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ALASKA PENINSULA/BECHAROF NATIONAL WILDLIFE REFUGE

King Salmon, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 2001

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

Refuge Manager	Date	Refuge Supervisor Review	Date

Regional Office Approval	Date

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INTRODUCTION

The lands that make up the Alaska Peninsula/Becharof National Wildlife Refuge Complex (Refuges) are the Becharof Refuge, the Ugashik and Chignik Units of the Alaska Peninsula Refuge, and Seal Cape of Alaska Maritime Refuge. These lands were combined for management out of the King Salmon office in 1983 because they shared common resources and resource issues. Since 1983, the Pavlof Unit of the Alaska Peninsula Refuge has been managed by the Izembek Refuge. This arrangement takes the Refuge lands that are closest together and allows them to be managed from one office.

The Alaska Peninsula is a land of towering mountains, active volcanoes, broad valleys, fjords, tundra and large glacial lakes. The Refuges lie along the Pacific side of the peninsula starting about ten miles south of the headquarters in King Salmon and extending for approximately 250 miles. From coastal lowlands on the Bristol Bay side of the Refuges the land raises to steep glaciated mountains and volcanoes, forming the spine of the Refuges, and then plunges to steep cliffs and sandy beaches on the Pacific side. The Bristol Bay side of the Refuges consists primarily of rolling moist to wet tundra, lakes and wetlands. The snow covered, heavily glaciated Aleutian Mountain Range bisects the Refuges with volcanic peaks rising to over 8,200 feet. The Pacific coastline is rugged with sea cliffs rising hundreds of feet from the water. Numerous streams and several large rivers originate on the Refuges and provide salmon spawning areas for the economically important Bristol Bay commercial fishery.

Approximately 2,000 local residents live in 12 villages within or adjacent to the Refuges with many of them using the Refuges for subsistence purposes. The Refuges lie within the Bristol Bay and Lake & Peninsula Boroughs.

In 1978, President Jimmy Carter established the 1,157,000 acre Becharof National Wildlife Monument with Presidential Proclamation 4616. The Alaska National Interest Lands Conservation Act of 1980 changed the Monument into a National Wildlife Refuge. Approximately 503,000 acres of this Refuge is designated wilderness. Becharof Refuge contains Becharof Lake, (300,000 acres) the largest freshwater lake entirely within the boundary of a National Wildlife Refuge.

The Alaska National Interest Lands Conservation Act also created the Alaska Peninsula Refuge and Seal Cape of the Alaska Maritime Refuge. The Ugashik and Chignik Units of the Alaska Peninsula Refuge encompass about 2,648,100 acres and extend over 200 miles. These units are separated by the Aniakchak National Monument and Preserve, a unit of the National Park Service. Within the Chignik Unit is the Mount Veniaminof National Natural Landmark which was established in 1970. Mount Veniaminof has the most extensive crater glacier in the nation and the only known glacier on the continent with an active volcanic vent in its center. It last erupted in 1983.

Seal Cape is a 9,900 acre headland about 30 miles south of the village of Chignik. Narrow bays cut Seal Cape into two principle arms which rise to peaks over 2,000 feet and provide cliffs for sea birds to nest.

The purposes for which the Refuges were established by the Alaska National Interest Lands Conservation Act and shall be managed include: (Unless otherwise noted, the purposes apply to all three of the Refuges.)

> (i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to…
>
> > [Becharof]…brown bears, salmon, migratory birds, the Alaska Peninsula Caribou herd and marine birds and mammals;
> >
> > [Alaska Peninsula]…brown bears, the Alaska Peninsula caribou herd, moose, sea otters and other marine mammals, shorebirds and other migratory birds, raptors, including bald eagles and peregrine falcons, and salmonids and other fish;
> >
> > [Alaska Maritime]…marine mammals, marine birds and other migratory birds, the marine resources upon which they rely, bears, caribou and other mammals;
>
> (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;
>
> (iii) to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents;
>
> (iv) to insure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the Refuge."
>
> [Alaska Maritime] to provide, in a manner consistent with subparagraphs (i) and (ii), a program of national and international scientific research on marine resources;

Refuge fauna include some of the highest densities of brown bears found in North America. Moose inhabit the area in moderate numbers and the Northern Alaska Peninsula Caribou Herd use refuge lands for calving, insect escape habitat, migration and wintering. Other animals found on refuge lands include wolves, foxes, wolverines, and lynx. Sea otters, sea lions and harbor seals inhabit the shorelines, and nesting bald eagles, peregrine falcons, and thousands of seabirds inhabit the rocky sea cliffs of the Pacific coast. Nesting, migrating, and wintering waterfowl found on wetlands, lakes, and streams throughout the Refuges include tundra swans, greater white-fronted geese, emperor geese, mallards, northern pintails, American widgeons, greater scaup, and

harlequin ducks.

The Alaska Peninsula is world renown for big game hunting. The refuge is subdivided into 21 big game guide-outfitter use areas with 26 special use permits issued for conducting big game guiding activities within these areas. The Refuge staff manages a large, and often controversial, sport hunting program that balances the needs of unguided and guided sport hunters with the needs of subsistence users.

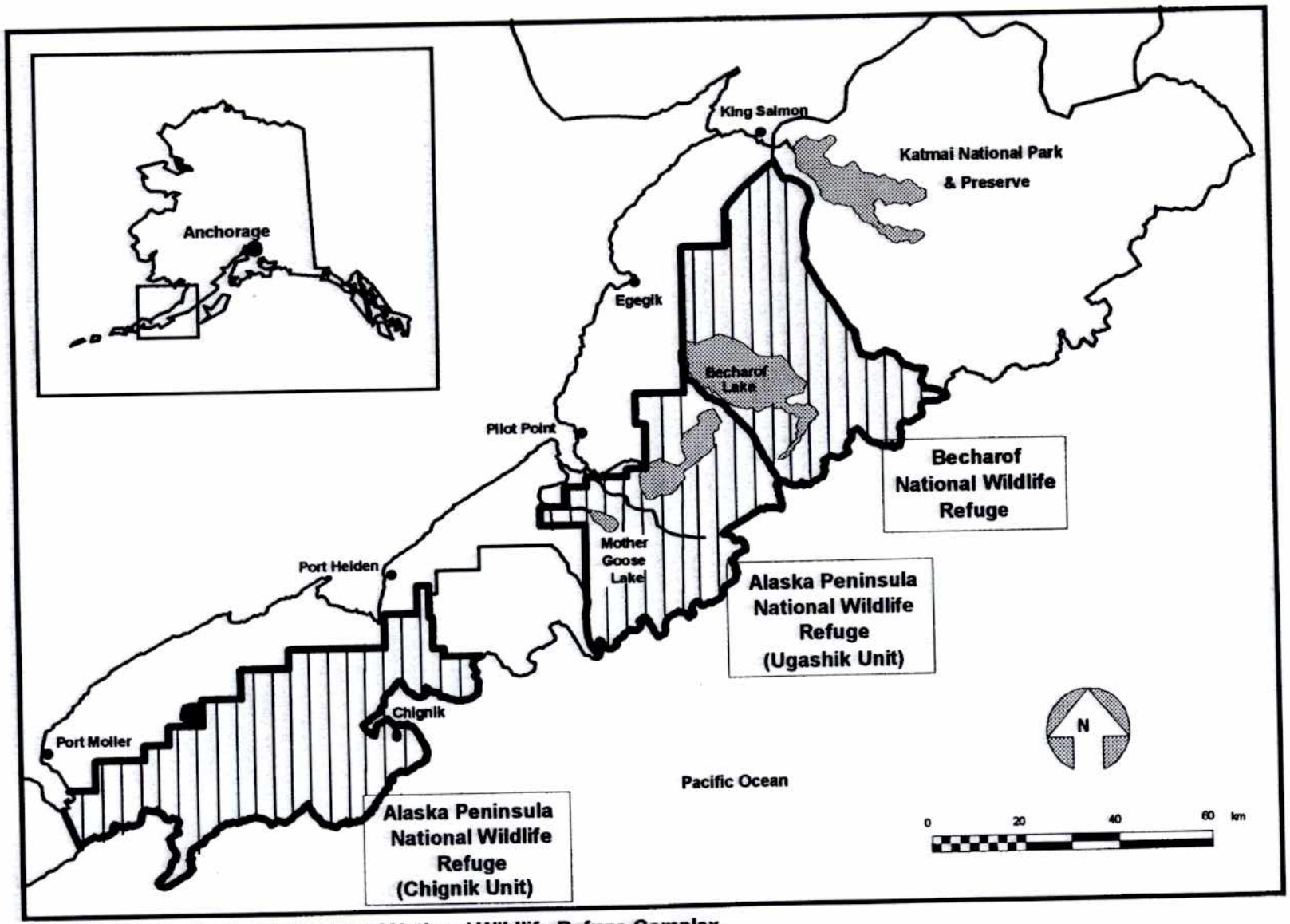


Figure 1. Alaska Peninsula/Becharof National Wildlife Refuge Complex.

A. HIGHLIGHTS

** New Remote Area Weather Station installed at Yantarni Bay (Section F. 1.)

** M/V Surfbird assisted in Puale Bay seabird surveys (Section G. 5.).

** Western Hemisphere Shorebirds Reserve Network Site designated (Section G. 5.).

** Forty Federal Caribou Permits distributed for Units 9C&9E (Section G. 8.).

** Becharof Science/Spirit camp canceled because of 9/11 (Section H. 2.).

** Five local students win prizes in the Goose Calendar contest (Section H. 7.).

** Refuge staff host job shadowing for local students (Section H. 8.).

B. CLIMATE

1. General

The upper Alaska Peninsula is characterized by a polar maritime climate with moderate temperatures, protracted cloud cover, frequent precipitation and high winds. Large atmospheric differences between interior Alaska and the Pacific Ocean and Bering Sea are the dominate influences on weather. Winds blowing across Pacific Ocean and Bering Sea pick up moisture which turns into fog and rain when encountering the Alaska Peninsula's mountains. High winds and turbulence are especially common near the rugged terrain. The heaviest precipitation occurs on the Pacific Ocean side of the peninsula. The Bering Sea side enjoys more clear weather but lower average temperatures.

Temperatures are generally moderate throughout the year. The monthly high temperature exceeded the freezing mark in all months; monthly minimum temperatures were at or below freezing ten months of the year (Table 1).

At King Salmon, the dangerous effects of wind chill can be dramatic. Interior Alaska is known for low winter temperatures and the Aleutian Islands for high winds; however, when climatic influences of each area meet on the upper Alaska Peninsula, the wind chill factor may exceed -120E Fahrenheit (F).

Table 1. 2001 Climatological data reported by U.S. Weather Service at the King Salmon Airport, King Salmon, Alaska

	TEMPERATURE F				HISTORICAL TEMP		PRECIPITATION(INCHES)		
Month	*Monthly High*	*Monthly Low*	*Average Max*	*Average Min*	*Average Max*	*Average Min*	*PPT*	*Historical Average*	*Snow Fall*
January	43	-18	31.8	18.5	23	8	0.85	1.0	6.5
February	44	2	36.9	20.0	25	9	1.88	1.0	7.3
March	47	1	32.9	18.1	31	14	0.58	0.9	4.5
April	55	2	43.4	28.1	41	24	1.35	1.0	7.9
May	71	15	51.4	29.6	52	34	0.64	1.3	2.6
June	80	32	64.5	41.5	60	42	0.21	1.5	0.0
July	70	34	61.6	47.5	63	47	3.51	2.2	0.0
August	74	34	63.7	47.4	62	47	2.37	3.0	0.0
September	64	28	56.7	40.2	55	40	1.65	2.9	0.0
October	57	-9	36.4	19.0	40	25	3.61	1.9	1.9
November	45	-15	27.6	10.3	30	16	0.14	1.5	2.2
December	44	-38	17.6	-2.5	23	7	0.80	1.3	14.4

Historical temperature (F) is the average monthly max. and min. temperature for the period of record July 1, 1955 until present.

Table 2. Weather Highlights of 2001.

Highest temperature:	80	June 16
Lowest temperature:	-38	December 19
Total precipitation:	17.59	1.91 inches below normal
Total snowfall:	47.3	2.2 inches above normal
Highest monthly Precipitation	3.61	October
Highest monthly snowfall:	14.4	December
Highest sea-level pressure:	30.53	March
Lowest sea-level pressure:	28.00	February

Total snowfall from Table 2 is deceptive. That amount is for the calendar year but if you look at the total for the winter of 00/01 (October, 2000 to May, 2001) the snow fall total was 34.6 inches or 10.5 inches below normal. Normally December and January are the largest snowfall months. The winter of 2000/01 the snow came late, February, April and May were

the above normal snowfall months. The late snowfall melted off quickly making it seem even more of a below normal year that it actually was.

Daily winds average 10 to 15 miles per hour (mph). However, most months have peak winds from 20 to 40 mph. This year's peak wind gust was 53 miles per hour on January 16.

D. PLANNING

1. Master Plan

The Alaska National Interest Lands Conservation Act (ANILCA) mandated that a comprehensive conservation plan (CCP) be prepared and periodically revised for each National Wildlife Refuge (NWR) that was established, redesignated, or expanded by the Act. CCPs for the Alaska Peninsula and Becharof National Wildlife Refuges (Refuges) were originally written in the mid-1980s. The two original plans will be combined into one plan for the Becharof Refuge and the Ugashik and Chignik Units of the Alaska Peninsula Refuge that are administered by the King Salmon office. The revision process began in 1997. By the end of 2000, the Alaska Peninsula/Becharof Planning Team had produced a Draft CCP and Environmental Impact Statement (EIS) for internal review within the Region 7 and State of Alaska interested staff.

