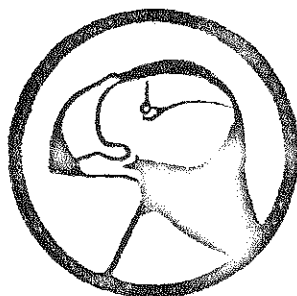


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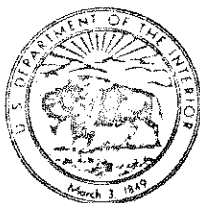
Catalog of Seabird Colonies

by

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ABSTRACT

This report discusses progress toward completion of a catalog which summarizes status of seabird colonies for the state of Alaska, and provides revisions of map areas 24 Unimak, 49 Blying Sound and 50 Seldovia for which significant new information is available.

Information of varying quality is available for 820 colony areas with populations of more than 19 million birds. A major geographic gap in our data is on colonies in the eastern Aleutians which are adjacent to proposed developments in the Aleutian and St. George Basins.

INTRODUCTION

Seabirds are likely to be most heavily impacted by OCS development when disturbance, pollution, etc., occurs near their colony sites. Colony sites represent areas of major concentration and many species are restricted to within daily commuting distances of the colony during the nesting period.

The objective of this study is to provide the basic information on colony location, composition and size needed to permit identification of vulnerable areas or species.

A preliminary catalog of colonies in the Gulf of Alaska and Bristol Bay was provided for earlier reports. This report provides updates of maps 24 Unimak, 49 Blying Sound and 50 Seldovia. Substantial additional new data has been accumulated and will be summarized in subsequent reports. A catalog summarizing the location and status of colonies for the entire state will be published by December 31, 1977 and will represent the best available data as of that time. In the interim, we have made available to the primary data users (BLM's OCS office, all OCSEAP investigators, ADF&G habitat division, State of Alaska Coastal Zone Management) the open-file of the colony status records, which since our data base is constantly expanding, represent the most comprehensive information source.

Seabird colony sites represent critical habitat that warrants special management consideration by resource planners and developers. While a preliminary catalog, as the name implies, is not definitive, it nonetheless identifies critical habitat, provides a base for which information may be added, upgraded or corrected and identifies deficiencies in the data base.

STATE OF KNOWLEDGE

The coastline of Alaska is over 34,000 miles long. Most of it is remote, poorly charted and frequented by violent storms. These factors along with the previous lack of research effort and the difficulty of censusing colonies have left gaps in the coverage, estimations of numbers and accounting of all species.

A review of information on colonies existing prior to OCSEAP appeared in our Annual Report of April 1976. OCSEAP has provided a large amount of new data, although colony censusing continues to be a side product of site specific studies and generally has not covered large sections of coastline. Large areas exist where we still do not know of all the major colonies. In some areas, data are available only from opportunistic observations from ships or low flying aircraft and do not include ground observations necessary to determine occurrence of many species. Figure 1 shows areas of fairly complete data and Figure 2 shows areas of little or very incomplete coverage. Areas not shaded on either map are of intermediate coverage or are zones where we have yet to receive data from cooperators.

STUDY AREA

While contract requirements stipulate gathering information for those regions being considered for oil and gas leasing, the U.S. Fish and Wildlife Service is cataloging all seabird colonies within Alaska as well as the Atlantic, Gulf and Pacific states. In this report we discuss progress on the Alaskan cataloging effort which will produce a catalog for publication for the entire state by December 31, 1977.

METHODS

Funding for these two research units does not provide for field work. All data is gathered through passive means by:

- 1) Review of literature (approximately 5% of data).
- 2) Review of unpublished data and reports (approximately 20%).
- 3) Opportunistically through RU# 341/342 (approximately 30%).
- 4) Contributions from cooperators - ADF&G, other OCSEAP studies, amateur ornithologists, etc. (approximately 45%).

When possible, summaries done from the literature and unpublished reports are sent to the original investigator for review. Maps are included to delineate colony location and extent. An open file on each colony is retained in our office where information is added, upgraded, or corrected. Photographs and sketches, when available, are included as part of the file.

The basic summarization form and instructions have been modified (figure 3), primarily to facilitate standardization and to emphasize the importance of maps of the colony areas. These forms are filed by a number of which the first three digits designate the U.S. Geological Survey map 1:250,000 (figure 7) in which they occur. Digits 4-6 are sequentially added as new areas are located and digits 7-8 are used if subdividing is required. All forms are copied and filed separately under corresponding map numbers at our office.

Format for the final report (Dec. 1977) has been modified (see maps 24a-50b, and tables 24a-50b). Modifications were necessary to improve map quality, facilitate data additions and interpretations and to meet OCSEAP format requirements. Colony areas and their relative size are shown on reductions of 1:250,000 scale maps and cross-referenced with tabular information on species composition, numbers, source and date of information.

While many people are contributing to information in the colony catalog, particular recognition must be given to the following, for use of their data to update maps 24, 49 and 50. J. Larson, N. Faust, G. Gilbert, and D. Follows (NPS), B. Lehnhausen, and S. Quinlan (U. of Alaska), P. Arneson, D. Kurhajec, and D. Erikson (ADF&G) and G. Watson, V. Byrd, G. Divoky, and E. Bailey (USFWS).

RESULTS

Table 1 gives a summary of colony areas and estimated numbers of seabirds in colonies cataloged in our files at this time. In some areas, primarily in the Gulf of Alaska, these figures represent extensive censusing and probably all major colonies have been identified, with the exception of those of nocturnal birds. For areas outside the Gulf of Alaska, we have just begun to accumulate data and Table 1 probably grossly underestimates the number of colony areas and birds. Our data base for these areas will improve greatly as we acquire data from cooperators. Table 1 is meant as an indication of progress in filing data and not to be used as a base to make regional comparisons.

Updates of maps 024 Unimak, 049 Blying Sound, and 050 Seldovia are included in this report. Quality of data improved dramatically for these regions during the last summer. Updates of other regions are in progress.

Map 024 Unimak, went from 4 colony areas to 13. Population estimates were adjusted upward by 392,000 birds, which included the addition of ten species not included in last year's report. This region still needs extensive censusing, as records obtained to date are primarily from opportunistic observations from ships and do not cover all shorelines. Few land based observations were made and little time was spent deriving accurate estimates of populations.

Map 049 Blying Sound had extensive censusing covering all shoreline east of Cape Resurrection, except for Resurrection Bay north of Callisto Point. Many landings were made and colonies of petrels and Rhinoceros Auklets (nocturnals normally missed) were found in several locations. Generally, population estimates for nocturnal species were not made. This portion of 049 had 21 colony areas added, estimates of numbers adjusted downward by 29,000 birds and 6 species not previously reported here were added. The decrease on the population estimates was due to colony area 003, which Leroy Sowl (1971) estimated 25,000 Black-legged Kittiwakes, 1,000 Horned Puffin and 10,000 Tufted Puffin. Edgar Bailey (1976) found no Black-legged Kittiwakes and estimated only 130 Horned Puffin, 100 Tufted Puffin, 500 Glaucous-winged Gulls, 400 Red-faced and 72 Pelagic Cormorants. Sowl's survey was aerial and he may have interpreted a large feeding flock of kittiwakes as indicating a colony site or perhaps where there has been dramatic changes since 1971. Reproduction of Black-legged Kittiwakes have been reported as failing drastically in some location in 1976 (USFWS unpublished data) and may not have even attempted to nest here this year.

Map 50 Seldovia, had extensive censusing similar to 049. Twenty-nine colony areas were added, population estimates were adjusted upward by 6,000 birds and three species not previously reported were added.

DISCUSSION

The catalog, at present, includes colonies with a total of approximately 19,000,000 birds. Most of the very large colonies have probably been identified, yet we lack reliable estimates of the number of birds on many of them. Populations of large colonies completely overshadow small colonies and are geometrically harder to estimate in the "fast and dirty" surveying that has been necessary to date. Generally, we feel that the estimates tend to be conservative, especially on larger colonies.

Conspicuous by its absence are data on colonies of storm petrels and small alcids. These birds nest in burrows or talus, and their colonies are not apparent to observers passing by in either boats or aircraft. When considering that fewer than eight nests of Kittlitz's murrelets and possibly only two nests of Marbled murrelets have ever been recorded by ornithologists, it is understandable that they do not contribute importantly to the catalog even though qualitatively and quantitatively they represent important elements of the seabird population of Alaska.

Information varies in quality from colony to colony and is usually dependent upon who made the observations and under what circumstances. Accurate counts might be expected where the observer spent several days near a colony during periods when nest attendance was greatest, but counts might be less than that desired when made from an aircraft.

At this state in OCSEAP planning what is of primary importance is knowing where important colonies, i.e., critical habitats are located. It matters little whether the colony contains 100,000 or 200,000 birds. It is critical habitat. Fortunately, cataloging of colonies at this level is relatively easy provided manpower and suitable platforms are available.

CONCLUSIONS

We believe that the catalog will be one of the most useful products of all OCSEAP studies on marine birds, since critical habitats that could be impacted by drifting oil or onshore developments will be identified and mitigating measures may be taken to avoid adverse effects.

We recognize that the data in this catalog vary in quality, precision of estimates, and geographical coverage; but nonetheless it provides a base from which information can be added, upgraded or corrected. Catalog segments provided in prior OCSEAP reports has stimulated many observers to provide new information and we anticipate this pattern will continue.

RECOMMENDATIONS FOR FURTHER STUDY

RU# 338/343 funding has been only for passive data collection. This has proved highly successful and should continue to be most important. As the awareness of our effort spreads and the initial catalog for the state is completed, data flows into our office at an ever increasing rate.

Active colony cataloging should be begun during the 1978 field season to fill in the gaps which by then will be well defined, and to upgrade the poorest data. Careful coordination must be done to maximize the effort and to avoid overlap with opportunistic sources.

During the 1978 field season, emphasis should be placed on the eastern Aleutians where existing data indicate a high importance for seabirds, and southeast Alaska which is poorly known and vulnerable to oil spills from tanker traffic.

