

Wildlife Inventory Plan
Alaska Maritime National Wildlife Refuge
Protocol #14

Version 1.4

Parameter: Populations

Species: Glaucous-winged gull

PURPOSE

To describe trends in numbers of glaucous-winged gulls attending breeding colonies.

BREEDING BIOLOGY

Glaucous-winged gulls (*Larus glaucescens*) are gregarious seabirds that usually nest in colonies, often in high densities. Breeding pairs defend small territories during the breeding season and may build several nest starts before laying in just one. Both adults share incubation and chick-rearing duties. Annual fidelity to the breeding colony is high. Average lifespan is about 15 years (Verbeek 1993).

Breeding range extends from Alaska to northwest Oregon. The breeding population in Alaska is estimated at about 270,000 birds, more than half of the North American total. Glaucous-winged gull populations do not appear threatened but population trends in Alaska are not well known (Verbeek 1993).

PROCEDURE – ADULT COUNTS (AIKTAK)

Data collection.—Numbers of adults are counted on permanent plots as an index of the number of breeding birds attending the colony each year. Counts should occur during the early part of the breeding season (it is easiest and more accurate to count when birds are incubating and before vegetation grows too high or failed breeders leave). Conduct counts on clear, calm days (when fog, rain, and wind are minimal) and count all plots in a single day.

For each plot, use a tally counter and binoculars to count the number of birds observed (click the tally counter for every bird you count so you don't have to keep track in your head). Repeat until you have two counts within 5% of each other. Record data for each plot separately. Also record the date, time and a brief description of weather during the count (Figure 1).

Data analysis.—The daily total on each plot is calculated as the mean of two counts within 5%. When entering data into the computer, record ONLY those two counts that are within 5% that you will use to generate a mean value for each plot each day (or record just the mean itself). Do not enter any counts that are not used (e.g., a third count not within 5% of the other two, or a count not completed because of fog) – otherwise it introduces potential for confusion in future years.

After you calculate the mean value for each plot each day, sum all plots for a daily count total. Across all replicate counts in a year, calculate the mean, standard deviation, and maximum total count. For all mean values (a replicate count using two counts within 5% or the annual mean of replicate counts), round your value to the nearest whole bird (round up when $\geq .5$, round down when $< .5$)

PROCEDURE – NEST AND EGG COUNTS (AIKTAK, BULDIR, CHOWIET)

Data collection.—Numbers of nests and eggs are counted on permanent plots as an index of annual nesting effort. **A nest is defined as any structure (scrape or nest bowl) to which vegetation has been added in the current year** (this does NOT have to contain eggs). For every count, walk carefully through specified plot(s) and count the number of nests with 0, 1, 2, and 3 eggs (Figure 2).

Count all nests you find, even those with no eggs; gulls can build several nests within a territory and all are counted for initial nesting effort. It is important to record the number of nests with different numbers of eggs (e.g., 10 nests with 0 eggs, 12 nests with 1 egg, 9 nests with 2 eggs, etc.) and NOT simply the total number of eggs found. In vegetated areas, search carefully among the vegetation to avoid missing nests and crushing eggs.

Count frequency and timing varies among sites based on different island specifics and work-loads (see island-specific appendices for details for each island). At some sites, counts are conducted regularly throughout egg-laying and incubation. In these cases, counts should begin when nests are first observed (be sure to begin before peak egg-laying) and continue at regular intervals until first hatch (usually about one month). Once chicks begin to hatch, surveys can end.

At other sites, a single count of nests and eggs is conducted each year. In these cases, the count should be timed as soon as possible after laying finishes to ensure all eggs are counted but before too many eggs are lost.

Data analysis.—Data from counts will provide a rough estimate of the number of breeding pairs (from number of nests) and an index of nesting effort. From your count(s), record the following parameters:

- Total nest starts (A) – number of active nest sites counted (includes ALL nests, those without and without eggs)
- Number of nests w/ 1, 2, and 3 eggs, respectively
- Nest sites with eggs (B) – number of nest sites containing any eggs
- Total eggs (C) – number of eggs seen (the sum of the highest egg count from every nest)

From the above values, calculate the following summary parameters:

- Laying success (B/A)
- Mean clutch size (C/B)

If you made multiple counts, use the *maximum* value (not the average) recorded for these parameters. For total nest starts (A), use data from the *single day* that yielded the maximum total nest count. For nest sites with eggs (B) and total eggs (C), use data from the *single day* that yielded the maximum number of total eggs (C). Note: if the dates for the maximum number of nest sites with eggs (B) and the maximum number of total eggs differ, by convention use egg distribution, (B) and (C) from the date of the maximum total eggs (C). For example, with the following data, yellow highlights which data to use.

When max (B) and max (C) fall on the same day, use the following:

PLOT 1	Total nest starts (A)	Number of nests w/ x eggs:			Nest sites w/ eggs (B)	Total eggs (C)
		1	2	3		
Date						
1 Jun	15	2	2	1	5	9
7 Jun	12	4	2	1	7	11
14 Jun	10	3	2	1	6	10

When max (B) and max (C) fall on different days, use the following:

PLOT 1	Total nest starts (A)	Number of nests w/ x eggs:			Nest sites w/ eggs (B)	Total eggs (C)
		1	2	3		
Date						
1 Jun	15	2	2	1	5	9
7 Jun	12	1	1	3	5	12
14 Jun	10	5	2	1	8	10

If your site has distinctly separate plots, calculate maximum values for each plot separately (maximum counts may occur on different dates for different plots) and sum results from plot for a total. For example, if you made three counts in two different plots, and your data are as follows, yellow highlights the maximum value for each plot:

PLOT 1	Total nest starts (A)	Number of nests w/ x eggs:			Nest sites w/ eggs (B)	Total eggs (C)
		1	2	3		
Date						
7 Jun	12	4	2	1	7	11
14 Jun	10	3	2	1	6	10
20 Jun	9	1	1	1	3	6

PLOT 2	Total nest starts (A)	Number of nests w/ x eggs:			Nest sites w/ eggs (B)	Total eggs (C)
		1	2	3		
Date						
1 Jun	15	2	2	1	5	9
7 Jun	12	1	1	3	5	12
14 Jun	10	5	2	1	8	10

