ALASKA PENINSULA/BECHAROF NATIONAL WILDLIFE REFUGE COMPLEX

King Salmon, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 1991

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

REVIEWS AND APPROVALS

ALASKA PENINSULA/BECHAROF NATIONAL WILDLIFE REFUGE COMPLEX
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Ronald E. Hood 2/28/92 _____ _____
Refuge Manager Date Associate Manager Review Date

_____ _____
Regional Office Approval Date

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INTRODUCTION

The Alaska Peninsula splits Bristol Bay and the Bering Sea on the north and west from the Pacific Ocean on the south and east. This rugged peninsula juts out in a southwesterly crescent from the mainland beginning at the 59th parallel of latitude and running nearly 400 miles to about the 54th parallel. The southwestward crescent is continued for another 1,500 miles by the Aleutian Islands. The backbone of the Alaska Peninsula is the Aleutian Mountain Range. This volcanic mountain range lies along the Pacific coast on the east side of the peninsula. Numerous peaks rise above 6,000 feet elevation. This creates a Pacific coast that is rocky and heavily fjorded. The Aleutian Range, including the Aleutian Islands, contains nearly 50 volcanoes known to have erupted or vented steam since 1760. They are part of a chain of volcanoes that rim the Pacific Ocean known as the "Ring of Fire". The Alaska Peninsula and Becharof National Wildlife Refuges (Figure 1) are superimposed over this rugged range of mountains.

The Kejulik Pinnacles on the Becharof Refuge and Katmai National Park boundary typify the rugged Aleutian Mountain Range. 7/91, DAD

The **Becharof Refuge** contains approximately 1.2 million acres (Figure 2). It is 10 miles south of King Salmon and 295 miles southwest of Anchorage. The refuge lies between Katmai National Park and Alaska Peninsula Refuge. The refuge landscape consists of tundra, lakes, wetlands, and volcanic peaks. Becharof Lake, the second largest lake in Alaska, is nestled between the low tundra wetlands to the north and west and the Aleutian Mountain Range to the east and south. Mount Peulik drops to the edge of the lake about midway along its southern shore. The geologically active Ukinrek (Ookeenuk) Maars bares scars of the eruption that took place in 1977.

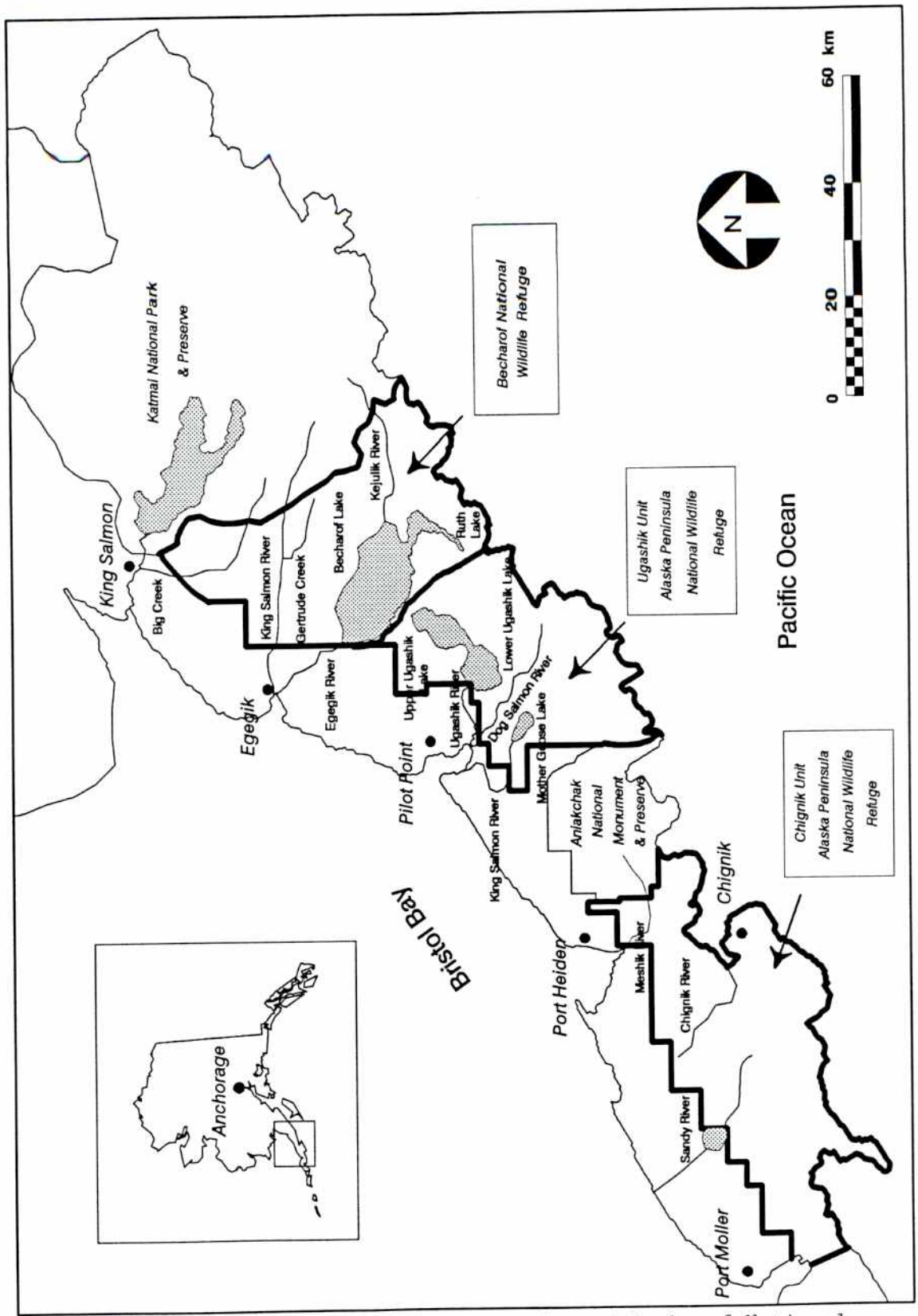


Figure 1. Location of the Alaska Peninsula and Becharof National Wildlife Refuges.

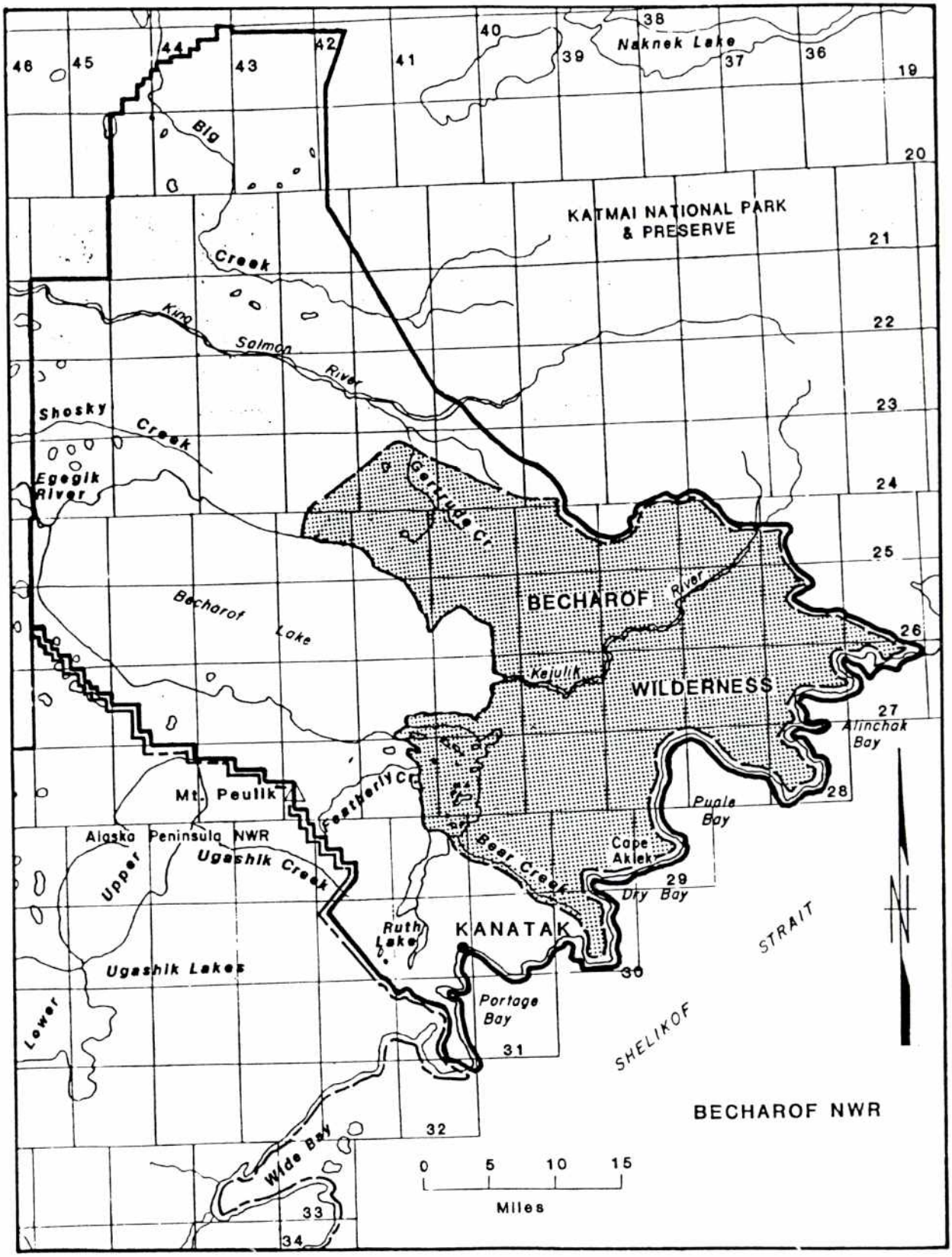


Figure 2. Becharof Refuge.

