Tessie Chilton exhibited great patience with the authors while typing this report.

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COLONY STATUS RECORDS, SOUTHEAST ALASKA SURVEY, 1981.

by

Arthur L. Sowls and David R. Nysewander

APPENDIX A

of

MARINE BIRD AND MAMMAL SURVEY OF THE OUTER COAST
OF SOUTHEAST ALASKA, SUMMER 1981

Arthur L. Sowls, David R. Nysewander, John L. Trapp, and Jay W. Nelson

U.S. Fish and Wildlife Service
Wildlife Operations
Marine Bird Management Project
1011 East Tudor Road
Anchorage, Alaska 99503

October 1982



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 003

to be assigned by office

Colony Name Timbered Island Field No. _____ Observer(s) Hodges, Nysewander, Sowls

Map Craig (C-6) Lat. 55° 42' Long. 134° 48' Time 11:30 Date June 2, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			} <u>Burrow with adult FTSP and egg found on larger island, cold egg found on smaller island.</u>
Fork-tailed Storm Petrel	X	X	
Leach's Storm Petrel		X	
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	P	108	} <u>Cormorants not nesting yet, but adults in breeding plumage present. Guessimate 50-70 pr. possible?</u>
Red-faced Cormorant			
Harlequin Duck			
Common Eider			} <u>One active nest and one inactive nest seen on main island. Eagles may have been feeding on Petrels.</u>
Bald Eagle	C 2	4	
Black Oystercatcher	E 4	8	
Glaucous Gull			} <u>One nest found with 0 eggs.</u>
Glaucous-winged Gull	E 300		
Mew Gull			} <u>Counted 346 adults on larger island. 280 on smaller island.</u>
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			} <u>Saw 128+ birds rafted off island or seen on rocks. Lots of crevices to nest in. Data qual. III</u>
Pigeon Guillemot	E 200		
Ancient Murrelet	P		
Cassin's Auklet	X		} <u>Adult with approximately 2 week old chick found in burrow on smaller island.</u>
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			} <u>Lots of Rhinoceros Auklet size burrows on larger Island under timber & salmon berry. Birds common offshore.</u>
Rhinoceros Auklet	P		
Horned Puffin	P	C 4	
Tufted Puffin	E 50		} <u>Flew off the island.</u>
			} <u>Saw 22 birds, one on small rock in shallow crevice with egg, Data qual. = III,</u>
N.W. Crow		2	
Wandering Tattlers		2	
Fox Sparrow	P	P	

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East 10th Street
Anchorage, Alaska 99503

AREA NO. 004 003

Timbered Island
Description of Colony

June 2, 1981

Access Timbered Island has no landing beaches, apparently no water or good camp sites.

Vegetation & Physiographic Characteristics Timbered Islands consist of a larger island approximately 200 ft. tall with approximately 30 large Sitka Spruce trees, Salmon berry, Devil's club, Angelica and grasses are all common. Some cliffs present. The smaller island has no trees, thin soil between rocks with lots of crevices and grasses and Angelica See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. Probably some river otter use, but no active sign seen.

Marine Mammals 210 Steller's Sea Lions seen hauled out on S. & E. side of larger Island and on S. side of smaller Island.

Census Methods & Data Status Circled island in small skiff. Landed Nysewander and Sowsls on larger island for about 1 hour and on smaller island for about 1/2 hour.

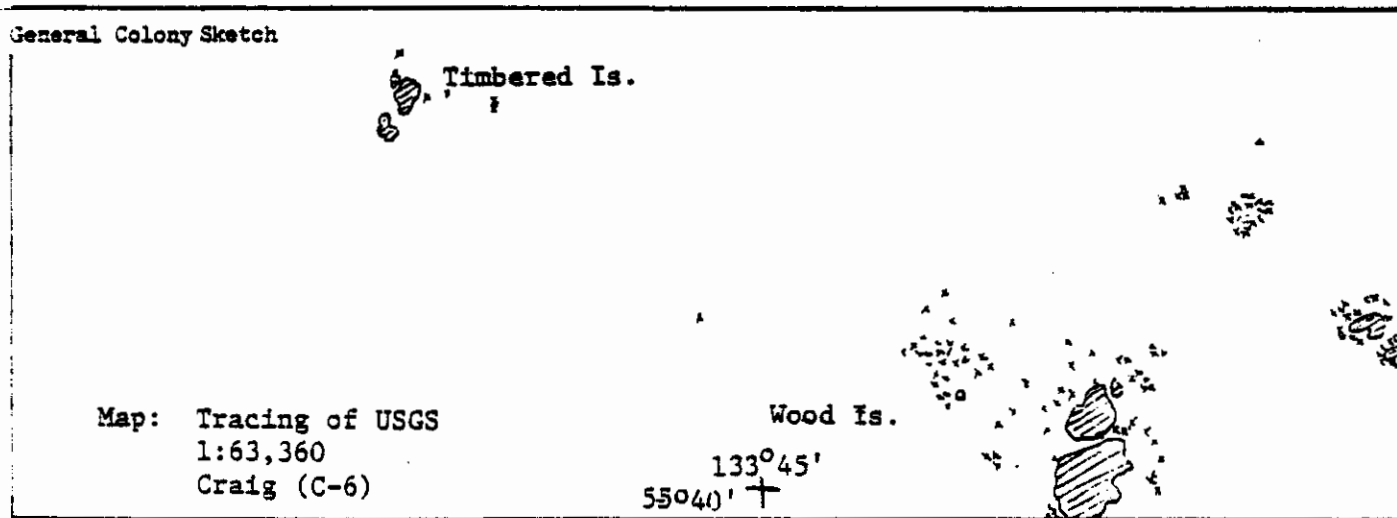
Sample Plots Established None.

Photo Coverage Color slides taken. Aerial B&W's and color slides taken July, 1981.

Overall Evaluation of Colony Regionally important colony. Needs further surveying. Island needs to be stayed on at night.

Supplemental Material & Data Attached (list) _____

General Colony Sketch



Map: Tracing of USGS
1:63,360
Craig (C-6)



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 004
to be assigned by office

Sowls

Colony Name Hazy Islands Field No. _____ Observer(s) Hodges, Schempf, Nysewander,

Map Craig (D7+D8) Lat. 55° 52' Long. 134° 35' Time 11:00 Date June 4, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel	P		} Most likely on S.E. rock and Big Hazy
Leach's Storm Petrel	P		
Cormorant			
Double-crested Cormorant			Too early to census
Pelagic Cormorant	P	80	Too early to census
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	P 1	5	} S.E. rock had 2 that probably had nest on rocky point. 3 eagles seen on north rocks.
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull	E 900		} S.E. rock = 850 birds. Big Hazy = 430 Little Hazy = 492 Data qual. = III.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre		600	Too early to census.
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 25+		} Saw about 25 birds. Data qual. = III. A few seen on water adjacent to rocks.
Ancient Murrelet	P		
Cassin's Auklet	P		10-20 seen on water adjacent to radio.
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet	P		
Horned Puffin	E 10+		Saw 3 pairs.
Tufted Puffin	E 200+		
Steller's Sea Lions		585	

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

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

Regional Office
U. S. Fish & Wildlife Service
1011 East _____ Road

Hazy Islands
Description of Colony

Area No. 004 004

June 4, 1981

Access Main rock maybe impossible to land on by boat, but S.E. rock should be possible.

Vegetation & Physiographic Characteristics See photos.

Human Activity Islands so remote that any human activity unlikely.

Mammalian Predators, Livestock, etc. None.

Marine Mammals Steller's Sea Lions - S.E. rock = 280, S.W. rock = 300, Big Hazy Islet = 5, Little Hazy = 0. Harbor Seal = 19 on Little Hazy. Aerial photographs of July 10th could also be counted for sea lions.

Census Methods & Data Status Time and weather allowed us only the opportunity to do a brief reconnaissance. We circled rocks with small skiff. Survey date too early for pormorants and murras. Landing on the S.E. rock possible and necessary to check for nocturnals.

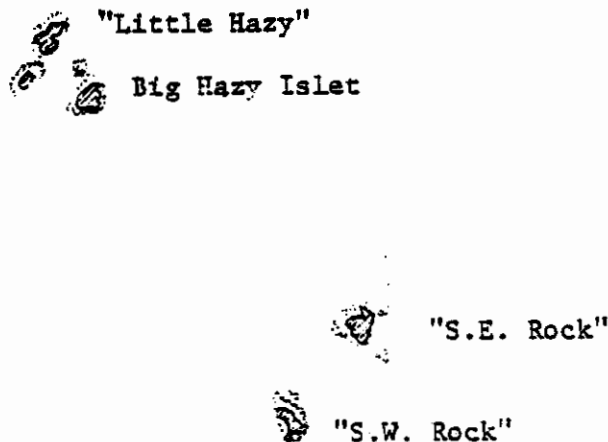
Sample Plots Established None

Photo Coverage B. & W.'s and color slides taken. Aerial photos also taken - July 10, 1981.

Overall Evaluation of Colony Important colony - should have further survey which would land people to confirm burrow nesters and to get better numbers for all species particularly murras.

Supplemental Material & Data Attached (list)

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 005

to be assigned by office

Colony Name Coronation Island (Windy Bay - China Cove) Field No. _____ Observer(s) Hodges, Nysewander, Schempf, Sowls

Map Craig (D7&8) Lat. 55°50' Long 134°17' Time _____ Date June 4, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	} <u>Offshore rocks @ Helm Pt. and approximately 1 mile to the west may be good habitat for nocturnals.</u>
Pork-tailed Storm Petrel	_____	?	
Leach's Storm Petrel	_____	?	
Cormorant	_____	_____	} <u>Too early to census cormorants, estimate is speculation. Counted over 750 cormorants, many in breeding plumage. Caves probably important nesting areas.</u>
Double-crested Cormorant	_____	_____	
Pelagic Cormorant	<u>E 400+</u>	_____	
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	
Common Eider	_____	_____	
Bald Eagle	<u>X</u>	<u>X</u>	
Black Oystercatcher	<u>E 1+</u>	<u>C 2</u>	
Glaucous Gull	_____	_____	
Glaucous-winged Gull	<u>E 500+</u>	<u>C 1100</u>	
New Gull	_____	_____	
Black-legged Kittiwake	_____	_____	
Red-legged Kittiwake	_____	_____	
Arctic Tern	_____	_____	
Aleutian Tern	_____	_____	
Murre	_____	_____	} <u>Too early to census. At this time of year, murre are very irregular attendance patterns at colony site. There may be many times this number.</u>
Common Murre	<u>P</u>	<u>C 11,000</u>	
Thick-billed Murre	_____	_____	
Black Guillemot	_____	_____	
Pigeon Guillemot	<u>X</u>	<u>C 116</u>	<u>Probably many times this number.</u>
Ancient Murrelet	_____	?	
Cassin's Auklet	_____	?	
Parakeet Auklet	_____	_____	
Crested Auklet	_____	_____	
Least Auklet	_____	_____	
Whiskered Auklet	_____	_____	
Rhinoceros Auklet	_____	?	} <u>Puffins coming off cliffs 1,000 feet high. Very difficult to census. There may be much higher numbers</u>
Horned Puffin	<u>X</u>	<u>E 100+</u>	
Tufted Puffin	<u>X</u>	<u>E 100+</u>	
Peregrine Falcon	<u>X</u>	<u>X</u>	<u>Several nests probably present.</u>

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

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

Regional Office
 U. S. Fish & Wildlife Service
 1011 South E Street

Coronation Island
Description of Colony

AREA NO. 004 005

June 4, 1981

Access Small boat is best way to view colony.

Vegetation & Physiographic Characteristics Coronation island is USFS wilderness area. Main nesting area is along SW side - Windy Bay to China Cove. Helm Pt. and area approximately 1 mile west is the best bird areas. One thousand foot nearly vertical cliffs are along much of this section of coast - see photos.

Human Activity Some fishing boats seen along W. side of island.

Mammalian Predators, Livestock, etc. Coronation has mink & deer. Surprising that mink haven't kept seabird off island more - perhaps all seabird nesting area on too steep of cliffs?

Marine Mammals Sea otters seen along N. shore of coronation and common in Spanish Islands just north. A few harbor seals seen.

Census Methods & Data Status Coronation needs much more censusing effort. We went along cliffs once in small boat under poor sea and weather conditions. Difficult colony to survey due to high cliffs and large number of birds.

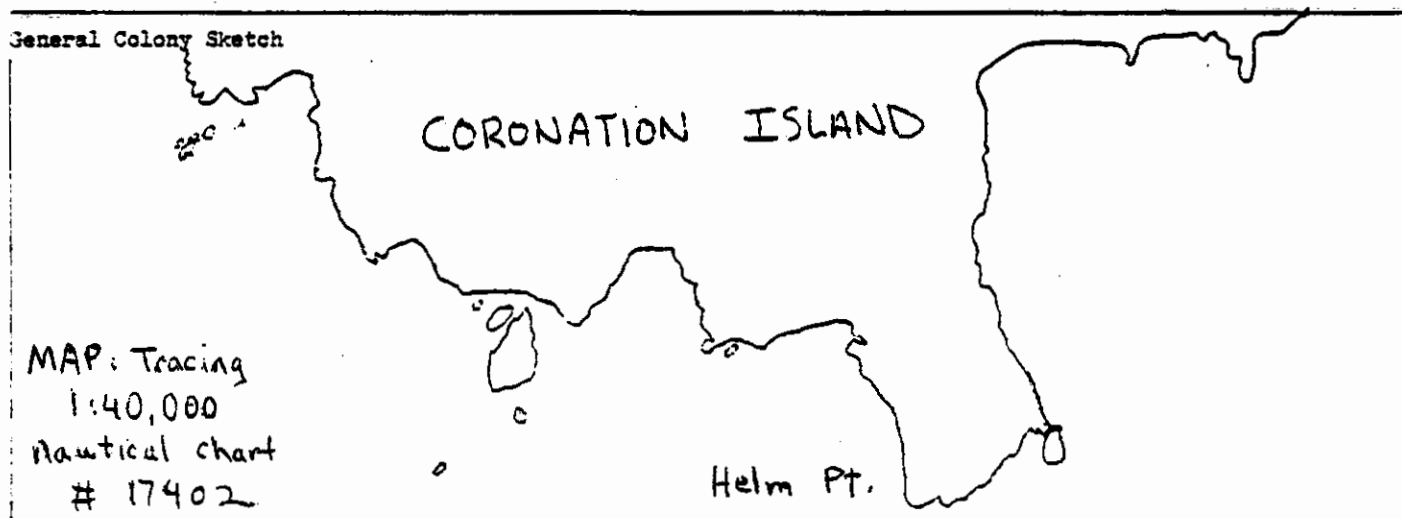
Sample Plots Established _____

Photo Coverage B & W and color slides taken. Also B&W and color slides taken from air - July 10, 1981

Overall Evaluation of Colony Need further surveying - this may be one of the largest seabird colonies in S.E. Alaska.

Supplemental Material & Data Attached (list) _____

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 006

to be assigned by office

Hodges,

Colony Name Cape Felix Field No. c Observer(s) Nysewander, Sowls, Schempf,

Map Craig (A-5) Lat. 55° 12' 40" N Long. 133° 26' W Time 09:40 Date May 31, 1981

Species	No. Nests <small>use codes below</small>	No. Birds <small>use codes below</small>	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Roost - 35 birds on Cape. No sign of nesting this year, but a likely looking spot for other years. Survey may be too early in season to find nests. 247 birds, a number in breeding plumage, seen between here and Cape Bartolome on water.
Pelagic Cormorant		R	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle		X	Common along coast, nests probably in general area.
Black Oystercatcher	E 3+		
Glaucous Gull			2 pr. on 1 rock and 3rd pr. on second rock just W. of Lontana Pt.
Glaucous-winged Gull			Low #'s present in general area, no sign of nesting.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			Pigeon Guillemots rafted on water just off colony - 30 birds. Many seen @ crevices in the rock. Ideal habitat. While a total of only about 50 birds observed, est. 40 pair since some likely on nests and away feeding. Data quality = III.
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 40		
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Peregrine Falcon		1	One seen to N. of colony, see map & Schempf (FWS-Juneau) report.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Taylor Road
Anchorage, Alaska 99503

Cape Felix
Description of Colony

Area No. 004 006

May 31, 1981

Access Small boat is only practical way to view colony.

Vegetation & Physiographic Characteristics Columnar basalt forms vertical cliff about 60 ft. high. Lots of crevices, which appear ideal for Pigeon Guillemots. Above cliff Spruce forest and thick underbrush. See photos.

Human Activity

Mammalian Predators, Livestock, etc. Wink, mocha and river otter probably in area, but guillemot nesting area probably completely out of reach to predators.

Marine Mammals

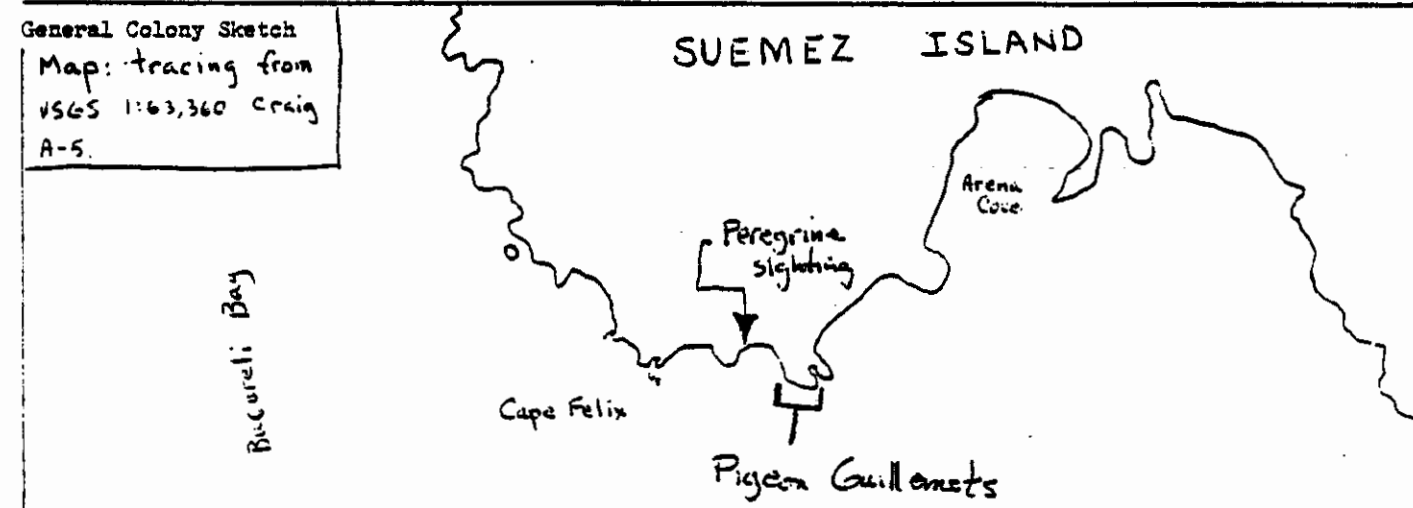
Census Methods & Data Status Outer coast of Dall, Suemez and Baker Island surveyed May 30 and 31 by small boat. Pigeon Guillemot est. derived strictly from birds observed - see front of form.

Sample Plots Established None

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony This is the best looking guillemot habitat and only colony of this species we found of guillemots for a large section of the coast.

Supplemental Material & Data Attached (list)





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 007

to be assigned by office

Hodges

Colony Name Veta Bay Field No. "b" Observer(s) Nysewander, Sowls, Schempf

Map Craig (B5+B6) Lat. _____ Long. _____ Time 17:00 Date May 31, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	_____
Fork-tailed Storm Petrel	_____	_____	_____
Leach's Storm Petrel	_____	_____	_____
Cormorant	_____	_____	_____
Double-crested Cormorant	_____	_____	_____
Pelagic Cormorant	<u>E 120</u>	_____	<u>Two caves appeared to be used as nesting sites. Survey date may be too early for maximum nesting attempts. This estimate may be very low even if nesting effort were maximum @ this date. Data qual. = IV. Over 570 birds, including those in breeding plumage, seen on water between here and Cape Addington.</u>
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	_____
Common Eider	_____	_____	_____
Bald Eagle	<u>X</u>	<u>X</u>	_____
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	<u>P</u>	_____	<u>Probably present in low numbers,</u>
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	_____
Horned Puffin	_____	_____	_____
Tufted Puffin	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

VETA BAY
Description of Colony

AREA NO. 004 007

May 31, 1981

Access _____

Vegetation & Physiographic Characteristics Veta Bay is located on the ocean side of Baker Island
Cormorants are using caves for nesting. At a later date other areas may also
be used - survey date too early. See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. Cliff habitat inaccessible to land predators.

Marine Mammals _____

Census Methods & Data Status Survey date too early for maximum cormorant effort or for
murre. We passed along shoreline in small boat. Estimates of cormorant nests
in caves are guesses based on a few visible nests and the number of adults seen
flying in and out of caves.

Sample Plots Established _____

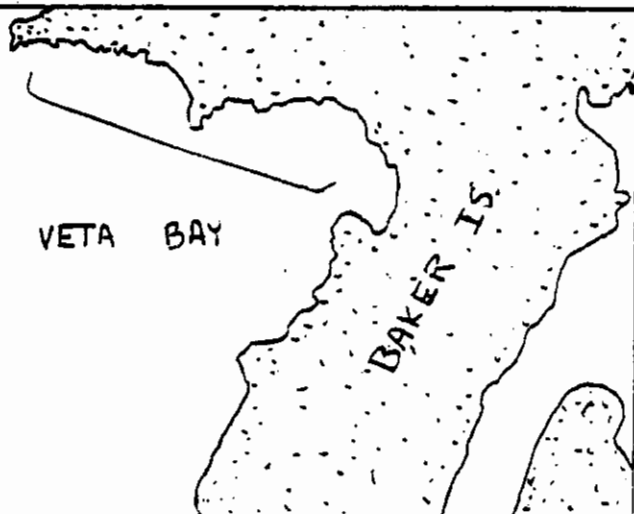
Photo Coverage Color slides taken, B&W's?

Overall Evaluation of Colony Area needs to be surveyed at a later date in the year.

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
USGS - Craig (B5+B6)
1:63,360





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 008
to be assigned by office

Hodges,

Colony Name Cape Addington. Field No. d Observer(s) Nysewander, Sewls, Schempf,

Map Craig (B-6) Lat. 55° 27' Long. 133° 48' Time 14:00 Date June 1, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	<u>E 40+</u>		Nests in caves & protected areas. June 1 may be too early for surveying PECO's. Some of last years ^{nest's} in one caves. 120 +PECO's seen around Cape Addington area. Data qual. = III.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	<u>X</u>	<u>X</u>	Bald Eagle very common along Noyes Island, nests in general area.
Black Oystercatcher		<u>None?</u>		Little intertidal habitat for Oystercatcher.
Glaucous Gull			
Glaucous-winged Gull		<u>X</u>	No sign of nesting observed.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	<u>P</u>		A couple seen in area and good habitat, but few Guillemots along this part of coast.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			RHAII seen feeding along coast. We assume these birds are from Forrester or Hazy, but not here.
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
<u>Paragrine Falcon</u>	<u>P</u>		Along cliffs on N. side Cape Addington Paragrine (3) seen after firing cracker shells off probable nesting cliff. See Schempf (FWS-Juneau) report.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Marine Road
Anchorage, Alaska 99502

Cape Addington
Description of Colony

Area No. 004 008

June 1, 1981

Access Colony area can best be seen by small boat

Vegetation & Physiographic Characteristics Cape Addington, Noyes Island is a long steep cliffy peninsula. Cormorants were nesting in caves, and best sheltered locations. An offshore rock (Shaft rk.) appeared to be ideal site for Gull-winged Gulls and good for cliff nesters, but no birds observed nesting.

Human Activity Lots of fishing boats work waters of Cape. Some graffiti painted on rocks.

Mammalian Predators, Livestock, etc. Pelagic Cormorant nesting area are inaccessible to predators

Marine Mammals

Census Methods & Data Status Surveyed from small boat @ close range. Survey were done of potential Peregrine sites by firing "cracker" shells from shotgun.

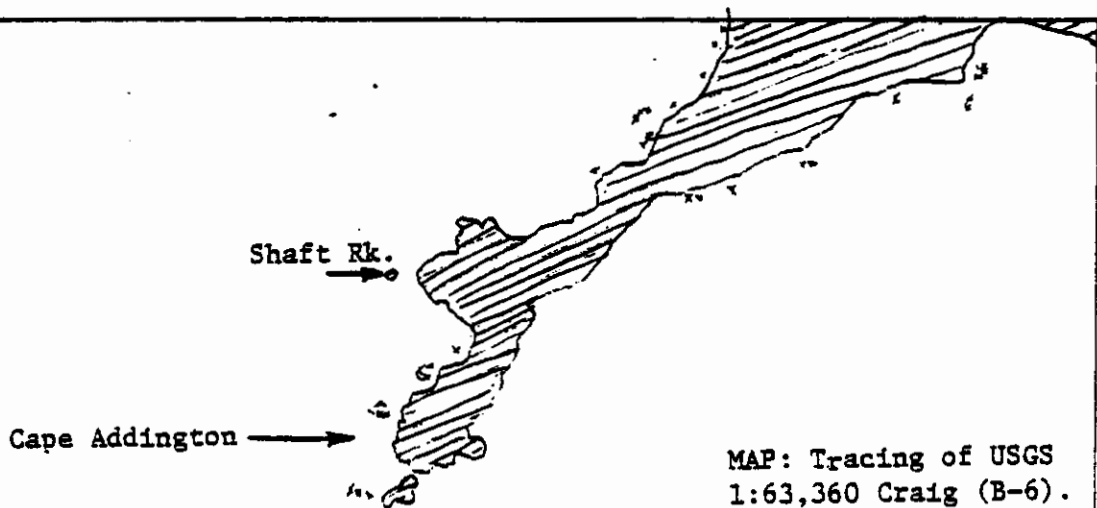
Sample Plots Established None

Photo Coverage Color slides taken Shaft Rock and Cormorant caves on mainland.

Overall Evaluation of Colony May be much bigger than this data indicates since PECO may not be nesting at full speed yet. Some birds seen carrying nesting material.

Supplemental Material & Data Attached (list)

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 009
to be assigned by office

Colony Name Dead Tree Pt. (Heceta Is.) No. f Observer(s) Phil Schempf

Map Nautical Chart #17404 at 55°45' Long. 133°39'30" Time 10:30 Date June 2, 1981

Species	No. Nests <small>use codes below</small>	No. Birds <small>use codes below</small>	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
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	<u>P</u>	<u>C 5</u>	
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	<u>P</u>	<u>C 28</u>	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet		<u>C 11</u>	<u>Seen on water - birds from Forrester Is. Colony?</u>
Horned Puffin			
Tufted Puffin			
Surf Scoter		<u>C 11</u>	<u>Seen on water</u>
Marbled Murrelets		<u>C 6</u>	<u>Seen on water</u>
Peregrine Falcon		<u>1</u>	

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Dead Tree Pt. (Heceta Is)
Description of Colony

June 2, 1981

AREA NO. 004 009

Access _____

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status Form filled out by A.L.S. from data from Phil Schempf - U.S.F.W.S. Juneau. Survey conducted by small boat while looking for Peregrine Falcon nests. Survey date probably too early for cormorant and gulls to be nesting.

Sample Plots Established _____

Photo Coverage _____


Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing
1:40,000
nautical chart
#17404

Deadtree Pt.

Emerald Is. 





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 010
to be assigned by office

Colony Name N.W. Derrunba Ridge Field No. e Observer(s) Phil Schempf
Map Nautical Chart #17404 (Heceta Is.) Lat. 55°44' Long. 133°38'30" Time 10:30 Date June 2, 1981

Species	No.	No.	Remarks (estimated minimum & maximum, egg & chick status, etc.)
	Nests <small>use codes below</small> ¹²	Birds <small>use codes below</small> ¹²	
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	<u>2</u>	<u>C 37</u>	<u>Too early in year for nests to be present</u>
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull		<u>C 3</u>	
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	<u>P</u>	<u>C 50</u>	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
White-winged Scoter		<u>C 16</u>	<u>Seen on water</u>

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

¹² Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

N.W. Derrumba Ridge
(Heceta Is.)
Description of Colony

AREA NO. 004 010

June 2, 1981

Access _____

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status ^{from} Form filled out by A.L.S. from data Phil Schempf - U.S.F.W.S. Juneau. Survey conducted by small boat while looking for Peregrine Falcon nests. Survey data probably too early for cormorant and gulls to be nesting.

Sample Plots Established _____


Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing
1:40,000
nautical chart
#17404

Emerald Is. 





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 011
to be assigned by office

Colony Name Gull Island Field No. "A" Observer(s) Hodges, Nysewander, SOWLS

Map Craig (C-6 + D-6) Lat. 55° 45' Long. 133° 44' 30" Time 12:00 Date June 2, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel	?		Remains of a Leach's which had been eaten was found. Habitat appears like smaller of Timbered Island (004 003) where petrels were found nesting.
Leach's Storm Petrel	?		
Cormorant			
Double-crested Cormorant	R	11 im	
Pelagic Cormorant	P	115	Too early for nesting.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	None	1 immature	
Black Oystercatcher	E 3	6	3 pairs seen with territorial behavior.
Glaucous Gull			Most nests observed were empty, but several had 1 or 2 eggs, Data qual = III.
Glaucous-winged Gull	E 350	709	
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			Data qual. = III. Estimate based on count of 69 birds on immediate adj. water and Island.
Pigeon Guillemot	E 50		
Ancient Murrelet	?		
Cassin's Auklet	?		In similar habitat on nearby Timbered Island, so likely here.
Parakeet Auklet			
Crested Auklet			
Least Auklet			Rhinoceros Auklet probably present in low numbers and more common than Tufted Puffins. Rhino's are the common bird in these waters.
Whiskered Auklet			
Rhinoceros Auklet	P	?	
Horned Puffin			
Tufted Puffin	X	E 2	A bird seen flying out from rock, possibly a few more pairs present. Data qual. = III.
N.W. Crow		1	

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

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

Regional Office
U.S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

Gull Island
Description of Colony

Area No. 004 011

June 2, 1981

Access Sea were fairly calm and still "jump-off" method was necessary. Difficult place to land a boat.