Therefore, your total values for the year would be:

	Total nest starts (A)	Number of nests w/ x eggs:			Nest sites w/ eggs (B)	Total eggs (C)
		1	2	3		
	27	5	3	4	12	23

PROCEDURE – FLEDGLING COUNTS (AIKTAK, CHOWIET, ST. LAZARIA)

Data collection.—Due to difficulty in following glaucous-winged gull nests past chick hatch, we use counts of fledglings at the end of the season as an index of breeding success. Beginning 35 days after mean hatch (calculated from productivity nests), count all fledglings observed in specified plots or beach transects. Do not include second-year birds or chicks (at some sites, it is common for chicks that hatch from nests along the beaches to swim at young ages, particularly to escape people walking down the beach - count them ONLY when full-sized and fully-feathered and thus “fledglings”; see Figures 3 and 4). Conduct counts on clear, calm days (when fog, rain, and wind are minimal) and count all plots in a single day. Repeat every 5-7 days until you leave the island.

For each plot, use a tally counter and binoculars to count the number of fledglings observed (click the tally counter for every fledgling you count so you don't have to keep track in your head). Repeat until you have two counts within 5% of each other. Record data for each plot separately (Figure 5).

Data analysis.—Calculate the daily plot totals as the mean of two counts within 5%. Sum all plots for a daily count total. Across all replicate counts in a year, calculate the mean, standard deviation, and maximum total count. For all mean values (a replicate count using two counts within 10% or the annual mean of replicate counts), round your value to the nearest whole bird (round up when $\geq .5$, round down when $< .5$)

Literature Cited

Verbeek, N.A.M. 1993. Glaucous-winged gull (*Larus glaucescens*). No. 59 in *The Birds of North America* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology.

Date :	15 June 2009		Island :	Aiklak	
Time :	1215-1430		Species :	GWGV	
Observer :	A. Larned		Wx :	WIS, clear	
Plot	Replicates				Mean
	1	2	3	4	
A	52	49			51
B	106	80	84		82
C-west	212	220			216
C-north	72	91	96		94
D	86	89			88
E	326	284	338		332
F	12	11			12
G	5	5			5
H	481	502			492
I	106	132	128		130
MubA	23	26	29	30	30
MubB	8	8			8
MubC	29	27			28

Figure 1. Example of data notebook page for recording adult gull population count data.

Chowick 2010
GWGU Nest/Egg Counts

Plot A					Comments
Date	# Nests w/ X eggs =				
	0	1	2	3	
1 Jun	7	3	2	1	Gulls still building nests
7 Jun	6	3	6	5	
13 Jun	4	4	4	6	
20 Jun	4	3	3	3	Lots of dead eggs in plot

Plot B					Comments
Date	# Nests w/ X eggs =				
	0	1	2	3	
1 Jun	13	6	7	8	
7 Jun	12	7	8	4	
13 Jun	10	4	12	5	
20 Jun	10	4	11	4	

Figure 2. Example of data notebook page for recording nest and egg gull population count data.



Figure 3. Glaucous-winged gull fledgling. Note entirely brown plumage.



Figure 4. Glaucous-winged gull third year bird, second year bird, and fledgling. Note entirely brown plumage on fledgling, while juvenile birds have some grey feathers coming in.

Attachment A. Aiktak Island specifics (includes Figures A1-4 and Table A1)

PROCEDURE DETAILS SPECIFIC TO AIKTAK

At Aiktak, gulls nest in scattered subcolonies across the island and on adjacent offshore islets, with the highest concentrations on Gull Mountain and the Southwest Slope. Non-breeding adults and subadults often congregate in several “clubs” on rocky ledges and beaches along the shoreline. Nest-building usually begins in mid- to late May. Egg-laying at Aiktak can be highly variable between years but generally begins in early to mid-June. In some years, laying is asynchronous, with birds still laying far into July. Chick fledging usually occurs throughout August.

Population data at Aiktak are collected by conducting:

- adult counts
- a single nest and egg count (to calculate nest density)
- fledgling counts

Adult counts: The number of glaucous-winged gulls present at Aiktak each year is estimated from counts of adult gulls during the early part of the breeding season. Gulls are counted on 13 permanent plots (covering most of the island) from set observation points (Figure A1, Table A1). Make three to five replicate counts between late May and mid-June (be aware that as vegetation becomes more rank, gulls become more difficult to count).

It is most efficient on Aiktak to separate plots and have each person visit and count half the plots simultaneously (with a crew of two, each person counts 6-7 plots). That way, it is easier to get a full count of all plots completed before the ever-threatening fog rolls in. It is not necessary for the same person to count the same plots for all replicates (feel free to switch it up for variety). In mid- to late May before the first count, visit all plot observations points together with plot photos and descriptions to ensure that each person is familiar with the plot boundaries.

High plots (e.g., plots B and C) are more susceptible to fog so it may be helpful to count those plots first on days when visibility is questionable. It is extremely frustrating to get most of your count completed but be unable to complete your last plot because the fog rolled in (it can happen QUICKLY!).

Nest and egg count (nest density): Nest density and an index of annual nesting effort are calculated by counting the number of nests and eggs on plots once during incubation. Counts are conducted on six permanent plots distributed across both high and low-density nesting areas on SW Slope and Gull Mountain (Figure A2). The count should be timed to occur as soon as possible after egg laying is complete, as egg loss after laying can be rapid. This is usually early to mid-June but sometimes late June. Use data from your productivity nests to help determine timing.

Each plot is circular with a 10m radius and marked at the center by poles 40, 41, 42, 43, 55, and 78; plot boundaries can be delineated with a 10m rope attached to the plot’s center pole and pivoted in a circle. To count nests and eggs, stretch two 10m ropes taut and stake the ends with tent stakes or flags to create a wedge-shaped area small enough to accurately count nests within (Figure A3). Count the number of nests according to their contents (zero, one, two, or three eggs), making sure to only count active nests (defined as those in which vegetation has added in the current year). Continue to make small wedges around the plot until all nests within the circular plot have been counted (make sure to flag your starting point to avoid double-counting!)

