Special Areas Management Report

Walrus Islands State Game Sanctuary Annual Management Report 2009

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December 2010

Alaska Department of Fish and Game **Division of Wildlife Conservation**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the reports by the Division of Wildlife Conservation. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

all commonly-accepted abbreviations; e.g., Mr., Mrs., AM, PM, etc.	
all commonly-accepted professional titles; e.g., Dr., Ph.D., R.N., etc.	
Alaska Administrative Code	AAC
Alaska Department of Fish and Game	ADF&G
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three	letters (Jan,...,Dec)
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
approximately	~
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
mean	$\bar{x}$
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
plus or minus	±
population size	N
probability	P
sample size	n
second (angular)	"
standard deviation	σ or s
standard error (of the mean)	$s_{\bar{x}}$
type I error probability	P_a
type II error probability	P_b
variance	σ^2 or s^2

Cover Photo: Male sub-adult Pacific walrus (*Odobenus rosmarus divergens*) hauled out at First Beach, Round Island, Alaska. Walrus Islands State Game Sanctuary. Photo by Stephanie Sell.

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The State of Alaska's wildlife refuges, sanctuaries, and critical habitat areas are managed by the Lands and Refuges program of the Division of Wildlife Conservation in the Alaska Department of Fish and Game. Funding for the program and its publications comes from appropriations made by the Alaska Legislature.

Governor of Alaska: Sean Parnell
Acting ADF&G Commissioner: Cora Campbell
Division of Wildlife Conservation Director: Corey Rossi
Lands and Refuges Program Coordinator: Joe Meehan

It is the mission of the Division of Wildlife Conservation to conserve and enhance Alaska's wildlife and habitats and provide for a wide range of public uses and benefits.

Special Area Management Reports address management activities and goals within specific Refuges, Critical Habitat Areas and Sanctuaries managed by the division. The Special Areas Management Reports are intended for biologists or other technical professionals, as well as to inform the general public about the special areas. Reports are available through the Alaska State Library and through the department's Internet website at www.adfg.alaska.gov.

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TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

EXECUTIVE SUMMARY

The Walrus Islands State Game Sanctuary (WISGS) protects one of the largest terrestrial haulout sites in North America for Pacific walrus (*Odobenus rosmarus divergens*). The sanctuary also protects important habitats for several species of seabirds, Steller sea lions (*Eumetopias jubatus*) and other marine and terrestrial birds and mammals. The Alaska Department of Fish and Game (ADF&G) manages the sanctuary primarily to protect these important habitats and wildlife species, and secondarily to provide for public use and enjoyment of these resources.

The ADF&G staffs Round Island through the summer months to protect and monitor walruses, other terrestrial and marine wildlife, and to operate a visitor use program. Walrus counts for the 2009 field season were conducted from May 15 to August 14. The maximum east side walrus count of 3485 occurred on May 19. The maximum west side count was 765 and occurred on June 17. The daily mean count from the east side beaches was 499 which represents a 15% decrease from the 2008 mean count of 586 and a 66% decrease from the mean count of 1,463 in 2007.

Sanctuary staff monitored populations and productivity of several nesting seabird species and provided these data to the U.S. Fish and Wildlife Service (USFWS) and U.S. Geological Survey (USGS) for use in their statewide seabird monitoring programs. Steller sea lions were also monitored at their Round Island haulout site on East Cape. These data along with brand sightings were provided to the ADF&G Marine Mammal Program for use in their statewide monitoring program.

Of the 35 visitors that came to Round Island between May 23 and July 31, there were 7 day-visitors and 28 campers. There was a 35% decrease in camper numbers from the 2008 summer season and a 62% decrease in day-visitors. This resulted in a 10% decrease in visitor use days. The average length of stay for overnight campers on Round Island was 5.67 days. Nine students and 3 instructors from the Alaska Summer Research Academy spent 8 days on the island under a scientific/educational permit and are included in the total number of campers.

Four vessels violated the 3-mile restricted zone around the island (Alaska Administrative Code 5 AAC 92.066). When Round Island staff instructed the vessels to change course and leave the 3-mile restricted zone vessels complied immediately on 2 occasions. On 2 other occasion's vessels did not respond when hailed on VHF channel 16. A plane was photographed flying within ½ mile of the cabin and at approximately 1000 ft. above ground level (AGL) causing a walrus disturbance at Main Beach (MB). The incident was investigated by the USFWS Office of Law Enforcement.

Special projects in 2009 included disassembling 5 old plywood tent platforms in the campground and replacing them with larger platforms.

INTRODUCTION

The Walrus Islands State Game Sanctuary (WISGS) was created in 1960 by the Alaska State Legislature. The sanctuary protects a group of 7 small islands and their adjacent waters in northern Bristol Bay, approximately 65 miles southwest of Dillingham (Figure 1). The primary purpose of the sanctuary at the time of its creation was to protect the last remaining terrestrial haulout for Pacific walruses (*Odobenus rosmarus divergens*) in North America (Alaska Statute 16.20.090). All other haulouts had been abandoned due to anthropogenic disturbances, mostly related to commercial hunting.

Today, the sanctuary continues to provide important habitat for walruses and comprises one of 4 primary active haulout sites in Bristol Bay. The sanctuary also protects habitats important for nesting seabirds, the endangered western stock of Steller sea lions (*Eumetopias jubatus*), and other marine mammals and terrestrial song birds.

The Alaska Department of Fish and Game (ADF&G) manages the sanctuary primarily to protect these habitats and wildlife species, and secondarily to provide for public use and enjoyment of these resources including the opportunity for scientific and educational study, viewing, and photography. Since 1985, all access to Round Island and its surrounding waters requires an access permit. In addition, restrictions have been placed on visitor numbers and their activities (Alaska Administrative Code 5 AAC 92.066).

ADF&G provides 2 technicians to monitor Round Island through the summer months. Staff duties consist primarily of the protection of sanctuary resources; enforcement of sanctuary laws, regulations and policies; monitoring the sanctuary wildlife including walruses, seabirds, Steller sea lions and other species; managing the visitor use and access permit program; and maintaining trails and facilities.

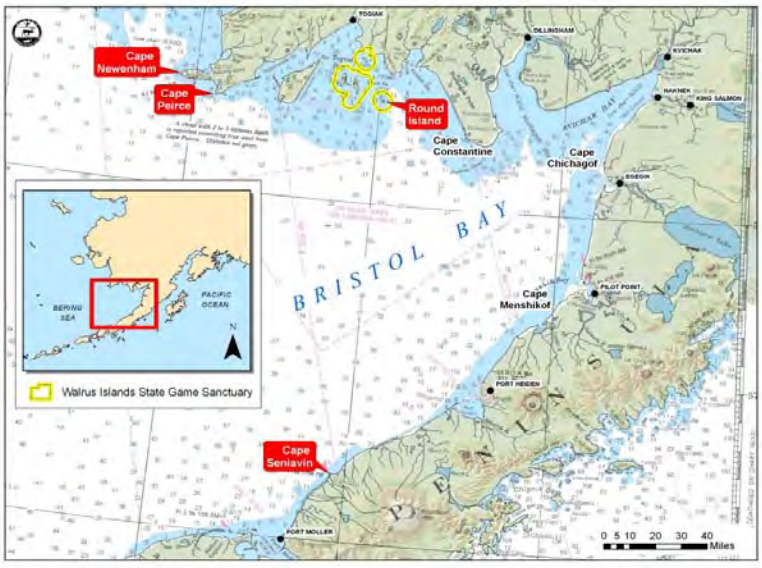

Figure 1. Map of Bristol Bay showing the locations of Round Island, the Walrus Islands State Game Sanctuary, and the 4 major terrestrial Pacific walrus haulout sites in the United States.

METHODS AND MATERIALS

STAFFING

ADF&G provided the monitoring staff on Round Island which included a Sanctuary manager and a field technician.

ACCESS

To protect sanctuary wildlife and other resources, access to Round Island and the waters within 3 nautical miles of the island has been restricted since 1989. Only boats possessing a permit from ADF&G are allowed to enter the 3-mile restricted zone by a designated corridor on the northeast side of the island. Since low-flying aircraft can cause major disturbances at walrus haulouts (Fay 1982), aircraft access to the island is discouraged and ADF&G requests that all pilots avoid flights below 5,000 ft. Above Ground Level (AGL) within 3 miles of the island. Boats or planes that are observed within the restricted areas are hailed through VHF marine radio or by avionics radio and told of the restrictions or advisories. Although ADF&G does not have the authority to regulate airspace, pilots who harass walruses can be prosecuted by the US Fish & Wildlife Service (USFWS) under the Marine Mammals Protection Act (MMPA).

Sanctuary staffs document all access violations and initiate an immediate response when appropriate. The assistance of the Anchorage and Dillingham ADF&G personnel, Alaska State Troopers, USFWS Office of Law Enforcement are requested as needed.

VISITOR PROGRAM

Campers arrive on Round Island after obtaining a permit online or from the ADF&G Dillingham office. The Dillingham ADF&G office also issues scientific/educational permits. Day visitors are issued permits upon arrival on the island after obtaining access authorization from staff through morning VHF radio contact between 8:00 – 9:00 a.m.

One of the primary goals of the sanctuary staff was managing the visitor program and to balance the quality of the experience for the visitors while protecting wildlife and other resources.
When visitors arrive on Round Island, they are given an orientation that includes the regulations of the island, a brief history of the Sanctuary, and a demonstration on how to approach walrus viewpoints without disturbing the animals. All visitors are required to remain on established trails with the exception of going to the summit from East Cape. To avoid disturbance, visitors are not permitted on the beaches except for staff monitored arrivals and departures from Boat Cove or Campground Beach. Other staff duties associated with the visitor program include monitoring the VHF marine radio, authorizing access to sanctuary waters, issuing permits, collecting user fees, reviewing sanctuary rules and safety procedures, answering visitor questions, and improving and maintaining campground facilities. For the safety of the visitors, the precipitous and slippery nature of the trails was described and visitors are required to sign an Assumption of Risk form. Visitors are also requested to provide emergency contact information in the case of an accident. Visitor and camper daily use was assessed by calculating how many days were spent on the island, including the day of arrival and departure.

Commercial transporters operating at Round Island were required by a 2006 Alaska Board of Game regulation to obtain a commercial use permit from ADF&G.

WALRUS DISTURBANCE

ADF&G staff monitors and documents the response of walruses to both authorized and unauthorized access and other activities. When walruses were in sight of observers, the number of affected animals and the degree of their response was recorded using 3 distinct behaviors (head raising, reorienting, and dispersing) as measures of quantifying the levels of disturbance (Salter 1979). If a boat was at anchor for more than one hour, the arrival and departure was documented as 2 separate events.

WILDLIFE SURVEYS AND MONITORING

WALRUS SURVEYS

Walrus monitoring protocols used on Round Island established jointly by biologist from the USFWS, ADF&G, U.S. Geologic Survey Alaska Science Center and University of Alaska in 1997-98 are followed when collecting daily walrus observations (Snyder, 1999). On the east side of the island, 9 beaches are counted beginning with Second Prime (SP), Second Beach (SB), First Prime (FP), First Beach (FB), Campground (CG), Boat Cove (BC), Flat Rock (FR), North Boat Cove (NBC), and ending with Main Beach (MB); (Figure 2). The west side of the island includes West Main beach (WM) and West Main South beach (SWMB). SWMB is only visible from a boat and was not counted in 2009.

At the start of each beach count the Beaufort Sea state, start and end time, method, visibility, beach condition and count quality are recorded. In order to collect more accurate temperature data a new ™Davis weather station was mounted on top of the cabin. Maximum and minimum daily temperatures are recorded from midnight to midnight (previously collected at 0800 and 2000) and the barometric pressures are recorded daily at 0800 and 2000 hrs.

WALRUS VARIABILITY COUNTS

In 2009, ten counts of walrus on Main Beach were conducted and analyzed to determine the amount of variation between observers. For each of the 10 variability counts, 3 individual counts were conducted by each observer from Observation Point (OP) of all walrus on land and in the water (L&W) at Main Beach. One count per observer, which was thought to be most representative of the number of walrus on Main Beach during the count, was then selected for each of the 10 variability counts. This primary count per observer was then used to determine variability between each observer. Four of these 10 visual counts were then additionally compared against photo counts of walrus from photos taken at the time of the variability observations. Photos were taken of all walrus on Main Beach from OP with a Canon EOS 20D camera with a 400mm lens. Each observer counted all walrus on Main Beach from overlapping high resolution photos of the beach using the processing program ImageJ.

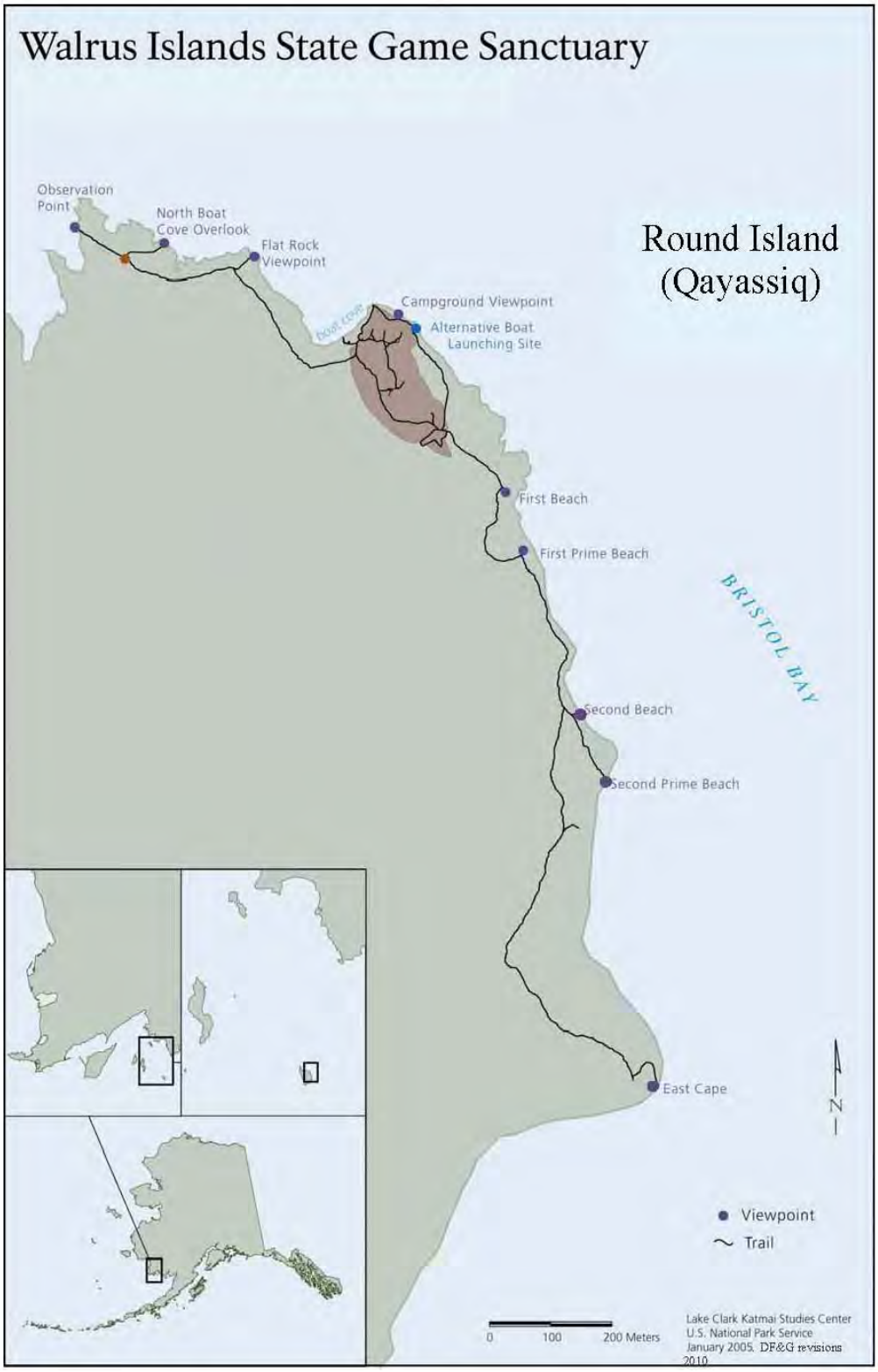

Figure 2. Round Island walrus, seabird & Steller sea lion monitoring locations; East Cape (EC), Second Prime (SP), Second Beach (SB), First Prime (FP), First Beach (FB), Camp Ground (CG), Boat Cove (BC), Flat Rock (FR), North Boat Cove (NBC), Observation Point (OP), Main Beach (MB), and West Main Beach (WM).

STELLER SEA LION SURVEYS

Counts of Steller sea lion using the East Cape haul outs are conducted following protocols established by the ADF&G Marine Mammal Program. Counts of East Cape are conducted from 4 viewpoints, designated as V1, V2, V3, and V4 (Figure 3). Station V4 was established by ADF&G Wildlife Biologist Lauri Jemison at the end of the 2008 season to provide a better view of the haulout and was incorporated into all daily counts throughout the 2009 season. All sea lion data was given to ADF&G Marine Mammal Program for their annual sea lion monitoring program. In addition to the counts, Steller sea lion brand markings were documented and photographed; and any injuries, entanglements, suckling behavior, or other unusual conditions were noted.

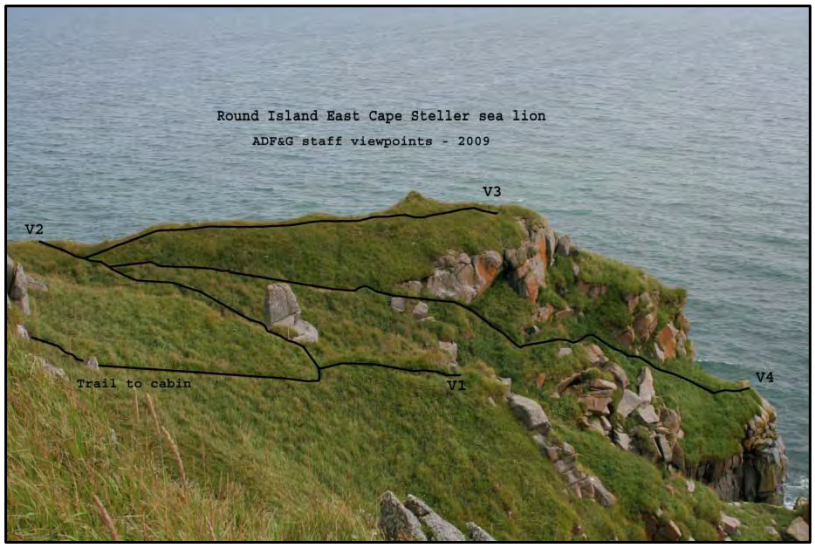

Figure 3. East Cape monitoring view points.

SEABIRD MONITORING

Three species of colonial nesting seabirds are monitored throughout the summer at 4 sites on Round Island. Nesting chronology and nest productivity data are collected for the following species of seabirds: pelagic cormorants (*Phalacrocorax pelagic*; PECO) at FB; black-legged kittiwakes (*Rissa tridactyla*; BLKI), and common murres (*Uria aalge*; COMU) on Plots 2, 3, and 4 at OP. Population counts are also conducted from OP on Plots 1 - 5 for PECOs, BLKIs, and COMUs.

OTHER OBSERVATION/PROJECTS/ACTIVITIES

SUBSISTENCE HUNT

Access to Round Island for the purpose of subsistence hunting is regulated by the Alaska Board of Game and is permitted from September 10 through October 20. Through an agreement with participating native villages and the Qayassiq Walrus Commission, the maximum number of walrus that can be taken from Round Island is 20. State and Federal agencies monitored the Round Island hunt from 2003-2006 but at the present time no agency monitoring is occurring.

OTHER OBSERVATIONS

General and unusual observations on fish, wildlife, vegetation and environmental conditions are also recorded and include first wildlife and blooming plant sightings, the presence of beach cast-marine mammals, and general environmental conditions. Additionally, staff collect specimens and forward them to field museums and universities for analysis or cataloging.

FACILITIES MANAGEMENT

Round Island staff perform a number of maintenance, repair or construction projects annually in support of the Round Island facility and visitor safety. This work includes such things as building and camp maintenance and trail improvements. Details of specific work conducted during the 2009 field season are contained in the results and discussion section under facilities management.

RESULTS AND DISCUSSION

STAFFING

Diane Calamar Okonek, Sanctuary manager, and Marian Snivley, field technician, arrived on Round Island by Pollux Aviation R44 helicopter on May 14. The optimal arrival date of May 1 was delayed because of the presence of sea ice in Togiak Bay and helicopter availability was delayed because of a late herring fishing season. The F/V Kustatan, owned by Charlie Rehter, transported lumber, food and camp supplies from Homer, Alaska to Round Island. On May 14 the Kustatan anchored northeast of the cabin and coordinated with the helicopter pilot, Robert Gideon, to sling 13 brailler bags (3000 lbs) from the boat deck to shore in 48 minutes. This included 6 loads of lumber for rebuilding 5 tent platforms in the campground.

Marian Snivley accepted a full time position with ADF&G Division of Wildlife Conservation's Nongame Program and was replaced by field technician, Stephanie K. Sell on June 13.

VISITOR PROGRAM

Thirty-five visitors came to Round Island during the summer of 2009. Of these, 7 were day-visitors and 28 were campers (Figure 4, Table 1) with permits ranging from 4 – 17 days. Twelve of these campers were on a Scientific/Educational permit that included 3 instructors and 9 students from the Alaska Summer Research Academy (ASRA) through the University of Alaska Fairbanks. There was a 35% decrease in camper numbers from the 2008 season and a 61% decrease in day-visitors. None of the campers or day visitors were guided. There was a total of 190 visitor use days and the average length of stay for overnight visitors was 5.67 days.