Dry Creek Valley above Puale Bay on Becharof Refuge. 8/91, CJS

The lowest elevation on the west side of the refuge is about 50 feet above sea level. The highest elevations on the refuge are about 5,000 feet where the northern boundary crosses the Kejulik Mountains. The Kejulik River Valley, about six miles wide at Becharof Lake, splits the main trend of the Aleutian Range, separating the rugged Kejulik Mountains from the coastal range. A few glaciers are on slopes and upper valleys of higher peaks on the northeast boundary of the refuge.

Becharof Lake and its tributary streams provide important nursery habitat for the multi-million dollar salmon industry in Bristol Bay. This system is renowned for its spawning runs of red salmon, an important food source for brown bears. Dolly varden, arctic grayling, rainbow trout, five species of Pacific salmon and other fish are found in refuge streams.

The refuge's fauna includes a large population of brown bears. Moose inhabit the area in moderate numbers and over 15,000 caribou migrate through the area during fall and winter. Other animals found are wolves, foxes, wolverines and lynx. Sea otters, sea lions, and harbor seals inhabit the shorelines as do nesting bald eagles, peregrine falcons, and thousands of seabirds on the rocky sea cliffs of the Pacific coast. Nesting and migratory waterfowl are found on wetlands and lakes throughout the refuge.

The **Alaska Peninsula Refuge** boundaries encompass about 4.3 million acres of land -- an area bigger than the State of Connecticut (Figure 3). Stretching for nearly 340 miles along the Alaska Peninsula, the refuge is subdivided into three units: the Ugashik, Chignik, and Pavlof units.

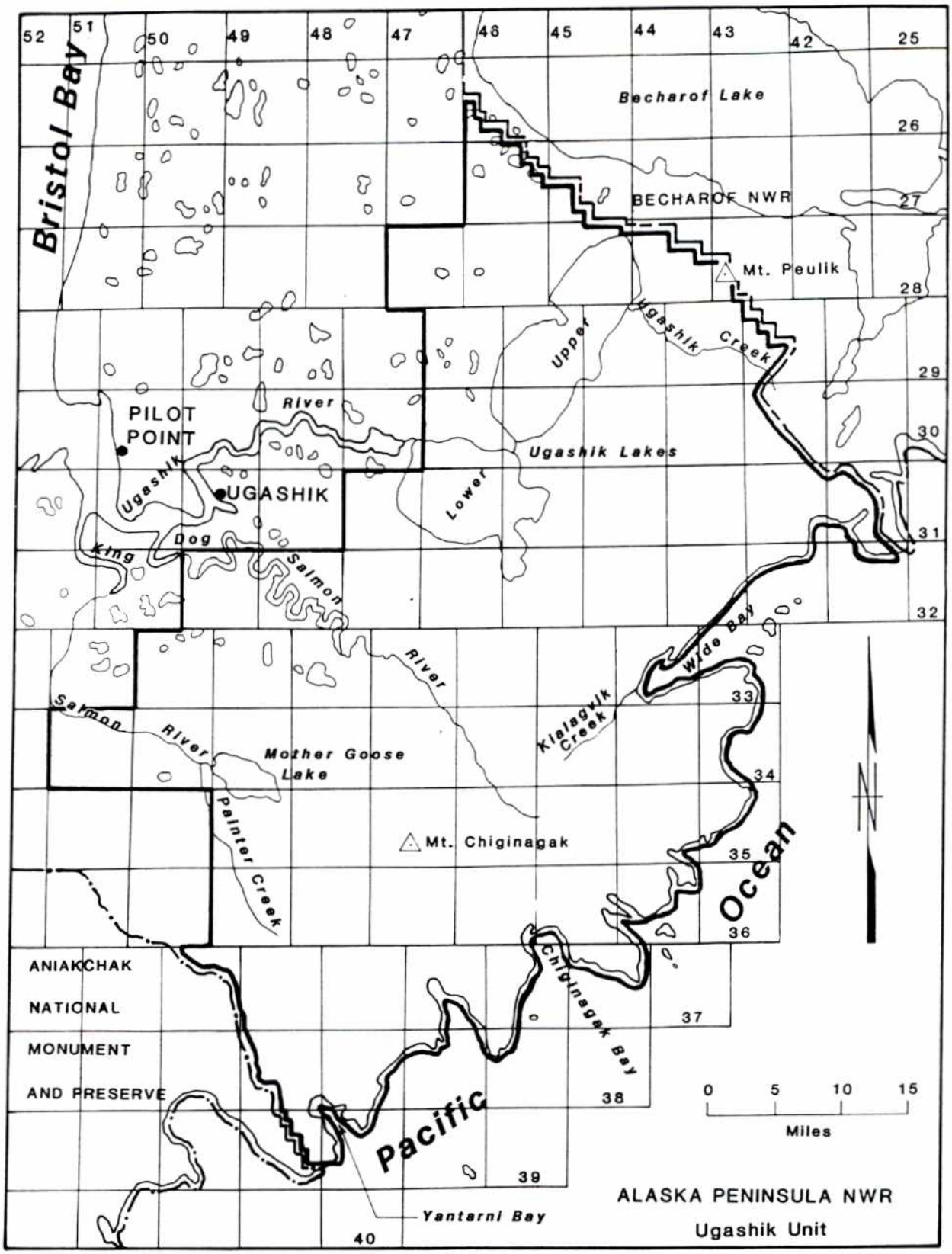


Figure 3. Alaska Peninsula Refuge.

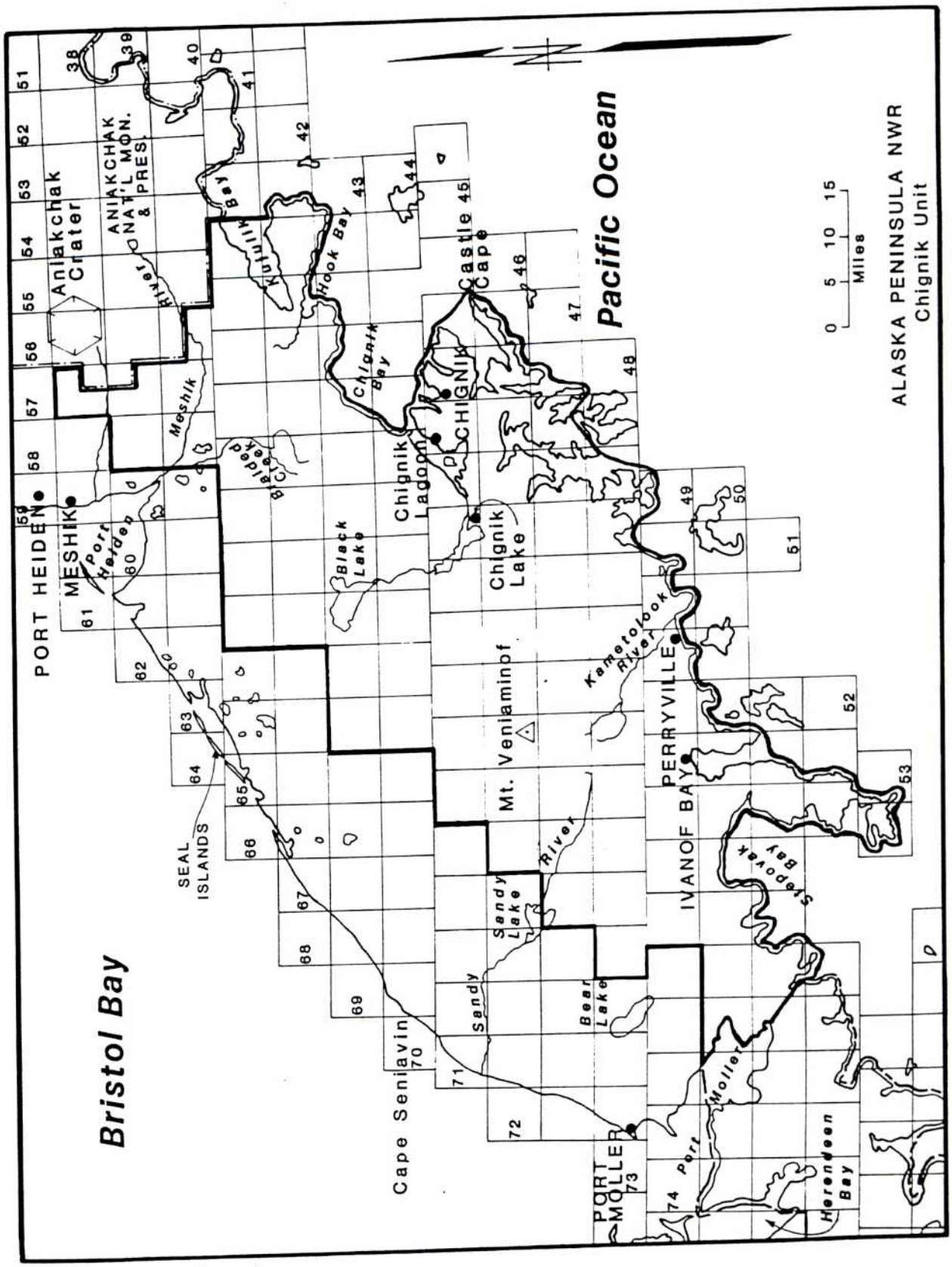


Figure 3. Continued.