SUMMARY OF 3RD QUARTER OPERATIONS

Effort during the 3rd quarter will be devoted to verification of locations, status and composition of colonies within parts of the Gulf of Alaska, in conjunction with field studies conducted as part of Research Unit 341/342.

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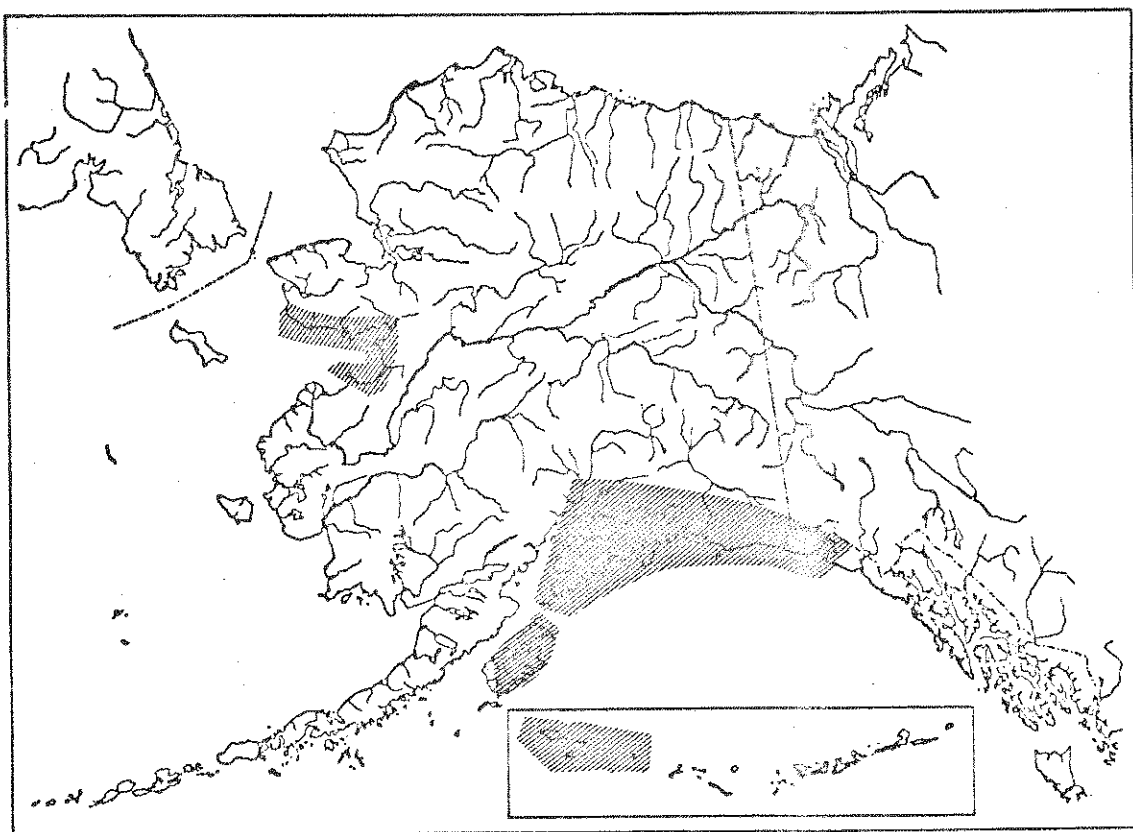


Figure 1. Areas of most complete coverage for seabird colony data.

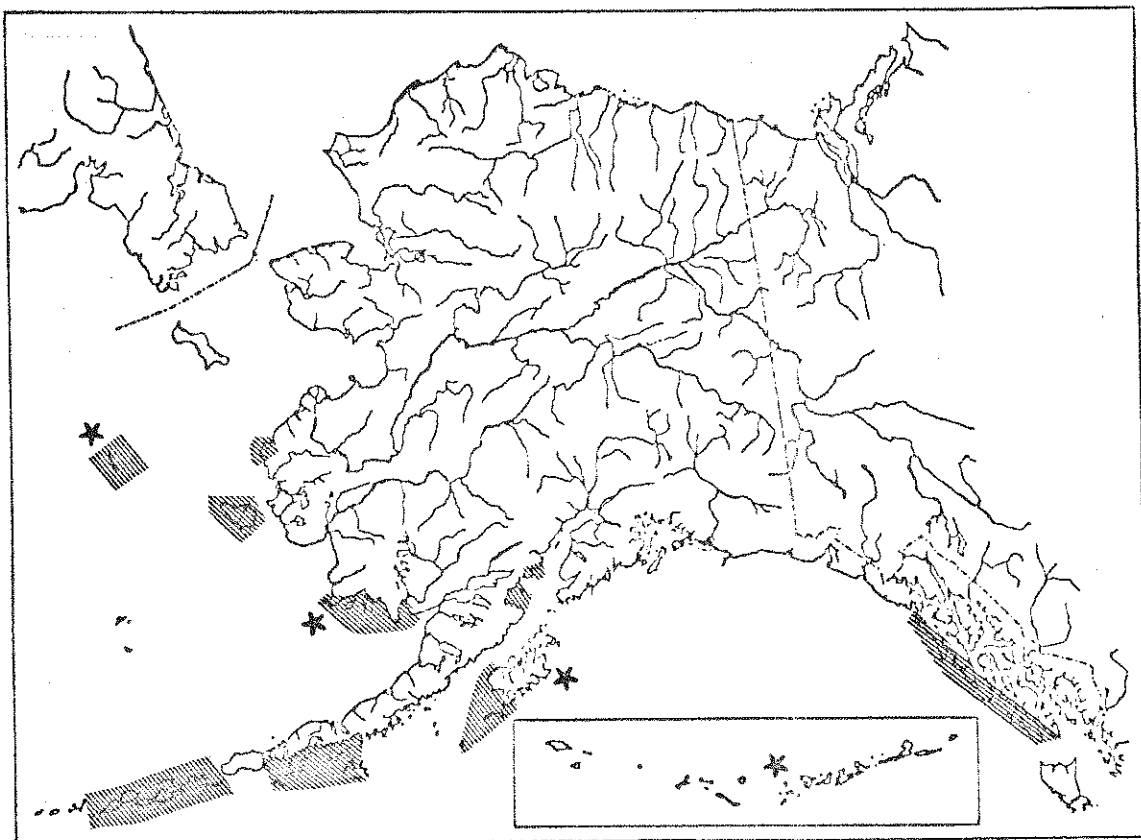


Figure 2. Areas of no or very poor coverage for seabird colony data and locations (*) where planned 1977 field efforts will greatly improve data. Areas not shaded on this figure or figure 1 are of intermediate coverage or are zones where we have yet to receive data from cooperators



Colony Status Record

U.S. Fish & Wildlife Service

Area Number 001 002

to be assigned by office

Colony Name Forrester Island Field No. _____ Observer(s) DeGange and Possardt
Map Dixon Entrance (D-5) Lat. 54°48' Long. 133°32' Time _____ Date Summer 1976

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		X	Questionable breeder in sea caves on west side.
Red-faced Cormorant			
Harlequin Duck		E 20nb	
Common Eider			
Bald Eagle	C 1	C 10b	
Black Oystercatcher		E 25bpr.	
Glaucous Gull			
Glaucous-winged Gull			
Mew Gull			
Black-legged Kittiwake		X nb	several immatures seen.
Red-legged Kittiwake			
Arctic Tern			
Aleutian Tern			
Murre			
Common Murre		C 3800b	Questionable as to number paired, few nested.
Thick-billed Murre			
Black Guillemot			
Pigeon Guillemot		E 300b	
Ancient Murrelet		E 30000bpr.	No sampling undertaken.
Cassin's Auklet		E 2200bpr.	Minimum estimate.
Parakeet Auklet			
Crested Auklet			
Least Auklet			
Whiskered Auklet			
Rhinoceros Auklet		E 54000bpr.	Only represents northern half of island.
Horned Puffin		E 375b	
Tufted Puffin		E 35000bpr.	
Peregrine Falcon	1	2bpr.	One pair fledged 2 young. Additional birds probably present on south end of island.
Marbled Murrelet		X	Questionable breeder.

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

¹¹ Use these abbreviations to describe numbers. Use C & E whenever possible, avoid P & X.
C = count, E = estimate, P = probably present (state reason under material), X = present
pr = pairs, b = breeding, nb = non-breeding

Figure 3. Colony Status Record, front of page. This is the basic summarization form of the colony catalog.

Description of Colony

Access Best access is by small boat, see sketch map for location of landing beaches. Small helicopter can land at Eagle harbor & large one on the north muskeg.

Vegetation & Physiographic Characteristics Steep slopes are the dominant feature with 100m cliffs on the west side. Coniferous forest cover the entire island, except for open muskegs on the north & south ends. Salmonberry, heaths, Devil's Club & elder form unbelievably dense thickets. Fewer areas are park-like. The soil in many areas is deep, affording excellent burrow substrate.

Human Activity Little or none. Fishermen occasionally put ashore.

Mammalian Predators, Livestock, etc. A mouse (*Peromyscus sitkensis*) and a shrew (*Sorex obscurus*) are very abundant while a vole (*Microtus coronarius*) was rarely seen. Their impact on the birds is probably minimal.

Marine Mammals Steller Sea Lions were frequently seen during the summer while Harbor seals were less regular. A Sea Otter was seen one time.

Census Methods & Data Status A field camp was occupied on Forrester Is. for the summer to study seabirds. Ninety-seven 5m x 5m plots were established to census Rhinoceros Auklets and Thirteen plots were established for Cassin's Auklets. Murres were censused twice from a zodiac raft.

Sample Plots Established As above.

Photo Coverage The east side of Forrester was photographed with B + W. The west side and the habitats on Forrester Island were photographed with color slide film. All photographs are available at USFWS, OBS/CE, Anchorage, Alaska.

Overall Evaluation of Colony Forrester Island is critical nesting habitat for Rhinoceros Auklets and Ancient Murrelets. Much of the Tufted Puffins at the refuge breed on Forrester Island.

