

Wildlife Inventory Plan  
Alaska Maritime National Wildlife Refuge  
Protocol #22

Version 1.2

Parameter: Populations (and occasionally boom-or-bust productivity)

Species: Birds (seabirds, shorebirds, waterfowl, raptors, passerines) and marine mammals

## **PURPOSE**

To count birds and marine mammals from a skiff for an estimate of individuals at each island each year. In addition, at some sites, to get a rough estimate (boom-or-bust) of ledgenester productivity.

## **PROCEDURES**

**Data collection.**—Birds and mammals are counted on nearshore boat-based circumnavigation surveys. While moving along the shoreline in an inflatable skiff, count all individuals observed along the coast and out to about 200 m offshore. In addition, try to record any nests (eagles, cormorants, kittiwakes, gulls, etc.) observed unless otherwise noted (i.e., too many kittiwake nests at Buldir to count). It is helpful to have at least three people: a skiff driver, a primary observer, and a data recorder/secondary observer; additional observers may be added as available. Observers should use binoculars and tally counters to identify and count when necessary.

Most islands are divided into segments or sections to make counting easier. Unlike population counts conducted from land, sections are usually counted just once (it is generally not possible to conduct multiple counts to get within 5% from a skiff). At some sites, circumnavigation surveys are conducted in conjunction with murre population counts from the water, pigeon guillemot counts, or cormorant and kittiwake productivity. Timing of surveys is usually specific to each island for consistency across years. Each island has its own boating logistics and safety considerations. See island-specific attachments for all details.

**Data analysis.**—Sum number of individuals counted for each species; if you conduct multiple replicate surveys in a season, calculate the mean number of individuals. For any productivity summary, refer to island-specific details.

## Attachment A. Aiktak Island specifics (includes Figure A1)

**PROCEDURE DETAILS SPECIFIC TO AIKTAK**

Conduct circumnavigation surveys during mid-July to mid-August to document numbers of birds and marine mammals around the island. Surveys should be conducted on calm days with clear visibility. For consistency with past years, try to conduct surveys between late morning and late afternoon. Ideally aim for 3-5 replicates, although it is rare that crews get more than one or two surveys completed due to weather and other work loads (circumnavigation surveys are lower priority at Aiktak compared to other monitoring work); in some years no surveys are done.

Count all species of that can be feasibly counted from the shoreline out to about 200 m offshore: this should include all species *except* tufted puffins and glaucous-winged gulls (too numerous to count accurately). Make sure to count numbers of pigeon guillemots, horned puffins, and murrelets (both on the cliffs and rafting below the cliffs), as this will provide boat-based population counts for these species. It is acceptable to lump all murrelets together, as it is difficult to distinguish between thick-billed and common murrelets from the skiff. Also count all cormorant nests you observe. Record all data by segment (see Figure A1).

Boat-based population counts of pigeon guillemots, horned puffins, and murrelets should always be presented separately in annual reports from land-based counts. For pigeon guillemots and horned puffins, circumnavigation surveys are not necessarily conducted during the ideal count window (both time of year and time of day) for these species, so boat-based numbers are not comparable with properly-timed land-based surveys (see HOPU PAAU PIGU Population Protocol). For murrelets, boat-based and land-based counts occur at approximately the same times but view different sections of the cliff.

Note that even on the calmest of days, the waters around Aiktak can have strong currents and dangerous tide rips, particularly off the western end of the island. Always use caution when boating and keep an eye on conditions at all times; abort any counts if conditions deteriorate during your survey. If possible, plan to survey during slack tides, when currents are weakest. Always bring your satellite phone and all boat safety gear. Launching a skiff is easiest at high tide; at low tide, you will have to wade and drag the boat across an extensive area of algae-covered rocks.

If there is no skiff at camp, you may be able to conduct a circumnavigation using a skiff on the Tiglax during resupply or another visit if time allows. Ask ahead about that possibility as the ship's visit approaches (don't wait until the day before!).

***Specific Requirements for Aiktak***

Dates: Mid-July to mid-August .

Optimal sample size: 3-5 replicates.

Time of day: Ideally late morning to late afternoon.

Weather: Calm winds and calm seas (winds less than 15 knots and seas less than 3 ft), clear visibility, little to no precipitation.

Equipment needed: Binoculars, tally counters, circumnavigation map with segments marked, GPS, Rite-in-the-Rain® notebook, two pencils, inflatable skiff with all safety gear (don't forget to bring your satellite phone and VHF!).