Sixty-three percent of the campers were Alaskans. The other campers were from New York, Washington, Maryland, Illinois and Germany. Day visitors were from Alaska, California, Illinois, and Washington (Table 1).

Historically, visitation to Round Island has been variable (Figure 4). Fluctuations in visitation may be attributed to a number of social and economic factors including the availability of transportation to the island, national and international economic conditions, and funding availability for staffing the island. Periods of opportunistic day visitation have also influence variability.

A record number of visitors (303) to Round Island occurred in 1977. However, the inflated visitation that year was due to the approximately 250 day visitors that were ferried to the island from a small cruise ship. In the 1980's and early 90's, many members of the herring fishing fleet would visit Round Island opportunistically during breaks in the fishery. Also during this time, there was national and international publicity of the sanctuary through television programs and magazine articles (Rice 2002). In 1987 a record number of 131 campers visited the island and the number of

campers to the island remained high during the late 1980's and early 1990's. After the decline of the fishery in Bristol Bay, a drop in visitation was noted. Visitation generally declined between 1990 (110 Campers, 58 day use) and 2004 (19 Campers, 55 day use). Between 2005 and 2007 visitation to Round Island rose slightly.

In 2009, Paul Markoff, owner of Togiak Outfitters and captain of the M/V Lindsey Mary, made 11 trips from Togiak to Round Island transporting visitors and staff between May 23 and August 15. The F/V Jazz, captained by Fritz Johnson, brought a group of 9 students and 3 instructors to Round Island for a one week marine mammals & seabird course with the ASRA.

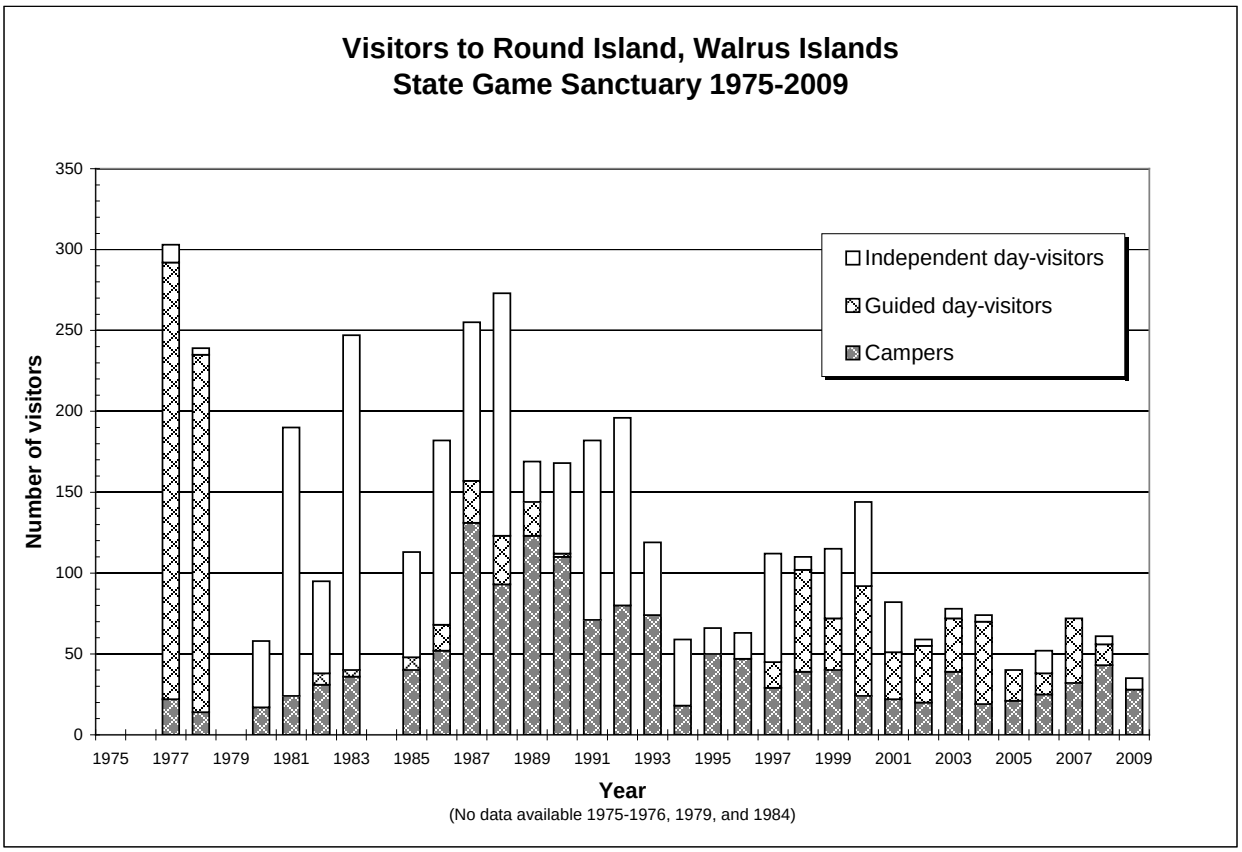

Figure 4. Visitor numbers, Round Island 1977-2009.

VIOLATIONS

During the 2009 season staff observed 4 vessel incursions within the 3-mile restricted zone (Alaska State Regulation – 5 AAC 92.066). During 2 separate vessel incursions on May 31 and July 30, 2009 the boat captains failed to respond to ADF&G staff when hailed on VHF radio channel 16. The boat name, numbers and photos were reported to the Alaska State Troopers and the other vessel was notified by letter from ADF&G. During 2 separate vessel incursions on June 13 and June 14, 2009 the boat captains informed staff that they were unaware of the 3 nautical mile restriction limit but immediately complied with staff request to change course and leave the restricted zone.

On July 10, 2009 an airplane was documented causing a walrus disturbance at Main Beach while flying at approximately 1000 ft. and within ½ mile of the cabin. The USFWS investigated the incident and cited a local commuter service under the MMPA and the pilot was fined $1,000.00.

WALRUS DISTURBANCE

Twenty-seven anthropogenic activities occurred and 5 natural disturbances were observed by staff (Table 2, Appendix A). Boat activities that had an arrival time and departure time greater than an hour apart were counted as 2 potential disturbance activities.

No reaction occurred during 11 activities and no walrus were present on associated beaches during 6 activities. Four disturbances occurred when boats approached or departed the island. The largest known disturbance was on July 10 when a plane flew within ½ mile of the island and caused a dispersal of approximately 150 walrus. As noted above, this was investigated by the USFWS under the MMPA. Activities recorded where the disturbance to walrus was not observed or are unknown included vessels approaching within the 3-mile restricted zone to the east side of the island on 3 occasions and a June 17 plane over flight of the island.

There were 2 natural disturbances observed that appeared to have been caused by raven fledgling activity. Dispersals from unknown causes included 2 events, one observed at Main Beach and one at First Beach. There were no anthropogenic activities at the time and no cause was observed so the disturbances were assumed to be natural.

A reduction in disturbance due to arrival/departure of vessels to/from Boat Cove between 2008 (n=8, 30% of visits) and 2009 (N=4, 21% of visits) may be due to a reduction in the number and type of vessels accessing the island and/or a reduction in engine noise in the entry corridor. The primary vessel accessing the island during 2009 is a smaller vessel with a 4-stroke engine resulting in less engine noise in the entry corridor. Dispersals from Flat Rock were most likely caused by visual stimulation, or "follow the leader" response rather than audio.

WILDLIFE SURVEYS AND MONITORING

WALRUS SURVEYS

Walrus counts for the 2009 field season were conducted from May 15 to August 14. All beaches along the east side of Round Island were counted 88 out of the total 92 days. Daily walrus counts for 2009 are summarized in Figure 7 and Table 3. Complete count data by beach is presented in Appendix B. The east side maximum walrus count was 3,485 on May 19 and represents the high count of 2009 (staff could not access West Main beach for a count until May 30 due to snow). This was an 11% increase from the maximum east side count of 3,136 in 2008. There were no walruses on the east side beaches on 8 days of 88 counts and no walrus on the west side beaches on 24 days of 49 counts. On WM the maximum count of 765 occurred on June 17. During the 2009 field season 2 boat counts were done. No walruses were observed on any of the south side beaches during these counts.

The 2009 daily mean count for east and west side beaches was 557 walruses (Figure 8). The mean count for east side beaches only was 499 which represents a 15% decrease from the east side mean

count of 586 walruses during 2008 (Figure 8; Okonek et. al 2008). The mean count for WM was 105, a 5% decrease from 2008.

Historically, major walrus haulout sites within Bristol Bay included: Amak Island, Port Moller, Cape Seniavin (located between Port Moller and Port Heiden), Cape Peirce, Cape Newenham, and 2 islands within the Walrus Island State Game Sanctuary (Round and Big Twin) (Frost et al. 1982). The southwestern shoreline of Hagemeister Island has also recently emerged as a significant walrus haulout in this region (MacDonald and Winfree 2008). Between feeding bouts, walruses in Bristol Bay repetitively utilize only these few specific sites to rest.

The annual peak count of walruses at Round Island varies significantly between years with the highest count estimate documented as 15,000 during a 1978 aerial survey (Figure 9). The lowest annual peak count was 1,746 in 1998 (Raymond 1998). It is unknown whether Round Island counts reflect population fluctuations. Fluctuations in yearly peak counts may be attributed to the movement of walruses between several Bristol Bay haulouts. During the mid-1900's, with the exception of Round Island, all terrestrial haulouts were abandoned. This abandonment was presumably caused by commercial hunting pressure as well as other disturbances (Fay 1982). It is possible that as walruses reestablished use of their traditional haulouts fewer animals use Round Island at any one time. This may be evidenced by the general decline in peak walrus numbers at Round Island over the past 3 decades. It is not known if the drop in numbers is due to changes in food distribution, walruses using other haulouts in Bristol Bay, or changes in overall population.

The USFWS, Togiak National Wildlife Refuge conducted aerial surveys of walrus haulouts at Hagemeister Island, Cape Pierce and Cape Newenham during 2009 (Michael Winfree, pers. comm.). Survey results are shown in Appendix C for comparison with Round Island numbers.

WALRUS VARIABILITY COUNTS

Diane Calamar Okonek (DCO) and Marian Snivley (MS) conducted variability counts on May 19 and May 21. DCO and Stephanie K. Sell (SKS) conducted variability counts for the remaining dates, and conducted photo counts on July 1, 2, 10, and 12 (Figure 10). Variability between each observer's combined land and water counts ranged between 0 and 31%. Variability between photo counts ranged from 0.81-3.25%. The variability between visual counts and photo counts conducted on July 1, 2, 10, and 12 ranged from 23-43.1%, 18.2-19.5%, 6.5-8.2%, and 1.7-2.6% respectively (Figure 10).

Variability counts were only conducted at Main Beach. This count station has the greatest variability of all 10 beaches due to the ½ mile distance between the observer and the walrus and the aspect which makes the density of animals difficult to count.

Differing levels of walrus counting experience increased the variability between counters. DCO had 7 seasons of counting experience; MS had multiple years, while SKS's first walrus count was in mid-June. Variability between DCO and SKS visual counts decreased as the season progressed, while photo counts were relatively consistent.

The density of walrus on Main Beach is more apparent when observed from the Traverse Trail. It is suggested that future counts for Main Beach be conducted from the Traverse Trail to give a more

accurate estimate of the total number of walrus. It is also suggested that it may be worth considering doing photos of Main Beach to document high count days and have the necessary data to determine variability in the future.

STELLER SEA LION SURVEYS

Round Island Steller sea lions typically haul out at East Cape, located on the eastern tip of the island. During the 2009 field season 77 land counts were conducted (Appendix D). The maximum count of 266 sea lions seen from all 4 viewpoints occurred on July 28 and the minimum count of 22 occurred on July 13. During 2009 there were 21 different brands identified and photographed, which originated at 5 different branding locations. Seventeen brand re-sights were of individuals tagged on Ugamak Island in the Aleutians (A brands), one was from Graves Rock in Southeast Alaska (V brand), one from Marmot Island in the Kodiak Archipelago (T brand), one from Sugarloaf Island in the Gulf of Alaska (X brand), and one from Medny Island in Russia (M brand). Three of the branded animals (A420, A358, and M618) were observed greater than 15 times throughout the season. Five branded individuals not previously relocated at Round Island (A462, A372, A415, A378 and T237) were documented.

Lauri Jemison, Stellar sea lion biologist, from the Marine Mammal Program of ADF&G was on Round Island from July 23 - 30 with 9 students from the Alaska Summer Research Academy.

SEABIRD MONITORING

Pelagic cormorant productivity monitoring

Pelagic cormorant productivity monitoring was conducted from May 21 through August 13. A 23 nest plot was established at First Beach South (FBS) and a 14 nest plot was established at First Beach North (FBN). The first PECO egg was observed on May 21, while the first chick was observed on June 13. The maximum chick count including both plots equaled 81 on July 18 (Table 4; Appendix E). On August 13, the last day of observations, 60 chicks were 40 days or older and considered to fledge. Productivity for PECOs was 1.62 chicks/nest based on chicks 40 days or older on August 13 compared to 1.63 chicks/nest in 2008 (Table 5). The low number of nests monitored is attributed to the limited number of nesting individuals within sight for observing.

Black-legged kittiwake productivity monitoring

Black-legged kittiwake productivity monitoring was conducted from June 6 through July 31. Two plots were established at Observation Point (OP): OP2 contained 25 nests and OP3 contained 26 nests. On the first observation day staff observed 5 eggs at OP2 and 5 eggs at OP3. Nests were added to the plots as eggs were laid. The first chicks were observed at OP2 on July 3, which was 6 days later than in 2008. The first chick observed at OP3 was on June 29, which was 2 days earlier than in 2008. The maximum chick counts were 15/plot at OP2 and 18/plot at OP3 (Table 4; Appendix E). No chicks fledged from OP2 or from OP3. Productivity for black-legged kittiwakes was zero chicks/nest (Table 4) compared to 0.42 chicks/nest in 2008 (Table 5).

Low productivity was reflective of a high rate of common raven (*Corvus corax*), and red fox (*Vulpes vulpes*) predation on both eggs and chicks observed by staff on many occasions. ADF&G staff does not believe that productivity on these plots was representative of the BLKI population island wide.

Common murre productivity monitoring

Common murre productivity monitoring was conducted from June 13 through August 10. Three plots containing a total of 46 nests were established at Observation Point (OP): OP1 had 5 nest sites, OP2 had 17 nest sites, and OP4 had 24 nest sites. One egg was observed at OP1 on June 16, three eggs were observed at OP2 on June 13, and 14 eggs were observed on OP4 on June 15 (Table 4; Appendix E).

The first COMU chick observed was on July 19, as compared to July 18 in 2008. The chick was observed after a red fox flushed the adults from the plot and killed the chick, which was ultimately taken by a raven. There was no maximum chick count for OP1 or OP2 due to the high predation rate on eggs throughout the season. Red fox and ravens consumed an extremely high number of eggs on all plots at OP. On one occasion staff observed a red fox flush OP2 and consume a COMU egg while a raven made numerous trips, taking ~31 eggs. The maximum chick count for OP4 was 1 out of 24 nests on July 20 (Table 4).

Of the total 46 COMU nests monitored no chicks fledged (chicks older than 15 days were assumed to have fledged) giving a productivity rate of 0.0 compared to 0.54 chicks/nest in 2008 (Table 5). ADF&G staff does not believe that the COMU productivity on these plots was representative of the island productivity since many chicks were observed on the steeper and less accessible cliffs.

Population counts

Eleven total population counts of the 5 OP plots were conducted for 3 seabird species between June 23 and July 27 as weather permitted (Appendix F). The focal species included; PECO, BLKI, COMU and all population counts began after the observation of the first egg. On 2 occasions OP3 population counts were conducted from the OP4 viewpoint instead of the main OP viewpoint. It is suggested that all future population counts for OP3 be conducted from the OP4 viewpoint due to a more complete view of all birds and nests which can be obscured at the main OP viewpoint.

The seabird population and productivity monitoring data were given to USFWS migratory bird management and USGS for inclusion in their statewide seabird-monitoring program.

OTHER OBSERVATIONS/PROJECTS/ACTIVITIES

ALASKA SUMMER RESEARCH ACADEMY

ADF&G staff, Kristen Romanoff, Educational Specialist, Lauri Jemison, Marine Mammal Biologist, and University of Alaska Fairbanks PhD student Mariana Bulgarella accompanied 9 students from the Alaska Summer Research Academy (ASRA) to Round Island. They spent 5 days on the island as an academic experience. The ASRA is offered by the College of Natural Science and Mathematics in cooperation with the University of Alaska Fairbanks. Students observed walruses, sea lions and seabirds in their natural habitat, learned how they have adapted to life in the ocean, learned how research is conducted and discussed the potential impacts of a changing climate.

SUBSISTENCE HUNT

Historically, the Pacific walrus has thrived in the Bering and Chukchi seas (Fay1982). In the 17th century there was an increased demand for walrus ivory, oil, and hides, which corresponded to the arrival of the Europeans. Walruses were hunted extensively until the end of the 19th century when only a fraction of the population remained (Fay 1957).

Round (Qayassiq) Island was a traditional walrus hunting ground for Alaskan Natives and in the early 1990's hunters, mainly from the village of Togiak, petitioned the Alaska Board of Game (BOG) for access to the island for subsistence hunting. This resulted in the formation of the Qayassiq Walrus Commission (QWC) in 1995, which helped to reestablish the Round Island subsistence hunt. The QWC is made up of representatives from 9 communities (Aleknagik, Clarks Point, Dillingham, Ekuk, Ekwok, Manokotak, New Stuyahok, Togiak and Twin Hills) and was established among other purposes to facilitate and promote the wise management and use of walrus and to self regulate hunting on Round Island. A cooperative agreement between the ADF&G, Eskimo Walrus Commission, QWC, and USFWS was established to manage hunting at Round Island. Originally the BOG agreed to allow island access between October 1 and 31 for the hunt with harvest limits set at 10 (including struck and lost animals) via the Cooperative Agreement. In 2003, access dates and harvest limits were revised to allow for hunting access during better weather conditions. Current access dates for the subsistence hunt is September 10 through October 20 with a harvest limit of 20 walrus. (Subsistence Walrus Hunting on Round Island, Bristol Bay, Alaska Cooperative Agreement). Monitoring of the hunt has been conducted by USFWS, ADF&G or Bristol Bay Native Association staff during 1995 – 1997 and again from 2003-2004 and 2006. At the present time agencies rely on self monitoring and reporting by hunt captains and the Qayassiq Walrus Commission (QWC) through the cooperative agreement.

Access permits to take part in the 2009 subsistence hunt were issued to 3 of the 9 communities that make up the QWC; Dillingham, Togiak and Twin Hills. Of these only Togiak hunted for walrus at Round Island during the 2009 hunt (QWC 2010). On September 28, 2009, a hunt crew of 17 participants attempted to hunt at Round Island. However, winds were blowing 10 – 15 knots at the time and when they arrived at Round Island no walrus were present at Main Beach or West Main beach. Consequently, Togiak successfully hunted outside the WISGS at Hagemeister Island on October 1, 2009.

IVORY COLLECTION

One dead walrus washed up on the beaches of Round Island; however no ivory was collected due to inaccessibility to the beach. One carcass was seen floating ½ - 1 mi from the campground; however the mortality was not recovered due to the distance from shore. The 2009 season was an unusually low year for beach cast mortalities and no ivory was collected.

OTHER OBSERVATIONS

General fish, wildlife, vegetation and environmental observations first plant and animal sightings, rare occurrences, and general weather conditions recorded during the 2009 season are detailed in Appendix G. A few highlights are summarized here.

During the largest storm of the season ADF&G staff noticed a dead whale floating NE of the cabin. Due to the distance from shore and the stage of decomposition a positive identification was not possible.

An ermine (*Mustela erminea*), never before documented on Round Island, was observed 3 times at Boat Cove. It is presumed that it arrived naturally being transported with or traveling across the ice pack during winter. As such no action was taken to eliminate the ermine. Continued surveillance

will determine if the species gets established on Round Island and if any corrective action will be needed to protect nesting seabirds.

Conservative estimates of 6 noticeably different fox were seen on the trail system. No fox kits or evidence of kits were observed anywhere on the island.

ADF&G staff noticed on several occasions that some walruses appeared to be thin and in some cases extremely emaciated (Figures 5a, b,). These individuals are estimated to be middle aged and the cause of their appearance is unknown.

Figure 5a. Emaciated walrus.

Figure 5b. Emaciated walrus.

A collection of 4 black beetles, 11 carrion beetles and 1 tick found on a tundra vole were sent to Dr. Dereck Sikes, Curator of Insect, Assistant Professor of Entomology, University of Alaska Fairbanks Museum for his ongoing research. Dr. Sikes is a leading authority on carrion beetles and had previously requested samples from Round Island.

Moth specimens collected included 7 whole specimens and 7 pairs of wings of A*rctia opulenta*, which were collected opportunistically by hand, stored in envelopes and sent to Kenelm W. Philip, Senior Research Associate, Institute of Arctic Biology, University of Alaska, Fairbanks. These were the first samples collected since 2007 when staff sent a photo of the moth to Dr. Phillips for identification. He was very interested in a collection of the species since it appears to be a new color phase of this moth.

Sanctuary manager, DCO, used a hydrophone donated by Dr. Sharpton, Vice Chancellor of Research at the UAF, through the "wildlife day by day" program, to record the underwater chiming and teeth clacking activity of Pacific walrus. These recordings will be given to the University of Alaska and ADF&G.