Fledgling counts: Fledglings are counted along two beach transects: Old Camp Beach (Guillemot Rock to Pleasure Cove) and New Camp Beach (Guillemot Beach to the Dike; Figure A4). Birds flush easily as you walk down the beach so try to find one or a few good observation point(s) from which to count if possible. Good observation points include from the tufted puffin productivity plot A and inland from Guillemot Rock.

Begin counts 35 days after mean hatch, which can be determined using productivity nests, usually early to mid-August, and continue every 5-7 days until you leave the island in late August or early September. Count ALL fledglings you see: those on the beach, on rocky outcrops, and swimming in the water. Immature gulls often concentrate with fledglings along beaches at Aiktak at the end of the season so be sure to count ONLY fledglings.

Specific Requirements for Aiktak

Dates: *Adult counts:* Late May to mid-June.

Nest/egg count: As soon as possible after egg laying complete (usually early to mid-June)

Fledgling counts: Begin 35 days after mean hatch (usually early to mid-August), continue until departure from island

Optimal sample size: *Adult counts:* 3-5 replicates.

Nest/egg count: 1 replicate.

Fledgling counts: Every 5-7 days from start until departure from island.

Time of day: *Adult counts:* Any time.

Nest/egg count: Any time.

Fledgling counts: Any time.

Weather: *Adult counts:* Wind less than 25 knots, clear conditions (no fog).

Nest/egg count: Any weather.

Fledgling counts: Wind less than 25 knots, clear conditions or high fog.

Equipment needed: *Adult counts:* Binoculars, tally-counters, Rite-in-the-Rain[®] notebook, plot photos, two pencils.

Nest/egg count: Two 10m ropes, 8-10 tent stakes or flags, tally-counters, Rite-in-the-Rain[®] notebook, two pencils.

Fledgling counts: Binoculars, tally-counters, Rite-in-the-Rain[®] notebook, two pencils.

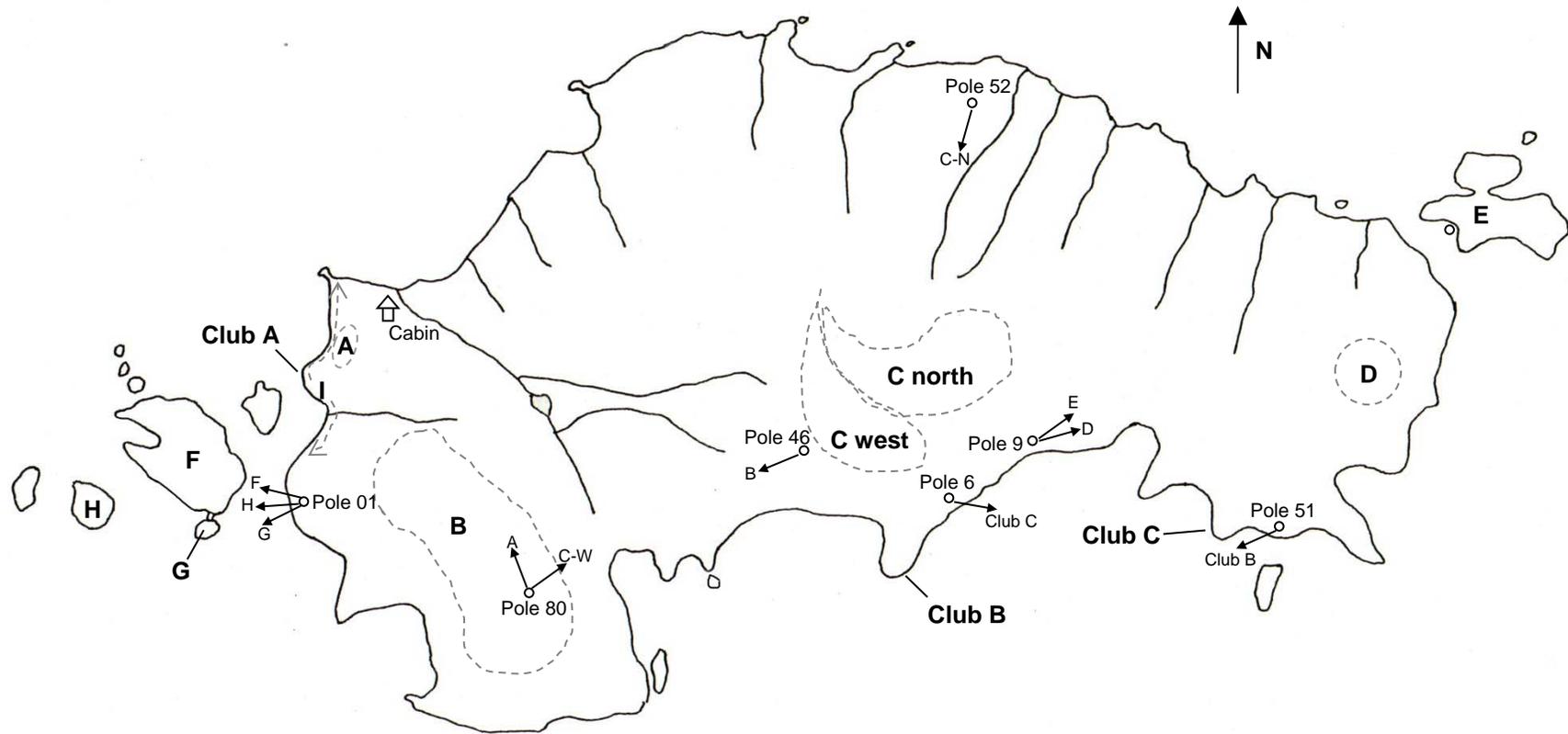


Figure A1. Location of glaucous-winged gull adult population plots at Aiktak Island. Letters (A- I and Clubs A-C) indicate population plots; white dots indicate observation stakes for counts, with arrows and associated labels showing which plots are counted from which observation stakes.