Supplemental Material & Data Attached (list) For further information see DeGange and Possardt's in house administrative report. USFWS/OBS-CE, Anchorage, Alaska.

General Colony Sketch

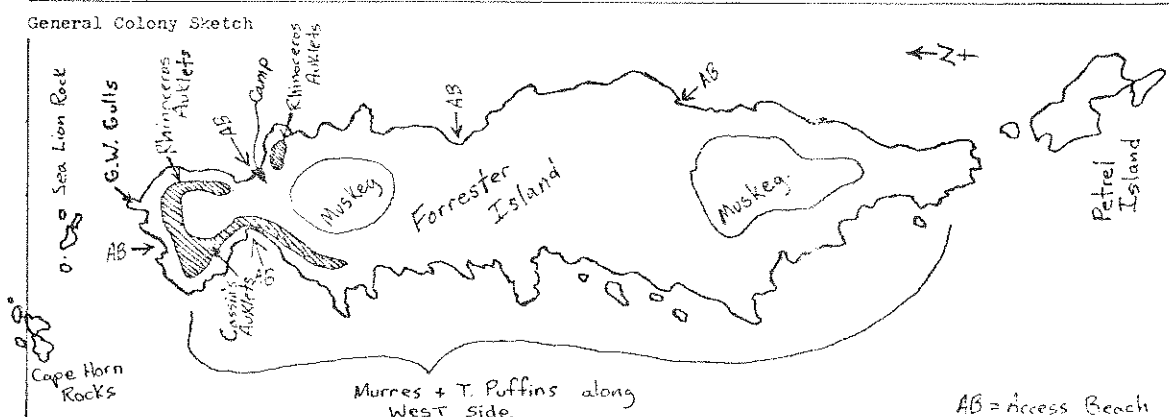


Figure 4. Colony Status Record, back of page.



Colony Status Record - Instructions

U.S. Fish & Wildlife Service

This form is utilized to summarize information on seabird colonies regardless of colony size or composition. Records for the entire coastline of Alaska are being sought in hopes of being able to identify critical habitat, to assess impacts of oil spills and other environmental hazards and to gain insight into the ecology of the North Pacific, Bering Sea and Arctic Ocean.

Fill in this form as described below. Of primary importance are: position, date and an estimate of numbers of each species present. Of course we would like data on any or all other categories, but realize in many cases it will not be obtained.

It can not be emphasized enough how important your contribution may be, even if only a small part of this form is completed. We are trying to cover over 34,000 miles of coastline, most of it remote and seldom visited. Seabirds have been largely overlooked until recently and the data you submit may be all we have on a particular area for quite some time. As populations change seasonally, or even from day to day, relicate observations are desirable. Please help!

General Instruction

Area Number: All colonies will be assigned a number by our office for cataloging purposes. Do not fill this in unless you know the catalog number.

Colony Name: Name of colony location or nearest location that appears on the USGS quadrangle map.

Field Number: A number you assign for your own convenience as a cross-reference to field notes, maps, etc.

Observer(s): Name(s) of observer(s).

Map: Indicate the U.S. Geological Survey quadrangle map (1:63,360) on which the colony is located. If not available, give U.S. Coast and Geodetic Survey Navigational Chart or smaller scale U.S.G.S. map.

Latitude and Longitude: Geographic coordinates to the nearest minute or, if possible, to the nearest 1/10 of an arc minute.

Time and Date: Give time and date precisely using local time and the 24-hour recording system, e.g., 1:00 pm = 1300 hours. Duration of censusing may be given, e.g., 0800-1015.

Number Nests and Birds: Give the number of nests and birds of each species composing the colony using the abbreviations at the bottom of the form to describe the number. Use total counts and estimates whenever possible. Merely indicating presence gives no idea of size, which an estimate, although perhaps in gross error, will do to at least an order of magnitude. Under "Remarks" state a range within which you feel your estimate lies.

Some species (primarily nocturnals) will be missed in most censuses. For these, negative data will be extremely valuable. When you have specifically looked for these species state so, even if you haven't found anything.

Recommended Classification: Indicate which category you think best describes the data.

Colony Complex - Data on more than one colony has been combined.

Colony - A geographically distinct area of breeding birds.

Sub-Colony - A logical sub-unit of a colony.

Roost Area - An area where birds roost, but do not breed.

Access: Describe best and alternate means by which the colony may be reached, best landing areas for small boats or aircraft.

Vegetation and Physiographic Characteristics: Provide a brief description including but not limited to the following: 1. Type - cliff, talus, vegetated slope, etc. 2. Exposure 3. Height of cliffs, size of talus, rock type, etc. 4. Vegetation types and species if known.

Human Activity: Note human disturbance, shoreline development, presence of aircraft and boats, etc.

Mammalian Predators, livestock, etc: Indicate presence of any mammals or sign, and note any impact.

Marine Mammals: Record observations and mark locations of hauling grounds on a map (see figures),

Census Methods and Data Status: Indicate if census was aerial, shipboard and/or on land. Describe the census procedures and quality of data from which the summary record was made. Provide an estimate, either subjective or statistical, for the accuracy of population estimates.

Sample Plots Established: Describe location, size and purpose of sample plots. A sketch map or photo may be helpful in identifying location.

Photo Coverage: Photographs can be of high archival and censusing value. Provide good quality negatives and/or prints and slides whenever possible. Identify all photographs by photographer, date, location

Figure 5. Colony Status Record - Instructions, front of page.

and focal length of lens.

In choosing photo sites, consider ease of relocating for future reframing attempts. Describe the location exactly and mark it on a map (see figures).

Overall Evaluation of Colony: Note subjective comments on condition, aesthetic value, importance, potential threats, etc.

Supplemental Material and Data Attached (list): Make reference to any specimens collected (e.g. stomach samples, nests materials, etc.) and any additional data collected (e.g. a list of plant species present).

Maps: Attach a map if at all possible. Sketch maps can be done if no USGS maps are available or to show greater detail and vertical mapping.

Show:

Colony location & extent

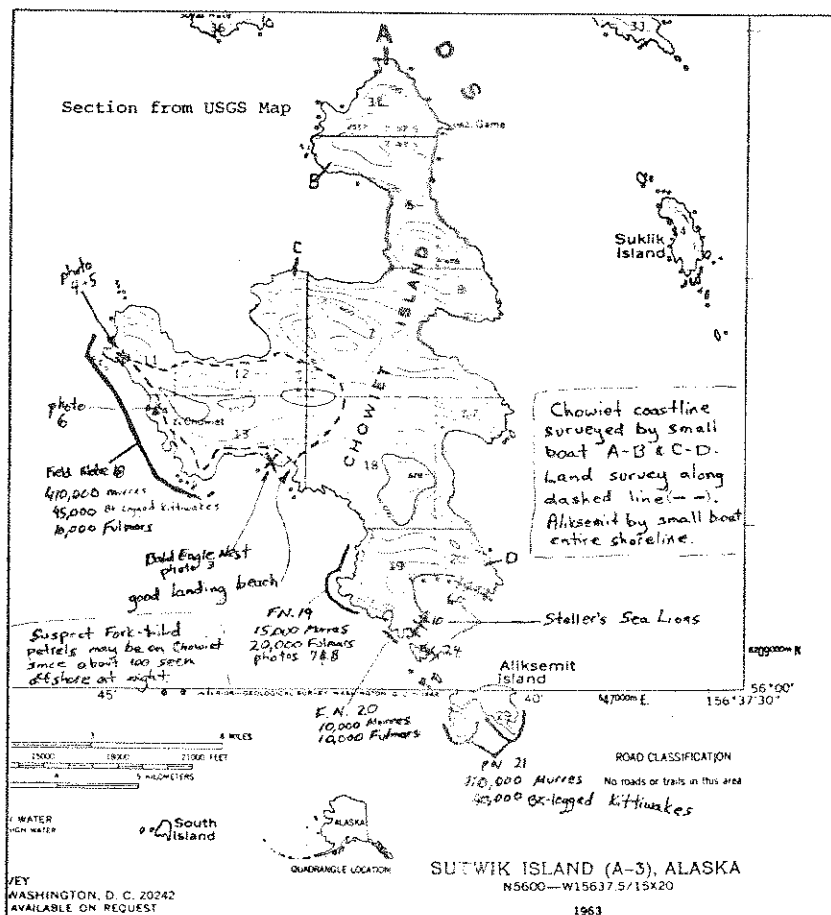
Marine mammal hauling grounds

Extent of survey

Location of eagle nests

Good landing beaches

etc.