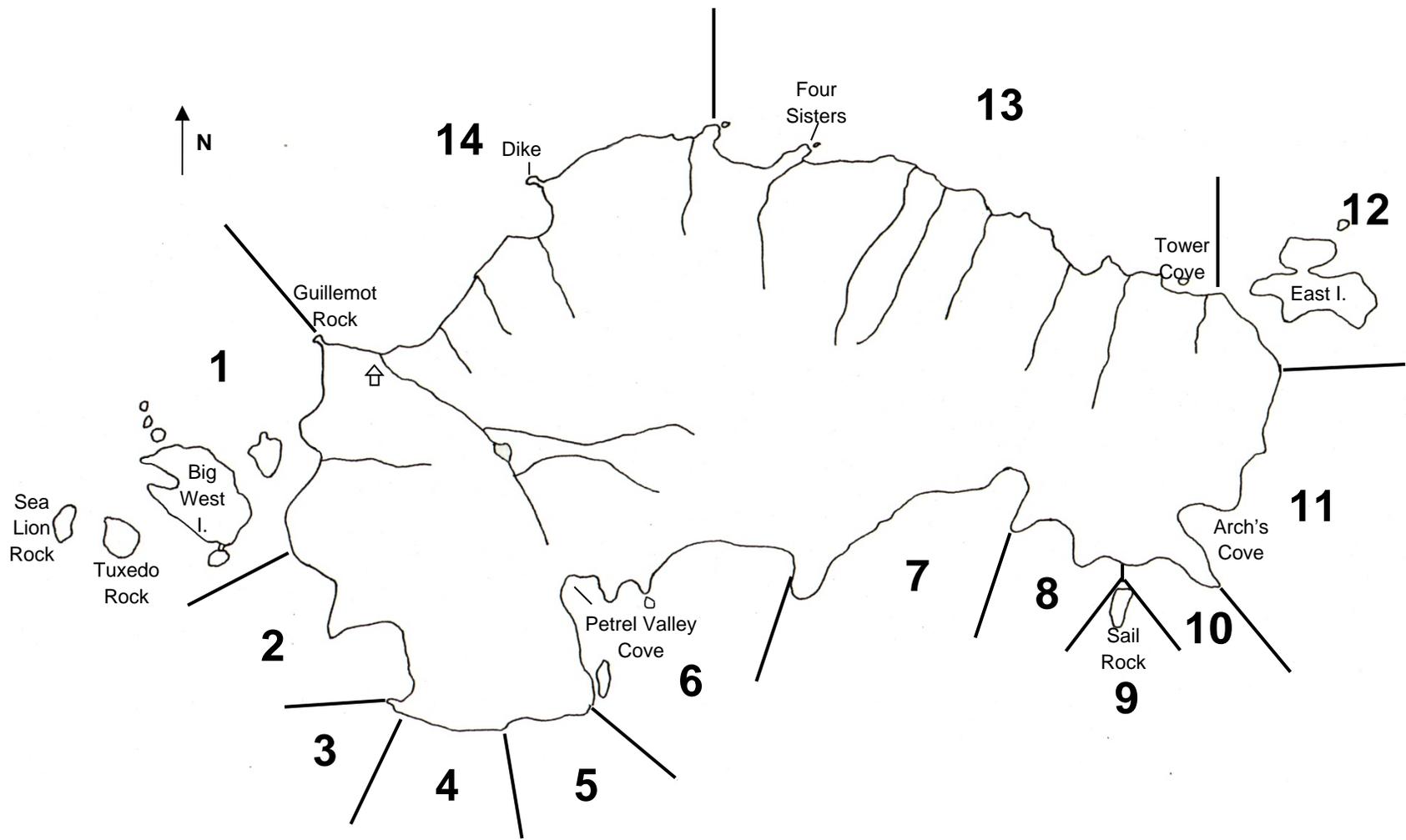


Figure A1. Segments for circumnavigation surveys at Aiktak Island.

## Attachment B. Buldir Island specifics (includes Figure B1)

**PROCEDURE DETAILS SPECIFIC TO BULDIR**

Conduct circumnavigation surveys during June to document numbers of birds and marine mammals around the island. Surveys should be conducted on calm days with clear visibility. For consistency with past years and for optimal pigeon guillemot counting, try to conduct surveys in the morning (0700-1000h ideal, 0700-1200 acceptable). Aim for a single replicates; even this is difficult at Buldir due to weather and other work loads (circumnavigation surveys are lower priority at Buldir compared to other monitoring work) and in some years no surveys are done.

Count all species of that can be feasibly counted from the shoreline out to about 200 m offshore: at Buldir, exclude least and crested auklets, kittiwakes and murrelets (all too numerous to count accurately). *Make sure to count numbers of pigeon guillemots*, as this will provide boat-based population counts for these species. Also count all cormorant nests you observe. Record all data by segment (see Figure B1).