Work continued on the revision of the CCP during 2001. The core planning team membership remained the same as in 2000. It included Refuge Manager Lons and Biologist Squibb at the Refuge office and Planning Branch Chief Kenneth Rice, Natural Resource Planner Peter Wikoff (Team Leader), Social Scientist Stewart Allen, Wildlife Biologist Charles Ardizzone, and Natural Resource Planner Karen Murphy of Region 7, Division of Refuges, Planning Branch.

The core team met in Anchorage from January 11-12 to address internal review comments from Region 7 staff, Washington staff, and the State of Alaska. Brad Palach, Alaska Depart ment of Fish & Game (ADF&G), attended the meeting as the representative of the State of Alaska. Region 7 Chief of NWR System Todd Logan joined the meeting for part of the time. The core team met again May 1-2 to review the new draft that incorporated changes resulting from internal review. Logan and Refuge Supervisor (South) Mike Boylan also joined the meeting, as did Bruce Talbot of ADF&G. Squibb also met with Rice and Murphy from February 6-7 regarding the Goals and Objectives, and with Murphy, Wikoff, and Ardizzone on May 11 regarding predator control and other issues.

In mid-May, the Region 7 Directorate decided to drop predator control as an issue. One of the four draft alternatives would have eliminated the possibility of implementing predator control on the Refuges for any purpose other than protecting threatened or endangered

species. The conclusion of internal review was that predator control is a management tool that should not be eliminated as an option for future refuge management; therefore, predator control should not appear in the alternatives as an option that can be permanently rejected.

In December 2001, the core team completed a Draft CCP and EIS. This 520 page document included the changes resulting from the internal review. Other than the absence of predator control as an issue, the alternatives were very similar to those of the December 2000 draft. Alternative 1 was essentially a continuation of current management. Its proposal for 890,000 acres of new congressionally designated Wilderness was identical to the Wilderness proposals from the 1985 Becharof and Alaska Peninsula CCPs and Records of Decision. No rivers were proposed for the Wild and Scenic River System. Wildlife inventory would continue at its current level. Study of public use issues would remain reactive to known conflicts and conservation issues. Helicopter landings for recreational access could be allowed outside of designated Wilderness on a case-by-case basis.

Alternative 2 was a no additional designated Wilderness alternative. The Wild and Scenic River proposal included Port Wrangell, Dog Salmon (Ugashik), and the upper Chignik River tributary complex. Wildlife inventory and monitoring effort would increase. A public use monitoring program would be established and objectives developed. Helicopter landings would only be permitted after criteria to protect sensitive or remote areas had been developed.

Alternative 3 proposed all non-Wilderness lands (an area of over 3.7 million acres) except the Yantarni Bay Moderate Management area for Wilderness designation. The Wild and Scenic River proposal included all nine eligible rivers. Wildlife inventory and monitoring effort would increase. A public use monitoring program would be established and objectives developed. Helicopter landings would not be allowed.

Alternative 4 (Preferred) proposed most lands that did not currently receive significant recreational or subsistence use for designated Wilderness, an area totaling 2.8 million acres. This proposal contained a non-Wilderness corridor to accommodate a proposed road from Port Heiden to the Chigniks and on to Perryville. The Wild and Scenic River proposal included Port Wrangell and King Salmon (Ugashik) rivers. Wildlife inventory and monitoring effort would increase. A public use monitoring program would be established and objectives developed. Helicopter landings would not be allowed.

The December 2001 Draft CCP was intended for distribution to organizations and institutions that have an interest in management of the Refuges, such as the village Native corporations, the local boroughs, city and village councils, Bristol Bay Native Association, the Bristol Bay Federal Subsistence Regional Advisory Council, and conservation organizations. This Draft included an initial 33 page Summary Draft Revised Comprehensive Conservation Plan and Environmental Impact Statement (Summary) that reviewed the major parts of the CCP in less detail. This Summary was written to also be released as an independent document that would provide sufficient

information for most interested individuals. Summaries were to be mailed to residents of local communities that use the Refuges. Refuge staff planned to visit local communities after the Summaries had been mailed to box holders in order to seek comments especially regarding which alternative they preferred.

2. Management Plan

Region 7 Realty continued work on the Habitat Protection Plan (Land Protection Plan) for the Refuges. Progress was slowed in 1999 by turnover in the position responsible for the plan.

3. Public Participation

There was no formal public participation associated with the CCP in 2001 to report. The planning team concentrated their efforts on revising the December 2000 internal review Draft CCP and EIS to produce the December 2001 Draft CCP.

6. Other

Refuge Manager Lons, Deputy Refuge Manager Koepsel, Biologist Squibb, Wildlife Biologist Savage along with State of Alaska and National Park Service staff attended an Eco-Region planning meeting convened by The Nature Conservancy (April 19).

Savage and Koepsel prepared information for the Marine Managed Areas database, a national effort.

E. ADMINISTRATION

1. Personnel

Permanent Staff

1. Daryle Lons; Refuge Manager; GS-485-13; EOD-12/20/97
2. Mark Koepsel; Deputy Refuge Manager; GS-485-12; EOD-11/07/99
3. Dave Cox; Refuge Operations Specialist; GS-485-12; EOD-04/25/99
4. Susan Savage; Wildlife Biologist; GS-486-11; EOD-05/11/97
5. Angie Terrell-Wagner; Park Ranger/Public Use Specialist; GS-025-11; EOD-12/29/91
6. Ronald Squibb; General Biologist; GS-0401-11; EOD-03/10/97
7. Orville Lind; Park Ranger (local hire); GS-0025-11; EOD-09-08-91
8. John (Smiley) Knutsen; Refuge Information Technician; (local hire); GS-1001-08; EOD-09/08/91; PPT
9. Charles O'Domin; Refuge Information Technician (local hire); GS-1001-08; EOD-10/5/97; PPT

10. Gary Terry; Maintenance Worker; WG-4749-08; EOD-07/31/88
11. Gary Melvin; Maintenance Worker; WG-4749-05; EOD- 05/24/98;
12. Darlene Melvin; Administrative Technician (local hire); GS-303-06; EOD 11/07/99
13. Beth Marsan; Administrative Technician (local hire); GS-303-05; EOD-4/23/00; resigned 9/21/01
14. Kim Montano; Administrative Technician (local hire); GS-303-05; EOD-11/04/01

PPT means permanent part time, all other permanent employees are full time. EOD means entered on duty.

Marsan resigned to stay home and raise her new born child. Marsan was replaced by Montano. Montano had previously worked for the Refuges from 9/96 to 10/99. She moved out of state in 1999 but returned in the spring of 2001.

Temporary Staff

The following personnel were hired in temporary positions during 2001:

Edna Swindells; Park Ranger; GS-025-5; EOD-6/03/01;
Laura Bundy; Park Ranger; GS-025-5; EOD-6/3/01; AE-9/28/01
Corey Adler; Biological Technician; GS-404-7; EOD-01/ 29/01; AE–05/04/01; EOD-05/07/01; AE-09/19/01
Jodi Doster; Wildlife Biologist; GS-486-09; EOD-05/07/01
Nathan Gregory; Biological Technician GS-404-05; EOD-04/22/01; AE-10/19/01
Ingrid Harrald; Biological Technician GS-404-05; EOD-05/07/01; AE-10/26/01
Melissa Robinson; Student Career Experience Program; EOD-05/23/01; AE-09/17/01
Stephen Howard; Maintenance Laborer; EOD-06/17/01; AE-10/13/01

AE means appointment ended. Doster and Swindells were still employed at year end.

4. Volunteer Program

Volunteers contributed 6,786 hours to the biological program, maintenance, and outreach. Volunteers assisted with the following projects: Naknek River spring waterfowl survey, bird counts and bird banding demonstrations, Puale Bay seabird field camp, Mother Goose Lake breeding season and migration banding stations, small mammal surveys, many ancillary biological projects, science camp, visitor center open house, and maintenance in King Salmon and at several field facilities.

Volunteer Staff*

Robert Blush (King Salmon, Alaska); EOD-03/01/01; AE-09/01/01
Lindsay Harman (Missoula, Montana); EOD-05/22/01; AE-09/31/01
Steve Howard (Louisville, TN); EOD-04/24/01; 06/17/01 converted to paid seasonal

position
Jammie Kohen (Asheville, North Carolina); EOD-05/24/01; AE-09/21/04
Robyn Laubman (Burnaby, British Columbia); EOD-05/7/01; AE-09/20/01
Adrienne Leppold (Brownsville, Pennsylvania); EOD-05/24/01; AE-09/30/01
Brianna Newton (Halifax, Nova Scotia); EOD-05/23/01; AE-09/30/01
Lucas Oligschlaeger (Springfield, Missouri); EOD-03/15/01; AE-06/15/04
Joe Seyfried (Webster, New York); EOD-05/6/01; AE-09/30/01
Emily Spencer (Erie, Colorado); EOD-07/31/01; AE-08/31/01

*Only volunteers that worked more than five days are listed.

Temporary Biological Staff 2001: (front to back, left to right) Joe Seyfried, Robyn Laubman, Ingrid Harrald, Brianna Newton, Lindsay Harman, Melissa Robinson, Nathan Gregory, Corey Adler, Lucas Oligschlaeger, Adrienne Leppold, Jodi Doster, Jammie Kohen

5. Funding

Funding for 1230 &/or 1971 was in two parts; 1971 funds $11,403 from the National Park Service for staffing at the visitor center and 1231 funds $13,000 for subsistence harvest survey of migratory birds.

The 1262 funding was broken into three projects: annual maintenance ($34k), Replace snowplow, tail-gate lift and power winch ($4k), and phase three of replacing the current office building ($496k) which was handled by Regional Office Division of Engineering.

Table 3. Funding History (in thousands) of the Alaska Peninsula/Becharof Refuges

Fiscal Year	1261	1262	1230 &/or 1971 Migratory birds	Total
01	1392.0	534	24.4	1950.4
00	1374.0	690	0	2064.0
99	1520.2	417	13	1950.2
98	1526.5	5	13	1587.5
97	986.0	193	15.8	1194.8
96	909.0	125	13	1047.0
95	669.0	346		1015.0

TEA-21 money (340k) was spent to re-grade/surface the driveway and parking lot that was torn up in construction of the new office.

Funding for construction of the new office started with $276 thousand of Refuges' dollars for planning and design in 1999. The Fisheries Resource Office contributed an additional $300 thousand for a third of the building space ..... what a deal! In 2000, $353 thousand of Refuges' 1262 money was spent to start construction. This year's funds totaled $836 thousand (Refuges' 1262 and TEA-21) which brings the running total to $1.465 million so far. The total contract is set to come in at $2.4 million. Land and Water Conservation Fund money has also been used to meet the $2.4 million total cost.

6. Safety

This station strongly supports the Regional safety program and all aspects of keeping our facilities and government residences a safe place to live and work. The station safety committee is comprised of Refuge Ranger Orville Lind as chairperson and the following employees; Deputy Refuge Manager Koepsel, Maintenance Workers Terry and Howard and Fisheries Resource Assistant Manager Hetrick. The committee and active participation by all staff provides the foundation for an aggressive safety program. Refuge and Fisheries Resources staff participated in the discussions on the following monthly safety topics:

January: Surviving Natural Disasters
February: Blood Borne Pathogens
March: Annual fire drill and Lockout/Tag-out program
April: Bear/Firearms training

May:	Watercraft safety, Bear/Firearms safety, and CPR First-Aid and Ethics
June:	Watercraft safety, Bear/Firearms safety, and CPR First-Aid and Ethics
August:	Office of Workers Compensation Program with Mike Rose
September:	Hearing Loss Prevention
October:	How to use tire changer safely
December:	Driving Defensively

Firearms qualification; Ron Squibb, Orville Lind and Mark Koepsel instructors, Brianna, Newton, Ingrid Harrald, Jodie Doster practicing.

8. Other

Biological Technician Adler hosted two students from Lake and Peninsula School District in a job shadowing program March 20 and 21. On March 22, Refuge Rangers Orville Lind and Angie Terrell-Wagner served as job shadow hosts for a high school student from the Lake and Peninsula School District. Meshik student Tianna Carlson from Port Heiden spent about two hours learning about the Fish and Wildlife Service and the King Salmon Visitor Center. It was fun for Tianna to see the goose calendar winners' exhibit since she was just named a local winner in the 2002 contest.

Permanent staff attended the following training and workshops in 2001:

Wildlife Biologist Savage

40-hour, National Conservation Training Center (NCTC), Shepherdstown, WV, Sampling Design for Field Studies (March 12-16)

Biological Technician Adler

Willow Identification Seminar (with North American willow expert George Argus), Anchorage, AK (June 29 – July 1)

Refuge Manager Daryle R. Lons

Supervisory training in Anchorage on July 10 and 11.
Navigability training in the Regional Office on November 6.
Project leaders meeting in the Regional Office on November 29 and 30.

Deputy Refuge Manager Mark Koepsel

Law Enforcement refresher training at Marana, AZ on January 24-28.
Basic for supervisors (sup6243) at NCTC on February 6-16.
Project Leaders meeting in the Regional Office on November 29 and 30.

Refuge Operations Specialist Dave Cox

Law enforcement refresher course at Marana, AZ on January 30.
Compatibility training on December 4 and 5.

Refuge Ranger Orville E. Lind

Hazardous Waste Operations eight hour refresher course on March 22.

Refuge Information Technician Charles O=Domin

Refuge Information Technician training course held in King Salmon December 12-14.