FACILITIES MANAGEMENT

Round Island staff continued work on trail and campground facilities in 2009. Work on repair and replacement of existing tent platforms also continued with 5 old tent platforms being dismantled and replaced with larger platforms made with treated wood joists and synthetic decking. With the exception of one 8' x 8' tent platform this completes repair and replacement of all visitor tent

platforms in the campground. The campground now has three 10'x 12' and four 10'x 10' tent platforms of treated wood joists and synthetic decking (Figure 6). As well as one 8'x 8' plywood tent platform. All facility structures except the visitor and staff outhouses and one 8 x 8 tent platform near the visitor cook tent have been replaced since 2005.

Figure 6. Round Island Campsite platform locations and sizes.

Trail improvements to reduce soil erosion and increase safety for visitors and staff were also continued in 2009. One hundred feet of geoblock was installed along existing portions of the trail system to reduce erosion and improve footing. The viewing area at the first viewpoint for FB was also stabilized with geoblock. A 40 ft. geoblock trail reroute in the campground area was established to avoid safety hazards associated with beach cliff along the old trail and to minimize disturbance to puffins. Wire mesh was stapled to existing wooden walkways where needed to add traction as a safety precaution.

A new Davis weather station was installed on the roof of the cabin to record more accurate weather data.

RECOMMENDATIONS

- Update the visitor permit to include the Hazardous Conditions Disclaimer, emergency notification contact information, and visitor phone number and email.
- Update the web site
- Update the bird list
- Replace the boat hoist cable across Boat Cove or design and install a new ramp system.
- Send written notification of the Round Island access regulations to all processors, and air services in the area.
- Mount a camera at West Main Beach for photo counts when staff cannot get to WM for a count.
- Prioritize trail work in archeology site and the hill leading to Observation Point.
- Consider getting a grant for 1 or 2 volunteers to come to RI and install 40 geoblocks in the archeology site and the hill leading to Observation Point. This would protect the archeology site from trail erosion and increase visitor safety to Observation Point.

ACKNOWLEDGEMENTS

Thanks are extended to Eunice Dyasuk and Jim Woolington in the Dillingham ADF&G office for their continued support during the Round Island field season. Thanks goes to Paul Leidberg and Pete Abraham of the USFWS for welcoming staff at the bunkhouse in Togiak. A special thanks to Brian Okonek for guidance during the construction and replacement of all the old tent platforms in the campground.

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FIGURES

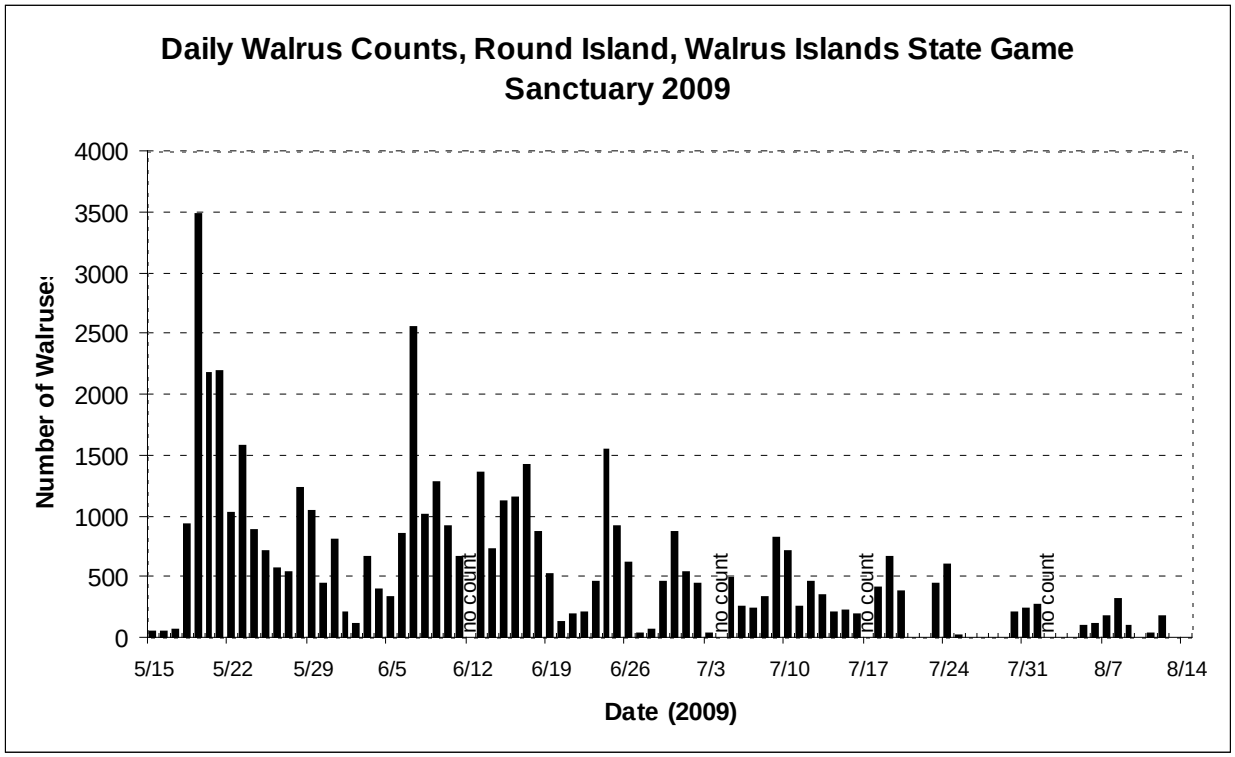

Figure 7. Daily Walrus counts, Round Island 2009.

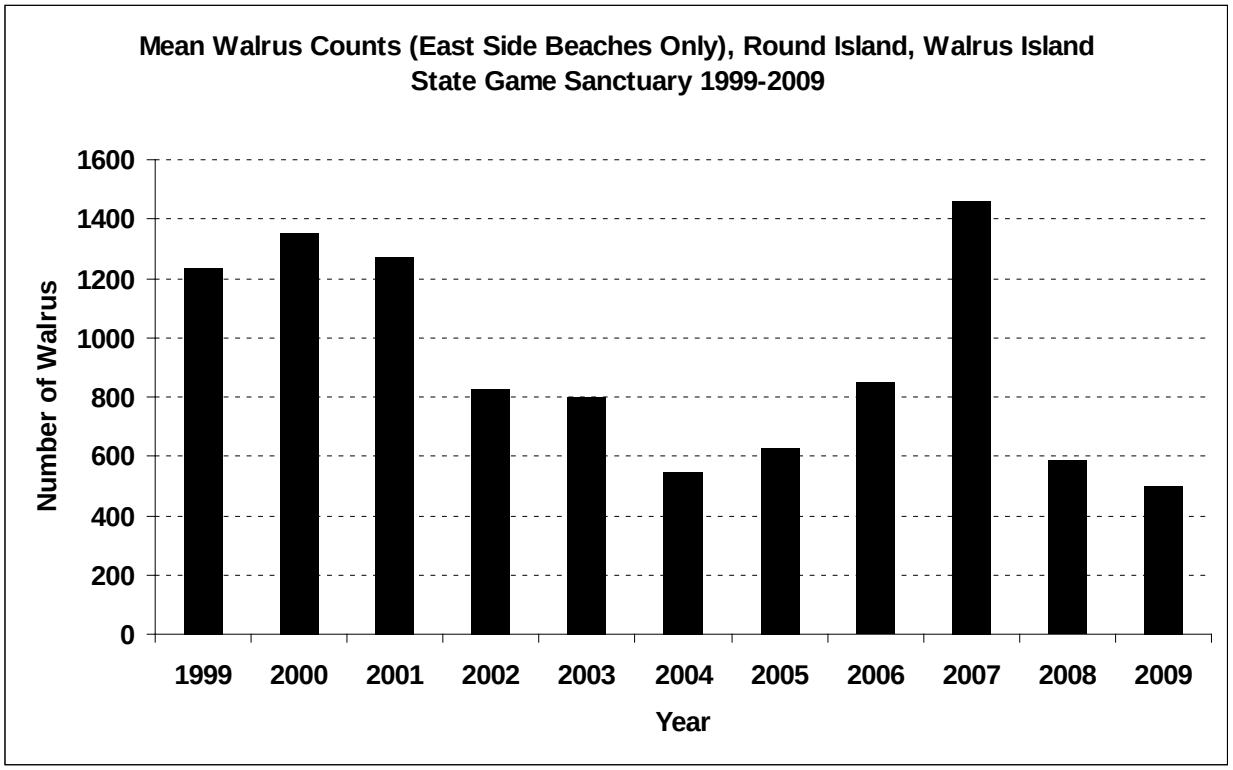

Figure 8. Mean Pacific walrus counts on Round Island 1999-2009.

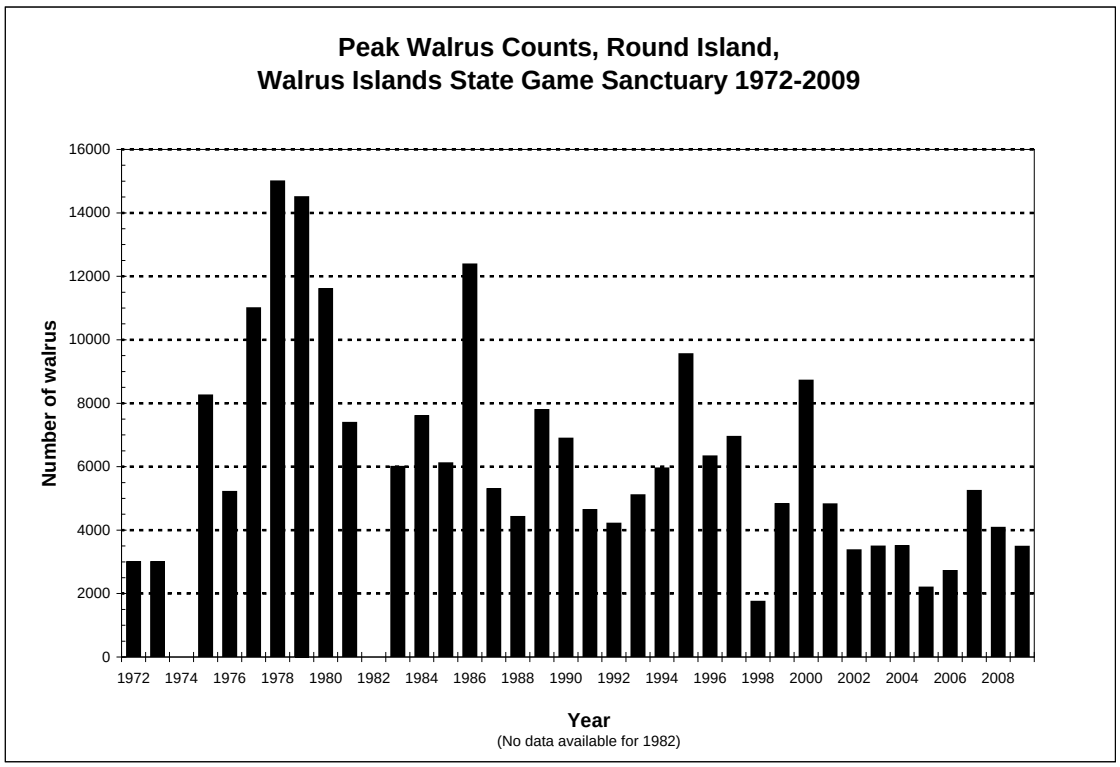

Figure 9. Walrus peak numbers, Round Island 1972-2009

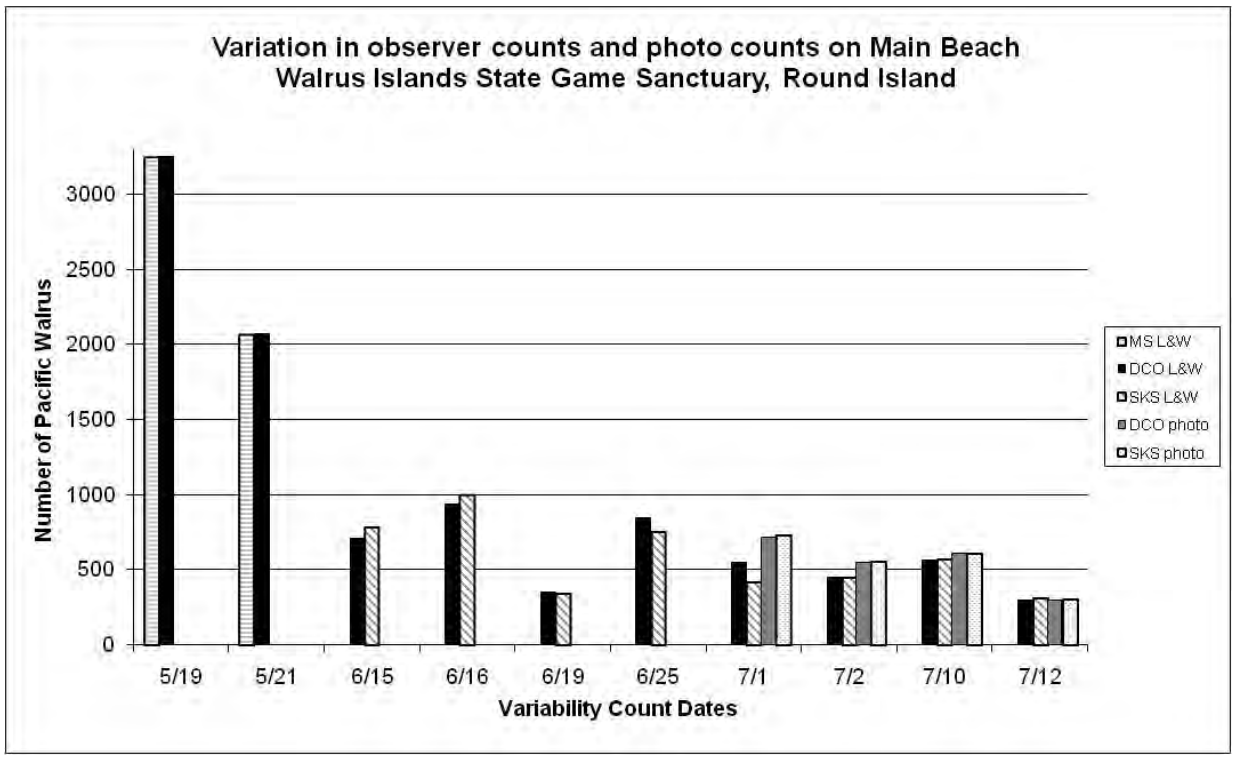

Figure 10. Variability counts for Pacific walrus on Main Beach, Round Island for land and water combine (L&W) counts and photo counts.

TABLES

Table 1. Visitor Use Summary, Round Island 2009.

Origin	Non-guided campers	Guided campers	Non-guided day visitors	Guided day visitors	Guides
United States					
Alaska					
Eagle River	3				
Fairbanks	5				
Juneau	8				
Homer			1		
Laurel	1				
Sutton	2				
Talkeetna	1				
California			3		
Illinois	1		1		
Marland	1				
New York	2				
Washington	2		2		
Germany	2				
Totals per group	28		7		
Total visitors	35				

Table 2. Walrus response to anthropogenic activities, Round Island 2009

Walrus Response	Anthropogenic Stimulus
Head Raises	1 aircraft
Reorienting	1 aircraft
Dispersal	4 Boats, 1 aircraft
Total Response to stimulus	7
No reaction	10 Boats, 1 helicopter
Walrus not observed	3 boats, 1 aircraft
No walrus present	6 boats
Natural / Unknown cause	2 raven fledgling, 3 unknown
Total of activities	32

Table 3. Daily Pacific walrus count summary, Round Island 2009.

Date	East Side Total	West Side Total	Total # walrus
5/15	46	no count	46
5/16	52	no count	52
5/17	70	no count	70
5/18	930	no count	930
5/19	3485	no count	3485
5/20	2168	no count	2168
5/21	2189	no count	2189
5/22	1030	no count	1030
5/23	1577	no count	1577
5/24	884	no count	884
5/25	702	no count	702
5/26	568	no count	568
5/27	536	no count	536
5/28	1232	no count	1232
5/29	1039	no count	1039
5/30	435	no count	435
5/31	240	563	803
6/1	3	198	201
6/2	0	107	107
6/3	92	573	665
6/4	400	no count	400
6/5	178	146	324
6/6	733	124	857
6/7	2031	516	2547
6/8	1009	no count	1009
6/9	951	317	1268
6/10	492	416	908
6/11	515	143	658
6/12	no count	no count	no count
6/13	1007	351	1358
6/14	729	no count	729
6/15	824	295	1119
6/16	1147	NC	1147
6/17	652	765	1417
6/18	609	264	873
6/19	377	138	515
6/20	121	0	121
6/21	183	0	183
6/22	205	no count	205
6/23	444	7	451
6/24	1531	7	1538
6/25	908	2	910
6/26	619	0	619

Table 3. continued.

Date	East Side Total	West Side Total	Total # walrus
6/27	28	0	28
6/28	66	no count	66
6/29	445	8	453
6/30	871	0	871
7/1	532	11	543
7/2	446	no count	446
7/3	35	no count	35
7/4	no count	no count	no count
7/5	480	1	481
7/6	248	0	248
7/7	234	0	234
7/8	338	no count	338
7/9	817	0	817
7/10	694	12	706
7/11	255	0	255
7/12	337	126	463
7/13	345	no count	345
7/14	136	71	207
7/15	213	3	216
7/16	184	no count	184
7/17	no count	no count	no count
7/18	416	0	416
7/19	661	0	661
7/20	381	0	381
7/21	0	no count	0
7/22	0	0	0
7/23	436	0	436
7/24	596	no count	596
7/25	12	no count	12
7/26	2	no count	2
7/27	0	no count	0
7/28	4	0	4
7/29	0	no count	0
7/30	201	no count	201
7/31	236	0	236
8/1	272	0	272
8/2	no count	no count	no count
8/3	0	no count	0
8/4	0	no count	0
8/5	89	0	89
8/6	115	0	115
8/7	180	0	180
8/8	316	0	316
8/9	101	0	101

Table 3. Continued.

Date	East Side Total	West Side Total	Total # walrus
8/10	6	no count	6
8/11	31	0	31
8/12	176	no count	176
8/13	0	no count	0
8/14	7	0	7

Table 4. Seabird productivity summary, Round Island, 2009.

Species	Plot	# of nests	Date of 1st egg	Date of 1st chick	Max chick count	Date of max chick count
PECO	FPS	23	5/21	6/20	45	7/18
PECO	FBN	14	5/26	6/20	36	7/18
BLKI	OP2	25	6/7	7/3	15	7/10
BLKI	OP3	26	6/6	6/29	18	7/10
COMU	OP1	5	6/16	N/A	0	N/A
COMU	OP2	17	6/13	N/A	0	N/A
COMU	OP4	24	6/15	7/20	1	7/20

Table 5. Productivity of 3 indicator seabird species; pelagic cormorant (PECO), black-legged kittiwakes (BLKI), and common murres (COMU), Round Island 2009.

2009	PECO	BLKI	COMU
	#	#	#
Nests or pairs	37	51	46
Eggs laid	114	84	46
Chicks hatched	81	32	1
Chicks fledged	60	0	0
Productivity (chicks/nests)	1.62	0	0
	%	%	%
Hatching success	71	38	2
Reproductive success	53	0	0
Nesting success	70	0	0

APPENDICES

Appendix A. Walrus response to anthropogenic activities and other disturbance events, Round Island 2009.

Date 2009	Start time	End time	Dist. Type A/V	Closest approach to walrus	# Walruses and beach ID	# Walruses react and beach ID	Boat name/Comments
5/14	1625	1912	A	3/4 mile	25 MB	ND	Pollux - staff arrives on Round Island
5/14	1640	1708	A	3/4 mile	25 MB	ND	Kustatan - brings in staff supplies
5/23	1445	1545	A/V	150m	3 FR	ND	LM - 6 day visitors
6/7	710	730	A/V	150m	10 FR, 13 BC	ND	LM - 4 campers arrive
6/9	900	919	A/V	150m	6 FR	ND	LM - 4 campers out - 2 campers arrive
6/11	910	930	A/V	150m	6 FR,1 BC, 2 CG	ND	LM - 2 campers out
6/13	900	920	A/V	150m	8FR	ND	LM - 1 staff out, 1 staff in
6/13	2150	2215	V	1.5 mile	?	?	M/V Cross Point within 3mi limit, see protection narrative
6/14	1340	1358	V	1.5 mile	?	?	F/V Hammer Time within the 3mi limit, see protection narrative
6/17	847	848	A	?	?	?	A plane flew over the island E to W. Sound was audible from inside the cabin. Disturbance unknown. Photos available.
6/21	834	844	NA	NA	0	NA	LM - 2 campers arrive
6/23	832	842	A/V	150m	6 FR	ND	LM - 2 campers out
6/26	1540	1545	unk	NA	493 MB	100DS	Natural disturbance/ unk cause
6/30	1820	1830	unk	NA	600 MB	300DS	Natural disturbance/ unk cause
7/1	1000	1010	A/V	150m	2 CG, 12 FR	3DSFR	Not positive the DS was due to LM - 1 camper in
7/4	1045	1055	NA	NA	0	NA	LM - 2 campers in
7/5	937	944	A/V	150m	20 FR	12 DS	LM - 2 campers in
7/9	800	817	A/V	150m	8FR	ND	LM- 2 campers out
7/10	825	838	A/V	150m	13FR	ND	LM- 2 campers out
7/10	1858	1928	A/V	1/4mi	550MB	150DS,100HR	Plane flies to island see protection report
7/16	1600	1615	A/V	5ft	59FB	35DS	Natural disturbance raven fledgling scares walrus to water
7/17	1630	1640	A/V	10ft	50FB	25DS	Natural disturbance raven fledgling scares walrus to water
7/18	1028	1040	A/V	150m	16FR	12DS	LM-1 camper out, walrus DS after seeing the boat- not necessarily because of noise
7/20	1738	1745	unk	NA	43FB	28DS	Natural disturbance- DCO observed & could not determine any reason for dispersal.
7/23	1125	1135	A/V	150m	9FR	8DS	LM-3 campers in
7/23	1340	1415	A/V	250m	3FR	ND	F/V Jazz- bring in first group of UofA students-6 in
7/23	1815	1926	A/V	300m	13FR	4DS	F/V Jazz- bring in second group of UofA students-6 in, disturbance was audio- throttle got stuck on kicker.
7/30	545	625	NA	NA	0	NA	F/V Jazz- 1st group students 6 out
7/30	1000	1010	NA	NA	0	NA	LM- 3 campers out
7/30	1050	1111	NA	NA	0	NA	F/V Jazz - 2nd group students 6 out
7/30	1854	1935	A/V	unk	200MB	unk	F/V Peter 1/2mi off shore, see protection report
7/31	1123	1235	NA	NA	0	NA	LM- 1 day visitor, LM anchored in BC

Beach ID; MB-Main Beach, FR-Flat Rock, BC-Boat Cove, CG-Camp Ground.
Reaction of Walrus; DS-Dispersal, OR-Reorient, HR-Head Raise, ND-No Disturbance.
A- audio, V- visual, unk- unknown, LM- F/V Lindsey Mary

Appendix B. Daily walrus counts, Round Island 2009.