Boating at Buldir is potentially dangerous, as the island sits far from any other land and you could drift out to sea in any direction if something goes wrong. Never boat in questionable weather and abort any counts if conditions deteriorate during your survey. Always bring your satellite phone and all boat safety gear.

If there is no skiff at camp, you may be able to conduct a circumnavigation using a skiff on the Tiglax during resupply or another visit if time allows. Ask ahead about that possibility as the ship's visit approaches (don't wait until the day before!).

***Specific Requirements for Buldir***

Dates: June.

Optimal sample size: 1 replicate.

Time of day: 0700-1000h ideal, 0700-1200 acceptable.

Weather: Calm winds and calm seas (winds less than 15 knots and seas less than 3 ft), clear visibility, little to no precipitation.

Equipment needed: Binoculars, tally counters, circumnavigation map with segments marked, GPS, Rite-in-the-Rain® notebook, two pencils, inflatable skiff with all safety gear (don't forget to bring your satellite phone and VHF!).

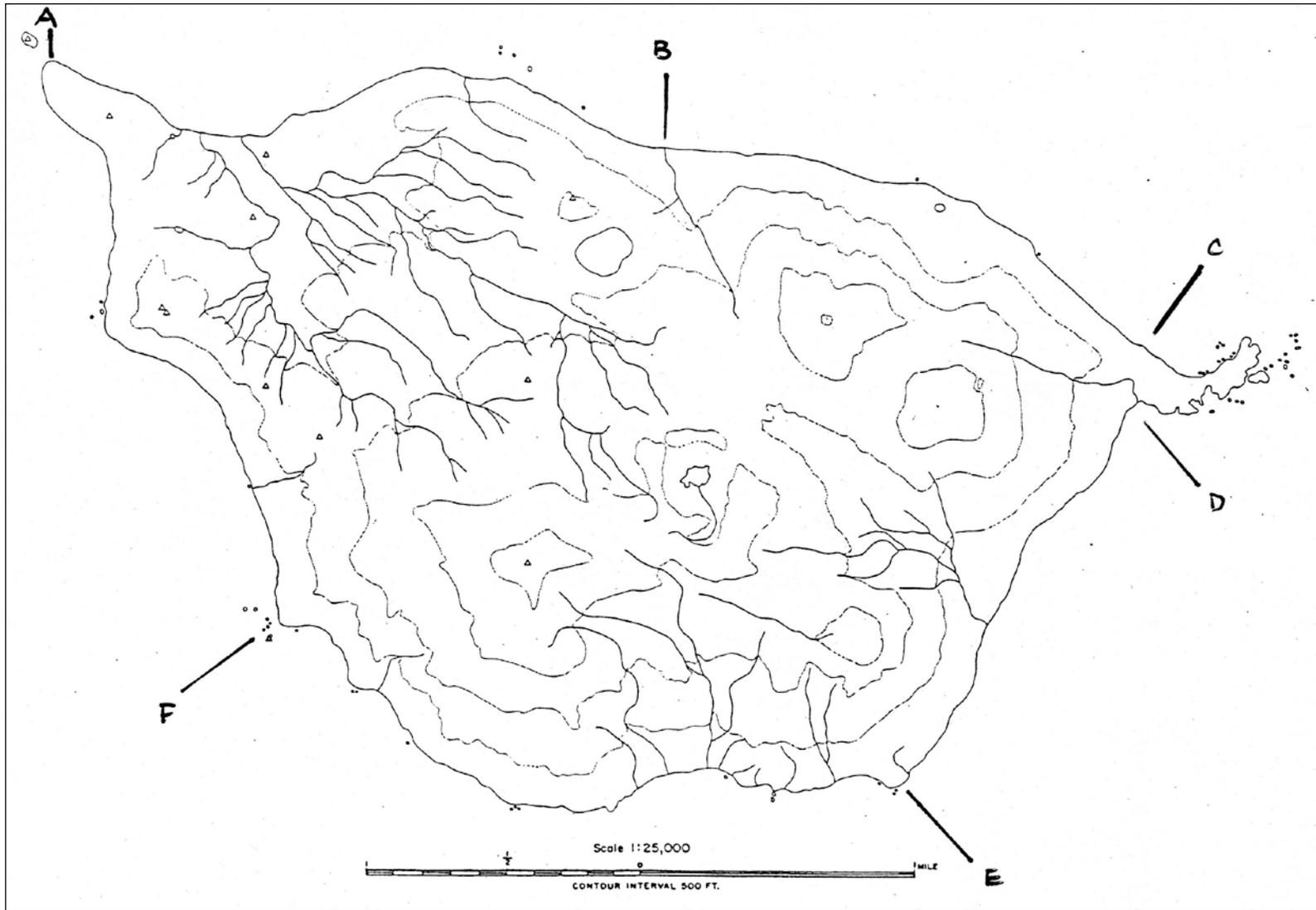


Figure B1. Segments for circumnavigation surveys at Buldir Island.