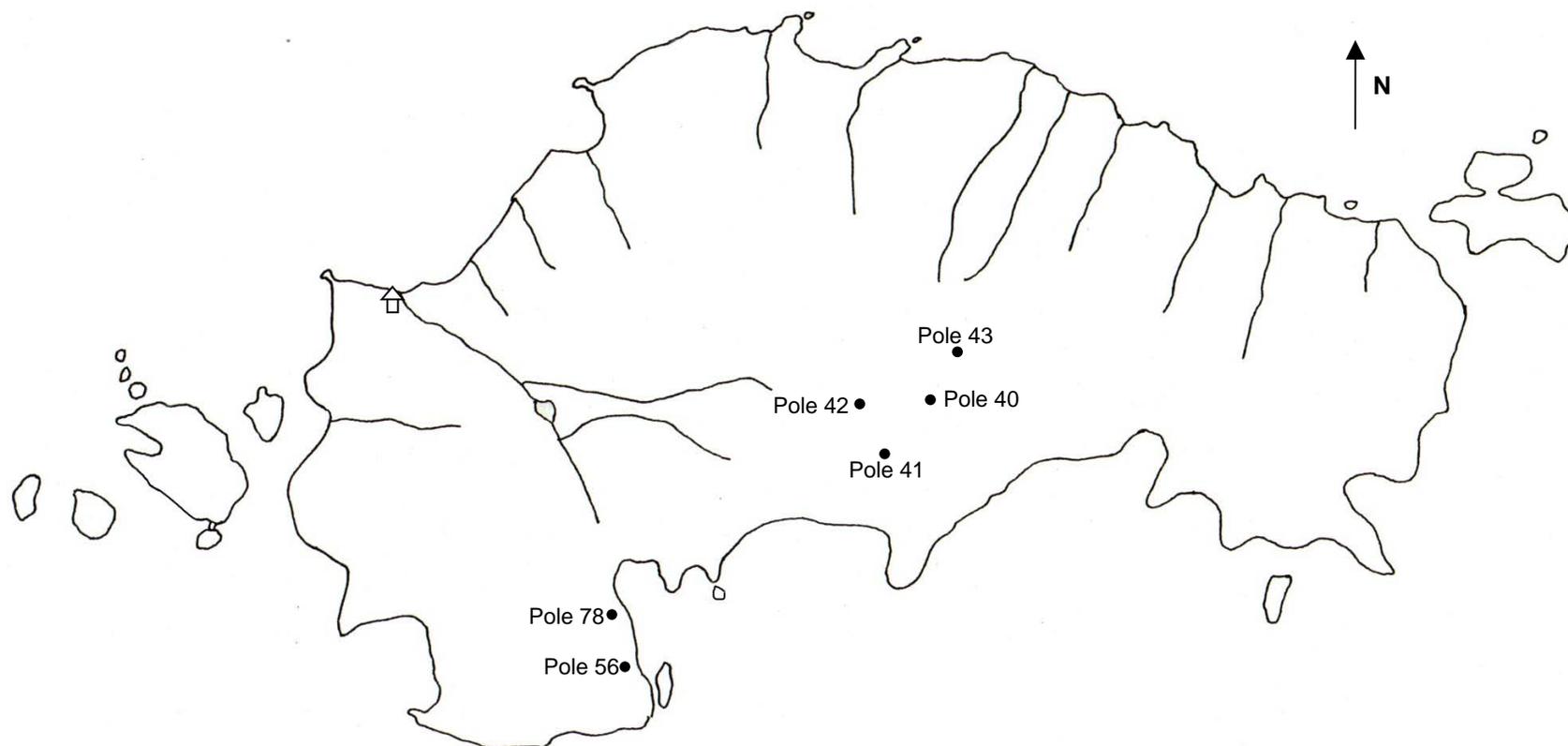


Figure A2. Location of glaucous-winged gull nest density (nest and egg count) plots (40, 41, 42, 43, 56, and 78) at Aiktak Island.

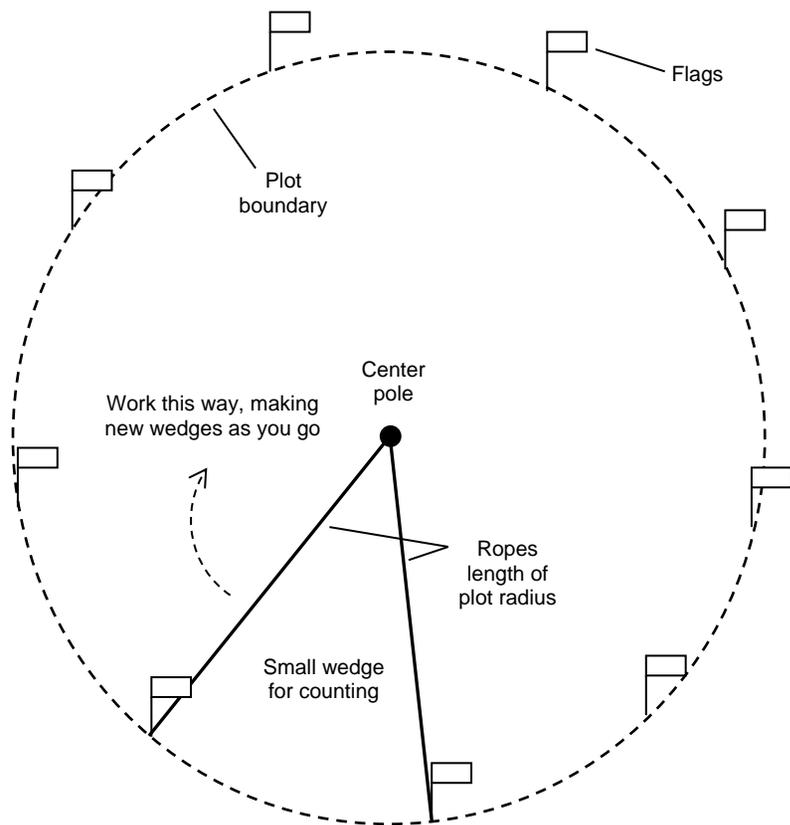


Figure A3. Technique for counting gull nests in circular plots using ropes and stakes/flags to create smaller wedges in which to count.