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/15	1400	MLS	SP	1411	1413	S	2	1	C	0	0	0	0	0	0	E	CHANGED FROM 900 TO 1400hr. COUNT
5/15	1400	MLS	SB	1417	1421	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	FP	1425	1426	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	FB	1428	1433	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	CG	1447	1450	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	BC	1451	1459	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	FR	1500	1501	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	NBC	1513	1514	S	2	1	C	0	0	0	0	0	0	E	
5/15	1400	MLS	MB	1519	1521	S	2	1	C	44	2	43	2	44	3	G	
5/15	1400	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/16	1400	MLS	SP	918	919	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	SB	925	930	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	FP	933	934	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	FB	936	945	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	CG	957	959	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	BC	1000	1011	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	FR	1012	1013	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	NBC	1018	1019	S	1	0	C	0	0	0	0	0	0	E	
5/16	1400	MLS	MB	1022	1028	S	1	0	C	42	10	42	10	43	10	G	
5/16	1400	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/17	1400	MLS	SP	920	921	S	2	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	SB	925	930	S	2	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	FP	932	933	S	2	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	FB	935	941	S	2	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	CG	950	955	S	1	1	C	0	1	0	1	0	1	E	
5/17	1400	MLS	BC	957	1009	S	1	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	FR	1010	1011	S	1	1	C	0	0	0	0	0	0	E	
5/17	1400	MLS	NBC	1017	1018	O	1	0	C	0	0	0	0	0	0	E	
5/17	1400	MLS	MB	1021	1030	S	1	0	C	49	20	50	23	43	21	G	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/17	1400	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/18	1400	DCO	SP	1420	1422	S	3	1	C	0	3	0	3	0	3	E	
5/18	1400	DCO	SB	1428	1437	S	3	1	C	0	76	0	78	0	73	E	
5/18	1400	DCO	FP	1440	1441	S	3	1	C	0	0	0	0	0	0	E	
5/18	1400	DCO	FB	1445	1454	S	3	1	C	12	20	12	16	14	15	E	
5/18	1400	DCO	CG	1508	1510	S	3	1	C	0	3	0	3	0	3	E	
5/18	1400	DCO	BC	1511	1520	S	3	1	C	0	10	0	10	0	10	E	
5/18	1400	DCO	FR	1521	1523	S	3	1	C	6	18	6	17	6	18	E	
5/18	1400	DCO	NBC	1531	1532	S	3	1	C	0	0	0	0	0	0	E	
5/18	1400	DCO	MB	1535	1551	S	3	1	C	730	52	720	111	748	52	G	
5/18	1400	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/19	1700	MLS	SP	1701	1702	S	1	1	C	0	0	0	0	0	0	E	
5/19	1700	MLS	SB	1708	1713	S	1	1	C	108	4	110	3	108	2	E	
5/19	1700	MLS	FP	1720	1721	S	1	1	C	0	0	0	0	0	0	E	
5/19	1700	MLS	FB	1724	1727	S	1	1	C	84	9	85	9	83	11	E	
5/19	1700	MLS	CG	1739	1740	S	1	1	C	1	1	1	1	1	1	E	
5/19	1700	MLS	BC	1741	1742	S	1	1	C	15	1	15	1	15	1	E	
5/19	1700	MLS	FR	1750	1752	S	1	1	C	17	0	17	0	17	0	E	
5/19	1700	MLS	NBC	1800	1801	S	1	1	C	1	0	1	0	1	0	E	
5/19	1700	MLS	MB	1814	1838	S	1	1	C	3194	50	2750	50	2900	50	G	Variability count-DCO & MLS see field notes
5/19	1700	MLS	WM	NC	NC	S	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/20	1700	MLS	SP	1657	1658	S	1	1	C	4	1	4	1	4	1	E	
5/20	1700	MLS	SB	1702	1704	S	1	1	C	70	29	68	26	67	37	E	USE COUNT 3
5/20	1700	MLS	FP	1709	1710	S	1	1	C	0	1	0	1	0	1	E	
5/20	1700	MLS	FB	1713	1721	S	1	1	C	26	11	26	11	26	10	E	USE COUNT 2
5/20	1700	MLS	CG	1731	1735	S	1	1	C	0	2	0	2	0	2	E	
5/20	1700	MLS	BC	1736	1737	S	1	1	C	6	0	6	1/0	6	0	E	
5/20	1700	MLS	FR	1744	1745	S	1	0	C	1	16	1	16	1	16	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/20	1700	MLS	NBC	1753	1754	S	1	0	C	0	1	0	1	0	1	E	
5/20	1700	MLS	MB	1758	1806	S	1	0	C	2000	NC	2000	NC	2000	NC	P	COUNT DONE DURING SNOW, VERY POOR COUNT QUALITY
5/20	1700	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/21	1700	DCO	SP	1718		S	2	1	C	0	0	0	0	0	0	E	
5/21	1700	DCO	SB			S	2	1	C	87	0	84	0	88	0	E	
5/21	1700	DCO	FP			S	2	1	C	0	0	0	0	0	0	E	
5/21	1700	DCO	FB			S	2	1	C	23	2	23	2	23	2	E	
5/21	1700	DCO	CG			S	2	1	C	0	0	0	0	0	0	E	
5/21	1700	DCO	BC			S	2	1	C	3	0	3	0	3	0	E	
5/21	1700	DCO	FR			S	2	1	C	0	4	0	4	0	4	E	
5/21	1700	DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
5/21	1700	DCO	MB		1841	S	2	1	C	2039	31	2439	35	1839	35	G	
5/21	1700	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NO COUNT DUE TO SNOW ON TRAVERSE TRAIL
5/22	1400	DCO	SP	1415		S	1	1	C	0	1	0	1	0	1	E	
5/22	1400	DCO	SB			S	1	1	C	19	0	19	0	19	0	E	
5/22	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0	E	
5/22	1400	DCO	FB			S	1	1	C	0	1	0	1	0	1	E	
5/22	1400	DCO	CG			S	1	1	C	0	0	0	0	0	0	E	
5/22	1400	DCO	BCH			S	1	1	C	0	0	0	0	0	0	E	
5/22	1400	DCO	FR			S	1	1	C	3	0	3	0	3	0	E	
5/22	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
5/22	1400	DCO	MB		1554	S	0	1	C	967	39	878	39	1100	39	G	
5/22	1400	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/23	1400	MLS	SP	1420		S	1	0	C	0	0	0	0	0	0	E	
5/23	1400	MLS	SB			S	1	0	C	8	0	8	0	8	0	E	
5/23	1400	MLS	FP			S	1	0	C	0	0	0	0	0	0	E	
5/23	1400	MLS	FB			S	1	0	C	0	0	0	0	0	0	E	
5/23	1400	MLS	CG			S	1	0	C	0	0	0	0	0	0	E	
5/23	1400	MLS	BCH			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/23	1400	MLS	FR			S	1	0	C	2	0	2	0	2	0	E	
5/23	1400	MLS	NBC			S	1	0	C	2	0	2	0	2	0	E	
5/23	1400	MLS	MB		1533	S	1	0	C	1458	107	1456	105	1463	102	G	
5/23	NC	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/24	900	MLS	SP	922		S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	SB			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	FP			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	FB			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	CG			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	BC			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	FR			S	1	0	C	8	1	8	1	8	1	E	
5/24	900	MLS	NBC			S	1	0	C	0	0	0	0	0	0	E	
5/24	900	MLS	MB		1027	S	1	0	C	870	5	900	5	850	5	F	
5/24	NC	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/25	900	DCO	SP	912		S	3	1	C	0	1	0	1	0	1	E	
5/25	900	DCO	SB			S	3	1	C	0	0	0	0	0	0	E	
5/25	900	DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
5/25	900	DCO	FB			S	3	1	C	0	0	0	0	0	0	E	
5/25	900	DCO	CG			S	3	1	C	0	0	0	0	0	0	E	
5/25	900	DCO	BC			S	3	1	C	0	0	0	0	0	0	E	
5/25	900	DCO	FR			S	3	1	C	0	4	0	4	0	4	E	
5/25	900	DCO	NBC			S	3	1	C	0	1	0	1	0	1	E	
5/25	900	DCO	MB		1050	S	3	1	C	670	26	720	28	625	33	F	bino's shaking a bit from wind.
5/25	NC	NC	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/26	1400	DCO	SP	1430		S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	SB			S	3	1	C	4	0	4	0	4	0	E	
5/26	1400	DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	FB			S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	CG			S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	BC			S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	FR			S	3	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/26	1400	DCO	NBC			S	3	1	C	0	0	0	0	0	0	E	
5/26	1400	DCO	MB		1541	S	3	0	C	500	64	450	69	580	66	F	bino's shaking a bit from wind.
5/26	1400	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/27	1400	MLS	SP	1414		S	1	0	C	0	0	0	0	0	0	E	
5/27	1400	MLS	SB			S	1	0	C	2	0	2	0	2	0	E	
5/27	1400	MLS	FP			S	1	0	C	0	0	0	0	0	0	E	
5/27	1400	MLS	FB			S	1	0	C	0	0	0	0	0	0	E	
5/27	1400	MLS	CG			S	1	0	C	0	0	0	0	0	0	E	
5/27	1400	MLS	BC			S	1	0	C	0	0	0	0	0	0	E	
5/27	1400	MLS	FR			S	1	0	C	0	2	0	2	0	2	E	
5/27	1400	MLS	NBC			S	1	0	C	0	2	0	2	0	2	E	
5/27	1400	MLS	MB		1509	S	1	0	C	450	80	440	80	460	80	G	
5/27	1400	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/28	1700	MLS	SP	1700		S	1	0	C	0	0	0	0	0	0	E	
5/28	1700	MLS	SB			S	1	0	C	22	2	22	2	22	2	E	
5/28	1700	MLS	FP			S	1	0	C	0	0	0	0	0	0	E	
5/28	1700	MLS	FB			S	1	0	C	23	0	23	0	23	0	E	
5/28	1700	MLS	CG			S	1	0	C	0	0	0	0	0	0	E	
5/28	1700	MLS	BC			S	1	0	C	0	0	0	0	0	0	E	
5/28	1700	MLS	FR			S	1	0	C	1	0	1	0	1	0	E	
5/28	1700	MLS	NBC			S	1	0	C	0	0	0	0	0	0	E	
5/28	1700	MLS	MB		1755	S	1	0	C	1150	34	1100	30	1200	38	G	
5/28	1700	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/29	1700	MLS	SP	1710		S	3	1	C	O	O	O	O	O	O	E	
5/29	1700	MLS	SB			S	3	1	C	52	0	57	0	51	0	E	
5/29	1700	MLS	FP			S	3	1	C	0	0	0	0	0	0	E	
5/29	1700	MLS	FB			S	3	1	C	0	0	0	0	0	0	E	
5/29	1700	MLS	CG			S	3	1	C	0	0	0	0	0	0	E	
5/29	1700	MLS	BC			S	3	1	C	0	0	0	0	0	0	E	
5/29	1700	MLS	FR			S	3	1	C	1	0	1	0	1	0	E	
5/29	1700	MLS	NBC			S	3	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
5/29	1700	MLS	MB		1025	S	3	1	C	950	36	800	45	1075	38	G	
5/29	1700	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
5/30	1400	DCO	SP	1418		S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	SB			S	3	2	C	9	0	9	0	9	0	E	
5/30	1400	DCO	FP			S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	FB			S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	CG			S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	BC			S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	FR			S	3	2	C	0	1	0	1	0	1	E	
5/30	1400	DCO	NBC			S	3	2	C	0	0	0	0	0	0	E	
5/30	1400	DCO	MB		1518	S	3	2	C	395	15	385	11	430	11	G	
5/30	1400	DCO	WM	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	
5/31	900	MLS	SP	910		S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	SB			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	FP			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	FB			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	CG			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	BC			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	FR			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	NBC			S	4	3	C	0	0	0	0	0	0	E	
5/31	900	MLS	MB			S	4	3	C	240	0	240	0	220	0	G	
5/31	900	MLS	WM		1117	S	4	3	C	550	13	560	11	530	13	E	
6/1	1700	MLS	SP	1645		S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	SB			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	FP			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	FB			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	CG			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	BC			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	FR			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	NBC			S	5	3	C	0	0	0	0	0	0	E	
6/1	1700	MLS	MB			S	5	3	C	3	0	3	0	3	0	G	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/1	1700	MLS	WM		1755	S	5	3	C	188	10	187	8	191	10	E	
6/2	1400	DCO	SP	1355		S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	SB			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	FP			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	FB			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	CG			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	BC			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	FR			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	NBC			S	5	3	C	0	0	0	0	0	0	E	
6/2	1400	DCO	MB			S	4	2	C	0	0	0	0	0	0	E	
6/2	1400	DCO	WM		1544	S	5	2	C	100	7	100	7	95	7	E	
6/3	900	DCO	SP	919		S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	SB			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	FP			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	FB			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	CG			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	BC			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	FR			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/3	900	DCO	MB			S	2	1	C	71	21	71	20	75	20	G	
6/3	900	DCO	WM		1130	S	2	1	C	525	48	560	41	480	41	G	
6/4	1700	MLS	SP	1707		S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	SB			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	FP			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	FB			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	CG			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	BC			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	FR			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	NBC			S	5	3	C	0	0	0	0	0	0	E	
6/4	1700	MLS	MB		1800	S	5	3	C	400	0	390	0	430	1	G	
6/4	1700	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/5	900	MLS	SP	901		S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	SB			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	FP			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	FB			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	CG			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	BC			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	FR			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	NBC			S	3	2	C	0	0	0	0	0	0	E	
6/5	900	MLS	MB			S	2	2	C	170	8	170	6	160	8	G	
6/5	900	MLS	WM		1100	S	2	2	C	146	0	142	0	151	0	E	MORT ON WM
6/6	900	DCO	SP	915		S	3	2	C	0	0	0	0	0	0	E	
6/6	900	DCO	SB			S	3	1	C	3	2	3	2	3	2	E	
6/6	900	DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
6/6	900	DCO	FB			S	3	1	C	4	5	4	5	4	5	E	
6/6	900	DCO	CG			S	3	2	C	0	0	0	0	0	0	E	
6/6	900	DCO	BC			S	3	1	C	1	3	1	3	1	3	E	
6/6	900	DCO	FR			S	3	1	C	5	3	5	3	5	3	E	
6/6	900	DCO	NBC			S	3	1	C	0	3	0	3	0	3	E	
6/6	900	DCO	MB			S	3	1	C	670	34	670	27	680	22	G	
6/6	900	DCO	WM		1215	S	3	3	C	120	4	112	4	120	4	E	
6/7	1400	MLS	SP	1420		S	2	1	C	0	0	0	0	0	0	E	
6/7	1400	MLS	SB			S	2	1	C	81	1	82	1	77	1	E	
6/7	1400	MLS	FP			S	2	1	C	2	0	2	0	2	0	E	
6/7	1400	MLS	FB			S	2	1	C	142	3	144	3	137	3	E	
6/7	1400	MLS	CG			S	2	1	C	0	0	0	0	0	0	E	
6/7	1400	MLS	BC			S	2	1	C	12	0	12	0	12	0	E	
6/7	1400	MLS	FR			S	2	1	C	14	3	14	3	14	3	E	
6/7	1400	MLS	NBC			S	2	1	C	4	0	4	0	4	0	E	
6/7	1400	MLS	MB			S	2	1	C	1719	50	1819	50	1619	50	G	
6/7	1400	MLS	WM		1636	S	2	1	C	511	5	501	5	491	5	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/8	1700	MLS	SP	1745		S	3	2	C	0	0	0	0	0	0	E	
6/8	1700	MLS	SB			S	3	2	C	12	0	12	0	12	0	E	
6/8	1700	MLS	FP			S	3	2	C	0	0	0	0	0	0	E	
6/8	1700	MLS	FB			S	3	2	C	34	0	34	0	34	0	E	
6/8	1700	MLS	CG			S	1	0	C	1	0	1	0	1	0	E	
6/8	1700	MLS	BC			S	1	0	C	0	0	0	0	0	0	E	
6/8	1700	MLS	FR			S	1	0	C	0	0	0	0	0	0	E	
6/8	1700	MLS	NBC			S	1	0	C	0	0	0	0	0	0	E	
6/8	1700	MLS	MB		1750	S	1	0	C	955	7	1015	4	955	5	G	
6/8	1700	MLS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
6/9	1400	MLS	SP	1355		S	1	0	C	0	0	0	0	0	0	E	
6/9	1400	MLS	SB			S	1	0	C	4	0	4	0	4	0	E	
6/9	1400	MLS	FP			S	1	0	C	0	0	0	0	0	0	E	
6/9	1400	MLS	FB			S	1	0	C	30	0	30	0	29	1	E	
6/9	1400	MLS	CG			S	1	0	C	0	0	0	0	0	0	E	
6/9	1400	MLS	BC			S	1	0	C	0	0	0	0	0	0	E	
6/9	1400	MLS	FR			S	1	0	C	8	1	8	1	8	1	E	
6/9	1400	MLS	NBC			S	1	0	C	0	2	0	2	0	2	E	
6/9	1400	MLS	MB			S	1	0	C	800	106	780	112	840	103	G	
6/9	1400	MLS	WM		1750	S	1	0	C	308	9	304	9	312	9	E	
6/10	1400	DCO	SP	920		S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	SB			S	1	1	C	1	0	1	0	1	0	E	
6/10	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	FB			S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	CG			S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	BC			S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	FR			S	1	1	C	7	0	7	0	7	0	E	
6/10	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
6/10	1400	DCO	MB			S	1	1	C	460	24	440	27	462	23	G	
6/10	1400	DCO	WM		1206	S	1	1	C	400	16	450	18	360	19	G	
6/11	1400	DCO	SP	1409		S	1	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/11	1400	DCO	SB			S	1	1	C	0	0	0	0	0	0	E	
6/11	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0	E	
6/11	1400	DCO	FB			S	1	1	C	2	0	2	0	2	0	E	
6/11	1400	DCO	CG			S	2	1	C	2	0	2	0	2	0	E	
6/11	1400	DCO	BC			S	2	1	C	0	0	0	0	0	0	E	
6/11	1400	DCO	FR			S	2	1	C	7	0	7	0	7	0	E	
6/11	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
6/11	1400	DCO	MB			S	1	0	C	472	32	460	32	472	33	G	
6/11	1400	DCO	WM		1645	S	1	1	C	141	2	146	1	133	0	E	
6/12	1400	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	Preparation for staff changes and boat maintenance
6/13	1400	DCO	SP	1425		S	2	1	C	0	0	0	0	0	0	E	
6/13	1400	DCO	SB			S	2	1	C	1	0	1	0	1	0	E	
6/13	1400	DCO	FP			S	2	1	C	0	0	0	0	0	0	E	
6/13	1400	DCO	FB			S	2	1	C	3	0	3	0	3	0	E	
6/13	1400	DCO	CG			S	2	1	C	0	0	0	0	0	0	E	
6/13	1400	DCO	BC			S	2	1	C	0	0	0	0	0	0	E	
6/13	1400	DCO	FR			S	2	1	C	10	0	10	0	10	0	E	
6/13	1400	DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/13	1400	DCO	MB			S	2	0	C	960	33	980	32	940	31	G	
6/13	1400	DCO	WM		1807	S	2	1	C	350	1	350	4	380	4	G	
6/14	900	DCO	SP	921		S	2	1	C	0	3	0	3	0	3	E	
6/14	900	DCO	SB			S	1	0	C	10	6	10	6	10	6	E	
6/14	900	DCO	FP			S	1	0	C	0	0	0	0	0	0	E	
6/14	900	DCO	FB			S	1	0	C	8	9	8	9	8	9	E	
6/14	900	DCO	CG			S	2	1	C	0	0	0	0	0	0	E	
6/14	900	DCO	BC			S	3	1	C	1	0	1	0	1	0	E	
6/14	900	DCO	FR			S	3	1	C	10	9	10	9	10	12	E	
6/14	900	DCO	NBC			S	3	1	C	0	0	0	0	0	0	E	
6/14	900	DCO	MB		1112	S	3	1	C	610	63	600	67	630	63	G	
6/14	900	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/15	900	SS	SP	914		S	2	1	C	0	1	0	1	0	1	E	
6/15	900	SS	SB			S	2	1	C	43	14	43	14	43	14	E	
6/15	900	SS	FP			S	2	1	C	0	0	0	0	0	0	E	
6/15	900	SS	FB			S	2	1	C	42	3	42	3	42	3	E	
6/15	900	SS	CG			S	2	1	C	0	1	0	1	0	1	E	
6/15	900	SS	BC			S	2	1	C	0	1	0	1	0	1	E	
6/15	900	SS	FR			S	2	1	C	10	4	10	4	10	4	E	
6/15	900	SS	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/15	900	DCO	MB			S	2	1	C	602	103	632	94	592	92	G	SS var.ct.: 700/86, 680/71, 890/67
6/15	900	SS	WM		1208	S	2	1	C	270	25	270	28	240	20	E	
6/16	900	DCO	SP	927		S	1	1	C	1	1	1	1	1	1	E	SS var.ct: 1/1, 1/1, 1/1
6/16	900	DCO	SB			S	1	0	C	57	14	55	14	58	17	E	SS var.ct: 57/15, 51/11, 52/12
6/16	900	DCO	FP			S	1	0	C	0	0	0	0	0	0	E	SS var.ct: 0/0, 0/0, 0/0
6/16	900	DCO	FB			S	1	0	C	96	13	89	15	96	12	E	SS var.ct: 80/9, 87/12, 96/12
6/16	900	DCO	CG			S	1	1	C	0	1	0	1	0	1	E	SS var.ct: 0/1, 0/1, 0/1
6/16	900	DCO	BC			S	1	1	C	0	0	0	0	0	0	E	SS var.ct: 0/0, 0/0, 0/0
6/16	900	DCO	FR			S	1	1	C	13	7	13	7	13	7	E	SS var.ct: 13/8, 13/10, 13/?
6/16	900	DCO	NBC			S	1	1	C	1	3	1	3	1	3	E	SS var.ct: 1/3, 1/3, 1/3
6/16	900	DCO	MB		1112	S	1	0	C	800	140	780	129	820	157	G	SS var.ct: 910/91, 730/92, 720/86
6/16	900	DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
6/17	1700	SKS	SP	1714		S	4	2	C	0	0	0	0	0	0	E	
6/17	1700	SKS	SB			S	4	2	C	20	0	20	0	20	0	E	
6/17	1700	SKS	FP			S	4	2	C	0	1	0	1	0	1	E	
6/17	1700	SKS	FB			S	4	2	C	30	0	30	0	30	0	E	
6/17	1700	SKS	CG			S	4	2	C	0	0	0	0	0	0	E	
6/17	1700	SKS	BC			S	3	1	C	0	0	0	0	0	0	E	
6/17	1700	SKS	FR			S	3	1	C	6	0	6	0	6	0	E	
6/17	1700	SKS	NBC			S	3	1	C	0	0	0	0	0	0	E	
6/17	1700	SKS	MB			S	3	1	C	570	25	640	20	750	26	G	
6/17	1700	SKS	WM		1825	S	2	1	C	740	25	767	26	740	21	G	
6/18	900	DCO	SP	924		S	2	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/18	900	DCO	SB			S	2	2	C	0	0	0	0	0	0	E	