Maintenance Worker Gary Terry

Hazardous Waste Operations and Emergency Response Training on March 12.

Maintenance Worker Gary Melvin

Basic for supervisors class (sup6243) at NCTC on February 6-16.

Greening of the Government training at Albuquerque, New Mexico on March 11-17.

Administrative Technician Melvin

Basic for supervisors (sup6243) at NCTC on February 6-16.

F. HABITAT MANAGENENT

1. General

In May and June, seasonal biological staff prepared approximately 100 herbarium specimens collected by Regional Botanist Steve Talbot. Student Career Experience Program employee Robinson entered the data in the refuge=s herbarium database. Puale Bay field camp staff collected 59 plant specimens to add to the refuge herbarium. Puale Bay staff collected plant phenology data for about 99 species of plants from June 15 through September 4. Mother Goose staff collected plant phenology data for about 25 species of plants from June 11 through September 10.

A remote area weather station (RAWS) located at Mother Goose Lake near the Cranberry Hill Monitoring Avian Productivity and Survivorship station collected weather data for all months of the year. Getting data without physically going to the site has not worked well with many gaps in data. Data is only held for three days in an easy retrievable condition and often we can't seem to make a connection to the internet site for days at a time. A complete data set was downloaded to a lap top computer by physically going to this site on September 21. The RAWS station cannot collect frozen precipitation and the data set is not in an easy useable format but with some work we should be able to get climate data that will be better than just using weather data from King Salmon.

In January, maintenance staff installed a second RAWS station for testing in the compound yard in King Salmon. Several devices were inactive and Maintenance Worker Melvin worked with Forest Technology Systems to get all devices working correctly. The barometer was programmed to foreign units, hence producing erroneous information. Refuge staff met and decided to put the new RAWS station near Yantarni air strip. This will provide weather data from remote areas that are in similar latitude, but on different sides of the Aleutian mountains. Maintenance staff installed the Yantarni station on September 23.

Forest Technology Systems Remote Area Weather Station (RAWS) set up in FWS compound King Salmon for testing.

6. Other Habitats

Region 7 Botanist Stephen Talbot continued work in 2001 on his project, APlant Communities of the Alaska Peninsula and Becharof National Wildlife Refuges in Relation to Caribou Utilization.@ In the fourth season of this project, Talbot assisted by Biologist Squibb continued to collect data on plant composition and abundance, as well as soils, in different habitats of the northern Alaska Peninsula. These data will be used to define plant communities, and to document species composition and relative abundance in regards to the condition of caribou range. Work in the summer of 2001 was limited to one week in Pacific drainages at Wide Bay where caribou numbers have remained stable for the last several years. There did not appear to be striking differences in vegetation composition from what was observed in Bristol Bay drainages studied in previous years. A total of sixteen 5 x 5 meter plots were completed. Most of these plots were in the Big Creek drainage of Wide Bay.

Lons, Squibb and Savage reviewed a proposal by University of Alaska – Fairbanks Graduate Student Corey Adler to study moose and their winter habitat on the refuge.

11. Water Rights

Hydrologist Mitch Linne, Region 7 Water Resources Branch, continued field work on the Egegik River below the Becharof Lake outlet in an attempt to document discharge.

12. Wilderness and Special Areas

Becharof Refuge

Approximately 477,000 acres of the refuge were designated the Becharof Wilderness by the Alaska National Interest Lands Conservation Act. The area represents a variety of pristine habitats with the entire complement of plant and animal associations still intact. Wilderness designation insures that representative samples of these interdependent associations, some of which are unique, will be perpetuated for this and future generations to enjoy. The genetic diversity protected by the unit will serve as an invaluable source of data for scientific investigation and for potential future needs for fish and wildlife protection, restoration and enhancement.

Three private inholdings are found within the wilderness area boundary. One of the inholdings (40 acres) is owned by registered guide Philip Shoemaker, another (5 acres) is leased by him. He has buildings on both. The third is a Native allotment consisting of 160 acres.

An additional 347,000 acres of the refuge was recommended for wilderness designation in the November 1, 1988, Record of Decision for the Becharof National Wildlife Refuge Final Supplemental Environmental Impact Statement for the Wilderness Proposal of the Final Becharof Comprehensive Conservation Plan/Environmental Impact Statement/Wilderness Review. This recommended area includes lands south of Becharof Lake from Portage Bay on the Pacific to Gas Rocks on the south shore of Becharof Lake, and lands including Gertrude and Big Creek drainages along the refuge boundary with designated wilderness in Katmai National Park.

Alaska Peninsula Refuge

At present, no refuge lands are designated Wilderness. A Record of Decision signed November 1, 1988 for the Alaska Peninsula National Wildlife Refuge Final Supplemental Environmental Impact Statement for the Wilderness Proposal of the Final Alaska Peninsula Comprehensive Conservation Plan/Environmental Impact Statement/Wilderness Review recommended 642,000 acres for wilderness designation in all three units of the refuge. The area recommended within the Ugashik and Chignik Units of the Alaska Peninsula/Becharof Complex is approximately 474,000 acres, and includes the south slopes of Peulik Mountain, Mount Veniaminof, and public lands on peninsulas between Chignik and Kuiukta Bays. No

Congressional action has been taken on these proposals to date.

Mount Veniaminof National Natural Landmark

Mount Veniaminof was determined to be eligible for natural landmark status in 1967, and was registered in August 1970. Its peak lies about 50 miles east-northeast of Port Moller on Bristol Bay, and 40 miles west-southwest of Chignik Bay village on the Pacific. It is approximately 450 miles southwest of Anchorage within the Chignik Unit of the Alaska Peninsula Refuge.

Named for Russian Orthodox Priest Ivan Veniaminof, who studied Aleutian Chain cones early in the 19th Century, this 7,075-foot volcano resulted from a climactic eruption that occurred about 3,700 years ago. Its historic behavior has typically been limited to minor steam and ash eruptions; however, major explosive eruptions occurred in 1838, 1892, and 1953. The last of these resulted in substantial release of lava and formation of a new crater. Mount Veniaminof is massive. The summit crater is about 5.2 miles in diameter and contains a 25-square mile cupped ice field B the most extensive crater glacier in North America. It is the only known glacier on the continent with an active volcanic vent in its center. The volcano's base is over 30 miles in diameter, and the Landmark's boundaries encompass almost 804,000 acres. About 142,000 acres of the landmark are native conveyed lands; the remaining federal public lands include about 107,000 acres of state and native selections

G. WILDLIFE

1. Wildlife Diversity

Regional Refuge Biologist Pat Heglund visited the Refuges on January 16 to learn about the Refuges' biological programs and to receive input from refuge biologists and managers. Lons and Savage attended the Region 7 Biologist Conference from February 27 through March 2. Savage presented an overview of the Refuges' biological program on the first day of the conference.

The Draft Wildlife Inventory Plan was completed in November and sent to Heglund for review. This included introductory sections, a species list, species priority rankings and procedures for monitoring Naknek waterfowl, tundra swan (*Cygnus columbianus*), harlequin ducks (*Histrionicus histrionicus*) and other sea ducks, bald eagles (*Haliaeetus leucocephalus*), other raptors, marbled godwit (*Limosa fedoa*), seabirds, neotropical migrants and resident birds, general avian, small mammals and wolves (*Canis lupus*). Protocols for moose (*Alces* alces) and caribou (*Rangifer tarandus*) monitoring are still pending.

Biological Technician Gregory updated the gray literature database and made four copies of every report produced since 1997 at the Refuges for the Alaska Resource Library and Information Service in Anchorage. In addition, the library was purged of other reports that

are not relevant to the Refuges or the Alaska Peninsula and these were sent to the library. The specimen freezer was cleaned out and biological technicians and interns took a turn at preparing one or more bird study skins.

2. Endangered and/or Threatened Species

Tracey Gotthardt, of the Alaska Natural Heritage Program, visited the office on November 19 and 20. Gotthardt is engaged in a Challenge Cost Share project with the United States Fish and Wildlife Service to document range and habitat use of "species of concern." During Gotthardt's visit she reviewed Refuges files, especially incidental avian records from field camps. For the Alaska Peninsula, Gotthardt is focused on compiling information for northern sea otter (*Enhydra lutris*), tundra hare (*Lepus othus*), Aleutian Canada goose (*Branta canadensis leucopareia*), King eider (*Somateria spectabilis*), Steller's eider (*Polysticta stelleri*), black scoter (*Melanitta nigra*), long-tailed duck (*Clangula hyemalis*), McKay's bunting (*Plectrophenax hyperboreus*), marbled godwit, Kittlitz's murrelet (*Brachyramphus brevirostris*), marbled murrelet (*B. marmoratus*), and Eurasian wigeon (*Anas penelope*).

3. Waterfowl

Migratory Bird Management Wildlife Biologist/Pilot Bill Larned passed through King Salmon on September 25 and Migratory Bird Management Wildlife Biologist/Pilots Chris Dau and Ed Mallek passed through King Salmon on September 26 on their annual fall surveys of eiders and emperor geese (*Chen canagica*) and other waterfowl species.

Naknek River Spring Migration Waterfowl Monitoring

These surveys follow the protocol established in the Draft Wildlife Inventory Plan under *Naknek Spring Waterfowl Census.* Ground-based surveys began on March 1, 2001 and ended on May 17. Surveys from March 1–18 were conducted by Biological Technician Adler and thereafter by Volunteer Oligschlaeger. Volunteer Blush was involved with training Adler and Oligschlaeger and conducted some surveys while other staff was in training. Climactic conditions in the spring of 2001 were similar to year 2000. This included above average temperatures in March and April, below average temperatures in May and lower total precipitation in March and May. Most of the river was open in mid to late February, although it refroze for a short period in late March.

Twenty-one species were observed in 2001, plus one hybrid (mallard x black duck). The peak abundances of northern shoveler (*Anas clypeata*) and Eurasian wigeon were the highest ever recorded. During 2001, four species exhibited the earliest arrival dates ever recorded during ground surveys [brant (*Branta bernicla*), northern pintail (*Anas acuta*), gadwall (*Anas strepera*), and bufflehead (*Bucephala albeola*)] reaching the Naknek River at the earliest dates observed in the 11-year duration of the survey.

Waterfowl Intern Lucas Oligschlaeger counting waterfowl.

Dates of peak abundance tended to be a few days later than average for most species in 2001, and the peak dates from 2001 were generally later than observed in 2000. This is puzzling, because characteristically early arrival dates coupled with mild spring conditions was expected to have a direct affect on the timing of peak abundance. Refuges staff has discussed the possibility that the increased availability of other open water off the river may have caused a delay of intense staging on the river of early arrivals until substantial numbers showed up later in the season. This could be the cause of the lengthened interval between initial observation and peaks of abundance. A draft report was prepared for the results of the 2000 and 2001 waterfowl surveys and the final is pending. The report reference will be:

> Oligschlaeger, L.M. (pending). Spring Staging of Waterfowl along the Naknek River, Alaska, March –May, 1991-2001. King Salmon, Alas. (Unpublished).

5. Shorebirds, Gulls, Terns and Allied Species

The refuge participated in three projects concerning these species. A brief summary of each project follows.

Western Hemisphere Shorebird Reserve Network

Regional Office Outreach Biologist Johnson-Schultz, Savage, Refuge Ranger Lind and Refuge Information Technician Knutsen held meetings with the public in Levelock, South Naknek, Naknek, Egegik, Pilot Point, and Port Heiden to discuss the Western Hemisphere Shorebird Reserve Network. The regional office/refuge team presented the benefits of the villages joining the network. The goal is to designate lagoons and bays on the Bristol Bay side of the Alaska Peninsula (Port Heiden, Cinder/Hook, Ugashik, Egegik, and Kvichak including Naknek). As a result of these meetings, support for a Kvichak Bay (including Naknek) Western Hemisphere Shorebird Reserve Network site was received from: Naknek Village, South Naknek Village, Levelok Native Village, Bristol Bay Borough, Bristol Bay Native Association and Bristol Bay Native Corporation. Kvichak Bay hosts over 45,000 shorebirds on 348,000 acres of intertidal habitat during fall migration. Shorebirds supported include almost the entire population of the Beringian marbled godwit and bar-tailed godwit (*L. lapponica*) which winters in New Zealand. Kvichak Bay adjoins Nushagak Bay, also a Western Hemisphere Shorebird Reserve Network site, and is a major stopover for dunlin (*Calidris alpina*) and golden plovers (*Pluvialis fulva* and *P. dominica*). The site was designated March 20, 2001.

Spring Shorebird Tracking Bristol Bay Coast

The Refuges have participated with other cooperators in following various radio-tagged shorebirds during spring migration for several years. This year investigator Mary Ann Bishop (Prince William Science Center) and Dr. Wally Johnson (Montana State University) tagged several species on their wintering grounds or migration routes. Dr. Bishop's team tagged 30 dunlin, 19 long-billed dowitcher (*Limnodromus scolopaceus*), and 42 short-billed dowitchers (*L. griseus*) in San Francisco Bay or Grays Harbor and Dr. Johnson tagged 21 Pacific golden-plovers in Hawaii. Refuge Operation Specialist Cox and either Gregory or Adler conducted 14 tracking flights between April 26 and May 29 along the Bristol Bay coast to Ilnik (south) and to Clark=s Point (north). Nine short-billed dowitchers, one long-billed dowitcher, five Pacific golden plovers, and possibly one dunlin were detected during the tracking flights. During tracking with the Husky airplane, numerous erroneous signals were detected in addition to good hits. The signals would be detected during the entire flight. The problem was never determined. Details of this project are available in the report:

> Savage, S., C. Adler, and N. Gregory. 2001. Shorebird Tracking, Bristol Bay Coast, Spring 2001. United States Fish and Wildlife Service, King Salmon, Alaska. (Unpublished) 15 pp.

