

# Walrus Islands State Game Sanctuary Annual Report 2007



Diane Calamar Okonek, Brian Okonek, and Marian Snively  
Alaska Department of Fish and Game  
Division of Wildlife Conservation  
333 Raspberry Road  
Anchorage, Alaska 99518

## TABLE OF CONTENTS

Table of Contents .....	i
Executive Summary .....	1
Introduction.....	2
Methods and Materials.....	2
Staffing.....	2
Visitor Program.....	3
Access Violations.....	3
Walrus Disturbance.....	3
Wildlife Surveys and Monitoring .....	4
Walrus Surveys .....	4
Sea Lion Surveys .....	4
Seabird Monitoring .....	4
Other Observation/Projects/Activities .....	5
Cabin Improvements.....	5
Trail Improvements.....	5
Bristol Bay Seabird Survey.....	5
Subsistence Hunt.....	5
Ivory Collection .....	6
Results and Discussion .....	6
Staffing.....	6
Visitor Program.....	6
Access Violations.....	7
Walrus Disturbance.....	7
Wildlife Surveys and Monitoring .....	8
Walrus Surveys .....	8
Sea Lion Surveys .....	9
Seabird Monitoring .....	9
Other Wildlife Observations .....	10
Other observations/Projects/Activities .....	11
Cabin Improvements.....	11
Trail Improvements.....	11
Bristol Bay Seabird Survey.....	11
Subsistence Hunt.....	11
Ivory Collection .....	11
Recommendations.....	11
Acknowledgements.....	12
Literature Cited .....	13
Figures.....	14
Tables.....	19
Appendices.....	21

## **EXECUTIVE SUMMARY**

The Walrus Islands State Game Sanctuary 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 walrus and other wildlife, and to operate a visitor use program. Walrus counts for the 2007 field season were conducted from May 1 to August 16. The maximum count of 5,245 occurred on May 27, which represents a 49% increase from 2006. The daily mean count of 1,463 walrus represents a 39% increase from the mean count of 897 walrus from 2006.

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

Seventy-two visitors came to Round Island in 2007. Of these, 40 were day-visitors and 32 were campers. There was a 22% increase in camper numbers from the 2006 field season and a 28% increase in day-visitors. There were 161 visitor days during the summer of 2007.

Five vessels violated the three mile restricted zone around the island (Alaska State Regulation – 5AAC 92.066) and one airplane was observed well below the 5,000 ft. Above Ground Level (AGL). Although three of the vessels complied immediately when Round Island instructed them to change course, one vessel did not alter its course and another vessel did not respond. The non-compliant vessels along with the airplane violation are being investigated by the Alaska State Troopers.

Special projects completed in 2007 included replacing the front half of the cabin (the back half was replaced in 2006), the construction of a fuel storage shed, lifting the storage shed onto larger supports, and trail improvements.

## **INTRODUCTION**

The Walrus Islands State Game Sanctuary was created in 1960 by the Alaska State Legislature. The sanctuary protects a group of seven small islands and their adjacent waters in northern Bristol Bay, approximately 65 miles southwest of Dillingham (Fig 1). The primary purpose of the sanctuary at the time of its creation was to protect the last remaining terrestrial haulout for Pacific walrus (*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 walrus and comprises one of four primary active haulout sites in Bristol Bay. The sanctuary also protects important habitats for many species of seabirds, steller sea lions (*Eumetopias jubatus*), and other marine mammals and terrestrial 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 and restrictions have been placed on visitor numbers and their activities (Alaska Administrative Code 5 AAC 92.066).

ADF&G provided two technicians to monitor Round Island through the summer months. Staff duties consisted primarily of the protection of sanctuary resources; enforcement of sanctuary laws, regulations and policies; monitoring of sanctuary wildlife including walrus, seabirds, Steller sea lions and other species; managing the visitor use and access permit program; and organizing major cabin construction improvements and maintaining trails and facilities.

## **METHODS AND MATERIALS**

### **STAFFING**

Sanctuary manager Diane Okonek, technician Brian Okonek, and two volunteers arrived from Togiak aboard the Lindsey Mary on May 1. The F/V Kustatan, operated by Charlie Rehter of Homer, transported nearly six tons of building materials and nearly a ton of food, fuel, and camp supplies to the island. On May 10, when the Kustatan arrived, efforts were coordinated between parties to transfer 25 loads of gear, slung by a helicopter, from the boat deck to the island.

Round Island volunteers; Rick Ernst, Dave Johnston, and Sandy Kogl and contract carpenters; Pete Robinson, John Tuckey, and Brendan Bonnett, were tasked with demolishing then rebuilding the front section of the cabin (the rear section was replaced in 2006) and constructing a fuel storage shed.

## **VISITOR PROGRAM**

Campers arrived on Round Island after obtaining a permit from the ADF&G Dillingham office. Day visitors were issued permits upon arrival on the island after obtaining access authorization from staff through morning VHF radio contact.

One of the primary goals of the sanctuary staff was to manage a visitor use program and to balance the quality of the experience for the visitors while protecting wildlife and other resources. Educating the visitors was one of the ways to achieve this goal. When visitors arrived on Round Island, they were briefed on the rules and regulations of the island, given a brief history of the Sanctuary, and given guidelines for approaching walrus beach viewpoints with minimal disturbance to the animals. All visitors were required to remain on established trails with the exception of going to the summit from the East Cape. To minimize disturbance, visitors were not permitted on the beaches except for island arrival and departure from Boat Cove or an alternative site at Campground Beach. Other duties involved with the visitor program included monitoring the 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 visitor facilities. For the safety of the visitors, the precipitous and slippery nature of the trails was described and recommendations for their use were explained. All visitors provided emergency contacts and signed Assumption of Risk forms.

In 2006 the Alaska Board of Game adopted a regulation that requires commercial transporters operating at Round Island to obtain a commercial transporter permit.

## **ACCESS VIOLATIONS**

To protect sanctuary wildlife and other resources, access to Round Island and the waters within three nautical miles of the island were restricted to those possessing permits from ADF&G. Boats were allowed to access the island by utilizing 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 was discouraged and ADF&G requested all pilots to avoid flights below 5,000 ft Above Ground Level (AGL) within three miles of the island. Boats or planes that were observed within the restricted areas were hailed through VHF marine 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 FWS under the Marine Mammals Protection Act (MMPA).

## **WALRUS DISTURBANCE**

Sanctuary staff documented all access violations and initiated an immediate response when appropriate. The assistance of the Alaska State Troopers, FWS Law Enforcement, and the Federal Aviation Administration (FAA) were requested as needed.

Staff monitored and documented 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 were recorded using three distinct behaviors (head raising, reorienting, and dispersing) as measures of quantifying increasing levels of disturbance (Salter 1979). At such times when a vessel was in close proximity to the island while clients and/or their guides arrive on island for periods exceeding 60 minutes it was quantified as two potential disturbance occurrence; one for arrival and one for departure.

## **WILDLIFE SURVEYS AND MONITORING**

### **WALRUS SURVEYS**

Established Round Island protocols were followed when collecting daily weather and other information. Before the start of the walrus counts, wind speed and direction, percent cloud cover, type of precipitation and tide were recorded at the cabin. Maximum and minimum daily temperature was recorded at 2000 hrs and the barometric pressures were recorded daily at 0800 and 2000 hrs. At the start of each beach count the Beaufort Sea state, start and end time, method, visibility, beach condition and count quality were recorded. For more detailed information on the Round Island protocols see the Round Island Annual Report 2005 (Okonek and Snively 2005).

Established Round Island protocols were followed when collecting daily walrus counts. On the East side of the island, nine beaches were counted beginning with Second Prime (SP), Second Beach (S), First Prime (FP), First Beach (FB), Campground (CG), Boat Cove (BC), Flat Rock (FR), North Boat Cove (NBC), and ending with Main Beach (MB; Fig 2). The west side of the island includes West Main beach (WM) and West Main Beach South (WMBS; Fig. 2). During the 2007 field season construction of the new cabin limited WM counts to 33. WMBS was counted on one occasion during a boat count. This is a small beach and missing it does not significantly alter the total walrus counts for Round Island (Cody 2003).

### **SEA LION SURVEYS**

A Steller sea lion haulout located at East Cape was monitored at five-day intervals and opportunistically from three different observation points. Animals with brands and flipper tags were documented and digital photographs were taken. Injuries, entanglements, suckling behavior, and any unusual conditions were noted.

### **SEABIRD MONITORING**

Three species of colonial nesting seabirds were monitored throughout the summer at several sites on Round Island. Nesting chronology and nest productivity data were collected for the following species of seabirds; pelagic cormorants (*Phalacrocorax pelagic*; PECO), black-legged kittiwakes (*Rissa tridactyla*; BLKI), and common murre (*Uria aalge*; COMU).

## **OTHER OBSERVATION/PROJECTS/ACTIVITIES**

General and unusual observations were recorded and included first wildlife and blooming plant sightings, the presence of beach-cast marine mammals, and general environmental conditions (App. A). Walrus mortalities were documented, as were the amounts and locations of ivory collected. Ivory from beach-cast walrus carcasses was collected to discourage unauthorized off-season access to the island. The collected ivory was donated to the Eskimo Walrus Commission (EWC) and then sold to Alaska native carvers. The proceeds from the sales were deposited into the Pacific Walrus Conservation Fund, which supports walrus conservation efforts in the form of educational, research, and management projects.

### **CABIN IMPROVEMENTS**

The Round Island crew finished the cabin improvements which included building the front half of the cabin, building a fuel storage shed, and jacking up the storage shed that started to sink in the tundra.

### **TRAIL IMPROVEMENTS**

The Round Island crew improved trail conditions to reduce erosion and increase safety for visitors and staff.

### **BRISTOL BAY SEABIRD SURVEY**

ADF&G performed a second consecutive seabird survey, which included the seven islands of the Walrus Islands State Game Sanctuary, the mainland coasts of north western Bristol and southeastern Kuskokwim Bays and all associated islands. The five-member team went to Round Island twice and spent a night on the island, while the captain of the Inconnu anchored near the mainland. One day was spent helping the Round Island crew with various duties.

### **SUBSISTENCE HUNT**

Historically, the Pacific walrus has thrived in the Bering and Chukchi seas (Fay1982). In the 17<sup>th</sup> 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 19<sup>th</sup> century when only a fraction of the population remained (Fay 1957).

Round (Quayassiq) 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 Quayassiq Walrus Commission (QWC) in 1995, which helped to reestablish the Round Island subsistence hunt. The BOG agreed to allow island access between October 1 and 31 for the hunt. The harvest limit was set at ten (including struck and lost animals) by the Cooperative Agreement (ADF&G, EWC, QWC, and USF&WS). Since this time the dates and harvest numbers have changed and in 2003, the dates were extended and are now set from September 10 through October 20 and the hunting limit is

now 20 (Subsistence Walrus Hunting on Round Island, Bristol Bay, Alaska Cooperative Agreement).

Due to the increased duration of the hunt the managing agencies agreed to provide two monitors on Round Island during the earlier hunt period starting in the fall of 2003 and ending after the fall of 2006. For hunt information the authors contacted Helen Chythlook of Bristol Bay Native Association (BBNA), who provided the information for this report.

#### IVORY COLLECTION

Round Island staff collected ivory from dead walruses and beach-cast ivory during the field season when it could be done with minimum disturbance to the walrus herd.

## **RESULTS AND DISCUSSION**

### **STAFFING**

Round Island was staffed by ADF&G Wildlife technicians Diane Calamar Okonek and Brian Okonek from May 1 through August 20. Three volunteers spent a total of 44 days contributing 328 hours of work on the cabin rebuild project. ADF&G contracted three carpenters who spent a total of 58 days building the cabin.

### **VISITOR PROGRAM**

Seventy-two visitors (guides, volunteers, carpenters, and seabird staff not included) came to Round Island in 2007. Of these, 40 were day-visitors and 32 were campers. There was a 22 % increase in camper numbers from the 2006 field season (increase from 25 to 32 campers) and a 28 % increase in day-visitors (increase 29 to 40 day visitors). Forty-four percent of the campers and 55 percent of the day visitors were guided. There were 161 visitor days during the summer of 2007. Seventeen of the 32 campers were Alaskans. Of the day visitors, excluding the guides, 21 were from Alaska. The day visitors were from the following states in the U.S.: California, Kansas, Nevada, New Jersey, North Carolina, Oregon, Virginia and Washington; and countries: France, Germany and Japan (Table 1). Guides were on the island for 13 days (Terry Johnson-ten days and Paul Markoff-three days).

Annual visitor numbers at Round Island have decreased from a high of 303 in 1977 to a 2005 low of forty (Fig. 3). The visitor numbers increased in 2007 to 72 visitors. The high visitation of 1977 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. After the decline of this fishery in Bristol Bay, a drop in visitation was noted.

There were 131 campers in 1987, which represents the highest count recorded. The number of campers to the island remained high during the late 1980's and early 1990's.



During this time, there was national and international publicity of the sanctuary through television programs and magazine articles (Rice 2002). Yearly fluctuations may also be attributed to the availability of transporters to the island, national and international economic conditions, and funding availability for staffing the island (Koenen and Rice 1996).

In 2007, Paul Markoff, owner of Togiak Outfitter and captain of the Lindsey Mary, made 12 trips from Togiak to Round Island transporting staff and visitors between May 1 and August 20. Terry Johnston owner and captain of the M/V Inconnu made 13 trips to Round Island transporting visitors from Eagle Lake to Round Island between June 29 and August 8. Terry Johnson was also contracted by ADF&G for the Bristol Bay Seabird Survey from July 2 - 16.

### **ACCESS VIOLATIONS**

The guides, staff and visitors generally used Boat Cove on Round Island when people were arriving to and/or departing from the island. When the walrus were hauled out in Boat Cove and during times of inclement weather Campground Beach was used.

For the most part boat operators, guides, and visitors followed regulations and staff suggestions to keep anthropogenic disturbances to a minimum. Boat operators made a practice of approaching the island slowly, to minimize noise impact, and to anchor well offshore when walrus were present on the adjacent beaches.

During the field season staff observed five vessels that violated the three mile restricted zone around the island (Alaska State Regulation – 5AAC 92.066). Three of the vessels altered their course and immediately complied when staff contacted them by radio to remind them of the restricted zone. On two other occasions when staff attempted to make the operators aware of their infractions, one vessel did not alter its course and another vessel did not respond. These incidents are being investigated by the Alaska State Troopers.

There were instances with noncompliance of permit stipulations that are being addressed administratively.

An airplane was photographed while flying well below the 5000 ft. Above Ground Level (AGL) and is under investigation by Alaska State Troopers.

During the fishing season the staff used the VHF radio to broadcast the Sanctuary regulations regarding boating restrictions, access procedures and aircraft advisories.

### **WALRUS DISTURBANCE**

Forty-seven anthropogenic activities, one unknown activity, and one natural activity, killer whales (*Orcinus orca*), were observed and recorded during the summer season of

2007 (App. B). Since 25 of the boat activities had an arrival time and departure time greater than an hour after anchorage near the island, they were counted as two potential disturbance activities. Nineteen of 74 potential disturbance occurrences were associated with known reactions from walrus, no reaction was observed during 24 activities. Twenty-two activities had no walrus present on associated beaches and walrus behavior was unknown during five of the activities (Table 2). Most of the activities, 71 of 74 were in the form of boat traffic and were relatively minor. Four of the boating activities caused head raises as the most severe disturbance behavior, thirteen caused dispersing behavior, and 21 caused no discernible change in behavior. The effects of five of the boating activities were unknown and twenty other boating activities occurred when there were no walrus on the associated beaches. One activity was a combination of a helicopter and a vessel. For the purposes of this report the activities were combined and then counted as two activities; one for arrival and one for departure. The arrival of this occurrence caused dispersing behavior and the departure caused no reaction. There was one incident where the disturbance was unknown which caused walrus to disperse and another where killer whales caused hundreds of walrus to disperse.

## **WILDLIFE SURVEYS AND MONITORING**

### **WALRUS SURVEYS**

Walrus counts for the 2007 field season were conducted from May 1 to August 16. All beaches along the east side of Round Island were counted 98 out of the total 112 days. The maximum count of 5,245 occurred on May 27, which represents a 49% increase from 2006 (WMB not included; Fig 4: App. C) There were no animals on the East side beaches on May 22 and 23. On WMB the maximum count of 806 occurred on June 5. Due to the time constraints of cabin construction and absence of the skiff during July there was one whole island water count completed during the 2007 field season.

The daily mean count for 2007 was 1,463 walrus which represents a 39% increase from the mean count of 897 walrus during 2006 (Okonek and Snively 2006). The annual peak count of walrus at Round Island varies significantly between years with the highest count estimate documented was 15,000 during a 1978 aerial survey. The lowest annual peak count was 1,746 in 1998 (Raymond 1998). The maximum count varies considerable between years and is attributed to the movement of walrus between several Bristol Bay haulouts and not necessarily to population fluctuations. 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 walrus reestablished use of their traditional haulouts fewer animals used Round Island at any one time. This may be evidenced by the general decline in peak walrus numbers at Round Island over the past three decades.

## SEA LION SURVEYS

Round Island Steller sea lions typically haul out at East Cape, located on the eastern tip of the island. Throughout the summer, thirty-eight land counts were conducted from three vantage points at East Cape in 2007 (App. D). The maximum count of 162 animals occurred on May 25 and the minimum count of 17 occurred on July 11. There were twenty-six different brands photographed in 2007. The sea lions with brands include animals branded in the following locations; three animals from Southeast Alaska, three animals from Russian including one from Kozlova Cape, 2,400 kilometers from Round Island. Another sea lion was one seen nine times in 2007 and was also observed at this location in 2004, 2005 and 2006. Only three other branded animals have been seen four consecutive seasons. There were two dead sea lions observed at East Cape in 2007.

All sea lion data were given to ADF&G Marine Mammal Division for their annual sea lion monitoring program.

## SEABIRD MONITORING

### *Pelagic cormorant productivity monitoring*

Pelagic cormorant productivity monitoring for the 2007 field season was conducted from May 13 through August 15. A 20-nest plot was established at Second Beach (SB) and a 30-nest plot was established at First Prime beach (FP). The first PECO egg was observed on May 13 and the last on June 8. The first chick was observed on June 14. The maximum chick count including both plots equaled 132 on July 25 (Table 3; App. E) On August 15, the last day of observations; twelve chicks remained on the SB plot aged 39 to 54 days. Twenty-four chicks remained on the FP plot aged 45 to 51 days and so it was assumed that all of the remaining chicks fledged. Productivity for PECO was 2.38 chicks/nest this season (Table 4).

### *Black-legged kittiwake productivity monitoring*

Black-legged kittiwake productivity monitoring for the 2007 field season was conducted from June 12 through August 15. Two plots were included at Observation Point (OP): OP2 which contained 20 nests and OP3 which contained 17 nests. On the first observation day staff observed 14 eggs at OP2 and 10 eggs at OP3. Nests were added to the plots as eggs were laid. The first chicks were observed on July 4 on both plots, which was four days earlier than in 2006. The maximum chick counts were 16 at OP2 and nine at OP3 (Table 3; App. E). On August 15, the last day of monitoring, staff recorded 12 surviving chicks in both plots. The chicks ranged in age from 40 to 47 days. Although only two chicks were observed to have fledged, due to their age (over 36 days) the remaining 12 were assumed to have fledged successfully with a total of fourteen fledged. Productivity for black-legged kittiwakes was 0.38 chicks/nest for this season (Table 4).

### *Common murre productivity monitoring*

Common murre productivity monitoring for the 2007 field season was conducted from June 12 through August 16. Three plots containing a total of 52 nests were established at

Observation Point: OP1 had 11 nest sites, OP2 had 17 nest sites and OP4 had 24 nest sites. On the first day of monitoring OP 1, June 18, ten eggs were observed. On the first day of monitoring OP2, June 12, two eggs were observed. No observations occurred after this until June 18, due to inclement weather. On June 18 nine eggs were observed and five COMU were incubating eggs. OP4 was not monitored until June 19 due to poor weather conditions, at this time fifteen eggs were observed (Table 3; App. E).

Brooding posture of the murre suggested that the first COMU chicks hatched on July 14. The maximum chick count was nine chicks out of 11 nests at OP1 on August 7. The maximum chick count for OP2 was five on July 25 out of 18 nests. The maximum chick count for OP4 was 12 out of 24 nests on July 25 (Table 3).

The first COMU chicks fledged on August 4 and were still fledging on the last observation day, August 16. Of the total 52 COMU nests monitored 25 chicks (remaining chicks older than 15 days) were assumed to have fledged. Productivity for common murre was 0.48 chicks/nest for this season (Table 4).

#### Population counts

Ten total population counts of the five plots from Observation Point were conducted for three seabird species. The focal species included; PECO, BLKI, COMU. The population counts began at the observation of the first egg, June 9, and were duplicated every third day until July 12 (App. F).

One chick count was completed for PECOs and BLKIs and included all the chicks on the plot. A chick count was conducted for PECOs on July 24 at First Prime and Second Beach. BLKI chicks were counted on August 12 at OP2 and OP3 (Table 5). The COMU chick count could not be completed due to a week long storm.

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

#### OTHER WILDLIFE OBSERVATIONS

On May 16 staff observed hundreds of walrus swimming toward Round Island and then gather in large groups near the shore. Killer whales (*Orcinus orca*) were then observed far off-shore, moving toward the island. While still at a distance from the island the whales stopped and breached out of the water repeatedly. Later the whale pod moved to the NE, approximately  $\frac{3}{4}$  of a mile off-shore where they encircled three walrus and tail slapped them for 22 minutes. The pod moved further from shore but stayed within sight of the observers for two hours. Staff did not observe any signs of a walrus kill during these activities. Within two weeks two dead walrus washed ashore and one died on shore and had massive bruising on the head. This event was documented by video and photographs and available in the Round Island ADF&G files.

A one-year old male walrus calf was seen hauled out at First and Second beaches for the duration of the field season. He was observed riding on the back of a large mature male for over an hour while traveling between the campground and Main Beach (Fig 5).

### **OTHER OBSERVATIONS/PROJECTS/ACTIVITIES**

#### **CABIN IMPROVEMENTS**

In early May, volunteers demolished the original front half of the cabin. Between June 13 and July 11 a new cabin was constructed by contracted labor in the original 12 x 14 ft. footprint (Fig. 5). The final cabin (built in phases during the 2006 and 2007 field seasons) is a 14 x 20 ft., one and a half story structure. Power in the cabin was improved by adding two solar panels and three sealed batteries to the photo voltaic system.