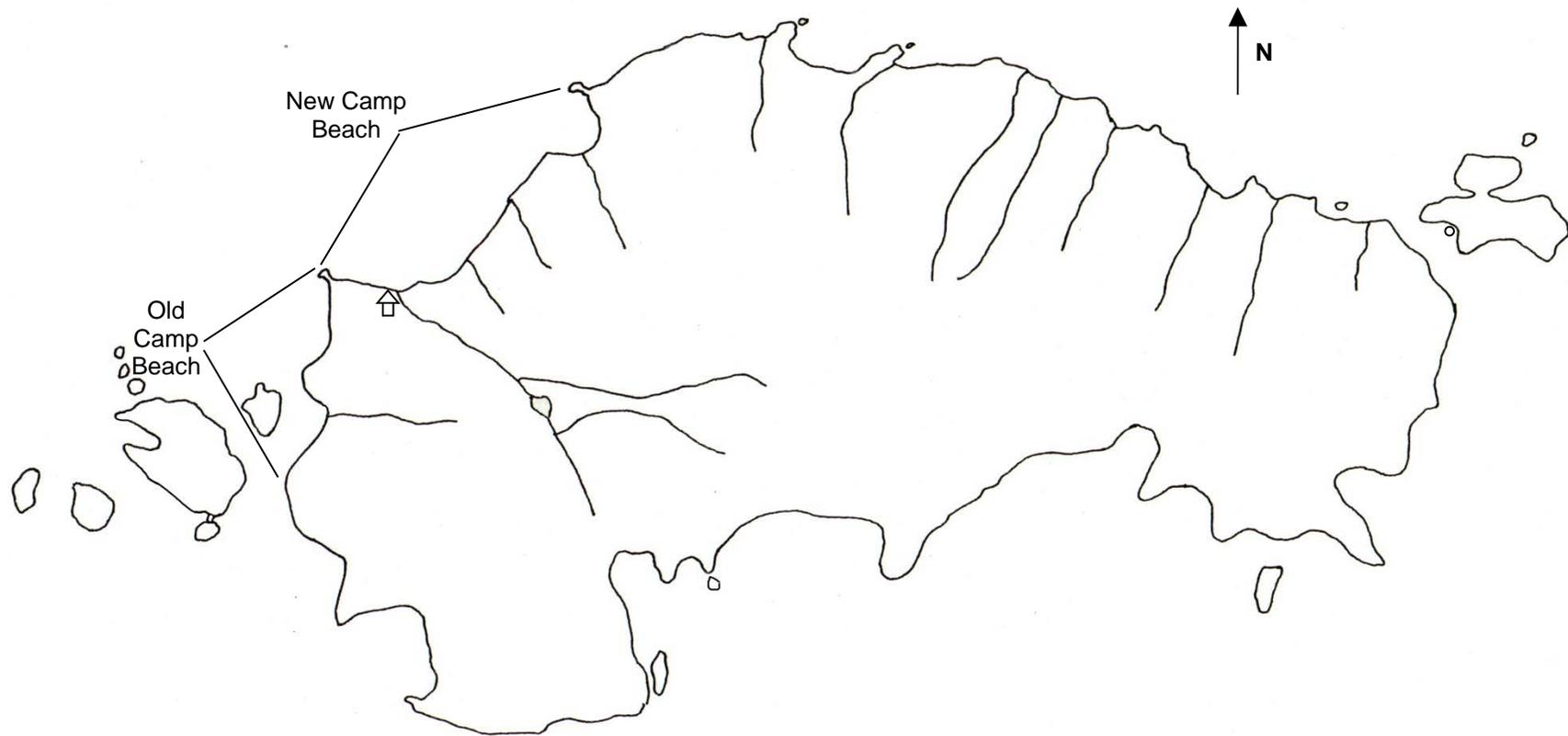


Figure A4. Location of glaucous-winged gull fledgling transects at Aiktak Island.

Table A1. Descriptions of glaucous-winged gull adult population plots at Aiktak Island.

Plot	Obs. Point	Description
A (Old Camp Berm)	Pole 80	Small area counted from halfway up Southwest slope and includes all birds visible on the top and back (south) side of the berm of Old Camp Beach. (Note: C-West counted from same pole).
B (SW Slope)	Pole 46	Area counted from 2/3 of the way up the west slope of Gull Mountain and includes all birds visible on Southwest Slope.
C-West (West Gull Mt.)	Pole 80	Area counted from about halfway up the Southwest slope and includes all birds visible on the west facing slope of Gull Mountain. (Note: A counted from same pole).
C-North (North Gull Mt.)	Pole 52	Area counted just off the trail on the lower north side of the island. Count all birds visible from the crest of the mountain, downslope through the bowl. This is often the most difficult plot to count because of the number of birds and distance.
D (SE Slope)	15 inland from Pole 9	Area located on a flat grassy area midway along the far eastern side of the island and usually contains only low numbers of birds. (Note: E counted from same location).
E (East Island)	15 inland from Pole 9	Observation point for this area offers an unobstructed view of East Island. Count all birds visible on the island, including those loafing or foraging in the intertidal habitat. (Note: D counted from same location)
F (Big West Island)	Pole 01	Count all birds on the island. (Note: G and H counted from same location).
G (Barred Island)	Pole 01	Count all birds on the island. (Note: F and H counted from same location).
H (Tuxedo Rock)	Pole 01	Count all birds on the island. (Note: F and G counted from same location).
I (Old Camp Beach)	none	Counted simultaneously with Club A while walking along Old Camp Beach from Guillemot Rock to Pleasure Cove. Plot I includes birds on the beach and on the upland beach berm but excludes those on the intertidal area that forms a spit at low tide (see Club A). Begin at Guillemot Rock. Before walking down the beach, count all birds visible on Club A (see below). Then begin counting birds on Plot I. As you walk the beach to Pleasure Cove, continue counting birds as they become visible.
Club A	none	Counted simultaneously with Plot I. Club A includes the cobble spit at the southwest end of Old Camp Beach. Non-breeding birds congregate here at high tide and disperse in the intertidal between the spit and Little West Island at low tide. If the tide is low, include all birds between Aiktak and Big/Little West Islands. In order to avoid flushing birds, this area is best counted from Guillemot Rock before walking down the beach.
Club B	Pole 51	Count all birds visible on the rocky point midway along the south shore of the island, east of an offshore sea stack.
Club C	Pole 06	Count all birds visible on the rocky point extending seaward below Murre Plot 6 at the southeastern end of the island.