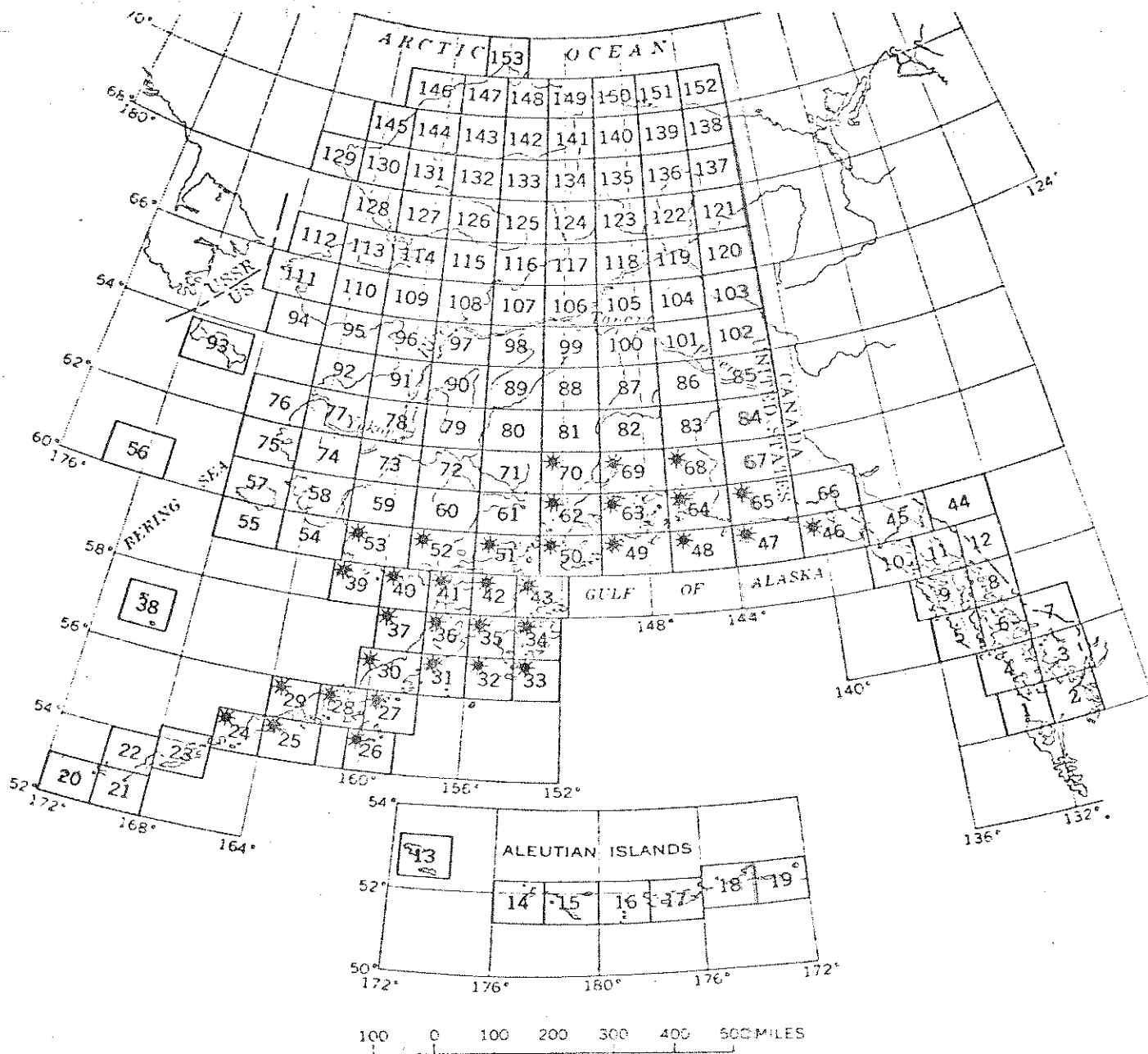


Figure 7. Location of U.S. Geological Survey topographic maps used in the colony catalog and maps (*) which colony catalog summaries have been sent to OCSEAP in previous reports.

Table 1. Number of known colony areas and estimated numbers of seabirds filed in the colony catalog as of March 1977.

Map No.	Map Name	Colony Areas	No. of Birds
1	Dixon Entrance	5	612,000
2	Prince Rupert	-	-
3	Ketchikan	3	NE
4	Craig	-	-
5	Port Alexander	2	2,000,000
6	Petersburg	-	-
8	Sumdum	-	-
9	Sitka	-	-
10	Mt. Fairweather	6	3,000
11	Juneau	-	-
13	Attu	29	260,000
14	Kiska	3	393,000
15	Rat Islands	15	88,000
16	Gareloi Island	14	247,000
17	Adak	13	31,000
18	Atka	7	134,000
19	Seguam	2	1,000
20	Amukta	4	630,000
21	Samalga	5	288,000
22	Umnak	5	115,000
23	Unalaska	3	101,000
24	Unimak	12	433,000
25	False Pass	25	231,000
26	Simeonof Island	8	139,000
27	Stepovak Bay	34	666,000
28	Port Moller	47	530,000
29	Cold Bay	6	16,000
30	Chignik	6	16,000
31	Sutwik Island	31	2,735,000
32	Trinity Islands	6	8,000
33	Kaguyak	4	7,000
34	Kodiak	69	327,000
35	Karluk	10	535,000
36	Ugashik	6	63,000
37	Bristol Bay	-	-
38	Pribilof Islands	4	2,000,000
39	Hagemeister Island	31	2,195,000
40	Nushagak Bay	13	155,000
41	Naknek	3	> 1,000
42	Mt. Katmai	12	8,000
43	Afognak	114	409,000
45	Skagway	-	-
46	Yakutat	6	5,000
47	Icy Bay	3	1,000
48	Middleton Island	4	185,000

(cont.)

49	Blying Sound	38	101,000
50	Seldovia	37	16,000
51	Iliamna	27	9,000
52	Dillingham	3	1,000
53	Goodnews	-	-
54	Kuskokwin Bay	1	3,000
55	Cape Mendenhall	-	-
56	St. Matthew	3	NE
57	Nunivak Island	2	NE
58	Baird Inlet	-	-
62	Kenai	4	17,000
63	Seward	41	16,000
64	Cordova	21	83,000
65	Bering Glacier	-	-
68	Valdez	4	>1,000
69	Anchorage	6	18,000
70	Tyonek	-	-
75	Hooper Bay	1	1,000
76	Black	-	-
77	Kwiguk	-	-
91	Unalakleet	6	3,000
92	St. Michael	3	>1,000
93	St. Lawrence	9	1,710,000
94	Nome	2	5,000
95	Solomon	10	78,000
96	Norton Bay	4	12,000
111	Teller	9	292,000
112	Shishmaref	-	-
113	Kotzebue	6	4,000
114	Selawik	4	2,000
128	Noatak	-	-
129	Point Hope	6	1,001,000
130	De Long Mt.	-	-
138	Demarcation Point	-	-
139	Mt. Michelson	-	-
145	Point Hope	6	1,001,000
146	Wainwright	-	-
147	Meade River	2	>1,000
148	Teshekpuk	-	-
149	Harrison Bay	-	-
150	Beechey Point	-	-
151	Flaxman Island	-	-
152	Barter Island	-	-
153	Barrow	1	>1,000
Total		820	18,942,000

NE = No estimate

Table 24a. Name, area number, information source and date of known seabird colonies of topographic map 24, Unimak.

AREA NO.	COLONY NUMBER	INVESTIGATOR ^{1/}	DATE
024 001	Rootok Island	Sekora	1972
002	Avatanak Island		
003	Akun Island	Linsink	9-30-57
004	Unimak	Harrison & Hatch	8-15-75
005	Scotch Cap		9- ?-75
006	Sealion Point	Phillips	5- ?-76
007	Cave Point		
008	Cape Mordvinof	Sowls et al.	6- 5-76
009	Derdin Island	Byrd et al.	6-25-73
010	Tigalda Island		
011	Ugamak Island		
012	Kaligagan Island		
013	Cape Lutke		

^{1/}

Byrd = G. Vernon Byrd, USFWS
Harrison = Craig S. Harrison, USFWS
Hatch = Scott A. Hatch, USFWS
Linsink = Calvin J. Lensink, USFWS
Phillips = Mark Phillips, USFWS
Sekora = Palmer Sekora, USFWS
Sowls = Arthur L. Sowls

Table 24b. Summary of data on seabird colonies of map 024, Unimak.

Species	Area Number										
	024 001	024 002	024 003	024 004	024 005	024 006	024 007	024 008	024 009	024 010	024 011
Northern Fulmar											
Fork-tailed Storm Petrel											
Leach's Storm Petrel											
Shearwater								X	1		
Double-crested Cormorant									60		
Petrel Cormorant											
Red-faced Cormorant				50	200	750	1,000	X	370	120	
Harlequin Duck										X	
Common Eider											
Bald Eagle									2		
Black Oystercatcher									1		
Glaucous Gull											
Glaucous-winged Gull									850		
Mew Gull											
Black-legged Kittiwake			X					P			
Red-legged Kittiwake											
Arctic Tern											
Aleutian Tern											
Murre								P			10
Common Murre											
Thick-billed Murre											
Black Guillemot									5		20
Black Guillemot											
Leach's Petrel											
Cassin's Auklet											
Parakeet Auklet											
Crested Auklet											
Least Auklet											
Whiskered Auklet											
Phalarope Auklet											
Horned Puffin											
Tufted Puffin	100,000	50,000							2,000	^b	1,500
other											
Total	100,000	50,000		50	200	750	1,000	10,000	3,289	121	1,590

X = present, P = probably present, b = Kittlitz's Murrelet

(continued)

Table 24b continued. Summary of data on seabird colonies of map 024, Unimak.

Species	Area Number									
	024 012	024 013								
Northern Fulmar										
Fork-tailed Storm Petrel										
Leach's Storm Petrel										
Cormorant										
Double-crested Cormorant										
Palectic Cormorant										
Red-faced Cormorant	100	60								
Harlequin Duck										
Common Eider										
Bald Eagle										
Black Oystercatcher										
Glaucous Gull										
Glaucous-winged Gull										
Mew Gull										
Black-legged Kittiwake										
Red-legged Kittiwake										
Arctic Tern										
Alentian Tern										
Murre	300									
Common Murre										
Thick-billed Murre										
Black Guillemot										
Pomarine Guillemot	100									
Ancient Murrelet										
Cassin's Auklet										
Forked Auklet										
Crested Auklet										
Least Auklet										
Whiskered Auklet										
Phalarope Auklet										
Horned Puffin		X								
Tufted Puffin	375,000	X								
other										
Total	375,500	60								

X = present, P = probably present

Table 49a. Name, area number, information source and date of known seabird colonies of topographic map 49, Blying Sound.