#### **TRAIL IMPROVEMENTS**

Five hundred feet of board walk was covered with wire mesh to improve tractions for visitor and staff safety. To reduce erosion, 60 feet of new boardwalk, three small bridges, one trail reroute and 150 ft. of Geoblock™ were added to the island trails. Geoblock™ steps were installed in steep areas at East Cape and the campground.

#### **BRISTOL BAY SEABIRD SURVEY**

Digital pictures were taken at every nesting seabird colony in and around the Sanctuary; including the mainland from just East of Kulukak Point, West to Chagvan Bay, and Shaiak, Hagemeister, and Bird Islands. The photos were merged and are presently being downloaded into ArcGIS as layers so that bird images can be counted. Andrew Reeves, the volunteer photographer from the 2006 survey, was hired as a graduate student to complete the digital counts. A report will be written upon completion of the digital counts.

#### **SUBSISTANCE HUNT**

On October 9<sup>th</sup> two hunt captains and their crews participated in the walrus hunt together. The crew from Manokotak harvested their allocated four walruses and the crew from Aleknagik harvested two out of their allocated three walruses from Main Beach, Round Island. There were no animals struck and lost during the hunt. They reported approximately 50-60 animals before and after the hunt.

#### **IVORY COLLECTION**

Eight tusks were collected this year and given to Dillingham's ADF&G biologist Jim Woolington in Dillingham. They will be sold at the Beaver Round Up with the proceeds going to the Eskimo Walrus Commission walrus research fund.

### **RECOMMENDATIONS**

- Dig a new hole at the campground outhouse or research an alternative facility.

- Change the visitor permit to include the Hazardous Conditions Disclaimer and an emergency notification contact name and phone number. Delete the map that is now on the permit to allow space for the above. (Visitors are given a map when they arrive on the island).
- Update the web site.
- Update the bird list.
- Evaluate commercial use permits.
- Replace the West third of the boat hoist cable across Boat Cove.
- Send written notification to all registered fishing boats and processors in the area and state the regulations concerning Round Island access.

### **ACKNOWLEDGEMENTS**

We are indebted to Rick Ernst, Dave Johnston, and Sandy Kogl, our Round Island volunteers, whose dedication and hard work helped to make the cabin and other projects possible. We enjoyed their good humor as they worked, even in dismal weather, to complete the projects. Pete Robinson, John Tuckey and Brendan Bonnett are appreciated for their skills in building a comfortable cabin in the allotted time. The seabird survey team, (Laura Kruger, Joe Meehan, Lisa Meehan, and Marian Snively) came to Round Island when they were needed the most. They contributed greatly in a short amount of time to help tie together many loose ends at camp. We are especially grateful to Eunice Dyasuk and Jim Woolington for their continued support during the Round Island field seasons. Pete Abraham of the USFWS is acknowledged for his kindness in making our volunteers and staff feel welcome at the bunkhouse in Togiak. Thanks to Judy Alderson, the program manager for the National Park Service's National Natural Landmark Program, for her continued support and generous funding donations.

## LITERATURE CITED

- Cody, Mary. 2003. Fall Monitoring and Walrus Hunt Report for Round (Qayassiq Island) 2003. Unpubl. Rept. Marine Mammals Management, USFWS, Anchorage, AK. 14 pp.
- Fay, Francis. 1982. Ecology and biology of the P. Wal. North American Fauna no. 75. Washington, D.c. US Dpt. Of the Interior, FWS 279 pp. Salter 1979
- Koenen, K. and S. Rice. 1996. Walrus Islands State Game Sanctuary Annual Report. ADF&G rept. Anchorage, AK.
- Okonek, Diane and Marian Snively. 2005. Walrus Islands State Game Sanctuary Annual Report. Unpubl. Rept. Division of Wildlife Conservation, ADF&G. Anchorage, AK 46. pp.
- Raymond, R. 1998. Walrus Islands State Game Sanctuary Annual Report. ADF&G rept. Anchorage, AK.
- Rice, Steven. 2002. Walrus Islands State Game Sanctuary Annual report. ADF&G rept. Anchorage, AK.
- Salter, R.E. 1979. Site Utilization, Activity Budgets and Disturbance Responses of Atlantic Walruses During Terrestrial Haulout. Canadian Journal of Zoology. 57 (6).

# FIGURES

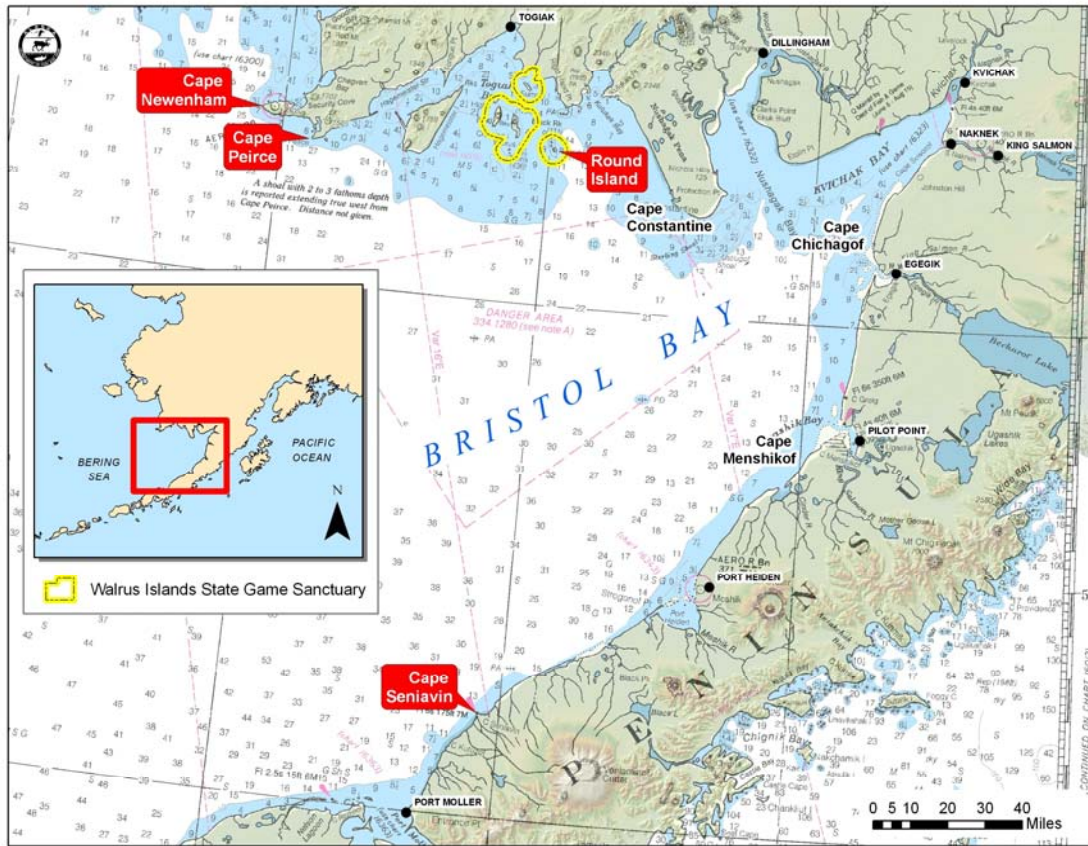
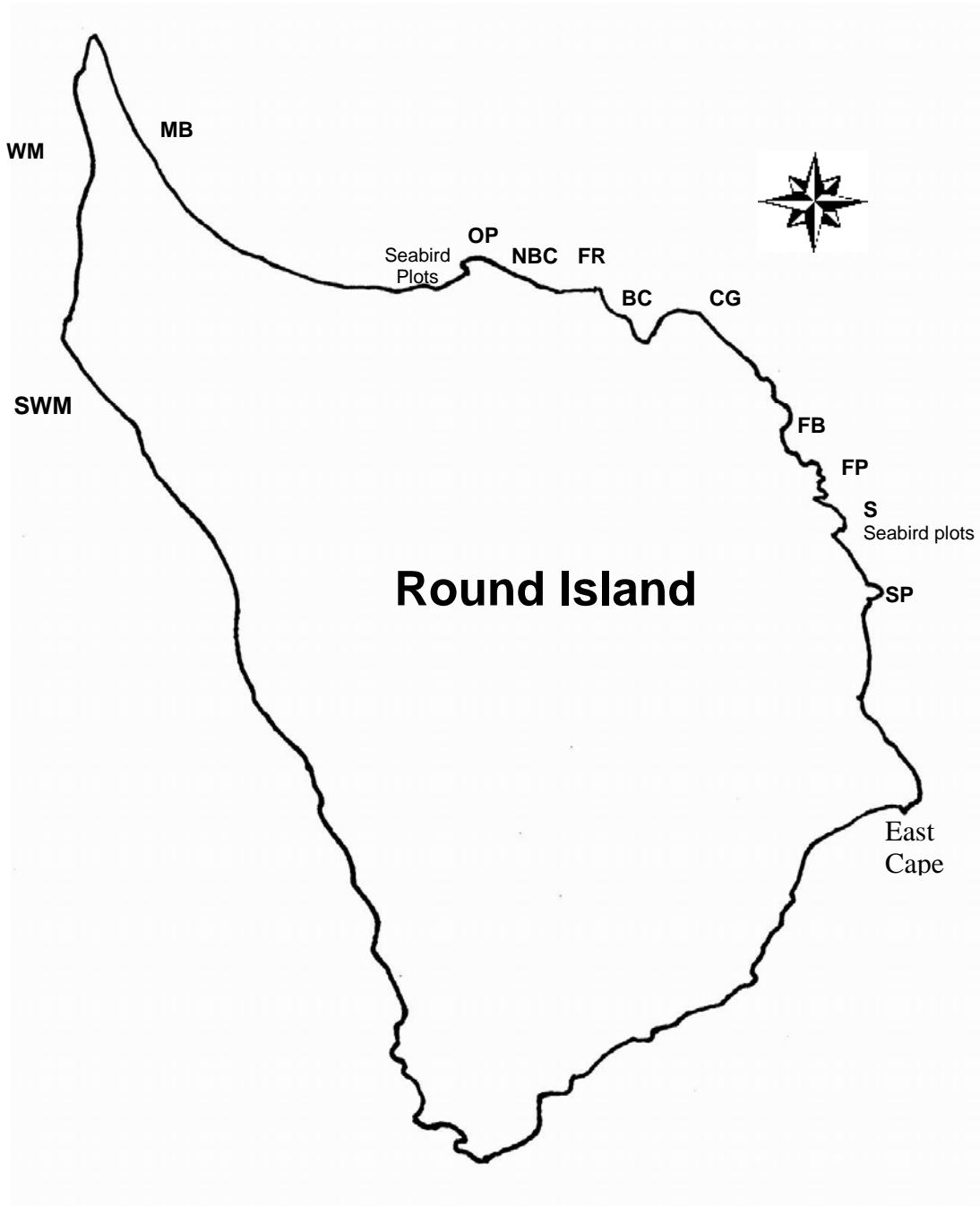


Figure 1. Map of Bristol Bay showing the locations of Round Island, the Walrus Islands State Game Sanctuary, and the four major terrestrial Pacific walrus haulout sites in the United States.





*Figure 2. Map of Round Island with locations of walrus haulout beaches, bird plots and sea lion haulout site; East Cape (sea lion haulout), SP (Second Prime), S(Second Beach), FP (First Prime), FB (First Beach), CG (Camp Ground), BC (Boat Cove), NBC (North Boat Cove), OP (Observation Point), MB (Main Beach), and WM (West Main Beach), South West Main (SWM).*

### Visitors to Round Island, Walrus Islands State Game Sanctuary 1975-2007

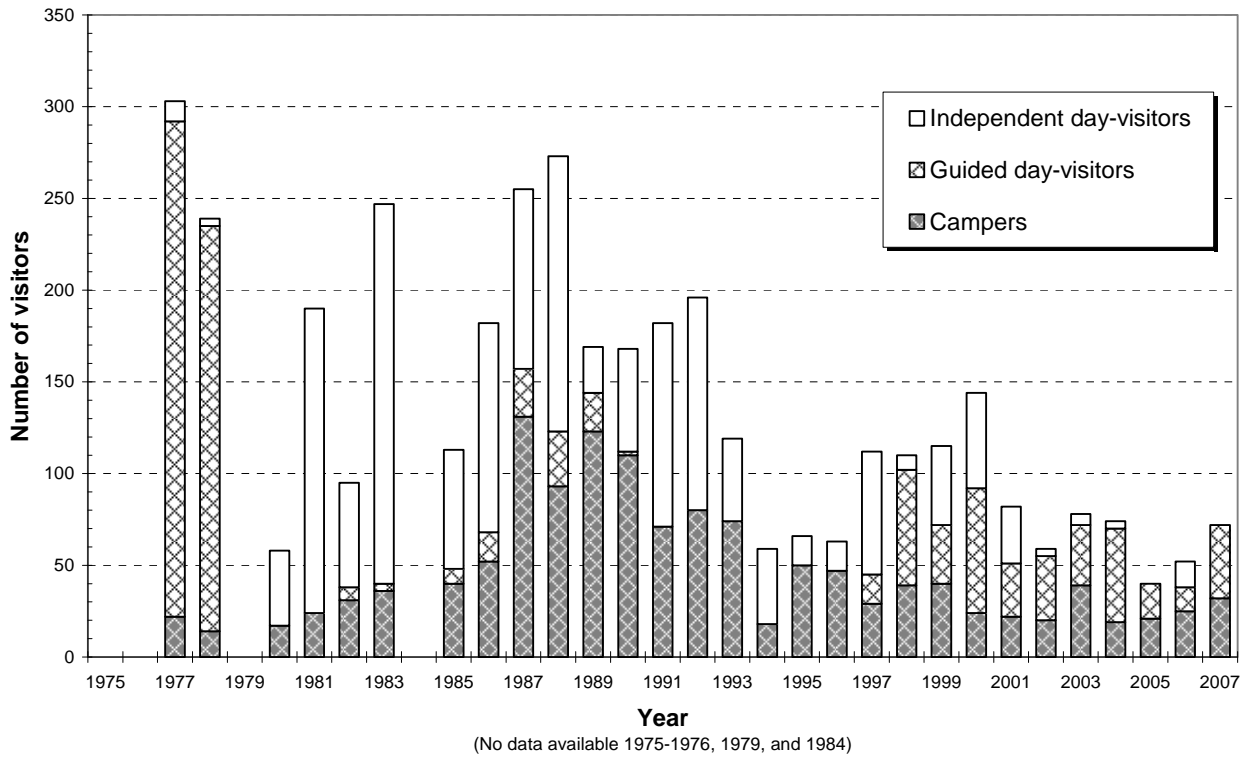
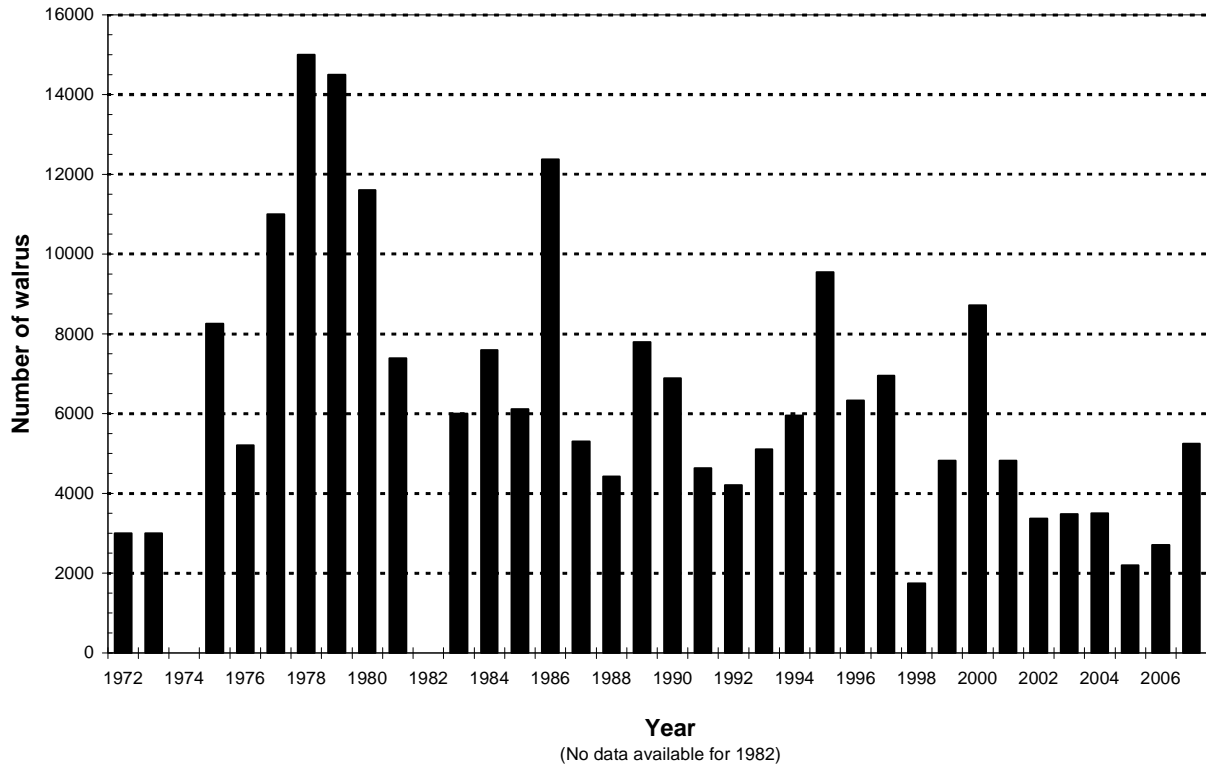


Figure 3. Visitor numbers, Round Island 1977-2007.

**Peak Walrus Counts, Round Island,  
Walrus Islands State Game Sanctuary 1972-2007**



*Figure 4. Walrus peak numbers, Round Island 1972-2007.*



*Figure 5. A young walrus that was observed for most of the 2007 field season.*



*Figure 6. Finished rebuilt Round Island cabin.*

## TABLES

Table 1. Country/state of origin of visitors, Round Island 2007.

Origin	Campers	Non-guided day-visitors	Guided day-visitors
<b>United States</b>			
Alaska	<b>17</b>	<b>13</b>	<b>8</b>
Anchorage	(5)		
Dillingham	(7)		(1)
Fairbanks			(1)
Homer		(2)	
Juneau	(1)		
Kodiak		(9)	
Petersburg	(1)	(1)	
Talkeetna	(3)	(1)	
Togiak			(5)
Two Rivers			(1)
California	<b>4</b>		
Kansas			<b>4</b>
Nevada			<b>2</b>
New Jersey			<b>5</b>
North Carolina	<b>2</b>		
Oregon	<b>2</b>		<b>1</b>
Virginia	<b>4</b>		
Washington		<b>5</b>	
<b>France</b>	<b>3</b>		
<b>Germany</b>			<b>1</b>
<b>Japan</b>			<b>1</b>
<b>Total</b>	<b>32</b>	<b>18</b>	<b>22</b>

Table 2. Walrus response to anthropogenic and natural stimuli, Round Island 2007.

Walrus Response	Anthropogenic Stimulus	Natural Stimulus
Head Raises	4 (boat)	0
Reorienting	0	0
Dispersal	12-boat, 1-boat & helicopter	1-killer whale, 1-unknown
<b>Total response in relation to stimulus</b>	<b>17</b>	<b>2</b>
No Reaction	27-boat, 1-boat & helicopter, 1-aircraft	0
Walrus not observed	4-boat	0
No walrus present	20-boat	0
<b>Total of activities</b>	<b>70</b>	<b>2</b>

Table 3. Productivity of three indicator seabird species; pelagic cormorant, black-legged kittiwakes, and common murre, Round Island 2007.

Species	Plot	# of nests	*Date of 1 <sup>st</sup> egg	Date of 1 <sup>st</sup> chick	Max chick count	Date of max chick count
PECO	SB	20	5/13	6/16	41	7/12
PECO	FP	30	5/13	6/14	91	7/6
BLKI	OP2	20	6/12	7/4	16	7/12
BLKI	OP3	17	6/12	7/4	9	7/19
COMU	OP1	11	6/18	7/22	10	7/22
COMU	OP2	17	6/12	7/22	8	7/30
COMU	OP4	24	6/19	7/16	13	7/30

If the maximum chick count is the same for multiple days, the first date of the maximum count is used for this table

Table 4. Seabird productivity summary, Round Island, 2007.

	PECO	BLKI	COMU
	n	n	n
Nests or pairs	50	37	52
Eggs laid	156	51	52
Chicks hatched	132	25	31
Chicks fledged	119	14	25
Productivity (chicks/nest)	2.38	0.38	0.48
Hatching success	0.85	0.49	0.6
Reproductive success	0.76	0.27	0.48
Nesting success	0.86	0.38	0.48

Definitions:

Productivity: chicks fledged per pair or nest structure.

Hatching success: eggs that hatched per total eggs laid.

Reproductive success: chicks that fledged per total eggs laid.

Nesting success: nests where 1+ chicks fledged per total nest structures.