Populations and Productivity of Seabirds on the Pacific Coast of Becharof National Wildlife Refuge

Seabirds were monitored to estimate population size, breeding phenology and reproductive success. The crew of Biological Technician Harrald and Volunteers Laubman, Kohen, and Newton arrived on June 15. Savage and former refuge Wildlife Biologist Dewhurst also staffed the field camp during the first week to assist with biological set up.

Puale Bay seabird crew in the field: (L to R) Jammie Kohen, Brianna Newton, Ingrid Harrald, Robyn Laubman.

The study focused on common (*Uria aalge*) and thick-billed (*U. lomvia*) murres, and red-faced (*Phalacrocorax urile*) cormorants. All murre plots used in 1991 or 1992 were relocated. The red-faced cormorant colony was located as in the early 1990's. A few double-crested (*P. auritis*) cormorants, glaucous-winged gulls (*Larus glaucescens*), and black-legged kittiwakes (*Rissa tridactyla*) were also observed. Land-based censuses and five sea-based censuses were collected for the Puale Bay colony (Beringian Colony Catalog #35-13). Ecological Services, Juneau Fish and Wildlife Field Office's M/V *Surfbird,* captained by Joe

McClung, was chartered from July 31 to August 6 for the sea-based counts. The mean sea-based population count for Puale Bay was 2,197 ± 180 murres and the mean population count for the land-based count (only plots that can be compared to 1992 were included) was 1,265 ± 68 murres. Sea-based counts show a decline in murres while the land-based counts (restricted area of the colony) show an increase since the early 1990s. Single sea-based censuses on a subset of plots were also conducted at Oil Creek (BCC# 35-08) and Cape Unalishagvak (BCC# 35-05). Counts at Oil Creek and Cape Unalishagvak were less in 2001 than in 1991 or 1992 (4,280 in 1992 versus 2,818 in 2001; 7,301 in 1991 versus 4,791 in 2001, at each respective colony). The black-legged kittiwake counts were also lower (1,194 in 1991, 1,078 in 1992, 834 in 1999, and 721 in 2001).

Biologists-eye view of common murres on part of plot A (AKA Angel wings), Puale Bay colony, Pacific coast, Becharof NWR.

Staff monitored 701 common murre sites on 17 plots and 26 thick-billed murre sites on five plots for productivity measures. The mean hatch date for common murres was August 8 (90% confidence bound [c.b.] ± 0.3) which was significantly earlier than the mean hatch date of August 17, 1992 (90% c.b. ± 2.1). We documented a fledging success of 0.92 (90% c.b. ± 0.04) and a reproductive success of 0.76 (90% c.b. ± 0.06) which were statistically higher

than values for 1992. Similar improvements in reproductive phenology were noted for the 26 thick-billed murre sites monitored, however with the small sample sizes, no conclusion on the differences in phenology or productivity could be made to previous years.

Biological Technician Harrald and Intern Newton monitoring murre breeding activity at the main overlook, Puale Bay colony on an unusually beautiful day. Note safety ropes.

We monitored 109 red-faced cormorant nests on three plots and seven double-crested cormorant nests. The mean hatch date of red-faced cormorants was July 18 (90% c.b. $\pm$ 1.1) and had a productivity of 1.7 (90% c.b. $\pm$ 0.2) chicks fledged/nest attempts. Mean hatch date for the four double-crested cormorant nests that hatched was August 1 with a productivity of 1.9 (90% c.b. $\pm$ 1.3) chicks fledged/nest attempts. We monitored 34 glaucous-winged gull nests. The mean hatch date was July 7 and had a productivity of 1.32 (90% c.b. $\pm$ 0.23) chicks fledged/nest attempts.

In addition to monitoring seabird population and productivity, camp staff also conducted disturbance monitoring, beach watches; recorded daily weather, incidental bird and mammal sightings, bear encounters, plant phenology; and conducted small mammal trapping (see Other Resident Wildlife below). The details of this project can be found in:

Doster, J. and S. Savage. 2002. Populations And Productivity of Seabirds on the Pacific Coast of Becharof National Wildlife Refuge, Alaska Peninsula, Alaska, June September 2001. United States Fish and Wildlife Service, King Salmon, Alaska. (Unpublished) 47pp.

Biological staff departed camp on September 13. The Puale Bay field camp was taken down from September 13 – 16 by Maintenance Laborer Howard and Gregory. Most gear was returned to King Salmon, but the weatherport platforms, weatherport frames and doors, outhouse and some of the bear barrels were left at camp, most of these items were stored under one of the platforms for next year.

6. Raptors

Savage completed digitizing the 1983 Pacific coast bald eagle survey data in cooperation with Migratory Bird Management-Juneau Wildlife Biologist/Pilot Jack Hodges.

7. Other Migratory Birds

The annual Boreal Partners in Flight working group met from January 23-25 for the 2000/2001 year and then again on November 7 and 8 for the 2001/2002 year. Savage attended both meetings. The second meeting focused on the maturation of the group and the methods used statewide to monitor landbirds. The working group expressed a readiness to employ better methods and implement a more unified statewide effort. Bird Conservation Region discussions continued via e-mail after the meeting.

The annual Volcano Bird Society/Avian newsletter was mailed on January 11. A version of this was also submitted to Refuge Ranger Terrell-Wagner for the Refuges Update Newsletter. Adler made minor corrections to the 1999 Mother Goose Season Report and the 2000 Mother Goose Seasonal Report was completed in March (see 2000 Annual Narrative for reference).

The Audubon society sponsored the Great Back Yard Bird count over the weekend of February 16-19. Although the Refuges did not formally participate, Savage informed local birders about the event and encouraged participation. She also entered any data on-line for participants that did not have Internet access.

Savage led the North American Migration Day Count on Saturday, May 12. The day began with a presentation about the benefits to songbirds of shade coffee while participants sampled brown nectar brewed by Volunteers Laubman and Seyfried. Free posters and brochures were also provided. This year 14 people participated in four teams. They counted 6,878 birds of 68 species. Each team enjoyed avian highlights including several bald eagle nests being incubated, a neck-collared cackling Canada goose (*B. c. minima*), thousands of gulls dining off the remains of the Togiak herring harvest (off Pederson Point cannery), several aggressive

male green-winged teal (*Anas crecca*) chasing each other and a female, and a record five merlins (*Falco columbarius*). Non-avian highlights included a pair of otters (*Lontra canadensis*) in nuptials, several moose on the tundra, belugas (*Delphinapterus leucas*) in the bay and river, and a variety of small mammals including muskrat (*Ondatra zibethicus*), red and arctic ground squirrels (*Tamiasciurus hudsonicus & Spermophilus parryii*), porcupine (*Erethizon dorsatum*), and snowshoe hare (*Lepus americanus*). Species new to the count included red-necked grebe (*Podiceps auritus*), sharp-shinned hawk (*Accipiter striatus*), ruddy turnstone (*Arenaria interpres*), northern shrike (*Lanius excubitor*), and slate-colored junco (*Junco hyemalis*). A summary was sent to the *Kachemak Bay Bird Watch*, the Alaska birding newsletter.

Volunteer Blush and Savage completed Breeding Bird Surveys in King Salmon on June 9. On the standard 50 points 39 species and 673 individual birds were counted. This survey is one of about 70 Alaska-wide surveys, is part of the Boreal Partners in Flight monitoring network, and the information contributes to the National Breeding Bird Survey database.

The annual Christmas Bird Count was coordinated by Savage on December 15. Although it was the coldest count on record (-29° F the low and –9° F the high), the nine volunteer observers (three refuge staff, two fisheries staff, and four community members) did not want to postpone. Five teams counted 887 birds of 13 species in 12.75 party hours and 65 miles of observation. Nothing unusual was detected and no species reached a multiyear count high, however we were glad to see a gyrfalcon (*Falco rusticolus*) and three northern shrikes. Few bald eagles were detected this year.

Adler and Gregory lead bird banding training including use of the Pyle guide for identifying, aging, and sexing passerines in King Salmon. Staff banded 62 birds of 12 species and recaptured 19 birds over 11 days of banding training (May 14 – June 1). Our more common species this year were common redpoll (*Carduelis flammea*), American robin (*Turdus migratorius*), fox sparrow (*Passerella iliaca*), and Wilson's warbler (*Wilsonia pusilla*). One northern waterthrush (*Seiurus noveboracensis*) was captured, an uncommonly netted species.

Maintenance staff opened Mother Goose Lake field camp during May 31-June 1. On June 4 Adler, Gregory, Doster and Volunteers Seyfried, Harman, and Oligschlaeger arrived and completed the biological set up. Volunteer Leppold arrived a week later after completing training. During the first week staff observed two wolves following a cow moose and calf on the beach. A brown bear came down the beach from the other direction, followed the cow and calf into the water and took the calf. Staff also observed a wolf harvest a beaver (*Castor canadensis*) in near-shore waters. They also observed a wolverine (*Gulo gulo*) in a tree near the cabin.

On the first day at Mother Goose Lake a wolverine was discovered in a tree near the cabin.

Monitoring Avian Productivity and Survivorship (MAPS) banding began on June 10 and was completed on August 2. Staff captured 1,561 birds of 19 species in 1,076.7 net hours. Of these, 1,069 were previously unbanded (called New). The remainder (447 birds) was recaptures; 110 of these were first captures of birds returning from MAPS or migration banding of previous years. As expected, the majority of the returns were banded in 2000 (one from 1994, one from 1996, five from 1997, 13 from 1998, 34 from 1999, and 56 from 2000). Lake site had the highest number of newly banded birds (472), followed by Mountain site (311), and then the Cranberry Hill site (286). Species composition was similar to other years with Wilson's warbler dominating captures, and other commonly captured species including hermit thrush (*Catharus guttatus*), yellow warbler (*Dendroica petechia*), common redpoll, orange-crowned warbler (*Vermivora celata*), golden-crowned sparrow (*Zonotrichia atricapilla*), black-capped chickadee (*Poecile atricapillus*), fox sparrow and American tree sparrow (*Spizella arborea*). The only new species captured this year was a male brambling (*Fringilla montifringilla*). In addition to banding, staff collected information for the habitat structure analysis as part of the MAPS program.

This season we continued to color band five species throughout the MAPS season at the Lake and Mountain sites as well as re-implementing the color banding effort at the Cranberry Hill site (discontinued after 1996 season). A total of 181 individuals were color banded including 17 birds whose status was changed from metal band only to metal and color band.

Mother Goose Lake field station MAPS banding crew: Nathan Gregory, Lindsay Harman, Corey Adler, Adrienne Leppold and Joe Seyfried.

The number per species banded included 13 gray-cheeked thrushes (*C. minimus*), 83 hermit thrushes, 38 fox sparrows, six Gambel's white-crowned sparrows (*Z. leucophrys*), and 41 golden-crowned sparrows. Of the 181 birds color banded 68 were captured at the Mountain site, 64 were captured at the Lake site, and 49 were captured at the Cranberry Hill site. In addition to the birds color banded in the 2001 season, 32 birds returned (and were captured at least once) that were already color marked in previous years, and ten color banded birds were resighted that were not captured. By this count, there was a pool of 223 known color-banded birds in 2001.

We had nine staff members during the peak migration including staff listed above (minus Doster and Oligschlaeger), Deputy Refuge Manager Koepsel, Savage and Volunteers Spencer and Blush. We conducted migration banding on 33 days between August 3 and September 13. Captures during migration totaled 4,952 birds in 1,526 net hours. New captures totaled 4,342 birds. This was the largest number of newly banded birds in any Mother Goose migration season. The net hours of 1,656 were below the 8-year average by 70. The highest capture day occurred on August 13 with 468 new captures in 60.0 net hours (capture rate of

780 captures per 100 net hours). This was the highest number of birds captured on one day for all years during migration.

This was the first Eurasian Brambling to be captured at Mother Goose Lake, and the second Eurasian species.

The 2001 overall capture rate for all birds captured during migration was 324 birds per 100 net hours. The fact that this year's crew was well trained, and contained an ample number of experienced pickers and banders, helped keep nets open longer and made the operation of mist nets run smoothly and efficiently during peak capture times without endangering the birds.

Mother Goose Lake banding station migration crew (front to back, left to right): Nathan Gregory, Corey Adler, Mark Koepsel, Bob Blush, Adrienne Leppold, Lindsay Harman, Susan Savage, Emily Spencer, Joe Seyfried.

A total of 529 recaptures comprised 10.7% of the total captures during migration. Of the 529 recaptures, 11 of these were new returns for 2001 (i.e., not captured during MAPS and banded in a prior year, see below). The bulk of the recaptures (339) were first time recaptures from birds banded during migration. Another 38 birds were first time recaptures of birds banded during MAPS. Of all the species recaptured with a sample size greater than 10, black-capped chickadees were most likely to be recaptured with a rate of 28.8%. Of the 11 returns, one returned from 1998, five returned from 1999, and five returned from 2000. Of these 11 birds, three were originally banded during migration, three were banded at the MAPS Lake site, and five were banded at the MAPS Mountain site. We did not recover any birds from foreign banding stations. However, to date of this report's completion, one bird was recovered from Mother Goose 2001 banding operations. A golden-crowned sparrow banded on September 6, 2001 was recovered at Ridgefield, Washington on December 22.