Vegetation & Physiographic Characteristics 87 ft. mostly bare, but thin soil and thick vegetation was present on the eastern side. Appearance very similar to smaller of Timbered Island. Angelica, chocolate lily, grasses present. GWGU all over Island may prey on small nocturnals if present, but judging by timbered ^{islands} nocturnals could exist here.

Human Activity Probably none.

Mammalian Predators, Livestock, etc. Probably none or occasional river otter.

Marine Mammals

Census Methods & Data Status Circled Island in small skiff. Sows jumped off onto island for about 1/2 hour and searched for burrow/crevice nesters.

Sample Plots Established None

Photo Coverage Color slides taken

Overall Evaluation of Colony Island has potential for many species, but further survey work needed.

Supplemental Material & Data Attached (list)

General Colony Sketch

MAP: Tracing of USGS
1:63,360

Craig (C-6 & D-6)

Gull Is.

Emerald Is.

AREA NO. 004 012

Whale Head
Description of Colony

June 2, 1981

Access _____

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status Form filled out by A.L.S. from data from Phil Schempf - U.S.F.W.S. Juneau. Survey conducted by small boat while looking for Peregrine Falcon nests. Survey date probably too early for cormorant and gulls to be nesting.

Sample Plots Established _____

Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing
1:40,000
nautical chart
#17403





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 004 013

to be assigned by office

Last rocks in group

Colony Name between Warren & Kosevick Is., h Observer(s) Phil Schempf

Map Nautical Chart #17408 Lat. _____ Long. _____ Time 12:30 Date June 2, 1981

Species	No. Nests <small>see codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant		C 2	Probably too early in year for nests to be present.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher	P	C 1	
Glaucous Gull			
Glaucous-winged Gull		C 5	
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre		C 5	Seen on water
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	P	C 16	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Arctic Loon		C 1	Seen on water
Harlequin Duck		C 23	Seen on water

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

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

AREA NO. 004 013

Last rocks in group between Warren & Koseiusko Is.
Description of Colony

June 2, 1981

Access _____

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status Form filled out by A.L.S. from data from Phil Schampf - U.S.F.W.S. Juneau. Surveye conducted by small boat while looking for Peregrine Falcon nests. Survey date probably too early for cormorant and gulls to be nesting.

Sample Plots Established _____

Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing
1:40,000
nautical chart
#17403





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 001
to be assigned by office

Colony Name Guibert Islets Field No. Observer(s) Trapp, Nelson, Nysewander, SOWLS, See

Map Port Alexander (C-4) Lat. 56° 38' N Long. 135° 10' W Time Back Date June 5, 29 & 30, 1981

Species	No. Nests <small>nb codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>																				
Northern Fulmar			found no sign of burrows when landed on southern rock. On June 30, SOWLS and Nelson drifted off north rock, listening for calls, but heard none. between 00:30 - 04:00.																				
Fork-tailed Storm Petrel		0																					
Leach's Storm Petrel		0																					
Cormorant																							
Double-crested Cormorant																							
Pelagic Cormorant	None	R	Roost - saw no sign of nesting this year. On June 5 saw 3 imm. and on June 29 saw 23 roosting birds - all immatures.																				
Red-faced Cormorant																							
Harlequin Duck																							
Common Eider																							
Bald Eagle	None	R	Roost - saw 4 birds on June 5, 3 immatures on June 29																				
Black Oystercatcher	E 3+	6+																					
Glaucous Gull			Est. Pr. on each rock. Found nest on southern rock June 29 with 3 eggs.																				
Glaucous-winged Gull	E 500																						
Mew Gull																							
Black-legged Kittiwake			<table border="1"> <thead> <tr> <th></th> <th>South rock</th> <th>North rock</th> <th>Inner Rock</th> </tr> </thead> <tbody> <tr> <td>June 5:</td> <td>4-500</td> <td>350</td> <td>180</td> </tr> <tr> <td>June 29:</td> <td>351</td> <td>272; 2imm.</td> <td>185</td> </tr> </tbody> </table>		South rock	North rock	Inner Rock	June 5:	4-500	350	180	June 29:	351	272; 2imm.	185								
	South rock	North rock		Inner Rock																			
June 5:	4-500	350		180																			
June 29:	351	272; 2imm.	185																				
Red-legged Kittiwake																							
Arctic Tern			One June 29 when landed on south rock saw no active nests - think river otter predation may have occurred.																				
Aleutian Tern																							
Murre																							
Common Murre																							
Thick-billed Murre																							
Black Guillemot			<table border="1"> <thead> <tr> <th></th> <th>South rock</th> <th>North Rock</th> <th>Inner rock</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>June 5</td> <td>1</td> <td>44</td> <td>13</td> <td>58</td> </tr> <tr> <td>" 29</td> <td>29</td> <td>12</td> <td>7</td> <td>48</td> </tr> <tr> <td>" 30</td> <td>23</td> <td>39</td> <td>13</td> <td>75</td> </tr> </tbody> </table>		South rock	North Rock	Inner rock	Total	June 5	1	44	13	58	" 29	29	12	7	48	" 30	23	39	13	75
	South rock	North Rock		Inner rock	Total																		
June 5	1	44		13	58																		
" 29	29	12	7	48																			
" 30	23	39	13	75																			
Pigeon Guillemot	E 50																						
Ancient Murrelet																							
Cassin's Auklet																							
Parakeet Auklet																							
Crested Auklet																							
Least Auklet																							
Whiskered Auklet			Tufted Puffins appear to be nesting in rock crevices. Below are listed the numbers seen. Attendance cycles vary, but the number of active burrows is often more than three times the number of birds seen.																				
Rhinoceros Auklet																							
Horned Puffin																							
Tufted Puffin	E 200		<table border="1"> <thead> <tr> <th></th> <th>South Rock</th> <th>North Rock</th> <th>Inner Rock</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>June 5:</td> <td>1</td> <td>2</td> <td>2</td> <td>5</td> </tr> <tr> <td>" 29:</td> <td>2</td> <td>6</td> <td>6</td> <td>14</td> </tr> <tr> <td>" 30:</td> <td>30</td> <td>11</td> <td>32</td> <td>73</td> </tr> </tbody> </table>		South Rock	North Rock	Inner Rock	Total	June 5:	1	2	2	5	" 29:	2	6	6	14	" 30:	30	11	32	73
	South Rock	North Rock	Inner Rock	Total																			
June 5:	1	2	2	5																			
" 29:	2	6	6	14																			
" 30:	30	11	32	73																			
N.E. Crow		4	Seen June 29																				
Harbor Seals		2	Seen June 29																				

Recommended Classification: Colony Complex Colony Sub-colony Roost Area

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

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Access No boat landing beaches, but "jump-off" landing possible on all.

Vegetation & Physiographic Characteristics All three islands have vegetation, but soil apparently very thin. On south side rock observed grasses, umbels, and salmon berry. Other two rocks has less well developed vegetation. See photos.

Human Activity

Mammalian Predators, Livestock, etc. Possibly heavy predation by river otters. What were likely otter trails were seen on the "south rock".

Marine Mammals 2+ Harbor Seals

Census Methods & Data Status June 5 - Nysewander & Sowls circled each rock in a small boat @ 17:00. June 29 - Nysewander, Sowls, Nelson & Trapp circled island & Sowls and Nelson "jumped off" onto the southern rock for about 1/2 hour, 13:00 - 13:40.

June 30 - Sowls and Nelson drifted off the north rock listening to hear nocturnal ~~calling~~ calling from 00:30 to 04:00. Then they circled the rocks for an early morning count from 05:00 - 05:30.

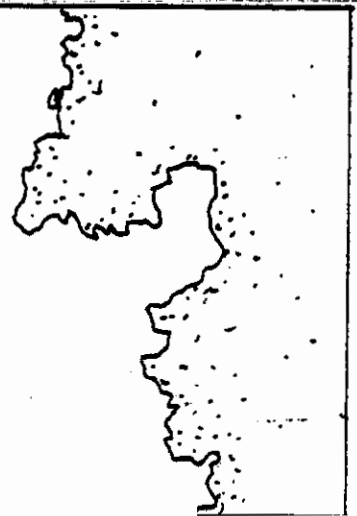
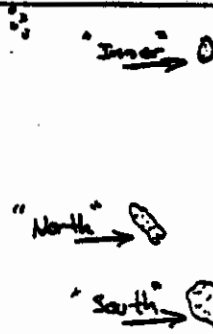
Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony

Supplemental Material & Data Attached (list)

General Colony Sketch

Guibert
Islands



MAP: Tracing USGS
1:63,360

Port Alexander (C-4)



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 002

Hodges, ~~Nysegander~~ & Sowls-6/6
Nelson, " , Trapp, Sowls-6/29

Colony Name Biali Rocks Field No. _____ Observer(s) Nelson, & Sowls - 7/6

Map Port Alexander (C-4) Lat. 56°43' Long. 135°20' Time see back Date 6/6 & 29, 7/6/81

Species	No. Nests <small>use codes below ¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			Not heard @ night from 0000-0400 from boat anchored offshore.
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Possible nesting location, but no nests seen this year. Saw 229 roosting cormorants 6/6; 142 on 6/29 and 320 on 7/6. Almost all immatures.
Pelagic Cormorant	None	R	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle		R	5 birds roosting on 6/6; 2 on 7/6.
Black Oystercatcher	E 3	C 3	One adult seen on each of the three rocks.
Glaucous Gull			Nesting birds mostly on outer rock. Counts of "inner rock" 14 adults on 6/6; 16 on 6/29. "Middle rock" 75 adults on 6/6; "outer rock" 322 on 6/6; 351 adults and 80 imm. on 6/29.
Glaucous-winged Gull	E 200		
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			On 6/6 counted 6 on "inner rock"; 8 on "middle rock"; and 6 on "outer rock". On 6/29 counted 6 on "inner rock" and 5 on "outer rock". For 7/6 counted 39 total for all rocks.
Pigeon Guillemot	E 25+	C 31	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin	E 2+	C 3	Maximum of 3 adults seen - 7/6. Birds in rock crevices:
Tufted Puffin	E 30+		Saw 5 on "middle rock"; 26 on "outer rock" - 6/29. Saw 26 total on 7/6.
Common Raven		1	
Herring Gull		X	One adult and 1 immature seen 6/21.
Harbor Seal		C 2	One seen 6/29; 2 seen 6/6 on "inner rock".
Steller's Sea Lion		C 777	Counted on 6/29. 6/6 counted 533 total.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

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1011 East Tudor Road

AREA NO. 005 002

Biali Rocks
Description of Colony

June 6&29, July 7, 1981

Access Rocks are about 2 hour small boat ride from Sitka. Difficult to land or jump-off on these rocks.

Vegetation & Physiographic Characteristics Almost entirely bare rocks with crevices used apparently by Tufted Puffins since burrow habitat not available.

Human Activity _____

Mammalian Predators, Livestock, etc. Possible river otter predation.

Marine Mammals "Middle rock" is main hauling area for sea lions with 400 counted on 6/6; 558 on 6/29. "Outer rock" had 133 counted on 6/6; 219 on 6/29.

Census Methods & Data Status Counts were made from small boats at three different times: 6/6 @ 09:45; 6/29 @ 09:40; and 7/6 @ 06:30. Gulls and sea lions were not counted on 7/6. Also Trapp and Nysewander anchored off rocks from 0001 - 0400 on 6/30 listening for nocturnals - heard nothing.

Sample Plots Established _____

Photo Coverage B&W's and color slides taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing
1:40,000
Nautical chart
#17326



Biali Rk.

Access _____

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status _____

See appendix "B" of: SOWLS, A.L., D.R. NYSEWANDER, J.L. TRAPP and J.W. NELSON. 1982. Marine bird and mammal survey of the outer coast of southeast Alaska, summer 1981. Unpubl. report. U.S. Fish & Wildlife Service, Anchorage, Alaska.

Sample Plots Established _____

Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

Blank area for General Colony Sketch.



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 006
to be assigned by office

Colony Name Slate Islets Field No. "J" Observer(s) Nysegwander, Hodges & Sowls -6/5
Map Port Alexander (C-4) Lat. 56° 41' Long. 135° 13' Time 6/5-18:15 Date 6/5 & 29/81
-6/29

Species	No. Nests <small>use codes below ¹²</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Nine seen on June 5; 20 on June 29. All immatures.
Pelagic Cormorant		R	
Red-faced Cormorant			
Harlequin Duck		4	Roosting on rocks
Common Eider			
Bald Eagle			
Black Oystercatcher	E 3	C 6	Six seen both survey days.
Glaucous Gull			
Glaucous-winged Gull	E 75		Counted 122 adults on June 5 and 154 adults and 21 immatures June 29.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 5+	C 6	Counted 3 on June 5 and 6 on June 29. Count late in the day are likely to be very low.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Whimbrel		4	Seen June 29th.

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

¹² Use these abbreviations to describe numbers. Use C & Z whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Slate Islets
Description of Colony

Juen 6&29, 1981

AREA NO. 005 CO6

Access Slate rocks are about 3 hours s. of Sitka by small boat.

Vegetation & Physiographic Characteristics The northern three of the slate rocks are the important ones to seabirds. Some vegetation occurs particularly on the more southern rocks.

Human Activity _____

Mammalian Predators, Livestock, etc. Rocks are close in for seabird colonies in southeast. River otter predation possible and perhaps mink?

Marine Mammals _____

Census Methods & Data Status Circled rocks in small boat.

Sample Plots Established _____

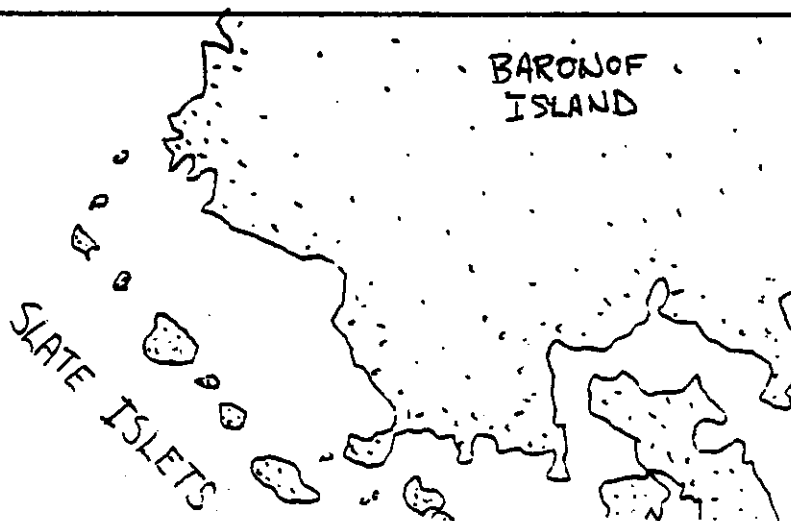
Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
nautical chart
#17326





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 007

^{to be assigned by office}
Hodges, Nysewander & SOWLS - 6/6
Nelson & SOWLS - 7/6

Colony Name "Islets E. of Rachek" Field No. "1" Observer(s) _____
Map Port Alexander (C-4) Lat. 56°44' Long. 135°22' Time 6/6 - 11:00
7/6 - 0600 Date June 6 & July 6, 1981

Species	No. Nests <small>use codes below ¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant		R	Counted 30 roosting on June 6, 22 on July 6.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle		R	Counted 2 roosting on June 6; 1 on July 6.
Black Oystercatcher	E 3+	C 5	Counted 5 birds July 6 and 3 on June 6.
Glaucous Gull			
Glaucous-winged Gull	E 175	C 342	Counted 342 adults on June 6.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 20	C 28	Counted 26 birds on July 6, but only 8 on June 6.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			None seen June 6, but 17 seen July 6. Puffins using crevices since no soil for burrows available.
Horned Puffin	E 10+	C 17	
Tufted Puffin			
N.W. Crow		2	
Harbor Seal		1	Seen July 6.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. R = roost
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

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U. S. Fish & Wildlife Service
1011 East Tudor Road

AREA NO. 005 007

"Islets E. of Rachek"
Description of Colony

June 6, July 7, 1981

Access Islets about 2-3 hours south of Sitka by small boat. Jump-off on islet possible during calm seas.

Vegetation & Physiographic Characteristics Small rocky islets E. of Rachek Is. No soil, so Puffins have to use crevices.

Human Activity _____

Mammalian Predators, Livestock, etc. River Otter sign seen on Rachek Is. Otters may visit colonies from time to time.

Marine Mammals One harbor seal seen July 6th.

Census Methods & Data Status Rocks circled in small boat on June 6th @ 11:00 and July 6 @ 06:00. Nelson and Sows spent night of July 5 on Rachek Is. looking and listening for petrels or other nocturnal seabirds. - none seen.

Sample Plots Established _____

Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
nautical chart
#17326

Rachek Is.





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 008

to be assigned by office

Nysewander & Sowls - 6/6

Colony Name John Island Field No. "h" Observer(s) Nelson, Nysewander, Sowls - 7/6

Map Port Alexander (D-5) Lat. 56°46'30" Long. 135°28' Time 6/6-11:00
7/6-8:15 Date June 6, July 6, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	_____
Fork-tailed Storm Petrel	_____	_____	_____
Leach's Storm Petrel	_____	_____	_____
Cormorant	_____	_____	_____
Double-crested Cormorant	_____	_____	_____
Pelagic Cormorant	<u>None</u>	<u>R</u>	<u>49 seen roosting on June 6; 9 seen roosting on July 6.</u>
Red-faced Cormorant	_____	_____	_____
Harlequin Duck	_____	_____	_____
Common Eider	_____	_____	_____
Bald Eagle	_____	_____	_____
Black Oystercatcher	_____	_____	_____
Glaucous Gull	_____	_____	<u>Counted 130 adults and 50 immatures on June 6.</u> <u>Counted 230 total gulls on July 6. Adults definitely nesting, immatures roosting off at edges of colony.</u>
Glaucous-winged Gull	<u>E 70</u>	_____	
Mew Gull	_____	_____	_____
Black-legged Kittiwake	_____	_____	_____
Red-legged Kittiwake	_____	_____	_____
Arctic Tern	_____	_____	_____
Aleutian Tern	_____	_____	_____
Murre	_____	_____	_____
Common Murre	_____	_____	_____
Thick-billed Murre	_____	_____	_____
Black Guillemot	_____	_____	_____
Pigeon Guillemot	<u>E 10</u>	_____	<u>6 seen June 6th, 13 seen July 6th.</u>
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	_____
Horned Puffin	_____	_____	_____
Tufted Puffin	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

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

AREA NO. 005 CC8

John Island
Description of Colony

June 6, July 6, 1981

Access Colony is about 2 hours S. of Sitka by small boat. Landing possible only by jumping off from small boat in good seas.

Vegetation & Physiographic Characteristics Small bare rock on the outside coast of the Necker Islands.

Human Activity

Mammalian Predators, Livestock, etc. Perhaps visited by river otters occasionally.

Marine Mammals None seen

Census Methods & Data Status Circled island twice in small boat - June 6 @ 11:00 and July 6 @ 8:1

Sample Plots Established None

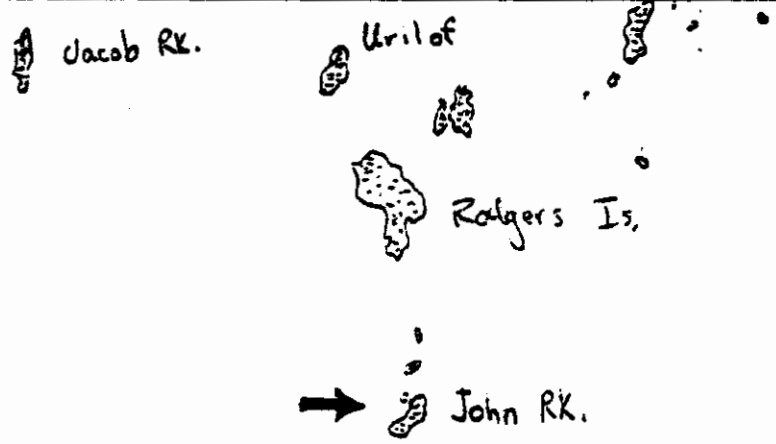
Photo Coverage B&W's and color slides probably taken.

Overall Evaluation of Colony

Supplemental Material & Data Attached (list)

General Colony Sketch

MAP: Tracing of
1:40,000
Nautical chart
#17326





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 009

to be assigned by office

Colony Name Rodgers Is. Field No. "g" Observer(s) Nysewander, Nelson, SOWLS

Map Port Alexander (D-5) Lat. 56°47' Long. 135°28' Time _____ Date July 5-6, 1981

Species	No. Nests <small>use codes below</small>	No. Birds <small>use codes below</small>	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			Between 01:30 and 02:30 about 12 LESP calls heard. None located on ground or burrows seen. assume birds are passer-by.
Fork-tailed Storm Petrel			
Leach's Storm Petrel	?	?	
Cormorant			
Double-crested Cormorant			Nests on cliffs on S.W. side of island. Grows were observed taking cormorant eggs by Nysewander on July 6. Data quality = II.
Pelagic Cormorant	C 107	C 234	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	P	P	
Black Oystercatcher	None	None	
Glaucous Gull			
Glaucous-winged Gull	C 7		Nesting on small rock to south.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	?	?	Common in Necker Island, but no sign of nesting here.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
N.W. Crow		X	
Peregrine Falcon	C 1	2	July 6 nest had 2 chicks nearly ready to fledge.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

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AREA NO. 005 CC9

Rodgers Is.
Description of Colony

July 5-6, 1981

Access Colony best viewed from boat. Island is 1-2 hours s. of Sitka by boat in good weather.

Vegetation & Physiographic Characteristics Island has Sitka Spruce trees and ground vegetation composed of mostly grasses. No snail/slugs seen in contrast to St. Lázaria or Sea Lion Island where they were very common.

Human Activity

Mammalian Predators, Livestock, etc. River Otter trails abundant, scat and items found on Island by Nysewander.

Marine Mammals

Census Methods & Data Status Nysewander spent night on island. Nysewander, Nelson and SOWLS did count of cormorant nests from small boat.

Sample Plots Established None

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony Critical area because of falcons.

Supplemental Material & Data Attached (list)

General Colony Sketch

Jacob

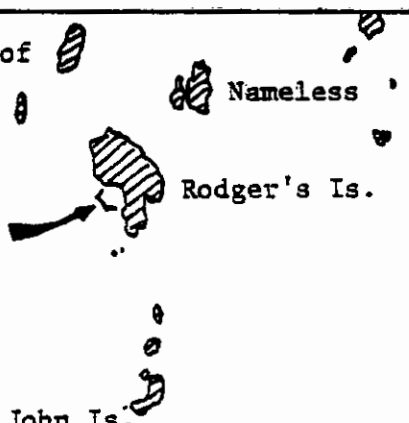
Urillof

Nameless

Rodger's Is.

John Is.

MAP: Nautical
chart 17326
1:40,000





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 010

to be assigned by office
Nysewander & Sowls - 6/6

Nelson, Nysewander & Sowls - 7/6

Colony Name Jacob Rock Field No. "f" Observer(s) 6/6 - 11:30

Map Port Alexander (D-5) Lat. 56°47'20" Long. 135°30' Time 7/6-7:55 Date June 6, July 6, 1981

Species	No. Nests <small>use codes below</small>	No. Birds <small>use codes below</small>	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	None	R	1 seen roosting June 6.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			On June 6 counted 71 adults and 20 immatures. No gull count for July 6. Adults definitely nesting, Immatures roosting off to sides of colony.
Glaucous-winged Gull	E 35	C 70	
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 8+		One seen June 6 and 10 seen July 6.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin	E 1	C 2	Seen July 6.
Tufted Puffin	E 8	C 11	None seen on June 6, but 11 seen July 6.
Steller's Sea Lion		1	One seen on both visits.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

R = roost

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

AREA NO. 005 c/o

Jacob Rock
Description of Colony

June 6, July 6, 1981

Access Colony is about 2 hours south of Sitka by small boat. Landing would be possible only by jumping-off from small boat.

Vegetation & Physiographic Characteristics Small bare rock on the outside coast of the Necker Islands.

Human Activity _____

Mammalian Predators, Livestock, etc. Perhaps visited occasionally by river otters.

Marine Mammals One Steller's Sea Lion seen on each visit.

Census Methods & Data Status Circled island in small boat @ 11:30 on June 6 and @ 7:55 on July 6, 1981.

Sample Plots Established None

Photo Coverage B&W's and color slides probably taken.

Overall Evaluation of Colony _____

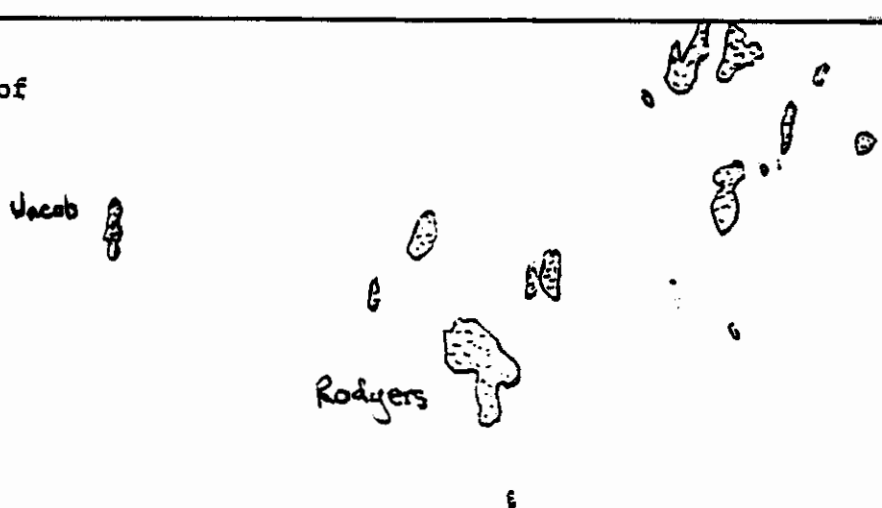
Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
Nautical chart
#17326

Jacob

Rodgers





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 011
to be assigned by office

Nysegwander, SOWLS - 6/6/81

Colony Name Urilof Island Field No. "d" Observer(s) Nelson, " & " - 7/6/81
Map Port Alexander (D-5) Lat. 56°47'20" Long. 135°28'20" Time 6/6-11:20 Date 6/6 & 7/6/81

Species	No. Nests <small>use codes below</small>	No. Birds <small>use codes below</small>	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Counted 21 roosting birds on June 6 and 43 roosting birds on July 6. While no nesting this year, island is possible nesting site in other years.
Pelagic Cormorant	None	R	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher	E 1	C 2	Two adults counted on June 6.
Glaucous Gull			
Glaucous-winged Gull	E 100		Counted 180 adults on June 6 and 210 adults on July 6
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 30		Counted 43 on June 6 and 45 on July 6.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet	E 5+		Counted 6 birds June 6 and July 6.
Horned Puffin	E 30+		Counted only 4 birds on June 6, but counted 36 on July 6. All puffins appear to be using rock crevices.
Tufted Puffin			
N.W. Crow	None	2	Two seen June 6, probably nest on Rodgers Island.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Taylor Road

AREA NO. 005 011

Urilof Island
Description of Colony

6/6 & 7/6, 1981

Access Colony is about 2 hour small boat ride south of Sitka. In calm weather probably possible to jump-off from small boat.

Vegetation & Physiographic Characteristics Small bare rock. Puffins, guillemots both use rock crevices for nesting. This rock while very similar to the nearby rocks — Jacob, John, etc. appears to have more bird life.

Human Activity _____

Mammalian Predators, Livestock, etc. Possible that river otters may visit this island from time to time. Otter sign common on nearby Rodgers Island.

Marine Mammals _____

Census Methods & Data Status Island was circled in a small boat on June 6 and July 6.

Sample Plots Established None

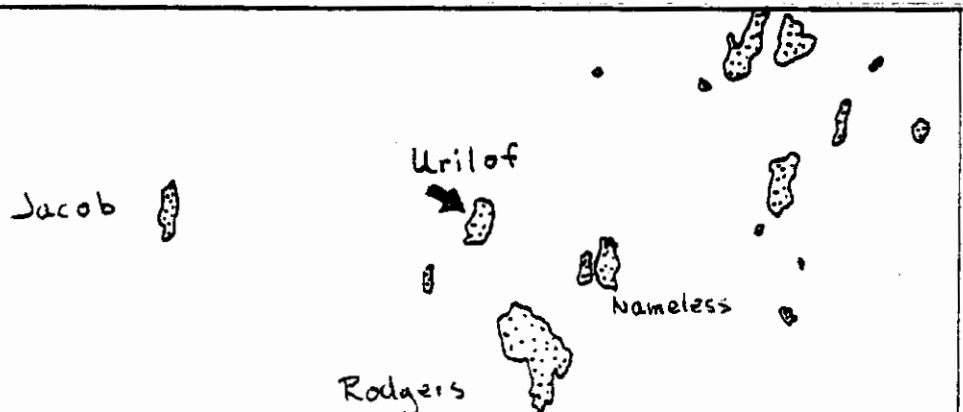
Photo Coverage B&W's and color slides probably taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
Nautical chart
#17326





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 012
to be assigned by office

Colony Name Nameless Is. & rocks Field No. _____ Observer(s) Nysewander, Nelson & Sowls
Map Port Alexander (D-5) Lat. 56°47' Long. 135° 27' Time _____ Date July 5-6, 1981

Species	No.	No.	Remarks (estimated minimum & maximum, egg & chick status, etc.)
	Nests <small>use codes below ¹</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	<u>P</u>	_____	_____
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	<u>X</u>	<u>X</u>	_____
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	_____
Horned Puffin	_____	_____	_____
Tufted Puffin	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
P = pairs, B = breeding, NB = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

Nameless Is. & rocks
Description of Colony

AREA NO. 005 012

July 5&6, 1981

Access See form for 005 008.