## APPENDICES

*Appendix A. Daily log; noting observations of first plant and animal sightings, rare occurrences, and general weather descriptions, Round Island, 2007.*

Date	2007 Round Island Daily Observations and Activities
5/1	<i>Birds</i> : Harlequin Duck, Rosy Finch, Long-tailed Duck, Bald Eagle, Sandhill Crane, Glaucous-winged Gull, Black-legged Kittiwake, Red Poll, Common Murre, Pigeon Guillemont, Parakeet Auklet, Common Raven, Golden-crowned Sparrow, Pelagic Cormorant. <i>Mammals</i> : Gray Whales, Steller Sea Lion, Walruses. <i>Comments</i> : ADF&G staff and two volunteers arrived on island.
5/2	<i>Birds</i> : Golden Eagle, Short-eared Owl, Lapland Longspur, Thick-billed Murre.
5/3	<i>Birds</i> : Tree Swallow, American Pipet, Goldeneye
5/5	<i>Mammals</i> : Gray Whales <i>Comments</i> : A branded Sea Lion (K209) observed and photographed
5/6	<i>Birds</i> : Savannah Sparrow, Falcon Spp. <i>Comments</i> : The F/V Kustatan (boat with RI gear and building supplies) arrives in Nushagak Bay, awaiting a helicopter and good weather. The Red Knot (RI's inflatable raft) was inflated.
5/7	<i>Birds</i> : King Eider. <i>Comments</i> : Snow in morning.
5/8	<i>Birds</i> : Tufted Puffin. <i>Mammals</i> : Gray Whales rolling on the spit. <i>Comments</i> : Over 200 Parakeet Auklets, Snow in the afternoon. Floor and foundation of old part of cabin cleared out.
5/9	<i>Mammals</i> : Gray Whales. <i>Comments</i> : Rick and Dave (carpenters) hike to summit.
5/10	<i>Comments</i> : Golden-crowned Sparrow sings. <i>Comments</i> : F/V Kustatan and helicopter arrive and slings 25 loads of gear and building material to island
5/11	<i>Mammals</i> : Gray Whales. <i>Comments</i> : Songbirds heard all along trails. King Eider pair in BC.
5/12	<i>Birds</i> : Green-winged Teal, Northern Harrier. <i>Mammals</i> : Gray Whales, Red Foxes at a den South of the Cabin. <i>Comments</i> : First day that Walruses have hauled out on FB and SB. <i>Comments</i> : Rick and Dave head to WM but the ground was too frozen to cross TT safely. FV Jamboree drops off ten day visitors.
5/13	<i>Birds</i> : Double-crested Cormorant, . <i>Mammals</i> : Gray Whale and calf. <i>Comments</i> : F/V Adversity drops off five day visitors. Motor storage box built at BC.
5/14	<i>Birds</i> : Least Sandpiper, White-crowned sparrow. <i>Mammals</i> : Gray Whale. <i>Plant Blooms</i> : Woolly Lousewort. First PECO eggs observed.
5/15	<i>Birds</i> : Hermit Thrush. <i>Plants</i> : Coltsfoot in bloom. <i>Comments</i> : Togiak Outfitters pick up Rick and Dave (volunteers).
5/16	<i>Birds</i> : Three-toed Woodpecker, Horned Puffin, American Tree Sparrow, Dark-eyed Junco. <i>Mammals</i> : Gray Whales, Killer Whales (at least eight). <i>Comments</i> : 700+ Parakeet Auklets on the water.
5/17	<i>Birds</i> : Northern Pintail, Yellow-rumped Warbler, Varied Thrush. <i>Mammals</i> : Gray Whale, Young Walrus. <i>Comments</i> : First observation of HOPU on cliffs.
5/18	<i>Flowers</i> : Alaska Violet. <i>Comments</i> : Togiak Outfitter's Paul Markof brings in and guides five day visitors.
5/19	<i>Flowers</i> : Narccissus-flowered Anomone, Water Cress.
5/20	<i>Mammals</i> : Gray Whale. <i>Comments</i> : Water line installed. A vessel entered the three-mile restricted zone around Round Island. The captain was hailed on the radio and was asked to leave the restricted area.
5/21	<i>Birds</i> : Tree swallows. <i>Comments</i> : First TUPUs seen at Puffin Rock and HOPUs are common on the water.
5/23	<i>Birds</i> : Crested Auklets. <i>Plants</i> : Cloudberry blooms. <i>Comments</i> : No Walruses on the Island
5/24	<i>Comments</i> : One walrus on island but many were crossing the spit through the surf.
5/25	<i>Plants</i> : Few-flowered Corydalis, Cuckoo flower. <i>Comments</i> : An increase in the number of HOPUs were observed. Male Sea Lion spent the day at FR.
5/26	<i>Flowers</i> : Purple Cress, Yellow Anemone. <i>Comments</i> : Herring processors are finishing for the season. Asian freighters going to and from Togiak. The F/V Oregon anchors a mile offshore and three-day visitors come ashore.
5/27	<i>Birds</i> : American Robin. <i>Mammals</i> : Unidentified Whale. <i>Plants</i> : Alpine Forget-Me-Not. <i>Comments</i> : A floating dead walrus was recovered for the ivory. Blood was seen coming from the anus and mouth. The 2007 high walrus count of 5,245 occurred. A freighter was hailed on the radio and the captain verified that they were 2.8 miles from the island. He complied when asked to move outside the three mile restricted area.
5/28	<i>Birds</i> : Wandering Tattler. <i>Comments</i> : Tusks from walrus carcass found at CG were removed.
5/29	<i>Birds</i> : Rough-legged hawk, Wilson Warbler. <i>Comments</i> : Severely injured walrus, with swollen and bruised head and missing eyeball was resting at FB. Staff went around the island for boat counts.
5/30	<i>Comments</i> : Injured walrus seen 5/29 found dead in morning.
5/31	<i>Plants</i> : Two-flowered violet, Jacobs Ladder, Lingon Berry, Rock Jasmine <i>Comments</i> : The stairway was installed. Two tusks were retrieved from FB

Appendix A. continued.

Date	2007 Round Island Daily Observations and Activities
6/1	<i>Comments:</i> Staff attempted to remove tusks from a dead walrus but were unable to due to rocks being in the way.
6/2	<i>Birds:</i> Peregrin Falcon. <i>Plant Blooms:</i> Dogwood. <i>Comments:</i> 15 boats observed fishing for Yellow Fin Sole in Nushugsak Peninsula.
6/3	<i>Plants:</i> Nagoonberry, Alp Lily, Bog Rosemary, Villous Cinquefoil.
6/6	<i>Comments:</i> Two CORA chicks in nest between SP and East Cape. BLKI gathering nesting material
6/7	<i>Plant Blooms:</i> Hairy Arctic Milk Vetch, Labrador Tea, Chocolate Lily, Star Flower, Winter Cress. <i>Comments:</i> Togiak Outfitters picks up two visitors. Staff retrieved two tusks from a dead walrus on MB.
6/8	<i>Plant Blooms:</i> Mouse-eared Chickweed, Blueberry. <i>Comments:</i> A dead shrew and some RI worms were collected and preserved for later identification. Two large tusks were collected from carcass on SP.
6/9	<i>Comments:</i> BLKI nests are being constructed. A CORA with green egg was observed. Two Red Fox pups were observed at East Cape
6/10	<i>Comments:</i> First COMU and BLKI eggs observed. <i>Plant blooms:</i> Poppies
6/11	<i>Plant Blooms:</i> Arctic Dock.
6/12	<i>Comments:</i> The carpenters were unable to arrive yesterday or today due to bad weather.
6/13	<i>Plant Blooms:</i> Lupine, Bering Chickweed. <i>Comments:</i> A very small walrus hauled out a FB.
6/14	<i>Comments:</i> Three more dead shrews found on CG trails. Togiak Outfitter's Lindsey Mary arrives with Two carpenters and two day visitors.
6/15	<i>Comments:</i> First PECO chicks hatch. A fishing vessel was observed within the three mile restricted zone. The construction of the front part of the cabin began today.
6/16	<i>Comments:</i> It is too windy at OP for seabird population counts and productivity monitoring. The floor joist and the floor was installed in the cabin.
6/17	<i>Comments:</i> It is too windy to count at OP. The first wall of the cabin is up.
6/18	<i>Comments:</i> A CORA was observed taking an adult BLKI out of its nest, eating it on the beach, then going back to the nest to eat the eggs. A yearling walrus was sighted at SB. The East wall of the cabin is now up.
6/19	<i>Plant Blooms:</i> Dandelion, Capitata Valerian. <i>Comments:</i> The yearling walrus was still on SB in the morning then later was seen riding the back of an adult from the front of the cabin to West of NBC. The North wall of the cabin is up and the floor joist of the loft was installed.
6/20	<i>Plant Blooms:</i> Arctic Daisy. <i>Comments:</i> There are 22 Steller Sea Lion brands from RI documented to date. The upstairs gable of cabin is up.
6/21	<i>Comments:</i> The rafters to the cabin are up.
6/22	<i>Comments:</i> The roof plywood and the steps to the loft were built.
6/23	<i>Comments:</i> The stovepipe was installed.
6/24	<i>Plant Blooms:</i> Dryas. <i>Comments:</i> The roof is now waterproof and the windows were installed.
6/25	<i>Plant Blooms:</i> Wild celery, Golden Rod, Spirea, Iris, Langsdor Lousewort. <i>Comments:</i> Three fox pups were observed at a den. The door of the cabin was installed and the oil stove is ready to use.
6/26	<i>Comments:</i> A mature and immature bald eagle lock talons and spiral downward until they almost hit the water at FB.
6/27	<i>Comments:</i> A new VHF antenna was installed. The boardwalk and deck in front of the cabin was dismantled and a new one is under construction.
6/28	<i>Comments:</i> The joist for the new boardwalk and deck was installed.
6/29	<i>Comments:</i> The cabin deck, boardwalk and steps are completed.
6/30	<i>Plant Blooms:</i> Monkshood, Cow Parsnip, Lessing's Arnica, Dwarf Arctic Bitterweed, Yarrow. <i>Comments:</i> The Lindsey Mary dropped off five campers. The cabin is being insulated and a gas storage shed is under construction.



Appendix A. continued.

Date	2007 Round Island Daily Observations and Activities
7/1	<i>Comments:</i> The young walrus, Chubby, was seen at FB.
7/2	<i>Plant Blooms:</i> Dwarf Fireweed, Rattlebox, Yellow Marsh Saxifrage. <i>Comments:</i> Young walrus still present. Pebble roofing was installed
7/3	<i>Comments:</i> The first BLKI chicks were observed. <i>Plant Blooms:</i> Wormwood. The Inconnu arrives with volunteer Sandy Kogl and the bird survey crew. The Lindsey Mary arrives to pick up two campers.
7/4	<i>Comments:</i> The Lindsey Mary picks up two campers. The cabin roof and cable tie downs are finished. The fuel storage shed is painted and the doors have been installed.
7/5	<i>Comments:</i> The Lindsey Mary picks up one camper. The cabin insulation is completed.
7/6	<i>Plant Blooms:</i> Marsh Fivefinger, Wild Celery.
7/7	<i>Plant Blooms:</i> Willow Herb. <i>Comments:</i> The cabin paneling is completed and the kitchen counter is in place.
7/8	<i>Comments:</i> The Lindsey Mary drops off five day visitors.
7/9	<i>Plant Blooms:</i> Mountain Harebells, Capitata Lousewort, Alpine Meadow Bistort. <i>Comments:</i> The first COMU chicks were observed. Front half of cabin completed. The Lindsey Mary drops off five campers.
7/10	<i>Comments:</i> Poor weather keeps the two carpenters from departing.
7/11	<i>Plant Blooms:</i> Grass of Parnassus, Northern Bedstraw. <i>Comments:</i> Carpenters depart and three campers arrive.
7/12	<i>Mammals:</i> Minke Whale. <i>Comments:</i> Five campers leave
7/13	<i>Plant Blooms:</i> Twin Flower. <i>Comments:</i> There are many sparrow fledglings along the trails.
7/14	<i>Mammals:</i> Minke Whale. <i>Comments:</i> The bird survey crew arrives and four come on island.
7/15	<i>Comments:</i> RI staff go off island to see Summit Island and Black Rock on the Inconnu. Laura and Marian, of the seabird crew, performed walrus counts while Lisa helps RI volunteers to pack things up to take off Island. The bird survey crew helps to jack up the storage shed which started to sink in the bog area behind the cabin.
7/16	<i>Birds:</i> Wandering Tattlers. <i>Comments:</i> Lindsey Mary picks up three visitors and one volunteer. Young walrus still on island.
7/17	<i>Comments:</i> Young walrus moves from FB to SB.
7/18	<i>Comments:</i> Completed finish work in cabin.
7/20	<i>Comments:</i> Kitchen cabinet was built.
7/21	<i>Birds:</i> Unidentified Sandpiper. <i>Plant Blossoms:</i> Fireweed. <i>Comments:</i> The three fox pups are exploring the cabin area. The Inconnu arrives with four day visitors.
7/22	<i>Comments:</i> CORA fledgelings vocal and chasing adults. The day visitors from yesterday are on the Inconnu.
7/24	<i>Comments:</i> First PECO chick observed on the water. A Peregrine Falcon chases a CORA. The Inconnu arrives with six campers. The young walrus was observed at SB.
7/25	<i>Comments:</i> An adult COMU from plot one is dead on a ledge of the plot. Three fox pups at East Cape den. Terry Johnson from the Inconnu iguided clients. A walrus identified by a rock in its head, was seen for the fifth year. The young walrus was seen at SB.
7/26	<i>Comments:</i> Cloud berries ripen. The Lindsey Mary drops off a camper and the Inconnu picks up six campers
7/27	<i>Comments:</i> The first live shrew was observed .
7/28	<i>Comments:</i> The Inconnu brings in two day visitors.
7/29	<i>Comments:</i> the Bearberry leaves are turning red and Alp Lilies are blooming.
7/30	<i>Comments:</i> Most of the COMU chicks have hatched but there are a few eggs left. There is a 45% survival rate of BLKI to date. The PECO chicks are fledging daily.
7/31	<i>Comments:</i> The Lindsey Mary picks up one camper.

*Appendix A. continued.*

<b>Date</b>	<b>2007 Round Island Daily Observations and Activities</b>
<b>8/2</b>	<i>Comments</i> : Today was the first day to hear COMU chicks peeping. Staff dismantled the Seemore video cam equipment.
<b>8/3</b>	<i>Comments</i> : The Inconnu drops off four campers.
<b>8/5</b>	<i>Comments</i> : High winds gusting up to 53 knots. The Inconnu arrives to pick up campers, but the wind will not allow Terry to come ashore.
<b>8/6</b>	<i>Birds</i> : Juvenile Black Turnstones
<b>8/7</b>	<i>Comments</i> : BLKI chicks fledged today. The Inconnu dropped off four campers.
<b>8/8</b>	<i>Comments</i> : COMU chicks start to fledge. The young walrus was seen at SB. The Inconnu departs for the season
<b>8/11</b>	<i>Comments</i> : A flockk of 24 Black Turnstones flew by.
<b>8/12</b>	<i>Comments</i> : Two COMU chicks jumped at OP where the adults are walking with them across the boulder beach to the water. The Lidsey Mary dropped off two campers
<b>8/14</b>	<i>Comments</i> : A PIGU fledgling was seen in BC.
<b>8/16</b>	<i>Comments</i> : A flock of predominately BLKI fledglings was observed.
<b>8/17</b>	<i>Comments</i> : The young walrus was observed at FB.

Appendix B. Anthropogenic activities and natural occurrences, Round Island 2007.

Date 2007	Start time	End time	Disturbance Type	Closest Approach	# Walruses and *beach ID	# Walruses **react beach ID	Comments
5/1	0700	0745	boat-AV		0	n/a	
5/4	1445	1450	plane-A	1700 ft AGL	230	ND	
5/10	1345		boat and helicopter-AV	600 ft	5-FR, 1-BC	5-FR, DS	arrival-see below for departure
5/10	1600		boat and helicopter-AV	600 ft	1-BC		departure
5/12	1200		boat-AV	1000 ft	21-FR, 6-BC	12-FR,HR	arrival-see below for departure
5/12	1700		boat-AV	1000 ft	21-FR, 6-BC	ND	departure
5/13	1100		boat-AV	1000 ft	22-FR	10-FR,DS	arrival-see below for departure
5/13	1240		boat-AV	1000 ft			departure
5/15	0600	0620	boat-AV	100 ft	2-FR	ND	
5/16	0815	1000	Killer Whales	approached walruses		hundreds dispersed	
5/18	0745		boat-AV	600 ft	2-FR	ND	arrival-see below for departure
5/18	1315		boat-AV	600 ft	7-FR	ND	departure
5/26	1556	1756	boat-AV	1 mile	15-FR, 2CG	7-FR,HR 2-CG,DS	arrival-see below for departure
5/26	2154	2156	boat-AV	1 mile	15-FR	ND	departure
5/27	?	?	boat	2.8 miles	?	?	Hailed freighter from camp to ask it to move outside of restricted zone.
6/4	1150	1225	boat-AV	100 ft	10-FR	ND	
6/6	0748		boat	no walrus	0	n/a	arrival-see below for departure
6/6	0858		boat	no walrus	0	n/a	departure
6/13	1130		boat-AV	100 ft	1-CG, 16 FR	ND	arrival-see below for departure
6/13	0215		boat-AV	100 ft	1-BC, 20-FR	1-FR,DS BC-ND	departure
6/14	2050		boat	1 mile			Passes by island within restricted zone
6/26	1300	1320	boat-AV	100 ft	1-CG, 30-BC, 10-FR	ND	
6/29	1251		boat-AV	100 ft	3-BC, 16-FR	ND	arrival-see below for departure
6/29	1730		boat-AV	100 ft	3-BC, 16-FR	ND	departure
6/30	0908	0918	boat-AV	800 ft	6-BC, 6-FR	ND	
7/3	0900	0920	boat-AV	800 ft	8-BC, 7-FR	ND	
7/3	1640		boat-AV	50 ft	3-BC, 7-FR	1-BC,DS FR-ND	arrival-see below for departure
7/3	2100		boat-AV	50 ft	2-BC, 7-FR	ND	departure
7/4	1025	1040	boat-AV	300-ft	10-FR, 2-CG	ND	
7/5	1055	1110	boat-AV	600 ft	13-FR	4-FR,DS	
7/8	1010		boat-AV	600 ft	8-FR	ND	arrival-see below for departure
7/8	1610		boat-AV	600 ft	5-FR	5-FR, DS	departure
7/9	1450	1530	boat-AV	800 ft	16-FR	ND	
7/11	1200	1230	boat-AV	600 ft	12-FR	3-FR,HR	
7/12	1300	1330	boat-AV	no walrus	0	n/a	
7/12			boat-AV	350 ft	222-WM	210-WM,DS	ADF&G contract vessel
7/13			boat-AV	750 ft			ADF&G contract vessel anchors and uses inflatable to do seabird counts.
7/14	1040		boat-AV	800 ft	16-FR,7-CG, BC	ND	arrival-see below for departure
7/14	2210		boat-AV	800 ft	16-FR,7-CG, BC	ND	departure
7/15	0940		boat-AV	800 ft	8-FR, 7-CG, BC	ND	arrival-see below for departure
7/15	1330		boat-AV	800 ft	8-FR, 7-CG, BC	ND	departure
7/15	1909	2035	boat-AV	800 ft	3-FR, 7-CG	FR-ND 7-FR,DS	ADF&G contract vessel
7/16	1010	1030	boat-AV	600 ft	3-FR	ND	Visitor transport boat

Appendix B. continued.

Date 2007	Start time	End time	Disturbance Type	Closest Approach	# Walruses and *beach ID	# Walruses **react beach ID	Comments
7/21	1700		boat-AV	2400 ft	436-MB	MB, 20-DS 50-OR	departure
7/21			unknown		120-FB	120-DS	unknown cause
7/22	1145		boat-AV	600 ft	17-FR	FR, 7HR	arrival-see below for departure
7/24	1750		boat-AV	600 ft	10-FR	ND	departure
7/25			boat-AV	600 ft			arrival-see below for departure
7/25			boat-AV	600 ft			departure
7/26	0750	0812	boat-AV	300 ft	17-FR,3-BC, 10-CG	ND	
7/26	0830		boat-AV	800 ft	17-FR, 2-BC, 12-CG	ND	arrival-see below for departure
7/26	1010		boat-AV	800 ft	17-FR, 2-BC, 12-CG	FR, 4-HR	departure
7/26	1510	1530	boat-AV	600 ft	0	n/a	Passes by island within restricted zone
7/28	0820		boat-AV	600 ft	0	n/a	arrival-see below for departure
7/28	1200		boat-AV	600 ft	0	n/a	departure
7/28	1730		boat-AV	600 ft	0	n/a	arrival-see below for departure
7/28	2000		boat-AV	600 ft	0	n/a	departure
7/31	0950	0958	boat-AV	600 ft	14-FR, 12-CG	FR, 14-DS	
8/3	1600		boat-AV	600 ft	27-FR	FR, 3-DS	arrival-see below for departure
8/3	2230		boat-AV	600 ft	27-FR	ND	departure
8/4	1000		boat-AV	600 ft	0	n/a	arrival-see below for departure
8/4	2130		boat-AV	600 ft	0	n/a	departure
8/5	1450		boat-AV	600 ft	0	n/a	arrival-see below for departure
8/5	1620		boat-AV	600 ft	0	n/a	departure
8/6	1440		boat-AV	600 ft	0	n/a	arrival-see below for departure
8/6	1543		boat-AV	600 ft	0	n/a	departure
8/7	0940		boat-AV	600 ft	0	n/a	arrival-see below for departure
8/7	2100		boat-AV	600 ft	0	n/a	departure
8/8	0940		boat-AV	600 ft	0	n/a	arrival-see below for departure
8/8	2100		boat-AV	600 ft	0	n/a	departure
8/12	1245	1300	boat-AV	600 ft	1-FR, 1-BC	FR, 1 DS	
8/15	0944	1015	boat-AV	To shore	0	n/a	

\*Beach Id; MB-Main Beach, FR-Flat Rock, BC-Boat Cove, CG-Camp Groun.

\*\*Reaction of Walrus; DS-Dispersal, OR-Reorient, HR-Head Raise, ND-No Disturbance

Appendix C. Daily walrus counts, Round Island 2007.