## Attachment C. St. Lazaria Island specifics (includes Figures C1-2)

**PROCEDURE DETAILS SPECIFIC TO ST. LAZARIA**

High priority circumnavigation surveys at St. Lazaria are for boat-based population counts of pigeon guillemots. Murre population counts (see Ledgenester Population Protocol) and cormorant productivity (see Cormorant Productivity Protocol) may also be conducted from a skiff but these are usually conducted separately (with the possible exception of some early-season cormorant counts, see below and Cormorant Productivity Protocol). If the work-load allows, circumnavigation surveys can be conducted in late June to late July to count all wildlife. This will help to capture bald eagle nesting effort. Surveys done in mid- to late July also capture the typical (and large) influx of non-breeding gulls that use the island.

Never boat in questionable weather and abort any counts if conditions deteriorate during your survey. Always submit a float plan a day in advance of the survey (in order to ensure float plan approval) and bring all boat safety gear.

**Pigeon guillemots:**

Conduct circumnavigation surveys from late June through mid-July to document numbers of pigeon guillemots around the island. Ideally, surveys should be conducted on calm days with clear visibility. For consistency with past years and for optimal pigeon guillemot counting, try to conduct surveys in the morning (0700-1000h ideal, 0700-1100h acceptable). Aim for 5-8 replicates.

The survey is divided into four transects: NE to NW, NW to SW, SW to SE, and SE to NE transects (see Figure C1). Always begin the survey at the NE starting point then head to the NW; continue in this counter-clockwise direction until you end at the initial NE starting location.

During survey, pigeon guillemots should be counted from a skiff about 100 m off St. Lazaria. There should be two counters and one recorder/boat operator. One counter should count off the starboard side off the bow to the ocean and the second counter should count to the left side off the bow to the island. Count all individuals as you encounter them along transects, tallying birds observed 1) on land, 2) on water, and 3) flying. Avoid re-counting birds that fly in circles near nesting areas. Record the tallies of guillemots separately for each transect. Calculate the total number of birds on each transect as the sum of those on land, water, and flying; then calculate the total number of birds counted that day as the sum of the totals from each transect. Other data recorded for surveys are time of day and observation conditions for each transect (Figure C2).

In addition to counting numbers of birds, also make note of pigeon guillemots with fish in their bill, as well as observations of visiting seabird species (e.g., marbled murrelet, Kittlitz's murrelet, horned puffin) and marine mammals. Cormorant nests should be counted from mid- to late June for an estimate of initial nesting effort in "boom-or-bust" productivity (see Cormorant Productivity protocol) so count cormorant nests during any circumnavigation surveys during that window.

***Specific Requirements for Pigeon Guillemot Counts at St. Lazaria***

Dates: Late June through mid-July.

Optimal sample size: 5-8 replicates.

Time of day: 0700-1000h ideal, 0700-1100h acceptable.

Weather: Calm winds and calm seas (winds less than 15 knots and seas less than 1.55 m), at least 400 m visibility, light to moderate precipitation is acceptable.

Equipment needed: Binoculars, tally counters, circumnavigation map with segments marked, GPS, Rite-in-the-Rain<sup>®</sup> notebook, two or more pencils, inflatable skiff with all safety gear.