6/18	900	DCO	FP			S	2	2	C	0	0	0	0	0	0	E	
6/18	900	DCO	FB			S	2	2	C	5	0	5	0	5	0	E	
6/18	900	DCO	CG			S	2	2	C	0	0	0	0	0	0	E	
6/18	900	DCO	BC			S	2	2	C	0	0	0	0	0	0	E	
6/18	900	DCO	FR			S	2	2	C	0	0	0	0	0	0	E	
6/18	900	DCO	NBC			S	2	1	C	1	0	1	0	1	0	E	
6/18	900	DCO	MB			S	2	1	C	560	43	610	37	550	47	G	
6/18	900	DCO	WM		1224	S	2	1	C	210	54	620	53	600	47	G	WM Photo count L+H20 = 657
6/19	900	SKS	SP	909		S	3	2	C	0	0	0	0	0	0	E	
6/19	900	SKS	SB			S	3	2	C	3	0	3	0	3	0	E	
6/19	900	SKS	FP			S	3	2	C	0	3	0	3	0	3	E	
6/19	900	SKS	FB			S	3	1	C	13	2	13	2	13	2	E	
6/19	900	SKS	CG			S	3	1	C	0	1	0	1	0	1	E	
6/19	900	SKS	BC			S	3	1	C	0	0	0	0	0	0	E	
6/19	900	SKS	FR			S	3	1	C	5	1	5	1	5	1	E	
6/19	900	SKS	NBC			S	3	1	C	0	0	0	0	0	0	E	
6/19	900	SKS	MB			S	3	1	C	321	28	351	24	304	27	G	DCO: MB var.ct. 320/34, 300/37, 320/22
6/19	900	SKS	WM		1109	S	2	1	C	80	58	81	49	76	61	E	
6/20	900	SKS	SP	912		S	2	2	C	0	0	0	0	0	0	E	
6/20	900	SKS	SB			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	SKS	FP			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	SKS	FB			S	2	1	C	1	0	1	0	1	0	E	
6/20	900	SKS	CG			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	SKS	BC			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	DCO	FR			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/20	900	DCO	MB			S	2	1	C	85	35	96	35	79	35	G	
6/20	900	DCO	WM		1028	S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	DCO	SP	1416		S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	DCO	SB			S	2	2	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/21	1400	DCO	FP			S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	DCO	FB			S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	DCO	CG			S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	DCO	BC			S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	SKS	FR			S	2	2	C	0	1	0	1	0	1	E	
6/21	1400	SKS	NBC			S	2	2	C	0	0	0	0	0	0	E	
6/21	1400	SKS	MB			S	2	2	C	151	31	146	36	130	30	G	
6/21	1400	SKS	WM		1535	S	2	2	C	0	0	0	0	0	0	E	
6/22	900	DCO	SP	900		S	2	1	C	0	0	0	0	0	0	E	
6/22	900	DCO	SB			S	2	1	C	0	1	0	1	0	1	E	
6/22	900	DCO	FP			S	2	1	C	0	0	0	0	0	0	E	
6/22	900	DCO	FB			S	2	1	C	32	3	32	3	32	3	E	
6/22	900	SKS	CG			S	2	1	C	0	1	0	1	0	1	E	
6/22	900	SKS	BC			S	2	1	C	0	0	0	0	0	0	E	
6/22	900	SKS	FR			S	2	1	C	4	2	4	2	4	2	E	
6/22	900	SKS	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/22	900	SKS	MB		948	S	3	1	C	130	32	150	35	120	35	G	
6/22	900	SKS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		
6/23	900	DCO	SP	921		S	1	1	C	0	0	0	0	0	0	E	
6/23	900	DCO	SB			S	1	0	C	1	0	1	0	1	0	E	
6/23	900	DCO	FP			S	1	0	C	0	0	0	0	0	0	E	
6/23	900	DCO	FB			S	1	0	C	72	12	70	12	71	12	E	
6/23	900	DCO	CG			S	1	1	C	0	0	0	0	0	0	E	
6/23	900	SKS	BC			S	1	1	C	0	0	0	0	0	0	E	
6/23	900	SKS	FR			S	1	1	C	8	10	8	9	8	9	E	
6/23	900	SKS	NBC			S	1	1	C	0	0	0	0	0	0	E	
6/23	900	SKS	MB			S	1	0	C	257	84	250	65	220	73	G	
6/23	900	SKS	WM		1040	S	1	2	C	0	7	0	7	0	7	E	
6/24	1700	SKS	SP	1715		S	1	1	C	0	0	0	0	0	0	E	
6/24	1700	SKS	SB			S	1	0	C	0	0	0	0	0	0	E	
6/24	1700	SKS	FP			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/24	1700	SKS	FB			S	1	0	C	115	0	108	0	106	0	E	
6/24	1700	SKS	CG			S	1	1	C	0	0	0	0	0	0	E	
6/24	1700	SKS	BC			S	1	0	C	0	0	0	0	0	0	E	
6/24	1700	DCO	FR			S	1	0	C	0	0	0	0	0	0	E	
6/24	1700	DCO	NBC			S	1	0	C	0	0	0	0	0	0	E	
6/24	1700	DCO	MB			S	1	0	C	1400	16	1550	16	1350	16	G	
6/24	1700	DCO	WM		1846	S	1	0	C	7	0	7	0	7	0	E	
6/25	900	SKS	SP	906		S	1	0	C	1	1	1	1	1	1	E	
6/25	900	SKS	SB			S	1	0	C	5	3	5	3	5	3	E	
6/25	900	SKS	FP			S	1	0	C	0	0	0	0	0	0	E	
6/25	900	SKS	FB			S	1	0	C	72	36	71	35	70	33	E	
6/25	900	SKS	CG			S	1	1	C	3	3	3	3	3	3	E	
6/25	900	SKS	BC			S	1	1	C	0	0	0	0	0	0	E	
6/25	900	SKS	FR			S	1	1	C	18	9	18	6	18	8	E	
6/25	900	SKS	NBC			S	2	1	C	0	0	0	0	0	0	E	
6/25	900	SKS	MB			S	2	0	C	700	57	720	64	730	61	G	DCO var. ct. MB 790/59, 720/38, 700/51
6/25	900	SKS	WM		1200	S	2	1		0	2	0	2	0	2	E	
6/26	1400	SKS	SP	1406		S	1	1	C	0	0	0	0	0	0	E	
6/26	1400	SKS	SB			S	1	1	C	4	3	4	3	4	3	E	
6/26	1400	SKS	FP			S	1	0	C	0	0	0	0	0	0	E	
6/26	1400	SKS	FB			S	1	0	C	76	3	75	0	75	0	E	
6/26	1400	DCO	CG			S	1	1	C	0	0	0	0	0	0	E	
6/26	1400	DCO	BC			S	1	1	C	0	0	0	0	0	0	E	
6/26	1400	DCO	FR			S	1	1	C	10	2	10	2	10	2	E	
6/26	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
6/26	1400	DCO	MB			S	1	1	C	493	28	475	25	513	17	G	
6/26	1400	DCO	WM		1646	S	2	1	C	0	0	0	0	0	0	E	
6/27	900	SKS	SP	911		S	4	1	C	0	0	0	0	0	0	E	
6/27	900	SKS	SB			S	4	1	C	0	0	0	0	0	0	E	
6/27	900	SKS	FP			S	4	2	C	0	0	0	0	0	0	E	
6/27	900	SKS	FB			S	4	2	C	6	4	6	4	6	4	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/27	900	DCO	CG			S	4	2	C	0	0	0	0	0	0	E	
6/27	900	DCO	BC			S	4	2	C	0	0	0	0	0	0	E	
6/27	900	DCO	FR			S	4	1	C	0	0	0	0	0	0	E	
6/27	900	DCO	NBC			S	4	1	C	0	0	0	0	0	0	E	
6/27	900	DCO	MB			S	4	1	C	18	0	18	0	21	0	G	
6/27	900	DCO	WM		1052	S	4	2	C	0	0	0	0	0	0	E	
6/28	900	DCO	SP	920		S	3	1	C	0	0	0	0	0	0	E	
6/28	900	DCO	SB			S	3	1	C	0	0	0	0	0	0	E	
6/28	900	DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
6/28	900	DCO	FB			S	3	1	C	17	4	17	4	17	4	E	
6/28	900	SKS	CG			S	4	2	C	0	0	0	0	0	0	E	
6/28	900	SKS	BC			S	4	1	C	0	0	0	0	0	0	E	
6/28	900	SKS	FR			S	4	2	C	0	0	0	0	0	0	E	
6/28	900	SKS	NBC			S	4	2	C	0	3	0	3	0	3	E	
6/28	900	SKS	MB		953	S	4	2	C	24	18	22	9	20	18	G	
6/28	900	SKS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
6/29	1700	DCO	SP	1700		S	1	1	C	0	0	0	0	0	0	E	
6/29	1700	DCO	SB			S	1	1	C	1	0	1	0	1	0	E	
6/29	1700	DCO	FP			S	1	1	C	0	0	0	0	0	0	E	
6/29	1700	DCO	FB		1735	S	1	1	C	120	1	115	1	121	1	E	
6/29	1700	SKS	CG	1659		S	2	1	C	0	0	0	0	0	0	E	
6/29	1700	SKS	BC			S	2	0	C	0	0	0	0	0	0	E	
6/29	1700	SKS	FR			S	2	0	C	0	0	0	0	0	0	E	
6/29	1700	SKS	NBC			S	2	0	C	0	0	0	0	0	0	E	
6/29	1700	SKS	MB			S	2	0	C	295	28	330	15	280	19	G	
6/29	1700	SKS	WM		1806	S	1	2	C	0	8	0	8	0	8	E	
6/30	1700	SKS	SP		1734	S	1	1	C	0	4	0	4	0	4	E	
6/30	1700	SKS	SB			S	1	0	C	O	O	O	O	O	O	E	
6/30	1700	SKS	FP			S	1	0	C	O	O	O	O	O	O	E	
6/30	1700	SKS	FB	1657		S	1	0	C	169	0	177	0	165	0	E	
6/30	1700	DCO	CG	1704		S	1	0	C	1	0	1	0	1	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
6/30	1700	DCO	BC			S	1	0	C	0	0	0	0	0	0	E	
6/30	1700	DCO	FR			S	1	0	C	24	0	24	0	24	0	E	
6/30	1700	DCO	NBC			S	1	0	C	0	0	0	0	0	0	E	
6/30	1700	DCO	MB			S	1	0	C	670	3	730	6	660	6	G	
6/30	1700	DCO	WM		1831	S	1	0	C	0	0	0	0	0	0	E	
7/1	1400	SKS	SP	1407		S	3	2	C	0	0	0	0	0	0	E	
7/1	1400	SKS	SB			S	3	1	C	0	0	0	0	0	0	E	
7/1	1400	SKS	FP			S	3	2	C	0	0	0	0	0	0	E	
7/1	1400	SKS	FB			S	3	1	C	95	2	100	2	92	3	E	
7/1	1400	SKS	CG			S	3	1	C	1	0	1	0	1	0	E	
7/1	1400	SKS	BC			S	3	1	C	0	0	0	0	0	0	E	
7/1	1400	SKS	FR			S	3	0	C	14	0	14	0	14	0	E	
7/1	1400	SKS	NBC			S	2	0	C	0	0	0	0	0	0	E	
7/1	1400	SKS	MB			S	1	1	C	420	0	440	0	410	0	G	variability cnt. MB. with DCO - 550, 520, 540 (L & W) PHOTO COUNT DCO =714, SKS=738; photo ct diff=3.25%
7/1	1400	DCO	WM		1546	S	1	1	C	0	11	0	10	0	8	E	
7/2	1400	SKS	SP			B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	SB			B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	FP			B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	FB			B	2	1	C	55	0	50	0	50	0	F	
7/2	1400	SKS	CG			B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	BC	1400		B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	FR			B	2	1	C	11	0	11	0	10	0	F	
7/2	1400	SKS	NBC			B	2	1	C	0	0	0	0	0	0	F	
7/2	1400	SKS	MB		1433	B	2	1	C	380	0	390	0	370	0	F	LAND var.ct. with DCO (15:23hr) - 450/406/417 (L&W), SKS= 510/480/450 (L&W)- photo ct (15:23hr) DCO=550, SKS=559 photo ct diff= 1.61%
7/2	1400	SKS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
7/3	1400	DCO	SP	1417		S	5	3	C	0	0	0	0	0	0	E	
7/3	1400	DCO	SB			S	5	3	C	0	0	0	0	0	0	E	
7/3	1400	DCO	FP			S	5	3	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
7/3	1400	DCO	FB			S	5	3	C	5	0	5	0	5	0	E	
7/3	1400	DCO	CG			S	5	3	C	0	0	0	0	0	0	E	
7/3	1400	DCO	BC			S	4	2	C	0	0	0	0	0	0	E	
7/3	1400	DCO	FR			S	4	2	C	0	0	0	0	0	0	E	
7/3	1400	DCO	NBC			S	3	2	C	0	0	0	0	0	0	E	
7/3	1400	DCO	MB		1518	S	FOG	1	P	30	0	30	0	30	0	F	
7/3	1400	NC	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	fog at WM, no visibility
7/4	NC																fog over the island, no visibility
7/5	1700	DCO	SP	1740		S	1	0	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FP			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FB			S	1	0	C	0	0	0	0	0	0	E	
		DCO	CG		1817	S	1	0	C	0	0	0	0	0	0	E	
		DCO	BC	1820	1712	S	1	0	C	0	0	0	0	0	0	E	
		SKS	FR			S	1	0	C	0	0	0	0	0	0	E	
		SKS	NBC			S	1	0	C	0	0	0	0	0	0	E	
		SKS	MB			S	1	0	C	450	30	427	25	474	15	G	
		SKS	WM		1823	S	0	1	C	0	1	0	1	0	1	E	
7/6	900	SKS	SP	919		S	1	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	1	0	C	0	0	0	0	0	0	E	
		SKS	FP			S	1	0	C	0	0	0	0	0	0	E	
		SKS	FB			S	1	1	C	0	0	0	0	0	0	E	
		SKS	CG		946	S	1	1	C	0	0	0	0	0	0	E	
		SKS	BC	947	948	S	1	0	C	0	0	0	0	0	0	E	
		DCO	FR			S	1	0	C	14	3	14	3	14	3	E	
		DCO	NBC			S	1	0	C	1	0	1	0	1	0	E	
		DCO	MB			S	1	0	C	230	0	230	0	240	0	G	
		DCO	WM		1041	S	1	0	C	0	0	0	0	0	0	E	
7/7	900	DCO	SP	918		S	1	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	1	C	1	0	1	0	1	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	FP			S	1	1	C	0	0	0	0	0	0	E	
		DCO	FB			S	1	1	C	44	1	44	1	43	3	E	
		DCO	CG			S	1	1	C	0	0	0	0	0	0	E	
		DCO	BC			S	1	1	C	0	0	0	0	0	0	E	
		DCO	FR			S	1	1	C	15	5	15	5	15	5	E	
		DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
		DCO	MB		1033	S	1	1	C	130	38	130	39	120	34	G	
		SKS	WM	945	946	S	2	2	C	0	0	0	0	0	0	E	
7/8	900	DCO	SP	840		S	3	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	4	1	C	14	7	14	7	14	7	E	
		DCO	FP			S	4	1	C	0	0	0	0	0	0	E	
		DCO	FB			S	4	2	C	110	25	111	25	106	25	E	
		DCO	CG			S	5	3	C	0	0	0	0	0	0	E	
		DCO	BC			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FR			S	5	3	C	4	3	4	3	4	3	E	
		DCO	NBC			S	5	3	C	0	0	0	0	0	0	E	
		DCO	MB		948	S	5	2	C	160	15	180	9	160	13	F	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	To windy from west
7/9	1700	SKS	SP	1716		S	1	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	1	1	C	74	2	72	2	76	2	E	
		SKS	FP			S	1	1	C	0	0	0	0	0	0	E	
		SKS	FB			S	1	1	C	110	3	111	3	102	3	E	
		SKS	CG			S	1	1	C	0	0	0	0	0	0	E	
		SKS	BC		1758	S	1	1	C	0	0	0	0	0	0	E	
		DCO	FR	1720		S	1	1	C	5	0	5	0	5	0	E	
		DCO	NBC			S	1	1	C	0	0	0	0	0	0	E	
		DCO	MB			S	1	1	C	600	23	620	20	580	23	G	
		DCO	WM		1826	S	1	1	C	0	0	0	0	0	0	E	
7/10	1400	DCO	SP	1404		S	1	0	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	0	C	49	1	49	1	49	1	E	
		DCO	FP			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	FB			S	1	0	C	79	2	79	3	75	3	E	
		DCO	CG			S	1	0	C	0	0	0	0	0	0	E	
		DCO	BC			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FR			S	1	0	C	2	0	2	0	2	0	E	
		DCO	NBC			S	1	0	C	0	0	0	0	0	0	E	
		DCO	MB	1545	1600	S	1	0	C	550	11	490	9	480	16	G	MB var.ct. SKS 639/690/576, L/W combined PHOTO COUNT DCO=611, SKS=616
		SKS	WM	1502	1503	S	1	1	C	0	12	0	12	0	12	E	
7/11	900	SKS	SP	926		S	1	0	C	0	0	0	0	0	0	E	
		SKS	SB			S	1	0	C	11	1	11	0	12	1	E	
		SKS	FP			S	1	0	C	0	1	0	1	0	1	E	
		SKS	FB			S	1	0	C	52	7	52	7	51	7	E	
		SKS	CG			S	1	0	C	0	0	0	0	0	0	E	
		SKS	BC			S	1	0	C	0	0	0	0	0	0	E	
		SKS	FR			S	1	0	C	8	3	8	3	8	3	E	
		SKS	NBC		1011	S	1	0	C	0	0	0	0	0	0	E	SKS did a seabird pop. ct before MB count.
		SKS	MB	1121	1131	S	1	0	C	140	32	144	35	135	29	G	
		DCO	WM	1024	1025	S	1	1	C	0	0	0	0	0	0	E	
7/12	1400	DCO	SP	1421		S	1	0	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FP			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FB			S	1	0	C	36	0	37	0	35	0	E	
		DCO	CG			S	1	0	C	1	0	1	0	1	0	E	
		DCO	BC			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FR			S	1	0	C	5	0	5	0	5	0	E	
		DCO	NBC			S	1	0	C	0	0	0	0	0	0	E	
		DCO	MB		1545	S	1	0	C	295	0	285	0	285	0	G	MB var.ct. SKS 280/316/314, L/W combined PHOTO COUNT DCO=300, SKS=306
		SKS	WM	1453	1500	S	1	1	C	126	0	123	1	134	0	E	
7/13	1700	SKS	SP	1721		S	2	2	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		SKS	SB			S	2	2	C	0	0	0	0	0	0	E	
		SKS	FP			S	2	2	C	0	0	0	0	0	0	E	
		SKS	FB			S	2	1	C	36	0	36	0	35	0	E	
		SKS	CG			S	2	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	2	1	C	1	0	1	0	1	0	E	
		SKS	NBC			S	2	1	C	0	0	0	0	0	0	E	
		SKS	MB		1814	S	2	1	C	288	20	265	13	260	11	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
7/14	900	SKS	SP	921		S	fog	2	C	0	0	0	0	0	0	E	
		SKS	SB			S	fog	1	C	0	0	0	0	0	0	E	
		SKS	FP			S	fog	2	C	0	0	0	0	0	0	E	
		SKS	FB			S	fog	2	C	22	3	22	3	22	3	E	
		SKS	CG			S	1	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	1	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	1	1	C	2	0	2	0	2	0	E	
		SKS	NBC			S	1	1	C	0	0	0	0	0	0	E	
		SKS	MB		1021	S	1	1	P	84	25	86	18	77	27	F	
		DCO	WM	1041	1042	S	fog	1	C	67	4	65	4	68	4	E	
7/15	1700	DCO	SP	1715		S	2	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	2	1	C	0	0	0	0	0	0	E	
		DCO	FP			S	2	1	C	0	0	0	0	0	0	E	
		DCO	FB			S	2	1	C	42	0	42	0	43	0	E	
		DCO	CG			S	2	1	C	0	0	0	0	0	0	E	
		DCO	BC		1825	S	2	1	C	0	0	0	0	0	0	E	
		SKS	FR	1710		S	3	2	C	0	0	0	0	0	0	E	
		SKS	NBC			S	3	2	C	0	0	0	0	0	0	E	
		SKS	MB			S	3	1	C	154	17	134	13	164	14	G	
		SKS	WM		1807	S	3	3	C	0	3	0	3	0	3	E	
7/16	900	SKS	SP	924		S	2	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		SKS	FP			S	2	1	C	0	2	0	2	0	2	E	
		SKS	FB			S	2	0	C	69	2	66	0	70	2	E	
		SKS	CG			S	3	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	3	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	3	1	C	0	1	0	1	0	1	E	
		SKS	NBC			S	2	1	C	0	0	0	0	0	0	E	
		SKS	MB		1012	S	2	0	C	110	0	116	0	115	0	G	L&W ct
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
7/17	1700	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	fog and rain
7/18	900	SKS	SP	912		S	fog	2	C	0	0	0	0	0	0	E	
		SKS	SB			S	fog	2	C	2	1	2	1	2	1	E	
		SKS	FP			S	fog	2	C	0	0	0	0	0	0	E	
		SKS	FB			S	fog	2	C	117	4	116	3	116	4	E	
		SKS	CG			S	fog	2	C	0	0	0	0	0	0	E	
		SKS	BC			S	1	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	1	1	C	16	3	16	3	16	2	E	
		SKS	NBC			S	1	1	C	0	1	0	1	0	1	E	
		SKS	MB			S	fog	1	C	260	12	260	12	240	12	F	
		SKS	WM		1106	S	fog	3	C	0	0	0	0	0	0	E	
7/19	1400	SKS	SP	1422		S	3	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	3	1	C	0	0	0	0	0	0	E	
		SKS	FP			S	3	1	C	0	0	0	0	0	0	E	
		SKS	FB			S	3	1	C	95	1	95	0	94	2	E	
		SKS	CG			S	3	1	C	0	0	0	0	0	0	E	
		SKS	BC		1451	S	3	1	C	0	0	0	0	0	0	E	
		DCO	FR	1425		S	2	1	C	12	0	12	0	12	0	E	
		DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
		DCO	MB			S	2	1	C	530	23	580	23	450	23	G	
		DCO	WM		1551	S	2	1	C	0	0	0	0	0	0	E	
7/20	1700	DCO	SP	1707		S	5	3	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	SB			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FP			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FB			S	5	3	C	43	1	43	1	40	1	E	
		DCO	CG			S	5	3	C	0	0	0	0	0	0	E	
		DCO	BC		1809	S	3	2	C	1	0	1	0	1	0	E	
		SKS	FR	1657		S	5	3	C	4	2	4	2	4	2	E	
		SKS	NBC			S	5	3	C	0	0	0	0	0	0	E	
		SKS	MB			S	5	3	C	330	0	330	0	340	0	G	
		SKS	WM		2044	S	5	2	C	0	0	0	0	0	0	E	
7/21	1700		SP			O				0	0	0	0	0	0		90 km winds 8'-12' seas all day - no walrus on RI
			SB			O				0	0	0	0	0	0		
			FP			O				0	0	0	0	0	0		
			FB			O				0	0	0	0	0	0		
			CG			O				0	0	0	0	0	0		
			BC			O				0	0	0	0	0	0		
			FR			O				0	0	0	0	0	0		
			NBC			O				0	0	0	0	0	0		
			MB			O				0	0	0	0	0	0		
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	
7/22	900	SKS	SP	921		S	5	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FB			S	5	3	C	0	0	0	0	0	0	E	
		SKS	CG			S	5	3	C	0	0	0	0	0	0	E	
		SKS	BC		942	S	5	3	C	0	0	0	0	0	0	E	
		DCO	FR	930		S	3	2	C	0	0	0	0	0	0	E	
		DCO	NBC			S	3	2	C	0	0	0	0	0	0	E	
		DCO	MB			S	3	2	C	0	0	0	0	0	0	E	
		DCO	WM		1119	S	3	2	C	0	0	0	0	0	0	E	
7/23	1700	SKS	SP	1743		S	2	2	C	0	0	0	0	0	0	E	
		SKS	SB			S	2	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		SKS	FP			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FB			S	2	1	C	65	7	61	6	64	5	E	
		SKS	CG			S	2	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	2	0	C	15	0	15	0	15	0	E	
		SKS	NBC			S	1	0	C	0	0	0	0	0	0	E	
		SKS	MB			S	1	0	C	301	48	231	53	291	42	G	
		SKS	WM		1922	S	1	1	C	0	0	0	0	0	0	E	
7/24	900	DCO	SP		1040	S	3	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	3	1	C	1	0	1	0	1	0	E	
		DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FB	1015		S	3	1	C	112	1	115	1	112	1	E	
		SKS	CG	929		S	3	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	3	0	C	0	0	0	0	0	0	E	
		SKS	FR			S	3	1	C	21	0	21	0	21	0	E	
		SKS	NBC			S	3	0	C	0	0	0	0	0	0	G	
		SKS	MB		959	S	2	1	C	448	13	448	15	378	12	E	
		SKS	WM							NC	NC	NC	NC	NC	NC	NC	
7/25	1700	SKS	SP	1717		S	6	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	6	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	6	3	C	0	0	0	0	0	0	E	
		SKS	FB		1730	S	6	3	C	0	0	0	0	0	0	E	
		DCO	CG	1805		S	6	3	C	0	0	0	0	0	0	E	
		DCO	BC			S	6	3	C	0	0	0	0	0	0	E	
		DCO	FR			S	6	3	C	0	0	0	0	0	0	E	
		DCO	NBC			S	6	3	C	0	0	0	0	0	0	E	
		DCO	MB		1828	S	6	3	C	10	2	10	2	10	2	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		FOG AND WIND
7/26	900	SKS	SP	919		S	3	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	3	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	3	3	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS FO	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		SKS	FB		938	S	G	3	C	0	0	0	0	0	0	E	
		DCO	CG	920		S	3	2	C	0	0	0	0	0	0	E	
		DCO	BC			S	3	2	C	0	0	0	0	0	0	E	
		DCO	FR			S	3	2	C	0	0	0	0	0	0	E	
		DCO	NBC			S	3	2	C	0	0	0	0	0	0	E	
		DCO	MB		943	S	3	2	C	2	0	2	0	2	0	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		FOG AND WIND
7/27	900	DCO	SP	940		S	5	3	C	0	0	0	0	0	0	E	
		DCO	SB			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FP			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FB		958	S	5	3	C	0	0	0	0	0	0	E	
		SKS	CG	923		S	5	3	C	0	0	0	0	0	0	E	
		SKS	BC			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FR			S	5	3	C	0	0	0	0	0	0	E	
		SKS	NBC			S	4	2	C	0	0	0	0	0	0	E	
		SKS	MB		944	S	4	2	C	0	0	0	0	0	0	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		TOOK KIDS ON TRAVERSE TRAIL- WINDY
7/28	900	SKS	SP	923		S	4	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	3	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	3	3	C	0	0	0	0	0	0	E	
		SKS	FB			S	4	3	C	0	0	0	0	0	0	E	
		SKS	CG			S	4	3	C	0	0	0	0	0	0	E	
		SKS	BC			S	4	2	C	0	0	0	0	0	0	E	
		SKS	FR			S	3	3	C	0	0	0	0	0	0	E	
		SKS	NBC			S	3	2	C	0	0	0	0	0	0	E	
		SKS	MB			S	3	2	C	1	3	1	3	1	3	E	
		SKS	WM		1106	S	3	2	C	0	0	0	0	0	0	E	
7/29	1700		SP				6	3		0	0						Heavy wind and surf all day. no walrus seen on the island at all
			SB				6	3		0	0						