Attachment B. Buldir Island specifics (includes Figure B1)

PROCEDURE DETAILS SPECIFIC TO BULDIR

At Buldir, gulls nest along beaches and in vegetated upland areas. Nest-building usually begins in mid- to late May and egg-laying generally begins in early to mid-June. Chicks hatch in late June and July and fledging usually occurs throughout August.

Population data at Buldir are collected by conducting:

- nest and egg counts

Surveys are conducted ONLY along the north beach between East Main Talus and East Kittiwake Lane (Figure B1). Beginning in late May or early June, conduct counts every time you walk to Kittiwake Lane until chicks begin hatching. You may or may not be following these same nests for productivity – if so, still count and record data in the count format.

Specific Requirements for Buldir

Dates: Late May/early June to late June/early July (until hatch).

Optimal sample size: As often as you walk to Kittiwake Lane during count period.

Time of day: Any time.

Weather: Any weather.

Equipment needed: Tally-counters, Rite-in-the-Rain[®] notebook, two pencils.

Need Buldir Map

Figure B1. Location of glaucous-winged gull population surveys (nest and egg counts) at Buldir Island.

Attachment C. Chowiet Island specifics (includes Figures C1-6)

PROCEDURE DETAILS SPECIFIC TO CHOWIET

At Chowiet, gulls nest in a number of areas around the island but are monitored at the South Bay Colony. Nest-building usually begins in May and egg-laying begins in early to mid-June. Chicks begin hatching in late June to early July and begin fledging in early to mid-August.

Population data at Chowiet are collected by conducting:

- nest and egg counts
- fledgling counts

Nest and egg counts: Beginning in early June, begin counting nests and eggs in three subcolonies (A, B, and C) at the South Bay Colony (Figures C1-6). Record data for each subcolony separately. Repeat counts every 5-7 days until chicks hatch (usually late June or early July).

Fledgling counts: Fledglings are counted along the South Bay Colony by walking beach segments and counting all fledglings observed. Begin counts 35 days after mean hatch, which can be determined using productivity nests, usually early to mid-August, and continue every 5-7 days until you leave the island in late August or early September. Record data for each subcolony (A, B, and C) and South Bay beach separately. Birds flush easily as you walk through the colony so try to find one or a few good observation point(s) from which to count if possible.

Count ALL fledglings you see: those within each subcolony, on rocky outcrops and swimming in the water (offshore of each subcolony), and along South Bay beach. Immature gulls often concentrate with fledglings at the end of the season so be sure to count ONLY fledglings.

Specific Requirements for Chowiet

Dates: *Nest/egg counts:* Early June to early July (until first hatch).

Fledgling counts: Begin 35 days after mean hatch (usually early to mid-August), continue until departure from island.

Optimal sample size: *Nest/egg counts:* 4 to 6 replicates (every 5-7 days in count period).

Fledgling counts: Every 5-7 days from start until departure from island.

Time of day: *Nest/egg counts:* Any time.

Fledgling counts: Any time.

Weather: *Nest/egg counts:* Any weather.

Fledgling counts: Wind less than 25 knots, clear conditions or high fog.

Equipment needed: *Nest/egg counts:* Tally-counters, Rite-in-the-Rain® notebook, copy of plot photos and descriptions, two pencils.

Fledgling counts: Binoculars, tally-counters, Rite-in-the-Rain® notebook, two pencils.

**GWGU South Bay Colony
Start of Plot A
Chowiet 2004**



Figure C1. Start of South Bay Sub-colony A on Chowiet Island.

GWGU South Bay Colony
End of Plot A/Start of Plot B
Chowiet 2004

56 01.31 N 156 42.84 W



Figure C2. End of South Bay Sub-colony A and start of South Bay Sub-colony B on Chowiet Island.



Figure C3. End of South Bay Sub-colony B and start of South Bay Sub-colony C on Chowiet Island.



Figure C4. Eastern boundary of South Bay Sub-colony B on Chowiet Island.

GWGU South Bay Colony
Western side of Plot C
Chowiet 2004

56 01.28 N 156 42.58 W



Figure C5. Western side of South Bay Sub-colony C on Chowiet Island.