Vegetation & Physiographic Characteristics. Several nearly bare rocks northeast of Rodgers Is. has what appears to be good gull habitat. Also habitat for oystercatcher and pigeon guillemots.

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status Islands circled in small boat. Apparently no gulls nesting here since no mention of such in our field notes. Guillemots probably nest here and there as could oystercatchers.

Sample Plots Established None


Photo Coverage None?


Overall Evaluation of Colony _____


Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
Nautical Chart
#17326

Jacob Rk. 

Urilo Is 

Rodgers Is 





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 013

to be assigned by office

Colony Name Terbilon Is. Field No. "c" Observer(s) Nysewander and Sowls

Map Port Alexander (D-5) Lat. 56°49'45" Long. 135°32' Time 13:15 Date June 6, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	_____
Pork-tailed Storm Petrel	_____	_____	_____
Leach's Storm Petrel	_____	_____	_____
Cormorant	_____	_____	Cormorants flying into a cave on east side of island. Once through the opening, birds went up into an cavity completely out of sight from the water. While no actual nest were visible, nesting almost certainly occurs here. The population est. is sure speculation, based on 13 birds seen flying into cave and size of cave.
Double-crested Cormorant	_____	_____	
Pelagic Cormorant	<u>E 15+</u>	_____	
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	
Common Eider	_____	_____	
Bald Eagle	<u>P</u>	<u>C 1</u>	_____
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	_____	_____	None seen in area, but census done at poor time of day for guillemots.
Pigeon Guillemot	<u>?</u>	<u>P</u>	
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	_____
Horned Puffin	_____	_____	_____
Tufted Puffin	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present or = pairs, b = breeding, nb = non-breeding

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1011 East Tudor Road
Anchorage, Alaska 99503

AREA NO. - 005 013

Terbilon Island
Description of Colony

June 6, 1981

Access Terbilon Island is a 2+ hour small boat trip from Sitka during good weather

Vegetation & Physiographic Characteristics _____

Human Activity Probably only occasional fishing boat in general area.

Mammalian Predators, Livestock, etc. River Otter probably limit seabirds here. Cormorant nesting cave probably safe from all predators.

Marine Mammals Probably harbor seals and possibly sea otter in general area.

Census Methods & Data Status Circles around island in 17 ft. boat. Count of "cave nests" impossible - see front.

Sample Plots Established None

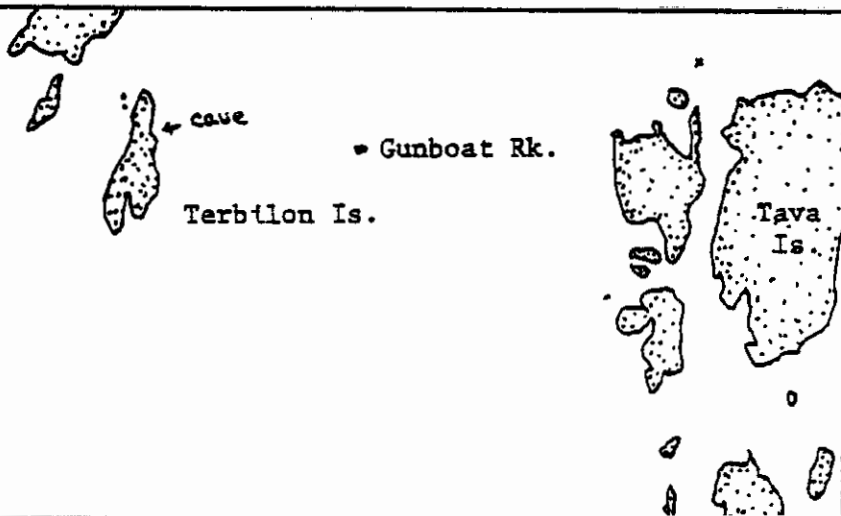
Photo Coverage _____

Overall Evaluation of Colony Cormorant nesting activity probably varies from year to year

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Section of
1:40,000
Nautical chart 17326





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 014

to be assigned by office

Nysewander & Sowls - 6/6/81

Colony Name Viesokoi Rocks Field No. b Observer(s) Nelson & Sowls - 7/8/81

Map Port Alexander (B-4) Lat. 56°52'10" Long. 135°25' Time _____ Date 6/6, 7/7 & 7/8/81

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	_____
Pork-tailed Storm Petrel	_____	_____	_____
Leach's Storm Petrel	_____	_____	_____
Cormorant	_____	_____	_____
Double-crested Cormorant	_____	_____	One nest on the N.E. side under a protected cliff ledge. Roosting cormorants seen: 6/6-5; 7/7-62; 7/11-23.
Pelagic Cormorant	<u>C 1</u>	_____	
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	_____
Common Eider	_____	_____	_____
Bald Eagle	_____	_____	_____
Black Oystercatcher	_____	_____	_____
Glaucous Gull	_____	_____	_____
Glaucous-winged Gull	<u>E 35</u>	<u>C 70</u>	Count of adults on 6/6.
Mew Gull	_____	_____	_____
Black-legged Kittiwake	_____	_____	_____
Red-legged Kittiwake	_____	_____	_____
Arctic Tern	_____	_____	_____
Aleutian Tern	_____	_____	_____
Murre	_____	_____	_____
Common Murre	_____	_____	_____
Thick-billed Murre	_____	_____	Guillemot counts were done on 3 dates. Counts of birds were: 6/6 @ 14:00 - 22 guillemots; 6/7 @ 16:30 - 50; 6/8 @ 09:45 - 75. This data shows importance of attendance pattern in colony surveys.
Black Guillemot	_____	_____	
Pigeon Guillemot	<u>E 50</u>	_____	_____
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	_____
Horned Puffin	_____	_____	_____
Tufted Puffin	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

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Area No. 005 014

Viesokoi Rocks
Description of Colony

June-July, 1981

Access Viesokoi Rocks are about 10 miles S. of Sitka. Colony best viewed by small boat.

Vegetation & Physiographic Characteristics Small, nearly bare rocks.

Human Activity pleasure boats and fishing boats use general area. Goddard hot springs is near-by and a favorite stopping spot for people from Sitka.

Mammalian Predators, Livestock, etc. None

Marine Mammals _____

Census Methods & Data Status Birds were counted from a small boat on three occasions - see front of form.

Sample Plots Established _____

Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
Nautical chart
#17326

↓
Viesokoi RK





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 005 015
to be assigned by office

Colony Name Trubitsin Cove Field No. a Observer(s) Nysewander, Schempf, Sowls
Map Sitka (A-6) Lat. 56° 57' Long. 135° 50' Time 12:00 Date June 7, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Data qual. = II. Birds still building nests so same birds may not have build nests yet. Some birds appear to be on eggs.
Pelagic Cormorant	C 152	212	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle		X	Eagle in general area. Adult & immature seen. Nest are common along Kruzof Island.
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			None observed in general area, but some habitat available.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			No Horned Puffins seen here, but birds apparently use Kruzof Island some for nesting.
Horned Puffin			
Tufted Puffin			
Peregrine Falcon	P	2	Birds acting territorial, aerie almost certainly present.

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

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Regional Office
U. S. Fish & Wildlife Service,
1011 East Tudor Road
Anchorage, Alaska 99502

Area No. 005 015

Tribitsin Cove
Description of Colony

June 7, 1981

Access Colony can be seen well from small boat in Tribitsin Cove.

Vegetation & Physiographic Characteristics Cliff - 60 ft. high. Above Sitka Spruce forest and grassy vegetation. See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. Cliffs inaccessible to mammalian predators.

Marine Mammals _____

Census Methods & Data Status Counted nests from small skiff. No Horned Puffins seen here but a few were seen along the south side of Kruzof Island.

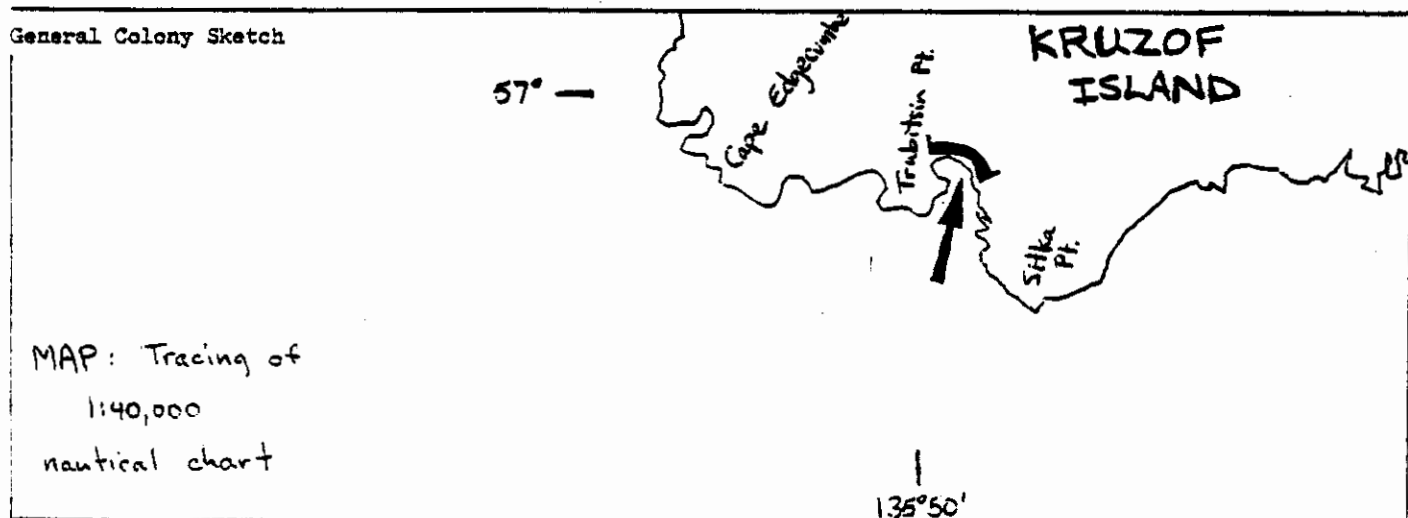
Sample Plots Established None

Photo Coverage B & W and color slides taken.

Overall Evaluation of Colony Peregrine site, therefore extremely important area.

Supplemental Material & Data Attached (list) _____

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 006 001

to be assigned by office

Colony Name Bluff Island Field No. _____ Observer(s) Hodges, SOWLS
 Map Petersburg (A-6) Lat. 56° 6' 30" Long. 133° 41' Time 15:30 Date June 2, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant	<u>none</u>	<u>none</u>	<u>Nest on steep cliffs on N.E. side of island</u>
Pelagic Cormorant	<u>E 22</u>	<u>C 52</u>		Date Quality = II.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	<u>P</u>	<u>2</u>	<u>2 eagles seen soaring high over island. Eagles common in area.</u>
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	<u>?</u>		<u>Habitat available, but no Pigeon Guillemots seen in area or even from skill coming up from Warren Is. or going to Pt. St. Albans.</u>
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			

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

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 pr = pairs, b = breeding, nb = non-breeding

Regional Office
 U. S. Fish & Wildlife Service
 1011 East Teller Road

Bluff Island
Description of Colony

006 001

June 2, 1981

Access Colony can be viewed only from the water. A boulder beach was seen on the east side of the island suitable for landing.

Vegetation & Physiographic Characteristics Bluff Island, off Kosciusko Island, in Somner Strait is a heavily wooded Island with vertical cliffs to about 150 ft. on N.E. side. Sitka Spruce dominate tree species on Island with heavy underbrush.

Human Activity A thin rope hung down the cliffs nearly to the water? Why.

Mammalian Predators, Livestock, etc. Cliffs would be out of reach to any land predator.

Marine Mammals None observed

Census Methods & Data Status Circled Island in small skiff, counted nests. Birds seemed farther along than @ other Pelagic Colonies seen on trip, but census probably too early.

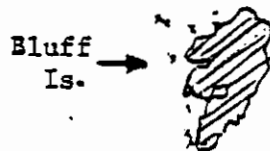
Sample Plots Established None

Photo Coverage Color slides taken

Overall Evaluation of Colony Colony may be larger than estimate due to a too early survey date.

Supplemental Material & Data Attached (list)

General Colony Sketch



MAP: Tracing of
USGS 1:63,360
Petersburg (A-6)

Kosciusko Is. →



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 001

to be assigned by office

Colony Name Urey Rocks Field No. _____ Observer(s) Nysewander, Schempf & Sowls
 Map Sitka (D-8) Lat. 57° 49' Long. 136° 27' Time 16:00 Date June 8, 1981

Species	No. Nests <small>use codes 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	<u>None</u>	<u>1</u>	<u>One immature seen</u>
Pelagic Cormorant	<u>C 8</u>	<u>350</u>	<u>Survey date probably too early to get max. nesting effort. Many (2/3?) of birds seen were immature Data quality = III.</u>
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	
Common Eider	_____	_____	_____
Bald Eagle	_____	_____	_____
Black Oystercatcher	<u>E 3</u>	_____	_____
Glaucous Gull	_____	_____	_____
Glaucous-winged Gull	<u>E 120</u>	<u>C 281</u>	<u>Also saw 113 immatures roosting. Data qual. = III. An immature Herring Gull also seen.</u>
Mew Gull	_____	_____	
Black-legged Kittiwake	<u>None</u>	<u>X</u>	<u>Many immatures Kittiwake in general area.</u>
Red-legged Kittiwake	_____	_____	_____
Arctic Tern	_____	_____	_____
Aleutian Tern	_____	_____	_____
Murre	_____	_____	_____
Common Murre	_____	_____	_____
Thick-billed Murre	_____	_____	_____
Black Guillemot	_____	_____	<u>Only 3 birds seen, but a survey late in day may grossly under-estimate birds present. Data qual = III</u>
Pigeon Guillemot	<u>E 3</u>	_____	
Ancient Murrelet	_____	_____	_____
Cassin's Auklet	_____	_____	_____
Parakeet Auklet	_____	_____	_____
Crested Auklet	_____	_____	_____
Least Auklet	_____	_____	_____
Whiskered Auklet	_____	_____	_____
Rhinoceros Auklet	_____	_____	<u>Data quality = III. Est. may be low. One bird seen flying from island. The only area we have been seeing Tufted Puffin is by probable nesting rocks. Birds probably using crevice since very little soil present.</u>
Horned Puffin	_____	_____	
Tufted Puffin	<u>E 1</u>	<u>2</u>	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Harbor Seal	_____	<u>2</u>	<u>Seen in water next to rocks</u>
Sea Otter	_____	<u>1</u>	<u>Seen in water next to rocks</u>

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
 C = count, E = estimate, P = probably present (state reason under remarks), X = present
 pr = pairs, b = breeding, nb = non-breeding

Urey Rocks
Description of Colony

Area No. 009 001

June 8, 1981

Access Rocks could be jumped onto from small boat in calm seas,

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. River Otters are likely predators

Marine Mammals 2 harbor seals and 1 sea otter in water next to rocks

Census Methods & Data Status Made count while circling island in 17 ft. Boston Whaler

Sample Plots Established None

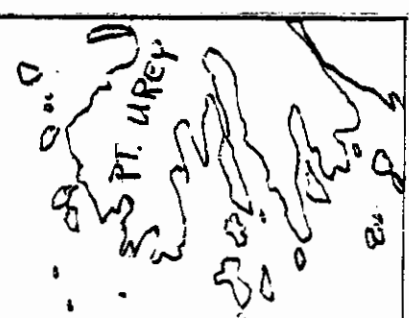
Photo Coverage Photos taken - color slide and B & W's.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

Urey Rocks →



MAP: Tracing of
1:40,000
nautical chart.



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 002
to be assigned by office

Colony Name White Sisters Field No. a Observer(s) Nysewander, Schempf, SOWLS
Map Sitka (C-7) Lat. 57° 38' Long. 136° 15' Time 13:30 Date June 8, 1981

Species	No. Nests <small>use codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			Saw 207 roosting, but did not see any nests. Cormorants may breed here some years.
Pelagic Cormorant		R	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	None	1	One immature roosting on south rock.
Black Oystercatcher			
Glaucous Gull			Est. based on count of 388 adults. - 323 on S. rock and 65 on N. rock. Also 38 imm. on S. rock. Data quality = III.
Glaucous-winged Gull	E 180	388	
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			Counted 65 on or in water immediately adjacent to S. rock. Saw only 1 by N. rock. Assume one member of pr. on nest @ this time of year so 60 nest may be conservative. Data qual. = III.
Pigeon Guillemot	E 60	66	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			Saw one puffin by S. rock. Probably would have to nest in crevice since not sufficient soil for burrows.
Tufted Puffin	E 1+		
Steller's Sea Lions		C 1109	Counted 937 on S. rock, 272 on N. rock. Bulls had harems and observed one mating.

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

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C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Area No. 009 002

Description of Colony White Sisters

June 8, 1981

Access Colony best seen by boat. Possible to jump off on rocks if seas were fairly calm.

Vegetation & Physiographic Characteristics Rocks are almost completely bare of vegetation, but little is present. See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals See front of form.

Census Methods & Data Status Circled rocks in small boat. All estimates probably conservat

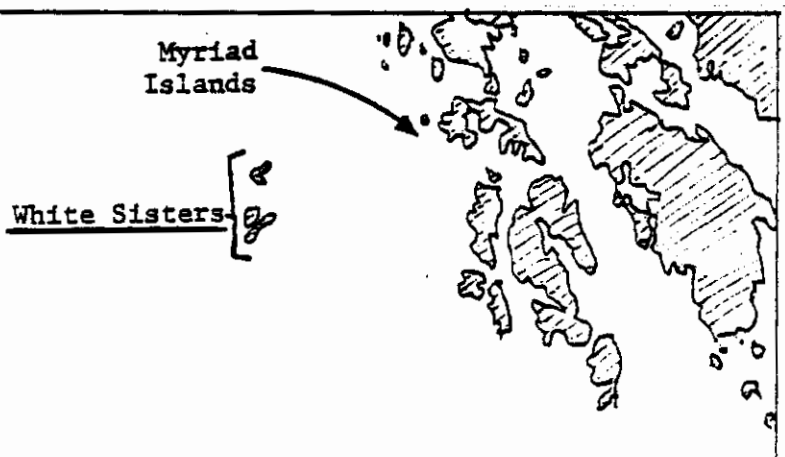
Sample Plots Established None

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch



MAP: Tracing of USGS 1:63,360
Sitka (C-7).



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 003

to be assigned by office

Colony Name Outer Rocks Field No. b Observer(s) Nysewander, Schempf, Sows

Map Sitka (C-7) Lat. 57° 34' Long. 136° 09' Time 10:30 Date June 8, 1981

Species	No. Nests <small>use codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant		R	16 seen roosting, mostly immatures
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle	None	2	
Black Oystercatcher	E 5	10	
Glaucous Gull			
Glaucous-winged Gull	X	C 152	Nests present, but no eggs yet. Data qual. = III.
Mew Gull			
Black-legged Kittiwake			
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			Saw 24 birds on rocks or on adjacent water. Est. probably low if assume 1/2 birds on nests and some off feeding and all guillemots are breeders. Data quality = III.
Pigeon Guillemot	E 20	C 24	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
N. W. Crow		3	

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99502

Area No. 009 003

Outer Rocks
Description of Colony

June 8, 1981

Access Rocks best seen by small boat. Possible to jump-off in fairly calm seas.

Vegetation & Physiographic Characteristics Seabirds nest on the three largest rocks. The rocks are almost completely bare but have some grassy vegetation. The largest is 32 ft. high, another 27 ft. high. See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. River otter may be present or visit from time to time.

Marine Mammals _____

Census Methods & Data Status Circled rocks in small boat.

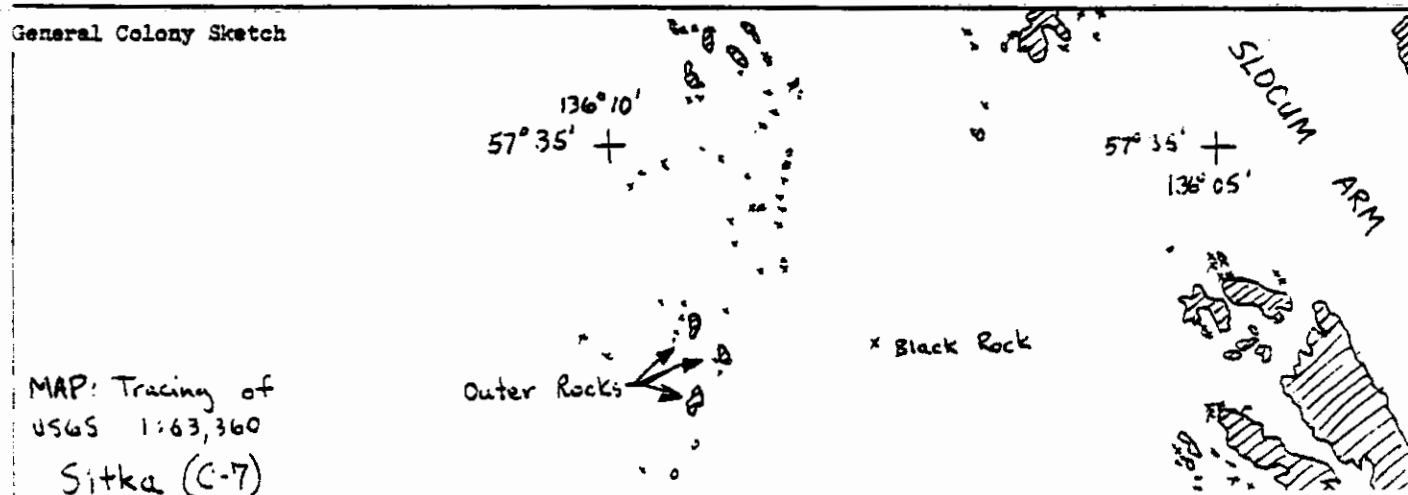
Sample Plots Established None

Photo Coverage Color slides taken. B. & W.'s?

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 004
to be assigned by office

Colony Name Khaz Point Field No. e Observer(s) Schempf, Nysewander, Sowls
Map Sitka (C-7) Lat. 57°30' Long. 136°01'40" Time 20:00 Date June 7, 1981

Species	No. Nests <small>use codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	C 2	C 15	It may be too early in nesting season to get maximum nesting effort.
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle		X	Common nesting in general area.
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	P	P	Pigeon Guillemots are in the general area and probably nest in low numbers in the general area.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
<u>Peregrine Falcon</u>	<u>?</u>	<u>2</u>	

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

AREA NO. 009 004

Khaz Point
Description of Colony

June 7, 1981

Access Colony best viewed by small boat.

Vegetation & Physiographic Characteristics Small island with low cliffs of about 30 ft.

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status Viewed colony from 17' Boston Whaler. Nests not easy to see.

Sample Plots Established _____

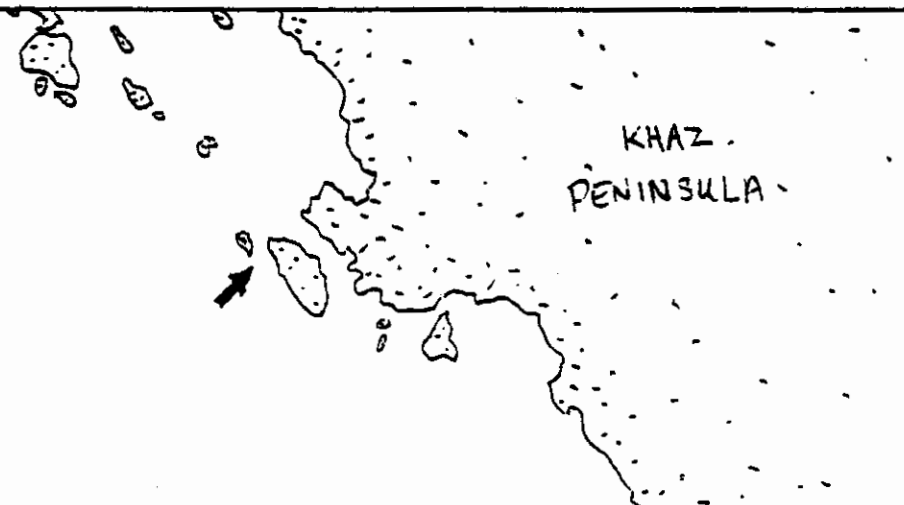
Photo Coverage _____

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
1:40,000
nautical chart
#17322





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 005

to be assigned by office

Nysewander, Schempf & Sows - 6/6

Nelson, ", Trapp & Sows -6/23-25

Colony Name Sealion Islands Field No. "c" Observer(s) Nelson, ", Trapp & Sows

Map Sirka (B-6) Lat. 57°17' Long. 153°53' Time _____ Date June 6&23-25, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel	X	X	See Attached Sheets.: 6200 birds est.)
Leach's Storm Petrel	X	X	See Attached Sheets.: 1800 birds est.)
Cormorant			
Double-crested Cormorant			96 roosting - June 7; 40 roosting - June 23; 53 roosting - June 25. While no nesting this year, possible site in other years.
Pelagic Cormorant	none	R	
Red-faced Cormorant			
Harlequin Duck			
Common Eider			Pair of adults and 3 immatures seen. Active nest with one egg 30 ft. up in small spruce tree. Also 2 inactive nests seen.
Bald Eagle	C 1		
Black Oystercatcher	E 3	C 5	
Glaucous Gull			One nest with 2 large downy chicks found @ N. end of "east island".
Glaucous-winged Gull	E 122		
Mew Gull			See Attached Sheet.
Black-legged Kittiwake	C 41		See Attached Sheet.
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			16 birds sitting on "west island" and 16 more on adjacent water @06:30 June 25th. On June 23rd survey * 10 seen on water. On June 6th survey only 7 ob- served. All dates too early to detect breeding.
Common Murre	?	C 32	
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 150	C 168	See Attached Sheets.
Ancient Murrelet	E 100		" " "
Cassin's Auklet			
Parakeet Auklet	?	C 2	A pair seen @ N.W. corner of "east island" @ 0600 June 25th.
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet	E 50+		See Attached Sheets.
Horned Puffin	E 10+	C 11	See Attached Sheets.
Tufted Puffin	E 200+	C 240	See Attached Sheets.
Herring Gull		X	One adult & one immature identified.
N.W. Crow	Several	X	
Common Raven		1-2	
Fox Sparrow	X	X	Peregrine Falcon - none breeding here, but common on Kruzof Is. One seen flying by island early in morning of June 25th.
Winter Wren	X	X	
Tree Swallow		1	

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

¹² Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Sealion Island
Description of Colony

AREA NO. 009 005

June 7 & 23-25, 1981

Access No good landing locations on islands. Our base camp was at S. end of Sealion Cove on Kruzof Is., which was nice, but level beach could make long haul if landing at low tide.

Vegetation & Physiographic Characteristics Sealion Islands are off the N.W. side of Kruzof Is. We labeled the rocks and islands as indicated on the map below. "East Is." appears like a half sphere and is the only one with spruce trees. "West Is." has considerable vegetation also. See attached storm-petrel plot summary for more vegetation information. "Outer and inner rocks" are almost completely bare rock. See photos.

Human Activity Small commercial fishing boats could be seen @ Pt. Amelia. No sign of any human activity on Sealion Islands.

Mammalian Predators, Livestock, etc. Perhaps occasional river otter predation.

Marine Mammals Despite the name, we saw no sealions here during the entire survey. Our maximum count of harbor seals was on June 23rd - "inner rock" = 16 "east and west island" = 51 total.

Census Methods & Data Status Islands were circled by small boat June 7, 23-25. Sample plots were done on "east island" - see attached storm-petrel sheets. On the night of June 24-25, the four of us spread out over "east island" to look and listen for nocturnals.

Sample Plots Established See attached storm-petrel sheets.

Photo Coverage B&W's and color slides taken. Also aerial B&W's and color slides from July 1981 flight.

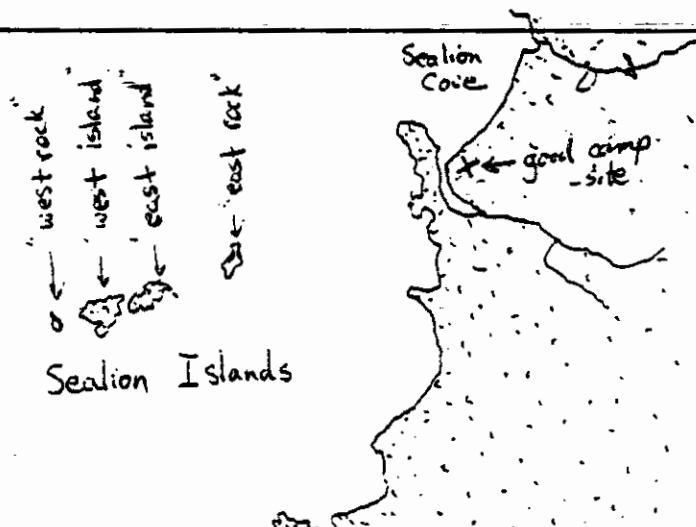
Overall Evaluation of Colony Colony has high species diversity and large numbers of birds. Valuable location to monitor storm-petrels through sample plots. Comparison with St.