The Ugashik Unit's northeastern boundary is about 60 miles south of the Complex headquarters at King Salmon and 360 air miles southwest of Anchorage. It is bounded on the north by the Becharof Refuge and on the south by the Aniakchak National Monument and Preserve. The Chignik Unit bounds the Monument's southern boundary with the Pavlof Unit occupying the southwestern end of the Alaska Peninsula crescent. Izembek Refuge adjoins the unit's southwest corner.

Broad Creek Valley, near Black Lake in the Chignik Unit of Alaska Peninsula Refuge. 6/91, DAD

Landforms of the Alaska Peninsula Refuge include rugged mountain crests, rounded sub-summits, U-shaped valleys with sheer walls, sea cliffs and fjords, low tundra wetlands, glacial lakes, and moraines. The dominant geographical feature is the rugged Aleutian Range. Eleven major volcanoes, including seven that are active, are inside refuge boundaries. They range from 4,400 feet to 8,300 feet in elevation. Cinder beds radiate from eruptive centers in the volcanic systems, and the volcano slopes are covered with glaciers and summit ice fields.

The refuge lands on the Bristol Bay side of the range gradually slope toward the Bristol Bay coastal plain northwest of the mountains. The coastal plain terrain is flat, with lakes, and meandering streams. Remnants of glacial moraines provide the only local relief. Toward the tip of the peninsula the southwestern half of the refuge has fewer lakes and assumes a progressively narrower slope.

The Ugashik, Meshik and Chignik rivers, the Ugashik lakes, Black Lake, and many other rivers and lakes provide habitat necessary for the five species of salmon that spawn in the refuge. Over 30 species of mammals are present, including brown bear, moose, caribou, wolf and wolverine. Sea otters, sea lions, and harbor seals inhabit the Pacific coastal area. The

refuge's lakes and wetlands are heavily used by nesting and migrating waterfowl.

The Alaska Peninsula Unit of the Alaska Maritime Refuge includes all federally owned islands, sea stacks, columns, islets and rocks off the south side of the Alaska Peninsula between the tip of the Alaska Peninsula and Katmai National Park. Seal Cape, a small headland 30 miles south of the village of Chignik, is the only portion of the unit located on the Alaska Peninsula mainland.

The extremely rugged coastline of the cape is deeply indented by Seal Bay, Sweater Bay and Devil's Bay. Cliffs line much of the coastline; there are sand beaches in Devil's Bay. The fjord-like bays cut the cape into two principal arms that top out at over 2,000 feet. Principal nesting seabird species are cormorants, black-legged kittiwakes, Kittlitz's and marbled murrelets, and glaucous-winged gulls. Murrelets are often encountered in the protected bays around the cape.

The Fish and Wildlife Service plans to reorganize the four Alaska Peninsula refuges (Alaska Peninsula Refuge, Alaska Peninsula Unit of Alaska Maritime Refuge, Becharof Refuge and Izembek Refuge). The Service has submitted draft language which would amend the Alaska National Interest Lands Conservation Act (Alaska Lands Act or ANILCA) as it pertains to refuge boundaries in Alaska. As written, the Becharof Refuge would be consolidated with the Chignik and Ugashik units of the Alaska Peninsula Refuge. Seal Cape would be removed from the Alaska Maritime Refuge and incorporated into the Alaska Peninsula Refuge. The resulting "Conservation System Unit" would be named the Alaska Peninsula National Wildlife Refuge. The Pavlof Unit of the Alaska Peninsula Refuge would be incorporated into the Izembek Refuge. The refuges are currently being managed as a refuge complex.

Many laws, regulations, and congressional mandates influence these refuges. However, the salient authority is contained in the Alaska Lands Act purposes. The Becharof Refuge purposes state:

> i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, brown bears, salmon, migratory birds, the Alaskan Peninsula caribou herd and marine birds and mammals;
>
> (ii) to fulfill 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; and
>
> (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. [ANILCA 302(2)(B)]

The Alaska Peninsula Refuge purposes state, "...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". [ANILCA 302(1)(B)]

Species mentioned in the Alaska Lands Act specific Alaska Maritime Refuge (Seal Cape) include, "...marine mammals, marine birds and other migratory birds, the marine resources upon which they rely, bears, caribou and other mammals". [ANILCA 303(1)(B)]

A. HIGHLIGHTS

-- Village meetings held to discuss Fish and Wildlife Service Spring Waterfowl Hunting Policy (Section D.3.).

-- Spring waterfowl law enforcement effort came up empty (Section H.17.).

-- Draft "Operational Plan" completed (Section D.2.).

-- Public Use Management Plan (PUMP) development continued (Section D.2.).

-- Draft Environmental Education Plan completed (Section D.2.).

-- Refuge Operations Needs System (RONS) submittal completed (Section D.6.).

-- Operational Review completed (Section E.8.).

-- MAYSAP team completed inspection of Becharof Refuge beaches for reminants of Exxon Valdez oil spill (Section F.14.).

-- A spring migration watch on the Naknek River produced invaluable results (Section G.3.).

-- Duck production survey on Bristol Bay lowlands demonstrated a 50 percent reduction in estimated waterfowl production from 1990 to 1991 (Section G.3.).

-- Seabird studies continued for the third year at Puale Bay (Section G.5.).

-- Cinder River field camp experienced extensive bear problems (Section G.8.).

-- Interagency effort with Fish and Willife Service, National Park Service and Alaska Department of Fish and Game captured 39 brown bears for radio telemetry study (Section G.8.).

-- Three citations were written for non-permitted business operations on the Complex (Section H.17.).

-- Subsistence hunting for antlerless moose within Unit 9C portions of Becharof Refuge closed by emergency order (Sections G.18. & H.17.).

-- The Complex embarked on an aggressive Public Outreach and Education Program. Three Refuge Information Technicians were hired in September to assist with subsistence, public use, and environmental education programs (Section H.1.).

-- Three public hearings and five informal meetings conducted in eight villages to gather public comments on Draft Environmental Impact Statement (EIS) on Subsistence Management on Federal Public Lands (Section D.3.).

-- Steel shot seminar/shooting clinic conducted in April; Hunter Education course held in November (Section H.2.).

-- School programs to discuss career opportunities with the Fish and Wildlife Service were conducted at Chignik Lake and Naknek in November (Section H.7.).

-- School programs to explain the Yukon-Kuskokwim Delta Goose Management Plan and to promote the 1993 Goose Calendar Art/Essay Contest were held in Naknek, Egegik, Levelock and Port Heiden in November and December (Section H.7.).

-- Environmental Education Workshop using "Wildlife and Wetlands" curricula were conducted in Egegik in December (Section H.2.).

-- An opportunity for space for an interagency visitor center in King Salmon prompted agency representatives of U.S. Fish & Wildlife Service, National Park Service, and Bristol Bay Borough to take quick action (Section H.3.).

B. CLIMATIC CONDITIONS

1. General

The upper Alaska Peninsula is characterized by 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. Pacific Ocean and Bering Sea winds with high moisture content blow frequently across the upper peninsula forming fog and clouds which develop into precipitation. High winds and turbulence are especially common near the rugged terrain. The heaviest precipitation occurs on the Pacific Ocean side of the Complex. The Bering Sea side enjoys more clear weather but lower average temperatures. From fall to spring, the skies are clear to partly cloudy 40 percent of the time. In summer, this occurs only 20 percent of the time. King Salmon averages 50 clear days per year.

Precipitation varies with elevation and distance from coasts. Less than 20 inches of precipitation falls annually on the western lowlands, while as much as 160 inches falls on the Pacific side of the Complex.

Temperatures are generally moderate throughout the year. Daily maximum temperatures may exceed the freezing mark all months while daily minimum temperatures drop below freezing on approximately one-half the days of the year. The King Salmon temperatures average 12 degrees Fahrenheit (F) in December, the coldest month, and 54 degrees F in July, the warmest month. Extremes range from -48 to 88 degrees F.

Daily winds average 10 to 15 miles per hour(mph). However, most months have peak winds from 40 to 70 mph with the extreme being 94 mph.

Using a hefty chain in place of a windsock provides more accurate wind speed data on the Alaska Peninsula. 7/91, BE

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 -120 degrees F.

January - March

The year started off with mild temperatures (Table 1.). As a result, Becharof Lake (Alaska's second largest) did not completely freeze over. During the last week of February daily high temperatures averaged approximately 50 degrees F, resulting in the Naknek River ice becoming unsafe for crossing. A March warming trend caused the Naknek River to became open by the end of the month. Both the low and high temperatures for the quarter occurred in February, with a low of -31 degrees F occurring on the 6th and the high of 57 degrees F occurring on the 27th. Precipitation was normal for the quarter. The highest accumulation of snow cover was only five inches, occurring March 15th and 16th. The winds blew in excess of 40 mph on 11 days during the quarter. Peak winds were 56 mph on January 3rd.

April - June

The spring quarter began with mild temperatures during April, while near normal temperatures were exhibited in May and June. The Naknek River was relatively ice free and most of the Alaska Peninsula lakes began opening up by mid-April. The low for the quarter was 18 degrees F occurring on April 12th, while the high of 67 degrees F occurred on June 12th, 13th and 30th. Daily minimum temperatures remained above 30 degrees F beginning April 27th, thus starting a potentially long growing season. The quarter exhibited only five clear days. Precipitation was normal. The last measurable snowfall occurred on April 22th when 0.1 inch fell. Of the three days thunder was heard this year, two were during the spring quarter -- May 22th and June 12th. The winds did not exceed the 40 mph mark at any time during the entire spring quarter.

July - September

The summer quarter exhibited normal temperatures. Temperatures exceeded 70 degrees F on six days during the year with five of those days occurring in July. The high for the quarter was 76 degrees occurring July 22nd while the low of 32 degrees F was on August 31st. The entire summer quarter experienced a rainfall that was 3.08 inches below normal. Only three clear and nine partly cloudy days were recorded for the quarter. The remaining 80 days were recorded as cloudy. Peak winds gusted to 61 mph on September 22nd.