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
			FP				6	3		0	0						
			FB				6	3		0	0						
			CG				6	3		0	0						
			BC				6	3		0	0						
			FR				6	3		0	0						
			NBC				6	3		0	0						
			MB				6	3		0	0						
			WM														
7/30	1400	DCO	SP	1718		S	3	1	C	0	0	0	0	0	0		
		DCO	SB			S	3	1	C	0	0	0	0	0	0		
		DCO	FP			S	3	1	C	0	0	0	0	0	0		
		DCO	FB		1754	S	3	1	C	1	0	1	0	1	0		
		SKS	CG			B	3	1	C	0	0	0	0	0	0		
		SKS	BC	1330		B	3	1	C	0	0	0	0	0	0		
		SKS	FR			B	3	1	C	0	0	0	0	0	0		
		SKS	NBC			B	3	1	C	0	0	0	0	0	0		
		SKS	MB		1445	B	3	1	C	200	0	200	0	200	0		15 people off island
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		
7/31	1700	SKS	SP	1712		S	3	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	3	1	C	0	0	0	0	0	0	E	
		SKS	FP			S	3	1	C	0	0	0	0	0	0	E	
		SKS	FB			S	3	1	C	0	0	0	0	0	0	E	
		SKS	CG			S	3	0	C	1	0	1	0	1	0	E	
		SKS	BC		1741	S	3	0	C	0	0	0	0	0	0	E	
		DCO	FR	1630		S	3	1	C	0	0	0	0	0	0	E	
		DCO	NBC			S	3	1	C	0	0	0	0	0	0	E	
		DCO	MB			S	3	1	C	220	15	230	15	200	15	G	
		DCO	WM		1821	S	3	1	C	0	0	0	0	0	0	E	
8/1	1400	DCO	SP	1400		S	2	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	2	1	C	0	0	0	0	0	0	E	
		DCO	FP			S	2	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	FB		1423	S	2	1	C	0	0	0	0	0	0	E	
		SKS	CG	1415		S	2	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	2	1	C	1	0	1	0	1	0	E	
		SKS	NBC			S	2	0	C	0	0	0	0	0	0	E	
		SKS	MB			S	2	1	C	255	16	255	17	265	14	G	
		SKS	WM		1516	S	2	1	C	0	0	0	0	0	0	E	
8/2	900	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		High winds
8/3	900	SKS	SP		947	S	5	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FB	858		S	5	3	C	0	0	0	0	0	0	E	
		DCO	CG	914		S	5	3	C	0	0	0	0	0	0	E	
		DCO	BC			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FR			S	5	3	C	0	0	0	0	0	0	E	
		DCO	NBC			S	5	2	C	0	0	0	0	0	0	E	
		DCO	MB		934	S	5	2	C	0	0	0	0	0	0	E	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	too windy
8/4	1400	DCO	SP		1416	S	5	3	C	0	0	0	0	0	0	E	
		DCO	SB			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FP			S	5	3	C	0	0	0	0	0	0	E	
		DCO	FB	1400		S	5	3	C	0	0	0	0	0	0	E	
		SKS	CG	1406		S	5	3	C	0	0	0	0	0	0	E	
		SKS	BC			S	5	3	C	0	0	0	0	0	0	E	
		SKS	FR			S	5	3	C	0	0	0	0	0	0	E	
		SKS	NBC			S	5	3	C	0	0	0	0	0	0	E	
		SKS	MB		1427	S	5	3	C	0	0	0	0	0	0	E	
		SKS	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	fog
8/5	900	SKS	SP		950	S	2	2	C	0	0	0	0	0	0	E	
		SKS	SB			S	2	1	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		SKS	FP			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FB	916		S	2	2	C	5	0	5	0	5	0	E	
		DCO	CG	914		S	2	1	C	0	0	0	0	0	0	E	
		DCO	BC			S	2	1	C	0	0	0	0	0	0	E	
		DCO	FR			S	2	1	C	0	0	0	0	0	0	E	
		DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
		DCO	MB			S	2	1	C	80	4	85	4	80	4	G	
		DCO	WM		1057	S	2	2	C	0	0	0	0	0	0	E	
8/6	1400	DCO	SP		1421	S	3	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	3	1	C	2	0	2	0	2	0	E	
		DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FB	1405		S	3	1	C	0	0	0	0	0	0	E	
		SKS	CG	1407		S	3	2	C	0	0	0	0	0	0	E	
		SKS	BC			S	3	2	C	0	0	0	0	0	0	E	
		SKS	FR			S	3	2	C	0	0	0	0	0	0	E	
		SKS	NBC			S	3	1	C	0	0	0	0	0	0	E	
		SKS	MB			S	3	1	C	96	17	96	10	106	10	G	
		SKS	WM		1527	S	3	3	C	0	0	0	0	0	0	E	
8/7	1400	SKS	SP		1446	S	3	3	C	0	0	0	0	0	0	E	
		SKS	SB			S	3	3	C	0	0	0	0	0	0	E	
		SKS	FP			S	3	3	C	0	0	0	0	0	0	E	
		SKS	FB			S	3	3	C	0	0	0	0	0	0	E	
		SKS	CG			S	3	2	C	0	0	0	0	0	0	E	
		SKS	BC	1400		S	3	2	C	0	0	0	0	0	0	E	
		DCO	FR	1407		S	2	1	C	0	0	0	0	0	0	E	
		DCO	NBC			S	2	1	C	0	0	0	0	0	0	E	
		DCO	MB			S	2	1	C	180	0	210	0	160	0	G	
		DCO	WM		1516	S	2	1	C	0	0	0	0	0	0	E	
8/8	1700	DCO	SP	1753		S	1	0	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	0	C	2	0	2	0	2	0	E	
		DCO	FP			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	FB		1910	S	1	0	C	0	0	0	0	0	0	E	
		SKS	CG		1904	S	2	0	C	0	0	0	0	0	0	E	
		SKS	BC			S	2	0	C	0	0	0	0	0	0	E	
		SKS	FR			S	2	0	C	0	0	0	0	0	0	E	
		SKS	NBC			S	2	0	C	0	0	0	0	0	0	E	
		SKS	MB			S	2	0	C	300	14	270	15	270	11	G	
		SKS	WM	1746		S	2	1	C	0	0	0	0	0	0	E	
8/9	1700	SKS	SP		1715	S	2	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	2	0	C	0	0	0	0	0	0	E	
		SKS	FP			S	2	0	C	0	0	0	0	0	0	E	
		SKS	FB	1702		S	2	0	C	0	1	0	1	0	1	E	
		DCO	CG	1701		S	2	1	C	0	0	0	0	0	0	E	
		DCO	BC			S	2	0	C	0	0	0	0	0	0	E	
		DCO	FR			S	2	0	C	0	0	0	0	0	0	E	
		DCO	NBC			S	2	0	C	0	0	0	0	0	0	E	
		DCO	MB			S	2	0	C	100	0	100	0	90	0	G	
		DCO	WM		1804	S	2	1	C	0	0	0	0	0	0	E	
8/10	900	DCO	SP	917		S	3	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FB		931	S	3	1	C	0	0	0	0	0	0	E	
		SKS	CG	911		S	4	3	C	0	0	0	0	0	0	E	
		SKS	BC			S	4	3	C	0	0	0	0	0	0	E	
		SKS	FR			S	4	3	C	0	0	0	0	0	0	E	
		SKS	NBC			S	4	3	C	0	0	0	0	0	0	E	
		SKS	MB		930	S	4	2	C	4	2	4	2	4	2	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC			too windy
8/11	1400	DCO	SP	1407		S	1	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	1	1	C	0	0	0	0	0	0	E	
		DCO	FP			S	1	0	C	0	0	0	0	0	0	E	
		DCO	FB			S	1	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	CG			S	1	0	C	0	0	0	0	0	0	E	
		DCO	BC		1439	S	1	0	C	0	0	0	0	0	0	E	
		SKS	FR	1408		S	1	0	C	0	12	0	12	0	12	E	
		SKS	NBC			S	1	0	C	0	0	0	0	0	0	E	
		SKS	MB			S	1	0	C	0	19	0	19	0	21	G	small groupings >10m estimated ~90-100 inds
		SKS	WM		1503	S	1	1	C	0	0	0	0	0	0	E	
8/12	1700	DCO	SP		1722	S	4	2	C	0	0	0	0	0	0	E	
		DCO	SB			S	4	2	C	0	0	0	0	0	0	E	
		DCO	FP			S	4	2	C	0	0	0	0	0	0	E	
		DCO	FB	1705		S	4	2	C	0	0	0	0	0	0	E	
		SKS	CG	1702		S	4	1	C	0	0	0	0	0	0	E	
		SKS	BC			S	4	1	C	0	0	0	0	0	0	E	
		SKS	FR			S	4	1	C	0	0	0	0	0	0	E	
		SKS	NBC			S	4	1	C	0	0	0	0	0	0	E	
		SKS	MB		1724	S	4	1	C	172	4	182	4	152	4	G	
			WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		packing camp
8/13	1400	DCO	SP	1418		S	3	1	C	0	0	0	0	0	0	E	
		DCO	SB			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FP			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FB			S	3	1	C	0	0	0	0	0	0	E	
		DCO	CG			S	3	1	C	0	0	0	0	0	0	E	
		DCO	BC			S	3	1	C	0	0	0	0	0	0	E	
		DCO	FR			S	3	1	C	0	0	0	0	0	0	E	
		DCO	NBC			S	3	1	C	0	0	0	0	0	0	E	
		DCO	MB		1504	S	3	1	C	0	0	0	0	0	0	E	
		DCO	WM	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC		too foggy
8/14	900	SKS	SP		929	S	2	1	C	0	0	0	0	0	0	E	
		SKS	SB			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FP			S	2	1	C	0	0	0	0	0	0	E	
		SKS	FB	1918		S	2	1	C	0	0	0	0	0	0	E	
		DCO	CG	812		S	2	0	C	0	0	0	0	0	0	E	