Lazaria densities would be interesting over time. Since Sealion Islands is southeastern most known Kittiwake colony, it may be useful to monitor this area for changes in breeding ranges of kittiwakes.

Supplemental Material & Data Attached (list)

General Colony Sketch

MAP: Tracing of
1:63,360
Sitka (B-6)



Also see attached map.

Sealion Islands (009 005) June 23-15, 1981 cont.

Storm-Petrels

We counted burrows on 30 sample plots on the east island. We began at the west end and headed 74° magnetic. Plots of 2m x 2m were done on alternating sides of the transect line every ten meters. Therefore, there were 8 m between plots (see Figure 1). Plots #1-9 were in grass-umbel-fern meadows. Plots #10-30 were in spruce-forest canopy-open. At plot #17 we changed course to 0° magnetic.

We attempted to determine contents of burrows on some of the plots by carefully reaching into them, pulling out chicks and adults for identification, and then carefully returning them to their burrows. Many burrows were too deep, curved, or around root system in such a way as not to be reachable without destroying them; so they were listed as unreachable. A table of all our plot data is attached.

In summary:

Total plots checked . . . . .	.30
Total m ² checked. . . . .	.120
Total # burrow found. . . . .	.109
Total burrows/m ². . . . .	.0.9
Total burrows checked (11 plots). . . . .	.46
Total burrows able to reach . . . . .	.33
Number occupied . . . . .	.10
Number with LESP. . . . .	.2
Number with FTSP. . . . .	.7
Number with unknown petrels . . . . .	.1
Total occupied burrows/m ² . . . . .	.0.27

In addition to our sample plots we spent the night of 24-25 June on the "east" Island. We spread out over nearly the entire island to listen for calls and get some suggestive impressions of the storm-petrel numbers.

While our plot data indicated a density of about 1/12th that of St. Lazaria (0.27/m² vs. 3.01), our visual observation suggest that storm-petrels are at least 1/4 to 1/3 as abundant on Sealion Islands as on St. Lazaria. Fork-tailed appear to outnumber Leach's Storm-Petrels. Our population estimates are based on an estimate of the area of Storm-Petrel habitat of 21,107 m² or 2.1 ha x 0.06/m² active burrows of Leach's Storm-Petrels and 0.21/m² active burrows of Fork-tailed Storm-Petrels. The Storm-Petrel habitat was derived by use of an electronic planimeter on color aerial photographs. The population estimate of each species is as follows: 2,600 Leach's Storm-Petrels and 9,000 Fork-tailed Storm-Petrel.

Glaucous-winged Gull

Our estimates of nests are: 8 on "inner rock", 40 on "outer rock" and 74 on "west island" are from Nysewander and Sows survey of 7 June. These are probably also minimum numbers.

During our 23 June survey we distinguished ratios of adult/immatures. We had 16 adults on "inner rock"; 98 adults and 56 immatures on "east and west islands" and 86 adults and 128 immatures on "outer rock". It is conceivable that Herring Gulls may interbreed with Glaucous-winged Gull here in some extent.

Black-legged Kittiwake

Our discovery of kittiwake nests here represents a breeding range extension. During our 1981 surveys we found several unreported kittiwake colonies of which this was the one furthest south. Since nests are relatively easy to count here and since it is at the edge of the species present breeding range, monitoring kittiwakes here may be of particular interest.

We counted 26 nests scattered along the outside edge of the outer rock and 15 nests on the outside edge of the West Island during our circumnavigation 23 June. The Nysewander and Sows count on 7 June was 30 nests on the outer rock and 18 nest on west island. We believe the 23 June counts are better.

The large number of roosting immature birds was surprising. On 7 June, 375+ kittiwakes were counted, almost all appear to be immatures. On 23 June we estimated 6,400 immature kittiwakes either on outer rock, the west end of West rock, or on the adjacent water.

Pigeon Guillemots

Guillemot estimates were based on birds seen during three circumnavigations of the islands. Previous experience indicated that early morning hours are the best to observe large number of guillemots. This proved to be the case for our circumnavigations of Sealion Islands.

<u>Date</u>	<u>Time</u>	<u>No. PIGU</u>
7 June	16:30	5
23 June	13:20-17:20	67
25 June	06:00	168

Ancient Murrelet

Ancient Murrelets are the earliest fledging seabirds that nest in southeastern Alaska. Fledging is probably from late May to early July with the peak probably in early June based on DeGange data for Forrester Island (001 002). Our survey date was likely well past peak Ancient Murrelet activity.

During our 7 June survey we were able to circle the islands by boat, but spent no time on land. We saw two Ancient Murrelets on the water just south of the islands.

While conducting our storm-petrel plots we found no murrelets. Our estimate, which is highly speculative, is based on calls we heard at night and the sounds of birds landing and taking off from east island.

Trapp heard 25-30 calls at the east end of the island between 0230 and 0330. All were coming from a steeply vegetated hillside. Nysewander heard a few calls by the rocks at the west end and chased a couple from the rocks.

Rhinoceros Auklets

Rhinoceros Auklets were seen late in the evening (2300) of 24 June and early in the morning of 25 June flying in small flocks and rafted on water adjacent to the colony. Sixteen was the largest number we saw at any one time. SOWLS saw one land at approximately 0300 on a steep grassy slope on the south side of "east island".

Our estimate could be very low. They may be as common or even more abundant than Tufted Puffins.

Tufted Puffins

Puffins appear to be using "west island" exclusively except for a steep broken cliff area on the S.E. side of "east island". Our Tufted Puffin estimate is probably much better than the Horned Puffin estimate which may be quite low.

Estimate of puffins at Sealion Islnds was strictly from birds seen and shows how easily puffins can be underestimated due to attendance patterns. On the 6 June survey, @ 16:30, 15 Tufted and 2 Horned Puffins were seen. On the circumnavigation of 23 June, 12-17 Tufted and 2-4 Horned Puffins were seen. On the circumnavigation of 25 June, 40 Tufted and 11 Horned Puffins were counted. On 24 June we were able to count from positions on the north and south side of east island 240 Tufted Puffins at one time. It was late evening and they were rafted on the water within a few hundred yards of shore.

STORM-PETREL SAMPLE PLOT SUMMARY

See Lion Island - June 24, 1981

Plot No.	Dominant Vegetation	Leach's		Fork-Tailed		Empty	Can't Reach	Total Burrows	Banana Slugs
		Egg	Chick	Adult	Egg					Chick	Adult
1	75% u, 25% ee							0	9
2	30% s, 40% f, 30% ee							5	3
3	95% u, 5% e							0	15
4	80% s, 10% c, 10% e							2	50
5	50% u, 50% c							0	25
6	95% c, 5% u							0	23
7	100% s	0	0	0	0	1	1	3	40
8	100% s							5	37
9	95% f, 5% s							4	19
10	70% f, 30% s							5	16
11	20% s, 10% f, 70% b	0	0	1	0	0	1	7	10
12	100% f							8	31
13	60% m, 20% f, 10% s							11	19
14	20% s, 10% f, 70% b							6 ¹	10
15	70% s, 30% s	1	0	0	0	1	5	8	34
16	95% f, 5% s							5	26
17	100% s							5	23
18	70% e, 20% s, 10% f							1	18
19	15% f, 85% b							9	8
20	10% s, 10% f, 80% b	0	0	0	0	1	0	0	6
21	30% f, 10% E	0	0	0	0	0	1	1	14
22	25% s, 30% E							4	2
23	50% s, 50% b	0	0	0	0	1	0	4	15
24	30% s, 5% u, 65% b							0	23
25	100% s	0	0	0	0	0	0	1	20
26	100% s	0	0	0	0	1	2	6	no data
27	100% s	0	0	0	0	0	1	3	"
28	40% s, 60% b	0	0	0	0	0	0	0	"
29	30% s, 20% f	0	0	0	0	0	0	2	"
30	80% s, 20% f	0	0	0	0	1	2	4	"
TOTAL		1	0	1	0	6	13	109	496

¹ One burrow with unidentified storm-petrel egg.

- b = bare ground
- c = Calamagrostis (grasses)
- E = Sambucus callicarpa (Pacific Red Elder)
- e = Elymus spp.
- f = ferns
- m = Malanthemum dilatatum (False Lily-of-the-Valley)
- s = Picea sitchensis (Sitka Spruce)
- s = Rubus spectabilis (Salmonberry)
- ee = sedge
- u = Umbelliferae spp.

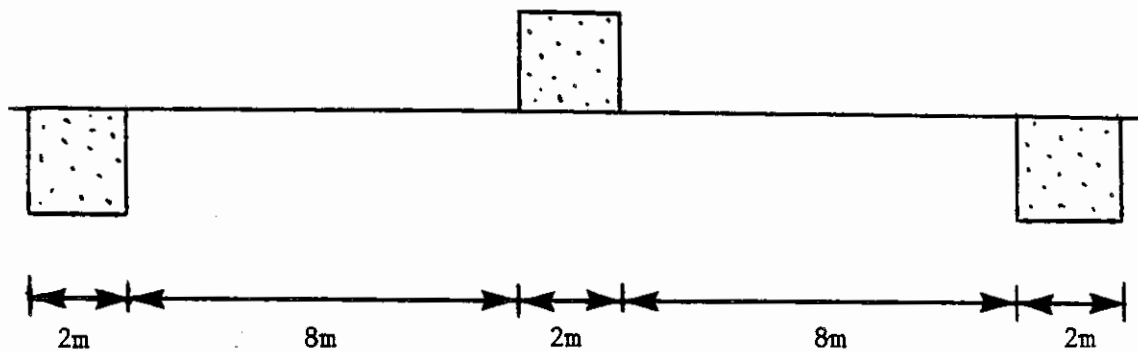
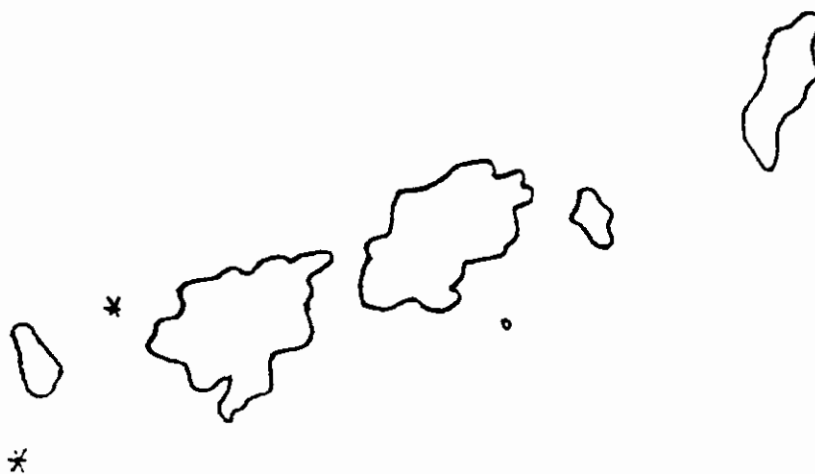


Figure 1. 2m x 2m sample plots were set up alternately 8m apart along the transect line.



MAP 1: Sealion Islands map enlarged from nautical chart.



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 009 cc6

to be assigned by office

Colony Name Pt. Amelia Field No. d Observer(s) Nysewander, Schempf, Sows

Map Sitka (A-6) Lat 57° 13' 20" Long. 135° 52' Time 14:15 Date June 7, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Pork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			Nests on steep 600 ft. cliff, impossible to get accurate count from boat. Est. based on nests counted and numbers of birds seen. Birds seen carrying nesting material. Data qual. = III.
Double-crested Cormorant			
Pelagic Cormorant	<u>E 260+</u>	<u>E 400</u>	
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			
<u>Peregrine Falcon</u>	<u>P</u>	<u>1</u>	<u>One adult seen.</u>
<u>N. W. Crow</u>		<u>1</u>	

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

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

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Area No. 009 006

Pt. Amelia
Description of Colony

June 7, 1981

Access Colony can be seen so-so from small boat. May be able through rough hike to view from adjacent cliffs?

Vegetation & Physiographic Characteristics Cormorants are on steep cliff of about 600 ft. high. Most nests appear to be on west side of ravine, but are probably on both sides. Some vegetation mixed in cliff area. See photos.

Human Activity Commercial fishing boats offshore.

Mammalian Predators, Livestock, etc. Cliffs probably too steep.

Marine Mammals The blows of three small whale seen in bay. Nysewander thought they were minke whales.

Census Methods & Data Status Counted nests visible and adjusted upward for large number of adults seen when Schempf fired cracker shell to check for Peregrines. Cormorants should not have laid yet; so disturbance minor.

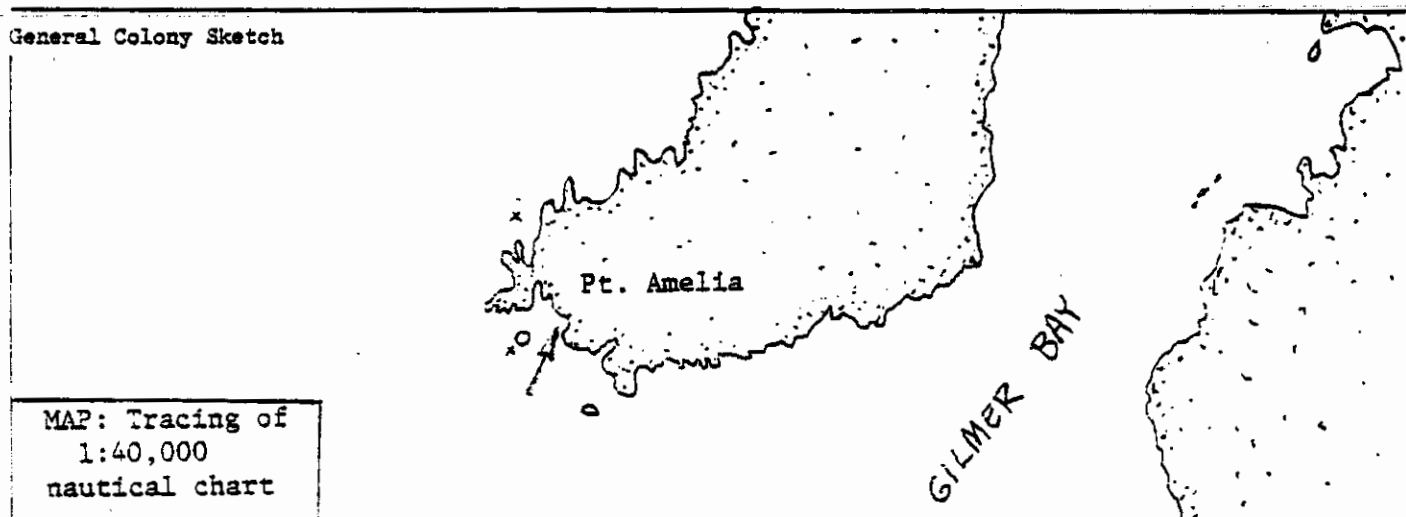
Sample Plots Established None

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony One of a few large cormorant colonies we saw in 1981 in S.E. Alaska.

Supplemental Material & Data Attached (list)

General Colony Sketch



MAP: Tracing of
1:40,000
nautical chart



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 001
to be assigned by office

Colony Name Astrolabe Peninsula Field No. _____ Observer(s) Hodges, Schempf and Sowls
Map Mt. Fairweather (B-3) Lat. 58°22' Long. 136°54' Time 16:30 Date June 9, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar	_____	_____	_____
Fork-tailed Storm Petrel	_____	_____	_____
Leach's Storm Petrel	_____	_____	_____
Cormorant	_____	_____	_____
Double-crested Cormorant	_____	_____	_____
Pelagic Cormorant	<u>C 5</u>	<u>C 16</u>	} Survey date may be somewhat early to get maximum cormorant nesting effort.
Red-faced Cormorant	_____	_____	
Harlequin Duck	_____	_____	_____
Common Eider	_____	_____	_____
Bald Eagle	_____	_____	_____
Black Oystercatcher	<u>P</u>	<u>C 2</u>	_____
Glaucous Gull	_____	_____	_____
Glaucous-winged Gull	<u>E 9-10</u>	<u>C 18</u>	_____
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	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

AREA NO. 010 001

Astrolabe Peninsula
Description of Colony

June 9, 1981

Access Colony is in Glacier Bay Nat. Park - check with N.P.S. for current regulations.
Colony best viewed by small boat.

Vegetation & Physiographic Characteristics Birds nesting on small rock pinnacle right up
next to the peninsula.

Human Activity

Mammalian Predators, Livestock, etc.

Marine Mammals

Census Methods & Data Status Went by colony in small boat. Survey date probably a
little early to get maximum nesting effort.

Sample Plots Established

Photo Coverage

Overall Evaluation of Colony

Supplemental Material & Data Attached (list)

General Colony Sketch

MAP: Tracing
of 1:40,000
nautical chart
#17301

see
010 002

010 001
↓
?



ASTROLABE PENINSULA



Colony Status Record

U.S. Fish & Wildlife Service

Area Number

010 002

to be assigned by office

Colony Name Boussole Head Field No. _____ Observer(s) Nysewander, Schempf, Sowls

Map Mt. Fairweather (B-3) Lat. 58° 23' Long. 136° 55' Time 16:00 Date June 9, 1981

Species	No. Nests	No. Birds	Remarks (estimated minimum & maximum, egg & chick status, etc.)
	use codes below ¹		
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant	C 42		There are probably more cormorant nests than we counted
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher			
Glaucous Gull			
Glaucous-winged Gull	E 10		
Mew Gull			
Black-legged Kittiwake	C 367	C 676	Count probably low.
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			Our survey was too early in the year to census murre. Sam Patten reported 46 here in 1974.
Common Murre		None	
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot			
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin	P	P	None observed. Patten reported Horned Puffins here in 1974. Horned Puffins are easily missed during quick surveys because of their attendance patterns. Sam Patten Est of 80 birds in 1974 is probably better. Censusing puffins in this type of habitat so briefly is likely to grossly underestimate.
Tufted Puffin	E 25+	C 26	

Peregrine Falcon	P	1	Adult seen flying over cliffs, lots of good nest sites

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present, pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Boussole Head
Description of Colony

AREA NO. 010 002

June 9, 1981

Access Colony in Glacier Bay National Park - check current regulations.
Colony can be seen well only from small boat.

Vegetation & Physiographic Characteristics _____

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals _____

Census Methods & Data Status We went along the shoreline in a 17 foot Boston Whaler and made counts with binoculars. No significant differences compared to Patten 1974 survey could be detected.

Sample Plots Established None

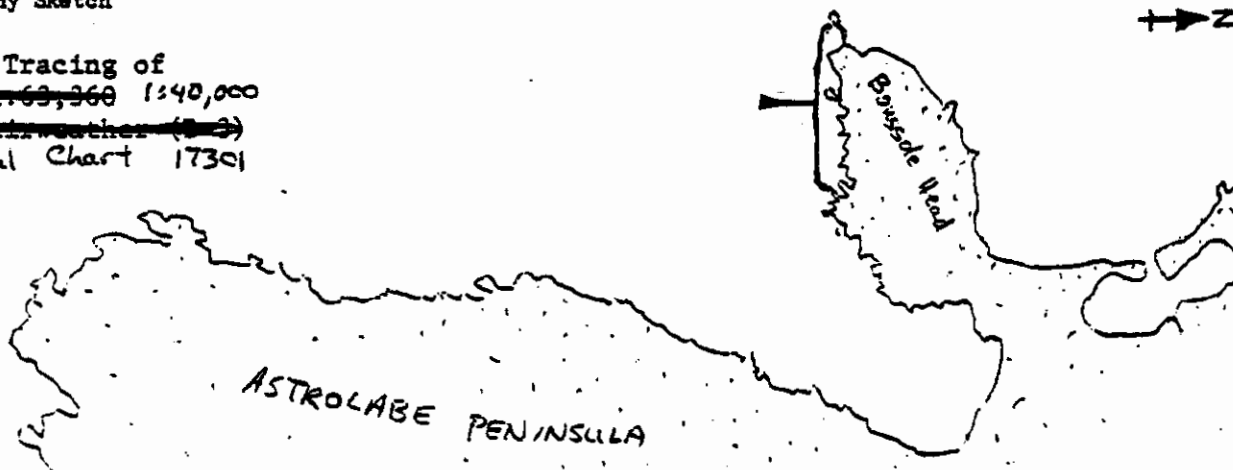
Photo Coverage Color slides and B&W's taken

Overall Evaluation of Colony SEE: A Marine Bird Survey of the Dixon Harbor Area, Glacier Bay National Monument, Gustavus, Alaska. Summer 1974. (1975) published by National Park Service, Juneau, Alaska in Dixon Harbor Biological Survey, by Streveler, Worley et. al.

Supplemental Material & Data Attached (list) _____

General Colony Sketch

MAP: Tracing of
~~USCG 1769, 260~~ 1:40,000
~~Mt. Fairweather (3-3)~~
Nautical Chart 17301



Area No. 010 012

Yakobi Rock
Description of Colony

June 9, 1981

Access Small boat is best way to view rock.

Vegetation & Physiographic Characteristics Low bare small rock, 15 ft. high. See photos.
Relatively few crevices and no vegetation observed.

Human Activity Fishing boat in general area.

Mammalian Predators, Livestock, etc. River otter probably in general area, but may
not be able to predate on this rock?

Marine Mammals Sea otter common to the south of Cape Bingham

Census Methods & Data Status Circled rock twice. Two observers made independent counts.

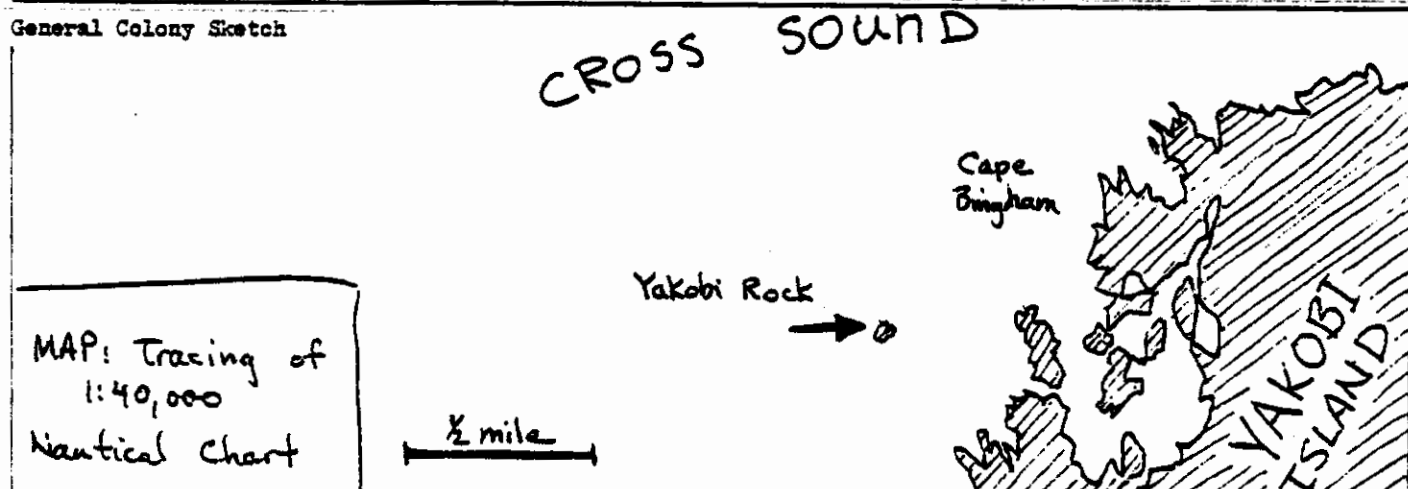
Sample Plots Established None

Photo Coverage B & W's and color slides taken

Overall Evaluation of Colony

Supplemental Material & Data Attached (list)

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 013
to be assigned by office

Colony Name Graves Rocks Field No. b Observer(s) Nysewander, Schempf, SOWLS
Map Mt. Fairweather (A-3) Lat. 58° 15' Long. 136° 45' Time 08:15-
B-3 Date June 10, 1981

Species	No. Nests <small>use codes below</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			A chick 1-2 weeks old found and feathers left from eagle or other predation. Guess low hundreds to 1,000 Fork-tailed present. Only petrel burrows found were on the northern forested island in the interior forested area at the base and near the root systems.
Fork-tailed Storm Petrel	X	X	
Leach's Storm Petrel		P	
Cormorant			
Double-crested Cormorant			One kill remains appeared to be of a Leach's.
Pelagic Cormorant	None	R	
Red-faced Cormorant			2 seen roosting.
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher	E 25	C 56	
Glaucous Gull			Many nests found with eggs - no chicks seen. Data qual. = III.
Glaucous-winged Gull	E 300	C 610	
Mew Gull			
Black-legged Kittiwake	None		
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 30	C 44	Possibly part of a wing found that was likely a
Ancient Murrelet	?	?	
Cassin's Auklet			otter kill on main forested island.
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			
Harbor Seal		7	

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

¹² Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Graves Rocks
Description of Colony

Area No. 010 013

June 10, 1981

Access Graves Rocks are in Glacier Bay National Park - check with N.P.S. regulations
Rocks easy to jump off on from small boat.

Vegetation & Physiographic Characteristics See photos. Large inner island has spruce trees,
other rock are bare or have shallow soil with grassy -

Human Activity _____

Mammalian Predators, Livestock, etc. River otter seen on the southern vegetation rock. Gulls
seem to be doing fine there, perhaps the otter hasn't had time to consume many
eggs and chicks or prefers fish? Old otter sign seen on main forested island.

Marine Mammals Counted 7 Harbor Seals. No sea otter seen north of Cape Spencer.

Census Methods & Data Status Circled rocks in 17 ft. Boston Whaler. Sows spent about 1/2
hour on each of vegetated smaller rocks and Nysewander spent about an hour on
the large wooded island. It would be necessary to spend night on rock to be sure
of all nocturnal species present and to get a good population estimate.

Sample Plots Established _____

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony The presents of Fork-tailed Storm-Petrels and so many Black
Oystercatchers exciting! These rocks need further surveying and suggests
that other rocks and island in area may have nocturnals. Libby should be
checked. Sugarloaf is connected and probably not likely to have birds.

Supplemental Material & Data Attached (list) _____

<p>General Colony Sketch</p> <p><u>North Rock + Main Forested Island and misc. small near-by rocks:</u></p> <p>Common Raven 4 Bald Eagle 3 G.W. Gull 164 Black Oystercatcher 37 FTSP x Pigeon Guillemots 18</p>	<p><u>3rd outer rock to South:</u></p> <p>G.W. Gull 208 P. Guillemots 12 Harbor Seal 1 River Otter 1</p>	
<p><u>2nd Outer Rock to South:</u></p> <p>G.W. Gull 178 P. Guillemots 29 B. Oystercatcher 14 Nw. Crow 1</p>	<p><u>Outer Small Rocks:</u></p> <p>B. Oystercatcher 5 G.W. Gull 60 Bald Eagle 1 P. Cormorant 2 Harbor Seal 6</p>	

Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 014
to be assigned by office

Colony Name Sugarloaf Is. Field No. a Observer(s) Nysewander, Schempf, Sowls
Map Mr. Fairweather (B-3) Lat. 58° 19' Long. 136° 52' Time 17:00 Date June 9, 1981

Species	No. Nests <small>use codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
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	E 1	2	No active nests or roosting birds this year, but 20 or so remains of what must have been last years nests on cliff face @ outside bay on Sugarloaf Island - see map. We are unsure if these are cormorant or Kittiwake nests. Cormorant move nesting locations often, so birds likely to be found here in future.
Glaucous Gull			
Glaucous-winged Gull			
Mew Gull			
Black-legged Kittiwake	?		
Red-legged Kittiwake			on offshore small rock.
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			
Peregrine Falcon	1	2	Birds seen flying about and acting territorial.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Area No. 010 014

Sugarloaf Island
Description of Colony

June 9, 1981

Access Cliff of colony location can be viewed well from small boat. Check N.P.S. regulation. Sugarloaf could easily be landed on @ E. side.

Vegetation & Physiographic Characteristics Sugarloaf Island was not an island when we visited it - a gravel bar connected it with the mainland. Therefore, nocturnals are unlikely to be present due to predators. Island is covered with trees and has habitat similar to where petrels were found on Graves Rocks a small distance to the south.

Human Activity _____

Mammalian Predators, Livestock, etc. _____

Marine Mammals Harbor seals in general area.

Census Methods & Data Status Went along island in small boat.

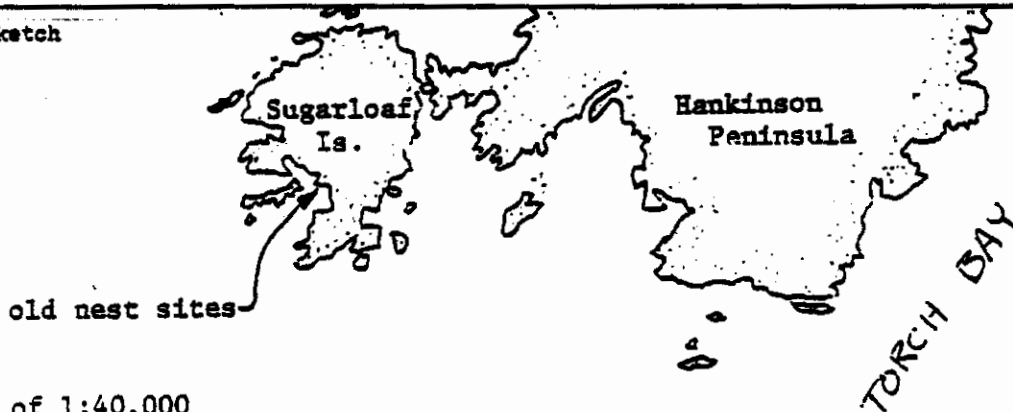
Sample Plots Established none

Photo Coverage Color slides and B & W's taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch



MAP: Tracing of 1:40,000
nautical chart.