LOG ID	DATE	TIME	OBS	BCH	Start	End	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070501	5/1	1700	DCO	SP	1700		S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	SB			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	FP			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	FB			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	CG			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	BC			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	FR			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	NBC			S	0	0	C	0	0	0	0	0	0
RI070501	5/1	1700	DCO	MB		1845	S	0	0	C	850	0	760	0	840	0
RI070501	5/1	1700		WM						C						

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070502	5/2	900	DCO	SP	920		S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	SB			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	FP			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	FB			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	CG			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	BC			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	FR			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	NBC			S	2	1	C	0	0	0	0	0	0
RI070502	5/2	900	DCO	MB		1130	S	2	1	C	220	3	240	3	220	3
RI070502	5/2	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070503	5/3	1300	DCO	SP	1303		S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	SB			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	FB			S	1	1	C	1	0	1	0	1	0
RI070503	5/3	1300	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	BC			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	FR			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070503	5/3	1300	DCO	MB		1416	S	1	1	C	280	6	250	6	290	6
RI070503	5/3	1300		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070504	5/4	1700	DCO	SP	1730		S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	SB			S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	FP			S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	FB			S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	CG			S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	FR			S	1	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070504	5/4	1700	DCO	MB		1840	S	0	1	C	130	6	130	6	120	6
RI070504	5/4	1700		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070505	5/5	1400	DCO	SP	1410		S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	SB			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	FP			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	FB			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	CG			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	FR			S	0	1	C	0	1	0	1	0	1
RI070505	5/5	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070505	5/5	1400	DCO	MB		1530	S	0	1	C	300	0	300	0	300	0
RI070505	5/5	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070506	5/6	1700	BO	SP	1714		S	1	2	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	SB			S	1	2	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	FP			S	1	2	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	FB			S	1	2	C	1	0	1	0	1	0
RI070506	5/6	1700	BO	CG			S	1	3	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	BC			S	1	3	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	FR			S	1	3	C	0	2	0	2	0	2
RI070506	5/6	1700	BO	NBC			S	1	2	C	0	0	0	0	0	0
RI070506	5/6	1700	BO	MB		1821	S	1	2	C	253	6	262	3	248	3
RI070506	5/6	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070507	5/7	1400	DCO	SP	1400		S	0	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	SB			S	0	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	FB			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	BC			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	FR			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070507	5/7	1400	DCO	MB		1506	S	1	1	C	171	27	165	22	180	24
RI070507	5/7	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070508	5/8	1400	BO	SP	1407		S	1	2	C	1	0	1	0	1	0
RI070508	5/8	1400	BO	SB			S	1	2	C	0	2	0	2	0	2
RI070508	5/8	1400	BO	FP			S	1	2	C	0	0	0	0	0	0
RI070508	5/8	1400	BO	FB			S	1	2	C	0	0	0	0	0	0
RI070508	5/8	1400	BO	CG			S	1	2	C	0	0	0	0	0	0
RI070508	5/8	1400	BO	BC			S	1	2	C	0	0	0	0	0	0
RI070508	5/8	1400	BO	FR			S	1	2	C	0	2	0	2	0	2
RI070508	5/8	1400	BO	NBC			S	1	2	C	0	0	0	0	0	0
RI070508	5/8	1400	BO	MB		1545	S	0	2	C	580	7	620	5	452	15
RI070508	5/8	1400		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070509	5/9	1400	DCO	SP	1400		S	1	3	C	0	0	0	0	0	0
RI070509	5/9	1400	DCO	SB			S	1	3	C	0	0	0	0	0	0
RI070509	5/9	1400	DCO	FP			S	1	3	C	0	0	0	0	0	0
RI070509	5/9	1400	DCO	FB			S	1	3	C	0	0	0	0	0	0
RI070509	5/9	1400	DCO	CG			S	1	3	C	1	0	1	0	1	0
RI070509	5/9	1400	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070509	5/9	1400	DCO	FR			S	1	3	C	0	2	0	2	0	2
RI070509	5/9	1400	DCO	NBC			S	1	3	C	0	1	0	1	0	1
RI070509	5/9	1400	DCO	MB		1518	S	1	3	C	550	27	580	27	550	22
RI070509	5/9	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070511	5/11	1400	DCO	SP	1422		S	2	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	SB			S	2	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	FP			S	2	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	FB			S	2	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	CG			S	1	3	C	0	1	0	1	0	1
RI070511	5/11	1400	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	FR			S	1	3	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070511	5/11	1400	DCO	MB		1526	S	1	2	C	820	40	840	35	810	37
RI070511	5/11	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070512	5/12	1400	BJO	SP	1430		S	1	1	C	0	0	0	0	0	0
RI070512	5/12	1400	BJO	SB			S	1	1	C	25	0	25	0	25	0
RI070512	5/12	1400	BJO	FP			S	1	1	C	0	0	0	0	0	0
RI070512	5/12	1400	BJO	FB			S	1	1	C	50	0	52	0	49	0
RI070512	5/12	1400	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070512	5/12	1400	BJO	BC			S	1	1	C	1	0	1	0	1	0
RI070512	5/12	1400	BJO	FR			S	1	1	C	21	0	21	0	21	0
RI070512	5/12	1400	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070512	5/12	1400	BJO	MB		1708	S	1	1	C	3420	27	3340	17	3980	8
RI070512	5/12	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070513	5/13	1400	DCO	SP	1420		S	0	0	C	0	0	0	0	0	0
RI070513	5/13	1400	DCO	SB			S	0	0	C	69	5	69	5	69	5
RI070513	5/13	1400	DCO	FP			S	0	0	C	0	0	0	0	0	0
RI070513	5/13	1400	DCO	FB			S	0	0	C	107	10	104	10	114	10
RI070513	5/13	1400	DCO	CG			S	0	0	C	1	2	15	0	1	2
RI070513	5/13	1400	DCO	BC			S	0	0	C	0	2	0	2	0	2
RI070513	5/13	1400	DCO	FR			S	0	0	C	15	2	15	2	15	2
RI070513	5/13	1400	DCO	NBC			S	0	0	C	1	0	1	0	1	0
RI070513	5/13	1400	DCO	MB		1601	S	0	0	C	3800	67	4200	63	3500	64
RI070513	5/13	1400		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070514	5/14	900	DCO	SP	930		S	1	2	C	0	0	0	0	0	0
RI070514	5/14	900	DCO	SB			S	1	2	C	43	0	44	0	42	0
RI070514	5/14	900	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070514	5/14	900	DCO	FB			S	2	2	C	62	2	62	2	58	2
RI070514	5/14	900	DCO	CG			S	2	2	C	0	0	0	0	0	0
RI070514	5/14	900	DCO	BC			S	1	2	C	0	0	0	0	0	0
RI070514	5/14	900	DCO	FR			S	2	2	C	2	0	2	0	2	0
RI070514	5/14	900	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070514	5/14	900	DCO	MB		1120	S	1	2	C	1060	51	1080	67	1200	46
RI070514	5/14	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070515	5/15	1700	DCO	SP		1811	S	1	3	C	0	0	0	0	0	0
RI070515	5/15	1700	DCO	SB			S	1	3	C	0	0	0	0	0	0
RI070515	5/15	1700	DCO	FP			S	1	3	C	0	0	0	0	0	0
RI070515	5/15	1700	DCO	FB			S	1	3	C	5	0	5	0	5	0
RI070515	5/15	1700	DCO	CG			S	1	3	C	0	2	0	2	0	2
RI070515	5/15	1700	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070515	5/15	1700	DCO	FR			S	1	3	C	6	0	6	0	6	0
RI070515	5/15	1700	DCO	NBC			S	1	3	C	0	0	0	0	0	0
RI070515	5/15	1700	DCO	MB	1700		S	1	3	C	2200	25	2100	25	2200	25
RI070515	5/15	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070516	5/16	900	BJO	SP	1347	1348	S	1	2	C	0	1	0	1	0	1
RI070516	5/16	900	BJO	SB	1337	1340	S	1	2	C	0	2	0	2	0	2
RI070516	5/16	900	BJO	FP	1335	1336	S	1	2	C	0	0	0	0	0	0
RI070516	5/16	900	BJO	FB	1325	1330	S	1	2	C	41	3	43	2	40	9
RI070516	5/16	900	BJO	CG	1035	1036	S	2	3	C	0	0	0	0	0	0
RI070516	5/16	900	BJO	BC	1038	1046	S	2	3	C	1	9	1	9	1	9
RI070516	5/16	900	BJO	FR	1047	1048	S	2	3	C	7	0	7	0	7	0
RI070516	5/16	900	BJO	NBC	1054	1055	S	2	3	C	0	0	0	0	0	0
RI070516	5/16	900	BJO	MB	1058	1133	S	1	3	C	3340	750	3500	750	2900	750
RI070516	5/16	900	BJO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070517	5/17	1400	DCO	SP	1420		S	1	1	C	0	0	0	0	0	0
RI070517	5/17	1400	DCO	SB			S	1	1	C	0	0	0	0	0	0
RI070517	5/17	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070517	5/17	1400	DCO	FB			S	1	1	C	72	4	69	3	74	4
RI070517	5/17	1400	DCO	CG			S	1	1	C	0	2	0	2	0	2
RI070517	5/17	1400	DCO	BC			S	1	1	C	0	1	0	1	0	1
RI070517	5/17	1400	DCO	FR			S	1	1	C	11	1	11	1	11	1
RI070517	5/17	1400	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070517	5/17	1400	DCO	MB		1625	S	1	1	C	2600	176	2700	174	2500	182
RI070517	5/17	1400		WM												



Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070518	5/18	1400	DCO	SP	1420		S	0	1	C	0	0	0	0	0	0
RI070518	5/18	1400	DCO	SB			S	0	1	C	1	1	1	1	1	1
RI070518	5/18	1400	DCO	FP			S	0	1	C	0	1	0	1	0	1
RI070518	5/18	1400	DCO	FB			S	1	1	C	90	5	92	5	90	6
RI070518	5/18	1400	DCO	CG			S	1	1	C	0	2	0	2	0	2
RI070518	5/18	1400	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070518	5/18	1400	DCO	FR			S	0	1	C	11	1	11	1	11	1
RI070518	5/18	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070518	5/18	1400	DCO	MB		1618	S	0	1	C	3100	76	3300	99	3000	86
RI070518	5/18	1400		WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070519	5/19	1700	DCO	SP	1720		S	0	1	C	0	0	0	0	0	0
RI070519	5/19	1700	DCO	SB			S	0	1	C	0	0	0	0	0	0
RI070519	5/19	1700	DCO	FP			S	0	1	C	2	1	2	1	2	1
RI070519	5/19	1700	DCO	FB			S	0	1	C	80	5	78	5	82	5
RI070519	5/19	1700	DCO	CG			S	1	2	C	0	6	0	6	0	6
RI070519	5/19	1700	DCO	BC			S	1	2	C	0	6	0	6	0	6
RI070519	5/19	1700	DCO	FR			S	1	2	C	0	7	0	7	0	7
RI070519	5/19	1700	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070519	5/19	1700	DCO	MB		1845	S	1	2	C	2400	109	2500	104	2300	122
RI070519	5/19	1700		WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070520	5/20	1700	BJO	SP	1725		S	1	2	C	0	0	0	0	0	0
RI070520	5/20	1700	BJO	SB			S	1	2	C	0	1	0	1	0	1
RI070520	5/20	1700	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070520	5/20	1700	BJO	FB			S	1	2	C	37	0	37	0	37	0
RI070520	5/20	1700	BJO	CG			S	1	2	C	4	1	4	1	4	1
RI070520	5/20	1700	BJO	BC			S	1	1	C	0	1	0	1	0	1
RI070520	5/20	1700	BJO	FR			S	1	1	C	0	0	0	0	0	0
RI070520	5/20	1700	BJO	NBC			S	1	1	C	1	0	1	0	1	0
RI070520	5/20	1700	BJO	MB		1856	S	1	1	C	1980	45	1800	33	2221	26
RI070520	5/20	1700		WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070521	5/21	1400	DCO	SP	1420		S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	SB			S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	FP			S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	FB			S	0	0	C	23	0	23	0	23	0
RI070521	5/21	1400	DCO	CG			S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	BC			S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	FR			S	0	0	C	2	0	2	0	2	0
RI070521	5/21	1400	DCO	NBC			S	0	0	C	0	0	0	0	0	0
RI070521	5/21	1400	DCO	MB		1559	S	0	0	C	1750	37	1700	33	1800	0
RI070521	5/21	1400		WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070522	5/22	1700	BJO	SP			S	3	5	C	0	0	0	0	0	0
RI070522	5/22	1700														

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070523	5/23	900	BJO	SP	921		S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	SB			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	FP			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	FB			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	CG			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	BC			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	FR			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	NBC			S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900	BJO	MB		1020	S	3	4	C	0	0	0	0	0	0
RI070523	5/23	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070524	5/24	1400	BJO	SP	1426		S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	SB			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	FP			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	FB			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	CG			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	BC			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	FR			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	NBC			S	3	4	C	0	0	0	0	0	0
RI070524	5/24	1400	BJO	MB		1537	S	2	4	C	1	10	1	10	1	10
RI070524	5/24	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070525	5/25	1400	DCO	SP	1420		S	1	1	C	0	0	0	0	0	0
RI070525	5/25	1400	DCO	SB			S	1	1	C	2	0	2	0	2	0
RI070525	5/25	1400	DCO	FP			S	1	1	C	1	0	1	0	1	0
RI070525	5/25	1400	DCO	FB			S	1	1	C	7	2	7	2	7	2
RI070525	5/25	1400	DCO	CG			S	1	1	C	0	1	0	1	0	1
RI070525	5/25	1400	DCO	BC			S	1	1	C	1	0	1	0	1	0
RI070525	5/25	1400	DCO	FR			S	1	1	C	0	0	0	0	0	0
RI070525	5/25	1400	DCO	NBC			S	1	1	C	1	0	1	0	1	0
RI070525	5/25	1400	DCO	MB		1705	S	1	1	C	2160	20	2460	20	2060	20
RI070525	5/25	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070526	5/26	1500	DCO	SP	1715		S	0	0	C	0	1	0	1	0	1
RI070526	5/26	1500	DCO	SB			S	0	0	C	68	1	71	1	67	1
RI070526	5/26	1500	DCO	FP			S	0	0	C	0	0	0	0	0	0
RI070526	5/26	1500	DCO	FB			S	0	0	C	122	0	121	0	124	0
RI070526	5/26	1500	DCO	CG			S	0	0	C	0	0	0	0	0	0
RI070526	5/26	1500	DCO	BC			S	0	0	C	1	2	1	2	1	2
RI070526	5/26	1500	DCO	FR			S	0	0	C	19	2	19	2	19	2
RI070526	5/26	1500	DCO	NBC			S	0	0	C	1	0	1	0	1	0
RI070526	5/26	1500	DCO	MB		1900	S	0	1	C	2950	31	2850	29	3300	35
RI070526	5/26	1500		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070527	5/27	1400	BJO	SP	1412		S	1	2	C	0	0	0	0	0	0
RI070527	5/27	1400	BJO	SB			S	1	2	C	77	0	76	0	84	0
RI070527	5/27	1400	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070527	5/27	1400	BJO	FB			S	1	2	C	94	7	95	7	92	7
RI070527	5/27	1400	BJO	CG			S	1	1	C	2	0	2	0	2	0
RI070527	5/27	1400	BJO	BC			S	0	1	C	2	0	2	0	2	0
RI070527	5/27	1400	BJO	FR			S	0	1	C	17	0	17	0	17	0
RI070527	5/27	1400	BJO	NBC			S	0	1	C	1	0	1	0	1	0
RI070527	5/27	1400	BJO	MB		1742	S	0	1	C	5054	22	5257	22	4757	0
RI070527	5/27	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070528	5/28	1400	DCO	SP	1414		S	1	1	C	0	0	0	0	0	0
RI070528	5/28	1400	DCO	SB			S	1	1	C	24	0	24	0	24	0
RI070528	5/28	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070528	5/28	1400	DCO	FB			S	1	1	C	34	0	33	0	34	0
RI070528	5/28	1400	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070528	5/28	1400	DCO	BC			S	1	1	C	1	0	1	0	1	0
RI070528	5/28	1400	DCO	FR			S	1	1	C	7	0	7	0	7	0
RI070528	5/28	1400	DCO	NBC			S	0	0	C	0	0	0	0	0	0
RI070528	5/28	1400	DCO	MB			S	0	0	C	1250	38	1450	49	1150	47
RI070528	5/28	1400	DCO	WM		1615	S	1	1	C	287	16	280	16	290	16

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070529	5/29	1400	DCO	SP	1309		S	1	3	C	0	0	0	0	0	0
RI070529	5/29	1400	DCO	SB			S	1	3	C	6	0	6	0	6	0
RI070529	5/29	1400	DCO	FP			S	1	3	C	0	0	1	0	1	0
RI070529	5/29	1400	DCO	FB			S	1	3	C	1	0	0	0	0	0
RI070529	5/29	1400	DCO	CG			S	1	3	C	0	0	0	0	0	0
RI070529	5/29	1400	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070529	5/29	1400	DCO	FR			S	1	3	C	7	0	7	0	7	0
RI070529	5/29	1400	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070529	5/29	1400	DCO	MB			S	1	2	C	1000	?	1000	?	1000	?
RI070529	5/29	1400	DCO	WM		1432	S	1	1	C	555	?	555	?	555	?

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070530	5/30	1400	BJO	SP	1636		S	2	2	C	0	0	0	0	0	0
RI070530	5/30	1400	BJO	SB			S	1	2	C	2	0	2	0	2	0
RI070530	5/30	1400	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070530	5/30	1400	BJO	FB			S	1	2	C	4	0	4	0	4	0
RI070530	5/30	1400	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070530	5/30	1400	BJO	BC			S	1	1	C	1	0	1	0	1	0
RI070530	5/30	1400	BJO	FR			S	1	1	C	6	0	6	0	6	0
RI070530	5/30	1400	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070530	5/30	1400	BJO	MB			S	1	1	C	1660	0	1660	0	1680	0
RI070530	5/30	1400	DCO	WM		1831	S	1	1	C	540	10	540	13	500	10

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070601	6/1	1400	DCO	SP	1400		S	1	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	SB			S	1	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	FB			S	1	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	CG			S	0	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	BC			S	0	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	FR			S	0	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	NBC			S	0	2	C	0	0	0	0	0	0
RI070601	6/1	1400	DCO	MB		1502	S	0	2	C	900	?	900	?	900	?
RI070601	6/1	1400		WM			S			C						

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070602	6/2	1400	DCO	SP	1411		S	1	3	C	0	0	0	0	0	0
RI070602	6/2	1400	DCO	SB			S	1	3	C	0	1	0	1	0	1
RI070602	6/2	1400	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070602	6/2	1400	DCO	FB			S	1	2	C	0	1	0	1	0	1
RI070602	6/2	1400	DCO	CG			S	0	1	C	2	0	2	0	2	0
RI070602	6/2	1400	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070602	6/2	1400	DCO	FR			S	0	1	C	6	1	6	1	6	1
RI070602	6/2	1400	DCO	NBC			S	0	1	C	1	0	1	0	1	0
RI070602	6/2	1400	DCO	MB			S	0	1	C	951	50	850	53	960	60
RI070602	6/2	1400	DCO	WM		1625	S	0	1	C	450	27	424	24	463	24

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070603	6/3	1400	BJO	SP	1423		S	0	1	C	0	1	0	1	0	1
RI070603	6/3	1400	BJO	SB			S	0	1	C	0	0	0	0	0	0
RI070603	6/3	1400	BJO	FP			S	0	1	C	0	0	0	0	0	0
RI070603	6/3	1400	BJO	FB			S	0	1	C	27	0	27	0	27	0
RI070603	6/3	1400	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070603	6/3	1400	BJO	BC			S	1	1	C	0	0	0	0	0	0
RI070603	6/3	1400	BJO	FR			S	1	1	C	17	0	17	0	17	0
RI070603	6/3	1400	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070603	6/3	1400	BJO	MB			S	0	1	C	2136	25	2135	17	2141	19
RI070603	6/3	1400	DCO	WM		1600	S	1	1	C	460	28	430	25	465	35

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070605	6/5	1400	DCO	SP	1300		S	3	5	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	SB			S	3	5	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	FP			S	3	5	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	FB			S	3	5	C	2	1	2	1	2	1
RI070605	6/5	1400	DCO	CG			S	2	4	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	BC			S	2	4	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	FR			S	2	4	C	1	0	1	0	1	0
RI070605	6/5	1400	DCO	NBC			S	2	4	C	0	0	0	0	0	0
RI070605	6/5	1400	DCO	MB			S	1	3	C	1240	10	1160	9	1270	9
RI070605	6/5	1400	DCO	WM		1625	S	1	2	C	760	46	1000	44	680	41

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070606	6/6	1400	BJO	SP	1353		S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	SB			S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	FP			S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	FB			S	2	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	CG			S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	BC			S	1	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	FR			S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	NBC			S	3	4	C	0	0	0	0	0	0
RI070606	6/6	1400	BJO	MB		1512	S	2	3	C	653	13	665	10	652	8
RI070606	6/6	1400		WM			S									

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070607	6/7	1400	BJO	SP	1330		S	2	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	SB			S	2	2	C	1	0	1	0	1	0
RI070607	6/7	1400	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	FB			S	1	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	CG			S	1	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	FR			S	1	2	C	11	0	11	0	11	0
RI070607	6/7	1400	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070607	6/7	1400	BJO	MB		1501	S	1	2	C	900	?	900	?	900	?
RI070607	6/7	1400		WM			S									

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070608	6/8	1400	BJO	SP	1300		S	3	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	SB			S	2	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	FP			S	2	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	FB			S	2	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	CG			S	2	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	FR			S	1	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070608	6/8	1400	BJO	MB			S	1	2	C	639	14	696	7	618	6
RI070608	6/8	1400	BJO	WM		1705	S	1	1	C	573	11	557	6	632	6

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070609	6/9	900	DCO	SP	915		S	1	2	C	0	0	0	0	0	0
RI070609	6/9	900	DCO	SB			S	1	2	C	0	5	0	5	0	5
RI070609	6/9	900	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070609	6/9	900	DCO	FB			S	1	2	C	6	7	6	7	6	7
RI070609	6/9	900	DCO	CG			S	1	3	C	4	1	4	1	4	1
RI070609	6/9	900	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070609	6/9	900	DCO	FR			S	1	3	C	7	5	7	5	7	5
RI070609	6/9	900	DCO	NBC			S	1	3	C	0	0	0	0	0	0
RI070609	6/9	900	DCO	MB			S	1	2	C	450	91	410	121	470	101
RI070609	6/9	900	DCO	WM		1228	S	0	1	C	565	95	565	97	539	86