Date	Time	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	Land count #1	Water count #1	Land count #2	Water count #2	Land count #3	Water count #3	Count Quality	COMMENTS
		DCO	BC			S	2	0	C	0	0	0	0	0	0	E	
		DCO	FR			S	2	0	C	0	0	0	0	0	0	E	
		DCO	NBC			S	2	0	C	0	0	0	0	0	0	E	
		DCO	MB			S	2	0	C	1	6	1	6	1	6	E	
		DCO	WM		921	S	2	1	C	0	0	0	0	0	0	E	

Walrus count observers: *DCO = Diane Calamar Okonek, MLS = Marian Snively, SKS = Stephanie Sell*

Appendix C. 2009 USFWS walrus counts of other Bristol Bay haulouts compared to Round Island counts.

Date	Hagemeister Is.	Cape Peirce	Cape Newenham	Round Island
5/15/2009		0	0	46
6/19/2009		7		515
6/20/2009		2		121
6/23/2009	851	0	0	451
6/25/2009		2		910
6/26/2009		3		619
6/29/2009		1		453
6/30/2009		5		871
7/1/2009		4		543
7/2/2009		1		446
7/5/2009		8		481
7/6/2009		8		248
7/7/2009		8		234
7/30/2009		61		201
7/31/2009		59		236
8/1/2009				272
8/5/2009	532			89
8/19/2009	84	166	0	

Appendix D. Steller sea lion monitoring, East Cape, Round Island, Alaska 2009

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
5/14	1947-2020	16/3	2/0	22/0	NC	40	3	43	A230	Y	100	no V4 ct.
5/15	1728-1802	4/3	0/0	11/0	NC	15	3	18	A420	Y	100	no V4 ct.
5/16	1222-1315	0/1	0/0	36/3	3/7	39	11	50	none	NA	NA	
5/17	820-900	14/6	0/0	4/11	0/17	18	34	52	A420	Y	100	
5/18	1736-1803	17/0	0/0	21/0	27/6	65	6	71	A286	Y	100	
5/19	0910-1000	13/2	0/4	25/1	4/2	42	9	51	A420	Y	100	
5/20	0902-0940	27/4	0/0	28/1	8/0	63	5	68	A462	Y	100	
5/21	1048-1228	54/0	35/0	0/0	6/1	95	1	96	Y16	Y	100	
									A230	Y	100	
									A345	Y	100	
5/22	1724-1808	21/0	47/0	0/0	69/2	139	0	139	A230	Y	100	
									A372	Y	100	
5/23	NC											
5/24	1010-1135	61/6	6/1	33/0	20/18	120	25	145	A113	Y	100	
									Y16	Y	100	
									A332	Y	100	
									A345	Y	100	
									A256	Y	100	
									A230	Y	100	
									A462	Y	100	
									A253	Y	100	
									RED FLIPPER TAG	N		
5/25	1306-1403	39/12	8/0	27/6	28/4	102	22	124	A420	Y	100	
									A256	Y	100	
5/26	1303-1410	57/12	7/1	31/0	12/35	107	48	155	A291	Y	100	
									A415	Y	100	
									A358	Y	100	
									A420	Y	100	
5/27	1148-1255	109/0	0/0	21/0	15/7	145	7	152	X3	Y	100	
									A291	Y	100	
									A234	Y	100	

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
									Y16	Y	100	
									A462	Y	100	
									A113	Y	100	
5/28	1313-1445	71/19	12/2	26/0	26/22	135	43	178	A358	Y	100	
									A415	Y	100	
									V16	Y	100	
5/29	1325-1421	54/5	7/0	32/3	37/5	130	13	143	A256	Y	100	
									A420	Y	100	
									A462	Y	100	
									A253	Y	100	
5/30	1205-1230	58/2	8/0	24/0	13/1	103	3	106	A372	Y	100	
5/31	NC											
6/1	0900-0920	0/9	0/0	18/0	0/0	18	9	27	A462	y	100	
6/2	1230-1325	0/0	23/1	10/0	0/3	33	4	37	A256	Y	100	
6/3	1317-1358	36/0	23/0	31/1	7/6	97	7	104	A332	Y	100	
									A420	Y	100	
									A256	Y	100	
									A462	Y	100	
6/4	1010-?	0/0	19/2	26/2	0/10	45	14	59	A291	Y	75	
6/5	1010-1040	0/0	25/0	36/0	0/0	61	0	61	A332	Y	100	
									A256	Y	100	
6/6	1410-1450	1/0	47/0	35/0	6/0	89	0	89	A256	Y	100	
									A420	Y	100	
6/7	1141-1245	14/17	33/6	23/8	15/15	85	46	131	A332	Y	100	
									A256	Y	100	
6/9	1615-1655	0/2	21/11	27/8	47/20	74	41	115	A420	Y	100	
									A332	Y	100	
									A378	Y	100	
6/10	1613-1655	4/0	29/2	25/2	35/13	93	17	110	A420	Y	100	
									A256	Y	100	
6/11	1318-1350	9/0	1/0	12/0	19/0	41	0	41	none			
6/12	NC											
6/13	1300-1326	4/0	12/2	22/0	17/20	55	22	77	none			
6/14	NC											

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
6/15	1400-1430	0/0	19/6	34/4	17/20	70	30	100	A420	Y	100	
									A253	Y	100	
									A256	Y	100	
6/16	1459-1527	0/0	23/0	33/0	88/4	144	4	148	A286	y	100	
6/17	1152-1220	8/0	2/0	27/0	3/0	40	0	40	A253	y	100	
									A420	y	100	
6/18	953-1020	32/2	6/0	23/3	2/1	63	6	69	none			
6/19	NC											
6/20	835-851	51/0	13/0	15/1	0/0	79	1	80	none			
6/21	1348-1448	84/0	32/0	38/0	3/0	157	0	157	A345	y	100	
									A332	y	100	
									A420	y	100	
									A415	y	100	
6/22	1346-1445	69/0	29/0	43/0	1/0	142	0	142	A253	y	100	
									A415	y	100	
									A378	y	100	
									M618	y	100	
									A345	y	100	
									A332	y	100	
									A420	y	100	
6/23	NC											
6/24	1330-1445	7/3	40/0	28/3	0/0	75	6	81	M618	y	100	
									entanglement	y		
6/25	1515-1540	2/0	38/6	31/7	20/12	91	25	116	none			
6/26	1456-1531	0/7	34/15	34/6	51/28	119	56	175	A358	y	100	
									A415	y	100	
									A345	y	100	
									A332	y	100	
									A420	y	100	
6/27	950-1020	0/1	29/3	20/0	13/2	62	6	68	A332	y	100	
									T237	y	100	
									A420	y	100	
									wound	y		

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
6/28	1551-1640	0/0	36/3	39/2	78/5	153	10	163	A372	y	100	
									A358	y	100	
									M618	y	100	
6/29	1540-1630	0/0	38/6	33/1	100/18	171	25	196	A378	y	100	
									A372	y	100	
									T237	y	100	
6/30	1752-1839	0/0	44/5	40/4	91/22	175	31	206	A415	y	100	
									A372	y	100	
									A332	y	100	
									M618	y	100	
									A358	y	100	
									A430	y	100	
									T237	y	100	
									A378	y	100	
7/1	NC								nc			
7/2	1120-1150	0/0	20/16	33/11	11/69	64	96	160	A415	y	100	
									A332	y	100	
									A420	y	100	
									T237	y	100	
7/3	1036-1058	1/18	12/1	13/0	0/35	26	54	80	none			
7/4	1650-1730	0/2	37/1	47/2	56/5	140	10	150	A420	y	100	
									M618	y	100	
									T237	y	100	
7/5	1058-1135	52/7	45/5	24/6	30/10	151	28	179	none			
7/6	1519-1609	32/2	31/12	31/2	36/2	130	18	148	T237	y	100	
									M618	y	100	
7/7	1414-1510	26/0	29/1	27/2	7/0	89	3	92	none			
7/8	1431-1508	1/0	35/6	25/0	37/12	98	18	116	A358	y	100	
									M618	y	100	
									A345	y	100	
7/9	1610-1705	0/0	28/4	35/2	53/19	116	25	141	A358	y	100	
									M618	y	100	
									T237	y	100	
7/10	1420-1510	0/0	23/7	35/6	64/25	122	38	160	M618	y	100	

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
7/11	930-1020	27/2	18/5	19/0	13/16	77	23	100	A372	y	100	
									A430	y	100	
7/12	1435-1510	0/1	24/0	23/0	87/9	134	10	144	none			T1 ct not including animals on the top rim of left most rock seen from T1
7/13	1140-1208	0/0	15/1	2/2	2/0	19	3	22	none			
7/14	1545-1635	0/0	31/0	43/0	69/3	143	3	146	M618 earlier			
7/15	1630-1708	0/0	41/0	38/2	109/2	188	4	192	A430	y	100	
									M618	y	100	
									T237	y	100	
7/16	1130-1205	56/5	12/3	14/3	31/35	113	46	159	A358	y	100	
									A345	y	100	
									T237	y	100	
									M618	y	100	
7/17	1430-1518	71/0	17/0	27/0	14/0	129	0	129	none			
7/18	1305-1400	72/0	45/0	32/0	0/10	149	10	159	M618	y	100	
									A345	y	100	
									A340	y	100	
7/19	1025-1102	63/0	32/0	15/0	0/5	110	5	115	A358	y	100	
									M618	y	100	
7/20	1500-1600	106/1	31/2	40/0	0/0	177	3	180	M618	y	100	
									A345	y	100	
7/21	NC											
7/22	1120-1154	62/27	38/2	51/2	0/26	151	57	208	A345	y	100	
7/23	NC											
7/24	1047-1115	68/2	51/0	44/2	12/2	175	6	181	M618	y	100	
7/25	1530-1550	4/0	25/0	60/2	5/0	94	2	96	none			Lauri Jemison ct
7/26	NC											

Date	Start/Finish Time	View 1 land/water	View 2 land/water	View 3 land/water	View 4 land/water	Total land	Total water	Total	Brand	Photo	% Certain	Comments
7/27	NC											
7/28	1453-1540	0/0	58/0	48/2	131/27	237	29	266	A358	y	100	
									A434	y	100	
7/29	NC											
7/30	1720-1800	0/0	73/0	63/0	91/0	227	0	227	none			
7/31	1110-1123	53/2	35/5	70/2	8/8	166	17	183	M618	n	100	
8/1	1315-1345	69/8	41/6	55/0	18/6	183	20	203	M618	y	100	
									A434	n	100	
8/2	NC											
8/3	1006-1033	33/2	44/0	60/0	0/43	137	45	182	A358	y	100	
									A420	y	100	
									A434	y	100	
8/4	1430-1505	80/5	30/0	52/5	0/17	162	27	189	A430	y	100	
									A358	y	100	
8/5	1013-1059	78/0	62/0	63/0	0/4	203	4	207	A420	n	100	
									A434	y	100	
									A358	y	100	
8/6	1430-1510	90/0	39/0	60/0	5/9	194	9	203	A434	y	100	
									M618	y	100	
8/7	1506-1536	70/2	61/2	41/3	0/19	172	26	198	none			
8/8	1733-1753	0/0	38/8	62/10	44/16	144	34	178	A420	n	100	
8/9	1735-1810	0/0	42/9	50/3	16/18	108	30	138	A358	Y	100	
									A430	Y	100	
8/10	1415-1450	0/0	49/8	42/4	82/21	173	33	206	A434	Y	100	
									A358	Y	100	
8/11	NC											
8/12	1735-1754	0/0	39/2	41/0	0/12	80	14	94	M618	n	100	
8/13	NC											
8/14	944-1009	64/2	46/1	58/1	3/54	171	58	229	A434	y	100	
									A358	y	100	

Appendix E. Productivity data from 3 species of seabirds on Round Island.

2009 BLKI Productivity Plot 2 - Observation Point

Nest #	6/7	6/9	6/11	6/14	6/17	6/20	6/23	6/25	6/28	7/1	7/4	7/7	7/10	7/14	7/18	7/22	7/24
1	e1	e1	B	B	B	B	N	IP	N	N	N	N	N	N	N	N	N
2	e1	e1	e1	IP	e1	IP	e1	e1	IP	e1	c1	e1c1	e1c1	P	N	N	N
3	e1	e1	B	N	N	N	N	N	N	N	N	N	N	N	N	N	B
4	e1	e1	e2	IP	e2	IP	e2	e2	IP	e2	e2	e1c1	c1	c1	dead	N	e1 old
5	e1	e1	e2	e2	e2	e2	IP	e1	e1+	e2	e1+	e1c1	c1	c1	c1	N	N
6		e1	e2	e2	e2	IP	e2	e2	e2	e2	e1+	c1	N	N	N	N	N
7			e1	e1+	e1	e1	e2	e2	e2	e2	e1+	e1	c1	c1	bp	N	N
8			e1	e2	e2	IP	e1	e1	IP	e1	B	B	B	N	N	N	B
9			e1	e2	e1+	IP	e1+	e2	e2	e1	e2	IP	c1	c1	dead	N	B
10			e1	e1	IP	e2	e2	B	B	B	B	B	B	N	B	N	B
11			e1	e1	e1	e2	e2	IP	IP	e1+	e1c1	e1c1	e1c1	e1c1	c2	N	B
12			e1	IP	e1	B	B	B	B	B	B	B	B	N	N	N	B
13			e1	IP	e2	e1+	e2	IP	e2	e2	c1	c1	c1	c1	c1	c1	dead
14			e1	e2	e2	e1	e2	e1+	e2	e2	IP	e2	c1	c1	c1	N	B
15			e2	IP	e1	IP	IP	IP	IP	e1	e1+	e1	B	B	N	N	B
16				e2	IP	IP	IP	e2	IP	e2	c1	c1	c1	c1	c1	c1	dead
17				e2	e2	P	IP	e1	e1	e1	e1	B	N	B	N	N	B
18				e1	IP	e2	e2	e1+	e2	e2	IP	IP	IP	P	dead	N	N
19					e2	e2	IP	e2	e2	e2	e2	IP	c1	c1	N	N	B
20					e1+	IP	e1	IP	IP	e1	IP	IP	IP	e1c1	B	N	B
21					e2	IP	IP	IP	IP	e2	IP	e1c1	c1	c1	c1	N	B
22					e2	e2	N	IP	IP	B	B	B	B	B	B	N	B
23					e1	B	B	B	B	B	N	N	N	N	N	N	N
24					e2	e2	IP	e2	IP	e2	e2	c1	c1	c1	N	N	B
25					e1+	e1+	e1+	B	B	B	B	B	B	B	N	N	B

2009 BLKI Productivity Plot 3 - Observation Point

Nest #	6/6	6/7	6/9	6/11	6/14	6/17	6/20	6/23	6/25	6/28	7/1	7/4	7/8	7/10	7/14	7/18	7/22	7/24	7/25	7/27	7/31
1	e1	e1	e1	e2	IP	IP	e1+	IP	e1	IP	P	P	P	P	P	P	N	N	N	N	N
2	e1	e1	e1	e1+	IP	e2	e1+	IP	e1	e1	c1	c1	c1	c1	c1	c1	N	B	N	N	N
3	e1	e1	e1	e1	e1+	e1+	P	e1	e1	e1	e1	e1	c1	bp	bp	B	N	B	N	N	N
4	e1	e1	e1	e1	e2	IP	IP	e2	e2	IP	e2	c2	c1+	c1	c1	c1	c1	c1	c1	c1	dead
5	e1	e1	e2	e1	e1+	IP	IP	e2	IP	e1+	e2	e1	N	N	N	N	N	B	N	N	N
6		e1	e1	e2	e2	e1+	IP	e1	IP	IP	e1	IP	c1	c1	bp	bp	N	B	N	N	N
7		e2	IP	e2	e2	IP	e1+	IP	IP	IP	e1	c1	c1	bp	P	c1	c1	P	N	N	N
8		e1	e1	e1	e1	e1	IP	e1	IP	IP	e1	e1	N	N	N	N	N	N	N	N	N
9		e1	e1	e2	e2	e2	IP	e2	e2	IP	e2	e2	c1+	c1+	c1	c1	dead	B	N	N	N
10			e1	e2	e2	e1+	e2	e2	e2	e1+	e1	IP	c1	c1	e1c1	c1	dead	N	N	N	N
11			e1	P	IP	e1	B	B	B	B	N	B	B	BP	bp	N	N	N	N	N	N
12			e1	e2	IP	IP	e2	e2	IP	IP	e2	e2	IP	e1c1	c1	c1	dead	N	N	N	N
13			e1	IP	e1	e1	e1	e1	e1	e1	e1	e1	IP	IP	c1	N	N	B	N	N	N
14			e1	IP	e2	e2	e1+	e1	IP	IP	e2	e1+	IP	e1c1	e1c1	e1	N	B	N	N	N
15			e1	IP	deleted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16			e2	e2	e2	IP	e2	IP	e2	IP	e2	e2	e1c1	e1c1	e1c1	e1c1	c1	e1c1	dead	N	N
17			e1	e2	IP	e1+	IP	e2	e2	e2	IP	e2	IP	e1c1	c1	e1c1	N	B	N	N	N
18			e1	e2	e2	e2	e2	IP	e1+	IP	IP	B	N	B	bp	B	N	B	N	N	N
19			e1	e1	e1	e1	e1	e1	e1	e1	e1	e1	IP	c1	c1	N	N	N	N	N	N
20				e1	e2	e1	e1	e1	IP	IP	e1	e1	c1	c1	bp	N	N	B	N	N	N
21				e1	e2	e2	e2	IP	IP	IP	IP	e1	IP	c1	c1	c1	N	B	N	N	N
22				e2	e1+	e2	e1+	IP	B	B	N	N	N	B	B	N	N	B	N	N	N
23				e1	e1	B	N	N	N	B	N	N	N	N	N	N	N	B	N	N	N
24				e1	e2	e2	e2	e2	IP	IP	e2	e1+	IP	IP	IP	e1c1	N	N	N	N	N
25					e1	B	N	N	N	B	N	N	N	N	N	N	N	N	N	N	N
26					e2	e1	e1	IP	IP	IP	IP	IP	IP	c1	bp	c1	N	N	N	N	N

N=empty nest and is used when the egg or chick that was in the nest has been lost and the adult was not present.

B= Bird, Adult bird occupying a site, with no egg or chick present. Used when observer is sure the bird has no egg or chick.

P= Bird, present and don't know if egg or chick present (this is recommended by Byrd and Dragoo but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as Eded (dead egg).

C= Chick, Chick present. C3 (three chicks) C3+ (three chicks plus possibly more).

F= Chick fledged (chick left the nest, survival unknown)

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2009 PECO Productivity First Beach (FB) North													
Nest #	5/26	5/27	5/28	5/29	5/30	6/1	6/3	6/5	6/9	6/11	6/14	6/17	6/19
1	e1	e1	e2	e3	e3	e3	IP	e3	e3	e3	IP	e3	e3
2	e1	e1	e1+	e3	IP	IP	e3	e3	e2+	e2+	IP	e2+	e3
3	e2	e2	e1+	e3	IP	e3+	e3+	e4	e1+	e4	e3+	e3	e2+
4	e2	e2	e3	e3	e3	e3	e4	e4+	e3+	e3+	e4	e2+	e4
5	e1	e1	e1+	e3	e3	e3+	e3	e3	e3	e3+	e2+	e1+	e1
6	e2	e2	e3	e3	IP	e4	e4	e4	e2+	e4	e3	e4	e4+
7	e1	e1	e2	e2	e3	e3	e4	e3+	e4	e4	e3	e3	e4
8			e1	e1	e2	e2	e4	e4	e2+	e3+	e3	e3	e3+
9					e1	e2	e3	e3	e3	e3	e3	e3	e3+
10							e3	e3	e3+	e3	e3	e3	e3
11							e1	e2	e1+	e3	e3+	e3	e1+
12							e1	e2+	e3	e3	IP	e2+	e3
13							e1	e2+	e2+	e2+	e3	IP	e2+
14							e3	N	N	N	N	N	N
Nest #	6/23	6/26	6/29	7/2	7/5	7/8	7/11	7/14	7/18	7/22	7/24	7/27	7/31
1	e3	e1+c1	e2c1	e?c1	e2c1	e2c1	e1c1	c1	c1	c1	c1	c1	c1
2	e1+	e?c1	c3	c3	c3	c3	c3	c3	c3	c3 dead	N	N	N
3	IP	e?c1	c3+	c4	c4	c4	c4	c4	c4	c3 dead c1	B	c2 dead c1	c1
4	e2+	e1c3	c2+	c3+	c3+	c2+	c3	c3	c3	c3	c3	c3	c3
5	e1	IP	c2	c2	c2	c3	c3	c3	c3	c3	c3	c3	c3
6	e1+c2	e1c2+	c2+	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c3
7	IP	e2c2	c2+	BP	c1+	c2	c2	c2	c2+	c3	c2	c3	c3
8	e4	e?c1	e2c2	c1+	e1c2+	c3	c3	c3	c3	c2+	c2	c2	c2
9	e3	e2+	e1c2+	BP	c4	BP	BP	c2	c2	c2	c2	c2	c2
10	e1+	e2+	e3	IP	c1+	c1+	c2	c3	c3	c2+	c2+	c2	c dead c1
11	e2+	e2+	IP	e4	e1c2+	c1+	BP	c2	c2	c1+	c2 dead	N	N
12	e3	e3	e1c2+	IP	e1c1	c2	BP	c2+	c2+	BP	c3	c dead c2	c2
13	IP	e2+	e2+	IP	c1+	c2+	c3	c3	c3	c2+	c3	c3	c3
14	N	N	N	N	N	N	N	N	N	N storm 7/21	N	N	N
Nest #	8/3	8/5	8/7	8/9	8/10	8/12	8/13						
1	c1	c1	c1	c1	c1	c1	c1						
2	N	N	N	N	N	N	N						
3	c1	c dead	B	N	N	N	N						
4	c3	c3	c3	c3	c3	f3	c2						
5	c3	c3	c3	c3	c3	c3	c3						
6	c3	c3	c3	c3	f2c1	f2c1	c3						
7	c3	c3	c3	c3	c3	c3	c3						
8	c2	c2	c2	c2	c2	c2	f1c1						
9	c2	c2	c2	c2	c2	c2	c2						
10	c1	c1	c1	c1	c1	c1	c1						
11	N	N	N	N	N	N	N						
12	c2	c2	c2	c2	c2	c2	c2						
13	c2+	c2+	c3	c2+	c3	c3	c3						
14	N	N	N	N	N	N	N						

N=empty nest and is used when the egg or chick that was in the nest has been lost and the adult was not present.

B= Bird, Adult bird occupying a site, with no egg or chick present. Used when observer is sure the bird has no egg or chick.

P= Bird, present and don't know if egg or chick present (this is recommended by Byrd and Dragoo but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as Eded (dead egg).

C= Chick, Chick present. C3 (three chicks) C3+ (three chicks plus possibly more).