October - December

The fall quarter exhibited nearly normal temperatures. The first hard frost occurred on October 7th when the temperature dipped to 25 degrees F. October exhibited no days during which the daily maximum temperature was at or below the freezing mark. As a result the area experienced a late freeze with lakes not freezing over until mid-November. The Naknek River did not become ice covered until late November to early December. Most of the river was safe for crossing by mid-December. The first recordable snowfall for the season was unusually late occurring on November 9th when 0.4 inch was observed. However, no measurable snow cover occurred until November 24th. A total of 18.4 inches of snowfall occurred during the season. The greatest snow depth was five inches recorded December 12th-13th. The year ended with a four inch snow cover. Peak winds for the quarter were 67 mph recorded on October 31st and 60 mph on November 1st.

Table 1. 1991 Climatological Data - National Weather Service, King Salmon, Alaska.

	Temperature (degrees F)				Precipitation (inches)			Max. Snow on Ground	Wind (mph)		Sky Cover[a] (days)		
Month	High	Low	Avg.	Norm.	Total	Norm.	Snow	(inches)	Avg.	Peak	Clear	Pt. Cldy.	Cldy.
Jan	43	-23	18	13	0.55	1.04	3.1	4	11	56	8	3	20
Feb	57	-31	14	15	0.58	0.88	4.3	4	11	54	8	3	17
Mar	47	-14	26	19	1.56	1.13	14.0	5	11	43	6	2	23
Apr	53	18	36	31	0.86	1.05	2.8	1	9	40	1	6	23
May	74	30	45	42	1.23	1.18			11	40	4	2	25
Jun	67	30	50	50	1.63	1.50			10	36		2	28
Jul	76	41	55	55	1.02	2.08			10	30		4	27
Aug	70	32	54	54	1.79	3.13			9	32	3	3	25
Sep	63	34	51	47	2.10	2.78			15	61		2	28
Oct	54	13	37	32	1.99	1.92			12	67	3	10	18
Nov	50	- 4	23	23	1.34	1.40	9.0	4	14	60	3	5	22
Dec	39	-18	15	12	1.26	1.24	9.4	5	10	58	2	5	24
Totals					15.91	19.33	42.6				38	47	280

[a]Sky cover: clear = 0 to 0.3 cloud cover; partly cloudy = 0.4 to 0.7 cloud cover; and cloudy = 0.8 to 1.0 cloud cover.

C. LAND ACQUISITION

1. Fee Title

On November 16, 1978, the Secretary of the Interior invoked his emergency withdrawal powers under Section 204(e) of the Federal Land Policy Management (Organic Act) and withdrew land throughout Alaska. Part of this withdrawal, Public Land Order (Order) 5653 (as amended), included lands which are now the Alaska Peninsula Refuge. In December 1980 the passage of the Alaska National Interest Lands Conservation Act (Alaska Lands Act) created the Alaska Peninsula National Wildlife Refuge from the lands in the Order.

On December 1, 1978, President Carter established the Becharof National Wildlife Monument by Presidential Proclamation 4614. The Monument then became protected from all forms of land entry under existing Public Domain laws. In 1980, with the passage of the Alaska Lands Act, the Becharof Monument became the Becharof National Wildlife Refuge.

Along with the Alaska Lands Act, other major legislation has had profound effects on land status in both refuges. These other acts include the Alaska Statehood Act and the Alaska Native Claims Settlement Act (Claims Act or ANSCA). Both pieces of legislation provided a legal means of transfer of lands under Federal trusteeship to State and Native ownership. The implementation of these acts continues to create a dynamic land status on the Complex due to selections, transfers and relinquishments by Natives, Native Corporations and the State of Alaska.

The Alaska Peninsula/Becharof Refuge Complex is divided into three management units: Becharof Refuge (Figure 2) and the Ugashik and Chignik units of the Alaska Peninsula Refuge (Figure 3). The Ugashik and Chignik units contain nearly 3.0 million acres within refuge boundaries. Approximately 2.5 million acres are under Service jurisdiction at present. The remaining acreage has been selected by or conveyed to 23 Native villages in three Native regions (Koniag, Aleut, and Bristol Bay), the State of Alaska, individual Native allotments and other private interests.

The "checker board" land status found on the Alaska Peninsula Refuge is largely absent on the Becharof Refuge, primarily because of the protection afforded by the earlier National Monument status. There were no significant changes in land status in 1991; therefore, "land status tables" are omitted this year.

Land acquisition activities in 1991 centered on the Yantarni Bay area lands issue. Highlights included:

-- In January an advisory letter was sent to selected commercial guides providing information on the status of lands in the Yantarni Bay area of the Ugashik Unit, Alaska Peninsula Refuge. They were advised that the status of these lands is in transition. The Afognak Native Corporation had, in about 1982, surrendered the surface estate of these lands (65,000 acres) to the Bureau of Land Management (BLM) by quit claim deed. At that time, BLM did not accepted title pursuant to established procedures. However, the Service expected BLM to complete the process in 1991.

-- The transfer of Afognak lands at Yantarni Bay appeared to be on track in May. We received word from Associate Manager George Constantino, on the 21st, that BLM had received a good quit claim deed (QCD) from Afognak on February 19, 1991. The Regional Solicitor's office made a preliminary determination that the QCD was proper. BLM was in the process of putting together the package for a preliminary opinion of title by the Regional Solicitor. Perhaps this was to be the year that the 65,000 acres in question finally returned to Federal ownership and became refuge lands (wrong!!!).

-- The lands transfer saga continued in June. RM Hood attended a meeting in the Regional Solicitor's Office in Anchorage among BLM, National Park Service (NPS), Fish and Wildlife Service (Service), and the Solicitor's office to discuss the issue and the Federal government's next move. BLM wants to accept the property and simply notify the Assistant Secretary for Parks and Wildlife that a potential contaminants problem exists. The Service's position is that a Level II or Level III contaminants survey must be conducted before the Service can accept transfer of the land.

-- The Yantarni Bay lands transfer stalemated in July. The Service insisted that the BLM must complete a Level II or Level III contaminants survey before the lands can be transferred. BLM insisted that it was the Service's responsibility to conduct the surveys. In the meantime, no one was watching the hen house!

-- The Yantarni Bay lands issue finally took a step in a positive direction. In late September, the Regional Director reversed his position on the Service paying for the contaminants survey. On November 22nd, RM Hood met with Sharon Janis, Chief, Division of Reality, Bill Mattice, Deputy Chief, and Contaminants Coordinator (CC) Everett Robinson-Wilson. The Region will be able to contract for the contaminants survey through a national contract issued by the Service Engineering Center in Denver.

-- In December, Regional CC Robinson-Wilson drafted a "scope of work" for the contaminant survey of the oil exploration well site at Yantarni Bay. RM Hood reviewed the document and provided slides of the site from Complex files.

-- Continued in 1992.

Other land acquisition activities included:

-- At BLM's request, the Complex staff conducted an aerial inspection of two 17(b) easements in May. RM Hood completed a Level I Contaminant Survey Checklist and Certificate of Inspection and Possession. These easements, EIN 25 C5 and EIN 25a C5, provide access from Chignik Lake across Chignik River Limited Corporation lands to Refuge lands.

-- In November, RM Hood and DRM Poetter attended a briefing session on the implementation of Section 1410 of the Alaska Lands Act. The meeting was conducted by Realty in the Regional Office (RO) on the 18th. The Secretary of the Interior is implementing his authority

under Section 1410 to withdraw lands in Alaska National Wildlife Refuges which are within the original Alaska Native Claims Settlement Act (ANSCA) withdrawals. This action is being undertaken to satisfy ANSCA entitlement of underselected village corporations. Underselected villages that have deficiency lands on Alaska Peninsula Refuge are Nelson Lagoon, Pauloff Harbor (both on Pavlof Unit) and Manokotak (on Chignik Unit). The loss of Alaska Peninsula Refuge lands is expected to be minimal since most, if not all, of these underselections can be satisfied with withdrawals from Alaska Maritime and Togiak refuges.

D. PLANNING

2. Management Plans

Fishery Resource Management Plan. The King Salmon Fishery Assistance Office (KSFAO) has the lead in developing a Fishery Resource Management Plan (FRMP) for the Alaska Peninsula/Becharof Refuge Complex. After several years of inactivity the KSFAO renewed their efforts. On January 18th and 22nd, RM Hood and KSFAO Project Leader Jim Larson reviewed and revised Section 8. Goals and Objectives of the FRMP. A list of tasks with projected funds and implementation dates were also reviewed and prioritized. In March, a draft plan for the Complex was reviewed by RM Hood. Extensive comments and recommendations for revisions were made in this internal review of the draft. In late November, a request for an in-house review of another draft of the FRMP was received from the Regional Office. On December 16th, RM Hood submitted extensive comments. Again, recommendations for significant revisions were made.

Public Use Management Plan (PUMP). Work on this planning effort was initiated in 1989. The Exxon Valdez oil spill, the almost total loss of Regional Office planning assistance, lack of Complex staff planning experience, extremely heavy field season work loads and changing Regional priorities have served to delay the production of a plan. However, positive progress was made this year. Highlights of this year's activities included:

-- The PUMP effort received a boost with the assignment of Public Use Planner (PUP) Helen Clough to the task. Helen transferred from the Forest Service to Refuge Planning (is stationed at Dillingham). She has been working on the Togiak Refuge PUMP. On February 26th, Helen met with RM Hood and DRM Poetter at King Salmon to discuss our planning effort and familiarize her with the issues.

-- On May 18th, PUP Clough and RM Hood met to discuss the PUMP. A revised planning schedule was developed and the various issues discussed. Helen was provided copies of the last six annual narratives so that she could familiarize herself with the Complex.