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070610	6/10	900	BJO	SP	921		S	1	5	C	1	0	1	0	1	0
RI070610	6/10	900	BJO	SB			S	1	5	C	3	4	3	4	3	4
RI070610	6/10	900	BJO	FP			S	1	5	C	0	0	0	0	0	0
RI070610	6/10	900	BJO	FB			S	1	5	C	89	11	89	8	91	14
RI070610	6/10	900	BJO	CG			S	3	5	C	0	0	0	0	0	0
RI070610	6/10	900	BJO	BC			S	2	5	C	1	0	1	0	1	0
RI070610	6/10	900	BJO	FR			S	3	5	C	3	3	3	3	3	3
RI070610	6/10	900	BJO	NBC			S	3	5	C	0	0	0	0	0	0
RI070610	6/10	900	BJO	MB		1046	S	1	5	C	1572	30	1282	28	1950	25
RI070610	6/10	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070611	6/11	900	DCO	SP	915		S	1	3	C	0	3	0	3	0	3
RI070611	6/11	900	DCO	SB			S	1	3	C	52	1	52	1	51	1
RI070611	6/11	900	DCO	FP			S	1	3	C	0	0	0	0	0	0
RI070611	6/11	900	DCO	FB			S	1	3	C	100	6	100	6	100	6
RI070611	6/11	900	DCO	CG			S	2	3	C	0	1	0	1	0	1
RI070611	6/11	900	DCO	BC			S	2	3	C	0	3	0	3	0	3
RI070611	6/11	900	DCO	FR			S	2	3	C	1	4	1	4	1	4
RI070611	6/11	900	DCO	NBC			S	2	3	C	0	0	0	0	0	0
RI070611	6/11	900	DCO	MB			S	1	3	C	920	46	1060	?	900	?
RI070611	6/11	900	DCO	WM		1156	S	2	3	C	197	6	187	6	200	6

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070612	6/12	900	DCO	SP	920		S	2	3	C	0	1	0	1	0	1
RI070612	6/12	900	DCO	SB			S	1	3	C	28	5	28	5	29	5
RI070612	6/12	900	DCO	FP			S	1	3	C	0	0	0	0	0	0
RI070612	6/12	900	DCO	FB			S	1	3	C	42	3	42	3	41	3
RI070612	6/12	900	DCO	CG			S	1	3	C	0	0	0	0	0	0
RI070612	6/12	900	DCO	BC			S	0	3	C	1	0	1	0	1	0
RI070612	6/12	900	DCO	FR			S	1	3	C	7	1	7	1	7	1
RI070612	6/12	900	DCO	NBC			S	0	3	C	0	0	0	0	0	0
RI070612	6/12	900	DCO	MB		1043	S	0	2	C	980	31	1100	32	950	20
RI070612	6/12	900	DCO	WM			S			C						

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070613	6/13	1400	DCO	SP	1420		S	1	2	C	0	0	0	0	0	0
RI070613	6/13	1400	DCO	SB			S	0	2	C	40	0	41	0	40	0
RI070613	6/13	1400	DCO	FP			S	0	2	C	0	0	0	0	0	0
RI070613	6/13	1400	DCO	FB			S	0	2	C	88	0	85	0	90	0
RI070613	6/13	1400	DCO	CG			S	0	2	C	1	0	1	0	1	0
RI070613	6/13	1400	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070613	6/13	1400	DCO	FR			S	0	1	C	0	0	0	0	0	0
RI070613	6/13	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070613	6/13	1400	DCO	MB			S	0	1	C	2900	82	2600	67	2600	76
RI070613	6/13	1400	DCO	WM		1722	S	1	1	C	384	16	381	17	388	18

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070614	6/14	900	DCO	SP	905		S	0	1	C	1	0	1	0	1	0
RI070614	6/14	900	DCO	SB			S	0	1	C	131	6	131	6	126	6
RI070614	6/14	900	DCO	FP			S	0	1	C	0	0	0	0	0	0
RI070614	6/14	900	DCO	FB			S	0	1	C	155	6	157	6	150	6
RI070614	6/14	900	DCO	CG			S	0	1	C	6	0	6	0	6	0
RI070614	6/14	900	DCO	BC			S	1	1	C	17	0	17	0	17	0
RI070614	6/14	900	DCO	FR			S	0	1	C	22	3	22	3	22	3
RI070614	6/14	900	DCO	NBC			S	0	1	C	1	0	1	0	1	0
RI070614	6/14	900	DCO	MB			S	0	1	C	3250	47	3250	38	2750	51
RI070614	6/14	900	DCO	WM		1224	S	1	1	C	600	25	573	21	650	21

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070615	6/15	1700	DCO	SP	1720		S	1	3	C	1	0	1	0	1	0
RI070615	6/15	1700	DCO	SB			S	1	3	C	142	1	148	1	140	1
RI070615	6/15	1700	DCO	FP			S	1	3	C	0	0	0	0	0	0
RI070615	6/15	1700	DCO	FB			S	1	3	C	106	1	102	1	107	1
RI070615	6/15	1700	DCO	CG			S	1	3	C	0	0	0	0	0	0
RI070615	6/15	1700	DCO	BC			S	1	3	C	15	0	15	0	15	0
RI070615	6/15	1700	DCO	FR			S	1	3	C	4	0	4	0	4	0
RI070615	6/15	1700	DCO	NBC			S	1	3	C	0	0	0	0	0	0
RI070615	6/15	1700	DCO	MB			S	1	3	C	1820	16	2120	18	1650	13
RI070615	6/15	1700	DCO	WM		2020	S	2	3	C	382	0	403	0	380	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070616	6/16	1700	DCO	SP	1711		S	1	3	C	0	0	0	0	0	0
RI070616	6/16	1700	DCO	SB			S	1	3	C	117	12	116	12	118	12
RI070616	6/16	1700	DCO	FP			S	1	3	C	1	0	1	0	1	0
RI070616	6/16	1700	DCO	FB			S	1	3	C	100	2	94	2	105	2
RI070616	6/16	1700	DCO	CG			S	1	3	C	0	0	0	0	0	0
RI070616	6/16	1700	DCO	BC			S	1	3	C	1	0	1	0	1	0
RI070616	6/16	1700	DCO	FR			S	1	3	C	1	0	1	0	1	0
RI070616	6/16	1700	DCO	NBC			S	1	3	C	0	0	0	0	0	0
RI070616	6/16	1700	DCO	MB		1818	S	1	3	C	700	15	700	15	700	15
RI070616	6/16	1700	DCO	WM			S									

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
--------	------	------	-----	-----	------------	----------	--------	-----	----------	-----	------	-----	------	-----	------	-----

RI070617

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070618	6/18	900	DCO	SP	920		S	1	2	C	6	1	6	1	6	1
RI070618	6/18	900	DCO	SB			S	1	2	C	74	16	71	16	75	16
RI070618	6/18	900	DCO	FP			S	1	2	C	0	3	0	3	0	3
RI070618	6/18	900	DCO	FB			S	1	2	C	86	10	85	7	88	10
RI070618	6/18	900	DCO	CG			S	1	2	C	0	4	0	4	0	4
RI070618	6/18	900	DCO	BC			S	2	2	C	0	1	0	1	0	1
RI070618	6/18	900	DCO	FR			S	2	3	C	0	5	0	5	0	5
RI070618	6/18	900	DCO	NBC			S	1	3	C	0	1	0	1	0	1
RI070618	6/18	900	DCO	MB			S	1	3	C	530	35	550	35	500	45
RI070618	6/18	900	DCO	WM		1152	S	3	3	C	8	0	8	0	8	0

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070619	6/19	1400	BJO	SP	1440		S	1	1	C	0	0	0	0	0	0
RI070619	6/19	1400	BJO	SB			S	1	1	C	128	4	139	4	128	4
RI070619	6/19	1400	BJO	FP			S	1	1	C	24	0	24	0	24	0
RI070619	6/19	1400	BJO	FB			S	1	1	C	171	0	174	0	166	0
RI070619	6/19	1400	BJO	CG			S	1	1	C	3	0	3	0	3	0
RI070619	6/19	1400	BJO	BC			S	1	1	C	1	0	1	0	1	0
RI070619	6/19	1400	BJO	FR			S	1	2	C	15	3	15	3	15	3
RI070619	6/19	1400	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070619	6/19	1400	BJO	MB			S	0	2	C	2200	25	2300	28	2100	21
RI070619	6/19	1400	BJO	WM		1727	S	3	2	C	169	2	165	3	183	0
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070620	6/20	900	DCO	SP	925		S	1	4	C	0	13	0	13	0	13
RI070620	6/20	900	DCO	SB			S	1	4	C	61	55	64	44	58	45
RI070620	6/20	900	DCO	FP			S	1	4	C	12	12	12	12	12	12
RI070620	6/20	900	DCO	FB			S	1	4	C	59	54	60	54	57	53
RI070620	6/20	900	DCO	CG			S	2	4	C	0	1	0	1	0	1
RI070620	6/20	900	DCO	BC			S	2	4	C	0	0	0	0	0	0
RI070620	6/20	900	DCO	FR			S	2	4	C	4	20	4	19	4	23
RI070620	6/20	900	DCO	NBC			S	2	4	C	0	0	0	0	0	0
RI070620	6/20	900	DCO	MB		1045	S	2	4	C	950	50	950	50	950	50
RI070620	6/20	900	DCO	WM			S									
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070621	6/21	1700	BJO	SP	1730		S	1	5	C	0	0	0	0	0	0
RI070621	6/21	1700	BJO	SB			S	1	5	C	106	2	100	1	108	1
RI070621	6/21	1700	BJO	FP			S	1	5	C	25	1	25	1	25	1
RI070621	6/21	1700	BJO	FB			S	1	5	C	120	0	119	0	124	8
RI070621	6/21	1700	BJO	CG			S	2	5	C	0	0	0	0	0	0
RI070621	6/21	1700	BJO	BC			S	2	5	C	1	1	1	1	1	1
RI070621	6/21	1700	BJO	FR			S	2	5	C	3	0	3	0	3	0
RI070621	6/21	1700	BJO	NBC			S	3	5	C	0	0	0	0	0	0
RI070621	6/21	1700	BJO	MB		1847	S	1	5	C	500	0	500	0	500	0
RI070621	6/21	1700	BJO	WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070622	6/22	1400	DCO	SP	1415		S	0	1	C	0	0	0	0	0	0
RI070622	6/22	1400	DCO	SB			S	0	1	C	56	6	55	6	57	6
RI070622	6/22	1400	DCO	FP			S	0	1	C	0	0	0	0	0	0
RI070622	6/22	1400	DCO	FB			S	0	1	C	73	6	73	6	74	6
RI070622	6/22	1400	DCO	CG			S	0	1	C	0	0	0	0	0	0
RI070622	6/22	1400	DCO	BC			S	0	1	C	0	3	0	3	0	3
RI070622	6/22	1400	DCO	FR			S	0	1	C	3	0	3	0	3	0
RI070622	6/22	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070622	6/22	1400	DCO	MB			S	0	1	C	360	28	360	25	370	34
RI070622	6/22	1400	DCO	WM		1635	S	2	2	C	1	1	1	1	1	1



Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070623	6/23	1700	DCO	SP	1715		S	1	1	C	0	0	0	0	0	0
RI070623	6/23	1700	DCO	SB			S	1	1	C	37	1	37	1	36	1
RI070623	6/23	1700	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070623	6/23	1700	DCO	FB			S	1	1	C	93	4	95	4	91	4
RI070623	6/23	1700	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070623	6/23	1700	DCO	BC			S	0	1	C	2	0	2	0	2	0
RI070623	6/23	1700	DCO	FR			S	0	1	C	11	1	11	1	11	1
RI070623	6/23	1700	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070623	6/23	1700	DCO	MB			S	0	1	C	1800	73	2100	52	1800	59
RI070623	6/23	1700	DCO	WM		1846	S	2	2	C	79	5	79	5	79	5
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070624	6/24	900	DCO	SP	925		S	0	1	C	0	0	0	0	0	0
RI070624	6/24	900	DCO	SB			S	0	1	C	148	5	150	5	137	5
RI070624	6/24	900	DCO	FP			S	0	1	C	0	2	0	2	0	2
RI070624	6/24	900	DCO	FB			S	0	1	C	218	16	217	18	221	11
RI070624	6/24	900	DCO	CG			S	0	0	C	3	13	3	13	3	13
RI070624	6/24	900	DCO	BC			S	0	0	C	58	19	58	26	58	15
RI070624	6/24	900	DCO	FR			S	0	0	C	49	11	53	11	48	11
RI070624	6/24	900	DCO	NBC			S	0	0	C	0	3	0	3	0	3
RI070624	6/24	900	DCO	MB			S	0	0	F	3500	100	3500	100	3500	100
RI070624	6/24	900	DCO	WM		1240	S	0	?	F	600	?	600	?	600	?
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070625	6/25	900	BJO	SP	920		S	2	3	C	0	0	0	0	0	0
RI070625	6/25	900	BJO	SB			S	1	3	C	166	0	167	0	156	0
RI070625	6/25	900	BJO	FP			S	1	3	C	1	0	1	0	1	0
RI070625	6/25	900	BJO	FB			S	1	3	C	222	6	207	8	224	6
RI070625	6/25	900	BJO	CG			S	1	3	C	4	0	4	0	4	0
RI070625	6/25	900	BJO	BC			S	1	3	C	60	0	58	0	66	0
RI070625	6/25	900	BJO	FR			S	1	3	C	12	1	12	1	12	1
RI070625	6/25	900	BJO	NBC			S	1	3	C	0	0	0	0	0	0
RI070625	6/25	900	BJO	MB			S	1	2	C	2900	34	3000	40	2800	452
RI070625	6/25	900	BJO	WM		1306	S	2	3	C	645	8	645	9	547	6
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070626	6/26	1400	DCO	SP	1430		S	1	1	C	2	1	2	1	2	1
RI070626	6/26	1400	DCO	SB			S	0	1	C	156	5	157	9	152	4
RI070626	6/26	1400	DCO	FP			S	0	1	C	0	0	0	0	0	0
RI070626	6/26	1400	DCO	FB			S	0	1	C	134	7	141	10	133	4
RI070626	6/26	1400	DCO	CG			S	0	1	C	1	0	1	0	1	0
RI070626	6/26	1400	DCO	BC			S	0	1	C	10	1	10	1	10	1
RI070626	6/26	1400	DCO	FR			S	0	1	C	15	2	15	2	15	2
RI070626	6/26	1400	DCO	NBC			S	0	1	C	0	1	0	1	0	1
RI070626	6/26	1400	DCO	MB			S	0	1	C	1050	44	970	37	1080	47
RI070626	6/26	1400	DCO	WM		1705	S	0	1	C	108	1	115	4	106	0

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070627	6/27	1400	DCO	SP	1400		S	2	4	C	0	0	0	0	0	0
RI070627	6/27	1400	DCO	SB			S	2	4	C	37	0	37	0	37	0
RI070627	6/27	1400	DCO	FP			S	2	4	C	0	0	0	0	0	0
RI070627	6/27	1400	DCO	FB			S	2	4	C	109	2	109	2	114	2
RI070627	6/27	1400	DCO	CG			S	2	4	C	2	0	2	0	2	0
RI070627	6/27	1400	DCO	BC			S	1	2	C	1	0	1	0	1	0
RI070627	6/27	1400	DCO	FR			S	1	2	C	9	2	9	2	9	2
RI070627	6/27	1400	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070627	6/27	1400	DCO	MB		1520	S	1	2	C	650	10	650	10	700	10
RI070627	6/27	1400	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070628	6/28	1400	DCO	SP	1350		S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	SB			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	FB			S	1	2	C	43	0	44	0	43	0
RI070628	6/28	1400	DCO	CG			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	BC			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	FR			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070628	6/28	1400	DCO	MB		1510	S	1	2	C	390	0	386	0	416	0
RI070628	6/28	1400	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070629	6/29	900	BJO	SP	937		S	2	1	C	0	1	0	1	0	1
RI070629	6/29	900	BJO	SB			S	2	1	C	1	3	1	3	1	3
RI070629	6/29	900	BJO	FP			S	2	1	C	0	1	0	1	0	1
RI070629	6/29	900	BJO	FB			S	2	1	C	35	5	35	6	35	4
RI070629	6/29	900	BJO	CG			S	2	1	C	0	0	0	0	0	0
RI070629	6/29	900	BJO	BC			S	1	1	C	4	0	4	0	4	0
RI070629	6/29	900	DCO	FR			S	1	2	C	13	2	13	2	13	2
RI070629	6/29	900	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070629	6/29	900	DCO	MB			S	1	2	C	400	20	400	20	400	20
RI070629	6/29	900	DCO	WM		1131	S	2	2	C	0	0	0	0	0	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RIo70630	6/30	1400	BJO	SP	1414		S	2	3	C	0	0	0	0	0	0
RIo70630	6/30	1400	BJO	SB			S	1	3	C	4	0	4	0	4	0
RIo70630	6/30	1400	BJO	FP			S	1	3	C	0	0	0	0	0	0
RIo70630	6/30	1400	BJO	FB			S	1	3	C	158	2	152	0	164	3
RIo70630	6/30	1400	BJO	CG			S	1	3	C	0	0	0	0	0	0
RIo70630	6/30	1400	BJO	BC			S	1	3	C	7	0	7	0	7	0
RIo70630	6/30	1400	BJO	FR			S	1	3	C	9	4	9	4	9	4
RIo70630	6/30	1400	BJO	NBC			S	1	?	C	0	0	0	0	0	0
RIo70630	6/30	1400	BJO	MB		1532	S	1	?	F	1400	5	1400	5	1400	5
RIo70630	6/30	1400		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RIo70701	7/1	1700	DCO	SP	1725		S	0	0	C	0	0	0	0	0	0
RIo70701	7/1	1700	DCO	SB			S	0	0	C	91	0	89	0	95	0
RIo70701	7/1	1700	DCO	FP			S	0	0	C	0	0	0	0	0	0
RIo70701	7/1	1700	DCO	FB			S	0	0	C	169	0	161	0	172	0
RIo70701	7/1	1700	DCO	CG			S	0	0	C	5	1	5	1	5	1
RIo70701	7/1	1700	DCO	BC			S	0	0	C	79	0	75	0	83	0
RIo70701	7/1	1700	DCO	FR			S	0	0	C	19	0	19	0	19	0
RIo70701	7/1	1700	DCO	NBC			S	0	0	C	0	0	0	0	0	0
RIo70701	7/1	1700	DCO	MB			S	0	0	C	1800	40	2100	40	1500	0
RIo70701	7/1	1700	DCO	WM		2015	S	0	0	C	66	4	64	4	67	4

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070702	7/2	900	BJO	SP	921		S	0	1	C	1	6	1	6	1	6
RI070702	7/2	900	BJO	SB			S	0	1	C	96	25	93	24	100	25
RI070702	7/2	900	BJO	FP			S	1	1	C	0	0	0	0	0	0
RI070702	7/2	900	BJO	FB			S	1	1	C	143	17	143	14	137	18
RI070702	7/2	900	BJO	CG			S	1	1	C	12	0	12	0	12	0
RI070702	7/2	900	BJO	BC			S	1	1	C	107	1	107	2	108	0
RI070702	7/2	900	BJO	FR			S	1	2	C	13	1	13	1	13	1
RI070702	7/2	900	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070702	7/2	900	BJO	MB		1121	S	1	2	F	1400	18	1300	19	1450	14
RI070702	7/2	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070703	7/3	900	DCO	SP	1021		S	0	1	C	0	0	0	0	0	0
RI070703	7/3	900	DCO	SB			S	0	1	C	129	15	125	17	131	14
RI070703	7/3	900	DCO	FP			S	0	1	C	3	0	3	0	3	0
RI070703	7/3	900	DCO	FB			S	0	1	C	102	13	102	16	100	20
RI070703	7/3	900	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070703	7/3	900	DCO	BC			S	1	1	C	10	0	10	0	10	0
RI070703	7/3	900	DCO	FR			S	1	1	C	16	3	16	3	16	3
RI070703	7/3	900	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070703	7/3	900	DCO	MB		1159	S	1	1	C	642	2	572	1	690	8
RI070703	7/3	900	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070704	7/4	900	DCO	SP	920		S	0	1	C	0	9	0	9	0	9
RI070704	7/4	900	DCO	SB			S	0	1	C	82	23	81	20	82	24
RI070704	7/4	900	DCO	FP			S	1	1	C	1	0	1	0	1	0
RI070704	7/4	900	DCO	FB			S	0	1	C	74	23	74	25	76	22
RI070704	7/4	900	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070704	7/4	900	DCO	BC			S	1	1	C	0	0	0	0	0	0
RI070704	7/4	900	DCO	FR			S	1	1	C	8	11	8	11	8	11
RI070704	7/4	900	DCO	NBC			S	1	1	C	0	2	0	2	0	2
RI070704	7/4	900	DCO	MB			S	1	1	C	1000	30	800	20	1100	30
RI070704	7/4	900	DCO	WM		1225	S	2	1	C	190	0	184	0	200	0

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070706	7/6	900	DCO	SP	911		S	0	0	C	0	5	0	5	0	5
RI070706	7/6	900	DCO	SB			S	0	0	C	70	22	70	28	67	21
RI070706	7/6	900	DCO	FP			S	0	0	C	1	5	1	5	1	5
RI070706	7/6	900	DCO	FB			S	0	0	C	89	20	88	26	93	15
RI070706	7/6	900	DCO	CG			S	0	0	C	16	10	16	10	16	10
RI070706	7/6	900	DCO	BC			S	0	0	C	0	3	0	3	0	3
RI070706	7/6	900	DCO	FR			S	0	0	C	26	12	26	14	24	10
RI070706	7/6	900	DCO	NBC			S	0	0	C	5	1	5	1	5	1
RI070706	7/6	900	DCO	MB		1054	S	0	0	C	810	40	780	40	850	50
RI070706	7/6	900	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070707	7/7	1400	BJO	SP	1426		S	0	1	C	0	0	0	0	0	0
RI070707	7/7	1400	BJO	SB			S	0	1	C	245	1	245	0	236	1
RI070707	7/7	1400	BJO	FP			S	0	1	C	0	0	0	0	0	0
RI070707	7/7	1400	BJO	FB			S	0	1	C	254	1	248	1	259	2
RI070707	7/7	1400	BJO	CG			S	1	1	C	4	0	4	0	4	0
RI070707	7/7	1400	BJO	BC			S	1	1	C	5	4	5	4	5	4
RI070707	7/7	1400	BJO	FR			S	1	1	C	10	0	10	0	10	0
RI070707	7/7	1400	BJO	NBC			S	0	1	C	0	0	0	0	0	0
RI070707	7/7	1400	BJO	MB		1604	S	0	1	C	980	14	940	15	1000	12
RI070707	7/7	1400	Joe	WM		?	O	?	?	C	1	0	1	0	1	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070708	7/8	1700	BJO	SP	1730		S	1	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	SB			S	0	1	C	228	2	237	5	217	2
RI070708	7/8	1700	BJO	FP			S	0	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	FB			S	0	1	C	274	0	278	0	265	0
RI070708	7/8	1700	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	BC			S	0	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	FR			S	1	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	NBC			S	0	1	C	0	0	0	0	0	0
RI070708	7/8	1700	BJO	MB		1900	S	0	1	C	667	19	673	19	662	29
RI070708	7/8	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070710	7/10	1400	BJO	SP	1421		S	1	2	C	0	1	0	1	0	1
RI070710	7/10	1400	BJO	SB			S	1	2	C	102	1	96	0	103	0
RI070710	7/10	1400	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070710	7/10	1400	BJO	FB			S	1	2	C	140	1	137	0	141	2
RI070710	7/10	1400	BJO	CG			S	2	2	C	1	1	1	1	1	1
RI070710	7/10	1400	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070710	7/10	1400	BJO	FR			S	2	2	C	12	0	12	0	12	0
RI070710	7/10	1400	BJO	NBC			S	2	2	C	0	0	0	0	0	0
RI070710	7/10	1400	BJO	MB			S	0	2	C	600	0	600	0	600	0
RI070710	7/10	1400		WM		1648	S	2	3	C	248	0	238	2	252	0