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 015
to be assigned by office

Colony Name "Althorp Rock" Field No. "e" Observer(s) Nysewander & Sows

Map Mr. Fairweather (A-2) Lat. 58°8'20" Long. 136°25'10" Time 13:30 Date June 10, 1981

Species	No. Nests <small>use codes below ¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel		?	} <u>Appear to be suitable habitat on soil covered top of island. No sign seen on brief landing.</u>
Leach's Storm Petrel		?	
Cormorant			
Double-crested Cormorant		R	<u>2 Seen roosting.</u>
Pelagic Cormorant			
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher	E 3		<u>Saw 5 birds. Birds territorial. Data qual. = II.</u>
Glaucous Gull			
Glaucous-winged Gull	E 17		
Mew Gull			
Black-legged Kittiwake	E 90		<u>Data qual. = II. Counted 89 nests.</u>
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			} <u>Counted 15 birds on adjacent water or by rock crevices. Data qual. = III.</u>
Pigeon Guillemot	E 10		
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet		?	
Horned Puffin	E 10+		} <u>Data qual. = III. Saw 7 birds using crevices. Data qual. = III. Saw 4 or 5 birds circling rock and flying in and out of rock.</u>
Tufted Puffin	E 5+		
Sea Otter		5	<u>in adjacent kelp</u>
Harbor Seals		17	<u>on intertidal rocks on east side</u>

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road

Area No. 010 C15

"Althrop Rock"
Description of Colony

June 10, 1981

Access Cliffs can be viewed well from small boat. One can climb up onto top from south side. Heavy kelp around rock.

Vegetation & Physiographic Characteristics Seastack with approximately 100 ft. cliffs on all sides. Top of island relatively flat and covered with thick vegetation of grass, salmon berry, Angelica. Soil deep enough for burrows. Cliffs have lots of crevices.

Human Activity _____

Mammalian Predators, Livestock, etc. River Otter trails seen on top and creature assumed to be otter heard in vegetation. One otter scat observed had only fish remains in it.

Marine Mammals Sea Otters (5) seen in heavy kelp around rock. Harbor Seals (17) hauled out on intertidal rocks at east side of rock.

Census Methods & Data Status Counted kittiwakes, gulls, puffins and guillemots from small boat while slowly circling rock. SOWLS jumped out onto rock for about 1/2 hour to look for nocturnals - A couple of puffin size burrows were found. Island should have more intensive survey and spending a night on it is probably the

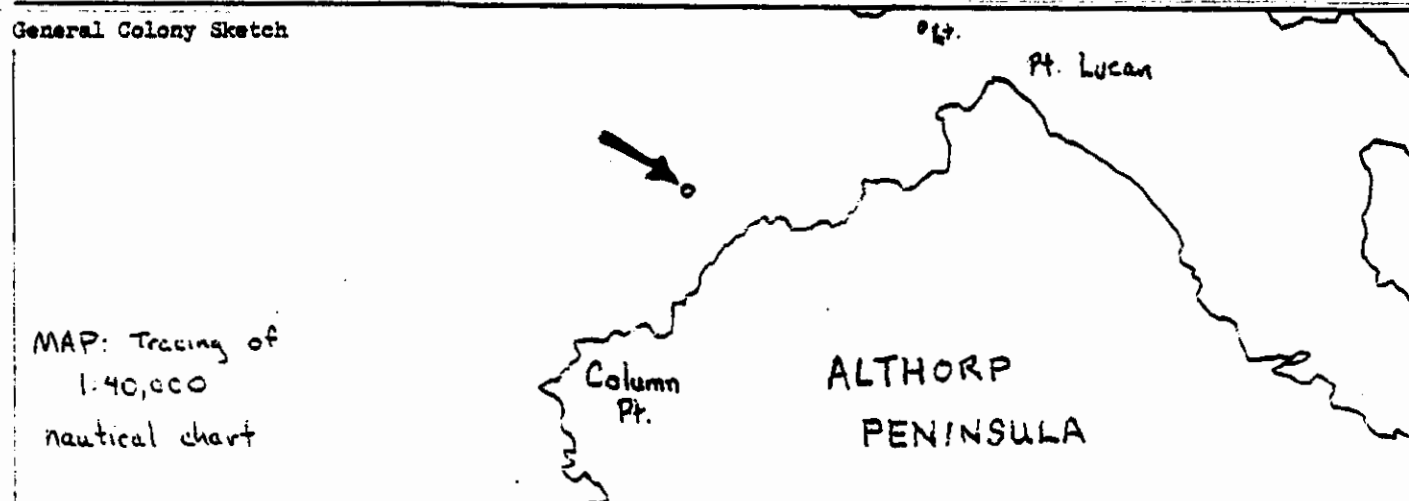
Sample Plots Established only way to be certain about nocturnals.

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch





Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 016

to be assigned by office

Colony Name Cape Spencer Rocks Field No. d Observer(s) Nysewander, Schempf, Sowls

Map Mr. Fairweather (A-2) Lat. 58° 12' Long. 136° 37' Time 10:30 Date June 10, 1981

Species	No. Nests <small>use codes below¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel	?		
Leach's Storm Petrel	?		
Cormorant			
Double-crested Cormorant			All nests on rock "B". Data qual. = III. At "B" 99 cormorants present. A few more cormorants in general area
Pelagic Cormorant	C 65		
Red-faced Cormorant			
Harlequin Duck			
Common Eider			2 immatures & adult roosting on "C". Nests probably in general area.
Bald Eagle	P		
Black Oystercatcher	E 6+		1 @ rock "B"; 10 @ rock "C". Data qual. = III more probably in general area.
Glaucous Gull			
Glaucous-winged Gull	E 140	278	78 birds on rock "A"; 2 on rock "B"; and 198 on rock "C". Data qual. = III.
Mew Gull			
Black-legged Kittiwake	C 120	C 220+	Kittiwakes found only @ "C". Productivity this year appears low. Nests observed had 12 w/ no eggs; 1 w/ 2 eggs and 2 predated.
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 20+		2 @ rock "B", 26 @ "C" and a few seen scattered in general area. Data qual. = III.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin	E 2+		2 birds seen flying by rock "C". A dead bird found on "C" by burrow. Birds did not appear in as bright of breeding plumage as elsewhere. Data qual. = III.
Sea Otter		2	Observed by rock "C"
Harbor Seals		16+	Observed by rock "C"

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X. C = count, E = estimate, P = probably present (state reason under remarks), X = present pr w pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99501

Cape Spencer Rocks
Description of Colony

Area No. 010 017

June 10, 1981

Access Rocks part of Glacier Bay National Park - check N.P.S. regulations. Only practical way to view colonies is by small boat

Vegetation & Physiographic Characteristics Many small rocks are at Cape Spencer. Several are wooded, several bare and several awash. Rocks with birds nesting are (see map) "A", a small bare rock with GWGU nesting, "B" a larger rock with - 100 ft. cliffs, and grassy vegetation above and lighthouse present. Rock "C" has thick grassy vegetation and some small cliffs.

Human Activity Lighthouse with fog horn on rock "B" just above cliffs where cormorants are nesting.

Mammalian Predators, Livestock, etc. River otter sign seen on rock "C".

Marine Mammals 2 sea otters seen by rock "C"; and 16 harbor seals. More probably in general area.

Census Methods & Data Status Circled around major rocks in 17 ft. Boston Whaler. Two people landed briefly on rock "C" to look for nocturnals, burrows, and to check on chronology of kittiwakes and gulls

Sample Plots Established

Photo Coverage R & W's and color slides taken.

Overall Evaluation of Colony

Supplemental Material & Data Attached (list)

General Colony Sketch



MAP: Tracing of
1:40,000
nautical chart



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 017

to be assigned by office

Colony Name "Taylor Islet" Field No. f Observer(s) Nysewander, Sowls

Map Mt. Fairweather (B-2) Lat. 58°17'20" Long. 136°30' Time 16:30 Date June 10, 1981

Species	No. Nests <small>use codes below ¹²</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant			
Red-faced Cormorant			
Harlequin Duck		10	Seen along W. side Taylor Island.
Common Eider			Eagles common general area. No nests on "Taylor Islets" but probably present on Taylor Island.
Bald Eagle		x	
Black Oystercatcher	E 2	C 4	
Glaucous Gull			Nests probably not @ "Taylor Islet" but one @ S. end and possibly one @ N. end of Taylor Island on offshore rocks.
Glaucous-winged Gull	E 15		
Mew Gull			
Black-legged Kittiwake	C 146	C 279	Nesting on cliff face. Counted 52 nests on east side, 94 nests on west side. Nests easy to count a good data quality = II. While active nest building was occurring @ Yakobi rock the previous day, nest building here appeared finished.
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			The two seen appeared to be a pair. Late afternoon probably poor time of day to count guillemots. Early morning survey might record more.
Pigeon Guillemot	E 1 ⁺	C 2	
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin	E 1	C 2	Morning survey may find more birds?
Tufted Puffin			
White-winged Scoters		106	Saw scoters in mixed flock on the water just east of Taylor Island.
Surf Scoters		20	
Harbor Seal		4	
Harbor Porpoise		3	Seen in Taylor Bay

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

¹² Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

"Taylor Islet"
Description of Colony

Area No. 010 017

June 10, 1981

Access Contact N.P.S. for current regulation. Islet is best viewed by small boat.
Sheer cliff sides would make getting on top nearly impossible

Vegetation & Physiographic Characteristics "Taylor Islet" is a narrow seastack wedge about 100 ft
high. An arch is in the south end. The top is covered by grasses, salmon berry
and other vegetation down to the cliff edge. Possible burrowing habitat, looks
like good location for Tufted Puffins.

Human Activity _____

Mammalian Predators, Livestock, etc. Islet too steep for river otter or other mammalian predators.

Marine Mammals See front of form.

Census Methods & Data Status Circled Islet is small boat. No other seabird nesting observed
along Taylor Island except possibly PIGU @ rock off south end. Habitat available
for cormorants to nest, but none observed.

Sample Plots Established "Taylor Islet" Kittiwake counts easy to do and E. and W. side
could be used as plots for nest count, but probably little else.

Photo Coverage B&W's and color slides taken.

Overall Evaluation of Colony Aesthetic small colony ideal for Kayakers to view. Disturbance
should not be a problem here.

Supplemental Material & Data Attached (list) _____

General Colony Sketch

TAYLOR BAY

"Taylor Islet" →

See:
"E. Fern Harbor Rk."
Colony Form

MAP: Tracing of USGS
1:63,360

NORTH INDIAN PASS



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 018
to be assigned by office

Colony Name "Inian Islet" Field No. g Observer(s) Nygewander, SOWLS 16:00

Map Mt. Fairweather (R-2) Lat. 58°15'10" Long. 136°22'40" Time 16:15 Date June 10, 1981

Species	No. Nests	No. Birds	Remarks
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant		R	48 birds roosting
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			Common in general area
Black Oystercatcher	E 1	2	Pair seen, acting territorial, Data qual = II.
Glaucous Gull			
Glaucous-winged Gull	E 60	118	Data qual = III.
Mew Gull			Counted 160 nests and assume about
Black-legged Kittiwake	E 170	436	10 that can't be seen or we missed.
Red-legged Kittiwake			Data qual. = III
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre			
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot	E 1	1	Only 1 seen on adjacent water. Data qual. = III.
Ancient Murrelet			
Cassin's Auklet			
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet			
Horned Puffin			
Tufted Puffin			

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Area No. 010 C18

"Inian Islet"
Description of Colony

June 10, 1981

Access Colony can be viewed well from small boat.

Vegetation & Physiographic Characteristics small bare rock about 70 ft. high. One clump of grass in rock crevice on top.

Human Activity _____

Mammalian Predators, Livestock, etc. Probably none unless river otter were to visit

Marine Mammals _____

Census Methods & Data Status Circled rock in small boat. Observers counted independently and compared numbers.

Sample Plots Established None

Photo Coverage B & W's and color slides taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____

General Colony Sketch



MAP: Tracing
1:40,000
nautical chart



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 010 019

to be assigned by office

Colony Name "E. Fern Harbor Rock" Field No. h Observer(s) Nysewander, SOWLS

Map Mt. Fairweather (B-2) Lat. 58° 18' Long. 136° 27' Time 17:25 Date June 10, 1981

Species	No. Nests <small>use codes below ¹</small>	No. Birds	Remarks <small>(estimated minimum & maximum, egg & chick status, etc.)</small>
Northern Fulmar			
Fork-tailed Storm Petrel			
Leach's Storm Petrel			
Cormorant			
Double-crested Cormorant			
Pelagic Cormorant		R	66 immatures seen roosting
Red-faced Cormorant			
Harlequin Duck			
Common Eider			
Bald Eagle			
Black Oystercatcher		None?	
Glaucous Gull			
Glaucous-winged Gull	E 120	C 241	Data Quality = III.
Mew Gull			
Black-legged Kittiwake	E 20	E 50	Nest difficult to count since in crack between rocks. Easy to miss a nest or count some twice, so data quality = III.
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			
White-winged Scoters		X	Seen on water in general area.
Surf Scoters		X	Seen on water in general area.

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

¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under remarks), X = present
pr = pairs, b = breeding, nb = non-breeding

Regional Office
U. S. Fish & Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503

Access Check with N.P.S. for current regulations. Colony best viewed from boat.

Vegetation & Physiographic Characteristics See photos.

Human Activity _____

Mammalian Predators, Livestock, etc. Rock could be visited by river otters.

Marine Mammals None seen.

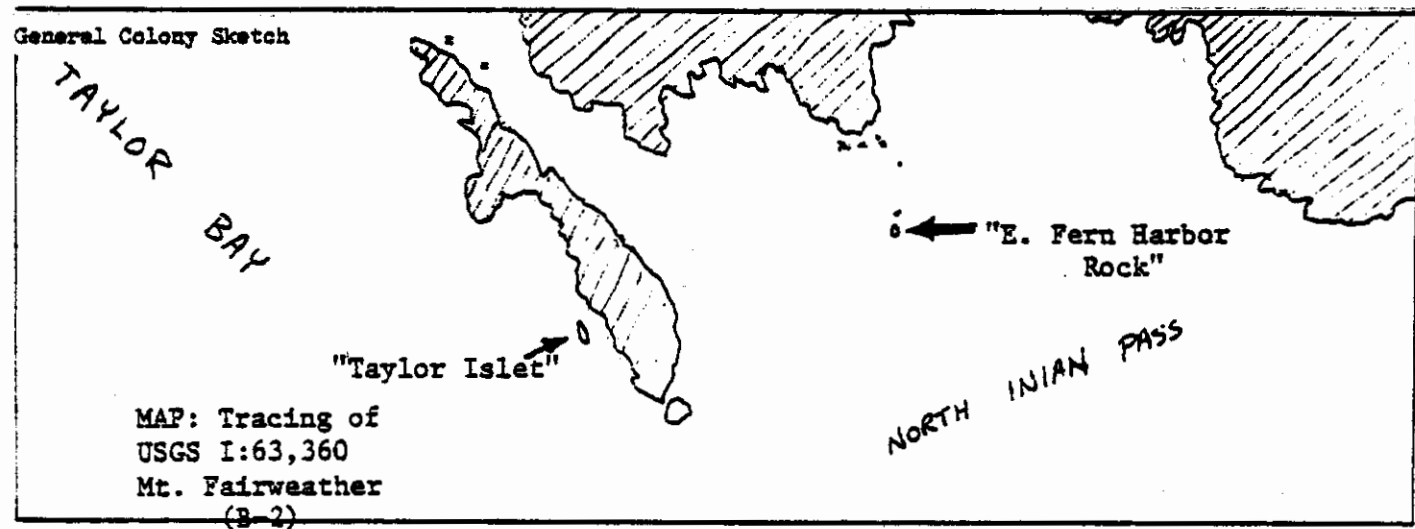
Census Methods & Data Status Circled rocks in small boat. Landing may be necessary to obtain more accurate data, if considered desirable.

Sample Plots Established None.

Photo Coverage Color slides and B&W's taken.

Overall Evaluation of Colony _____

Supplemental Material & Data Attached (list) _____



SUMMER OBSERVATIONS OF BIRDS AND MAMMALS
AT ST. LAZARIA ISLAND

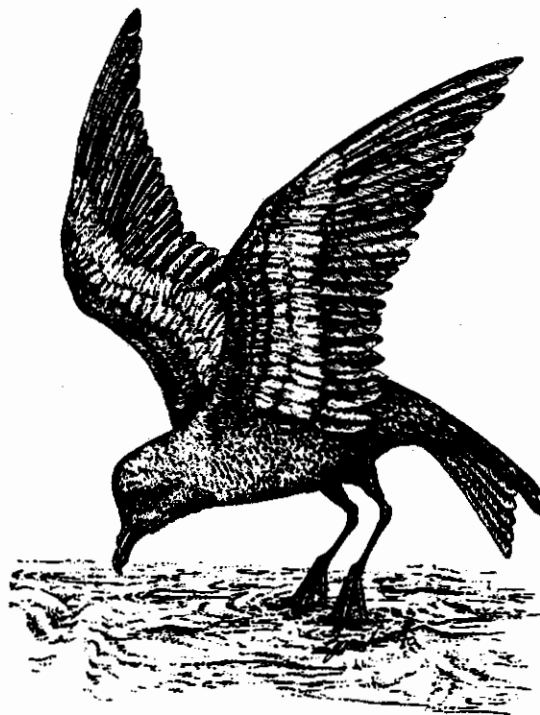
BY

Jay W. Nelson, David R. Nysewander, John L. Trapp, and Arthur L. Sows

APPENDIX B

of

MARINE BIRD AND MAMMAL SURVEY OF THE OUTER COAST
OF SOUTHEAST ALASKA, SUMMER 1981



Arthur L. Sows, David R. Nysewander, John L. Trapp, and Jay W. Nelson

U.S. Fish and Wildlife Service
Wildlife Operations
Marine Bird Management Project
1011 East Tudor Road
Anchorage, Alaska 99503

October 1982

INTRODUCTION

St. Lazaria Island is located in the Alexander Archipelago, 26 km WSW of Sitka, in southeastern Alaska (Fig. B-1). Its significance to breeding seabirds was recognized as early as the late 1800's by Grinnell (1897, 1898) and Mailliard (1898), both of whom were interested primarily in the ubiquitous storm-petrels.

In 1909 St. Lazaria was included in the National Wildlife Refuge System. The island was given additional protection in 1970 with its designation as a Wilderness Area. St. Lazaria is presently managed by the U.S. Fish and Wildlife Service as part of the Alaska Maritime National Wildlife Refuge.

Few biological investigations have been conducted on the island during the 1900's. Willett (1912) provided an annotated species list as well as population estimates for 18 species of breeding birds on the island. This paper, together with his two more general papers (1914, 1921), provides a good historical perspective for further investigations. Willett's one-month study (July-August) of bird life on St. Lazaria remains the lengthiest ornithological visit to the island. Ira N. Gabrielson (in Gabrielson and Lincoln 1959) visited the island on 21 August 1945. Edgar P. Bailey (in litt.) visited St. Lazaria on 21 May 1980 and provided the first recent population estimates for the island. His estimates differed greatly from Willett's (1912) in many cases.

The purpose of our study was to complete a thorough census of the breeding seabirds of St. Lazaria. This paper presents the results of our effort, reviews historical information on the bird life of St. Lazaria and compares historical and present breeding populations where appropriate.

DESCRIPTION OF ISLAND

St. Lazaria (56°59'N 135°42'W) is located approximately 2 km south of Kruzof Island at the entrance to Sitka Sound (Fig. B-1). The rugged volcanic island measures 23^{57 acres} ha and is approximately 1000 m long by 100-400 m wide with a maximum elevation of 60 m (Fig. B-2). The middle one-third of the island is bare volcanic rock, which is frequently wave-washed during high tides and storms. The two summits at either end of the island are densely vegetated with old-growth Sitka spruce (Picea sitchensis) and at waters edge form cliffs 6-30 m in height. The tops of the cliffs are fringed with lush grasses (Elymus arenarius, Calamagrostis sp.) and wild celery (Angelica lucida). Elderberry (Sambucus callicarpa) and especially salmonberry (Rubus spectabilis) form dense, almost impenetrable, thickets inland from the grassy perimeter and in forest openings.

Soil on the island consists of deep humus characteristic of the rain forests of southeast Alaska. A tangle of shrub and tree roots and, in open places thick grass provides stability for these soils. The frequent and heavy rains cause no visible erosion.

Remnants of a World War II observation post on the west summit and typical beach litter are the only physical evidence that man has disturbed this scenic island.

METHODS

Visits to St. Lazaria Island were made on two occasions in 1981: an initial small boat survey on 7 June (Nysewander and Sows); and a 6-day survey of the island from 16 to 21 June (Nelson, Nysewander, Sows, Trapp), during which all of our census information was gathered. A helicopter flight on 3 July was used to obtain 35 mm aerial photographs of the island.

St. Lazaria supports a diverse assemblage of marine birds; therefore, an assortment of techniques was used to census the various species:

Fork-tailed and Leach's Storm-Petrels (*Oceanodroma furcata* and *O. leucorhoa*). For these species we counted the number of burrow entrances on 89 plots along 5 transect lines (Fig. B-3a). Quadrats (2m x 2m) were established every 5 m on alternating sides of the transect lines. Vegetation in each quadrat was recorded as the percentage of ground cover by species. In every fifth quadrat (n=17), burrows were carefully examined to determine contents. From this information, we determined the mean number of active burrows by species for each vegetation type.

To analyze the quadrat data, sample plots were categorized in one of three vegetation types (Table B-1). Quadrats containing greater than 50% of a vegetation type were placed in that category. Differences in mean burrow densities in each vegetation type were tested for significance (ANOVA, Duncan's Multiple Range Test).

For our population estimate we determined the area of each habitat type with an electronic planimeter on a 1:16,582 scale color photograph. Three people independently made multiple measurements, which were averaged for each habitat area. Island populations were determined by multiplying the area of each habitat by known burrow densities. Data from the eastern summit of St. Lazaria were analyzed separately from those of the western summit. Three small vegetated pinnacles were assumed to have densities and species ratios similar to those of the nearest measured habitat.

Black Oystercatcher (*Haematopus bachmani*) and Glaucous-winged Gull (*Larus glaucescens*). These species were censused during a circumnavigation of the island, 15:00-17:00 on 18 June. An estimate of breeding pairs was based on the distribution and behavior of adult birds.

Common and Thick-billed Murres (*Uria aalge* and *U. lomvia*). A count was made 15:00-17:00 on 18 June, during a circumnavigation of St. Lazaria. All birds flying, on the water, and on the cliffs were counted separately by four observers. This count was the maximum obtained for murres on the island. Sample counts of birds on cliffs were taken at location "Y" (Fig. B-3b) to determine ratio of species; counts were made from land with 10 x 50 binoculars.

Pigeon Guillemot (Cepphus columba). This species exhibits a strong diurnal cycle of attendance at the breeding colony (Drent 1965, Lehnhausen 1980, pers. obs.). Early morning counts (06:00-08:00) of guillemots produce much higher numbers than counts later in the day. Our highest count was made during a circumnavigation of the island. We adjusted our population estimate upward from the highest count to allow for incubating or feeding birds (K. L. Oakley, pers. comm.)

Ancient Murrelet (Synthliboramphus antiquuu) and Rhinoceros Auklet (Cerorhinca monocerata). Subjective population estimates of these two nocturnal species were based on available nesting habitat, frequency of calls on several nights, and observations of adults near the island. Nesting birds of both species appeared to be scattered in low densities over a wide area; thus, a burrow census was not attempted.

Tufted Puffin (Lunda cirrhata). Our census technique involved running a transect around the island perimeter. We counted burrows in a 10-m wide sample plot every 100 m, from cliff edge to the most inland puffin burrows. Only portions of the island perimeter with visible burrows were sampled. Burrow densities were derived from burrow counts in six sample plots of variable area placed along 600 m of slopes prominently used by puffins. An additional 750 m of nesting habitat was not sampled. Thus a total of 4.4% (60/1350) of the Tufted Puffin habitat was sampled. Sample plot burrow densities were extrapolated over the entire perimeter of nesting habitat to estimate total number of burrows on St. Lázaria (Table B-2).

Typically, 35% of all Tufted Puffin burrows are unoccupied (USFWS unpub. data). We reduced our burrow total by that amount to arrive at the number of active burrows. The breeding population was calculated as two times the number of active burrows.

Passerines. Songbirds were not formally censused. We have attempted to make population estimates based on our subjective impressions of abundance, available habitat, and territory sizes from the literature.

Mammals. We routinely searched for signs of small mammals while conducting storm-petrel and puffin transects. Snap traps were not used because of the high probability of capturing storm-petrels.

Phylogenetic sequence and nomenclature of species follow Kessel and Gibson (1978) for birds and Banfield (1977) for mammals.

BIRD SPECIES ACCOUNTS

We observed a total of 29 species of birds on St. Lázaria or in adjacent waters in 1981. An additional 24 species have been recorded by other observers, bringing the total known avifauna of St. Lázaria to 53 species. At least 21 species of birds have been recorded nesting (Table B-3), including 11 seabirds, 1 raptor, 1 shorebird, and 8 songbirds.

Loons and Grebes

Common Loon. Gavia immer. This species was reported by Grinnell (1898) and Willett (1914) as being of "frequent" occurrence in Sitka Sound. Gabrielson and Lincoln (1959) considered it to be a common spring migrant and scattered breeder in the Alexander Archipelago. Only Willett (1912) has actually reported this species from St. Lazaria.

Arctic Loon. Gavia arctica. One bird was observed near St. Lazaria on 7 June 1981.

Red-necked Grebe. Podiceps grisegena. Willett (1914) observed one bird near St. Lazaria on 24 July 1913.

Tubenoses

Sooty Shearwater. Puffinus griseus. This species, which is common along the outer coast of southeast Alaska (Gabrielson and Lincoln 1959), was observed near St. Lazaria by Willett (1912).

Fork-tailed Storm-Petrel and Leach's Storm-Petrel. Oceanodroma furcata and O. leucorhoa. Both Grinnell (1897) and Mailliard (1898) found storm-petrels to be abundant on St. Lazaria. Grinnell (1887) "walked from end to end . . . [of the island] and everywhere the Petrels were equally numerous. . . . The ground was alive with struggling Petrels." Mailliard (1898) found burrows "under every bush and tuft of grass. . . . The twittering noise on the meeting ground was something prodigious."

Similar descriptions could be used today. From this anecdotal evidence and Willett's (1912) statement that he found storm-petrel burrows "everywhere on the island where the soil is deep enough," we conclude that the storm-petrel population has not significantly changed since the early part of this century. Willett's (1912) population estimate of 44,000 storm-petrels was probably a gross underestimate.

Our calculated population estimate is about 262,300 Fork-tailed and 243,800 Leach's storm-petrels. These figures are extrapolated from the mean density of active storm-petrel burrows (Table B-4) in two vegetation types. More burrows were found in forest than in either grass or brush (Fig. 4, ANOVA, p 0.05; Duncans MRT, p 0.05). Consequently, we analyzed the quadrats by two vegetation categories, forest and grass/brush. Table B-5 present the entire storm-petrel sample plot data.

253,050 pairs
+

The percentage of active burrows (65-70%) was not significantly different (p 0.05) among the four geographical/vegetative categories (Table B-4). Although the number of burrows varies with vegetation type, the percentage of active burrows does not vary. Work on Petrel Island, another high-density nesting area, in 1977 (DeGange and Nelson, USFWS unpub. data) indicated occupancy rates similar to those found on St. Lazaria. These data may suggest that the population has saturated the available habitat. The excess burrows may also represent normal turnover rate, death desertion, or perhaps "inferior" burrows.

St. Lazaria Island is composed of two discrete vegetated areas separated by 300 m of bare unvegetated volcanic rock (Fig. B-3). Storm-petrel species ratios are significantly different both between areas and between vegetation types (X^2 p 0.05, Table B-4). Fork-tailed Storm-Petrels are more abundant on the east end and Leach's Storm-Petrels are more abundant on the west end.

In 1981 we calculated a species ratio for the entire island of 1:1.1, Leach's to Fork-tailed; the ratio varies considerably over the island (Table B-4). In 1896, Grinnell (1898) suggested a population ratio of five Leach's to one Fork-tailed. Willett (1912), during his one-month visit, estimated a 10:1 Leach's to Fork-tailed ratio. Assuming that total storm-petrel numbers are similar to those in Willett's time (1912-14), Leach's Storm-Petrels have apparently declined while Fork-tailed Storm-Petrels have increased.

Our calculated storm-petrel population of about 506,100 birds is based on a planar surface area. This underestimates the true population since it neglects the vertical relief of the habitat. Surface area increases by the reciprocal of the cosine of the slope (i.e. 1.064 for a 20° slope, 1.414 for a 45° slope). Accordingly we have adjusted our storm-petrel population estimate upward to about 540,000 birds.