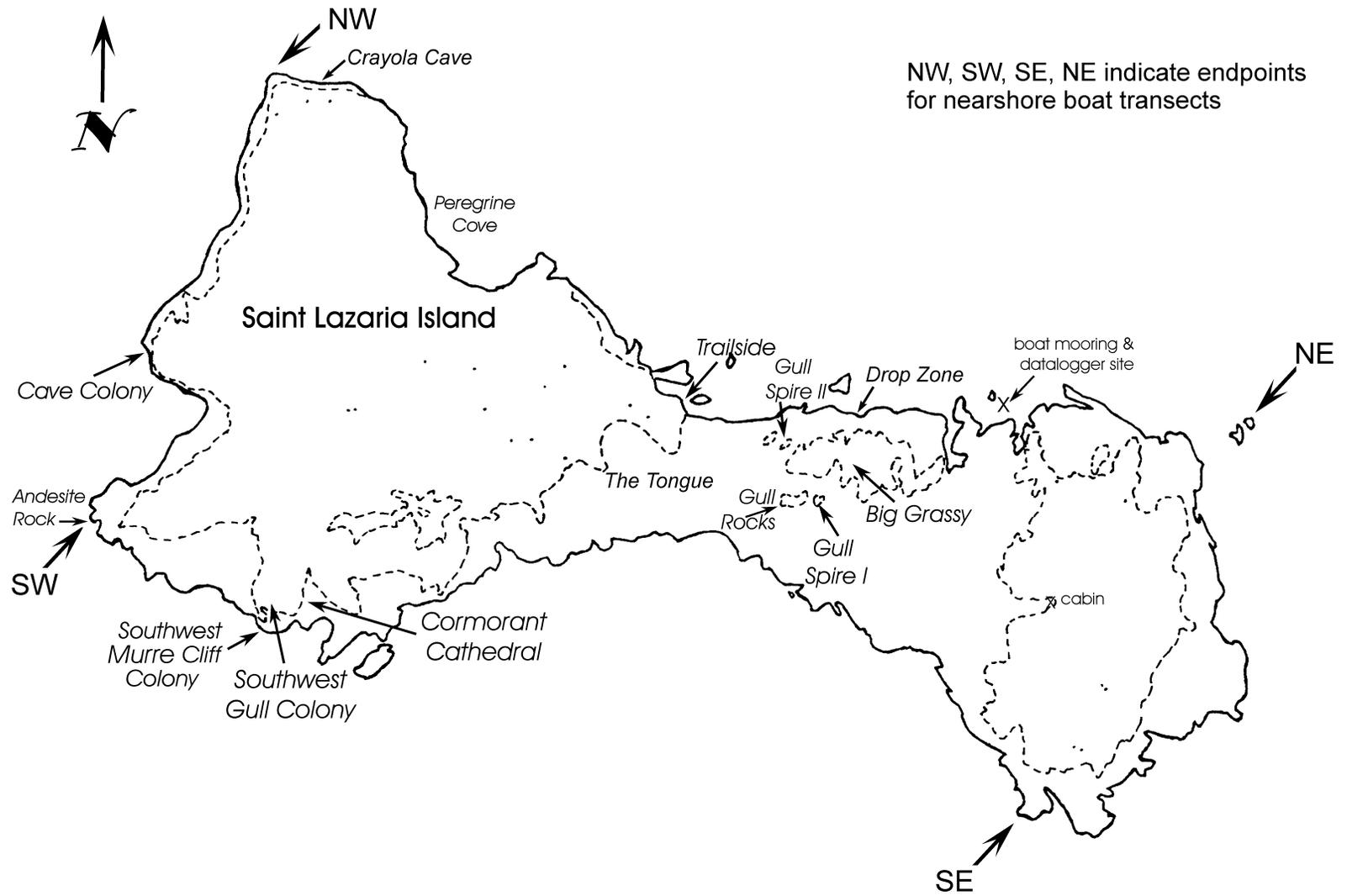


Figure C1. Transect end points for pigeon guillemot counts during circumnavigation surveys at St. Lazaria Island.

PIGU Counts		Date <u>XX July 20XX</u> Observers <u>AB, CD, EF</u>			
Transect	Time start/stop	# on Water	# on Land	# Flying	Totals
SE→NE	07:11- 07:32	☒☒	☒L	☒	47
NE→NW	07:32- 07:37	☐	..	::	13
NW→SW	07:37- 07:50	::	1:	:	10
SW→SE	07:50- 07:57	.	.	.	2
Totals →		33	23	16	72

CONDITIONS			
Transect	Sea ht/dir	Wind spd/dir	
SE→NE	FAC, ripple.	<5 kt, variable	Good visib.
NE→NW	2' swell w/1' chop. NW	10 kt/W	Good visib, light drizzle
NW→SW	3' swell w/6" chop. NW	10-15 kt/w	Good visib, light drizzle
SW→SE	2' swell w/<6" chop. NW	10 kt/W	High OVC, glory

NOTES: 1 seen carrying fish (NE→NW)

FAC = flat as calm  
OVC = overcast

EXAMPLE of  
pigeon guillemot data  
recording at St. Lazaria

Figure C2. Example of field data recording for pigeon guillemot counts at St. Lazaria Island.

**Protocol Revision History Log**

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Revision Date	Changes made	New version #
April 2017	Minor grammatical corrections	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 to main protocol, made minor corrections to St. Lazaria attachment	1.1
May 2013	Protocol developed in standardized format from historic protocols, includes Aiktak, Buldir and St.Lazaria attachments	1.0

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