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070711	7/11	1700	BJO	SP	1720		S	3	3	C	0	0	0	0	0	0
RI070711	7/11	1700	BJO	SB			S	3	3	C	107	0	109	1	106	0
RI070711	7/11	1700	BJO	FP			S	3	3	C	0	0	0	0	0	0
RI070711	7/11	1700	BJO	FB			S	3	3	C	128	0	125	0	128	0
RI070711	7/11	1700	BJO	CG			S	3	3	C	0	0	0	0	0	0
RI070711	7/11	1700	BJO	BC			S	2	3	C	0	0	0	0	0	0
RI070711	7/11	1700	BJO	FR			S	3	3	C	10	0	10	0	10	0
RI070711	7/11	1700	BJO	NBC			S	2	3	C	0	0	0	0	0	0
RI070711	7/11	1700	BJO	MB		1850	S	2	2	C	500	4	500	4	500	4
RI070711	7/11	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070712	7/12	900	BJO	SP	929		S	2	2	C	0	0	0	0	0	0
RI070712	7/12	900	BJO	SB			S	2	2	C	95	10	91	12	95	8
RI070712	7/12	900	BJO	FP			S	2	2	C	0	0	0	0	0	0
RI070712	7/12	900	BJO	FB			S	1	2	C	153	16	149	10	154	17
RI070712	7/12	900	BJO	CG			S	1	2	C	0	0	0	0	0	0
RI070712	7/12	900	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070712	7/12	900	BJO	FR			S	1	2	C	1	0	1	0	1	0
RI070712	7/12	900	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070712	7/12	900	BJO	MB		1129	S	1	1	C	760	34	820	35	720	19
RI070712	7/12	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070713	7/13	900	DCO	SP	920		S	1	1	C	0	2	0	2	0	2
RI070713	7/13	900	DCO	SB			S	1	1	C	235	25	233	22	236	27
RI070713	7/13	900	DCO	FP			S	0	1	C	0	3	0	3	0	3
RI070713	7/13	900	DCO	FB			S	0	1	C	199	9	209	9	192	8
RI070713	7/13	900	DCO	CG			S	1	1	C	0	8	0	8	0	8
RI070713	7/13	900	DCO	BC			S	1	1	C	0	2	0	2	0	2
RI070713	7/13	900	DCO	FR			S	1	1	C	17	5	17	5	17	5
RI070713	7/13	900	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070713	7/13	900	DCO	MB			S	0	0	F	1500	?	1500	?	1500	?
RI070713	7/13	900	DCO	WM		1331	S	2	1	C	0	0	0	0	0	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070714	7/14	900	BJO	SP	928		S	0	0	C	0	6	0	6	0	6
RI070714	7/14	900	BJO	SB			S	0	0	C	192	23	197	20	191	25
RI070714	7/14	900	BJO	FP			S	0	0	C	6	1	6	1	6	1
RI070714	7/14	900	BJO	FB			S	0	0	C	168	12	179	11	165	13
RI070714	7/14	900	BJO	CG			S	0	0	C	7	3	7	3	7	3
RI070714	7/14	900	BJO	BC			S	1	0	C	1	0	1	0	1	0
RI070714	7/14	900	BJO	FR			S	1	0	C	17	3	17	3	17	3
RI070714	7/14	900	BJO	NBC			S	1	0	C	0	0	0	0	0	0
RI070714	7/14	900	BJO	MB		1052	S	1	0	C	1850	14	1750	11	1950	16
RI070714	7/14	900		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070715	7/15	1400	MLS	SP	1414		S	0	1	C	0	7	0	7	0	7
RI070715	7/15	1400	MLS	SB			S	0	1	C	162	12	163	16	161	9
RI070715	7/15	1400	MLS	FP			S	0	1	C	0	0	0	0	0	0
RI070715	7/15	1400	MLS	FB			S	0	1	C	164	2	158	4	167	2
RI070715	7/15	1400	MLS	CG			S	0	1	C	7	0	7	0	7	0
RI070715	7/15	1400	MLS	BC			S	0	1	C	1	0	1	0	1	0
RI070715	7/15	1400	MLS	FR			S	0	1	C	11	4	11	4	11	4
RI070715	7/15	1400	MLS	NBC			S	0	1	C	0	0	0	0	0	0
RI070715	7/15	1400	MLS	MB			S	0	1	C	660	20	660	12	620	265
RI070715	7/15	1400	MLS	WM		1631	S	0	1	C	0	0	0	0	0	0
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070716	7/16	900	DCO	SP	905		S	1	3	C	0	19	0	19	0	19
RI070716	7/16	900	DCO	SB			S	1	3	C	177	44	177	45	170	43
RI070716	7/16	900	DCO	FP			S	1	3	C	1	1	1	1	1	1
RI070716	7/16	900	DCO	FB			S	1	3	C	129	12	133	13	124	13
RI070716	7/16	900	DCO	CG			S	2	3	C	0	0	0	0	0	0
RI070716	7/16	900	DCO	BC			S	1	3	C	0	0	0	0	0	0
RI070716	7/16	900	DCO	FR			S	1	3	C	3	0	3	0	3	0
RI070716	7/16	900	DCO	NBC			S	1	3	C	0	0	0	0	0	0
RI070716	7/16	900	DCO	MB		1042	S	1	3	C	316	20	280	20	260	32
RI070716	7/16	900	DCO	WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070717	7/17	1700	BJO	SP	1715		S	1	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	SB			S	0	1	C	152	5	154	2	147	6
RI070717	7/17	1700	BJO	FP			S	1	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	FB			S	0	1	C	145	6	140	7	148	6
RI070717	7/17	1700	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	BC			S	0	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	FR			S	1	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	NBC			S	0	1	C	0	0	0	0	0	0
RI070717	7/17	1700	BJO	MB			S	0	1	C	840	2	830	0	765	0
RI070717	7/17	1700	BJO	WM		2010	S	1	1	C	1	0	1	0	1	0
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070718	7/18	1700	DCO	SP	1720		S	0	1	C	2	0	2	0	2	0
RI070718	7/18	1700	DCO	SB			S	0	1	C	215	9	217	7	210	16
RI070718	7/18	1700	DCO	FP			S	1	1	C	6	2	6	2	6	2
RI070718	7/18	1700	DCO	FB			S	1	1	C	187	17	179	17	189	13
RI070718	7/18	1700	DCO	CG			S	1	1	C	0	5	0	5	0	5
RI070718	7/18	1700	DCO	BC			S	1	1	C	0	0	0	0	0	0
RI070718	7/18	1700	DCO	FR			S	1	1	C	20	4	20	4	20	4
RI070718	7/18	1700	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070718	7/18	1700	DCO	MB		1908	S	1	1	C	830	31	850	24	790	35
RI070718	7/18	1700	DCO	WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070719	7/19	900	DCO	SP	850		S	1	1	C	0	13	0	13	0	13
RI070719	7/19	900	DCO	SB			S	1	1	C	161	96	156	92	163	99
RI070719	7/19	900	DCO	FP			S	1	1	C	3	24	3	23	3	29
RI070719	7/19	900	DCO	FB			S	1	1	C	129	71	128	76	129	67
RI070719	7/19	900	DCO	CG			S	1	1	C	11	10	11	10	11	10
RI070719	7/19	900	DCO	BC			S	1	1	C	0	1	0	1	0	1
RI070719	7/19	900	DCO	FR			S	1	1	C	17	16	17	16	17	16
RI070719	7/19	900	DCO	NBC			S	1	1	C	0	0	0	0	0	0
RI070719	7/19	900	DCO	MB		1039	S	1	1	C	525	39	500	41	590	39
RI070719	7/19	900	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070721	7/21	1400	BJO	SP	1422		S	1	3	C	2	4	2	4	2	4
RI070721	7/21	1400	BJO	SB			S	1	3	C	279	31	280	32	266	25
RI070721	7/21	1400	BJO	FP			S	0	3	C	1	0	1	0	1	0
RI070721	7/21	1400	BJO	FB			S	1	3	C	57	13	60	14	55	13
RI070721	7/21	1400	BJO	CG			S	1	3	C	0	0	0	0	0	0
RI070721	7/21	1400	BJO	BC			S	0	3	C	1	0	1	0	1	0
RI070721	7/21	1400	BJO	FR			S	1	3	C	0	0	0	0	0	0
RI070721	7/21	1400	BJO	NBC			S	1	3	C	0	0	0	0	0	0
RI070721	7/21	1400	BJO	MB			S	0	3	C	436	4	377	6	460	2
RI070721	7/21	1400	BJO	WM		1639	S	3	3	C	0	0	0	0	0	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070722	7/22	1400	DCO	SP	1405		S	1	3	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	SB			S	1	2	C	83	4	85	4	77	4
RI070722	7/22	1400	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	FB			S	1	2	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	CG			S	1	2	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	BC			S	1	2	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	FR			S	0	1	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070722	7/22	1400	DCO	MB		1542	S	0	1	C	320	5	320	5	350	5
RI070722	7/22	1400	DCO	WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070723	7/23	1700	BJO	SP	1715		S	2	3	C	0	0	0	0	0	0
RI070723	7/23	1700	BJO	SB			S	1	3	C	95	6	94	7	91	5
RI070723	7/23	1700	BJO	FP			S	1	3	C	0	0	0	0	0	0
RI070723	7/23	1700	BJO	FB			S	1	3	C	1	5	1	5	1	5
RI070723	7/23	1700	BJO	CG			S	1	3	C	0	0	0	0	0	0
RI070723	7/23	1700	BJO	BC			S	1	3	C	0	0	0	0	0	0
RI070723	7/23	1700	BJO	FR			S	1	3	C	7	0	7	0	7	0
RI070723	7/23	1700	BJO	NBC			S	1	3	C	0	0	0	0	0	0
RI070723	7/23	1700	BJO	MB		1838	S	1	3	C	463	0	451	0	470	0
RI070723	7/23	1700		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070724	7/24	1700	DCO	SP	1710		S	1	1	C	0	1	0	1	0	1
RI070724	7/24	1700	DCO	SB			S	1	1	C	198	1	194	1	202	1
RI070724	7/24	1700	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070724	7/24	1700	DCO	FB			S	1	1	C	57	2	57	2	55	2
RI070724	7/24	1700	DCO	CG			S	1	1	C	0	0	0	0	0	0
RI070724	7/24	1700	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070724	7/24	1700	DCO	FR			S	0	1	C	10	0	10	0	10	0
RI070724	7/24	1700	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070724	7/24	1700	DCO	MB		1854	S	0	1	C	2000	2	2300	0	1700	0
RI070724	7/24	1700	BJO	WM	1819	1820	S	1	1	C	4	2	4	2	4	2
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070725	7/25	1400	DCO	SP	1410		S	1	1	C	1	0	1	0	1	0
RI070725	7/25	1400	DCO	SB			S	1	1	C	134	4	136	4	130	4
RI070725	7/25	1400	DCO	FP			S	1	1	C	0	0	0	0	0	0
RI070725	7/25	1400	DCO	FB			S	1	1	C	105	5	108	5	102	5
RI070725	7/25	1400	DCO	CG			S	1	1	C	0	1	0	1	0	1
RI070725	7/25	1400	DCO	BC			S	0	1	C	0	0	0	0	0	0
RI070725	7/25	1400	DCO	FR			S	0	1	C	0	1	0	1	0	1
RI070725	7/25	1400	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070725	7/25	1400	DCO	MB		1559	S	0	0	C	1600	50	1300	50	1700	50
RI070725	7/25	1400	DCO	WM												
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070726	7/26	1400	BJO	SP	1405		S	0	0	C	2	0	2	0	2	0
RI070726	7/26	1400	BJO	SB			S	0	0	C	293	3	301	6	284	2
RI070726	7/26	1400	BJO	FP			S	0	0	C	32	1	32	2	32	0
RI070726	7/26	1400	BJO	FB			S	0	0	C	306	8	299	9	317	0
RI070726	7/26	1400	BJO	CG			S	0	0	C	7	0	7	0	7	0
RI070726	7/26	1400	BJO	BC			S	0	0	C	0	0	0	0	0	0
RI070726	7/26	1400	BJO	FR			S	0	0	C	5	4	5	4	5	4
RI070726	7/26	1400	BJO	NBC			S	0	0	C	0	0	0	0	0	0
RI070726	7/26	1400	BJO	MB			S	0	0	C	2650	60	2350	60	3100	60
RI070726	7/26	1400	BJO	WM		1730	S	1	1	C	181	0	176	0	187	0
LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070727	7/27	900	BJO	SP	8:58		S	1	3	C	8	26	8	26	8	27
RI070727	7/27	900	BJO	SB			S	0	3	C	221	18	221	18	208	17
RI070727	7/27	900	BJO	FP			S	1	3	C	64	0	63	0	66	0
RI070727	7/27	900	BJO	FB			S	1	3	C	239	14	237	20	240	14
RI070727	7/27	900	BJO	CG			S	2	3	C	5	1	5	1	5	1
RI070727	7/27	900	BJO	BC			S	2	3	C	0	0	0	0	0	0
RI070727	7/27	900	BJO	FR			S	2	3	C	4	3	4	3	4	3
RI070727	7/27	900	BJO	NBC			S	3	3	C	0	0	0	0	0	0
RI070727	7/27	900	BJO	MB		1038	S	1	3	C	600	6	550	6	700	6
RI070727	7/27	900		WM												



Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
Ri070728	7/28	1400	BJO	SP	1430		S	1	3	C	0	1	0	1	0	1
Ri070728	7/28	1400	BJO	SB			S	1	3	C	91	0	92	0	89	0
Ri070728	7/28	1400	BJO	FP			S	1	3	C	0	0	0	0	0	0
Ri070728	7/28	1400	BJO	FB			S	1	3	C	107	0	103	0	109	1
Ri070728	7/28	1400	BJO	CG			S	2	2	C	0	0	0	0	0	0
Ri070728	7/28	1400	BJO	BC			S	1	2	C	0	0	0	0	0	0
Ri070728	7/28	1400	BJO	FR			S	1	2	C	0	0	0	0	0	0
Ri070728	7/28	1400	BJO	NBC			S	2	2	C	0	0	0	0	0	0
Ri070728	7/28	1400	BJO	MB		1610	S	1	2	C	250	0	250	0	250	0
Ri070728	7/28	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070729	7/29	900	DCO	SP	917		S	1	2	C	0	4	0	4	0	4
RI070729	7/29	900	DCO	SB			S	1	2	C	66	10	66	10	72	10
RI070729	7/29	900	DCO	FP			S	1	2	C	0	0	0	0	0	0
RI070729	7/29	900	DCO	FB			S	1	2	C	49	0	49	0	49	0
RI070729	7/29	900	DCO	CG			S	1	2	C	0	0	0	0	0	0
RI070729	7/29	900	DCO	BC			S	1	2	C	0	0	0	0	0	0
RI070729	7/29	900	DCO	FR			S	1	2	C	0	0	0	0	0	0
RI070729	7/29	900	DCO	NBC			S	1	2	C	0	0	0	0	0	0
RI070729	7/29	900	DCO	MB			S	1	2	C	100	8	100	8	100	8
RI070729	7/29	900	DCO	WM		1200	S	2	2	C	0	0	0	0	0	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070730	7/30	1400	BJO	SP	1427		S	1	3	C	0	0	0	0	0	0
RI070730	7/30	1400	BJO	SB			S	0	3	C	118	10	117	5	119	11
RI070730	7/30	1400	BJO	FP			S	1	3	C	0	1	0	1	0	1
RI070730	7/30	1400	BJO	FB			S	0	3	C	75	3	76	3	75	4
RI070730	7/30	1400	BJO	CG			S	1	3	C	0	0	0	0	0	0
RI070730	7/30	1400	BJO	BC			S	1	3	C	0	0	0	0	0	0
RI070730	7/30	1400	BJO	FR			S	1	3	C	0	0	0	0	0	0
RI070730	7/30	1400	BJO	NBC			S	1	3	C	0	0	0	0	0	0
RI070730	7/30	1400	BJO	MB		1549	S	0	3	C	560	4	540	4	580	4
RI070730	7/30	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070801	8/1	1400	BJO	SP	1412		S	3	5	C	0	0	0	0	0	0
RI070801	8/1	1400	BJO	SB			S	3	5	C	56	2	56	2	56	0
RI070801	8/1	1400	BJO	FP			S	3	5	C	0	0	0	0	0	0
RI070801	8/1	1400	BJO	FB			S	3	5	C	192	2	196	1	181	4
RI070801	8/1	1400	BJO	CG			S	2	5	C	2	0	2	0	2	0
RI070801	8/1	1400	BJO	BC			S	2	5	C	0	0	0	0	0	0
RI070801	8/1	1400	BJO	FR			S	2	5	C	10	0	10	0	10	0
RI070801	8/1	1400	BJO	NBC			S	2	5	C	0	0	0	0	0	0
RI070801	8/1	1400	BJO	MB			S	2	5	C	3200	8	3200	8	3000	7
RI070801	8/1	1400	BJO	WM		1547	S	3	5	C	198	0	200	0	175	0

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070802	8/2	1400	BJO	SP	1413		S	3	4	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	SB			S	3	4	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	FP			S	3	4	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	FB			S	3	4	C	7	1	7	1	7	1
RI070802	8/2	1400	BJO	CG			S	2	3	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	BC			S	2	3	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	FR			S	2	3	C	0	0	0	0	0	0
RI070802	8/2	1400	BJO	NBC			S	1	3	C	0	1	0	1	0	1
RI070802	8/2	1400	BJO	MB		1533	S	1	3	C	760	12	688	9	840	21
RI070802	8/2	1400		WM						C						

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
Ri070803	8/3	900	DCO	SP			S			C	0	0	0	0	0	0
Ri070803	8/3	900	DCO	SB			S			C	0	0	0	0	0	0
Ri070803	8/3	900	DCO	FP			S			C	0	0	0	0	0	0
Ri070803	8/3	900	DCO	FB			S			C	0	0	0	0	0	0
RI070803	8/3	900	BJO	CG	912		S	1	2	C	0	0	0	0	0	0
RI070803	8/3	900	BJO	BC			S	0	2	C	0	0	0	0	0	0
RI070803	8/3	900	BJO	FR			S	1	2	C	18	5	18	5	18	5
RI070803	8/3	900	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070803	8/3	900	BJO	MB			S	1	2	C	1120	16	1060	16	1220	17
RI070803	8/3	900	BJO	WM		1125		1	2	C	116	0	117	0	105	0

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070804	8/4	1700	BJO	SP	1729		S	3	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	SB			S	2	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	FP			S	2	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	FB			S	2	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	CG			S	1	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	FR			S	2	2	C	0	2	0	2	0	2
RI070804	8/4	1700	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070804	8/4	1700	BJO	MB		1902	S	1	2	C	1070	9	1030	14	1150	4
RI070804	8/4	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070805	8/5	900	BJO	SP	923		S	3	?	C	0	0	0	0	0	0
RI070805	8/5	900	BJO	SB			S	2	?	C	0	5	0	5	0	5
RI070805	8/5	900	BJO	FP			S	3	?	C	0	0	0	0	0	0
RI070805	8/5	900	BJO	FB			S	2	?	C	18	16	18	16	18	16
RI070805	8/5	900	BJO	CG			S	2	?	C	0	2	0	2	0	2
RI070805	8/5	900	BJO	BC			S	1	?	C	0	0	0	0	0	0
RI070805	8/5	900	BJO	FR			S	1	?	C	3	1	3	1	3	1
RI070805	8/5	900	BJO	NBC			S	1	?	C	0	0	0	0	0	0
RI070805	8/5	900	BJO	MB		1016	S	1	?	p	800	?	800	?	800	?
RI070805	8/5	900		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070806	8/6	900	BJO	SP	924		S	1	3	C	0	4	0	4	0	4
RI070806	8/6	900	BJO	SB			S	1	3	C	0	0	0	0	0	0
RI070806	8/6	900	BJO	FP			S	1	3	C	0	0	0	0	0	0
RI070806	8/6	900	BJO	FB			S	1	3	C	25	0	25	0	25	1
RI070806	8/6	900	BJO	CG			S	2	3	C	0	0	0	0	0	0
RI070806	8/6	900	BJO	BC			S	2	3	C	0	0	0	0	0	0
RI070806	8/6	900	BJO	FR			S	2	3	C	0	3	0	3	0	3
RI070806	8/6	900	BJO	NBC			S	3	3	C	0	0	0	0	0	0
RI070806	8/6	900	BJO	MB		1058	S	1	3	C	700	8	700	8	500	12
RI070806	8/6	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070807	8/7	900	BJO	SP	913		S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	SB			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	FP			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	FB			S	1	2	C	97	14	97	16	94	9
RI070807	8/7	900	BJO	CG			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	BC			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	FR			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070807	8/7	900	BJO	MB			S	1	2	C	780	17	780	16	680	17
RI070807	8/7	900	BJO	WM		1201	S	1	2	C	0	1	0	1	0	1

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070808	8/8	900	BJO	SP	930		S	1	0	C	0	0	0	0	0	0
RI070808	8/8	900	BJO	SB			S	0	0	C	211	5	207	3	213	6
RI070808	8/8	900	BJO	FP			S	1	0	C	0	2	0	2	0	2
RI070808	8/8	900	BJO	FB			S	1	0	C	165	4	176	3	161	7
RI070808	8/8	900	BJO	CG			S	1	1	C	4	0	4	0	4	0
RI070808	8/8	900	BJO	BC			S	0	1	C	0	0	0	0	0	0
RI070808	8/8	900	BJO	FR			S	0	1	C	16	1	16	1	16	1
RI070808	8/8	900	BJO	NBC			S	0	1	C	0	0	0	0	0	0
RI070808	8/8	900	BJO	MB		1031	S	0	1	C	2500	?	2500	?	2500	
RI070808	8/8	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070810	8/10	1400	BJO	SP	1358		S	1	1	C	0	0	0	0	0	0
RI070810	8/10	1400	BJO	SB			S	1	1	C	207	21	231	16	207	23
RI070810	8/10	1400	BJO	FP			S	1	1	C	52	0	51	0	54	0
RI070810	8/10	1400	BJO	FB			S	1	1	C	225	15	219	15	234	12
RI070810	8/10	1400	BJO	CG			S	1	1	C	6	0	6	0	6	0
RI070810	8/10	1400	BJO	BC			S	0	1	C	0	0	0	0	0	0
RI070810	8/10	1400	BJO	FR			S	1	1	C	15	2	15	2	15	2
RI070810	8/10	1400	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070810	8/10	1400	BJO	MB		1518	S	1	1	C	2800	31	2600	27	3100	34
RI070810	8/10	1400		WM												

Appendix C. continued.