Cormorants

Double-crested Cormorant. Phalacrocorax auritus. Bailey (in litt.) observed six Double-crested Cormorants on 21 May 1980. Willett (1914) reported it as "a straggler to the vicinity of Sitka." We did not see this species near St. Lazaria in 1981.

Pelagic Cormorant. Phalacrocorax pelagicus. Pelagic Cormorants were described by Grinnell (1898) as abundant breeders in Sitka Sound. By 1912, Willett (1914) believed the species was "much less abundant than formerly." He attributed the decline to egg and chick predation by Northwestern Crows (Corvus caurinus). Willett (1912) recorded 300 birds nesting on cliffs and in caves at St. Lazaria in 1912; no cormorants nested in 1913 (Willett 1914).

On 21 May 1980 Bailey (in litt.) recorded 12 pairs plus 30 immature birds on the island. During 1981 we found no evidence of nesting. We observed a maximum of five birds, at least two of which were immature.

There has been an apparent reduction in numbers of Pelagic Cormorants nesting on St. Lazaria since the early 1900's. We do not know if this represents a temporary breeding hiatus or a permanent trend, but it is more likely the former. Pelagic Cormorants are known to shift nest sites from year to year (Benz and Garrett 1978, Nysewander and Barbour 1979).

Grinnell (1898) reported fresh to partly incubated eggs from 8 to 28 July. Nearly full-grown young were noted on 3 July 1912, but some eggs were still present at the end of August (Willett 1912).

Waterfowl

Oldsquaw. Clangula hyemalis. Willett (1912) reported this species in the vicinity of St. Lazaria during the summer of 1912. There are no other summer reports, but the species is common near Sitka in the winter (Gabrielson and Lincoln 1959).

Harlequin Duck. Histrionicus histrionicus. Harlequin Ducks were reported by Willett (1912) near St. Lazaria during the summer of 1912. Both Willett (1912) and Grinnell (1898) list this species as breeding in the vicinity of Sitka.

White-winged Scoter. Melanitta deglandi. Willett (1912) reported this species from the vicinity of St. Lazaria; both he and Grinnell (1898) list it as common in Sitka Sound.

Raptors

Bald Eagles. Haliaeetus leucocephalus. Bald Eagles were commonly seen, with a maximum of 7 adults and 15 immatures on 18 June 1981. Of two nests at the west end, one was active and one appeared vacant. Two nests at the east end were inactive (Fig. B-3c). Willett (1912) reported two active nests. On the ground below the nests, he discovered the remains of "at least 40 birds," which were young Glaucous-winged Gulls and adult Tufted Puffins.

Under eagle roost trees on the west end of St. Lazaria we found numerous storm-petrel remains. Nysewander observed an adult eagle securing storm-petrels on the ground at night. Apparently the eagle was able to watch the ground from low limbs, then fly down and capture selected individuals. For the period 01:00-03:00, when storm-petrel numbers are at their peak, this method of capture is probably effective (see DeGange and Nelson in press).

We did not observe diurnal predation by eagles on seabirds. However, two weeks prior to our arrival on the island, local pleasure boaters saw an adult Bald Eagle strike and kill a Tufted Puffin sitting on the water. The large seabird population evidently provides a food on which Bald Eagles on St. Lazaria subsist at times. One or two pairs of eagles probably nest annually.

Peregrine Falcon. Falco peregrinus. One female Peregrine Falcon was observed being harrassed by Glaucous-winged Gulls at 13:30 on 17 June 1981. No active aeries were observed at St. Lazaria in 1981. Willett (1912) also sighted this species.

Shorebirds

Black Oystercatcher. Haematopus bachmani. Our estimate of two or three pairs is based on the behavior and location of the adults (Fig. B-3d). No eggs or chicks were found. Willett (1912) estimated four pairs on the island.

Spotted Sandpiper. Actitis macularia. Willett (1912) observed this species on or near St. Lazaria.

Wandering Tattler. Heteroscelus incanus. Both Grinnell (1898) and Willett (1914) reported this species from the Sitka vicinity during the summer. Willett (1912) saw it at St. Lazaria.

Black Turnstone. Arenaria melanocephala. Willett (1912) reported Black Turnstones at St. Lazaria. They are common in the area during migration and in winter (Webster 1941, Gabrielson and Lincoln 1959).

Northern Phalarope. Phalaropus lobatus. Willett (1914) commonly saw this species feeding along tide lines in the vicinity of Sitka during the summer. Willett (1912) reported this species from St. Lazaria.

Semipalmated Sandpiper. Calidris pusilla. This species was reported by Willett (1912) in the summer of 1912.

Western Sandpiper. Calidris mauri. Grinnell (1898) noted their arrival in the Sitka area by 6 July. Willett (1914) reported them common from late July through at least October and listed the species as "present" on St. Lazaria Island.

Least Sandpiper. Calidris minutilla. Willett (1912) reported this species from St. Lazaria. Least Sandpipers were reported in the Sitka area as early as 2 July by Grinnell (1898). It is a common migrant through late summer and early fall and birds have been reported at St. Lazaria as late as 30 September (Gabrielson and Lincoln 1959).

Dunlin. Calidris alpina. One individual was observed on 31 July 1912 (Willett 1914).

Jaegers

Parasitic Jaeger. Stercorarius parasiticus. Willett (1914) recorded two birds near St. Lazaria on 24 July 1913.

Gulls

Glaucous-winged Gull. Larus glaucescens. Willett (1912) estimated 300 pairs of Glaucous-winged Gulls breeding on St. Lazaria in 1912. Bailey (in litt.) estimated 40 pairs in 1980, which total corresponds closely to our count of 48 pairs in 1981 (Fig. B-3b). We believe that these estimates are fairly reliable and therefore conclude that the population has declined substantially since 1912.

We recorded a maximum of 350 non-breeding individuals on 18 June 1981. The size of the non-breeding flock varied considerably during our visit. This non-breeding population, comprising mostly juveniles, probably forages throughout Sitka Sound.

Herring Gull. Larus argentatus. Willett (1914) did not record this species in the Sitka area during the breeding season. On 18 June 1981 we observed fewer than 20 juveniles of this species in a flock of 350 Glaucous-winged Gulls. We suspect that juveniles are regularly present during the summer.

Bonaparte's Gull. Larus philadelphia. Willett (1912) reported this species from St. Lazaria. It occurs commonly in southeast Alaska in summer and fall (Willett 1914, Gabrielson and Lincoln 1959, Gibson 1976).

Black-legged Kittiwake. Rissa tridactyla. This species has never been recorded nesting on St. Lazaria. Grinnell (1898) listed adults and immatures as common in the vicinity of Sitka and Willett (1914) found the species "plentiful everywhere on salt water." While we did not see Black-legged Kittiwakes on St. Lazaria, feeding flocks were common in the vicinity.

Several previously unreported kittiwake colonies were discovered in southeast Alaska in 1981 (USFWS unpub. data). Sealion Island, located 20 km north of St. Lazaria, was the southernmost colony found, and it represents an 80 km extension of the known breeding range (Sowls et al. 1978). Willett (1914) visited Sealion Island, but he did not mention Black-legged Kittiwakes, a species difficult to miss.

Alcids

Common Murre and Thick-billed Murre. Uria aalge and U. lomvia. Grinnell (1898) simply stated that murre were "numerous among the outlying islands" and recorded fresh eggs on 28 July 1896 (probably at St. Lazaria).

Willett (1912) estimated 600 breeding Common Murres, probably at location "X" (Fig. B-3b). He reported downy young and incubated eggs on 1 August 1912, with the last of the eggs hatching by 15 August. From this information and backdating from known incubation periods, laying probably occurs from mid-to late July. This corresponds well with egg-laying dates at Forrester Island (DeGange et al. 1977).

Approximately 100 Common Murres were reported by Gabrielson (in Gabrielson and Lincoln 1959) on 21 August 1945. This count was made after some chicks may already have fledged.

Our survey (16-21 June 1981) was too early to ascertain nesting chronology. Before laying, murres attend the nesting cliffs on an intermittent basis (Birkhead 1978). Our population estimate is based on the highest counts during the survey period. On 18 June, between 15:00 and 17:00, we counted 5100 murres during a circumnavigation of the island (Fig. B-3). The murres on the northwest side (location "X") of the island appeared to be entirely Common Murres, while those on the southwest cliffs (location "Y") were Thick-billed and Common murres in a ratio of 1.6 to 1 (n=512). The combined population of these two sites is about 3000 Common Murres and 2000 Thick-billed Murres.

Murre numbers have almost certainly increased since 1912. While Willett's (1914) estimate from July and August is not directly comparable to our June counts, we feel the ten-fold difference in numbers represents a real increase.

Thick-billed Murres are a new addition to the avifauna of St. Lazaria. Their behavior, coupled with the large number of birds present, suggests they were breeding. Prior to our discovery of this colony, the easternmost breeding Thick-billed Murres in the Pacific Ocean were those at Wingham Island and at Middleton Island (Sowls et al. 1978) 648 km and 687 km to the northwest, respectively.

Pigeon Guillemot. Cepphus columba. Pigeon Guillemots have probably declined in number at St. Lazaria since early in the 20th century. Willett (1912) reported 300 birds for the island. Our highest count was 78 birds at 07:30 on 21 June. Allowing for some birds feeding or incubating eggs, we feel the 1981 population is approximately 100 birds.

Marbled Murrelet. Brachyramphus marmoratus. Several observers have recorded this species as abundant in Sitka Sound (Grinnell 1898, Willett 1914, USFWS unpub. data). Feeding concentrations at Low Island and Vitskari Rocks, 6-12 km east of St. Lazaria, were noted throughout late June and early July 1981. We found no evidence of this species nesting on St. Lazaria, but it is possible that a few pairs nest in the forests of the island.

Ancient Murrelet. Synthliboramphus antiquus. Willett (1914) found two broken eggs in a burrow that he believed to be of this species. He visited the island after fledging had occurred, but he described the adults as being common on the water. Willett (1912, 1914) did not estimate the size of the breeding population.

On the nights of 16-19 June we noted calling birds along several sections of the island (Fig. B-3b) and observed adults flying to and from the island. One addled egg was found in a burrow on the west end. Our estimate of 1500 birds is largely speculative because this species is difficult to census and many chicks had probably already fledged.

Cassin's Auklet. Ptychoramphus aleuticus. Cassin's Auklets have been observed near St. Lazaria only by Gabrielson (in Gabrielson and Lincoln, 1959). He reported a few birds near the island on 21 August 1945, well after fledging dates at Forrester Island (DeGange et al. 1977).

The birds seen by Gabrielson were probably adults or young dispersed from other colonies. All known colonies in southeast Alaska are south of St. Lazaria, the nearest being Timbered Island, approximately 190 km to the southeast.

Rhinoceros Auklet. Cerorhinca monocerata. Grinnell (1898) observed adults foraging in Sitka Sound but did not record them on the island. Willett (1912) found a small colony on the "north slope" of St. Lazaria.

His estimate of 400 birds was based on a count of burrow entrances after the young had fledged. Gabrielson (in Gabrielson and Lincoln 1959) found that the "wooded part of the island [near the WWII military outpost] was filled with burrows" of this species.

We estimated 2000 birds on the island. Occupied Rhinoceros Auklet burrows were noted along much of the grassy perimeter of the western one-half of the island (Fig. B-3c), as well as under the forest canopy. Adults were frequently seen in small flocks around the island at dusk.

Willett probably did not discover all the nesting locations of this secretive species on the island. We therefore believe his population estimate is low.

Horned Puffin. Fratercula corniculata. Horned Puffins were recorded by Grinnell (1898) as "not common," but he did manage to collect 12 birds. The 1912 population estimate was 48 birds (Willett 1912). Willett saw an adult carrying fish on 15 August, indicating the presence of a chick. Horned Puffins were not observed in 1981, nor did Bailey (in litt.) observe the species in 1980. We do not believe that Horned Puffins nested at St. Lázaria in 1981, although small numbers may breed in some years.

Tufted Puffin. Lunda cirrhata. Grinnell (1898) reported them "swarming by the thousands" with "every grassy bank and the sides of the island riddled with their burrows". Willett (1912) estimated 4000 breeding birds.

In 1981, we attempted to determine the extent of nesting habitat (Figure B-3d) and burrow densities within that habitat (Table B-2). We estimated 8483 ± 2849 (SE) puffin burrows. Assuming a 65% occupancy rate (USFWS unpub. data), we arrive at a figure of 5513 active burrows, or approximately 11,000 breeding birds.

We feel that Tufted Puffins are probably as populous now as in the early part of the century. Willett's (1912) estimate was lower than ours, but, based on the colorful descriptions of Grinnell (1898) and Willett (1912), the breeding population does not appear to have changed significantly.

Hummingbirds

Rufous Hummingbird. Selasphorus rufus. Willett (1912) listed this species as a probable irregular breeder. We sighted single individuals on several occasions and believe that it may be a regular breeder at St. Lázaria.

Kingfishers

Belted Kingfisher. Megaceryle alcyon. This species was reported by Willett (1912). Gibson (1976) listed it as an uncommon breeder in southeast Alaska.

Woodpeckers

Hairy Woodpecker. Picoides villosus. Gabrielson (in Gabrielson and Lincoln 1959) collected a female on 21 August 1945. On 18 June we heard a woodpecker drumming. The island may support one breeding pair.

Passerines

Tree Swallow. Iridoprocne bicolor. On 17 June 1981 an adult Tree Swallow was observed flying to and from a cavity in a dead Sitka spruce. The bird may have been breeding, as the species commonly nests in the Sitka area (Willett 1914, Gibson 1976).

Common Raven. Corvus corax. At least two were observed on several occasions in 1981. Willett (1914) lists the species as an occasional breeder in the Sitka area.

Northwestern Crow. Corvus caurinus. Northwestern Crows have been reported as common by all observers. Grinnell (1898) noted "hundreds" breeding on the island in 1896 and saw nearly fledged young on 17 June. He felt the crows preyed extensively on storm-petrels, based on the litter of storm-petrel remains and eggshells, as well as evidence of crows digging into burrows.

Willett (1912) estimated 50 crows and noted predation on the eggs of Pelagic Cormorants and Common Murres.

Our survey indicated that 40-50 Northwestern Crows were present in 1981, and we assumed they were nesting. We noted no signs of crows killing storm-petrels and suspected that the litter of storm-petrel remains noted by Grinnell was in fact the result of eagle predation (see Bald Eagle account).

Chestnut-backed Chickadee. Parus rufescens. An estimated 50 Chestnut-backed Chickadees bred on St. Lazaria in 1912 (Willett 1912). We observed five birds on the forested western summit on 16 June. We believe that Willett's estimate is high, even though population levels probably vary from year to year. Our estimate for 1981 is one or two breeding pairs.

Winter Wren. Troglodytes troglodytes. We occasionally encountered this species in the forested areas of the island in 1981. Willett (1912) estimated 20 breeding birds on the island. Morse (1977) calculated a mean ($n=2$) territory size of 3.94 ha for Winter Wrens on spruce-forested islands in Maine. Hence, St. Lazaria, with 12 ha of possible breeding habitat, could support three breeding pairs. We estimate that a maximum of five pairs of Winter Wrens bred on the island in 1981.

American Robin. Turdus migratorius. Only Willett (1912) has observed this species on St. Lazaria. He listed it as a possible breeder.

Varied Thrush. Ixoreus naevius. Willett (1914) considered this species to be common in the woods near Sitka and "particularly plentiful on St. Lazaria," where he (1912) estimated 20 breeding pairs. In 1981 we found no evidence of this vociferous species.

Hermit Thrush. Catharus guttatus. Willett (1912) estimated 40 breeding pairs on St. Lazaria and mentioned this species as "especially plentiful on wooded islands." We heard Hermit Thrushes singing in forested habitats and saw individuals occasionally. We estimate a maximum 1981 breeding population of six pairs.

Morse (1977) gives a territory size of 2 ha for the Hermit Thrush in Maine coastal spruce forests. Extrapolated to St. Lazaria, that density would allow for only six pairs on the island. It is doubtful that the island could support the population suggested by Willett (1912).

Yellow Warbler. Dendroica petechia. Willett (1912) listed the species as a possible breeder on St. Lazaria, but it has not been recorded from the island since that time. Kessel and Gibson (1978) considered this species to be uncommon among the outer islands of southeast Alaska.

Wilson's Warbler. Wilsonia pusilla. This species was first recorded on 18 June 1981. Willett (1914) described it as the "commonest of the warblers summering in the [Sitka] region." He mentioned that it occurred on several small islands in Sitka Sound, but did not specifically record it from St. Lazaria. We believe that one or two pairs nested on the island in 1981.

Pine Siskin. Carduelis pinus. Several Pine Siskins were heard in the forest canopy on 17 and 18 June 1981. Willett (1914) regarded the species as common in the Sitka area but did not mention it on St. Lazaria (Willett 1912). Kessel and Gibson (1978) describe the species as irregularly abundant in southeast Alaska. It may breed irregularly on St. Lazaria.

Red Crossbill. Loxia curvirostra. In 1912 Willett (1912) found Red Crossbills to be common on St. Lazaria, but other observers have not reported this species. Throughout their range, Red Crossbills are erratic in occurrence (Gabrielson and Lincoln 1959). They may be irregular breeders on St. Lazaria.

Fox Sparrow. Passerella iliaca. Willett (1912) estimated 100 breeding pairs for the island. Gabrielson (in Gabrielson and Lincoln 1959) found St. Lazaria to be "fairly swarming" with Fox Sparrows on 21 August 1945 and collected specimens belonging to several races. This was one of the few times in Gabrielson's experience "when these birds were easy to see and to collect in southeastern Alaska."

The Fox Sparrow was the most abundant and widely distributed passerine on the island in 1981, but we feel that the number of breeding pairs is much lower than Willett (1912) estimated. Our estimate of the population is 25-30 breeding pairs. Morse (1977) gives territory sizes of 0.35-1.37 ha for the ecologically similar White-throated Sparrow (Zonotrichia albicollis). Assuming similar territory sizes for Fox Sparrows, the breeding population would be between 8 and 31 pairs in a maximum of 12 ha of vegetation.

Song Sparrow. Melospiza melodia. A specimen of M. m. caurina collected by Gabrielson (in Gabrielson and Lincoln 1959) at St. Lazaria on 21 August 1945 was probably a migrant or winter resident. This race breeds no farther south than Glacier Bay, and it is a common winter resident in southeast Alaska (Gabrielson and Lincoln 1959).

The resident race, rufina, was considered by Willett (1914) to be an abundant breeder and winter resident at St. Lazaria. Willett (1912) listed the Song Sparrow as the most abundant breeding passerine on St. Lazaria, outnumbering the Fox Sparrow 4 to 1. This observation, plus his estimated breeding population of 400 pairs, conflicts with other evidence on the relative abundance of these two species on St. Lazaria: (1) Gabrielson (in Gabrielson and Lincoln 1959) collected Song Sparrows on St. Lazaria, but apparently he was not sufficiently impressed by their abundance to comment on it (he did, however, comment on the large number of Fox Sparrows present); (2) in an extensive ornithological survey of the Alexander Archipelago covering all habitat types, Gibson (1976) recorded about twice as many Fox Sparrows as Song Sparrows, (3) St. Lazaria has an abundance of the dense undergrowth and thicket habitat preferred by the Fox Sparrow, but a dearth of the beach and estuarine meadow habitats preferred by the Song Sparrow (Gabrielson and Lincoln 1959, Gibson 1976); (4) we carefully examined all of the small brown birds encountered on St. Lazaria in 1981, and only one bird was unequivocally identified as a Song Sparrow. Song Sparrows may be more abundant on the steep, grass-covered perimeter of the island, an area we did not cover adequately.

St. Lazaria has a maximum of 3-4 ha of the grassy island perimeter that this species prefers for breeding (Gabrielson and Lincoln 1959). Morse (1977) gives a minimum territory size of 0.1 ha for Song Sparrows on island spruce forests in Maine. Assuming this density for the preferred habitat on St. Lazaria, a maximum of 40 breeding pairs would be expected. However, our subjective impression is that densities on St. Lazaria are much lower than this. We estimate a breeding population of 5-10 pairs.

MAMMAL SPECIES ACCOUNTS

St. Lazaria has a rather depauperate fauna, due to its isolation from the mainland, small size, and lack of habitat diversity. Only three species of mammals have been positively identified at St. Lazaria, and none occur regularly. Despite occupancy by a small number of military troops during World War II, St. Lazaria was spared the accidental introduction of Norway rats (Rattus norvegicus).

Brown Bear. Ursus arctos. We found no evidence of this species on St. Lazaria. A brown bear was reported on the island by Willett (1912). His inspection of the island "several weeks" after the bear had left led him to the conclusion that at least 500 storm-petrel burrows had been excavated. Bear scat contained storm-petrel remains exclusively. Willett (1912) found no indication that brown bears had eaten any other species of seabird. Brown bears prey extensively on burrow-nesting seabirds, particularly Tufted Puffins, along the south side of the Alaska Peninsula (Bailey 1982; Bailey and Faust 1980, 1981).

Mink. Mustela vison. This species was reported by Grinnell (1898) from evidence of "piles of petrel wings found in some spots." Since river otters (Lontra canadensis) and Bald Eagles also leave piles of storm-petrel wings, we feel Grinnell's record is suspect.

River Otter. Lontra canadensis. During his 1980 visit to St. Lazaria, Bailey reported numerous river otter trails and found storm-petrel remains scattered about. C. H. Johnstone (pers. comm.) of Sitka several years earlier found an adult otter living under the ruins of World War II buildings. River otters are evidently present on an irregular basis, as we found none in 1981.

We suspect that river otters are the primary mammalian predator of seabirds in southeast Alaska. They certainly cause mortality on St. Lazaria, but probably have a relatively minor effect on the populations because of their intermittent occurrence. Both species of storm-petrels, Glaucous-winged Gulls, Ancient Murrelets, Rhinoceros Auklets, and Tufted Puffins are vulnerable to this predator.

Harbor Seal. Phoca vitulina. Hilson (1978) reported one animal swimming in a tidal pool at St. Lazaria. We saw none, even though the expansive intertidal zone provides an ideal haul-out area. Harbor seals may avoid St. Lazaria because of disturbance by the many boats that anchor in the lee of the island. Harbor Seals are abundant at Low Island and Vitskari Rocks, immediately to the east.

DISCUSSION

A review of the data in Table 3 suggests that populations of most seabirds have dramatically changed over the past 70 years. However, we believe that Willett's (1912, 1914) population estimates for nocturnal and/or burrowing seabirds are unreliable. In every case our estimates are substantially higher than Willett's. A comparison of the anecdotal evidence of Mailliard (1898), Grinnell (1897, 1898) and Willett (1912, 1914) with our data suggests that populations of most breeding species have not changed.

We believe Willett's population estimates for cormorants, eagles, oystercatchers, gulls and murrens are more reliable. Changes in numbers of some of these species have been dramatic. In particular, numbers of Pelagic Cormorants and Glaucous-winged Gulls have apparently undergone sizeable declines. This result may only represent a cyclic change. Murre numbers have almost certainly increased. The recent occurrence of Thick-billed Murrens in the Queen Charlotte Islands of British Columbia (Canning in litt.) substantiates range expansion in this species.

We believe that Willett's (1912) estimates of passerine breeding populations are high. In every case we have drastically revised Willett's numbers downward. Wiens (1978) presented breeding bird census data which show that northwest North American coniferous forests support approximately 14.6 passerines/ha. Hence, an island the size of St. Lazaria could support about 175 individuals, or 88 breeding pairs.

Willetts (1912) estimate was 1240 individuals, or about 7.1 times the avian density calculated by Wiens (1978). Clearly, Willett's estimates were too high. We have no reason to believe passerine populations have changed drastically in the past 70 years.

SUMMARY

We discuss the status of 53 bird species and 3 mammal species known to occur on St. Lazaria, a 23 ha island located 26 km WSW of Sitka, Alaska. Population estimates are provided for the 21 species of breeding birds and are compared with records covering the last 80+ years. Seabirds make up the largest component of the breeding avifauna. As a result of our six day visit in June 1981, we have increased the estimate of the breeding seabird population by more than 1000% (from about 50,000 birds to 560,000 birds).

Our calculated population estimate for the two most numerous breeding species (Fork-tailed and Leach's storm-petrels) is a combined population of 540,000 birds. They occurred in a ratio of 1.1 Fork-taileds to 1.0 Leach's. Results from quadrats indicate burrow occupancy rates of 65-70% for both species.

The presence of two other nocturnal seabirds, Ancient Murrelet and Rhinoceros Auklet, was verified. Thick-billed Murres are a new addition to the island's avifauna and represent a southeastern extension of this species' breeding range in the Pacific Ocean.

Population estimates are provided for seven species of breeding passerines. We recorded one species, Wilson's Warbler, that had not been previously reported, and we failed to find the Varied Thrush, a species Willett (1912) considered to be a common breeder in 1912.

St. Lazaria supports no resident mammals, probably because of its isolation, small size, and lack of habitat diversity.

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TABLE B-1. Characteristic ground cover for three habitats on St. Lazaria Island.

Grass	Brush	Forest
<u>Calamagrostis canadensis</u>	<u>Ribes</u> sp.	Ferns
<u>Elymus arenarius</u>	<u>Rubus spectabilis</u>	<u>Picea sitchensis</u>
<u>Saxifraga</u> sp.	<u>Sambucus callicarpa</u>	<u>Maianthemum dilatatum</u>
<u>Angelica lucida</u>		<u>Streptopus</u> sp.
Bare Rock		Bare Ground

TABLE B-2. Results of sample plots of Tufted Puffin burrows.

Plot Number	Plot length x width (m)	Number of burrows	Density (burrows/m ²)	Number burrows (For 225m)
1	25 x 10	114	0.4560	2565
2	6 x 10	15	0.2500	338
3	7 x 10	11	0.1571	247
4	3 x 10	63	2.1000	1418
5	18 x 10	135	0.7500	3038
6	17 x 10	39	0.2294	877
Total	76	377		8483
Mean	13	63	0.6571	1414
S.E.	3.509	21.1	0.3016	475

TABLE B-3. Present and historical breeding bird estimates (numbers of individuals) for St. Lazaria Island, Alaska. These numbers should not be used for evaluating population changes; see species accounts.

Species	Mailliard (1898)	Grinnell (1897, 1898)	Willett (1912, 1914)	Bailey (in litt.)	Present Study (1981)
Dates of Observations					
	17 June 1896	7-8 July 1896	July-August 1912	21 May 1980	16-21 June 1981
Storm-Petrels (Fork-tailed: Leach's ratio)	B (B:B)	B (1:5)	44,000 (1:10)	200,000 (1:3)	540,000 (1.1:1)
Pelagic Cormorant	B	B	300	24	P
Bald Eagle			4	B	2
Black Oystercatcher	B		8		4
Glaucous-winged Gull	B	B	600	80	96
Common Murre			600	1400	3000
Thick-billed Murre					2000
Pigeon Guillemot		B	300	4	100
Ancient Murrelet			B	200	1500
Rhinoceros Auklet			400	B	2000
Horned Puffin			48	N	N
Tufted Puffin	B	1000's	4000	4000	11000
Northwestern Crow		100's	50		40-50
Chestnut-backed Chickadee			50		2-4
Winter Wren		Numerous	20		10
Varied Thrush			40		N
Hermit Thrush			80		12
Wilson's Warbler					2-4
Fox Sparrow		B	200		50-60
Song Sparrow		B	800		10-20

Key: B--Species reported to be breeding, but no population estimate provided; P--Species present but not breeding; N--Species not observed.

Pg 118
Sup = L.P.T. →

TABLE B-4. St. Lazaria storm-petrel sample plot summary.

Vegetative Cover	Sub-Colony	No. Plots ^a	Total Burrows/ m ²	Active Burrows (&)	No. Fork-tailed Burrows/ m ²	No. Leach's Burrows/ m ²	Species Ratio Fork-tailed: Leaches
Forest	East	3	5.08	72.0	2.95	0.71	4.1:1
Forest	West	5	4.20	66.7	1.00	1.80	1:1.1
Brush	East	6	2.50	69.0	1.44	0.28	5.2:1
Brush	West	3	2.33	63.0	0.69	0.78	1:1.1
All	East	9	3.36	70.0	1.95	0.42	4.6:1
All	West	8	33.50	65.5	0.89	1.40	1:1.5

^a Plots 2m X 2m

Table B-5. St. Lazaria storm-petrel sample plot data. Quadrat set 1 and 2 are for the eastern half of the island, 3 through 5 are for the western half.