Species composition during migration was similar to MAPS and consistent with previous years (1994-2001) with 19 different species captured. Species for which we only had one

capture included American pipit (*Anthus rubescens*) and ruby-crowned kinglet (*Regulus calendula*). Other typically uncommon species captured included downy woodpecker (*Picoides pubescens*), alder flycatcher (*Empidonax alnorum*), and northern shrike. In addition, pine grosbeaks (*Pinicola enucleator*) have been uncommon during the last four years compared with the first four years of the station. Four mortalities occurred during migration banding. Four mortalities were also recorded during the MAPS season making a total of eight birds out of 6,514 (0.1%) captures.

Adler initiated a nest searching project generally following the B-Bird protocol in 2000 which was repeated this year. Staff added Cranberry Hill to the searching efforts. Staff found 73 active nests in 449.3 hours of nest searching at all three sites: 23 Wilson's warbler, 10 golden-crowned sparrow, 8 hermit thrush, 9 tree swallow (*Tachycineta bicolor*), 7 common redpoll, 4 American robin, 3 orange-crowned warbler, 3 yellow warbler, 2 gray-checked thrush, 1 each of fox sparrow, savannah sparrow (*Passerculus sandwichensis*), Gambel's white-crowned sparrow, green-winged teal. Staff also collected habitat parameters of each nest site.

Hermit thrush nest (#7) being tracked at Mother Goose Lake, nestlings are 8 days old.

Of the 73 nests, fledging could be confirmed at 58 nests (79.5%). Success rates varied among species. All species in which only one nest was found had success rates of 100%. Yellow warbler was the only other species with 100% success rate. Wilson's warbler was determined to have the highest success rate of species with a sample size greater than or equal to ten (96%, n=23), followed by golden-crowned sparrow (88%, n=10). Neither of the gray-cheeked thrush nests fledged making it the least successful, followed by common redpoll with only 43% of nests fledging (n=7). In two cases, the fledging could not be confirmed but was expected due to absence of nestlings and no signs of disturbance. In the case of one golden-crowned sparrow, failure was caused by a staff member who accidentally stepped on the nest.

Staff conducted off-road point-counts on six different routes around the perimeter of Mother Goose Lake. All six of the routes (Beaver Dam, Little Bay, Hellebore Hill, Lakeshore, Cranberry Circle, and Cabinless Point) have been completed consistently since 1998. Several routes have been done consistently since 1996 (Beaver Dam and Cranberry Circle) or since 1997 (Lakeshore and Hellebore Hill). All the point-counts followed standard protocol, which placed the counts between June 10 and June 30 (two 10-day periods). Twenty landbirds and nine other avian species were detected on this year's counts. The most commonly detected species (measured by frequency or number of individuals), and consistent with previous years, was Wilson's warbler. This species, as well as orange-crowned warbler, hermit thrush, American robin, fox sparrow, common redpoll, and golden-crowned sparrow were detected on all routes. The data from the point-counts accurately reflects the species composition and abundance established by our banding data.

Other projects conducted at Mother Goose field station included collecting weather information manually, incidental bird and mammal observations, color-band re-sighting, plant phenology, and small mammal trapping (see G. 10.). We collected breast feathers from 30 black-capped chickadees and sent the samples to Dr. Sandra Talbot, United States Geological Survey, Biological Resources Division, Alaska Science Center-Anchorage for use in a population genetics study. We also collected two tail feathers from up to 30 individuals of each of the following species: hermit thrush, orange-crowned warbler, yellow warbler, and Wilson's warbler. These were provided to Dr. Sonya Clegg at the Center for Tropical Research, San Francisco State University, San Francisco, California. A report of the summer's banding and other activities is pending and the reference will be:

> Gregory, N.C. and S. Savage. (pending) Landbird breeding and fall migration monitoring at Mother Goose Lake, Alaska Peninsula National Wildlife Refuge, Alaska, June – September 2001. United States Fish and Wildlife Service, King Salmon, AK (Unpublished).

Seyfried, Leppold and Blush cleaned and began closing the Mother Goose Camp by September 14. The task was completed by Melvin and Howard from September 21-22. The site which had been used for the last eight years will not be used for banding next year. Much of the equipment that was normally left behind was brought back to King Salmon.

All MAPS data were shared with the Institute for Bird Populations according to their verification process. Savage continued to prepare data and engage in discussions with other investigators for two publications of MAPS or migration data. Savage prepared a summary of the band records of 10,795 Wilson's warblers from migration data (1994-2000) and transmitted this to cooperators at the Alaska Bird Observatory. This information will be used in conjunction with three other migration stations to prepare a publication about warbler migration patterns across Alaska. Savage reviewed a proposal by Region 7 – Migratory Bird Management and United States Geological Survey, Biological Resources Division staff for analyzing MAPS data collected in Alaska. Savage also prepared MAPS data for submission to Biological Resources Division Biologist Schmutz in consideration of analysis and preparation for publication.

8. Game Mammals

Northern Alaska Peninsula Caribou Herd (NAPCH)

The Alaska Peninsula caribou (*Rangifer tarandus*) herd is subdivided into northern and southern herds. The Southern Alaska Peninsula Caribou Herd remains south of Port Moller and ranges to Cold Bay. These animals are monitored by the Alaska Department of Fish and Game (ADF&G) and Izembek Refuge staff. The NAPCH ranges from Port Moller northward to the Alagnak River drainage, using both the Alaska Peninsula and Becharof Refuges (Refuges). The NAPCH is monitored by ADF&G and Refuges staff.

The NAPCH calves primarily on the Bristol Bay coastal plain from the Cinder River southwest to the Bear River. The herd traditionally wintered north to the Naknek River, but beginning in 1986 caribou began crossing the Naknek and wintering north to the Alagnak River and beyond where they mix with Mulchatna herd caribou from the north. The majority of herd use occurs off refuge lands. A substantial proportion of the herd uses refuge lands within the Aleutian Mountains during the summer. Little is known of migration patterns of the caribou that summer in the Aleutian Mountain Range, particularly along the Pacific Coast.

Historically, the size of the NAPCH has fluctuated widely. Apparent peaks were just prior to the turn of the century, the early 1940s and again in 1984, when the herd was estimated at 20,000 caribou. The last low occurred during the late 1940s at an estimated 2,000 caribou. Thereafter the herd grew steadily until 1984. Since 1989, the NAPCH has declined. Photo surveys by ADF&G in June 1994 documented about 12,000 animals. In response, ADF&G placed emergency restrictions on caribou hunting in Game Management Unit (GMU) 9(C) during 1994, 1995 and 1996. The emergency regulations reduced winter harvest by 60 percent, so that despite poor calf production the herd stabilized near 12,000 animals. Unfortunately, the herd resumed its decline in 1997 reaching about 8,600 in 1999. The ADF&G is considering reducing its current herd objective of 15,000 to 20,000 animals.

In the late 1990's, data indicated that caribou were in mediocre body condition, calf production was poor, and calves had a high incidence of lung worms B all indications of nutritional stress (R. Sellers. 1997. *Status of the NAPCH.* Report. ADF&G, King Salmon. 4 pp.). ADF&G management objectives included (1) minimizing the harvest of cows and (2) maintaining an adequate ratio of bulls to cows ($\geq$ 40/100). The estimated harvest from the NAPCH during 1994-1996 averaged 2,023 caribou. Sixty-five percent of the harvest was by hunters from local communities (Sellers ibid.). The estimated bull/cow ratio declined below 40/100 in the fall of 1998 resulting in the estimated harvestable surplus for the herd falling below the 1,200 animals that the Alaska Board of Game had previously established as the minimum number required to meet the subsistence needs of Alaskans dependent on the NAPCH. A Tier II hunt was instituted in 1999 allocating 600 State permits to those applicants documenting the greatest established dependency on the herd. The Federal Subsistence Board followed by closing federal public lands in GMU 9(E) and in GMU 9(C) south of the Alagnak drainage to non-local hunters, and by issuing 60 federal permits in addition to the State's permits. The further decline of the NAPCH in 2000 caused ADF&G to reduce the number of Tier II permits to 400; correspondingly the Federal Subsistence Board reduced the number of federal permits to 40.

Supplemental funding through the Refuge Operating Needs System in 1998 has allowed the Refuges to support more caribou projects both directly with refuge staff (see also F. Habitat Management 6. Other Habitats) and by providing funds to ADF&G through Cooperative Agreements. These projects are summarized below.

2001 Post-calving Count of the NAPCH.

The NAPCH continued to decline in 2001. In a cooperative survey, ADF&G surveyed the Bristol Bay coastal plain, and refuge staff surveyed the mountains and upper reaches of drainages on refuge lands including the Pacific coast. Using radio telemetry to assist in locating concentrations, ADF&G recorded about 3,000 caribou during late June. The total observed in the traditional refuge survey area during the same period was also about 3,000 caribou. The resulting 2001 estimate for the NAPCH population count was 6,000 caribou, down from a count of 7,000 in 2000.

Monitoring Caribou Movements with Satellite Telemetry.

In a cooperative project among Alaska Peninsula/Becharof and Izembek Refuge offices and ADF&G, we found no evidence of interchange between the NAPCH and Southern Alaska Peninsula Caribou Herd. Satellite telemetry collars were put on 14 adult females near Port Moller during October 1998 on both sides of the Game Management Unit boundary for subunits 9(E) and 9(D). Collars transmitted locations weekly since deployment. There were six caribou with active collars remaining in 2001. There were no indications of interchange among these herds either from these satellite telemetered animals or from traditional VHF-beacon collars over the years.

The Refuges and ADF&G began another satellite telemetry study in 2001 to investigate movements of caribou in the Refuges portion of the post-calving count area. Since 1994, caribou numbers observed in the Refuges area have remained stable while those on the Bristol Bay coastal plain have steadily declined. In hope of better understanding the differences between these two parts of the NAPCH, satellite telemetry collars were deployed on 13 caribou cows in and near the Refuges count area.

During April 13-15, Biologist Squibb and Refuge Operations Specialist Cox worked with the ADF&G capture crew to deploy 22 very high frequency radio telemetry collars on female calf caribou born in 2000 and seven satellite telemetry collars on adult female caribou of the Northern Alaska Peninsula Caribou Herd. The ADF&G crew included GMU 9 Area Biologist Dick Sellers and Fairbanks Office Biologists Bruce Dale and Mark Keech; Quicksilver Air owner/pilot Rick Swisher flew his R44 helicopter for capture work. Cox and Squibb used refuge Cessna 206 to locate previously radio-collared caribou on April 13 and to locate caribou for capture in advance of the helicopter arrival on April 14. The satellite collars were deployed on adult cows as follows: two refurbished Telonic ST-14 collars and three new ST-18 collars within the mountains of the Refuges count area, and two refurbished ST-14 collars in the Bristol Bay lowlands in the Ugashik area. The refurbished ST-14 collars contained small C-cell batteries making them as light as standard very high frequency beacon collars. The new ST-18s were also that weight in order to minimize stress on the caribou.

On July 23, Refuges and ADF&G staff captured seven caribou, deploying Telonics ST-18 satellite telemetry collars on six mature cows and a standard very high frequency beacon collar on a yearling cow. The satellite collars were distributed in the Refuges count area between Island Arm and Port Wrangell. The satellite collars will transmit once weekly except during calving season when they will transmit once every three days. Cox flew Husky N57HY with Sellers as observer to locate caribou groups in front of the helicopter. Pollax Aviation Pilot Larry Larrivee flew Robinson R44 helicopter 8346Y with Keech and Squibb as capture crew.

Age/Sex Composition of the NAPCH.

The Refuges worked with ADF&G to accomplish a composition survey of the NAPCH. The Refuges provided funding support to ADF&G through a Cooperative Agreement for performing the survey. Cox and Squibb in Cessna 206 N32PX found groups of caribou ahead of the helicopter composition team with the assistance of radio-telemetry on October 21 and 23. Sellers worked with Helicopter Pilot Larrivee in a Robinson R44 helicopter to determine the composition of groups of caribou during October 22 - 24. Cox and Squibb were not able to assist south of Port Heiden because of thick fog and low ceilings east of Port Heiden. In contrast to the 2000 composition count, the October 2001 estimate of herd composition showed some improvement. There were 28 calves observed per 100 cows vs. only 18 the year before; and there were 49 bulls per 100 cows vs. 38 in 2000. Sellers speculated that these changes in composition may have resulted from the very mild winter of 2000-2001 and from the reduced harvest of bulls since the beginning of the Tier II hunt in 1999.

Moose

Surveys of moose trend areas in GMU 9(C) & 9(E) are a cooperative effort among the Fish and Wildlife Service, ADF&G, and the National Park Service (NPS). They are carried out during November and early December before many bulls have dropped their antlers. These surveys provide an estimate of age/sex composition used by both state and federal agencies to evaluate the ability of the moose population to sustain the current level of hunting. These surveys also provide a long term index to population trend.

Refuge staff worked very closely with Sellers and with NPS staff to accomplish surveys during 2001. On the survey of December 6, 12% of antlered bulls observed had one antler. Snow cover was adequate for surveys during early November and December.

Refuge staff surveyed the Mother Goose trend area on November 7 & 9. Refuge and NPS staff surveyed the Angle-Takayofo trend area on November 7 & 8. Refuge and ADF&G staff surveyed the Park Border and Flats B trend areas on December 3 & 4, and the Flats A trend area on December 6. Refuge staff surveyed the Blue Mountain trend area on December 5. High winds in the Pacific trend area prevented Refuge staff from surveying on December 5 & 12. Lack of adequate snow cover precluded survey of areas south of Cinder River.

Table 4. 2001 moose trend surveys in GMU 9(C) & 9(E).