F= Chick fledged (chick left the nest, survival unknown)

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2009 Pelagic Commorant Productivity First Beach (FB) South																			
Nest #	5/21	5/22	5/23	5/25	5/26	5/27	5/28	5/29	5/30	6/1	6/3	6/5	6/9	6/11	6/14	6/17	6/19	6/23	6/26
1	e1	e2	e2	e3	e3	e2+	e2+	e3	IP	e3	e3	e3	e3	e3	e3	e3	e3	c3	c3
2	e1	e1	e2	e2+	IP	e3	e3	e2+	IP	IP	IP	e3	e3	e2+	IP	e2+	IP	e2	c2+
3			e1	e1	e2	e2	e2	e2+	IP	e1+	e2	IP	e2+	e2+	e2+	e1+	IP	e2	e1+c1
4			e1	e2+	e2	e3	e3	N	B	N	N	N	N	N	N	N	N	N	N
5			e1	e1	e2	e2	e3	e3	B	N	N	B	e2+	B	N	N	N	N	N
6				e1	e1	e1	e2	e2+	IP	IP	e4	e2+	e3	e3	IP	e2+	e4	e4	e1+c1
7				e1	e2	e2	e1+	e3	IP	e1+	e4	e3+	IP	e2+	e3+	IP	e1+	e1+	e1+c1
8				e1	IP	e1	e1+	e2+	e1	e3	e3	e2+	e4	e2+	e2+	IP	e2+	P	P
9				e1	e1	e2	N	N	N	N	N	N	N	N	N	N	N	N	N
10				e2	e3	e3	e3	N	B	N	B	B	e2+	N	N	B	N	N	N
11				e1	e1	e1	e2	N	N	N	N	N	N	N	N	N	N	N	N
12						e2	e2	e2	IP	e2	IP	e2	e2+	e2+	e3+	IP	e3	e1+	e2+c1
13							e1	e1	B	e2	IP	e2+	e3	e2+	e1+	e2	e2	e1+	e3
14							e1	e1	IP	e2	e2	e2	e2+	e3	e2+	IP	e2	e2	e2
15							e1	N	N	N	N	N	N	N	N	N	N	N	N
16							e1	e1	IP	e1+	e2	e2	IP	e1+	e1+	IP	e2	e2	e2c1
17								N	IP	N	B	B	N	N	N	N	N	N	N
18								e1	IP	e1+	IP	e2	e3	e2+	e2+	e1+	e2	e2	e2
19								e1	e1	e1	e1	e1	e2	e2	e3	e3	e3	e2+	e3
20										N	B	B	e2	e3	IP	IP	e2	e1+	e3
21											e1	e1	e2	e3	e1+	IP	e1+	e2	e3
22											e1	e1	e2	e3	IP	IP	e2+	e2	e2
23											e1	e1	e1+	e1+	e1+	e1	e1+	e2	e2
Nest #	6/29	7/1	7/5	7/8	7/11	7/14	7/18	7/22	7/24	7/27	7/31	8/3	8/5	8/7	8/9	8/10	8/12	8/13	
1	c3	c3	c3	c3	c3	c3	c3	c3	c2	c2	c2	c2	c2	c2	f1c1	f1c1	f1c1	f2	
2	c2+	c4	c2+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	f1c3	f2c2	f2c2	
3	c2+	BP	c2+	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
5	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
6	c1+	c4	c4	c4	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	f1c3	
7	c1+	c3	c2+	c2+	c3	c3	c3	c3	c3	c3	c3	c3	f1c2	f1c2	f1c2	f1c2	f1c2	f1c2	
8	e3	e2+	c2+	c2	c2	e1c3	c3	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	
9	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
10	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
11	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
12	c2+	BP	c1+	c1+	c3	c3	c3	c2+	c3	dead c2	c2	c2	c2	c2	c2	f1c1	f2	c1	
13	e2c1	c2	c2	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	
14	c1+	c1+	c1+	c2	c3	c3	c3	c3	c3	c3	c2	c2	c2	c2	c2	f1c1	f1c1	f1c1	
15	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
16	e2+	c1	c2	c3	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	f1c3	f1c3	f1c3	
17	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
18	e3	e1c1	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	
19	c1+	c1+	c1+	c1+	c3	c3	c3	c2+	c3	c3	c2	c2	c2	c2	c2	c2	c2	c2	
20	e3	e3	e3	e2c1	c1+	e1c2	c2	BP	c1+	c1	c1	c1	c1	c1	c1	c1	c1	c1	
21	e3	c1	c1	e1c1	c1+	c3	c3	c2+	c3	dead c2	c1	c1	c1	c1	c1	c1	c1	c1	
22	IP	IP	c1+	c1+	c1+	c2	c2	BP	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	
23	e1c1	c1	c1+	c1+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	

N=empty nest and is used when the egg or chick that was in the nest has been lost and the adult was not present.

B= Bird, Adult bird occupying a site, with no egg or chick present. Used when observer is sure the bird has no egg or chick.

P= Bird, present and don't know if egg or chick present (this is recommended by Byrd and Dragoo but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as Eded (dead egg).

C= Chick, Chick present. C3 (three chicks) C3+ (three chicks plus possibly more).

F= Chick fledged (chick left the nest, survival unknown)

BP= Brooding posture

IP= Incubating posture

Appendix E. continued

.

2009 COMU Productivity Plot 1 - Observation Point

Nest #	6/16	6/17	6/19	6/22	6/25	6/28	7/1	7/3	7/7	7/10	7/14	7/18	7/22	7/24
1	e1	e1	e1	B	N	N	N	N	N	N	N	N	N	
2		e1	e1	B	e1	IP	e1	N	N	N	B	N	N	
3		e1	e1	B	N	B	B	N	N	B	B	B	N	
4			e1	P	N	N	N	N	N	N	N	N	N	
5			e1	P	N	N	N	N	N	N	N	N	N	ended productivity for plot 1

2009 COMU Productivity Plot 2 - Observation Point

Nest #	6/13	6/15	6/16	6/17	6/19	6/23	6/25	6/28	7/1	7/4	7/7	7/10	7/14	7/18	7/22	7/24
1	e1	e1	e1	e1	e1	B	B	B	e1	N	N	P	N	B	N	
2	e1	e1	e1	e1	e1	B	B	N	N	N	e1	e1	N	B	N	
3	e1	e1	e1	e1	e1	B	B	B	N	N	N	B	N	B	N	
4		e1	e1	e1	e1	B	N	N	B	N	N	B	N	B	N	
5		e1	e1	e1	e1	N	B	N	N	N	N	B	N	B	N	
6		e1	e1	e1	e1	B	B	N	N	N	N	N	N	N	N	
7			e1	e1	e1	B	e1	e1	e1	N	N	B	B	B	N	
8			e1	N	e1	B	B	B	N	N	N	N	N	N	N	
9			e1	e1	e1	B	B	N	N	N	N	N	N	N	N	
10				e1	N	B	B	B	B	N	N	N	N	B	N	
11				e1	e1	B	B	B	B	N	N	B	N	B	N	
12				e1	e1	IP	e1	e1	N	N	N	B	N	B	N	
13				IP	IP	P	N	IP	N	N	N	N	N	B	N	
14					e1	B	N	B	B	N	N	N	N	B	N	
15					e1	B	B	B	B	N	N	B	N	B	N	
16					e1	B	B	B	B	N	e1	P	N	P	N	
17					e1	B	B	N	B	N	N	B	N	N	N	
18					e1	B	B	B	B	N	N	B	N	N	N	

ended productivity for plot 2

2009 COMU Productivity Plot 4 - Observation Point

Nest #	6/15	6/16	6/20	6/23	6/25	6/28	7/1	7/4	7/7	7/10	7/14	7/18	7/20	7/22	7/24	7/27	7/31	8/4	8/7	8/10
1	e1	IP	e1	IP	IP	B	e1	B	B	B	N	N		B	N	N	N	N	N	N
2	e1	IP	e1	IP	IP	IP	e1	IP	IP	IP	N	B		P	N	N	N	N	N	N
3	e1	IP	e1	IP	IP	B	B	B	P	B	B	N		B	N	N	N	N	N	N
4	e1	e1	B	B	B	B	P	B	B	N	N	N		N	N	N	N	N	N	N
5	e1	IP	e1	e1	IP	IP	IP	B	B	B	B	B		B	N	N	N	N	N	N
6	e1	e1	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	c1	BP	c1	c1	P	P	B	N
7	e1	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP		IP	IP	P	BP	BP	BP	B
8	e1	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP		IP	BP	BP	BP	P	B	N
9	e1	e1	e1	e1	e1	IP	IP	P	P	B	B	B		N	N	N	N	N	N	N
10	e1	e1	e1	IP	e1	IP	e1	P	N	B	P	B		N	N	N	N	N	N	N
11	e1	IP	e1	N	B	B	B	N	N	N	N	N		N	N	N	N	N	N	N
12	e1	P	N	P	B	P	B	N	N	N	N	N		N	N	N	N	N	N	N
13	e1	IP	N	N	B	N	N	N	N	N	N	N		N	N	N	N	N	N	N
14	e1	IP	B	B	B	B	N	N	N	N	N	N		N	N	N	N	N	N	N
15		e1	e1	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
16		e1	B	N	N	N	B	B	B	B	N	N		N	N	N	N	N	N	N
17		e1	P	IP	IP	IP	N	P	P	BP	N	N		B	N	N	N	N	N	N
18		e1	IP	IP	e1	IP	IP	IP	P	B	B	N		B	N	N	N	N	N	N
19		e1	IP	IP	IP	IP	IP	IP	IP	IP	P	P		B	N	N	N	N	N	N
20		e1	IP	e1	IP	IP	IP	P	P	IP	P	N		B	N	N	N	N	N	N
21		e1	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP		IP	P	B	N	N	N	N
22		e1	IP	IP	IP	IP	P	IP	B	B	B	B		B	N	N	N	N	N	N
23		e1	N	B	B	B	N	N	N	N	N	N		N	N	N	N	N	N	N
24		e1	IP	P	IP	IP	N	IP	IP	B	N	N		B	N	N	N	N	N	N
25		e1	IP	IP	IP	IP	P	P	IP	B	N	N		N	N	N	N	N	N	N

not a full survey but saw chick during pop ct.

N=empty nest and is used when the egg or chick that was in the nest has been lost and the adult was not present.

B= Bird, Adult bird occupying a site, with no egg or chick present. Used when observer is sure the bird has no egg or chick.

P= Bird, present and don't know if egg or chick present (this is recommended by Byrd and Dragoo but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as E_{ded} (dead egg).

C= Chick, Chick present. C^{3} (three chicks) C^{3+} (three chicks plus possibly more).

F= Chick fledged (chick left the nest, survival unknown)

BP= Brooding posture

IP= Incubating posture

Appendix F. Seabird population counts from Observation Point, Round Island.

2009 Population Count - Plot 1 - Observation Point										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI Nests	# PECO	# PECO Nests	# COMU	# HOPU	# TUPU
6/23	1	1349		23	19	0	0	103	0	0
	2		1356	21	19	0	0	105	0	0
6/26	1	943		24	18	0	0	122	0	0
	2		948	25	18	0	0	123	0	0
6/29	1	946		19	18	0	0	108	0	0
	2		953	20	18	0	0	109	0	0
7/2	1	106		23	16	0	0	78	0	0
	2		112	23	16	0	0	77	0	0
7/5	1	1146		20	13	0	0	65	0	0
	2		1153	20	14	0	0	66	0	0
7/8	1	1713		13	13	0	0	46	0	0
	2		1718	13	13	0	0	47	0	0
7/11	1	1039		22	18	0	0	88	0	0
	2		1044	22	18	0	0	89	0	0
7/16	1	1031		20	17	0	0	112	0	0
	2		1036	20	17	0	0	112	0	0
7/20	1	1409		7	15	0	0	84	0	0
	2		1416	7	16	0	0	88	0	0
7/24	1	1121		12	15	0	0	113	0	0
	2		1125	11	14	0	0	112	0	0
7/27	1	954		16	19	0	0	103	0	0
	2		958	16	19	0	0	110	0	0
2009 Population Count - Plot 2 - Observation Point										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI Nests	# PECO	# PECO Nests	# COMU	# HOPU	# TUPU
6/23	1	1323		81	57	0	0	210	0	0
	2		1335	84	55	0	0	224	0	0
6/26	1	921		106	54	0	0	201	0	0
	2		933	104	56	0	0	211	0	0
6/29	1	954		82	51	0	0	214	0	0
	2		1005	84	54	0	0	208	0	0
7/2	1	945		78	50	0	0	188	0	0
	2		954	81	52	0	0	194	0	0
7/5	1	1128		81	45	0	0	68	0	0
	2		1134	84	46	0	0	64	0	0
7/8	1	1655		45	41	0	0	117	0	0
	2		1705	45	42	0	0	110	0	0
7/11	1	1014		86	50	0	0	224	0	0
	2		1027	86	51	0	0	235	0	0
7/16	1	1013		61	47	0	0	241	0	0
	2		1022	60	49	0	0	255	0	0
7/20	1	1352		15	45	0	0	204	0	0
	2		1401	16	45	0	0	208	0	0
7/24	1	1126		45	47	0	0	240	0	0
	2		1135	43	45	0	0	237	0	0
7/27	1	944		77	42	0	0	259	0	0
	2		953	77	44	0	0	268	0	0

Pelagic commorant (PECO, black-legged kittiewake (BLKI), and common murre (COMU), horned puffin (HOPU), Tufted puffin (TOPU)

Appendix F. continued.

2009 Population Count - Plot 3 - Observation Point										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI Nests	# PECO	# PECO Nests	# COMU	# HOPU	# TUPU
6/23	1	1335		90	53	0	0	103	0	0
	2		1348	89	52	0	0	105	0	0
6/26	1	933		95	49	0	0	92	0	0
	2		941	97	53	0	0	97	0	0
6/29	1	1005		73	54	0	0	106	0	0
	2		1014	75	55	0	0	108	0	0
7/2	1	955		81	51	0	0	105	0	0
	2		1004	84	54	0	0	107	0	0
7/5	1	1134		70	44	0	0	46	0	0
	2		1142	67	48	0	0	47	0	0
7/8	1	1705		41	36	0	0	19	0	0
	2		1711	43	36	0	0	19	0	0
7/11	1	1028		78	50	0	0	119	0	0
	2		1038	80	51	0	0	120	0	0
7/16	1	1022		61	49	0	0	117	0	0
	2		1030	61	50	0	0	120	0	0
7/20	1	1402		21	45	0	0	88	0	0
	2		1409	22	45	0	0	84	0	0
7/24	1	1102		55	54	0	0	123	0	0
	2		1108	56	55	0	0	121	0	0
7/27	1	1010		89	52	0	0	152	0	0
	2		1015	85	53	0	0	149	0	0
2009 Population Count - Plot 4 - Observation Point										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI Nests	# PECO	# PECO Nests	# COMU	# HOPU	# TUPU
6/23	1	1401		116	72	0	0	569	0	0
	2		1448	117	77	0	0	641	0	0
6/26	1	959		144	69	0	0	665	0	0
	2		1022	141	74	0	0	683	0	0
6/29	1	1024		108	68	0	0	646	0	0
	2		1042	106	70	0	0	658	0	0
7/2	1	1028		118	64	0	0	583	0	0
	2		1046	116	66	0	0	587	0	0
7/5	1	1159		100	65	0	0	419	0	0
	2		1215	93	68	0	0	422	0	0
7/8	1	1727		58	54	0	0	381	0	0
	2		1740	58	55	0	0	382	0	0
7/11	1	1057		115	67	0	0	573	0	0
	2		1114	105	68	0	0	575	0	0
7/16	1	1047		72	66	0	0	799	0	0
	2		1108	73	68	0	0	787	0	0
7/20	1	1424		31	63	0	0	633	0	0
	2		1442	31	68	0	0	618	0	0
7/24	1	1045		50	58	0	0	772	0	0
	2		1101	40	61	0	0	783	0	0
7/27	1	1016		114	63	0	0	833	0	0
	2		1031	114	64	0	0	NC	0	0

Pelagic commorant (PECO, black-legged kittiewake (BLKI), and common murre (COMU), horned puffin (HOPU), Tufted puffin (TOPU)

Appendix F. continued.

2009 Population Count - Plot 5 - Observation Point										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI Nests	# PECO	# PECO Nests	# COMU	# HOPU	# TUPU
6/23	1	1450		15	11	0	0	181	0	0
	2		1459	15	11	0	0	186	0	0
6/26	1	950		14	8	0	0	209	0	0
	2		958	13	10	0	0	217	0	0
6/29	1	1015		12	8	0	0	189	0	0
	2		1022	13	8	0	0	200	0	0
7/2	1	1018		12	10	0	0	183	0	0
	2		1024	12	10	0	0	199	0	0
7/5	1	1217		14	8	0	0	168	0	0
	2		1224	13	9	0	0	176	0	0
7/8	1	1720		10	8	0	0	113	0	0
	2		1725	11	9	0	0	120	0	0
7/11	1	1046		11	6	0	0	197	0	0
	2		1053	11	8	0	0	201	0	0
7/16	1	1038		9	8	0	0	197	0	0
	2		1045	8	8	0	0	176	0	0
7/20	1	1419		6	5	0	0	152	0	0
	2		1424	6	5	0	0	152	0	0
7/24	1	1115		6	7	0	0	172	0	0
	2		1119	6	7	0	0	174	0	0
7/27	1	1000		7	6	0	0	199	0	0
	2		1007	7	6	0	0	212	0	0

Pelagic commorant (PECO, black-legged kittiewake (BLKI), and common murre (COMU), horned puffin (HOPU), Tufted puffin (TOPU)

Appendix G. Daily Observations, Round Island, Alaska, 2009.

DATE	BIRDS	FLOWERS	MAMMALS	OTHER	COMMENTS
5/14	tufted puffin, pelagic cormorant, bald eagle, golden-crowned sparrow, harlequin ducks, common raven, savannah sparrow,	willow	gray whales (100s), fox, walruses, sea lions,	Wooly bear caterpillars, Beetle	
5/15	horned puffin, wandering tattler	wooly lousewort		common murres rafting near cliffs	
5/16	grey-crowned rosy finch, bufflehead,			common murres on cliffs at OP	
5/17	hermit thrush			gray whale scratching on spit, more COMU and BLKI on cliffs at OP	
5/18			orcas, 2 adults one young		orcas approached near island but didn't seem to be pursuing walrus
5/19	red-necked phalarope		gray whales (100s), fox		decrease in gray whale migration
5/20		narcissis flower			
5/21	raven nests at FB (4 chicks) & NBC (3 chicks)			first PECO egg - FB	
5/22	swallow sp? northern harrier, 1st peco egg, American pipit				
5/23		grass 5 in. high			
5/24	sandhill crane, short eared owl, Wilsons warbler, fox sparrow, bald eagle on nest near summit	marsh violet, black oxotrope			
5/25	Wilson's warbler	rock jasmine, mouse eared chickweed			
5/26					
5/27	Wilson's warbler, fox sparrow	blueberry, cloudberry, forget-me-nots, labrador tea, lowbush cranberry, yellow anemone, wedge-leaf primrose, bog rosemary, few-flowered corydalis			
5/28	crested auklet, mallard				
5/29	mallard, harlequin duck pairs, grey-headed rosy finches seen at OP, CG, FB, EC	cardemine pratensis			water system working
5/30	6 male 2 female harlequin ducks				
5/31	red phalarope,	garden sorrel, purple cress (Cardamine purpuria), brook saxifrage (*Saxifraga punctata*)			
6/1	2 pair American pipits displaying	*Sedum rosium*			tusk collected on SB, walrus mortality on WM
6/2		Chiming bells			
6/3	common snipe (by ear only)	stream violet (*Viola glabella*)			
6/4	2 swallows - sp?	Alaska violet			
6/5		spring beauty			
6/6		lupine, chocolate lily		first BLKI egg - OP	
6/7	Wilson's warblers all over E. side (dozens) raven chicks hatch at SB				
6/8					put boat in the water and

DATE	BIRDS	FLOWERS	MAMMALS	OTHER	COMMENTS
					stairs up.
6/9		hairy arctic milk vetch, Labrador tea, star flower			
6/10	heard varied thrush	cinquefoil villous, dogwood			
6/11					
6/12	wandering tattler	wild geranium, Langsdorf lousewart			
6/13	Canada geese (8), yellow warbler, 1st COMU egg	pink plumes	4 tundra voles, ermine (BC), grey whales (2)		Stephanie in, Marian out
6/14					
6/15	common redpolls (6)				
6/16		Alaska poppy, mountain ravens			
6/17		northern water carpet, N. starwort, winter cress			
6/20	first PECO chick				
6/21	~40 Canada geese over ADFG cabin				
6/22		Arctic daisy, yarrow			
6/23	6 redpolls, start of pop ct. at OP				
6/25		dandelion (Taraxacum ceratophorum), Arctic sandwort (summit)			
		taraxacum ceratophorum)			
6/27	lone Canada goose uphill from T1	wild iris			
6/28	first savanna sparrow fledgling, consistently observe 10 pigeon guillemots at FB				
6/29	Canadian goose - 1, crested auklets 15 - NBC & 1 at FB, Dbl. crested cormorants - 3 near cabin.				
7/1	1st BLKI chick(OP)	goldenrod	ermine (BC)		
7/4	grey-crowned rosy finch fledglings at BC and FB				
7/6		herb willow, harebell, monkshood, marsh five finger, Lesser wintergreen, dwarf arctic bitterweed			
7/7	33 harlequins, 18 crested auklets NBC	Northern bedstraw, hemlock parsley, dwarf fireweed			
7/9		Sitka burnet, alpine bistort, pink flowered wintergreen			
7/10	ravens fledge (SB)	yellow marsh saxifrage, yellow rattle, arctic wormwood, Hornemann's fireweed	tundra vole (CG)		
7/11	2 wandering tattlers (BC)	grass of parnassus	harbor or ringed seal (BC)		
7/13	Peregrine falcon (SB)				

DATE	BIRDS	FLOWERS	MAMMALS	OTHER	COMMENTS
7/16		Tall fireweed			
7/19	1st COMU chick-killed by fox!!!	spotted saxifrage			
7/20			dead whale floats by island- suspect Minke		
7/21				big storm on RI max wind 90km/hr, >8' seas in BC	
7/22	2 pipit fledglings				
7/26				UNK caterpillar looked like woolly bear but all black with few white spots- after cabin to FB	
7/27				UNK spider- small maroon color with yellow spotting/stripping on abdomen -at spring	
7/28	60-65 glaucous winged gulls on WM beach				
7/29	sandpiper (species?) CG				
7/30	BLKI fledgling- on water		harbor seal (BC)		
8/4	bank swallow (BC)				
8/6	female mallard? in visitor spring, sandpiper sp? (CG), 11 ravens at EC pass		grey whale feeding (BC)		
8/7	~24 horned, ~12 tufted puffins (FB)				
8/8	bald eagle chick in nest on S. side of summit, pipits grouping up at EC & summit, 2 wandering tattlers (FB), 1st pelagic cormorant fledgling			lots of smoke early in the morning and on mainland from forest fires in the interior and Kuskokwim	
8/10				~8 lg jets fly by RI w/in <2hrs	
8/11	least sandpiper				
8/12			ermine (clear view in BC)		
8/14	8 Harlequins (BC), hermit thrush fledglings				