Quadrat No.	Vegetative Cover	Fork-tailed			Leach's			No. Empty Burrows	Burrow Contents Unknown	Total Burrows	Total Active Burrows	Percentage Active Burrows
		Egg	Chick	Adult	Egg	Chick	Adult					
1-1	70% U, 30% G								8			
1-2	40% U, 40% R, 20% C								1			
1-3	50% S, 50% U								9			
1-4	90% R, 5% C, 5% U								17			
1-5	60% R, 40% S	0	2	0	0	0	0	3	0	5	2	0.40
1-6	95% R, 5% S									10		
1-7	100% R									3		
1-8	100% R									16		
1-9	70% R, 30% S									14		
1-10	50% R, 50% S	3	5	0	0	0	0	6	0	14	8	0.57
1-11	60% R, 20% P, 20% S									22		
1-12	100% R									7		
1-13	100% R									9		
1-14	50% R, 50% F									14		
1-15	70% S, 30% F	0	6	0	1	0	1	3	0	11	8	0.73
1-16	50% R, 30% U, 20% S									21		
1-17	50% U, 40% B, 10% R									13		
1-18	30% F, 30% B, 20% S, 20% U									23		
1-19	90% R, 10% F									26		
1-20	50% B, 40% R, 10% C	2	12	1	2	0	0	9	2	28	17	0.65
1-21	95% C, 5% U									22		
2-1	50% C, 50% U	5	25	1	3	0	1	21	2	28	58	
2-2	40% U, 40% L, 20% P									28		
2-3	80% U, 20% G									15		
2-4	60% B, 30% H, 10% F									11		
2-5	70% F, 20% S, 10% L	0	3	3	1	0	3	3	7	20	10	0.77
2-6	30% S, 30% F, 20% U, 20% B									14		
2-7	40% B, 30% F, 30% U									21		
2-8	60% S, 20% F, 10% R, 10% B									26		
2-9	90% F, 10% S									27		
2-10	100% F	3	3	2	1	0	0	2	2	13	9	0.82
2-11	100% F									15		
2-12	30% R, 30% F, 30% U, 10% B									16		
2-13	60% R, 40% S									19		
2-14	40% F, 40% S, 20% U									21		
2-15	70% U, 20% S, 10% B	4	4	1	0	0	2	2	1	15 ¹	12 ¹	0.86
2-16	50% F, 40% U, 10% R									22		
2-17	50% F, 20% U, 20% B, 10% R									24		
2-18	100% R									15		
2-19	40% L, 40% P, 20% R									22		
2-20	100% R, 10% B	1	4	0	1	0	0	2	2	10	6	0.75
2-21	70% P, 20% U, 10% R									12		
2-22	70% S, 30% R									14		
2-23	100% R									1		
2-24	100% R									0		
2-25	40% R, 20% S, 20% B, 20% P	0	1	0	1	0	0	1	2	5	2	0.67
2-26	80% S, 20% F	8	15	6	4	0	5	10	14	6	63	
Total		13	40	7	7	0	6	31	16	713		

continued.

N=9

2.19/m²

N=5

Table B-5 continued.

		Fork-tail			Leach's			Empty	Total	Total		
		E	C	A	E	C	A					
3-1	70% E, 20% U, 10% R									11		
3-2	70% U, 30% E									15		
3-3	80% E, 20% U									9		
3-4	70% C, 30% U									7		
3-5	40% Br, 30% E, 20% C, 10% U, 20% R	0	1	0	1	0	0	2	0	4	2	0.50
3-6	50% C, 30% U, 20% R									5		
3-7	70% C, 30% C									8		
3-8	30% U, 30% R, 30% C, 10% E									6		
3-9	70% C, 30% U									10		
3-10	100% R	0	0	1	1	0	0	5	0	7	2	0.28
4-1	40% M, 20% F	0	1	1	2	0	0	7		14		
4-2	40% F, 30% M, 30% B									30		
4-3	50% F, 30% M, 10% S, 10% P									32		
4-4	70% F, 30% X									48		
4-5	80% F, 20% B	0	3	0	4	0	2	2	6	17	9	0.82
4-6	80% F, 20% E									20		
4-7	60% M, 30% F, 10% B									30		
4-8	100% F									25		
4-9	100% F									24		
4-10	100% F	0	1	2	4	0	3	6	2	18	10	0.62
4-11	50% S, 30% F, 20% L									26		
4-12	80% F, 20% M									24		
4-13	50% M, 40% F, 10% S									18		
4-14	50% S, 40% F, 10% M									15		
4-15	70% F, 30% S	0	2	0	4	0	2	2	5	15	8	0.80
4-16	100% F									16		
4-17	70% F, 30% S									20		
5-1	80% M, 20% F	0	6	2	12	0	7	10	13	9	50	
5-2	90% F, 10% M									15		
5-3	70% F, 30% M									23		
5-4	70% M, 30% F									19		
5-5	70% A, 30% F	0	5	1	6	0	1	3	1	17	13	0.81
5-6	40% F, 40% S, 10% M, 10% H									17		
5-7	70% F, 30% S									18		
5-8	100% F									21		
5-9	40% F, 40% M, 20% S									25		
5-10	60% F, 20% M, 20% B	1	2	0	1	0	4	8	6	22	8	0.50
5-11	40% S, 40% F, 20% B									21		
5-12	50% S, 30% F, 20% B									30		
5-13	60% R, 40% S									7		
5-14	100% R									12		
5-15	95% B, 5% R	0	2	2	2	0	1	3	2	12	7	0.70
Total		144	56	13	30	0	19	62	38	1455	133	0.68
West sub-total		14	16	6	23	0	13	31		74	2	

(1) Includes one burrow with an unidentified storm-petrel

- A - Ribes sp: Current
- B - Bare ground
- Br - Bare rock
- C - Calamagrostis sp.: reed bent grass
- E - Elymus sp.
- F - Fern
- G - grasses sp.

- H - Streptopus sp.
- L - Log, downed tree
- M - Meianthemum dilatatum, false lily-of-the-valley
- P - Picea sitchensis, Sitka spruce
- R - Rubus sp.
- S - Sambus callicarpa - elder
- U - Angelica sp.
- X - Saxifraga sp.

N=8

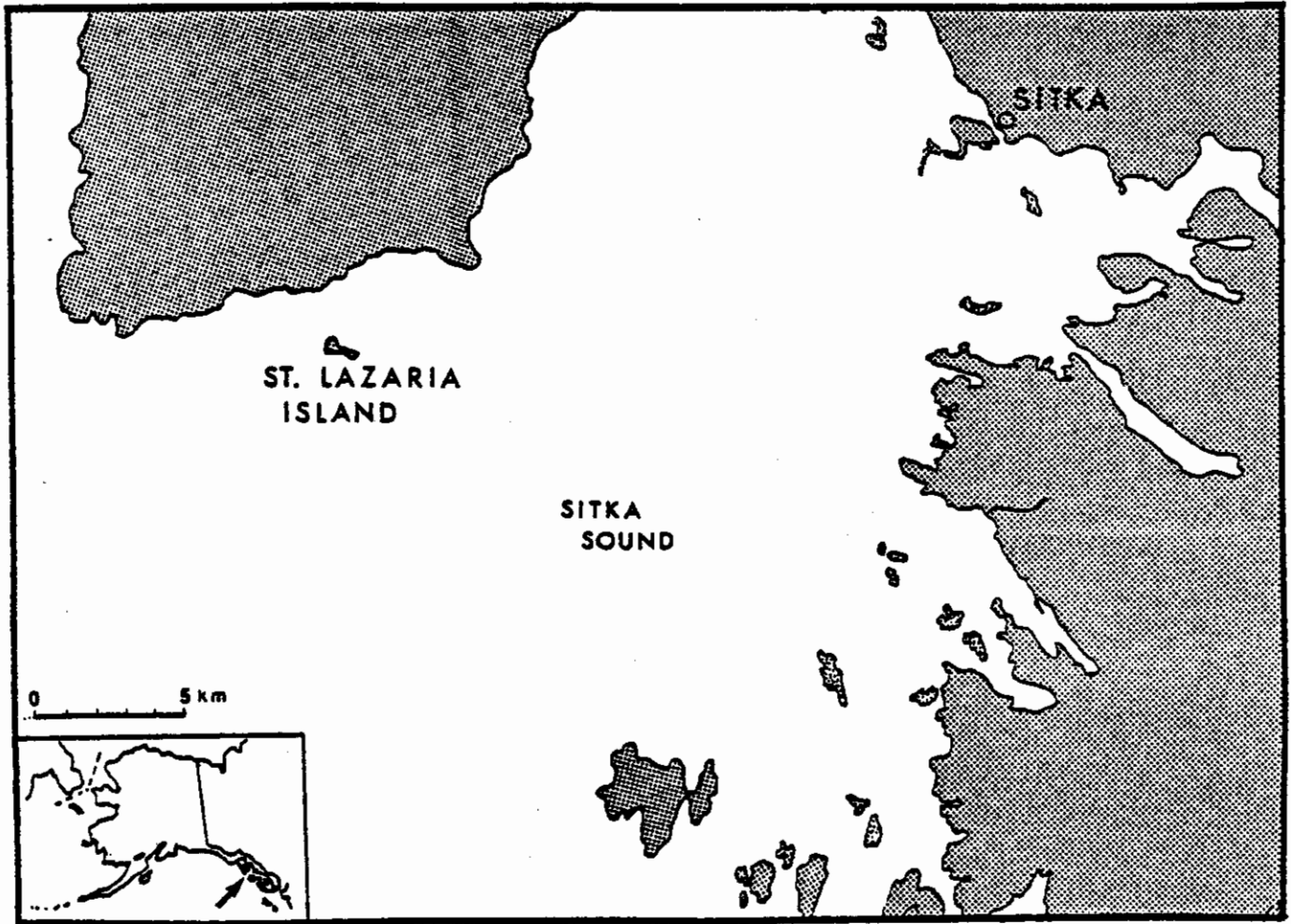


FIGURE B-1. Location of St. Lazaria Island in southeastern Alaska.



FIGURE B-2. Aerial photograph of St. Lázaria Island showing the central rocky portion of the island and the vegetated western summit. Kruzof Island, 2 km to the northwest, can be seen in the background.

USFWS photo by A. Sowls

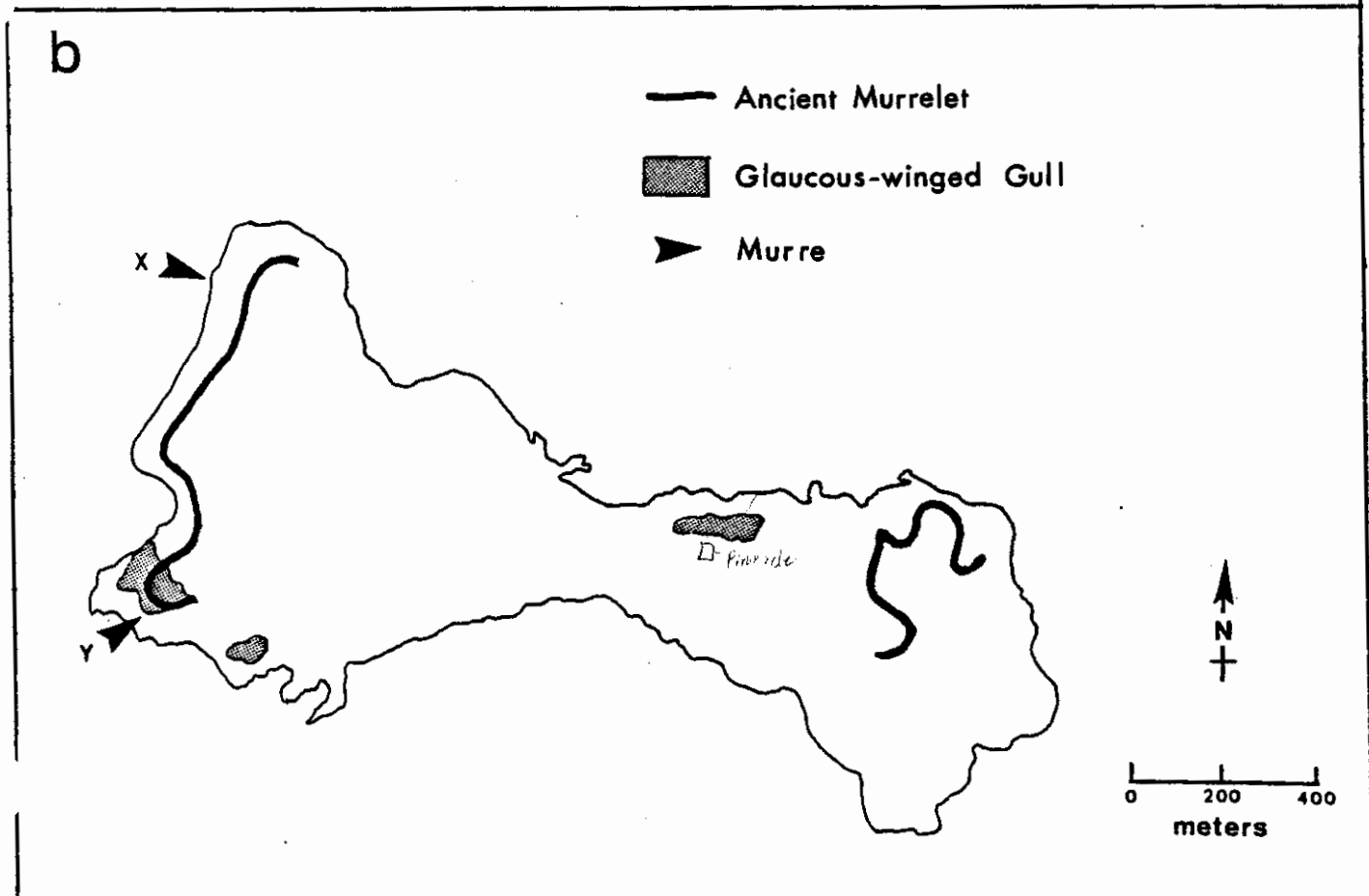
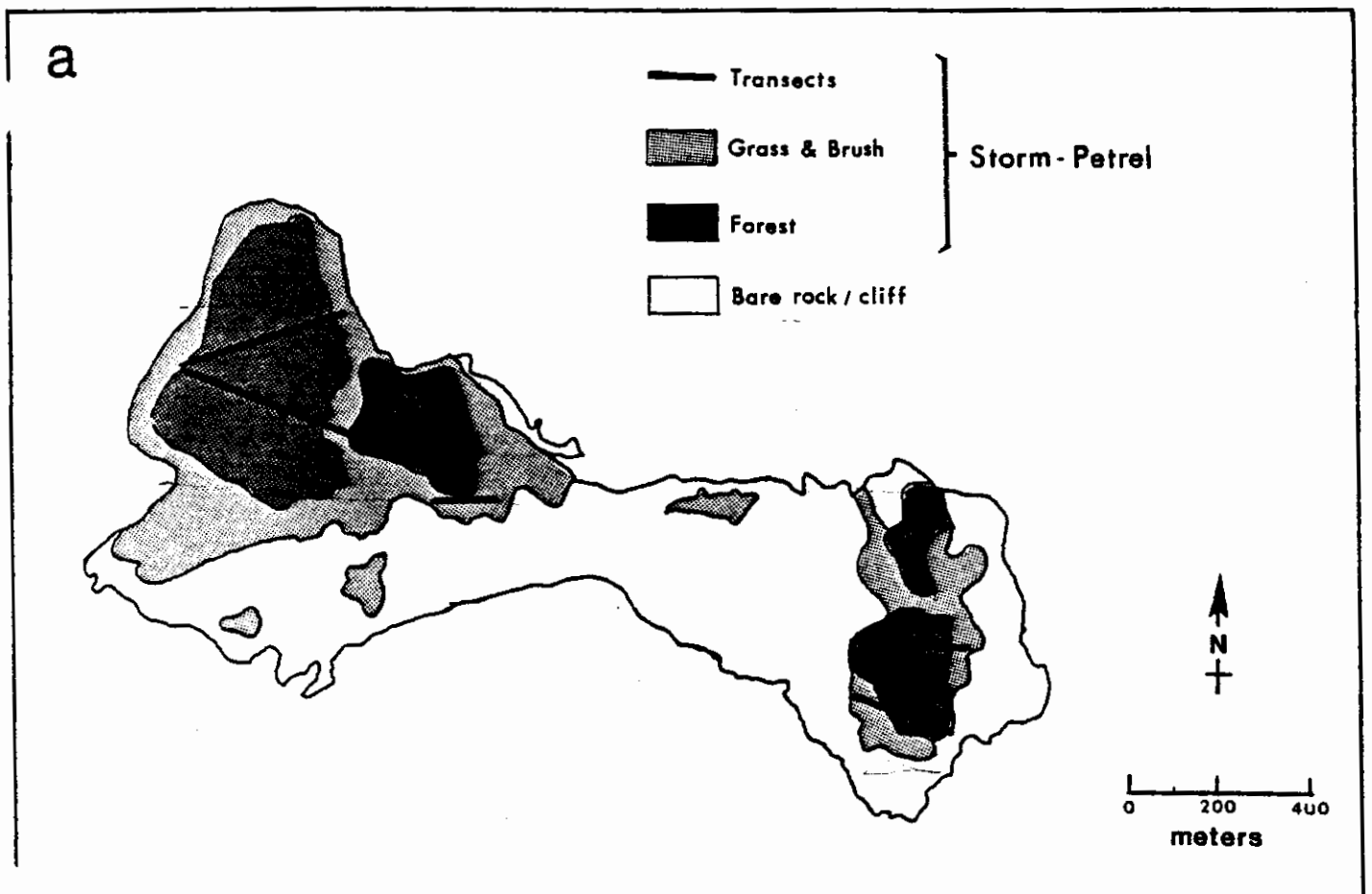


FIGURE B-3. Location of seabird nesting areas on St. Lazaria Island, 1981.

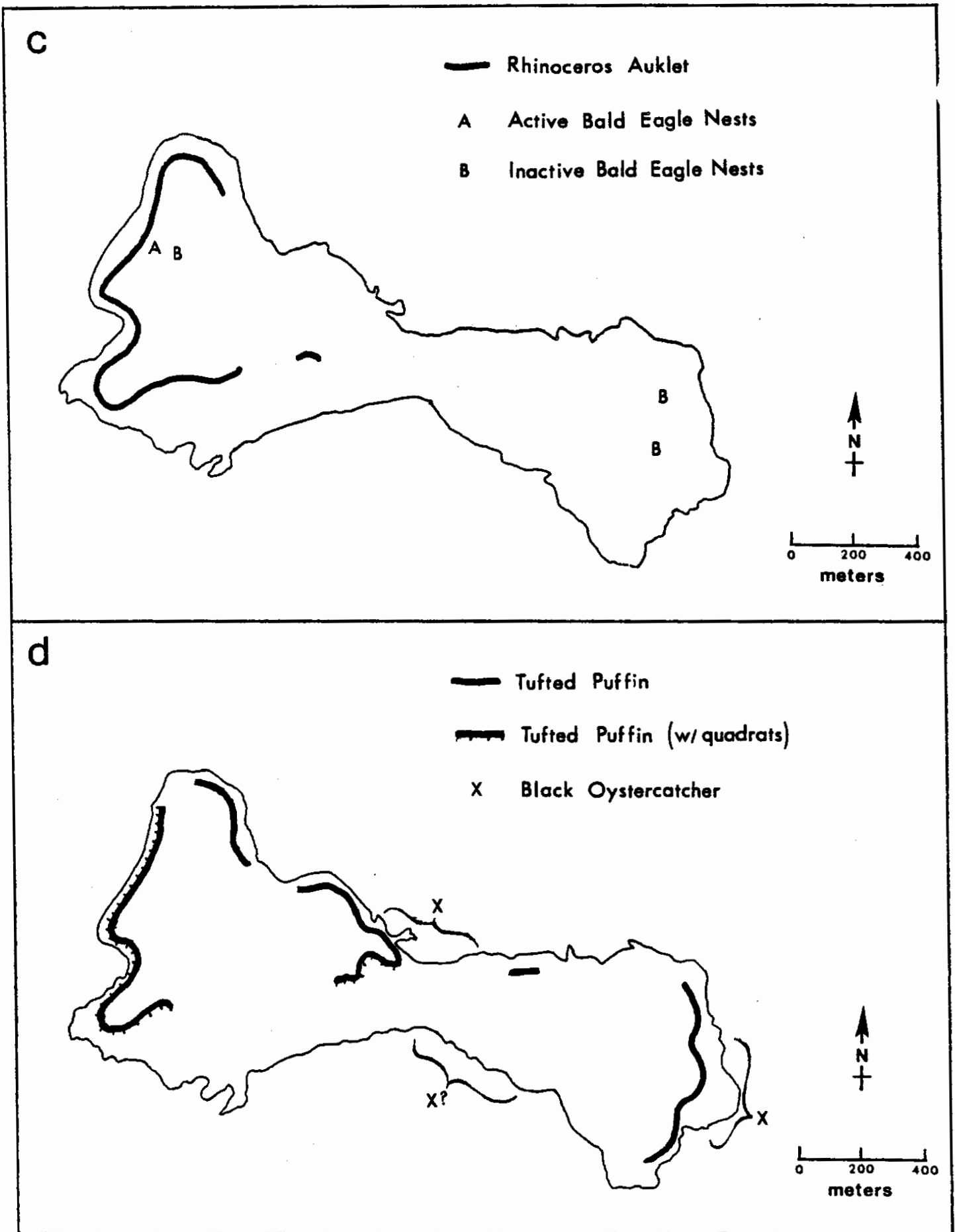


FIGURE B-3. Continued.

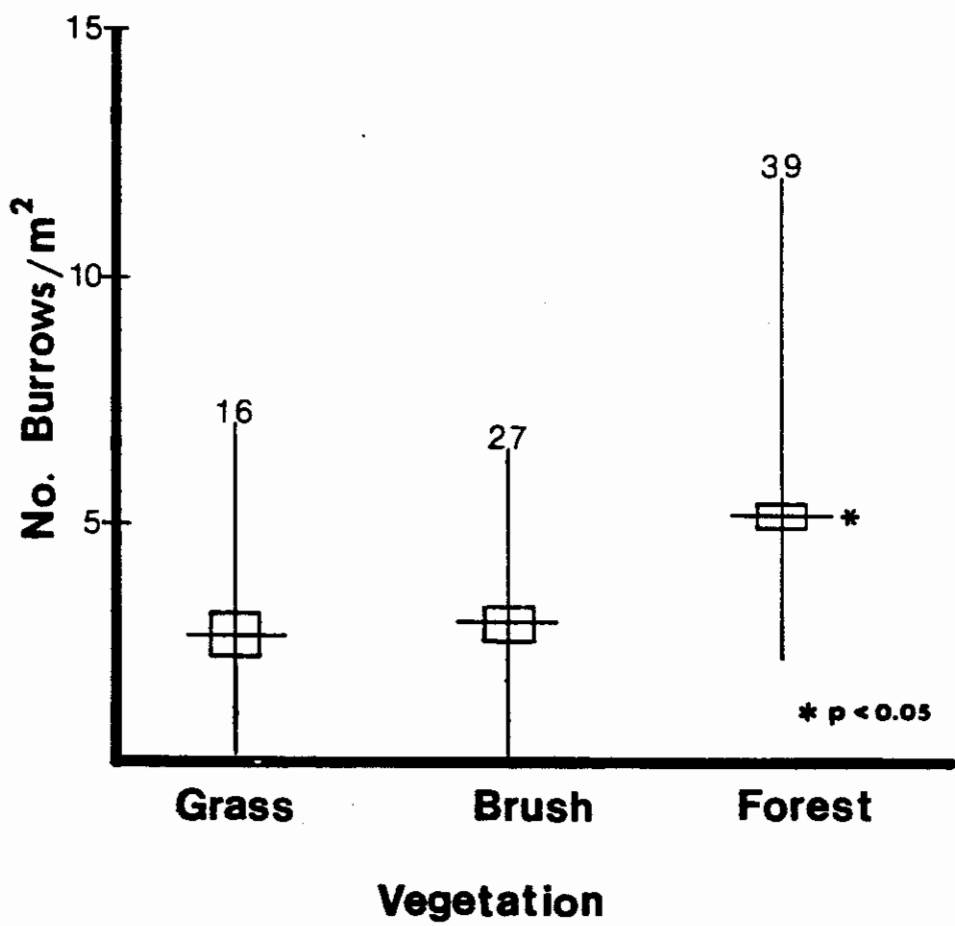


FIGURE B-4. Mean number of storm-petrel burrows found in 82 2m x 2m quadrats on St. Lazaria Island. The boxes delineate standard error and vertical lines represent range. Numbers at the top indicate sample size.

SHORELINE TRANSECTS ALONG THE OUTER COAST
OF THE ALEXANDER ARCHIPELAGO, 21 MAY TO 9 JUNE 1981

by

David R. Nysewander and Arthur L. Sows

APPENDIX C

of

MARINE BIRD AND MAMMAL SURVEY OF THE OUTER COAST
OF SOUTHEAST ALASKA, SUMMER 1981

Arthur L. Sows, David R. Nysewander, John L. Trapp, and Jay W. Nelson

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October 1982

While conducting Peregrine Falcon nest searches and seabird colony surveys we recorded all birds seen along the coast. Observations were made under a variety of weather and visibility conditions; we did not attempt to maintain a standard transect width. Birds were counted as they were seen; usually the boat was not stopped for identification unless we thought it was something unusual. Table C-1 describes locations and dates of the transects, and transect locations are illustrated in Figures C-1 and C-2.

A total of about 8,777 birds, including 25 species of waterbirds and 4 species of land birds, were recorded during the coastal surveys (Table C-2). Rhinoceros Auklets (relative abundance of 26.7%), Pelagic Cormorants (25.4%), and Glaucous-winged Gulls (21.7%) were the most abundant species. Other species having relative abundance of 2% or more included Marbled Murrelet, Pigeon Guillemot, Bald Eagle, and Common Murre.

Table C-1. Shoreline Transects, 29 May to 9 June 1981

<u>Transect No.</u>	<u>Description</u>	<u>Time</u>	<u>Date</u>
1	Wolf Harbor to Port Bazan	1530-1830	29 May
2	Port Baxan to Bob's Bay	1000-2000	30 May
3	South Shore of Suemez Island	-0940	31 May
4	West Shore of Suemez Island	0940-	31 May
5	East Side of Baker Island	-	31 May
6	West Side of Baker Island	-	31 May
7	Craig to Cone Island	1045-1145	1 June
8	South Shore Noyes Island	1200-1335	1 June
9	Cape Addington to Bay South of Roller Bay	1350-1415	1 June
10	Bay South Roller Bay to Cape Ulitka	1415-1600	1 June
11	North Shore Noyes Island and St. Joseph Island	1600-1800	1 June
12	Steamboat Bay - Misc. Observation	0800-0820	2 June
13	South and West Side Warren Island	1500-1600	2 June
14	Warren Cove to Bluff Island	1435-1515	2 June
15	Bluff Island to Pt. St. Albans	1535-1612	2 June
16	Pt. St. Albans to Fairway Island	1615-1640	2 June
17	Fairway Island to Cape Decision	1640-1700	2 June
18	Cape Decision to Coronation Is. along W. side Spanish Is.	1700-1800	2 June
19	East Side Spanish Island	1610-1650	2 June
20	North Shore Coronation to Egg Harbor	1657-1830	2 June
21	Egg Harbor to 1/3 way to Hazy Is. and back to Windy Bay	0830-1100	3 June
22	Cora Pt. to Pt. Howard via West Side Spanish Island	-1810	4 June
23	Pt. Howard to Malmesbury Bay	1820-1920	4 June
24	Port Conclusion to Cape Ommaney	0904-0946	5 June
25	Cape Ommaney to Westside Branch Bay	0955-1224	5 June
26	Branch Bay to North Cape	1316-1645	5 June
27	North Cape to Jamboree Bay	1645-1840	5 June
28	Bieli Rocks to Low Island	0950-1020	7 June
29	Sitka Pt. to Cape Edgecumbs	1125-1200	7 June
30	Cape Edgecumbs to Pt. Amelia	1200-1412	7 June
31	Pt. Amelia to Cape Georgiana	1554-1752	7 June
32	Cape Georgiana to Baird Island	1800-2006	7 June
33	Takanis Bay to Soapstone Pt.	0914-1224	9 June
34	Soapstone Pt. to Palma Bay	1312-1540	9 June

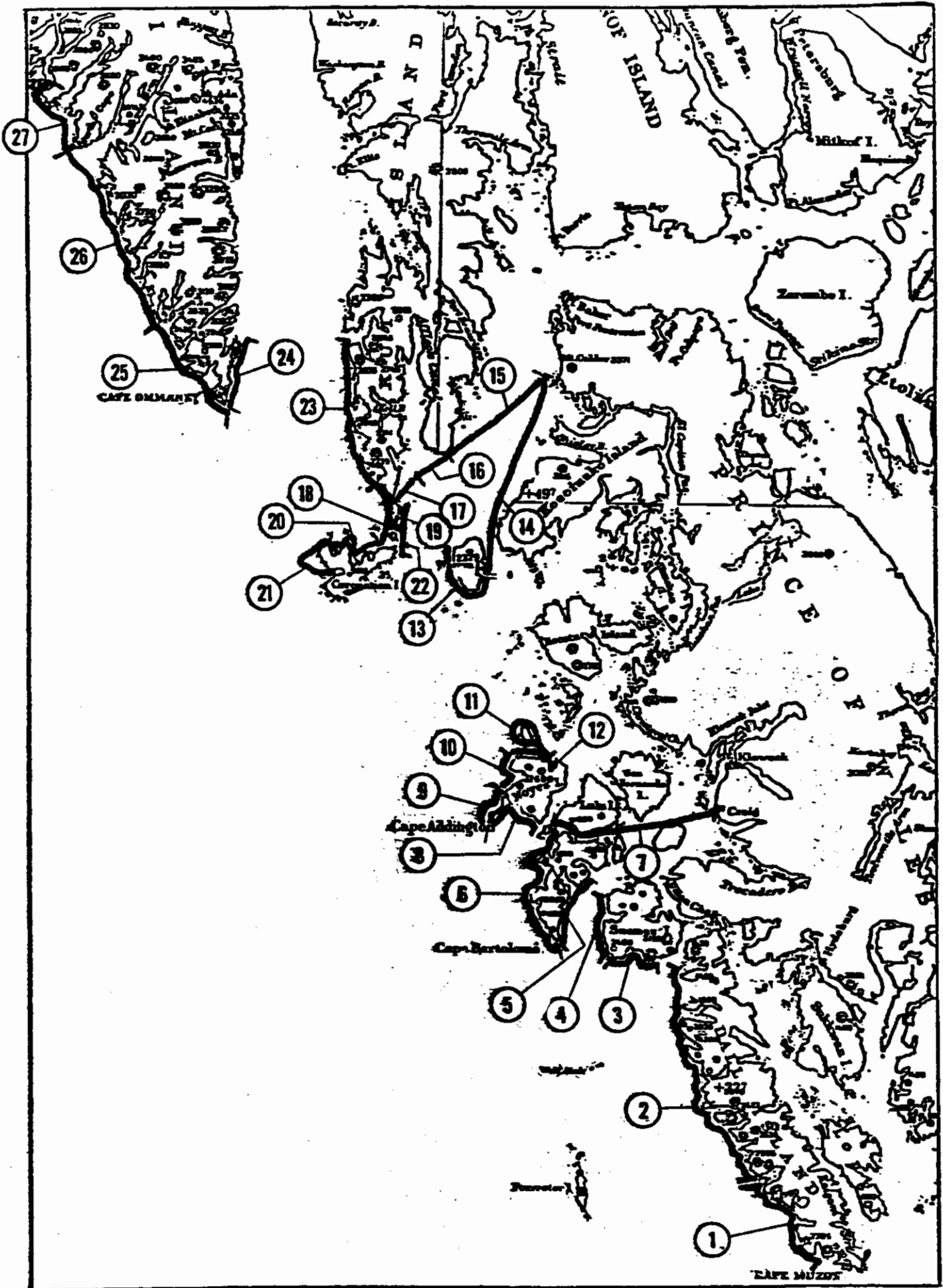


Figure C-1. Locations of shoreline transects 29 May to 5 June 1981.