-- On June 25th, PUP Clough was given a tour of the Becharof Refuge and the Ugashik Unit, Alaska Peninsula Refuge by RM Hood. A Trans-Alaska Bell 206 helicopter (91TA) piloted by Jack Gordon was used as a platform to give Helen an overview of the Complex and the issues being addressed in the PUMP. The usual Alaska Peninsula weather

prevented a more comprehensive tour. The next day the issues and plan outline were reviewed and discussed.

-- A planning meeting on the PUMP was conducted on July 17th-18th. The meeting was conducted by PUP Clough with assistance from Natural Resource Planner (NRP) Maggi Arend (Refuge Planning Section, Regional Office). Attending and participating in all sessions were RM Hood, DRM Poetter, ARM/P Arment and MH Mumma. Portions of the meeting were attended by ORP Rodriguez and WB Dewhurst. The key objective of the meeting was to generate alternatives for the plan.

-- On October 17th and 18th, PUP Clough met with the staff to continue the process of developing alternatives for the PUMP. Various assignments were made for data/information gathering, writing, etc. Much of the direction that the PUMP will take is dependent on the "guide area issue" and regional decisions on that issue. Proposed guide areas were supplied to the region. These will double as "planning areas" for the PUMP.

-- Staff work on the PUMP continued through the end of the year.

Cabin Management Plan (CMP). In 1990, Associate Manager (AM) George Constantino directed that the Alaska Peninsula/Becharof Refuge Complex develop a CMP. ARM/P Randall Arment was assigned the task. Considerable effort was directed toward developing the management plan. A draft of a cabin management plan was completed on March 1st. The draft was submitted to the Regional Office for review/comments. NO comments have been received to date.

Operational Plan. AM Constantino directed the preparation of an "Operational Plan" for the Complex. A draft plan was completed on May 31st. We used the draft plan for the Koyukuk/Nowitna Refuge Complex as a template; modified it to meet our needs; and integrated the Refuge Operating Needs System (RONS) (see Section D.6.) project data into the plan. The development of the draft document took a lot more effort than we were led to believe. However, it was well worth the effort. The plan focused our thoughts and provides a document that, when fully implemented, will bring the Complex to its "objective level".

Review was completed in November. Revision of the plan is continuing.

Environmental Education Plan (EEP). Pursuant to Regional direction received in early May, Volunteer Terrell-Wagner and ORP Rodriguez drafted an extensive EEP. The plan will provide direction for the Environmental Education (EE) Program at this Complex. It was submitted to the Regional Office on June 4th. No review comments have been received to date.

3. Public Participation

Spring Waterfowl Hunting Policy. Public discussions concerning the Service's Spring Waterfowl Hunting Policy were held in some of the local villages in April. DRM Poetter, ORP Rodriguez and Volunteer Terrell-Wagner flew to South Naknek on April 18th for an evening meeting with eight villagers. On April 20th, a discussion was held in Naknek with

three villagers present. The team of ARM/P Arment, ORP Rodriguez and Volunteer Terrell-Wagner conducted discussions in the following villages: Port Heiden (April 22nd) - 12 villagers; Egegik (April 23rd) - 8 villagers; and Pilot Point (April 24th) - 2 villagers. The team of DRM Poetter, ARM/P Arment and Volunteer Terrell-Wagner traveled to Chignik Lagoon on April 30th and one person (the school principal) attended the discussion. We discovered that most villagers were very busy getting ready for the up-coming commercial fishing season and had no time to come to our discussions. "You should have come last month (March)!" was the comment we heard from people who were able to attend. Complex staff took advantage of the village meetings to visit the school children (Section H.7.).

Public discussions concerning the Service's Spring Waterfowl Hunting Policy, continued in May. DRM Poetter, ARM/P Arment and Volunteer Angie Terrell-Wagner traveled from the village of Chignik Lagoon to Chignik Bay on May 2nd, to meet with community members. Even with posted flyers and UHF radio announcements we were unable to draw any participants. The timing was not good, since commercial fisheries (flounder and herring) was starting up full swing. We did take advantage of the village trip to visit Chignik Bay school the next day (Section H. 7.). Following the school presentations a radio announcement was made inviting all community members to a discussion, however, no one came.

Late in the day on May 3rd, the team traveled to the village of Chignik Lake for an evening discussion of the Spring Waterfowl Hunting Policy. Staff arrived too late to talk to the students, but six villagers did attend the waterfowl discussion.

Because of low attendance at the public discussion meetings, due (in part) to the commercial fishing season, the villages of Ivanof Bay and Perryville were not visited by Complexstaff. Written materials concerning spring waterfowl hunting were sent to each box holder. We plan to visit these two villages to conduct the meetings in early 1992.

4. Compliance with Environmental Mandates

Regional Archeologist Chuck Diters and RM Hood conducted an onsite inspection of the Hammond property (purchased in 1990) on June 13th. The site was scheduled for a Youth Conservation Corps (YCC) "Take Pride In America" cleanup effort and Section 106 of National Historic Preservation Act (NHPA) clearance was needed. Chuck reviewed the property and gave approval for the clean-up to proceed. See Section E.2. for a report on the YCC efforts.

Regional Archaeologist Chuck Diters photographing historic artifact. 6/13/91, REH

This historical cabin was on the Hammond property purchased in late 1990. It and associated trash was targeted for a "Take Pride" clean-up by the YCC crew. 6/13/91, REH

A written request from the KSFAO was received on November 14th asking permission to utilize "hovercraft" to access streams and rivers of Becharof and Ugashik lakes within the Complex. Use of these craft was described as needed for safety considerations in the completion of two more years of an arctic grayling study. This past summer, access was attempted by jet boat and foot. The study is being conducted during the time frame when brown bears are feeding intensively on the salmon of these streams and human encounters are frequent. The dense riparian cover associated with the streams makes walking around in-stream bears even more hazardous to the researchers. A compatibility determination was completed and issued on January 6, 1992. The use of hovercraft on Complex streams was found to be **"not compatible"** with Alaska Peninsula Refuge and Becharof Refuge purposes.

5. Research and Investigations

Alaska Peninsula NR91 - "Brown Bear Studies at Black Lake" (74510-88-01)
In 1988, a ten-year cooperative interagency study was initiated on brown bears in the Black Lake area of Alaska Peninsula Refuge. The project involves the National Park Service, the Fish and Wildlife Service, and the Alaska Department of Fish and Game as the lead agency. Each agency contributes one-third of the necessary funding each year, along with personnel for assistance. See Section G.8. for data results.

6. Other

A research proposal entitled "Density and Structure of a Boundary Population of Brown Bears and the Related Effects on Moose Reproductive Success" was submitted on February 15th to the regional study proposal review panel. The study is proposed as a cooperative effort working with Katmai National Park & Preserve (NP) and ADF&G. A local interagency coordination meeting among ADF&G (Dick Sellers), Katmai NP (Steve Hurd and Ron Squibb) and Becharof Refuge (RM Hood and WB Dewhurst) was held on February 8th to discuss the proposal.

The Refuge Operating Needs System (RONS) submittal for 1991 was completed and forwarded to the Regional Office on May 20th. We took Acting Assistant Regional Director Paul Schmidt's advice to heart and submitted 53 projects for inclusion in the Region's package.

The Becharof Refuge has attracted prospectors for oil and gas since the 1900's. Over 20 wells have been drilled in the area. In 1988, a reconnaissance level contaminants investigation of oil exploration activities was completed. As a result, three sites were identified for additional study. Proposals for three contaminants studies (Kanatak Village, Bear Creek and Jute Bay), to be funded in Fiscal Year 1992, were prepared and submitted on June 14th.

The Lake and Peninsula Borough is initiating coastal zone planning for Borough lands. The Alaska Peninsula and Becharof Refuges constitute a significant portion of these lands. On October 15th, Mr. Jon Isaacs (Borough consultant) met with RM Hood and DRM Poetter to discuss the planning effort.

RM Hood participated as a team member of the Region 7 Refuge Duck Production Survey Work Group at a meeting held on October 10th and 11th in

Anchorage. Other work group members included Ted Heuer (Yukon Flats Refuge), Steve Klosiewski (Migratory Bird Management), Daryle Lons (Refuges and Wildlife), Russ Oates (Migratory Bird Management), Bob Skinner (Innoko Refuge), Dave Stearns (Koyukuk/Nowitna Refuge Complex) and Mike Wege (Yukon Delta Refuge). The work group was formed to resolve the perceived problem that the current statewide duck production survey is not meeting most refuges' duck production data needs. A report with recommendations was issued on December 24, 1991.

RM Hood also participated as a team member of the Region 7 Big Game Guide Work Group that met in Anchorage on October 23rd-25th. Other work group members included Jay Bellinger (Kodiak Refuge), Glenn Elison (Arctic Refuge), Steve Breezer (Tetlin Refuge), Daryle Lons (Refuges and Wildlife), Ed Merritt (Innoko Refuge) and Mark Bertram (Koyukuk/Nowitna Refuge Complex). The team was charged with drafting a Regional policy and contingency plan for managing guides on refuges. The work group met again on November 18th. A draft "prospectus and request for proposal" was reviewed at the meeting. A Draft Guide-Outfitter Policy was distributed to the public on June 2, 1992. Copies were sent to all registered guide-outfitters, transporters, and Native regional corporations.

7. Subsistence

On October 8th and 9th, RM Hood, PR Terrell-Wagner, and RITs Kelly, Knutsen and Lind attended a two day workshop on "Conducting Public Hearings." The workshop was presented by members of the Federal Subsistence Office in Anchorage, in preparation for the upcoming Public Hearings on the Draft EIS for Subsistence Management on Federal Public Lands in Alaska. The public hearings were to be conducted in 39 communities throughout the state of Alaska during October and November.