AREA NO.	COLONY NUMBER	INVESTIGATOR ^{1/}	DATE	
049	003	Granite Island	Bailey et al.	1976
	005	Chat Island		
	006	Neck Point	Isleib & Sowl	7-23-72
	007	Jeanie Point		
	008	Wooded Islands	Lehnhausen & Quinlan	1976
	009	Nellie Martin River	Islieb & Sowl	7-23-72
	010	Rugged Island	Bailey et al.	1976
	011	Callisto Head		
	012	Cape Junken	Islieb	5-17-63
	013	Cape Fairfield		
	014	Cape Puget		7-24-72
	015	Pt. Elrington	& Sowl	7-23-72
	016	Danger Island	& Divoky	8-?-73
	017	North Twin Bay	& Sowl	7-23-72
	018	Caines Head	Shaffer	1969
	019	Seal Rocks	Bailey et al.	1976
	020	Twin Islands		
	021	Lone Rock		
	022	Unnamed Chiswell A.		
	023	Chiswell Island		
	024	Matushka Island		
	025	Unnamed Chiswell B.		
	026	Beehive Island		
	027	Natoa Island		
	028	16-21 Island		
	029	Harbor Island		
	030	Try Triangle		
	031	17 Cove		
	032	Slate Island		
	033	Squab Island		
	034	300 Island		
	035	Pilot Rock		
	036	Cheval Island		
	037	East Aialik Pen.		
	038	Bear Glacier Pt.		
	039	Hive Island		
	040	South Renard Is.		
	041	Barwell Island		
	042	Cape Resurrection		

1/

Bailey = Edgar P. Bailey, USFWS
 Isleib = M.E. (Pete) Isleib, USFWS & commercial fisherman
 Divoky = George J. Divoky, USFWS
 Lehnhausen = William Lehnhausen, U. of Alaska
 Quinlan = Susan Quinlan, U. of Alaska
 Shaffer = Boyd Shaffer, amateur ornithologist
 Sowl = Leroy W. Sowl, USFWS

Table 49b. Summary of data on seabird colonies of map 049, Blyling Sound.

Species	Area Number											
	049 003	049 005	049 006	049 007	049 008	049 009	049 010	049 011	049 012	049 013	049 014	
Northern Fulmar												
Fork-tailed Storm Petrel		X			5,000							
Leach's Storm Petrel					400							
Cormorant			300		250							
Double-crested Cormorant					X							
Pelagic Cormorant	72	28			X		10					
Red-faced Cormorant	400	24			X							
Harlequin Duck												
Common Eider												
Bald Eagle	2	2										
Black Oystercatcher												
Glaucous Gull												
Glaucous-winged Gull	500	40		20	350		100		60	20		
Mew Gull												
Black-legged Kittiwake					1,700							
Red-legged Kittiwake												
Arctic Tern						200						
Aleutian Tern												
Murre												
Common Murre	200	160			80		400					
Thick-billed Murre												
Black Guillemot												
Pigeon Guillemot					100				20	6		
Ancient Murrelet					X							
Cassin's Auklet			X									
Parakeet Auklet					25							
Crested Auklet												
Least Auklet												
Whiskered Auklet												
Phaethon Auklet												
Horned Puffin	130	80	10	10	30		260	30			30	
Tufted Puffin	100	30	100	100	9,200		10		30	100		
other					X ^a							
Total	1,404	364	410	130	17,135	200	780	30	110	125	30	

X = present, P = probably present, a = Marbled Murrelet

(continued)

Table 49b continued. Summary of data on seabird colonies of map 049, Blyling Sound.

Species	Area Number											
	049 015	049 016	049 017	049 018	049 019	049 020	049 021	049 022	049 023	049 024	049 025	
Northern Fulmar												
Pork-tailed Storm Petrel							40			X		
Leach's Storm Petrel								X	X			
Cormorant	240											
Double-crested Cormorant				X								
Pelagic Cormorant	10		32						40			
Red-faced Cormorant	150				30				80			
Harlequin Duck												
Common Eider												
Bald Eagle								X		2		
Black Oystercatcher		4										
Glaucous Gull												
Glaucous-winged Gull	560	25		X			24		160	70		
Mew Gull												
Black-legged Kittiwake			50					310	2,230		300	
Red-legged Kittiwake												
Arctic Tern		30										
Aleutian Tern												
Murre												
Common Murre	170							280	520	3,040	150	
Thick-billed Murre												
Black Guillemot												
Pied-billed Guillemot	80			X								
Ancient Murrelet												
Cassin's Auklet												
Fork-tailed Auklet										458		
Crested Auklet												
Least Auklet												
Whiskered Auklet												
Rhinoceros Auklet										1,200		
Horned Puffin	200		10		60	50	40	350	70	1,410	130	
Tufted Puffin	1,600		800		800		80	2,560	6,000	2,100	20,000	
other												
Total	3,010	59	822	75	890	50	184	3,500	9,100	8,280	20,530	

X = present, P = probably present

(continued)

X = present, P = probably present

(continued)

Table 49b continued. Summary of data on seabird colonies of map 049, Blyling Sound.

Species	Area Number										
	049 026	049 027	049 028	049 029	049 030	049 031	049 032	049 033	049 034	049 035	049 036
Northern Fulmar											
Fork-tailed Storm Petrel		X		X							
Leach's Storm Petrel											
Cormorant											
Double-crested Cormorant											36
Pelagic Cormorant				2							20
Red-faced Cormorant											100
Harlequin Duck											
Common Eider											
Bald Eagle			2				2				
Black Oystercatcher											
Glaucous Gull											
Glaucous-winged Gull	20	596					30	400	70	20	140
Mew Gull											
Black-legged Kittiwake	1,220	70									
Red-legged Kittiwake											
Arctic Tern											
Aleutian Tern											
Murre											
Common Murre	400	1,640	120								
Thick-billed Murre											
Black Guillemot											
Hisson Guillemot											
Audubon Murrelet											
Cassin's Auklet		60	30								
Parakeet Auklet											
Crested Auklet											
Least Auklet											
Thick-tailed Auklet											
Thinnoceros Auklet											
Horned Puffin	220	1,330	330	320	10	10	56		60	30	210
Tufted Puffin	11,000	1,920	100	30					500	10	140
other											
Total	12,860	5,636	580	352	10	10	88	400	630	60	646

X = present, P = probably present

(continued)

Table 49b continued. Summary of data on seabird colonies of rap 049, Blying Sound.

Species	Area Number									
	049 037	049 038	049 039	049 040	049 041	049 042				
Northern Fulmar										
Fork-tailed Storm Petrel										
Leach's Storm Petrel										
Cormorant										
Double-crested Cormorant			10							
Petrel Cormorant			20	4	40					
Red-faced Cormorant			40		100					
Harlequin Duck										
Common Eider										
Bald Eagle	4									
Black Oystercatcher										
Glaucous Gull										
Glaucous-winged Gull			100		400	400				
New Gull										
Black-legged Kittiwake					2,480	5,840				
Red-legged Kittiwake										
Arctic Tern										
Aleutian Tern										
Murre										
Common Murre			40		17,600	4,300				
Thick-billed Murre										
Black Guillemot										
Pigeon Guillemot										
Ancient Murrelet										
Cassin's Auklet										
Parakeet Auklet										
Crested Auklet										
Least Auklet										
Whiskered Auklet										
Phalarope Auklet										
Horned Puffin	150	50	100	50	80	160				
Tufted Puffin			270	20	600	40				
other										
Total	154	50	530	74	21,300	10,740				

X = present, P = probably present

Table 50a. Name, area number, information source and date of known seabird colonies of topographic map 50, Seldovia.

AREA NO.	COLONY NUMBER	INVESTIGATOR ^{1/}	DATE
050 001	Gull Island	Arneson et al.	1976
050 003	East Chugach Island	Bailey et al.	1976
050 006	Gore Point		
050 007	Gull Island (2)	ADF&G	
050 008	Flat Island	Arneson et al.	1976
050 009	Grass Island		
050 010	60 Foot Rock		
050 012	Elizabeth Island	Bailey et al.	1976
050 013	Perl Rock		
050 014	Windy Bay		
050 015	Rocky Bay Island		
050 016	Unnamed Bay		
050 017	Dick 2		
050 018	Taylor Bay		
050 019	10 Section		
050 020	Brown Mountain		
050 021	Westdahl Cove Island		
050 022	SE Nuka Island		
050 023	Middle Nuka Island		
050 024	35 Point		
050 025	Harrington Point		
050 026	Beautiful Island		
050 027	East Arm		
050 028	East Arm North		
050 029	Outer Island		
050 030	Rabbit Island		
050 031	Wildcat Pass		
050 032	Hoof Point		
050 033	28 Section		
050 034	Steep Point		
050 035	Black Bay		
050 036	Nack Triangle		
050 037	Taroka Arm		
050 038	Surok Point		
050 039	Harris Bay Island		
050 040	NW Glacier Island		

^{1/}

Arneson = Paul Arneson, ADF&G
Bailey = Edgar P. Bailey, USFWS

Table 50a. Summary of data on seabird colonies of map 050, Seldovia.

Species	Area Number											
	050 001	050 003	050 006	050 007	050 008	050 009	050 010	050 012	050 013	050 014	050 015	
Northern Fulmar												
Fork-tailed Storm Petrel												
Leach's Storm Petrel												
Cormorant								60				
Louise-crested Cormorant												
Pelagic Cormorant	222		60					X			46	
Red-faced Cormorant	62							X				
Harlequin Duck												
Common Eider	2									6		
Held Eagle			2							2	2	
Black Oystercatcher												
Glaucous Gull												
Glaucous-winged Gull	216	40	50				64			340	20	
New Gull												
Black-legged Kittiwake	3,194			X		25	68			30		
Red-legged Kittiwake												
Arctic Tern												
Aleutian Tern												
Murre				X								
Common Murre	3,200						350					
Thick-billed Murre												
Black Guillemot												
Pigeon Guillemot	12			X	22							
Anous Murrelet												
Cassin's Auklet												
Parkeset Auklet												
Crested Auklet												
Least Auklet												
Whiskered Auklet												
Rhinoceros Auklet												
Horned Puffin	10	20	100		4							
Tufted Puffin	530				3,752		52	20	20	80	1,600	
other												
Total	7,443	60	212		3,778	25	534	80	20	458	1,668	

X = present, P = probably present

(continued)

Table 50b continued. Summary of data on seabird colonies of map 050, Seldovia.