Date	Total Moose	Bulls per 100 Cows	Calves per 100 Cows	Moose per Hour	Moose per Square Mile
Angle-Takayofo Trend Area					
8 Nov 01	119	51	32	35	0.83
Park Border Trend Area					
4 Dec 01	166	25	14	44	0.81
Blue Mountain Trend Area					
5 Dec 01	25	25	31	21	0.74
Flats A Trend Area					
6 Dec 01	137	47	6	36	0.96
Flats B Trend Area					
4 Dec 01	56	53	33	23	0.36

A total of 605 moose were classified in all of the surveys with an overall composition of 41.6 bulls and 15.6 calves per 100 cows (Table 4. below provides a summary for each area surveyed in 2001). Moose were observed at rates of 33.6 moose per survey hour and 0.8 moose per square mile.

Intra-Agency Agreement with Alaska Cooperative Fish & Wildlife Research Unit.

In August 2001, the Refuges established Intra-Agency Agreement 701811N130 with the Alaska Cooperative Unit for a study of AWinter habitat use by cow moose on the Alaska Peninsula National Wildlife Refuge." The specifics of that project were not yet well defined by the end of 2001.

Brown Bear

Refuge staff did no systematic surveys of brown bear (*Ursus arctos*) during 2001. Incidental observations of bears were recorded during caribou and moose surveys. ADF&G Sellers carried out bear stream surveys of the long term Black Lake survey area. ADF&G uses those data as an index to population trend and composition for GMU 9(E).

9. Marine Mammals

On November 5 and 6, Savage attended the Bristol Bay Marine Mammal Council Meeting in Dillingham. Harvest reports were given for walrus (*Odobenus resmorus*) and beluga whales. Several funded and planned projects were discussed regarding monitoring Steller's sea lion (*Eumetopias jubatus*), sea otter, walrus, and beluga whale. Also discussed was an internship that is available for a local Native student (high school or college). The council invited Savage to participate in their beluga whale project planning committee. This was later discussed with the Fisheries Assistance Office in King Salmon and we decided that their participation was more appropriate.

10. Other Resident Wildlife

Two small mammal studies were conducted this year. The abstracts from the reports of each project follow as well as the report citation.

A small mammal trapping project was initiated at Puale Bay (Becharof National Wildlife Refuge) this summer in conjunction with a seabird monitoring project. Live trapping was conducted with 100 Sherman traps for three trap nights in June, July and August. Three mammal species were captured: northern red-backed vole (*Clethrionomys rutilus*), meadow jumping mouse (*Zapus hudsonius*), and a species of shrew (*Sorex sp.*, most likely dusky shrew, *S. cinereus*, but possibly masked shrew, *S. monticolus*). Arctic ground squirrels were also captured as a non-target species. Northern red-backed voles were most abundant this year. Shrews were the second most abundant species captured in 2001. Morphological measurements, sex, and the presence of ectoparasites were noted.

Details of this project are available in:

> Savage, S. and B. Newton. 2002. Small mammal trapping baseline surveys, Puale Bay, Alaska Peninsula/Becharof NWR, Alaska June - Aug, 2001. United States Fish and Wildlife Service, King Salmon, Alaska. (Unpublished) 9 pp.

Small mammal trapping at Mother Goose Lake continued on the Alaska Peninsula National Wildlife Refuge for the seventh consecutive year and the sixth year at the same location. A trapping grid of 100 Sherman live traps was used. Three mammal species were captured in 2001: the northern red-backed vole, meadow jumping mouse, and masked shrew. Northern red-backed voles were abundant this year, a result that is consistent with a cycle observed over the previous six years. Masked shrews were the second most abundant species captured in 2001; a simple fluctuation cycle cannot yet be described for this species. Meadow jumping mice captures have remained stable over the life of the study. Morphological measurements, sex, and the presence of ectoparasites were noted. A new method of marking (use of fur dye) was used and evaluated this season. Incidental mammal observations that have been made over seven years were also summarized. Details of this project are available in:

> Leppold, A. and S. Savage. 2001. Small mammal trapping baseline surveys, Mother Goose Lake, Alaska Peninsula/Becharof NWR, Alaska June - Aug, 2001 (with notes on incidental mammal observations 1995 – 2001). United States Fish and Wildlife Service, King Salmon, Alaska. (Unpublished). 23 pp.

14. Scientific Collection

Also see F. Habitat Management: 1. General - regarding plant collection. To conduct the Puale Bay and Mother Goose Lake small mammal studies, Savage applied for and received a permit for small mammal collections from the State of Alaska. The small mammal program runs under Operational Plan 2001-AKP-01 and -02 (see G. Wildlife: 10. Other Resident Wildlife). Our intention is live capture, but incidental mortalities do occur and these specimens were collected. Unfortunately, the specimens from Mother Goose Lake this year were lost because they thawed during transport and were not refrozen immediately. There were specimens from the Puale Bay study. Mortalities and collections were reported to the Regional Office under the "Collecting Activities" memo and to the United States Department of Agriculture in the Animal Care and Use Report. The following list documents the small mammals that died during small mammal trapping.

Species	Mother Goose	Puale Bay
northern red-backed vole	3	1
masked shrew	14	-
unidentified shrew	-	18

Biological staff also applied for and received a permit from Migratory Bird and Eagle Permit Office in Washington, D.C. to collect black-legged kittiwake chick gut contents and to cover any incidental mortality of chicks. We were unable to access the kittiwake colony (rough seas) and so did not collect any material or birds.

The refuge also collects, salvages, and transports birds under the Regional Director's Special Purpose Permit. These birds are reported to the Regional Migratory Bird Permit Office annually. This includes injured or dead birds that the public brings to the refuge, birds that die at the banding station, or other injured, sick or dead birds that refuge staff encounters. A total of eight birds died during banding operations at Mother Goose Lake (see G. Wildlife 7.Other Migratory Birds). In addition, six birds were salvaged by refuge employees, ten birds were salvaged by the public and turned in to refuge staff, and three raptors (bald eagle, merlin, northern hawk owl) were sent to the Bird Treatment and Learning Center, in Anchorage. Of these, the northern hawk owl was rehabilitated, returned to King Salmon and released. All dead bald eagles were sent to the National Bald Eagle Repository in Rocky Flats, Colorado.

15. Animal Control

Brown bears are common in the area surrounding the King Salmon and Naknek communities. In addition to the natural sources of food in the area, people inadvertantly provide other sources such as dog food left outside, salmon in smoke houses, and unsecured garbage. Inevitably, some bears learn to use these human sources. Several bears frequent the Borough landfill. Unfortunately, some bears lose their fear of people and may become bold in their foraging for human sources of food. This process of habituation and food-conditioning has been well documented, and in its extreme can lead to bear attacks (see S. Herrero. 1985. *Bear attacks: their causes and avoidance*. The Lyons Press, New York, NY. 287 p. ISBN 0-941130-82-7). Typically, however, its worst consequence is the destruction of the bolder bears.

Since August 1999, the Refuges have maintained an electric fence around the Administrative Site dumpster during the months that bears are common in King Salmon. The electric fence around this dumpster was electrified for the season on May 9.

16. Marking and Banding

Bird Banding

Gregory completed the annual report to the United States Geological Survey Banding Office on all bird banding activities. The report was submitted to the Bird Banding Lab in Patuxent, Maryland on October 12. Table five list species and number banded during the different activities and at different locations.

Table 5. Number of birds banded during each activity under the Refuge Station banding permit.

SITE NAME:	Mother Goose Lake		King Salmon	
Type of Banding:	MAPS	Fall Migration	Training	TOTAL
No. days banding:	25	33	14	72
Range of dates:	June 10 - Aug 2	Aug 3 - Sept 13	May 14 - June 7	
No. net-hours:	1076.7	1526	185	2787.6
Downy Woodpecker	2	3	0	5
Alder Flycatcher	8	5	0	13
Tree Swallow	12	0	0	12
Black-capped Chickadee	42	140	0	182
Ruby-crowned Kinglet	0	1	0	1
Gray-cheeked Thrush	13	29	3	45
Hermit Thrush	77	441	1	519
American Robin	12	21	13	46
American Pipit	0	1	0	1
Northern Shrike	1	3	0	4
Orange-crowned Warbler	81	192	4	277
Yellow Warbler	74	376	0	450
Myrtle Warbler	0	0	3	3
Blackpoll Warbler	0	0	5	5
Northern Waterthrush	0	0	1	1
Wilson's Warbler	568	2362	11	2941
American Tree Sparrow	9	146	3	158
Savannah Sparrow	18	54	0	72
Fox Sparrow	35	125	8	168
Golden-crowned Sparrow*	34	154	0	188
White-crowned Sparrow	5	29	4	38
Brambling	1	0	0	1
Pine Grosbeak	4	2	0	6
Common Redpoll	73	258	12	343
TOTAL OF ALL SPECIES	1069	4342	68	5479
CAPTURE RATE (#/100nh)	99.3	284.5	36.8	196.6

Also see G. Wildlife 10. Other Resident Wildlife for marking projects.

Caribou Collaring

Refuge staff worked with ADF&G staff and commercial helicopter operators to capture 29 caribou. During April 13-15, they collared 22 female calf caribou that were born in 2000 with very high frequency beacons, and seven adult cow caribou with satellite collars (Argos Platform Transmitting Terminals) which transmit ultra high frequency signals to National Oceanic Atmospheric Administration satellites. On July 23, they collared one

female calf with a very high frequency beacon and six adult cows with satellite collars. These caribou were captured under the permit of ADF&G.

H. PUBLIC USE

1. General

The majority of public uses currently occurring on refuge lands include subsistence and sport hunting for caribou, moose, and bear; and fishing for Arctic grayling, burbot, Dolly Varden/Arctic char, rainbow trout, lake trout, northern pike, and five species of Pacific salmon (king, sockeye, silver, pink and chum). Trapping of furbearing animals and gathering berries also occurs on refuge lands.

Refuge resources are utilized by residents of twelve villages within or near refuge boundaries primarily for subsistence uses. Other Alaska residents and out-of-state visitors commonly utilize refuge resources pursuing sport hunting and fishing activities.

Public demand for high quality outdoor and wildlife associated activities continues to increase as does demand for education and outreach programs. The Refuge Information Technicians assist with subsistence, public use and environmental education programs. Major duties include serving as liaisons and facilitating the exchange of information between the refuge and local villages; preparing and conducting environmental education and subsistence programs; staffing the King Salmon Inter-Agency Visitor Center; and assisting in other public use programs as needed.

Public use staff responded to numerous information requests this year. There were approximately 320 written inquiries received from 38 states and 9 foreign countries.

The Lending Library program in the King Salmon Visitor Center consists of excellent natural/cultural resource books, video tapes and audiovisual materials that are available for use by teachers in the Bristol Bay School District and the Lake & Peninsula School District. The educational video programs are also used extensively in the Visitor Center during the summer months.

2. Outdoor Classrooms - Students

On September 8 - 10, Refuge staff prepared to conduct the fifth annual "Spirit of Becharof Lake" Ecosystem Science Camp. Funding for the camp comes from the Challenge Cost-Share program and project partners including the Alaska Science Center, Bristol Bay School District, Lake and Peninsula School District, Alaska Audubon Society, Alaska Natural History Association, Native American Fish and Wildlife Society, and owners of the camp buildings. The residential camp is based on the north shore of Becharof Lake at a privately owned facility. Each year, ten to fifteen local high schools

students (predominantly Alaska Native) and several adults participate in the week-long event.

This year our science camp had only one student and only because he came early to help get camp ready. With everything in place for the arrival of the students scheduled for 10:00 a.m. on September 11, we received the devastating news about the terrorist attacks on our great nation. The camp staff then spent the next three days sharing information with the one student and waiting for air transportation to be allowed again.

6. Interpretive Exhibits/Demonstrations

The refuge's public use staff is responsible for daily management and operation of the King Salmon Inter-agency Visitor Center. The visitor center is a cooperative effort of the United States Fish and Wildlife Service (FWS), National Park Service (NPS), Bristol Bay Borough, and Lake & Peninsula Borough and is managed under a Cooperative Agreement. The Visitor Center holds interpretive exhibits and during the two "open houses" held each year demonstrations are given involving the Treatment and Learning Center's Volunteer staff and the birds they care for.

7. Other Interpretive Programs

Public Use staff worked with teachers/students in the Bristol Bay School District and the Lake & Peninsula School District this year. The Bristol Bay School District includes the villages of King Salmon, Naknek and South Naknek. The Lake and Peninsula School District covers 14 villages of which the Alaska Peninsula and Becharof Refuges (Refuges) mainly work with eight (Chignik Bay, Chignik Lagoon, Chignik Lake, Egegik, Ivanof Bay, Perryville, Pilot Point, Port Heiden).

The Refuge Information Technician staff is critical to our education and outreach efforts. Much of their time and talent is devoted to developing and presenting environmental education programs in the nearby villages. Refuge Rangers Terrell-Wagner and Lind assisted Refuge Information Technicians Knutsen and Charles O'Domin in conducting environmental education programs during the school year.

Educational programs this year highlighted Arctic nesting geese and the 2002 Western Alaska Goose calendar contest, Alaska Junior Duck Stamp contest, Sister Shorebird program, biodiversity, predator/prey relationships, bear biology and human safety in bear country, and career opportunities with the FWS.

Environmental education programs in January highlighted conservation of Arctic nesting geese and the 2001 Western Alaska Goose calendar contest. On January 17, Refuge Information Technician Smiley Knutsen worked with Bristol Bay School District 3rd grade students (12) for one hour and 8th grade students (16) for one hour. On January 18, Knutsen worked with 6th grade students (20) for one hour and 7th grade students (16) for

one hour. On January 24, he worked with 1st grade students (12) for one hour, 4th grade students (13) for 1.5 hours and 5th grade students (22) for one hour. On January 26, he worked with 2nd grade students (19) for one hour.