Public hearings and informal meetings were held in several villages to gather public comments on the Draft EIS on Subsistence Management on Federal Public Lands. 11/91, JCK

During the week of November 4th-8th, Complex staff concentrated efforts on public hearings in the villages of Naknek, Port Heiden, and Chignik Lake. A team from the Federal Subsistence Office in Anchorage conducted the meeting in Naknek with Complex staff providing logistical support. Complex staff, consisting of RM Hood, PR Terrell-Wagner, RITs Kelly, Knutsen, and Lind, and Dave Fisher from the Federal Subsistence Office in Anchorage conducted the "add-on" meetings held at Port Heiden and Chignik Lake. We were pleased with the numbers of people who attended the public hearings at all three villages. A total of 30 people participated in Naknek, 17 in Port Heiden, and 27 in Chignik Lake.

Additional time was spent explaining the EIS process and gathering public comments on subsistence management in the villages of Egegik, Chignik Lake, and Perryville. On November 12th, RIT Kelly gave an informal presentation explaining the Subsistence Management EIS process at a Village Council meeting in Egegik. A total of 16 people attended this meeting. On November 20th-22nd, RIT Lind traveled to several villages to talk with residents of Chignik Lake, Chignik Lagoon, Chignik Bay and Perryville. He spoke with a total of 45 residents and answered many questions about the draft EIS.

In December, Complex staff continued to spend time explaining and gathering public comments in villages on or near the boundaries of the refuge concerning the Draft EIS on Subsistence Management for Federal Public Lands . On December 2nd, RITs Kelly and Knutsen gave an informal presentation explaining the draft EIS at the village of Pilot Point. A total of eight people attended this meeting, including one person from the village of Ugashik, and one from Lake and Peninsula Borough (Borough Manager). On December 3rd, RIT Knutsen met with the Paug-Vik Native Corporation Manager in Naknek to discuss the procedure for making written comments about the Draft EIS. Knutsen answered many questions for the corporation manager. During the first week of the month RIT Knutsen talked in person with residents in the village of South Naknek to answer questions about the Draft EIS. On December 5th, RIT Knutsen and Katmai National Park Subsistence Ranger Susan Savage traveled to the village of Levelock to conduct an inter-agency presentation regarding the draft EIS. They spoke with a total of 10 people and answered many questions.

On November 14th, RM Hood, PR Terrell-Wagner and RIT Knutsen attended a Naknek/Kvichak Advisory Committee meeting held to discuss Alaska Department of Fish and Game Commercial Finfish and Sport Hunting Proposals. Complex staff attended the meeting to answer refuge specific questions and to distribute the Draft EIS on Subsistence Management for Federal Public Lands in Alaska documents. The group was encouraged to submit written comments.

Review comments on the Draft Environmental Impact Statement (EIS) on Subsistence Management were submitted on December 3rd.

E. ADMINISTRATION

1. Personnel

14 9 4 6 3 2 1 7 8 15 16
09/11/91, JPL

PERMANENT STAFF

1. **Ronald E. Hood**, Refuge Manager (RM), GS-485-12, 09/15/85, PFT
2. **Rick Poetter**, Deputy Refuge Manager (DRM), GS-485-11, 04/23/89, PFT
3. **Randy Arment**, Assistant Refuge Manager/Pilot (ARM/P), GS-485-12, 10/03/82, PFT
4. **Donna Dewhurst**, Wildlife Biologist (WB), GS-485-11, 02/26/89, PFT
5. **Jose Rodriguez**, Outdoor Recreation Planner (ORP), GS-023-07, 08/27/89 - 08/27/91, PFT
6. **Angie Terrell-Wagner**, Park Ranger (Public Use Specialist) (PR), GS-025-05, 12/29/91, PFT
7. **Gary Terry**, Maintenance Worker (MW), WG-4749-08, 07/31/88, PFT
8. **Dwight (Moose) Mumma**, Maintenance Helper (MH), WG-4749-04, 02/19/84, PFT
9. **Janice Collins**, Refuge Secretary (RS), GS-318-05, 06/11/84, PFT
10. **Sharon Hudon**, Clerk/Typist (CT), GS-322-03, 02/11 - 05/03/91, PPT
11. **Kim Desmarais**, Clerk/Typist, GS-322-03, 10/07/91, PPT

11 12/03/91, RDP

TEMPORARY STAFF

12. **Angie Terrell-Wagner**, Park Ranger (PR), GS-025-05, 06/02 - 12/29, Term, NTE 2 years
13. **Chris Berkman**, Biological Technician (BT)., GS-404-05, 05/19 - 09/27, Seasonal
14. **Shirley Kelly**, Refuge Information Technician (RIT), GS-1001-06, 09/08/91, Intermittent, Term (NTE 2 years)
15. **John (Smiley) Knutsen**, Refuge Information Technician, GS-1001-06, 09/08/91, Intermittent, Term (NTE 2 years)
16. **Orville Lind**, Refuge Information Technician, GS-1001-06, 09/08/91, Intermittent, Term (NTE 2 years)

YOUTH CONSERVATION CORPS (YCC)

17. **Mike Swain**, Youth Leader, King Salmon, Alaska, 06/03 - 07/29
18. **Heather Poetter**, Enrollee, King Salmon, Alaska, 06/03 - 07/29
19. **Matt Sutherland**, Enrollee, Redmond, Oregon, 06/03 - 07/29

STUDENT CONSERVATION ASSOCIATION (SCA) VOLUNTEER

20. **Toby Burke**, Brielle, New Jersey, 03/26 - 10/31, Headquarters & Puale Bay Camp
21. **Mike Moore**, Chicago, Illinois, 08/16 - 12/13, Puale Bay Camp & Headquarters

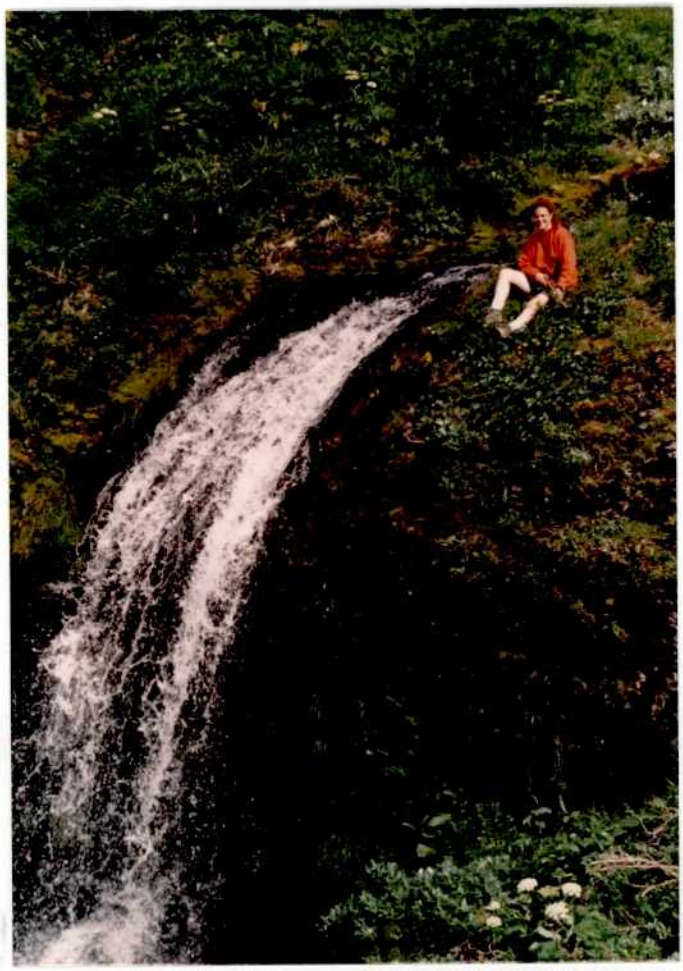
SERVICE VOLUNTEER

22. **Jim McCarthy**, St. Johns, Newfoundland, Canada, 05/28 - 10/05 (FT), Puale Bay Camp
23. **Carol Snetsinger**, Lander Wyoming, 06/02 - 08/22 (FT), Puale Bay Camp
12. **Angie Terrell-Wagner**, King Salmon, Alaska, 04/16 - 06/01 (FT), Headquarters
24. **Brenda Eliason**, Provo, Utah, 05/09 - 06/22 & 07/20 - 08/23 (FT), Jute Peak Camp

25. **Casey Calabria**, King Salmon, Alaska, 06/01 - 10/01 (PT), Headquarters
20. **Toby Burke**, Brielle, New Jersey, 11/01 - 12/06 (FT), Headquarters

Part of the Puale Bay field crew, from the left is Jim McCarthy, Chris Berkman (camp leader), Toby Burke and Mike Moore. 08/26/91, DAD

Carol Snetsinger, the other Puale Bay field camp member pictured at the colony cliffs. 07/03/91, JHM



This picturesque scene is near the Jute Peak field camp of which Brenda Eliason was the volunteer member. 08/91, ART-W

The Fish and Wildlife Service (Service) plans to reorganize the four Alaska Peninsula refuges (Alaska Peninsula Refuge, Alaska Peninsula Unit of Alaska Maritime Refuge, Becharof Refuge and Izembek Refuge). To accomplish the proposed reorganization, the Service submitted draft language which would amend the appropriate sections of the Alaska National Interest Lands Conservation Act as it pertains to refuge boundaries in Alaska. This language was submitted to the House Interior Committee in 1989, for use in a draft Alaska Omnibus Act. As written, the Becharof Refuge will be consolidated with the Chignik and Ugashik Units of the Alaska Peninsula Refuge. Seal Cape will be removed from the Alaska Maritime Refuge and incorporated into the Alaska Peninsula Refuge. The resulting "Conservation System Unit" will be named the Alaska Peninsula National Wildlife Refuge. The Pavlof Unit of the Alaska Peninsula Refuge will be incorporated into the Izembek Refuge.