Species	Area Number											
	050 016	050 017	050 018	050 019	050 020	050 021	050 022	050 023	050 024	050 025	050 026	
Northern Fulmar												
Fork-tailed Storm Petrel												
Leach's Storm Petrel												
Cormorant				400								
Double-crested Cormorant				X				10				
Pelagic Cormorant		100		X			40			30	16	
Red-faced Cormorant				X			50		10			
Harlequin Duck												
Common Eider												
Bald Eagle			X		2			2			2	
Black Oystercatcher												
Glaucous Gull												
Glaucous-winged Gull		20			40		50	170	30		6	
New Gull												
Black-legged Kittiwake	400	800	30									
Red-legged Kittiwake												
Arctic Tern												
Aleutian Tern												
Murre												
Common Murre												
Thick-billed Murre												
Black Guillemot												
Booby												
Ancient Murrelet												
Cassin's Auklet												
Parakeet Auklet												
Crested Auklet												
Least Auklet												
Whiskered Auklet												
Rhinoceros Auklet												
Horned Puffin					20	40		10		10		
Tufted Puffin		60										
other												
Total	400	980	30	400	62	40	140	192	40	40	24	

X = present, P = probably present

(continued)

Table 50b continued. Summary of data on seabird colonies of map 050, Saldovia.

Species	Area Number											
	050 027	050 028	050 029	050 030	050 031	050 032	050 033	050 034	050 035	050 036	050 037	
Northern Fulmar												
Fork-tailed Storm Petrel			X									
Leach's Storm Petrel												
Cormorant												
Double-crested Cormorant												
Pelagic Cormorant			120	4	40	172	10	40	14	20		
Red-faced Cormorant			50			100				40		
Harlequin Duck												
Common Eider												
Bald Eagle	2			2								
Black Oystercatcher												
Glaucous Gull												
Glaucous-winged Gull	120	40	940			170		50				
New Gull												
Black-legged Kittiwake			1,060									
Red-legged Kittiwake												
Arctic Tern		6										
Aleutian Tern												
Murre												
Common Murre												
Thick-billed Murre												
Black Guillemot												
Pygmy Guillemot												
Ancient Murrelet												
Cassin's Auklet												
Pomarine Auklet												
Crested Auklet												
Least Auklet												
Whiskered Auklet												
Rhinoceros Auklet												
Horned Puffin			900	30	30	1,040			60		80	
Tufted Puffin			4,680			1,220	150		140		50	
other												
Total	122	46	7,750	36	100	2,702	160	90	214	60	130	

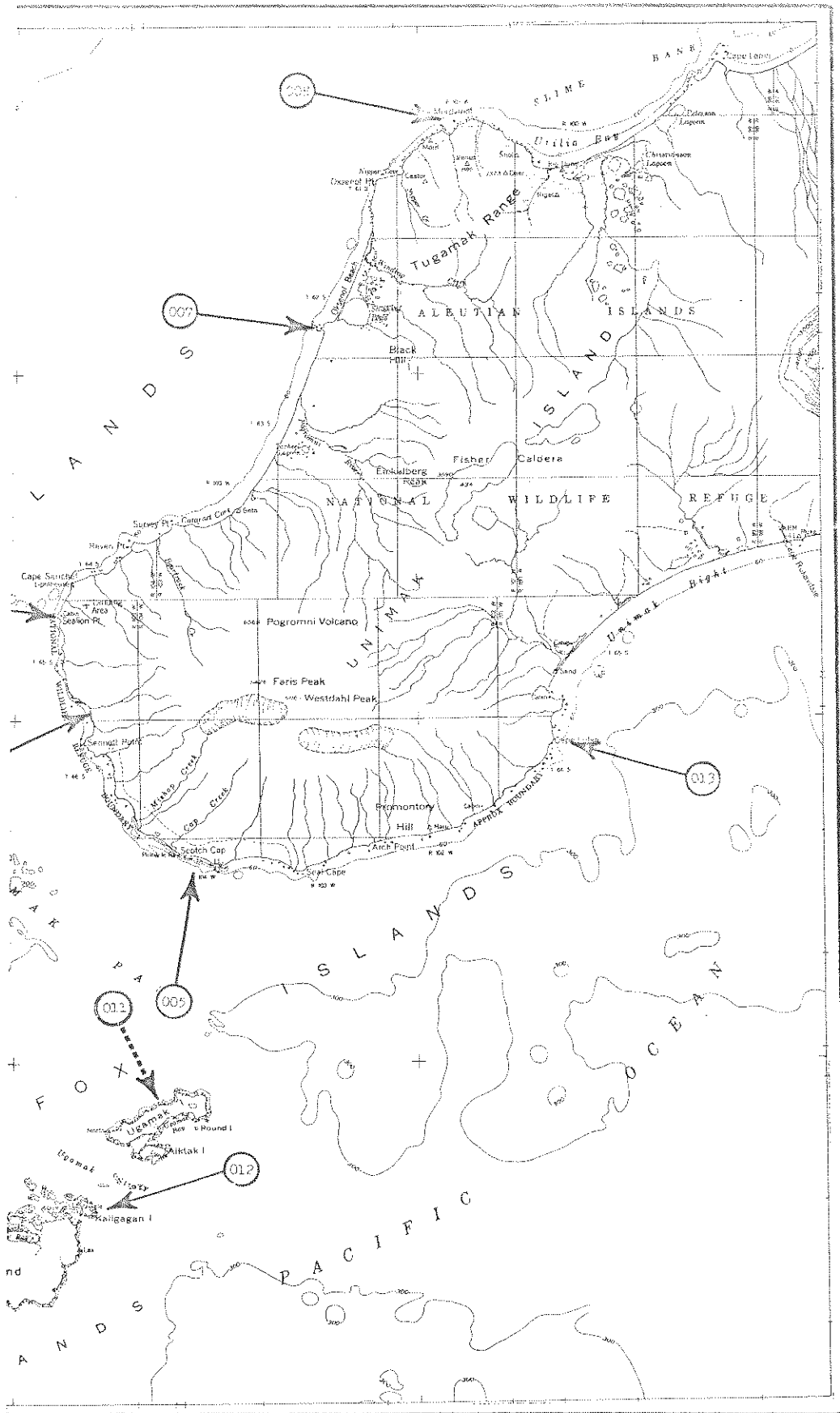
X = present, P = probably present

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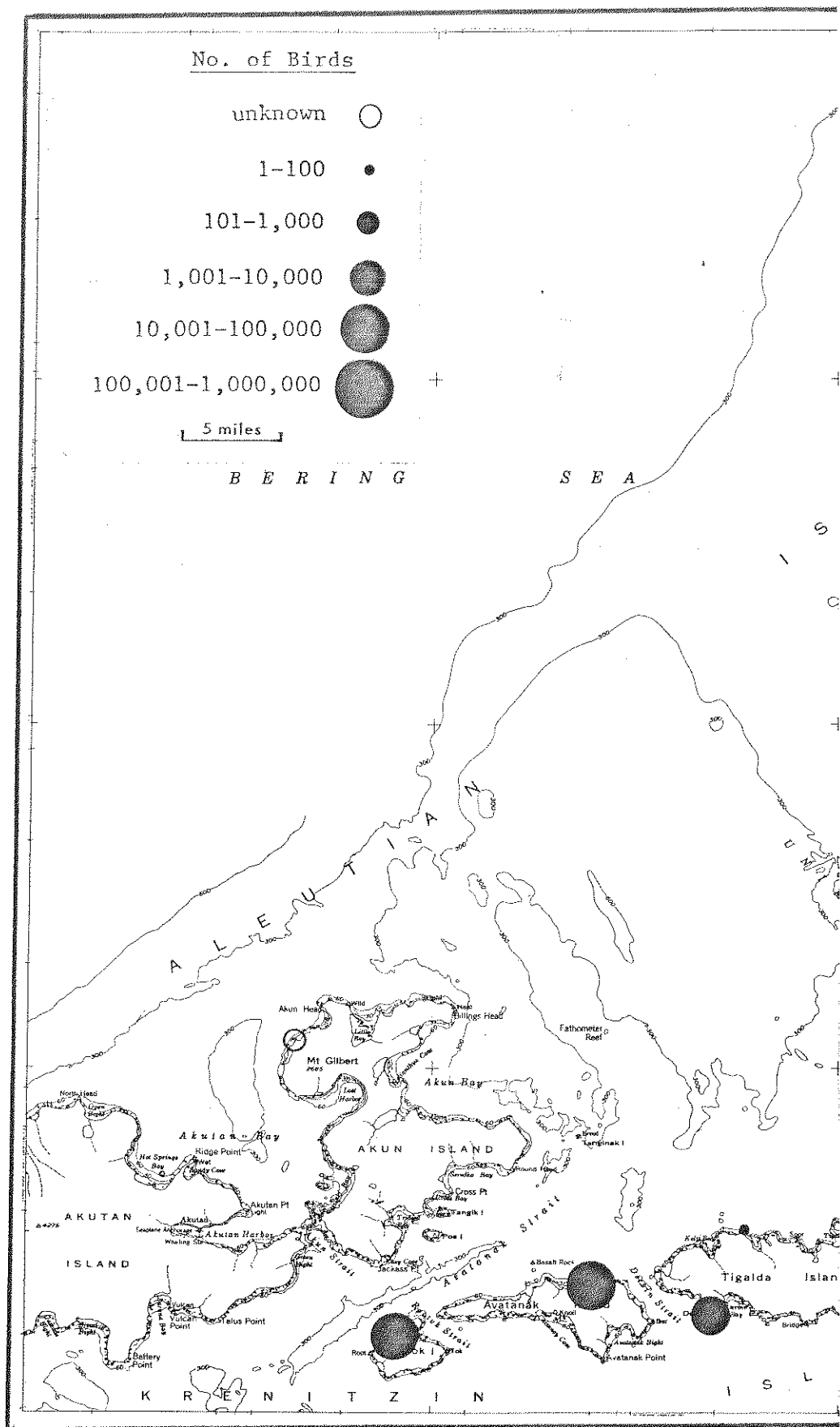
Table 50b continued. Summary of data on seabird colonies of map 050, Seldovia.