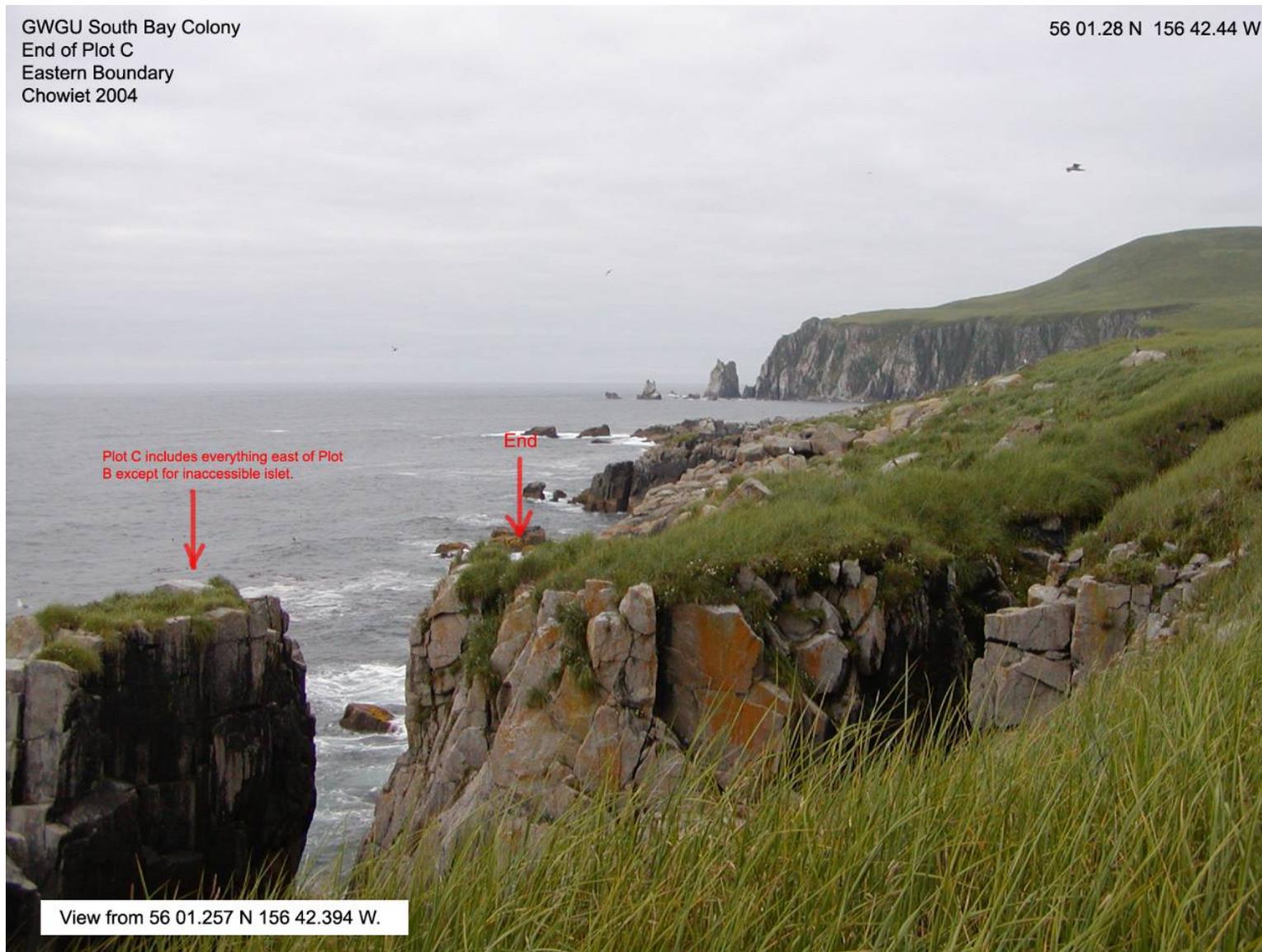


Figure C6. End of South Bay Sub-colony C on Chowiet Island.

Attachment D. St. Lazaria Island specifics (includes Figures D1-2)

PROCEDURE DETAILS SPECIFIC TO ST. LAZARIA

At St Lazaria, nest-building usually begins in May. Chicks hatch from mid- to late June to late July; fledging occurs in August. Gulls are monitored on index plots at the center of the island (Figures D1-2).

Population data at St. Lazaria are collected by conducting:

- nest counts (based on frequent checks while monitoring reproductive success, NOT separate counts conducted under population protocols)
- fledgling counts

Index plots (Figures D1) are the same for population and productivity/phenology indices and consist of:

- Big Grassy - rectangular plot (20 x 25m long) running east-west. Northwest corner permanently marked with a piece of rebar stuck in the ground & wrapped with flagging; other corners marked each year with pin flags.
- Gull Spires I, 1-1/2, & II - own entities based on discrete geophysical land forms.
- Gull Rocks
- Guano Ridge

For safety, Gull Spires should only be accessed under dry conditions. Any nests on Big Grassy area but outside of rectangular plot boundaries are also counted/monitored but grouped as "Out of Plot".

Nest counts: Counts of nests on index plots at St. Lazaria are based on data from productivity monitoring (see Gull Productivity protocol) – there is no need to conduct separate counts. All nests in plots are marked and followed for productivity monitoring so nest counts can be taken from those data at the end of the season. Simply tally the total number of nests monitored throughout the season for your nest count. This provides an estimate of the number of breeding pairs on index plots each year; you can estimate the adult breeding population on plots by doubling this value.

Fledgling counts: Fledglings are counted conducted from two vantage points at opposite ends of the colony: the west end of Guano Ridge, near the entry point to the path; and from the east, the high, bare rocks inland from the Toilet Bowl and along the access route to storm-petrel plots 10 and 15. To conduct counts, two observers are needed, one at each location. Observers use a spotting scope to count fledglings and walkie-talkies or radios to communicate to try to avoid double-counting. Immediately after the counts are completed, the observers should meet to discuss any duplicate counting in areas visible to both observers.

Prior to counts, it may be helpful to take photographs from the observation points and print them off to use for reference when communicating. In the past, it has been helpful to make several duplicates of the photographs, so that observers make notes (for example, mark the location of possible double-counted birds), without degrading the quality of the photograph for other counts.

Specific Requirements for St. Lazaria

Dates: *Fledgling counts:* Begin 35 days after mean hatch (usually early August), continue until departure from island.

Optimal sample size: *Fledgling counts:* Every 5-7 days from start until departure from island.

Time of day: *Fledgling counts:* Any time.

Weather: *Fledgling counts:* Wind less than 25 knots, clear conditions or high fog.

Equipment needed: *Fledgling counts:* Binoculars/spotting scopes, tally-counters, Rite-in-the-Rain® notebook, two pencils, walkie-talkies or radios, plot photos.