On January 10, Refuge Information Technician Charles O'Domin traveled to Chignik Bay and worked with grades K-12 (8 students) and three adults for 1.5 hours of instruction. On January 16, O'Domin traveled to Perryville and worked with K-12 grades (29 students) for a total of five hours. On January 22, he traveled to Chignik Lagoon and worked with K-12 grades (28 students) for four hours.

On February 1, Knutsen traveled to Egegik to participate in a Western Hemisphere Shorebird Refuge Network Village Meeting and to work with school students on the Goose Calendar program. Knutsen worked with 17 students in grades K-12th for two hours.

On February 1, O'Domin visited with the principal and teachers at the Chignik Lake School to discuss increasing student awareness of caribou, bears and salmon in classroom activities. Suggestions were made on how to do more hands-on programs with all grades.

All entries for the 2002 Goose Calendar Contest were received by the February 9 deadline. On February 16, Knutsen coordinated our regional goose calendar contest judging and forwarded the winners on to the Regional Office for judging in the Western Alaska Contest. Representatives from the Bristol Bay and Lake & Peninsula School Districts and one local artist served as judges.

On March 22, Refuge Information Technician O'Domin made a home visit with a village Elder to build community interest in the Spirit of Becharof Lake science camp program. He shared knowledge of the camp activities, local/western science, Native stories and traditional skills taught during the week-long camp.

O'Domin conducted a Caribou Status presentation at Chignik Lake School, which included the current population numbers, hunting regulations, and laws about harassment of the Northern Alaska Peninsula Caribou Herd. O'Domin worked with grades 9 - 12 (11 students) for 1.5 hours.

On March 25, Terrell-Wagner sent letters to all teachers in the Bristol Bay and Lake & Peninsula School Districts to inform them about National Wildlife Week (April 16-22) and International Migratory Bird Day (May 12). Educational materials including posters, wildlife brochures, and activities to use in the classrooms were sent to seventeen schools. Teachers were also encouraged to participate in the Fish and Wildlife Service long-distance learning program about migratory song birds scheduled for April 26. Students throughout the country (grades 4-6) will participate in the live program coordinated by National Conservation Training Center staff.

On April 10, we were notified about the results of the 2002 Alaska Goose Calendar contest. We were very pleased to learn that several of our local students won prizes in this important conservation education program. This is the 14th annual Goose Calendar Contest and it continues to be very popular. There were over 1,750 entries from 59 different villages this year. A total of 264 local students (Bristol Bay and Lake & Peninsula School Districts) entered the poster contest and 54 entered the literature contest. The following local students won prizes:

Bristol Bay School District:

Literature Contest:
First Place (3rd-5th): Jessie Williams, Naknek
Second Place (K-2nd): Ryann Zimin, South Naknek

Lake & Peninsula School District:

Poster Contest:
First Place (6th-8th): Michael Kalmakoff, Port Heiden
Second Place (9th-12th): Larissa Christensen, Port Heiden

Literature Contest:
Second Place (9th-12th): Tianna Carlson, Port Heiden

We will display the winning students work at the King Salmon Visitor Center for everyone to enjoy. All prizes and gifts for student winners in the 2002 goose calendar contest arrived and were distributed in early May. The Lake and Peninsula student prizes were sent to their schools for the teachers to present. The Bristol Bay School winners were given their prizes in a School Awards Ceremony on May 22.

On May 24, the fourth grade class from Bristol Bay School came to the King Salmon Visitor Center to tour the facility and learn about salmon. Terrell-Wagner gave an educational program about salmon biology. Total of twelve students and two teachers participated in the one hour program. On August 9, Refuge Information Technician O'Domin traveled to Sand Point to assist the Alaska Maritime Refuge and Izembek Refuge staff, school teachers and community leaders of the village of Sand Point to conduct a culture camp for grades K-8 (25 students). O'Domin helped set-up camp, taught plant identification and traditional uses, orientation and survival skills, wildlife games, and sharing stories about the subsistence lifestyle. O'Domin traveled by ferry to Sand Point and worked onboard as a naturalist describing what passengers were seeing as they traveled along the rugged Pacific coast.

On September 5, O'Domin visited the Chignik Lake School to present bear safety instruction to the teachers. Charles spent one hour discussing local knowledge on bear behavior, safety tips and traditional local subsistence uses of brown bears.

On October 10, O'Domin conducted the Clarks River Science/Native Spirit day with

Chignik Lake students. O'Domin, two teachers and 19 students traveled up the Clarks River to learn about traditional uses of bear, salmon and plants. The fun-filled day was cut short after notification of a fatal airplane crash in Dillingham that involved a Chignik Lake resident.

On November 10, Refuge Rangers Terrell-Wagner and Orville Lind, and Refuge Information Technicians Knutsen and O'Domin participated in a conference call to discuss the 2003 goose calendar contest. Topics included selecting a new theme; reviewing contest rules, calendar distribution, judging the contest, etc. The state-wide theme selected for the new contest is "Waterfowl: Yesterday, Today, and Tomorrow."

On November 27, O'Domin visited the Chignik Lake School to share information about career opportunities and his experiences working with the Fish and Wildlife Service. Charles worked with K-12 (32 students) and five adults for three hours.

Environmental education programs this December highlighted conservation of Arctic nesting geese and the 2003 Western Alaska Waterfowl calendar contest. Programs given included:

Bristol Bay School District:

On December 18, Refuge Information Technician Knutsen worked with 1st grade (16 students), 2nd grade (14 students), 3rd grade (18 students), 4th grade (14 students), 5th grade (10 students), 6th grade (22 students) and 7th grade (19 students). Knutsen worked with each class for 30 minutes, for a total of 3.5 hours of instruction and with 8th grade (18 students) for 30 minutes.

On December 20, O'Domin visited the Chignik Lake school and worked with grades K-12 (40 students) for 4.5 hours.

8. Hunting

Hunting, including that by local subsistence hunters, unguided sport hunters, and guided sport hunters, is a major public use on the Refuges. Commercial guiding includes hunts for trophy brown bear and moose. Brown bear seasons occur during spring in even numbered years and during autumn in odd numbered years such that bears are hunted every other denning cycle.

King Salmon is the hub for commercial air service into the Refuges and serves as the base of operations for several hunting and fishing lodges which operate on the Alaska Peninsula. Those hunters wishing to hire the services of a guide will generally find that fees can be costly and highly variable depending on the length of the hunt, amenities provided, area, and species hunted. Commercial guide fees for moose hunts range from $2,500 to $7,500 and a brown bear hunt costs $10,000 to $15,000.

Nonresident hunters are required to be "guided" on brown bear hunts. The fees set by the State of Alaska for resident and nonresident licenses and tags are listed in the Alaska Hunting Regulations. During the 2001 season, a brown/grizzly bear tag cost a nonresident $500 and a nonresident alien $650. Once the proper licenses and tags are obtained, the cost of an air charter can range from $150 to $625 for each hour of flight time. An average round-trip flight to a hunting location in the Ugashik Unit would take about two to three hours.

Caribou

The estimated harvest from the Northern Alaska Peninsula Caribou Herd (NAPCH) during 1994-1996 was about 2,000 caribou with about two-thirds of the take by hunters from local communities (R. Sellers. 1997. *Status of the NAPCH.* Report. ADF&G, King Salmon. 4 pp.). Estimates of caribou harvest by local villages derived from the most recent household surveys of winter 1996/97 indicated that 531 caribou were taken by villages of Game Management Unit (GMU) 9(C), 415 caribou were taken by villages in Bristol Bay drainages of GMU 9(E), and 101 caribou were taken by villages in Pacific drainages of GMU 9(E) (T. M. Krieg, J. A. Fall, C. J. Utermohle, and L. Brown. 1998. *Subsistence harvests and uses of caribou, moose, and brown bear in 12 Alaska Peninsula communities, 1995/96 and 1996/97.* Tech. Paper no. 244, ADF&G, Juneau. 136 pp.)

The NAPCH numbered 17,000 to 20,000 during 1981 through 1992 before beginning a steady decline that brought it to about 9,200 in summer 1998 (see section G.8.NAPCH).
Petitions to both the Alaska Board of Game and the Federal Subsistence Board to further protect the caribou herd and subsistence hunting opportunities resulted in emergency meetings of both boards. In late August 1998, the Board of Game closed the nonresident caribou season during the moose hunt (September 5 - 20) in GMU 9(C) & 9(E) and during all of October in 9(E), and restricted resident hunters to bulls only in 9(C) & 9(E). On September 9, 1998 the Subsistence Board restricted subsistence hunters to bulls only on the federal public lands that were open to hunting in GMU 9(E).

The estimated bull/cow ratio in October 1998 was 31 bulls per 100 cows; that ratio had been 40 or more during all but one of the previous 11 annual estimates. The herd count dropped to 8,600 in summer 1999. These two statistics resulted in ADF&G=s estimate of the harvestable surplus for the herd falling below the 1,200 animals that had previously been established as the minimum number required to meet the subsistence needs of Alaskans dependent on the NAPCH. A Tier II hunt was instituted for the 1999-2000 season allocating 600 permits for one bull each to those applicants documenting the greatest established dependency on the herd. The Federal Subsistence Board followed by closing federal public lands in Game Management Unit 9(E) and in GMU 9(C) south of the Alagnak drainage to non-local hunters, and by issuing 60 federal permits for one bull each.

Moose

Recent harvests of moose in GMU 9(C) & 9(E) as reported by state harvest tickets have been between 100 and 150 animals and almost exclusively bulls (Table 6). Estimates of moose harvest by local villages derived from household surveys indicated that 41 moose were taken by villages of 9(C), and 21 moose were taken by villages of 9(E) in 1996, the most recent year of surveys (Krieg et al., ibid.).

Table 6. Moose harvest as reported by state harvest tickets for GMU 9(C) & 9(E) (preliminary ADF&G data). Harvest ticket data may underestimate local subsistence harvest.

Season	Bulls	Cows	Total
1997	146	3	149
1998	119	2	121
1999	146	6	152
2000	116	2	118
2001	110	8	118

Brown Bear

The harvest of brown bear in GMU 9(C) & 9(E) as derived from sealing data has ranged from about 250 to almost 400 animals. Males have consistently comprised 60 to 70% of the harvest (Table 7). Estimates of bear harvest by local villages derived from household surveys indicated that during the 1994/95 through 1996/97 season's annual averages of 0.4 bear were taken by villages of 9(C), 3.3 by Bristol Bay villages of 9(E), and 9.2 by Pacific villages of 9(E). [T. M. Krieg, P. C. Kenner, L. Hutchinson-Scarbrough, and L. Brown. 1996. *Subsistence harvests and uses of caribou, moose, and brown bear in 12 Alaska Peninsula communities, 1994/95.* Tech. Paper no. 240, ADF&G, Juneau. 69 pp., and Krieg et al., ibid.]

Table 7. Brown bear harvest for the Alaska Peninsula, 1975-2002 GMU 9(C) and 9(E) (ADF&G sealing data, including defense-of-life-or-property mortality, etc.)

Date	Total Bears	Percent Boar	Mean Age	
			Boar	Sow
1975-76	261	62	6	7
1977-78	311	64	6	7
1979-80	316	68	6	6
1981-82	339	59	6	6
1983-84	268	61	6	8

Date	Total Bears	Percent Boar	Mean Age	
			Boar	Sow
1975-76	261	62	6	7
1985-86	263	64	7	8
1987-88	398	62	5	6
1988-89	347	66	-	-
1989-90	328	67	8	7
1991-92	350	66	7	5
1993-94	310	66	7	7
1995-96	306	70	8	6
1997-98	355	72	7	7
1999-00	358	70	9	8
2001-02	385	67	7	6

9. Fishing

The rivers and lakes within the Alaska Peninsula/Becharof Refuge Complex provide world-class fishing opportunities. Game fish include five species of Pacific salmon (chinook, sockeye, coho, pink and chum), Arctic grayling, Dolly Varden/Arctic char, rainbow trout and burbot. In large lakes, northern pike and lake trout are common. Flowing-water areas most often utilized for sport fishing include King Salmon Rivers (Becharof Refuge and Chignik Unit, Alaska Peninsula Refuge); Big, Featherly, Gertrude and Painter Creeks; and Upper and Lower Ugashik lakes, including the Ugashik Narrows.

A total of 27 guides/lodges offering fishing packages operated on the refuge under special permit in 2001. Most operators promote "catch and release" angling for resident fish species. A variety of package programs that include lodging and air transportation to the fishing areas are available. These package deals range in price from $1,500 to $5,000, depending on the length of stay and quality of amenities offered by the lodge.

10. Trapping

Historically, the trapping of fur bearing mammals was a full-time winter endeavor on the Alaska Peninsula. Today, trapping popularity is highly variable due to price fluctuations of raw hides. Fox (*Vulpes fulva*), mink (*Mustela vison*), ermine (*M. erminea*) and beaver (*Castor canadensis*) are commonly trapped; and, to a lesser extent, coyote (*Canis latrans*), wolf (*C. lupus*), wolverine (*Gulo gulo*), lynx (*Lynx canadensis*) and river otter (*Lutra canadensis*) are caught. Reports from local residents, guides, and transporters indicate that wolf numbers have increased in recent

years; reduced trapping pressure resulting from low fur prices may have contributed to this increase. ADF&G requires sealing tags on wolverine, wolf, lynx, land otter and beaver.

Table 8. Fur bearer harvest in GMU 9(C) and 9(E) (ADF&G data).