Species	Area Number									
	050 038	050 039	050 040							
Northern Fulmar										
Fork-tailed Storm Petrel										
Leach's Storm Petrel										
Cormorant										
Double-crested Cormorant	140									
Pelagic Cormorant										
Red-faced Cormorant										
Harlequin Duck										
Common Eider										
Bald Eagle										
Black Oystercatcher										
Glaucous Gull										
Glaucous-winged Gull	20	40	16							
Mew Gull		60								
Black-legged Kittiwake										
Red-legged Kittiwake		80								
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										
other										
Total	160	180	16							

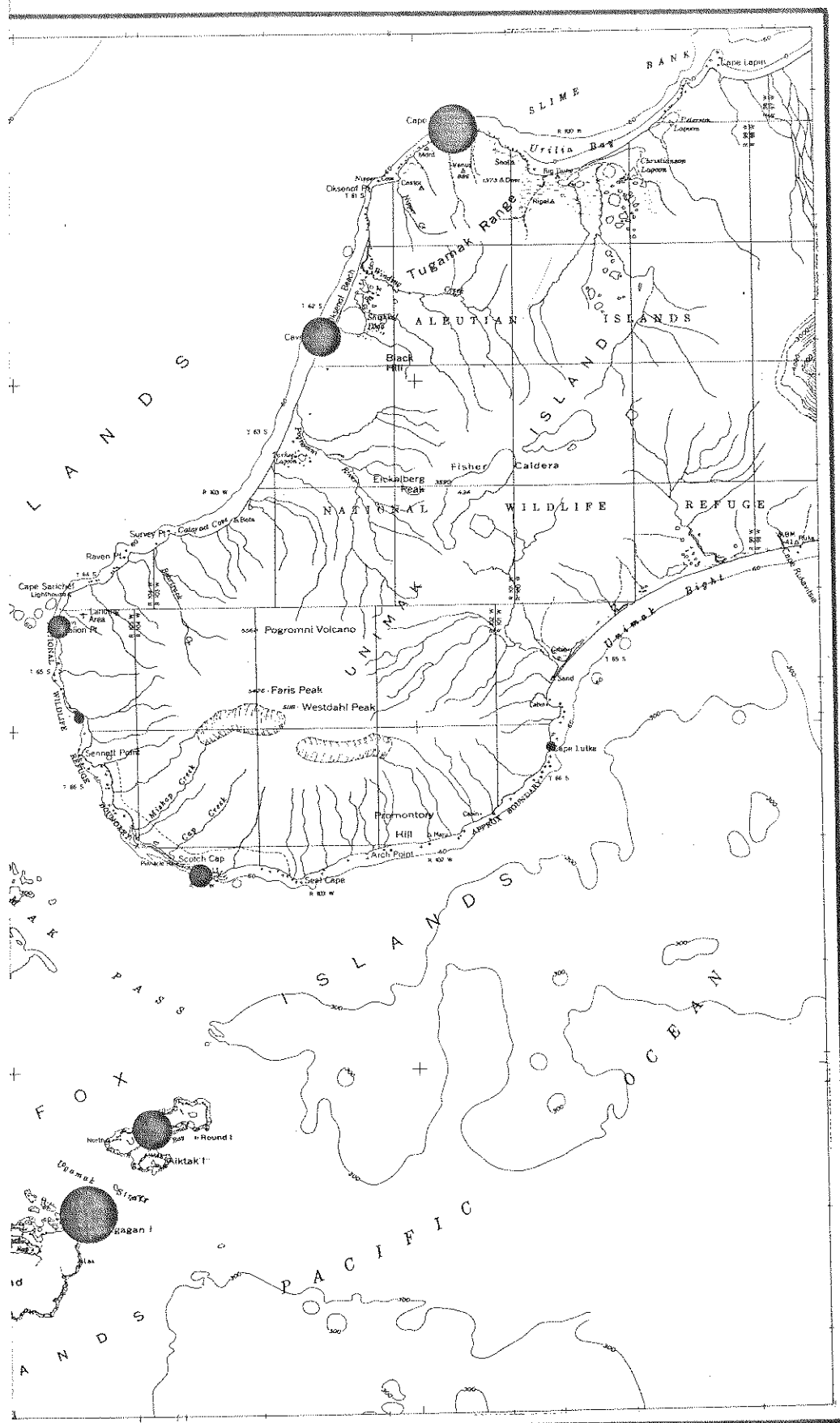
X = present, P = probably present



Unimak. Dashed arrows indicate imprecise colony locations.



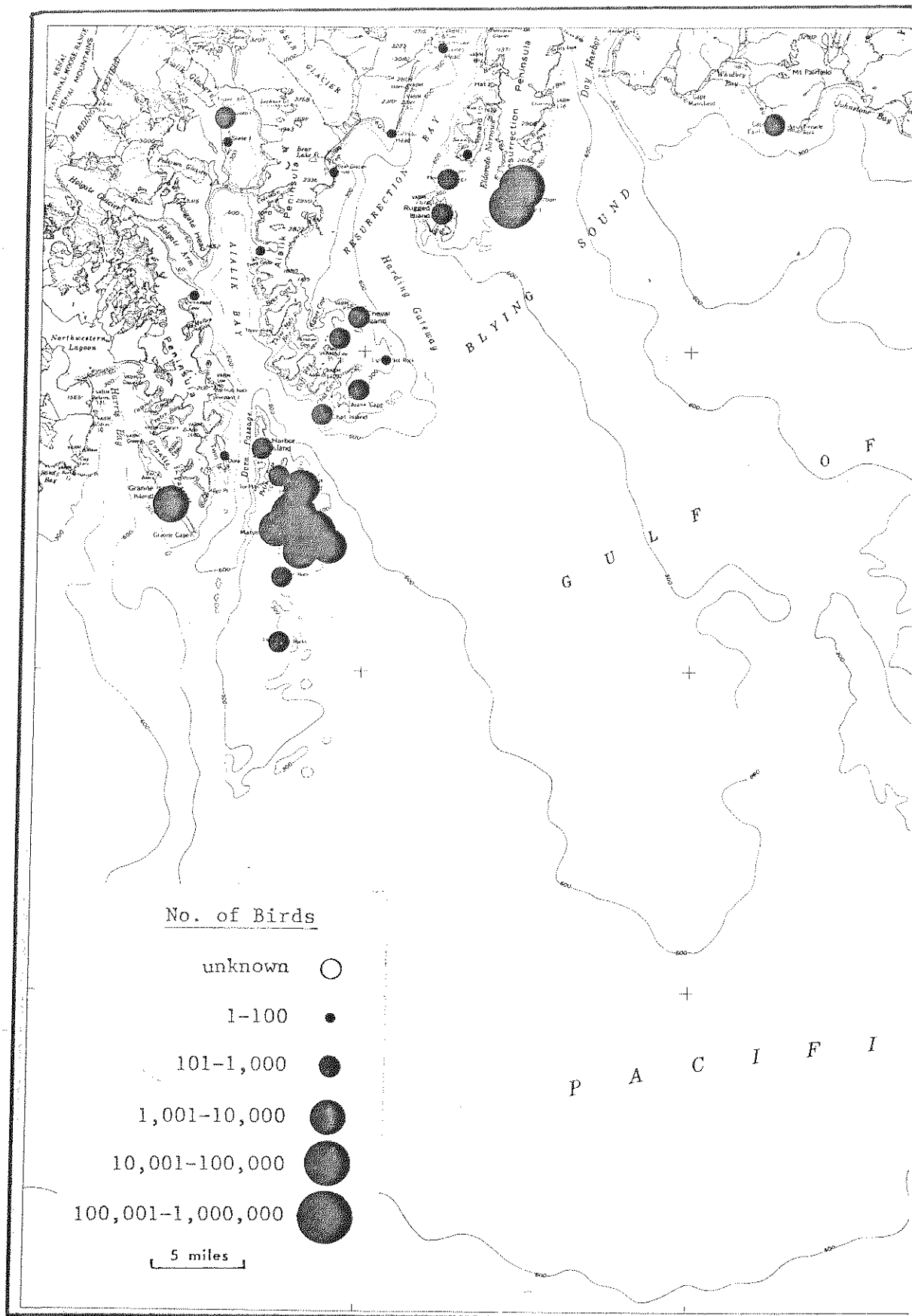
Map 24b. Comparative numbers of seabirds in colonies in