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070811	8/11	1400	BJO	SP	1424		S	1	2	C	0	1	0	1	0	1
RI070811	8/11	1400	BJO	SB			S	1	2	C	105	0	103	0	110	0
RI070811	8/11	1400	BJO	FP			S	1	2	C	22	1	22	1	22	1
RI070811	8/11	1400	BJO	FB			S	1	2	C	87	2	87	0	90	0
RI070811	8/11	1400	BJO	CG			S	1	2	C	1	1	1	1	1	1
RI070811	8/11	1400	BJO	BC			S	0	2	C	0	0	0	0	0	0
RI070811	8/11	1400	BJO	FR			S	1	2	C	7	0	7	0	7	0
RI070811	8/11	1400	BJO	NBC			S	1	2	C	0	0	0	0	0	0
RI070811	8/11	1400	BJO	MB		1541	S	0	2	C	2300	21	2300	28	1900	18
RI070811	8/11	1400		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
Ri070812	8/12	1700	BJO	SP	1716		S	1	1	C	0	0	0	0	0	0
Ri070812	8/12	1700	BJO	SB			S	0	1	C	27	0	27	0	27	0
Ri070812	8/12	1700	BJO	FP			S	0	1	C	0	0	0	0	0	0
Ri070812	8/12	1700	BJO	FB			S	0	1	C	33	0	33	0	33	0
Ri070812	8/12	1700	BJO	CG			S	1	1	C	0	0	0	0	0	0
Ri070812	8/12	1700	BJO	BC			S	0	1	C	1	0	1	0	1	0
Ri070812	8/12	1700	BJO	FR			S	0	1	C	0	0	0	0	0	0
Ri070812	8/12	1700	BJO	NBC			S	0	1	C	0	0	0	0	0	0
Ri070812	8/12	1700	BJO	MB		1832	S	0	1	C	657	19	694	16	643	19
Ri070812	8/12	1700		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070813	8/13	900	BJO	SP	929		S	1	1	C	0	0	0	0	0	0
RI070813	8/13	900	BJO	SB			S	1	1	C	11	1	11	1	11	1
RI070813	8/13	900	BJO	FP			S	0	1	C	1	0	1	0	1	0
RI070813	8/13	900	BJO	FB			S	1	1	C	36	4	35	4	37	4
RI070813	8/13	900	BJO	CG			S	1	1	C	0	0	0	0	0	0
RI070813	8/13	900	BJO	BC			S	1	1	C	0	0	0	0	0	0
RI070813	8/13	900	BJO	FR			S	1	1	C	9	2	9	2	9	2
RI070813	8/13	900	BJO	NBC			S	1	1	C	0	0	0	0	0	0
RI070813	8/13	900	BJO	MB		1037	S	0	1	C	452	10	459	5	451	10
RI070813	8/13	900		WM												

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070815	8/15	1700	BJO	SP	1713		S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	SB			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	FP			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	FB			S	1	3	C	42	8	41	8	42	3
RI070815	8/15	1700	BJO	CG			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	BC			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	FR			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	NBC			S	1	3	C	0	0	0	0	0	0
RI070815	8/15	1700	BJO	MB			S	1	3	C	35	16	30	11	40	18
RI070815	8/15	1700	DCO	WM		1847	S	1	3	C	0	0	0	0	0	0

*Appendix C. continued.*

LOG ID	DATE	TIME	OBS	BCH	Start Time	End Time	Method	BSS	Bch Cond	Vis	LAND	H2O	LAND	H2O	LAND	H2O
RI070816	8/16	900	BJO	SP	938		S	1	2	C	0	0	0	0	0	0
RI070816	8/16	900	BJO	SB			S	1	2	C	1	4	1	4	1	4
RI070816	8/16	900	DCO	FP		948	S	1	1	C	1	0	1	0	1	0
RI070816	8/16	900	DCO	FB	920		S	1	1	C	219	23	244	21	215	24
RI070816	8/16	900	DCO	CG			S	1	1	C	1	0	0	0	0	0
RI070816	8/16	900	DCO	BC			S	1	1	C	0	0	0	0	0	0
RI070816	8/16	900	DCO	FR			S	0	1	C	17	3	17	3	17	3
RI070816	8/16	900	DCO	NBC			S	0	1	C	0	0	0	0	0	0
RI070816	8/16	900	DCO	MB		1023	S	0	0	C	400	23	400	20	350	24
RI070816	8/16	900		WM												

Appendix D. Steller sea lion monitoring, Round Island 2007.

Date	Start /Finish	View 1 land/water	View 2 land/water	View 3 land/water	Total Land	Total Water	Total	Brand /Tag	Photo Y/N	% Certain
5/1	1120/1145				168	7	175	none	N	
5/3	1600/1620	85/0	28/0	0/2	113	2	115	none	N	
5/5	1110/1130	43/0	0/0	43/0	86	0	86	K209	Y	75
5/5								H30	Y	30
5/7	2114/1231	48/0	0/12	31/2	79	15	94	X133	N	100
5/7								A430	N	75
5/7								A79	N	30
5/9	1434/1500	51/0	0/0	45/2	96	2	98	A151	Y	100
5/9								W76	Y	60
5/12	850/930	37/7	0/0	24/10	71	17	88	none		
5/14	1105/1140	43/0	0/0	29/2	72	2	74	none		
5/15	1506/1549	29/6	0/0	38/1	67	7	74	M618	Y	100
5/15								A113	Y	100
5/16	0650/0730	55/5	10L4W	25/0	90	9	99	A430	Y	100
5/16								A151	Y	100
5/17	2022/2100	28/5	3LOW	65/0	96	3	99	none		
5/19	1000/1034	61/1	8LOW	18/1	87	2	89	A278	Y	100
5/19								M618	Y	100
5/21	1758/1818	48/10	8L4W	22/1	78	15	93	A258	Y	50
5/21								A280	Y	100
5/21								W76	Y	100
5/22	1630/1650	100/1	0LOW	18/0	118	1	119	none		
5/23	1035/50	65/3	L0W0	L10W0	75	3	78	A37?	Y	75
5/25	1626/1650	123/10	L1W0	28/0	152	10	162	A345	Y	100
5/25								F1124	Y	100
5/25								A46?	Y	75
5/25								A27?	Y	75
5/28	1550/1625	44/7	L0W0	24?0	68	7	75	A278	Y	100
5/28								W76	Y	100
5/31	1035/1100	59/5	L14W0	16/0	89	5	94	A345	Y	100
5/31								A280	Y	100
6/2	1913/1927	0/0	L26W1	23/5	49	6	55	none		
6/5	1112/1130	L2W0	L38W0	21/0	61	0	61	A420	Y	100
6/5								A256	Y	100
6/8	1100/1115	L2W6	L25/W0	L10W1	37	7	44	none		
6/10	1946/2015	L0W0	L21W0	L18W0	39	0	30	A256	Y	100
6/10								A32?	Y	75
6/12	1935/1950	L0W0	L38W0	L30W0	60	0	68	A234	Y	100
6/14	2124/2150	L1 W0	L39W0	L58W0	97	1	98	A230	Y	100
6/14								A278	Y	100
6/14								W76	Y	100
6/17	1015/1025	L1W0	L5W0	L16W0	22	0	22	A230	Y	100
6/20	1100/1140	L1W0	L0W0	L28W6	29	6	35	A196	Y	100
6/25	1500/1515	L1 W0	L0W0	L18W0	19	0	19	none		

Appendix D. continued

Date	Start /Finish	View 1 land/water	View 2 land/water	View 3 land/water	Total Land	Total Water	Total	Brand /Tag	Photo Y/N	% Certain
6/30	1430/1450	L1W0	L20W2	L17W1	39	3	42	A291	Y	100
7/6	630/700	L1W15	L10W12	L12W1	23	28	51	A420	Y	100
7/6								A256	Y	100
7/9	1820/1845	LOW0	L15W0	L82W4	97	4	101	A420	Y	100
7/9								A256	Y	100
7/9								A345	Y	100
7/9								A291	Y	100
7/9								A230	Y	100
7/11	645/700	LOW0	LOW0	L16W1	16	1	17	A230	Y	100
7/11								A430	N	
7/13	1230/1330	LOW0	L4W0	L37W6	41	6	47	none		
7/18	1500/1530	LOW0	L9W0	L34/W10	43	10	53	A281	Y	100
7/18								A278	Y	100
7/18								A345	Y	100
7/23	922/938	L1W0	L46W0	L19W1	66	1	67	A278	Y	100
7/23								A256	Y	100
7/27	2053/2110	LOW0	L20W0	L49W0	69	0	69	A278	N	100
7/29	1430/1505	LOW0	L35W5	L56W4	91	9	100	A345	Y	100
7/29								A278	Y	100
7/29								A420	Y	100
8/3	915/935	LOW0	L29W0	L60W0	89	0	89	A345	Y	100
8/3								A281	Y	100
8/9	2143/2205	LOW0	L26W0	L81W21	107	21	128	A256	Y	100
8/9								A281	Y	100
8/9								A278	Y	100
8/13	1643/1653	LOW0	L27W0	L28W0	55	10	65	A278	Y	100
8/13								A253	Y	100

Appendix E. Productivity data from three species of seabirds on Round Island; pelagic cormorant (PECO), black-legged kittiewake (BLKI), and common murre (COMU).

2007 Pelagic Cormorant Productivity Study, Round Island Second Beach (SB)																	
NEST #	5/15	5/17	5/19	5/21	5/23	5/25	5/27	5/30	6/2	6/5	6/8	6/11	6/14	6/16	6/20	6/23	6/26
1	e1	e1	e2	P	e3	e1+	e2+	e1+	e1+	e3	B	N	N	N	N	N	N
2		e1	e2	e1	e1+	e1+	e2+	e3	e2+	e3	e1+	e2+	e1+	e3?c	e31c	c2+	c1+
3			e1	e1	e1+	e1+	e1+	e1+	e1+	B	N	N	N	N	N	N	N
4			e1	P	e2	P	e3	e1+	P	e1+	e2+	e2+	e1+	e1+c1	c1	P	c1+
5			e1	P	B	B	B	B	P	e2	B	N	N	N	N	N	N
6			e1	e2+	e1+	e2+	e2+	e1+	P	e2+	B	N	N	N	N	N	N
7			e1	P	e1+	e2	P	P	e1+	e2+	e2+	P	p	e2+	P	P	c1+
8				e1	e2+	e2	P	e3	e2+	e2+	e1+	e2+	e1+	e1+c1	c1+	c1+	c2+
9				e1	e2+	e3	e4	e3+	P	e2+	B	N	n	N	N	N	N
10				e1	e1	P	P	e1+	P	P	P	P	P	e1+	P	P	c1+
11				e1	P	P	P	e1+	P	P	P	e2+	e1+	e1+	e1+	c1+	c1+
12				e1	P	B	B	B	N	N	N	B	N	N	N	N	N
13				e2	P	e1+	P	e2+	P	P	e1+	P	e1+	P	P	c2+	c2+
14					e1	e1	e3	e3	P	e3	P	e1+	e1+	e2+	e1+	e?c1+	c1+
15						e2	e1+	e2+	e2+	e3	e2+	e1+	e3	e3	e2+	e2c2	c1+
16						e1+	e1+	e1+	P	P	P	e2+	P	e1+	P	e2+	IP
17						e?	P	e1+	e1+	e1+	P	P	P	e1+	P	P	c1+
18							e3+	e4	e2+	e2+	e3+	e1+	e2+	e2+	e3+	e?c1+	c1+
19							e?	e2	e1+	e2+	e2+	e2+	e3	e3	P	e2+	e1c?
20									e1+	P	P	e1+	e1+	e1+	P	e1+	c1+
NEST #	6/29	7/3	7/6	7/9	7/12	7/16	7/19	7/22	7/25	7/28	7/30	8/2	8/5	8/7	8/9	8/11	8/15
1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
2	P	c2+	c2	c2	c3	c2	c2	c2	c2	c3	c2f1	c2	c2	c2	f2	c0	c0
3	N	N	N	N	N	n	N	N	N	N	N	n	N	N	n	N	N
4	c1+	c1+	c2+	c2+	c2+	c3	c2	c3	c3	c3	c3	c3	c3	c2f1	c1f1	c2	c1f1
5	N	N	N	N	N	n	N	N	N	N	N	N	N	n	n	N	N
6	N	N	N	N	N	n	N	N	N	n	N	N	N	N	N	N	N
7	c1+	c1+	c1	c1	c1	c2	c1+	c2	c2	c2	c2	c2	c2	c2	c1f1	c2	c1
8	c2+	c2+	c2	c2	c3	c3	c3	c3	c3	c3	c3	c3	c3	c32	c1f2	c1	c1
9	N	N	N	N	N	n	N	N	N	N	N	N	N	N	N	N	N
10	c2+	c2+	c2+	c3	c3	c3	c3	c3	c4	c2+	c3	c2+	c2+	c4	c2f2	c3	c2
11	c2+	c2+	c2+	c3+	c3	c2+	c2+	c2	c2	c2	c2	c2	c2	c2	f2	c1	c1
12	N	N	N	N	n	n	N	N	N	N	N	N	N	N	N	N	N
13	c2+	c3	c3	c3	c4	c4	c2+	c3	c4	c4	c4	c4	c4	c2f2	c3	c0f2	c1
14	c1+	P	c1+	c2+	c2+	c2+	c2	c2	c3	c2+	c2	c3	c3	c2f1	c3	c0f2	c1
15	c1+	c1+	c2+	c2+	c3+	c2+	c3	c2	c3	c3	c3	c3	c3	c32	c3	c0f3	c1
16	IP	c1+	c1+	c1+	c1+	c1+	c1+	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1
17	c1+	c1+	c3	c2+	c3	c2+	c3	c3	c3	c3	c3	c2f1	c2f1	c32	c3	c1f2	c1
18	c1+	c1+	c2+	c2+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c2f2	c0f2
19	IP	B	c1+	c2+	c2+	c2+	c2+	c2+	c2	c2	c2	c3	c3	c2f1	c2f2	c2	c1f1
20	c2+	c1+	c2+	c2+	c2+	c2	c1+	c1+	c1	c1	c1	c1	c1	c0f1	c0	c1	co



Appendix E. continued.

2007 Pelagic Cormorant Productivity Study, Round Island First Beach Prime (FP) - Pinnacle																		
NEST	5/13	5/15	5/17	5/19	5/21	5/23	5/25	5/27	5/30	6/2	6/5	6/8	6/11	6/14	6/16	6/20	6/23	6/26
1	e1	e1	B	B	B	e1	e2	e3	e2+	e1+	e3	e3	e3+	e2+	e3	P	c2+	c1+
2	e1	e2	e3	e3	e3	e1+	e1+	P	e3	e4	e4	e3+	e3+	e2+c1	c4	c1+	c4	c2+
3		e1	e1	e3	e3+	e1+	e1+	e3+	e3	e2+	e1+	e4	e4	e4	e1+c1+	c1+	c3+	c2+
4		e1	e2	e1+	e1+	P	e4	e3+	e4	e4	e3+	e3+	e1+	e1+c2+	c1+	c2+	c2+	c2+
5		e1	P	e3	e3+	e3	e4	e4	e2+	e4	e3+	e3+	e1+	e3c1	e1+c2+	c1+	c2+	c2+
6		e1	e3	P	e2+	P	e2+	e1+	e1+	P	e3+	e3	e4	e1+	c3+	c2+	c2+	c2+
7		e1	e1	e2	e2	e2+	e2+	P	e2+	P	e4	e3+	e2+	c1+	c2+	c3+	c1+	c1+
8		e2	P	P	P	e1+	e3	e3	e3	e3	e4	e2+	e2+c1	e?c1+	P	c3+	c2+	c2+
9		e1	P	P	P	e3	e3	e3	e3	P	e3+	e3+	e3+	e?c2	e?c3	c2+	c2+	c1+
10		e1	e1	e1	e2	e2+	e2+	e2+	e1+	e3	e3+	e2+	P	e2+	e3c1	P	c2+	c1+
11		e1	P	e3	e2+	P	e1+	e1+	e1+	P	e2+	e1+	P	e1c1	e1	c3+	c2+	c2+
12			e2	P	e2+	P	P	e2+	e2+	e2+	B	e3+	e2+	e1+	P	c2+	c2+	c2+
13			e1	P	e3	e1+	e3+	e4	e2+	e3+	e4	e3+	e4	e3+	P	c3+	c2+	c2+
14			e1	P	e3	e2+	e2+	e2+	e2+	P	e3	e2+	e1+	e2+	e3	e1c2+	c1+	c1+
15			e1	e1+	e1+	P	e3+	e2+	P	P	P	P	P	e2+	P	P	P	c2
16			e1	e2	e2	e3	e3	e3	e1+	e3+	e2+	e3+	e4	e4	e2+	c3+	c1+	c1+
17			e1	e1	e3	e3+	P	e4	e1+	e2+	e3+	e4	e3+	e4	e3c1	e1c2+	P	P
18			e1	e1+	P	e3	e1+	e1+	e1+	P	P	P	P	e2+	e1+	P	P	P
19			e1	e1	e2+	e1+	e2+	e2+	e4	e1+	e3+	e3+	e3+	e1+	c1+	c1+	c1+	c1+
20			e1	e1	e1	e2+	e2+	e1+	e2	e1+	e3	e3	e3	e2+	P	c1+	c1+	c1+
21			e2	P	e3+	e2+	e4	e4	e3+	e2+	P	e4	P	e4	P	c1+	c1+	c1+
22			e1	P	e3	e2+	e3	e4	P	P	e4	e2+	e3+	e1c2+	e3+	e1c2+	e1c2+	e1c2+
23			e1	e2	e3	e2+	e2+	e2+	e3	e3	e3	e3	e3	e2+	e2+	e2+	e1+	e1+
24			e1	P	e1	P	e2+	e2	e1+	e2+	e1+	e2+	e1+	N	N	N	N	N
25			e2	e1+	e3	e3	e1+	e2+	e1+	e3	e3	e1+	e2+	e1+	e3	e3	e3+	e1c2
26			e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e3	e?c2+	c1+
27			e2+	e2+	P	e3	e1+	e1+	e2+	e2+	e3+	e2+	e2+	e3	e2c1	c1+	c1+	c1+
28			e2+	e1+	e1+	e2+	e2+	e3+	e2+	e2+	e3+	e2+	e2+	e3+	P	c1+	c1+	c1+
29			e2+	e3	e3	e2+	e3+	e1+	e3+	e1+	e3+	e1+	e3+	P	e?c1+	P	P	P
30			e1+	e3+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+	e1+
NEST	6/29	7/3	7/6	7/9	7/12	7/16	7/19	7/22	7/25	7/28	7/30	8/2	8/5	8/7	8/9	8/11	8/12	8/15
1	c2+	c3+	c3+	c3+	c3+	c3	c3	c3	c3	c3	c3	c3	c3	c3	c2f1	c1f1	c0	c1
2	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c2f2	c1f3	c1	c0f1	c0	c0	c0	c0	
3	c2+	c3+	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c2f2	c2	c0f2	c0	c0	
4	c3+	c3	c3	c2+	c3+	c4	c4	c4	c4	c3+	c3	c3	c1f3	c1	c1	f1	c0	
5	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c1f3	c0	c0	c0	c1	
6	c2+	c3+	c2+	c3	c2+	c3	c3	c3	c3	c2	c2	c0f3	c0	c1	c0	c0	c0	
7	c3+	c3+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c1f3	c0	?	c0	c0	
8	c2+	c2+	c3+	c2+	c2	c2	c2	c2	c2	c3	c1f2	c1	c2	c0f2	c0	c1	c0	
9	c3+	c4	c3	c3	c2+	c2+	c2+	c2+	c3	c3	c1+f1	c1+	c0f2	c0	c0	c0	c0	
10	c2+	c2+	c3	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c2f1	c2	c1f1	c1	c0f1	
11	c3	c3	c3	c3	c3	c3	c3	c3	c3	c3	c3	c3	c2f1	c1f1	c0f1	c0	c1	
12	c2+	c3	c3	c2+	c3+	c2+	c3	c3	c3	c3	c3	c3	c4	c0f2	c0f2	?	c0	
13	c3	c3	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c3	f3	f3	c0	c0	c0	
14	c1+	c2+	c2+	c2+	c1+	c2	c2	c2+	c2	c2	c2	c2	c1f1	c2	c2f1	c2	c0f2	
15	c3	c2+	c3	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c1f2	c1f2	c0f1	c1	c1	
16	c3+	c2+	c4	c4	c4	c4	c4	c4	c4	c4	c4	c4	c1f2	c1f2	c0f1	c3	c2	
17	c2+	c3	c3+	c3+	c2+	c3	c3	c3	c3	c3	c3	c3	c2f1	c2f1	c1f1	c0	c3	
18	c2+	c2+	c2+	c2+	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c1	c1	c0f1	
19	P	c1+	c2+	c1+	c2+	c2+	c2+	c2+	c2+	c3	c2+	c3	c3	c3	c3	c3	c1f1	
20	c1+	c2+	c2+	c2+	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c0f1	
21	c2+	c2+	c2+	c2+	c4	c2+	c3	c3	c4	c4	c4	c4	c4	c4	c3f1	c0f3	c4	
22	c1+	P	c2+	c3+	c2+	c2+	c3	c3	c3	c2+	c3	c4	c2+	c3	c3	c3	c1f2	
23	e1+c1+	e1c1	c1+	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	c0f1	
24	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
25	c1+	c1+	c3	c1+	c2+	c3	c4	c4	c3	c3	c3	c2f1	c2	c3	c3	c2f1	c2	
26	c2+	c3	c3	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c3	c3	c3	c2f1	c1f1	
27	c2+	c1+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c2	c0f2	c2	
28	c1+	c2+	c3	c2+	c3	c3	c3	c3	c3	c3	c3	c3	c2f1	c2f1	c2	c2	c1f1	
29	c1+	c2+	c2+	c3	c2+	c2+	c2+	c2	c2	c2	c2	c2	c2	c2	c2	c2	c0f2	
30	e2+	c1+	c1+	c2+	c1+	c2	c1+	c1+	c2	c2	c3	c3	c3	c3	c3S	c3	c1f2	

Appendix E. continued.