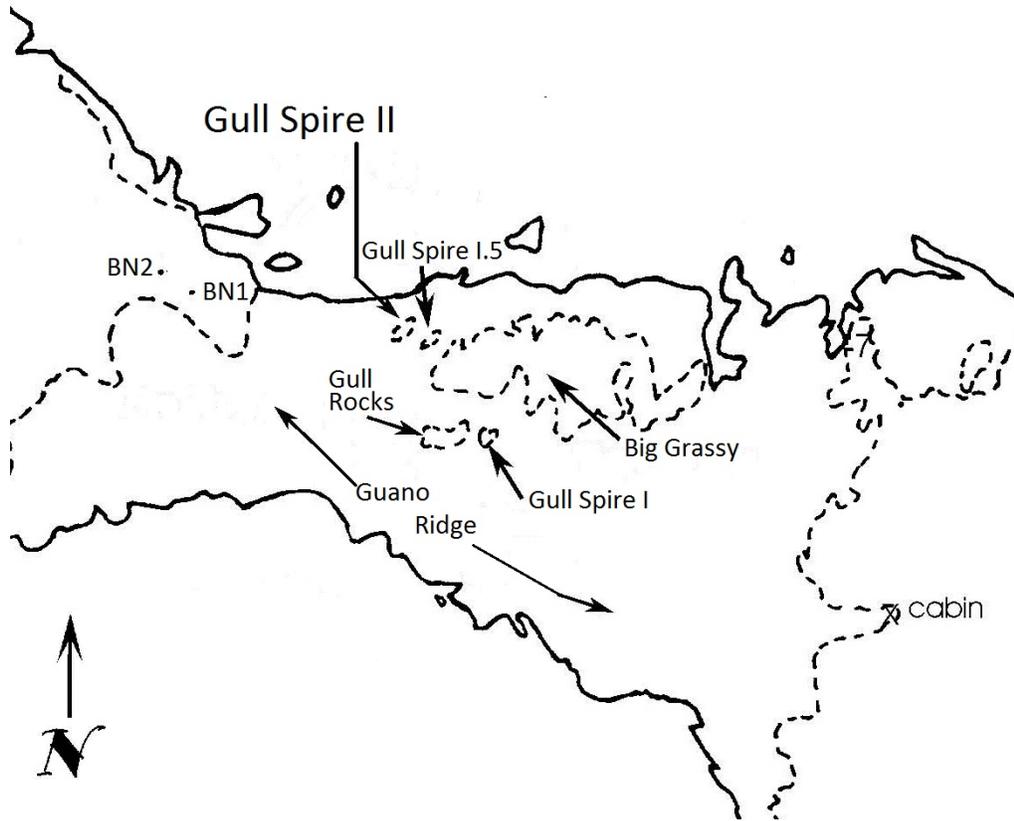


Figure D1. Map depicting glaucous-winged gull index plots on St. Lazaria Island.

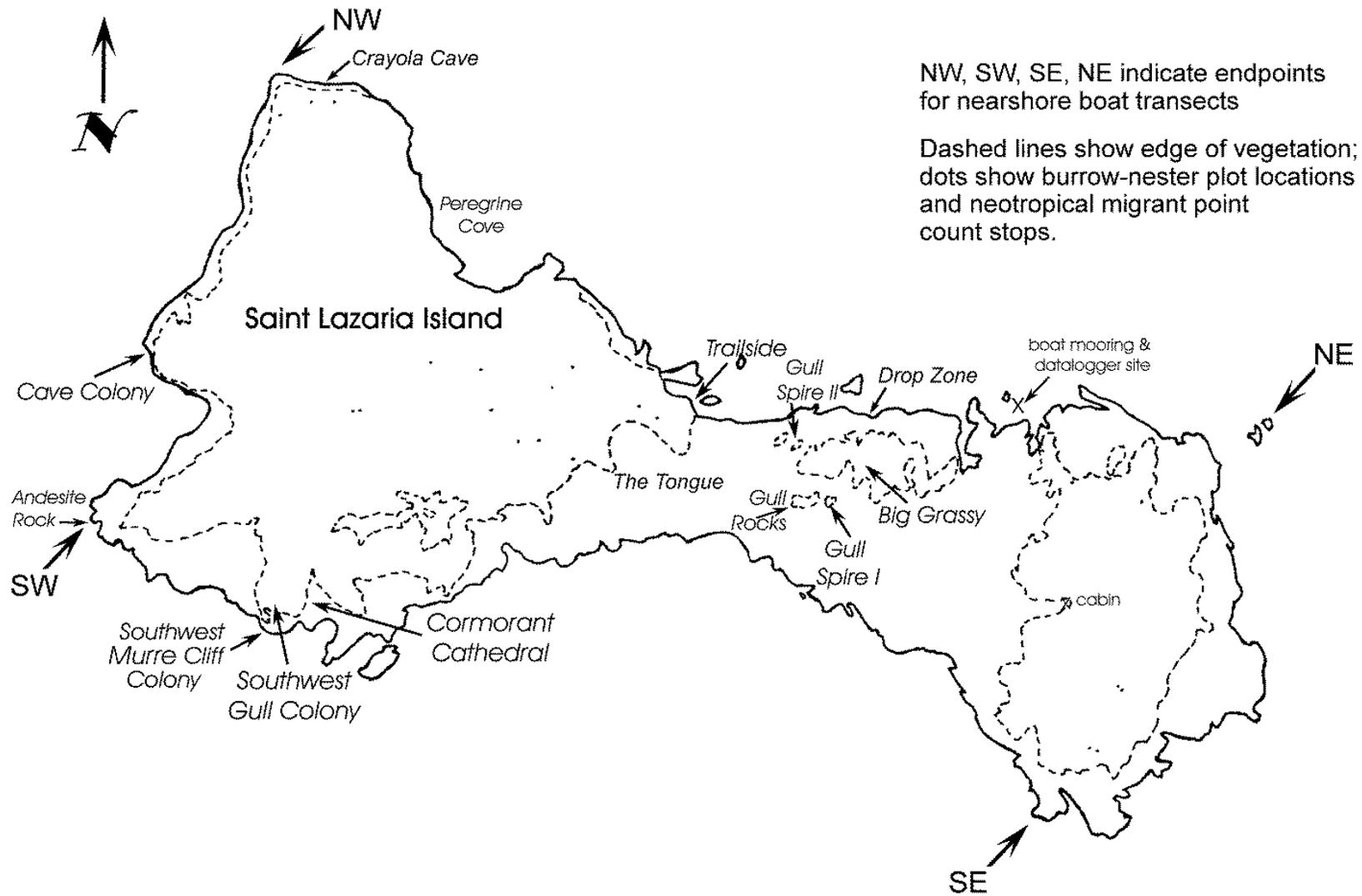


Figure D2. Map showing plot locations for glaucous-winged gull index plots at St. Lazaria, Alaska.

Protocol Revision History Log

Revision Date	Changes made	New version #
April 2017	Made minor clarifications to Aiktak attachment	1.4
Oct 2015- Jan 2016	Made minor clarifications to Aiktak and Chowiet fledgling count sections, added photos of fledglings	1.3
April 2015	Made minor clarifications to Aiktak section	1.2
April 2014	Changed font to Arial, added revision history log, replaced revision date with version # on first page, added protocol # to first page, changed number format of tables and figures in island attachments, changed page number format to include protocol #, made minor grammatical edits, specified that mean counts should be rounded to the nearest whole number	1.1
May 2013	Protocol developed in standardized format from historic protocols, includes Aiktak, Buldir, Chowiet and St.Lazaria attachments	1.0