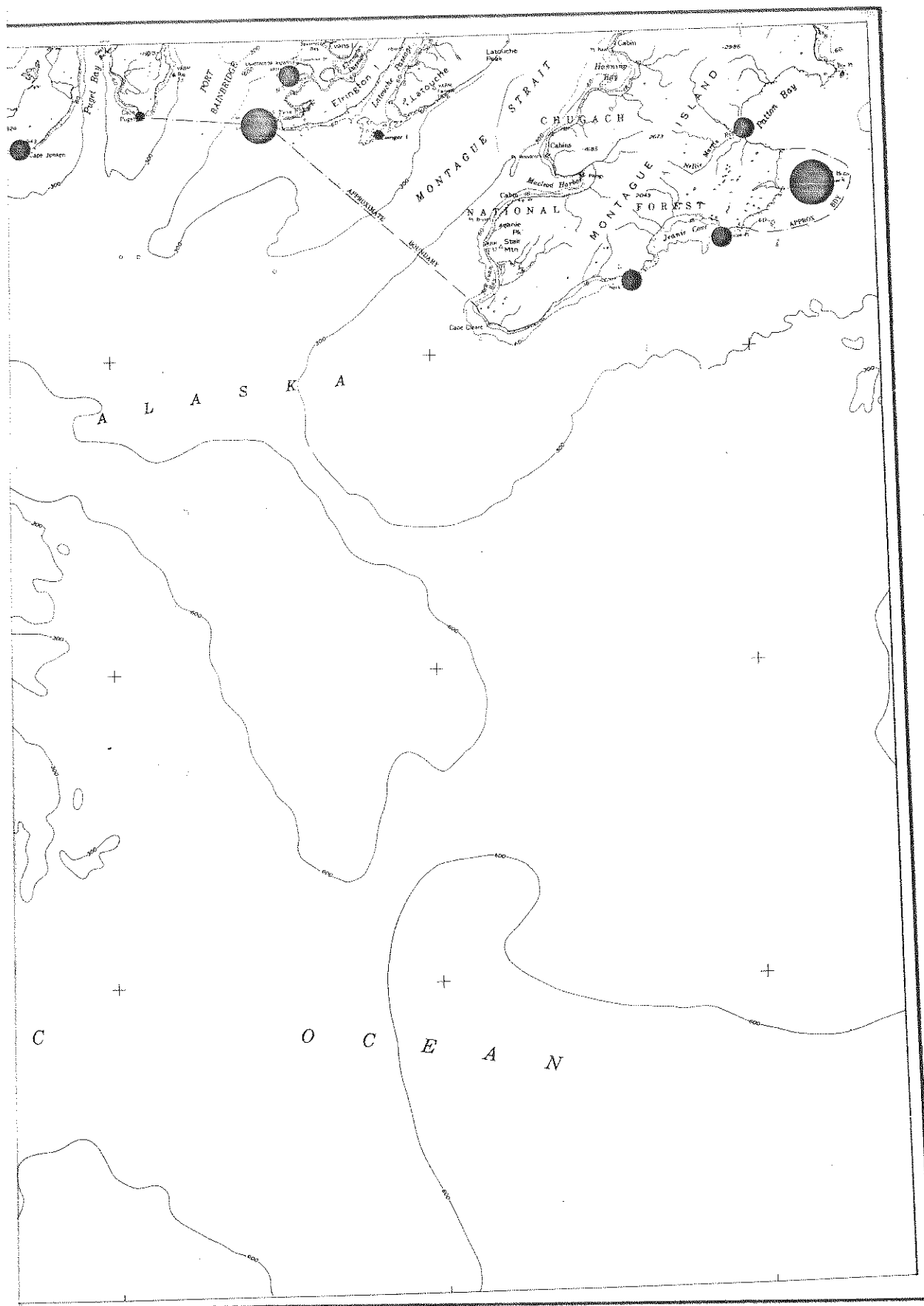


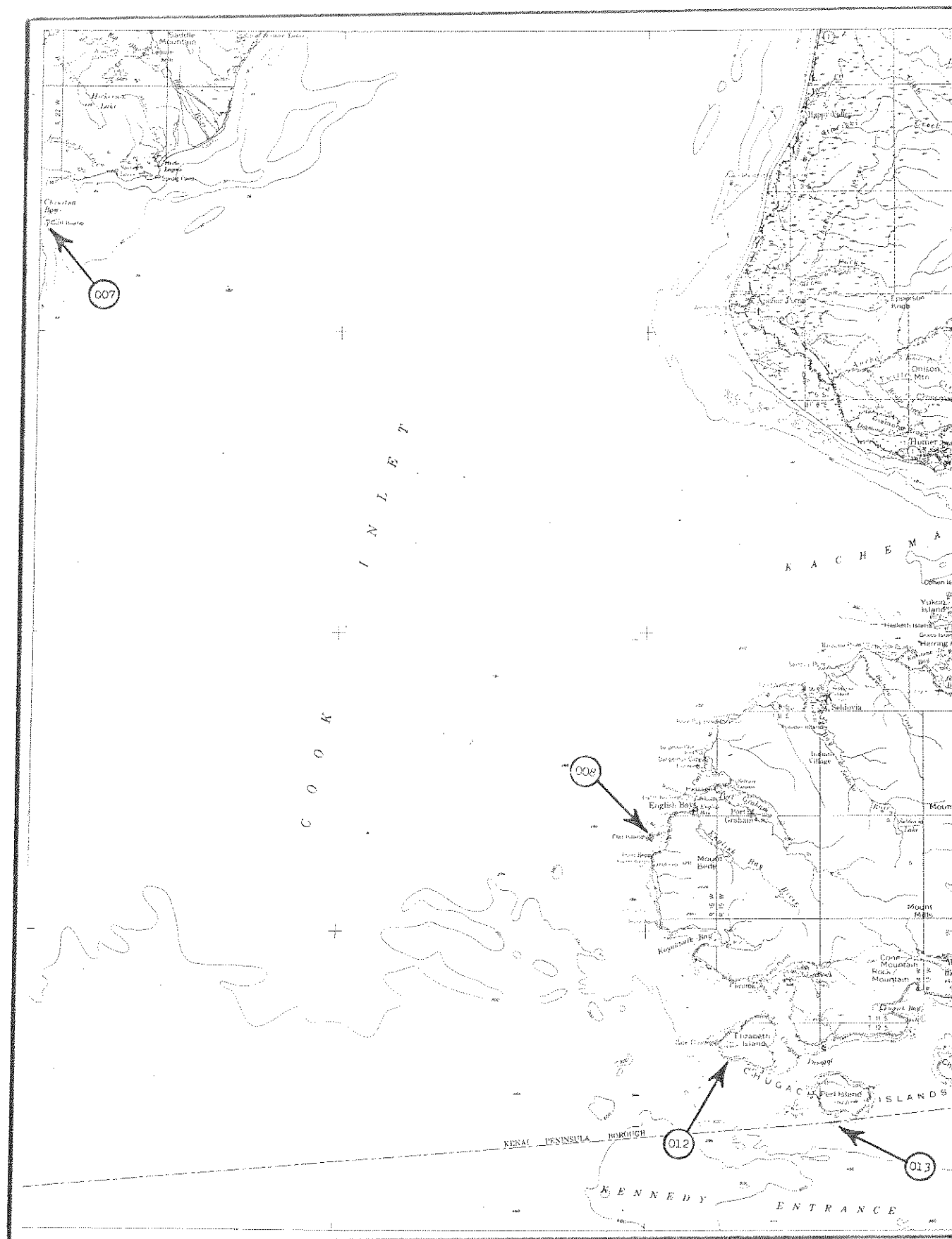
topographic area 024, Unimak.



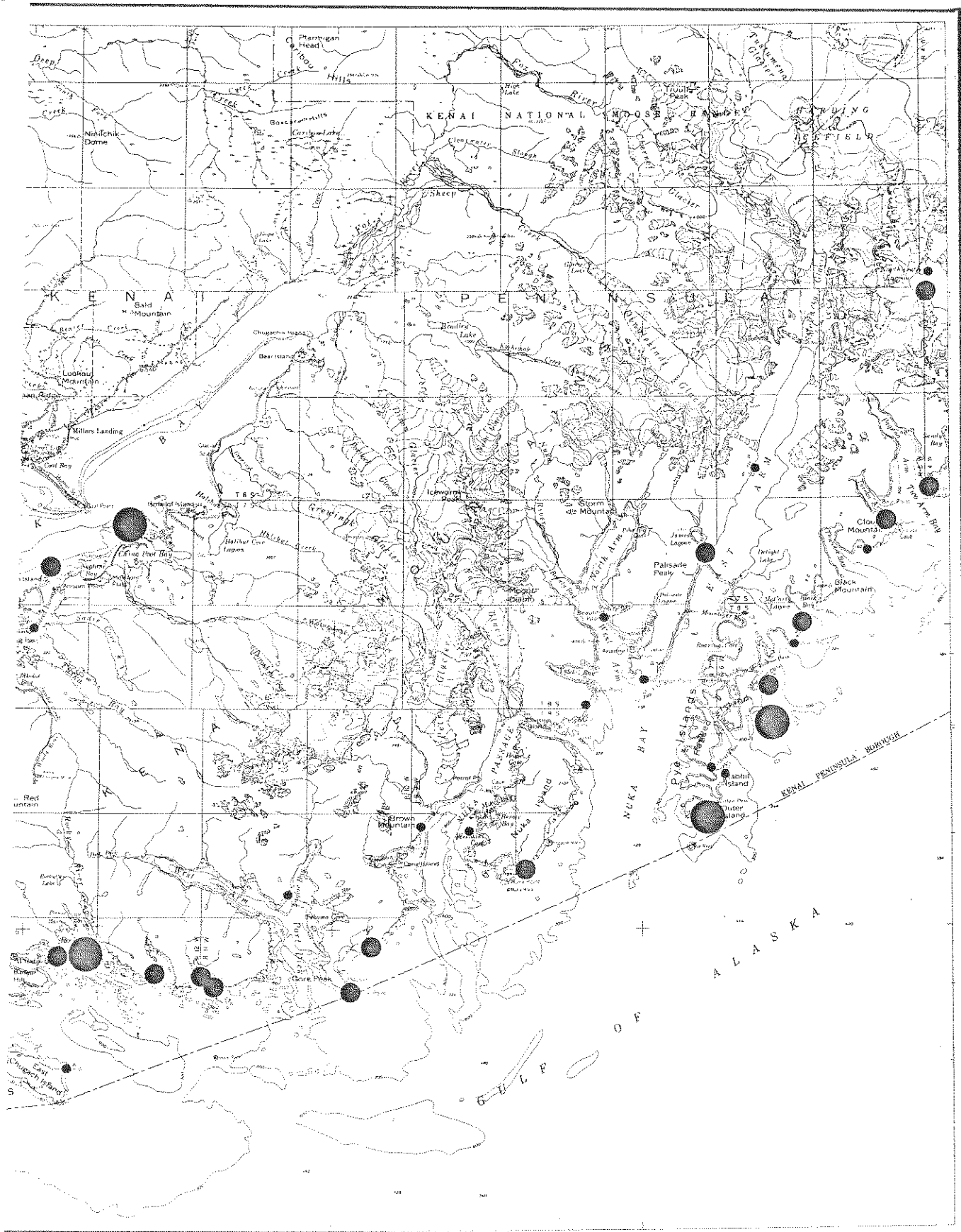
Map 49a. Known seabird colony areas in topographic area 049,







Map 50a: Known seabird colony areas in topographic area 050, Seldovia.



Seldovia.