The Alaska Peninsula and Becharof refuges are currently being managed as a complex. In prior years, an annual narrative for each refuge was produced. In 1987, approval was received to produce only one narrative. In October, 1989 approval was received to operate both refuges under one annual work plan (74510). Seal Cape was administratively removed from Alaska Maritime Refuge this year (1991) and incorporated into the Chignik Unit of Alaska Peninsula Refuge.

A staffing plan for the Complex was approved by Regional Director Walter Stieglitz on April 8, 1989 (Figure 4). In early August, we received an innocuous memorandum from the Regional Office directing the submittal of a revised organizational chart that reflected current position titles; i.e., changing refuge manager to refuge operation specialist. We took the opportunity to make minor revisions in our plan to follow recommendations made in the draft Operational Plan. Figure 5 is what we got back. It reflects existing positions (as of Nov. 5th), both permanent and temporary, but does not represent a chart based on any approved plan. Every position related request, no matter how minor, will now require that a new chart be submitted to the Regional Director for approval. Our old staffing plan represented a reasoned plan based on the comprehensive conservation plans approved in 1985 and 1987.

The positions funded in 1991 required 8.8 full-time equivalents (FTE). As discussed below, we converted a local-hire biological technician to a permanent full-time maintenance helper position. The three RIT positions are local-hire and do not count as FTEs. The lower than expected FTE use, again this year, is believed to be a reflection of the method used to account for FTEs (Table 2).

Table 2. Historic record of full-time equivalent allocation and use.

	Full-Time Equivalent	
FY	AKP/BCH COMPLEX	TOTAL USED
91	9.3	8.26
90	9.0	7.93
89	9.0	6.68
88	9.0	8.06
87	10.0	8.24
86	9.1	8.66
85	6.8	6.28

Highlights of the year:

CT Sharon Hudon entered on duty February 11th. Sharon, a King Salmon resident, resigned on May 3rd.

BT Christine Berkman entered on duty on May 19th. Coming from Santa Cruz, California, Chris was hired to serve as the Puale Bay camp leader. Her appointment ended on September 27th. She was eager to fly back to California in preparation for a move to Fairbanks to attend school during the winter.

Effective March 24th, local-hire BT Dwight (Moose) Mumma was relieved of his biological duties and hired as the MH (WG-4749-04). We were able to convert Moose to this newly established developmental position non-competitively under the Veterans Readjustment Act. The addition to our maintenance staff was sorely need.

In 1988, an effort was made to hire one local-hire Refuge Information Technician to serve as liaison with the local villages. This attempt fell short; no applicants could be found. We submitted an SF-52 in February

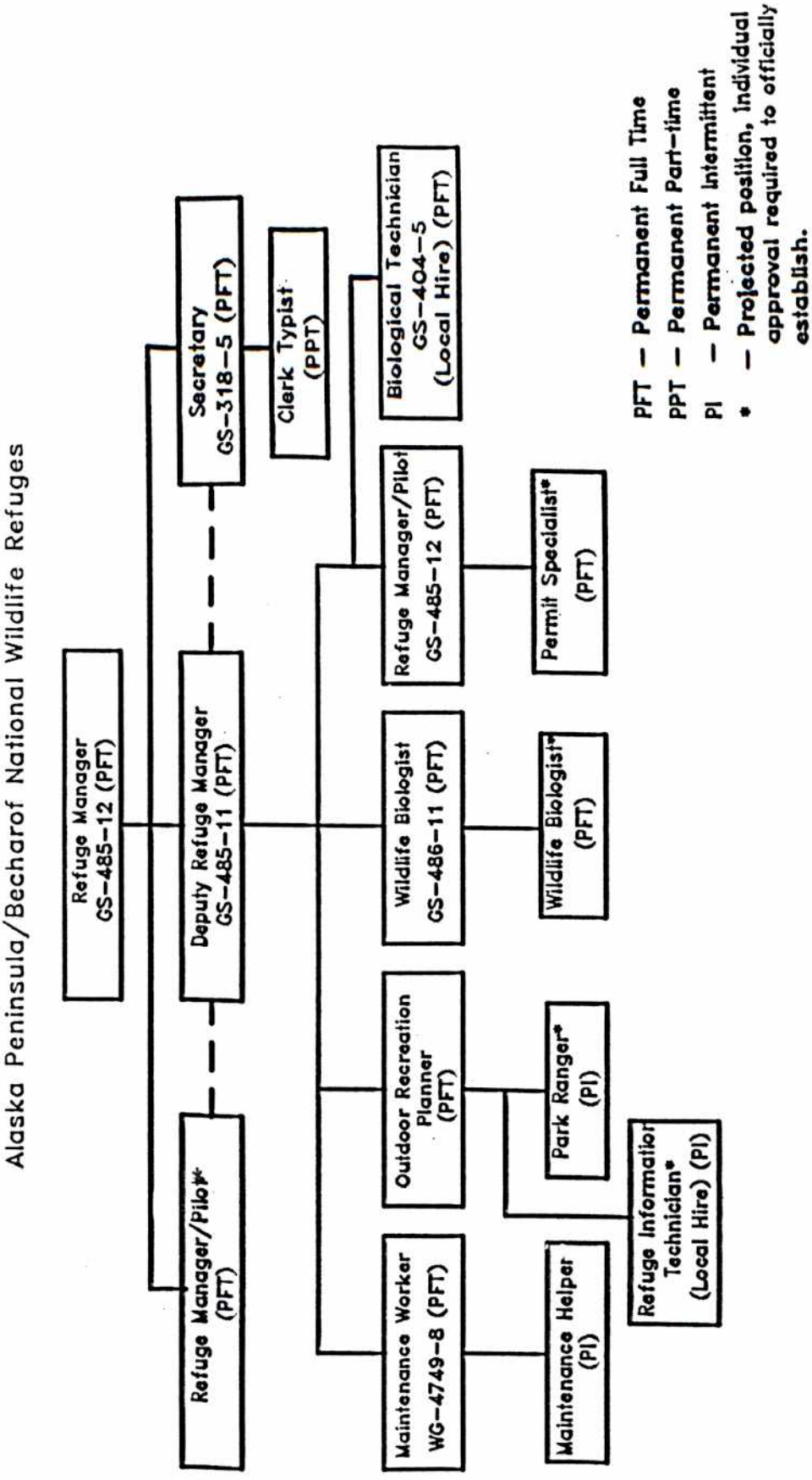


Figure 4. Staffing plan approved April 1989.

U.S. FISH AND WILDLIFE SERVICE
ALASKA PENINSULA/BECHAROF NWR
REGION 7

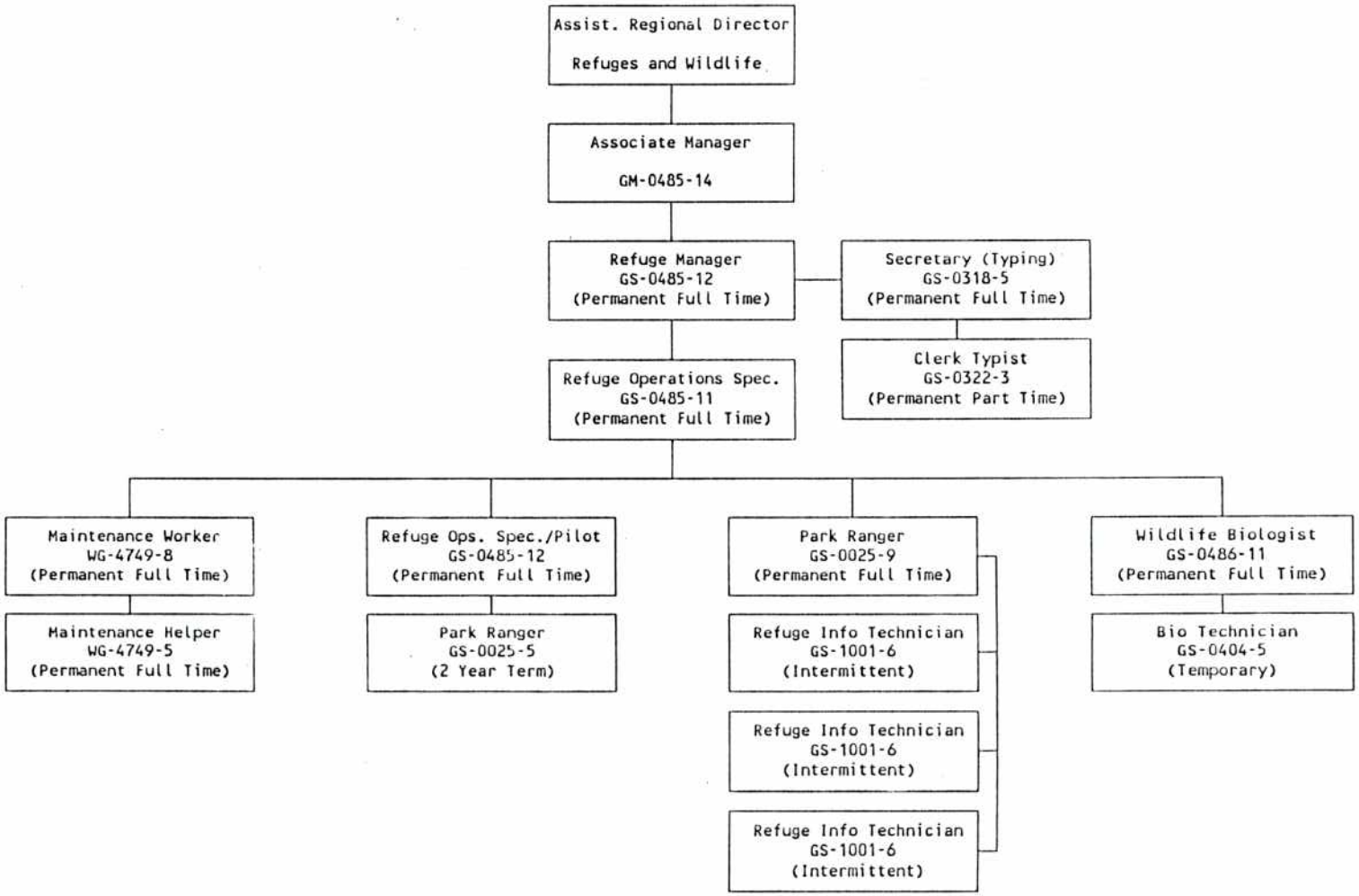


Figure 5. Staffing plan approved November 1991.