Year (Winters)	Number Harvested				
	Beaver	Lynx	Otter	Wolf	Wolverine
1984-85	24	14	4	24	14
1985-86	166	23	25	10	20
1986-87	240	27	112	10	22
1987-88	254	3	152	14	30
1988-89	57	4	53	23	36
1989-90	108	2	52	23	31
1990-91	91	2	31	12	23
1991-92	191	16	90	55	56
1992-93	150	22	47	13	17
1993-94	116	35	26	52	27
1994-95	89	36	49	11	30
1995-96	48	15	32	17	10
1996-97	77	27	92	25	15
1997-98	64	17	64	47	30
1998-99	67	34	49	38	25
1999-00	66	21	26	66	12
2000-01	71	26	21	15	17

17. Law Enforcement

Commissioned staff on the Refuge consists of two collateral duty officers. Law enforcement activities on the Refuge in 2001 consisted of patrols by air and boat on the refuge throughout the season and more intensively during the big game hunting seasons. Coordination and cooperation among all local law enforcement agencies are critically important.

18. Cooperating Associations

A branch of the Alaska Natural History Association (ANHA) was established at the King Salmon Visitor Center in May 1992. Sales of educational materials continue to increase each year. In 2001, sales totaled $53,583.00 and 49 association memberships were purchased. The bookstore offers more than 125 book titles, an extensive map selection including topographic maps, Federal Aviation Administration air charts, nautical charts, and numerous posters and note cards.

Terrell-Wagner serves as a member of the ANHA Branch Managers Committee. Committee members provide a vital communication link between other Branch Managers, Agency Coordinators and the Board of Directors about ANHA issues. The committee includes one representative from FWS, NPS, Bureau of Land Management, Alaska State Parks and the ANHA

Board of Directors. The committee duties will rotate to another FWS branch in the future. The Committee meets on a quarterly basis or more often if needed.

To increase the visibility of the Refuges and the King Salmon Visitor Center, ANHA paid for the development of full-color cloisonné pins. The pins are approximately two inches in size and are available for $6.00 each at the visitor center.

ANHA also helped develop custom tee and sweat shirts featuring the Alaska Peninsula & Becharof National Wildlife Refuges and King Salmon Visitor Center. The refuge design is a five-color graphic of three caribou walking on the tundra with snow-capped mountains and a sunset in the background. The visitor center design is a five-color cartoon graphic of three bears eating sockeye salmon.

20. Cabins

Refuge Pilot Cox conducted permitted cabin & reserved land sites inspections on 35 sites during the year. In keeping with policy, no new cabin permits were issued.

21. Guides and Outfitters

A total of 61 special use permits were issued for commercial big game, sport fish guiding, and transporting activities occurring within the Refuges (Table 13). Commercial big game permits issued since 1993 are five-year permits; currently 27 valid permits are held by 18 different big game guides.

Table 13. Big Game Guides, Fishing Guides, Outfitters and Transporters Special Use Permits.

YEAR	BIG GAME	FISHING	TOURS	TRANSPORTER	TOTAL
2001	27	22	1	11	61
2000	27	27	1	16	71
1999	27	31	1	27	86
1998	26	35	1	20	82
1997	27	29	1	15	72
1996	29	25	1	12	67

I. Equipment and Facilities

1. New Construction

Work on the new office building was initiated during the week of June 25-29. The contractors started site preparation work, excavated for the building's foundation and started storing building materials on site. By the fifth of July, the contractors had constructed the forms for the new office building's footers and concrete was poured. On July 30, the floor joists were installed for the first floor.

Footings for new office.

On August 2, the contractors for the new two story office started to put up the walls which were built on the floor and then erected to form the four walls of the first floor. By August 12, both floors had walls and the installation of roof joists had begun with the help of a crane from Bristol Bay Contractors. The carpenters were working on the lower floor installing insulation and the electrician was also installing the conduit for the wiring. On August 30, the pipe fitters began

installing the sewer line from the new office to the main sewer system.

Office construction continued.

On August 24, the office construction crew was digging with a backhoe to find the water line, which according to the documents in hand were buried ten feet deep, and broke the line because it turns out the line was only six feet deep. Terry assisted them with turning off the water and making a temporary plug so that the office and bunkhouse could have water. The Fisheries Resource Office and Quarters 9, 10, 11, and 15 were without water for two days until the line was repaired.

The first floor floor joists are added.

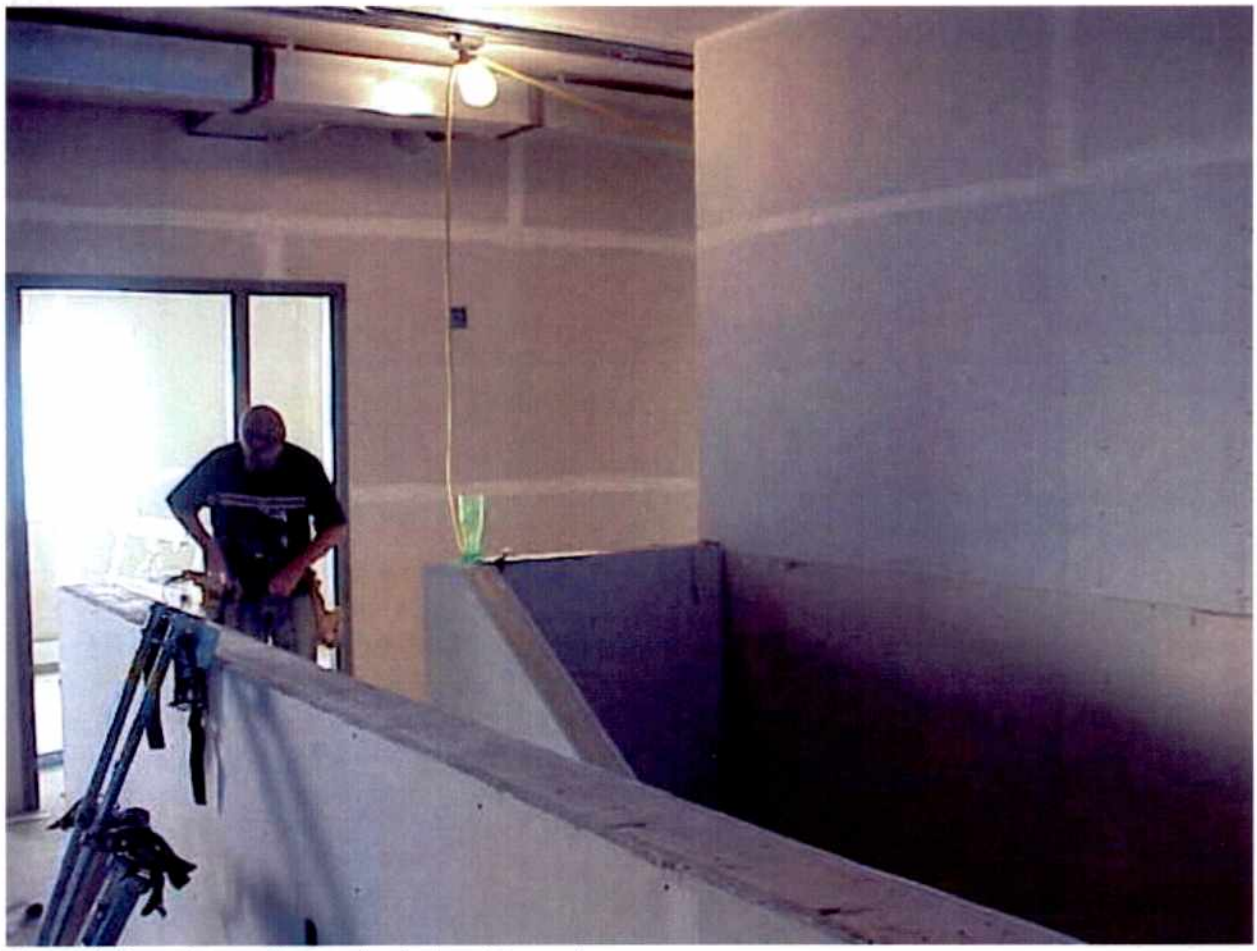
Then the first floor walls go up on August 6.

By August 13, the first floor walls were up and the building started to be called the pink palace.

Second floor was on before the end of August.

Visible progress on the new office during the month of October included installation of the windows and vinyl siding as well as parking lot grading.

During the week of November 26-28, the drywall contractors finished the second floor interior walls and ceiling of the new office building. The last of the vinyl siding on the outside of the new office was installed. It was originally scheduled to be finished in October, but due to the extreme cold weather it was postponed until warmer weather arrived.



Second floor dry wall goes in during November.

The station safety committee identified a need for proper propane storage. During August 14-17, maintenance staff designed and built a cage for holding all our propane tanks in a new location.

2. Rehabilitation

Mr. Steven Dickman of Anchorage Door arrived to service our large hangar door on January fifth. The door had not had a service overhaul in many years and was bowing in the middle

whenever it was raised. Four of the six cables were replaced. The two that were not replaced had been replaced a few months before and did not need replacing. Dickman instructed maintenance staff in the proper way to tension the cables and showed him how and what needs to be done for an annual maintenance program.

At the time of construction the fuel lines at building 15-a and 15-b were only five feet from the ground. This was a hazard walking around the fuel tank. Maintenance Worker Terry cut and raised the fuel lines up to a height of seven feet. Both furnaces were fired and brought back on line March 27.

Due to the fact that the dock fuel system for refuge aircraft kept losing it prime last summer, Terry removed the piping, filter system, reel, and pump for complete repairs. A new pump vane kit was installed in the pump. A main bearing on the hose reel was replaced on April 6.

Maintenance Worker Melvin and Volunteer Howard started the reorganization of the warehouses on April 26. This included the removing of all the shelving in the Refuge section of warehouse portion of building 4 to building 7. Then during July 16-18, Melvin and Howard installed a mezzanine. The mezzanine is a Lyons deck-over system that was tied into the existing system that was installed last year and is used by the Fisheries Resource Office.

On July 2 - 3, Melvin and Maintenance Laborer Howard replaced the old waste water plumbing out on Bldg #11, because of numerous leaks. When one leak was repaired another one appeared. The old plumbing consisted of three different types of pipe (black iron, galvanized pipe and PVC) and duct tape.

3. Major Maintenance

On November 20, large ice chunks being moved around by a very high incoming tide and high winds, damaged the dock ramp. Large 14 to 20 inches thick plates of ice ripped off walkway boards and dislodged or bent the two 12 inch I beams. Damage assessment will be completed come spring thaw.

4. Equipment Utilization and Replacement

From January 29-31, Melvin installed our new commercial washer and dryer. This involved changing the pumping system for the washer and installing a propane tank and fuel lines for the dryer. The addition of this washer and dryer will allow for the cleaning of our sleeping bags and survival suits. On the January 31, Contractor Dick Wells of Automated Laundry Systems arrived per the purchase contract for the insulation, start-up, and instruction of operation of the washer and dryer.

5. Communications Systems

On July 21, Melvin and Howard traveled to Puale Bay to install a temporary very high

frequency repeater. This repeater will allow the Puale Bay camp to have contact with the seabird surveyors, King Salmon Base and all other field camps. Previously, they had been depending on satellite phones.

6. Computer Systems

During March, Melvin made hardware repairs to three computers (replaced two CD Rom drives and one motherboard) and reinstalled another computer's operating system. He also reorganized the biological technician's computer work area. This involved assembling a new desk, moving four computers and two printers, and installing network lines and drops.

During the month of July, Melvin spent considerable time in the ordering and setting up six new computers. Region 7 policy recommends that computers be updated every three years. Most of the computers that were replaced were six years or older.

During November 26-29, Administrative Technician Melvin assisted Maintenance Worker Melvin when he upgraded Lotus Notes (email) and changed the virus protection program to Norton Anti-virus in all the Refuge and Fisheries Resource Office's computers.

Maintenance Worker Melvin was in Washington Office from September 4-7, as part of the pilot team for a new Service Assets and Maintenance Management System computer program. The Service contracted with a firm to modify a template used by manufactory companies to track maintenance costs and inventory. The pilot team is to try out the system and find problems that the contractor needs to fix before the program is tested. Once the obvious bugs are fixed, the team members will take the program back to their stations and try it for a six month period. It is hoped that once this internet based system is being using by all refuges it will document the maintenance backlog and needs of the Refuge System. It will also account for the property that the Service has acquired.

On November 13-16, the refuge hosted a visit by David Lemarie from the Washington, DC Office for the start up of the Service Asset and Maintenance Management System. Regional Office members present were Fred Nolke, Anne Dohmann and Tracy Fischbach, Refuge Manager Lons, Deputy Manager Koepsel and Melvin were also in attendance. An overview of the system was given by Lemarie and Melvin. Several problems and fixes were identified and suggestions were made to make the system more user friendly.

7. Energy conservation

On January 8, Maintenance Worker Melvin designed and installed insulation for the roll-up vehicle door at the hanger. Melvin also weather-stripped the personnel doors. The addition of this insulation was an item overlooked when the new insulated siding was added a couple of years ago. With the heater being added in November 2000 the importance of this problem became evident due to the high amount of heating fuel being used. The method and design that Melvin used alleviate the need to either take the door out completely or buy a new

insulated door.

J. OTHER ITEMS

2. Other Economic Uses

Wildlife Biologist Savage responded to the regional office providing information requested by Congress on seismic activities for oil and gas exploration. Little information existed indicating that seismic activities have not occurred on the refuge since its creation with the exception of possible activities in the Yantarni Bay area on land formally held by Koniag, Inc.