2007 BLKI PRODUCTIVITY - PLOT 2 - MAIN BEACH FROM OBSERVATION POINT											
NEST #	6/12	6/18	6/23	6/27	7/1	7/4	7/7	7/12	7/16	7/19	7/22
1	e1	e1	IP	e1	e1	P	c1	c1	c1	c1	c1
2	e1	P	e1	e1	e1	P	c1	c1	c1	c1	c1
3	e2	e2	e1+	IP	e1+	e1	e1	c1	c1	c1	B
4	e1	e1	e1	e1	e1	c1	c1	c1	c1	c1	c1
5	e1	P	IP	IP	e1	e1	P	c1	c1	c1	c1
6	e2	e2	e2	e2	e2	e2	c1+	c1	c1	N	N
7	e1	e1	e1	e1	e1	e1	e2	c1	N	B	B
8	e2	e2	e1	e2	e2	e2	c1	c1	c1	c1	c1
9	e2	e1+	e2	e2	e1+	c1	c1	c1	c1	c1	c1
10	e1	P	IP	e1	e1	e2	e2	c1	c1	c1	c1
11		e1	IP	IP	e1	e1	e1	c1	c1	c1	c1
12		IP	e1	IP	e1	e1	c1	c1	c1	c1	c1
13		IP	IP	e2	e2	P	P	c1	c1	P	c1
14		IP	e1	e1	e1	c1	c1	c1	c1	c1	c1
15		IP	IP	e1	e1	e1	P	c1	B	cdead	B
16		IP	e1	e1	P	e1	P	P	B	B	B
17		IP	B	B	B	P	P	B	IP	B	B
18		e1	e1	e1	e1	P	P	c1	c1	c1	c1
19		e1	IP	N	B	B	N	N	N	N	N
20		IP	e1	IP	P	e1	e1	e1	IP	N	B
21		IP	e2	e2	e1+	e2	e2	N	B	N	N
NEST #	7/25	7/28	7/30	8/2	8/5	8/7	8/9	8/11	8/14	8/15	
1	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
2	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
3	B	B	N	B	B	B	N	N	N	B	
4	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
5	c1	c1	N	c1	c1?	c1	c1	c1	c1	c1	
6	B	B	N	N	N	B	B	N	N	B	
7	N	B	N	B	B	B	N	N	N	N	
8	c1	c1	c1	c1	c1	c1	c1	c1	dead c	dead c	
9	c1	N	N	B	B	B	N	N	B	B	
10	c1	B	N	B	B	B	N	B	N	B	
11	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
12	B	B	N	B	B	B	B	N	B	B	
13	c1	c1	c1	c1	c1	c1	c1	c1	B	B	
14	c1	B	N	B	B	B	B	B	N	B	
15	B	B	N	B	B	B	B	B	B	B	
16	B	B	N	B	B	B	c1	c1	B	B	
17	B	B	N	B	B	B	B	B	B	B	
18	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
19	N	N	N	N	N	B	N	B	N	N	
20	B	N	N	B	B	B	N	B	N	N	
21	N	B	N	B	B	B	B	B	N	B	

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 Drago but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as E<sub>ded</sub> (dead egg).

C= Chick, Chick present. C<sup>3</sup> (three chicks) C<sup>3+</sup> (three chicks plus possibly more).

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2007 BLKI PRODUCTIVITY - PLOT 3 - MAIN BEACH FROM OBSERVATION POINT											
NEST #	6/12	6/18	6/23	6/27	7/1	7/4	7/7	7/12	7/16	7/19	7/22
1	e1	e1	lp	e1+	e2	e2	e1+	B	N	B	N
2	e2	e2	e2	P	e1+	P	P	c1	c1	c1	c1
3	e1	e1	IP	P	e1	c1	P	B	N	B	B
4	e1	e1	IP	B	B	B	N	B	N	B	B
5	e1	e1	IP	e2	e1	c1	c1	c1	BP	c1	c1
6	e2	e2	e2	e2	e2	e2	e1+	c1	c1	c1	c1
7	e1	e2	e2	e1	P	e2	P	e1+	BP	B	B
8	e1	e1	e1	P	e2	c1	c1	c1	c1	c1	c1
9		e1	IP	P	e1	c1	c1	c1	c1	c1	c1
10		e1	e1	e1	e1	e1	B	B	N	B	B
11		e1	e1	P	e1	e1	e1+	B	N	B	B
12		e2	e2	e2	e2	e2	e2	e2	e1	B	B
13		e2	IP	e1+	e1+	P	c1	c1	c1	c1	c1
14		e1	B	B	N	N	N	N	N	N	N
15		e1	e1	P	e1	e1	P	P	c1	c1	c1
16		e2	N	B	B	B	B	B	B	B	B
17		e1	e2	e1	e1	e1	c1	c1	c1	c1	c1
NEST #	7/25	7/28	7/30	8/2	8/5	8/7	8/9	8/11	8/14	8/15	
1	N	B	N	B	B	B	B	B	B	B	
2	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
3	B	N	N	B	B	B	B	B	B	N	
4	B	N	N	B	B	B	B	N	B	N	
5	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
6	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
7	B	B	N	B	B	B	B	B	N	B	
8	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
9	c1	c1	c1	c1	c1	c1	c1	B	B	B	
10	N	n	N	N	N	B	N	B	B	B	
11	N	B	N	B	B	B	B	N	B	B	
12	N	N	N	N	N	B	N	N	N	N	
13	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	
14	N	N	N	N	N	N	B	B	N	B	
15	c1	B	N	B	B	B	B	B	B	B	
16	N	N	N	B	B	B	B	B	B	B	
17	c1	c1	c1	c1	c1	c1	c1	c1	c1	c1	

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 Drago 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).

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2007 COMU PRODUCTIVITY - PLOT 1 - MAIN BEACH FROM OBSERVATION POINT											
NEST #	6/18	6/23	6/27	7/1	7/4	7/7	7/9	7/12	7/16	7/19	7/22
1	e1	e1	e1	e1	e1	IP	IP	e1	IP	e1	c1
2	e1	IP	e1	e1	IP	IP	IP	e1	IP	e1	P
3	e1	IP	IP	IP	IP	IP	e1	e1	IP	IP	BP
4	e1	IP	e1	e1	IP	IP	IP	e1	IP	c1	c1
5	e1	e1	e1	IP	e1	IP	IP	e1	IP	IP	IP
6	e1	IP	IP	e1	IP	IP	e1	IP	BP	IP	c1
7	e1	IP	e1	IP	IP	IP	IP	e1	IP	e1	BP
8	e1	e1	IP	IP	IP	IP	IP	IP	e1	BP?	P
9	e1	IP	IP	IP	IP	IP	IP	e1	e1	e1	BP
10	e1	e1	IP	IP	IP	IP	IP	e1	IP	IP	e1
11		e1	e1	IP	IP	IP	e1	e1	IP	e1	IP
NEST #	7/25	7/28	7/30	8/2	8/7	8/9	8/11	8/12	8/14	8/15	8/16
1	BP	BP?	BP	c1	c1	c1	c1	c1	c1	P	B/F
2	BP?	BP?	c1	c1	c1	c1	P	P	N	N	B/F
3	BP	BP	c1	c1	c1	c1	P	c1	N/F	N/F	B
4	dead B	dead B	N	dead B	dead B	dead B	dead B	dead B	dead B	dead B	dead B
5	BP	BP	c1	c1	c1	c1	c1	B	B	N	N
6	c1	c1	c1	BP	c1	c1	B	B	B	B	B
7	c1	BP	BP	BP	c1	c1	BP	c1	c1	c1	BP
8	IP	BP	c1	BP	c1	BP	c1	c1	BP	BP	B
9	IP	c1	c1	c1	c1	c1	BP	c1	c1	BP	P
10	BP	BP	P	P	P	P	B	B	-	-	-
11	BP	BP	c1	P	c1	c1	c1	c1	c1	c1	BP

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 Drago but not found in the above report).

E= Egg, Egg present, with no adult. If the egg is obviously damaged, record it as E<sub>ded</sub> (dead egg).

C= Chick, Chick present. C<sup>3</sup> (three chicks) C<sup>3+</sup> (three chicks plus possibly more).

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2007 COMU PRODUCTIVITY - PLOT 2 - MAIN BEACH FROM OBSERVATION POINT											
NEST #	6/12	6/18	6/23	6/28	7/1	7/4	7/7	7/12	7/16	7/19	7/22
1	e1	IP	IP	e1	e1	IP	IP	P	P	N	P
2	e1	IP	IP	IP	B	IP	IP	IP	IP	IP	P
3		e1	B	N	N	B	B	B	IP	B	N
4		e1	e1	IP	IP	IP	e1	e1	IP	IP	c1
5		e1	e1	e1	e1	e1	e1	e1	e1	IP	c1
6		e1	e1	IP	e1	IP	IP	e1	IP	IP	c1
7		e1	IP	P	e1	IP	IP	IP	IP	IP	IP
8		e1	N	B	B	IP	IP	IP	IP	IP	IP?
9		e1	e1	IP	IP	IP	P	P	IP	IP	p
10		e1	IP	IP	e1	e1	IP	e1	IP	IP	BP
11		e1	B	B	B	B	B	N	e1	e1	e1
12		IP	IP	IP	e1	IP	IP	e1	e1	B	BP
13		IP	IP	IP	IP	e1	IP	P	P	B	IP
14		IP	B	N	N	N	N	B	B	B	B
15			e1	IP	e1	IP	IP	IP	iP	IP	B
16			e1	IP	IP	IP	IP	e1	IP	IP	IP
17			e1	e1	e1	IP	IP	e1	IP	e1	P
18			e1	IP	IP	IP	IP	e1	IP	IP	P
NEST #	7/25	7/28	7/30	8/2	8/5	8/6	8/7	8/9	8/11	8/12	8/14
1	B	B	B	B	B	P	B	B	B	B	B
2	IP	B	B	B	B	P	P	B	B	B	B
3	e1	IP	P	e1	e1	P	P	B	B	B	B
4	c1	c1	BP	c1	c1	BP	B	B	B	B	B
5	c1	BP?	C1	B	B	B	P	B	B	B	B
6	c1	BP?	P	P	c1	BP	c1	B	B	B	B
7	e1	e1	IP	IP	IP	p	N	B	B	B	B
8	B	B	B	B	B	B	B	B	B	B	B
9	IP	IP	BP	BP	BP	P	P	B	B	B	B
10	BP	c1	BP	P	P	P	P	B	B	B	B
11	e1	IP	e1	e1	e1	IP	c1	c1	c1	c1	B
12	B	B	B	B	B	B	N	N	B	B	B
13	IP	IP	P	B	B	?	B	B	B	B	B
14	N	N	B	N	N	B	B	N	N	N	N
15	IP	e1	e1	e1	e1	P	P	B	B	B	B
16	IP	IP	CI	c1	c1	P	BP	BP	B	B	B
17	c1	c1	CI	P	BP	B	c1	B	B	B	B
18	e1	IP	IP	e1	e1	P	P	B	B	B	B

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 Drago 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).

BP= Brooding posture

IP= Incubating posture

Appendix E. continued.

2007 COMU PRODUCTIVITY - PLOT 4 - MAIN BEACH FROM OBSERVATION POINT									
NEST #	6/19	6/25	6/27	7/1	7/4	7/9	7/13	7/16	7/19
1	e1	e1	e1	e1	e1	IP	e1	e1	BP
2	e1	e1	e1	e1	e1	IP	N	B	B
3	e1	e1	e1	IP	e1	IP	e1	e1	IP
4	e1	e1	IP	IP	IP	N	N	B	N
5	e1	IP	IP	IP	B	IP	IP	IP	IP
6	e1	e1	IP	IP	IP	IP	e1	e1	e1
7	e1	IP	IP	e1	IP	IP	IP	IP	c1
8	e1	e1	IP	e1	e1	BP	e1	IP	IP
9	e1	e1	IP	IP	e1	IP	e1	IP	IP
10	e1	e1	IP	IP	IP	IP	IP	BP	c1
11	e1	e1	e1	IP	IP	IP	e1	IP	IP
12	e1	IP	e1	e1	IP	IP	IP	e1	e1
13	e1	IP	IP	IP	IP	IP	IP	IP	IP
14	e1	e1	IP	IP	IP	IP	IP	P	IP
15	e1	IP	e1	e1	IP	e1	e1	e1	IP
16		e1	e1	e1	IP	e?	B	IP	P
17		e1	e1	IP	IP	e1	e1	IP	e1
18		e1	e1	e1	e1	e1	e1	IP	BP
19		e1	IP	IP	e1	IP	B	B	BP
20		e1	e1	IP	e1	IP	IP	BP	e1
21		e1	IP	IP	IP	e1	IP	IP	c1
22		e1	e1	e1	e1	e1	e1	e1	e1
23		e1	e1	IP	e1	IP	N	N	N
24		e1	IP	IP	IP	IP	IP	BP	BP
NEST #	7/22	7/25	7/30	8/1	8/7	8/7	8/9	8/12	8/16
1	BP	BP	BP	BP	f?	B	B	N	B
2	B	B	B	B	B	B	B	B	N
3	BP	BP	BP	c1	c1	c1	c1	c1	B/F
4	N	B	B	B	N	N	N	N	B
5	IP	BP	e1	IP	c1	c1	c1	c1	c1
6	c1	BP	BP	c1	BP	c1	c1	B	N
7	BP	BP	BP	c1	f?	B	B	B	B
8	P	N	N	N	B	N	N	B	N
9	BP	BP	BP	c1	BP	P	BP	c1	B/F
10	BP	BP	P	B	c1	f?	B	B	B
11	IP	c1	c1	BP	c1	c1	c1	B	B
12	e1	BP	P	B	B	B	B	B	B
13	BP	BP	P	P	P	B	B	B	B
14	c1	BP	BP	BP	P	P	P	B	B
15	IP	IP	e1	e1	e1	B	B	B	B
16	B	B	B	B	B	N	N	B	N
17	BP	?	B	B	B	B	B	B	B
18	B	B	B	B	N	B	B	N	N
19	B	B	N	B	B	N	N	B	N
20	e1	c1	BP	BP	c1	c1	c1	c1	BP
21	BP	c1	c1	c1	c1	c1	c1	B	B
22	e1	c1	c1	BP	BP	P	BP	c1	B/F
23	N	N	N	N	B	N	N	N	N
24	BP	e1	e1	c1	c1	c1	c1	c1	BP

Appendix F. Seabird population counts from Observation Point, Round Island 2007.

2007 POPULATION COUNT - PLOT 1- MAIN BEACH FROM OBSERVATION POINT

Date	Count #	Start Time	Finish Time	# BLKI	# BLKI nests	# PECO	# PECO nests	# COMU	# HOPU	# TUPU
6/9	1	1158		32	20	1	0	142	2	0
	2		1207	32	22	1	0	155	2	0
6/12	1	930	933	30	19	1	0	158	1	0
	2	934	937	27	20	1	0	151	1	0
6/18	1	1537	1540	24	21	0	0	100	0	0
	2	1541	1544	25	20	0	0	104	0	0
6/23	1	1511	1518	28	29	0	0	113	0	0
	2	1519	1521	29	28	0	0	107	0	0
6/27	1	1200	1205	29	19	0	0	133	2	0
	2	1206	1210	31	19	0	0	130	2	0
6/30	1	1556	1600	29	15	0	0	99	2	0
	2	1600	1602	29	15	0	0	96	2	0
7/4	1	1612	1615	26	12	0	0	97	1	0
	2	1616	1619	27	12	0	0	107	1	0
7/10	1	822		26	N/A	0	0	96	0	0
	2	826		26	N/A	0	0	100	0	0
7/12	1	1545		16		0	0	107	0	0
	2			16		0	0	108	0	0

2007 POPULATION COUNT - PLOT 2 - MAIN BEACH FROM OBSERVATION POINT

Date	Count #	Start Time	Finish Time	# BLKI	# BLKI nests	# PECO	# PECO nests	# COMU	# HOPU	# TUPU
6/9	1	12:12		144	40	0	0	295	0	0
	2		12:28	149	43	0	0	314	0	0
6/12	1	9:38	9:46	105	47	0	0	256	0	0
	2	9:51	9:58	108	49	0	0	278	0	0
6/18	1	15:15	15:21	102	37	0	0	224	0	0
	2	15:22	15:26	92	37	0	0	240	0	0
6/23	1	14:52	15:05	86	47	0	0	304	0	0
	2	15:06	15:15	88	44	0	0	301	0	0
6/27	1	12:14	12:19	123	45	0	0	303	0	0
	2	12:20	12:35	120	41	0	0	349	0	0
6/30	1	15:36	15:42	98	34	0	0	234	0	0
	2	15:43	15:47	91	37	0	0	233	0	0
7/4	1	14:56	15:02	82	38	0	0	256	0	0
	2	15:03	15:08	84	40	0	0	265	0	0
7/7	1	16:31	16:34	62	N/A	0	0	230	0	0
	2	16:35	16:37	61	N/A	0	0	235	0	0
7/10	1	8:10		90	N/A	1	0	246	0	0
	2	8:20		83		1	0	256	0	0
7/12	1	11:44	11:48	76		1	0	200	0	0
	2	11:49	11:53	71		1	0	211	0	0

Appendix F. continued.

2007 POPULATION COUNT - PLOT 3 - MAIN BEACH FROM OBSERVATION POINT										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI nests	# PECO	# PECO nests	# COMU	# HOPU	# TUPU
6/9	1	1239		122	45	0	0	142	0	0
	2		1252	145	46	0	0	154	0	0
6/12	1	1001	1004	112	49	0	0	131	0	0
	2	1005	1008	109	51	0	0	133	0	0
6/18	1	1527	1529	86	46	0	0	133	0	0
	2	1530	1534	88	39	0	0	132	0	0
6/23	1	1522	1525	101	54	1	0	113	0	0
	2	1526	1532	108	53	1	0	102	0	0
6/27	1	1237	1241	129	51	0	0	118	0	0
	2	1242	1245	122	58	0	0	120	0	0
6/30	1	1548	1551	89	39	0	0	114	0	0
	2	1552	1554	92	38	0	0	117	0	0
7/4	1	1527	1530	100	34	0	0	103	0	0
	2	1531	1534	108	34	0	0	110	0	0
7/7	1	1644	1646	62	N/A	0	0	82	0	0
	2	1647	1649	60	N/A	0	0	77	0	0
7/10	1	827		76	N/A	1	0	80	0	0
	2	835		76	N/A	1	0	73	0	0
7/12	1	1154	1156	64		0	0	86	0	0
	2	1157	1159	66		0	0	88	0	0

2007 POPULATION COUNT - PLOT 4 - MAIN BEACH FROM OBSERVATION POINT										
Date	Count #	Start Time	Finish Time	# BLKI	# BLKI nests	# PECO	# PECO nests	# COMU	# HOPU	# TUPU
6/10	1	1306		178	50	0	0	920	0	0
	2		1335	184	54	0	0	883	0	0
6/12	1	1021	1033	156	66	0	0	742	0	0
	2	1034	1044	144	74	0	0	781	0	0
6/18	1	1556	1607	141	56	0	0	591	0	0
	2	1608	1616	126	61	1	0	598	0	0
6/23	1	1546	1556	127	76	0	0	752	0	0
	2	1557	1607	130	73	0	0	721	0	0
6/27	1	1550	1605	156	?	0	0	756	0	0
	2	1606	1620	140	?	0	0	714	0	0
6/30	1	1615	1624	120	48	0	0	575	0	0
	2	1625	1635	126	49	0	0	600	0	0
7/6	1	1100		92	N/A	0	0	802	0	0
	2		1120	96	N/A	0	0	745	0	0
7/10	1	848		100	N/A	0	0	688	0	0
	2	903		101	N/A	0	0	664	0	0
7/12	1	1600		83		0	0	645	0	0
	2	1617		88		0	0	671	0	0



*Appendix F. continued.*

<b>2007 POPULATION COUNT - PLOT 5 - MAIN BEACH FROM OBSERVATION POINT</b>										
<b>Date</b>	<b>Count #</b>	<b>Start Time</b>	<b>Finish Time</b>	<b># BLKI</b>	<b># BLKI nests</b>	<b># PECO</b>	<b># PECO nests</b>	<b># COMU</b>	<b># HOPU</b>	<b># TUPU</b>
6/9	1	1259	1300	0	0	0	0	156	0	0
	2	1301	1302	0	0	0	0	171	0	0
6/12	1	1012	1014	0	0	0	0	141	0	0
	2	1015	1016	0	0	0	0	146	0	0
6/18	1	1548	1550	0	0	0	0	100	0	0
	2	1551	1552	0	0	0	0	106	0	0
6/23	1	1538	1539	0	0	0	0	168	0	0
	2	1540	1541	0	0	0	0	152	0	0
6/27	1	1650	1654	0	0	0	0	174	0	0
	2	1655	1659	0	0	0	0	170	0	0
6/30	1	1607	1608	0	0	0	0	103	0	0
	2	1609	1610	0	0	0	0	99	0	0
7/4	1	1632	1634	0	0	0	0	123	0	0
	2	1635	1637	0	0	0	0	126	0	0
7/10	1	840	843	0	0	0	0	122	0	0
	2	844	847	0	0	0	0	132	0	0
7/12	1	1620	1623	0	0	0	0	130	0	0
	2	1624	1627	0	0	0	0	139	0	0