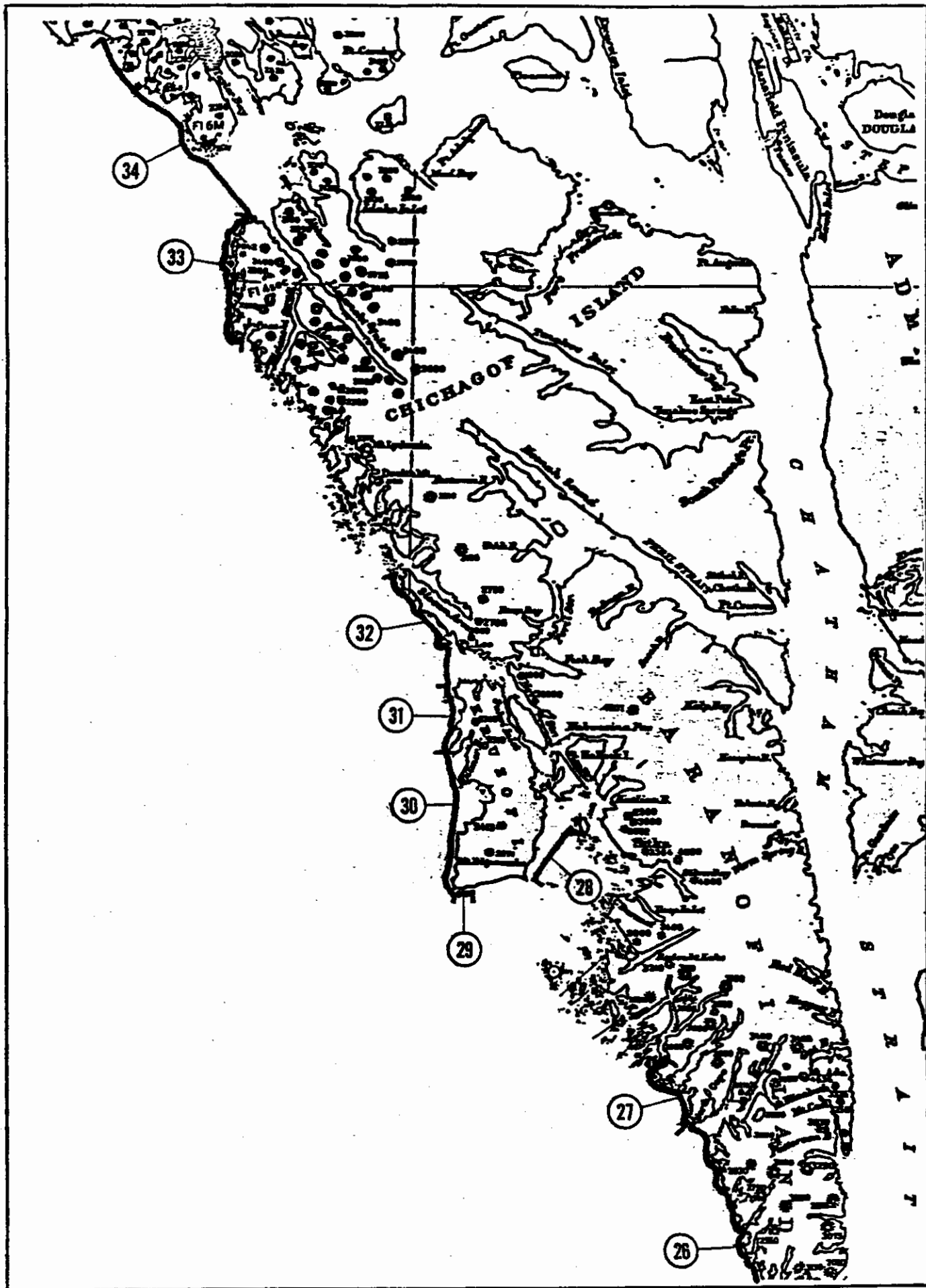


Figure C-2. Locations of shoreline transects 5 June to 9 June 1981.

Table C-2. Results of shoreline transects, 29 May to 9 June 1981.

SPECIES (in order of abundance)	TRANSECT NUMBER													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Rhinoceros Auklet	3	1,053	279	332	39	253	2	34	20	94	96	13		
Pelagic Cormorant	16	285+	59	183	67	572	7	7	175	250	51	29	6	
Glaucous-winged Gull	14	52	29	81	45	390	23	49	42	611	42	87	11	
Marbled Murrelet	7	24	28	205+	16	17	8		1		25	9	101	
Pigeon Guillemot		51	49	5	26	7	26	16	10	1	15	2		
Bald Eagle	7	19	2	31	16	45	14	34	7		6	1	2	
Common Murre		2	33	1	14	2		1					1	
Black-legged Kittiwake														
White-winged Scoter				9							3			
Arctic Loon		21	2	13	17	3	1					6		
Mew Gull		1												
Harlequin Duck		11								2	56		1	
Northwest Crow									1					
Peregrine Falcon	1		1		1	8			3			1		
Black Oystercatcher		5	10			5								
Other	1 ^D 1 ^E 2 ^G 1 ^L			1 ^I 7 ^D					2 ^H 1 ^M 1 ^K					
TOTALS	53	1,524	493	867	241	1,302	80	145	259	959	238	143	62	121

A = Surf Scoter
 B = Black Brant
 C = Horned Puffin
 D = Common Loon
 E = Unid. Loon
 F = Unid. Scoter
 G = Common Merganser
 H = Common Raven
 I = Ancient Murrelet
 J = Red-throated Loon
 K = Northern Fulmar
 L = Red-necked Grebe
 M = Red-tailed Hawk
 N = Glaucous Gull
 O = Wandering Tattler
 P = Tufted Puffin
 Q = Great Blue Heron

Table C-2 continued.

SPECIES (In order of abundance)	TRANSECT NUMBER													TOTALS
	15	16	17	18	19	20	21	22	23	24	25	26	27		28
Rhinoceros Auklet				42	25	7	2				12			30
Pelagic Cormorant	1	2		20	9	26					136			41
Glaucous-winged Gull	1			95	5	68	1	18			95	6		4
Marbled Murrelet	54	8	4		4		2	2					2	2
Pigeon Guillemot					86	40	3	1	17	2		3		2
Bald Eagle		5		4	7	7	1	2	7	53	11	6		1
Common Murre				2	2	11	49	11	36		2			13
Black-legged Kittiwake														3
White-winged Scoter					2				2		3			
Arctic Loon				2	8	2		1		36		1		1
New Gull					22			10	44	3				
Marlequin Duck		4					1							
Northwest Crow						3								
Peregrine Falcon						2	1	2		4		2		
Black Oystercatcher					2						1			1
Other	5 ^F	12 ^H			11 ^A 2 ^G 1 ^M 2 ^Q	2 ^P		4 ^E		30 ^A 1 ^G 1 ^J				
TOTALS	61	31	4	165	20	168	58	53	106	373	23	14		98

A = Surf Scoter
 B = Black Brant
 C = Horned Puffin
 D = Common Loon
 E = Unld. Loon
 F = Unld. Scoter
 G = Common Merganser
 H = Common Raven
 I = Ancient Murrelet
 J = Red-throated Loon
 K = Northern Fulmar
 L = Red-necked Grebe
 M = Red-tailed Hawk
 N = Glaucous Gull
 O = Wandering Tattler
 P = Tufted Puffin
 Q = Great Blue Heron

Table C-2 continued.

SPECIES (In order of abundance)	TRANSECT NUMBER							Relative Abundance
	29	30	31	32	33	34	Total	
Rhinoceros Auklet		4					2,340	26.7
Pelagic Cormorant	6	4	2		260	12	2,226	25.4
Glaucous-winged Gull	2	46			1	1	1,907	21.7
Marbled Murrelet							523	6.0
Pigeon Guillemot			3	5	4	4	378	4.3
Bald Eagle	3	5	8	12	13	18	353	4.0
Common Murre		3	5				191	2.2
Black-legged Kittiwake		1			125	33	162	1.8
White-winged Scoter			90		42	3	154	1.8
Arctic Loon			2			11	127	1.4
New Gull						18	98	1.1
Harlequin Duck							75	.9
Northwest Crow			4	4	34	7	53	.6
Peregrine Falcon	1	3	4	1		5	40	.5
Black Oystercatcher						7	31	.3
Other	5 ^C	2 ^C 2 ^H 1 ^O 1 ^P	3 ^I			12 ^A 2 ^C 3 ^J	119	1.3
TOTALS	17	72	121	22	479	136	8,777	100.0

M = Red-tailed Hawk
N = Glaucous Gull
O = Mandering Tattler
P = Tufted Puffin

I = Ancient Murrelet
J = Red-throated Loon
K = Northern Fulmar
L = Red-necked Grebe

E = Unid. Loon
F = Unid. Scoter
G = Common Merganser
H = Common Raven

A = Surf Scoter
B = Black Brant
C = Horned Puffin
D = Common Loon

Q = Great Blue Heron

SMALL BOAT SURVEYS OF WATERBIRDS,
SITKA SOUND, JULY 1981

by

Jay W. Nelson and Arthur L. Sowls

APPENDIX D

of

MARINE BIRD AND MAMMAL SURVEY OF THE OUTER COAST
OF SOUTHEAST ALASKA, SUMMER 1981

Arthur L. Sowls, David R. Nysewander, John L. Trapp, and Jay W. Nelson

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October 1982

A census of breeding seabirds gives only a partial picture of a region's marine avifauna. Non-colonial waterbirds and non-breeding birds are not represented by breeding colony censuses. Small boat surveys were designed to census those species which are impossible to census at breeding sites and document the densities, relative abundances and feeding sites of marine bird species.

Dick et al. (1976) discussed many of the problems with data collection from small boats. For the most part our transects were done in calm weather or in protected bays. We counted all birds within 100 m to each side of our small inflatable raft. Under most of the weather conditions on our surveys, visibility was good. We feel most birds were counted. Since we had no navigational equipment, our surveys ran from point of land to point of land (Fig. D-1). As a result, transects were of different lengths; a comparison of birds/km² on each transect gives an idea of abundance and distribution (Table D-1). Our field data are presented in Table D-2. It should be noted that some transects were run several times, others only once.

Our transects covered an area of approximately 31.2 km² within the 650 km² area of interest (Fig. D-1). Densities of bird species and relative abundance are presented in Table D-3 along with an estimated local population for each species. Calculations of the population are based on the assumption that our transects sampled a representative area. We sampled approximately 4.89% of the surface area. If anything, our transects underestimated populations since productive offshore waters are under-represented in the sample. Of course, certain inshore species may then be overestimated. However, we feel the information presented in Table D-3 provides a useful index to marine bird populations on the bays around Sitka.

Marbled Murrelets were the most abundant species, representing almost half of all the birds sighted. Large numbers nest throughout southeast Alaska (Gabrielson and Lincoln 1959) but are over looked during breeding surveys because of their non-colonial, tree-nesting habits. Isleib and Kessel (1973) estimate that this species composes the "greatest avian biomass in Prince William Sound". Only with extensive boat surveys could the southeast Alaska population be estimated but we feel our estimate of 5000 birds in the vicinity of Sitka gives a clue as to the significance of local populations in southeast Alaska.

Marbled Murrelets were concentrated in three locations. The densest concentration, along with large numbers of Rhinoceros Auklets, was present near Vitskari Island ("B") in a shallow rocky bottom area. Other concentrations occurred near Little Biorka Island ("C"), again with Rhinoceros Auklets, and near Povorotini Point ("P"). All of these rocky areas are less than 16 fathoms in depth. However, other areas with similar characteristics had no Marbled Murrelets.

Few birds were found on the inshore transects except near prominent points. Enclosed bays were almost devoid of water birds and there were several transects on which no birds were observed. Ducks and Mew Gulls occurred occasionally in these areas. One flock of 190 White-winged Scoters amounted to 68% of that species' sightings and probably resulted in an overcount. What we believe to be the second state record of the Caspian Tern (D. D. Gibson, pers. comm.) occurred during the surveys.

Breeding Pigeon Guillemots number several hundred in this area, and yet we counted only seven birds on the transects. Clearly these birds are closely tied to the colonies at this time of year. The estimated number of Pigeon Guillemots from our transects is 65. This only represents that portion of the population away from breeding colony sites.

Literature Cited

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- Gabrielson, I.N. and F.C. Lincoln. 1959. The Birds of Alaska. Wildlife Management Institute, Washington, D.C. 922 pp.
- Isleib, M.E., and B. Kessel. 1973. Birds of the North Gulf Coast - Prince William Sound Region, Alaska. Biol. Pap. Univ. Alaska 14. 149 pp.

Table D-1. Densities of birds seen on small boat transects, Sitka and vicinity, 7-11 July 1981.

<u>Transect^a</u>	<u>Approx. Length (km)</u>	<u>Average Birds/km²</u>
A - B	12.5	40.2
B - C	14.0	45.5
C - D	8.5	32.0
D - E	7.5	15.3
E - F	4.5	4.4
F - G	2.0	10.0
G - H	5.5	2.7
H - I	6.5	3.1
I - J - I	15.0	0.3
I - K	7.5	0.0
K - L	3.0	0.0
L - D	3.5	12.8
D - M	3.5	30.0
M - N	9.5	44.9
N - O - P	17.5	13.6
P - Q	6.5	14.9
Q - R	5.5	6.4
R - S - R	15.0	0.1
R - T	<u>8.5</u>	<u>0.4</u>
Total	156.0	16.4 ^b

^aSee Fig. D-1 for transect locations

^bExcludes Bald Eagles and marine mammals

Table D-2. Results of small boat transects in Sitka Sound and vicinity 7-11 July 1981.

SPECIES	A ----- B		B ----- A		B ----- C		C ----- D		D ----- C		E ----- D		F ----- E		G ----- F		H ----- G		I ----- H	
	8 July 1537-1617	9 July 1400-1440	7 July 1830-1903	8 July 2115-2159	9 July 1610-1650	7 July 1750-1826	9 July 1650-1713	7 July 1640-1705	11 July 1407-1431	11 July 0945-1010	11 July 1010-1020	11 July 1020-1030	11 July 1030-1045	11 July 1045-1100	11 July 1100-1115	11 July 1115-1130	11 July 1130-1145	11 July 1145-1200	11 July 1200-1215	11 July 1215-1230
Unidentified Loon	7					1	15	3	4											3
Pelagic Cormorant																				
Unidentified Duck																				
Harlequin Duck																				
White-winged Scoter																				
Red-breasted Merganser																				
Bald Eagle																				
Northern Phalarope		13		1																
Glaucous-winged Gull	2	2		3	7	4	2	2	3											1
Herring Gull																				
New Gull																				
Black-legged Kittiwake																				
Caspian Tern																				
Common Murre																				
Pigeon Guillemot	1																			
Marbled Murrelet	71	147	27	84	64	11	35	30	20	9										3
Rhinoceros Auklet	7	7	13	13	39	11		9	14	1										
Tufted Puffin																				
Stellar Sea Lion																				
Harbor Seal																				
TOTALS ^b	88	169	41	103	113	39	50	68	45	23	4	4 ^b	3							4

^a See figure C-1 for actual locations.

^b Total excludes Bald Eagles and marine mammals.

Table D-2 continued.

SPECIES	I - J - K		I - K		K - L		L - D		D - M		M - N		N - O - P		P - Q	
	11 July 1115-1153	11 July 1153-1210	11 July 1210-1215	11 July 1400-1407	9 July 1755-1805	7 July 1620-1630	11 July 0930-0945	9 July 1805-1821	7 July 1530-1620	11 July 0908-0930	7 July 1412-1530	11 July 0819-0908	9 July 1821-2032	9 July 2032-2045	7 July 1355-1412	
Unidentified Loon																
Pelagic Cormorant																
Unidentified Duck									4					12		
Harlequin Duck											5					
White-winged Scoter								190			38					
Red-breasted Merganser					32			8					1			
Bald Eagle						1		2							1	
Northern Phalarope																
Glaucous-winged Gull				3		2		40								
Herring Gull				6				1								
Mew Gull	1															
Black-legged Kittiwake																
Caspian Tern																
Common Murre																
Pigeon Guillemot											1			3		
Marbled Murrelet					28						24			2		
Rhinoceros Auklet																
Tufted Puffin																
Stellar Sea Lion																
Harbor Seal																
TOTAL ^{a,b}	1	0	0	9	60	2 ^b	1	12	239	5 ^b	43 ^b	72 ^b	28	3	17 ^b	

^a See figure C-1 for actual locations.

^b Total excludes Bald Eagles and marine mammals.

Table D-2 continued.

SPECIES	P		Q		R		S		R		T		Total Number Birds Observed
	11 July 0800-0819	9 July 2045-2050	7 July 1340-1355	11 July 0749-0800	7 July 1315-1340	9 July 2050-2105	11 July 0726-0749	9 July 2105-2110	7 July 1300-1315	11 July 0711-0726	T	R	
Unidentified Loon		1											1
Pelagic Cormorant	1												35
Unidentified Duck					1								1
Harlequin Duck													21
White-winged Scoter	5												276
Red-breasted Merganser													41
Bald Eagle	2						2		1				12
Northern Phalarope													36
Glaucous-winged Gull													114
Herring Gull													3
New Gull													15
Black-legged Kittiwake													2
Caspian Tern													2
Common Murre													36
Pigeon Guillemot													7
Marbled Murrelet	32	1	18	1						2			777
Rhinoceros Auklet													167
Tufted Puffin													4
Stellar Sea Lion													2
Harbor Seal				1									1
TOTALS ^b	38 ^b	2	18	1 ^b	1	0	0 ^b	0 ^b	0	2			1,538 ^b

^a See figure C-1 for actual locations.

^b Total excludes Bald Eagles and marine mammals.

Table D-3. Numbers, densities, and relative abundance of birds and marine mammals seen on small boat transects in Sitka Sound and vicinity, 7-11 July 1971

Species	Mean Density (Birds/km ²)	Relative ^{a,b} Abundance (%)	Estimated ^c Number of birds in Survey Area
Birds			
Unid. Loon	+	0.06	+
Pelagic Cormorant	0.4	2.54	260
Unid. Duck	+	0.06	+
Harlequin Duck	0.2	1.37	130
White-winged Scoter	2.9	18.00	1885
Red-breasted Merganser	0.4	2.68	260
Bald Eagle	0.2	--	130
Northern Phalarope	0.3	2.11	195
Glaucous-winged Gull	1.4	8.27	910
Herring Gull	+	0.20	+
Mew Gull	0.3	1.90	195
Black-legged Kittiwake	+	0.14	+
Caspian Tern	+	0.14	+
Common Murre	0.6	3.62	390
Pigeon Guillemot	0.1	0.68	65 ^d
Marbled Murrelet	7.7	47.24	5005
Rhinoceros Auklet	1.7	10.36	1105
Tufted Puffin	0.1	0.64	65 ^e
Mammals			
Steller's Sea Lion	0.1	--	65
Harbor Seal	+	--	+
Total	16.4+	100.01	10270

^aExcludes Bald Eagles and marine mammals

^bRelative abundance: Number of birds of each species divided by the total number of birds of all species, or the percent of total birds.

^cSee Figure 1 for location of survey area. Numbers calculated from density times the survey area of 650 km²

^dCommon bird in Sitka Sound but the vast majority are in close proximity to breeding sites and thus are not recorded on transects.

^eAbundant on St. Lazaria Island and several other colonies.

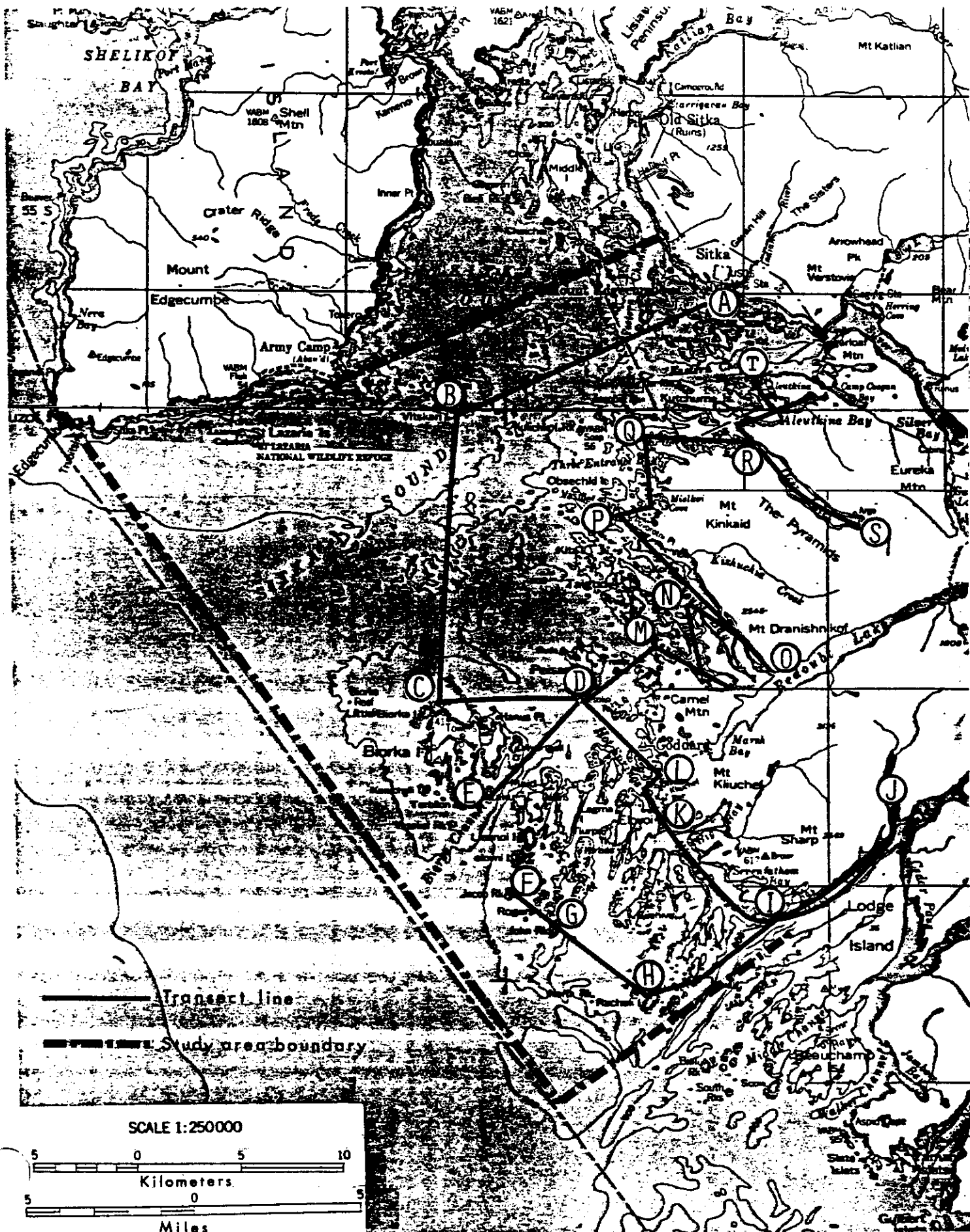


Figure C-1. Location of small boat transects in Sitka Sound and vicinity, 7-11 July 1981

MARINE MAMMAL SIGHTINGS, SOUTHEAST ALASKA, MAY-JULY 1981

by

David R. Nysewander and Arthur L. Sows

APPENDIX E

of

MARINE BIRD AND MAMMAL SURVEY OF THE OUTER COAST
OF SOUTHEAST ALASKA, SUMMER 1981

Arthur L. Sows, David R. Nysewander, John L. Trapp, and Jay W. Nelson

U.S. Fish and Wildlife Service
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Marine Bird Management Project
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October 1982

Harbor Porpoise

- 27 May - One near shore south of the town of Petersburg.
- 1 June - A single and a pair near the mouth of Steamboat Bay, Noyes Island.
- 7 June - One near Inner Pt., Kruzof Island at 0930.
- 9 June - Two on the outer coast of Glacier Bay National Monument.
- 10 June - Two in the silty waters of Taylor Bay, Glacier Bay National Monument.

Dall's Porpoise

- 26 May - Many groups ranging in size up to 10 individuals near the tip of the Glass Peninsula, Stephen Passage.
- 27 May - Approximately six rode the bow of the M/V Surfbird at 1400 near Key Reef in Clearance Strait. Five rode the bow at 1445 by Lincoln Rock, Clearance Strait.
- 5 June - One near Port Lucey, Baranof Island.

Cetaceans

- 27 May - Three Humpback Whales off Bushy Island, Clearance Strait, at 1300.
- 29 May - Large whale (probably Fin or Humpback) east of Cape Muzon traveling east at 1450.
- 5 June - Two humpback whales near mouth of Snipe Bay, Baranof Island.
- 7 June - Saw three smaller whales blow near the mouth of Gilmer Bay, Kruzof Island; Nysewander thought they were Minke Whales.
- 10 June - We saw at least five Humpback Whales and one Minke Whale in Icy Strait from the M/V Surfbird while on our way back to Juneau.

River Otter

River Otters are an important predator at seabird colonies and we recorded any signs of river otters on Colony Status Records (Appendix A) under the predator section. These forms should be checked since they contain the majority of our river otter sightings. Listed below are additional sightings:

30 May - On the westernmost island off Port Bazan, trails and droppings were seen. Three denning areas, of which two seemed active, were found. Fish remains, abalone and invertebrates were present in the scats - no feathers were noted.

9 June - Saw a river otter on an island off Surge Bay, Yakobi Island. Trails were all over the island and scat indicated a fish diet. The island looked like a good seabird island, but none were present.

Sea Otter

2 June - Nine, including two with pups, were seen by the offshore rocks in the kelp on the north side of Wood Island in the Maurelle Island group. Sea Otters were common in the Spanish Islands. A total of four observers on two small boats counted sea otters on the east and west sides of the islands while doing bird surveys. Three were seen on the east side and 52 (at least 15 with pups) were seen on the west side. Also, 16 additional sea otters were seen along the north shore of Coronation Island.

3 June - Nine were seen between Egg Harbor and Windy Bay, Coronation Island.

4 June - The west side of Spanish Islands was again censused and 49 were counted (cf. with the 52 counted in this area on June 2).

8 June - Sixty (some with pups) were seen along the coast between Myriad Islands and Takanis Bay. A pair was seen mating near the White Sisters Islands at 1400.

9 June - Forty-seven (some with pups) were seen in the Surge Bay area of Yakobi Island.

10 June - Two were seen east of Cape Decision. These were the only ones we saw on the north side of Cross Sound. They were much more common along the south side of the Sound, where 13 were counted. Five by "Althrop Rock" colony and eight between Column Pt. and Granite Cove.

7 July - Two with one pup were seen in the Necker Islands. They were north of the small islands due east of "The Beehive" on Gulf Island. These were the only sea otters seen in the Necker Islands, although this was where we spent the most time.

Harbor Seal and Steller's Sea Lion

Steller's Sea Lions and Harbor Seals were often associated with the islands and rocks censused during our seabird colony surveys. The majority of our data on these species is recorded on Colony Status Records (see Appendix A). The three primary rookeries of sea lions were Hazy Islands (585), Biali Rocks (777), and White Sisters (1109). Eagle Rock (400 animals) near Cape Ommaney was a large loafing site.

30 May - On transect #2 (see Appendix C for locations of the transects), 1 harbor seal and 15 sea lions were seen. Nine of the sea lions and one of the harbor seals were on the westernmost rock off Port Bazan.

31 May - One harbor seal on transect #3; one harbor seal and one sea lion on transect #4.

1 June - Four sea lions on transect #8; five sea lions on transect #11.

2 June - Nine harbor seals on transect #18, four on transect #16.

4 June - One harbor seal on transect #22.

5 June - Fourteen harbor seals and one sea lion on transect #24. On Eagle Rock, west side of Cape Ommaney, 400 sea lions were hauled out.

7 June - Counted 132 harbor seals hauled out on Low Island, southeast side of Kruzof Island; six harbor seals on transect #32.

9 June - Nine harbor seals on transect #33, and 31 (at least four with pups) on transect #34.