[signature]	11/05/91	pp					
Associate Manager	Date		Assist. Regional Director	Date		Regional Director	Date

requesting approval for a Permanent Intermittent (PI) position. This was changed to a Temporary Intermittent position by the Regional Office (RO) (Refuges and Wildlife). Somehow this point was lost when we received word that the position had been approved; so we advertized for a PI position. To make a very long story short, in May, the position had to be re-advertized as a Term NTE 2 years temporary position. Finally, on September 8th, due to the exceptional candidates, three RITs were hired to assist with information exchanges between the Complex and the villages. The RITs will be a key part of our public service initiative. We are happy to welcome on board Mrs. Shirley Kelly of Egegik, Mr. John "Smiley" Knutsen of Naknek and Mr. Orville Lind of Port Heiden.

After approximately 264 hours of volunteer services (see Section E.4.), during April 16th-June 1st, Angie Terrell-Wagner was converted to a Park Ranger (GS-025-05) position. Her new position was a term appointment not-to-exceed two years. Her duties were to support the Complex's law enforcement and permit programs. Her summer assignment was to operate the two person field camp at Jute Peak on the Pacific Coast, Becharof Refuge (see Section H.17.). Upon the vacancy of the ORP position (see below), Angie was detailed to those duties from August 28th to December 28th. She did such an excellent job and was able to secure the permanent full-time position, on December 29th, of the Outdoor Recreation Planner (GS-023 series), which had been re-classified as a Park Ranger (GS-025 series). The grade levels are the same, 5/7/9. However, the 025 series better describes the position's duties.

ORP Rodriguez submitted his resignation, effective August 27th. He had completed his two year commitment with the federal government to stay in Alaska and wanted to return to the New Mexico area due to family concerns.

MW Terry receives a Quality Performance Award during ceremonies at the bunkhouse. 09/11/91, REH

MW Terry, WB Dewhurst and RS Collins were each recipients of Quality Performance Awards at a ceremony in the bunkhouse on August 11th. Their sustained performance awards were based on Level 4 performances during the rating period of 7/1/90 thru 6/30/91.

Refuge Secretary Collins receiving her Quality Performance Award from RM Hood. 09/11/91, RDP

PR Terrell-Wagner received a Quality Performance Award on October 7th. The sustained performance award was based on her Level 4 performance of duties during the period of 06/02/91 thru 09/03/91. From the moment Angie started her volunteer service with this office (04/16/91-6/1/91) she has performed assigned duties in a superior manner.

Staff training during the year included:

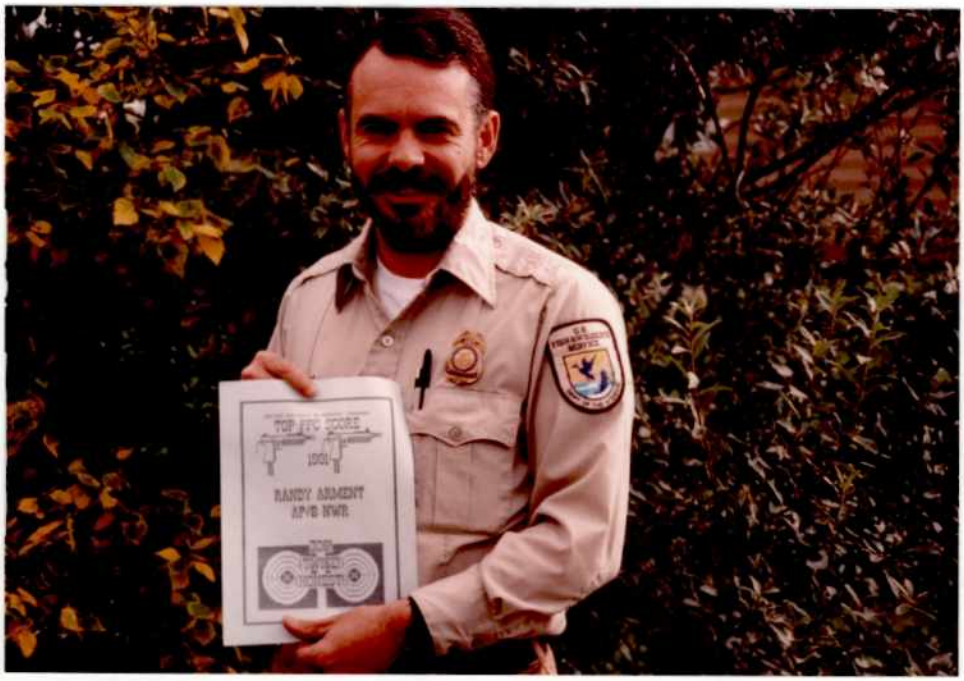
DRM Poetter attended the "Citizen Participation" workshop taught by Hans and Annemarie Bleiker. It was sponsored by the Chugach National Forest and held in the Anchorage Federal Building February 4th-8th. The Bleikers have spent years developing this outstanding course and its methods of ensuring that "roadblocks", to whatever project one might be planning, by "potentially affected individuals" are not encountered or are diminished. This course is very highly recommended for all employees, especially those involved in implementing changes or new programs/projects.

MW Terry spent February 11th-15th attending "Arctic Survival Training" at Eielson Air Force Base near Fairbanks. Unfortunately, temperatures remained above 0 degrees Fahrenheit; but the field exercises and classroom material were very informative. Gary was the only civilian in attendance

during the week. Due to his positive and helpful attitude during the exercises, he was presented the "Polar Bear Award." Way to go Gary!

ORP Rodriguez attended the Refuge Information Technician Training in Anchorage, March 4th-8th.

Refuge Officers Poetter, Arment and Dewhurst attended the law enforcement refresher training session held March 21st-26th in Marana, Arizona. RM Hood was also in attendance for familiarization purposes. Refuge Officer Arment was accredited for having shot two perfect 300 scores: one on the old practical pistol course using the original Transitional Target and one on the new course of fire using the KCF Target.



Refuge Officer Randy Arment displays the Regional "Top Shooter" Award earned during the week-long refresher training. 09/12/91, RDP

DRM Poetter attended an Aviation Management Seminar held in the Fairbanks, Alaska area April 9th-12th. It was an excellent program put on by Office of Aircraft Services personnel. The new Department of the Interior Aviation Policy provided the basis of the seminar and there are some very important changes. This seminar is highly recommended for those who utilize aircraft for Service missions.

ARM/P Arment attended a supervisory training course sponsored by the Office of Personnel Management entitled, "Understanding and Managing Human Behavior" in Anchorage, April 17th-19th.

DRM Poetter attended a supervisory training course, presented by the Keye Productivity Center, at the Holiday Inn in Anchorage. The one day course was held on April 26th and was entitled, "How To Deal With Employee Attitude Problems." Personnel management is not an easy duty.

ORP Rodriguez attended the Basic Refuge Academy held in Blair, Nebraska. This year's Academy ran for three weeks, from April 29th thru May 17th. Jose reported that the Academy was very well organized and administered. The topics and the speakers were found to be very informed and enthusiastic. The information shared at the Academy was extremely enlightening.

RITs Shirley Kelly, John (Smiley) Knutsen and Orville Lind attended a week long Complex orientation session September 9th-13th. The course was developed and coordinated by PR Terrell-Wagner. Training topics included a general orientation to Complex and FAO operations, history of the Service, Complex policies, administrative procedures and paperwork, employee benefits, payroll, travel, EEO, sexual harassment, law enforcement, aviation operations and safety, job descriptions and work projects, work schedules, performance plans and appraisals, various tours of local federal and state land management agencies, and a tour of the local historical museum. Evening social activities included a pizza party and two softball games.

During the week of September 16th-20th, PR Terrell-Wagner, and RITs Kelly, Knutsen and Lind attended an Environmental Education Training Workshop in Anchorage. The workshop was the first time environmental educators from throughout Alaska had converged to one location for this type of training. Director Turner is said to be very supportive of environmental education within the Service so we will be seeing/hearing more about this thrust in the near future. This workshop was an excellent introduction for the newly hired RITs who will be involved in providing environmental education programs in the native villages.

MW Terry attended training in Anchorage September 16th-20th. The training was entitled, "Introduction to Supervision" and was an Office of Personnel Management course.

On October 8th-9th, RM Hood, PR Terrell-Wagner, and RITs Kelly, Knutsen and Lind attended a two day workshop on "Conducting Public Hearings." The workshop was presented by members of the Regional Federal Subsistence Office in Anchorage in preparation for the upcoming Public Hearings on the Draft EIS for Subsistence Management on Federal Public Lands in Alaska.

PR Terrell-Wagner attended a Natural Resources Communication Workshop in Anchorage October 21st-22nd. The two day class was sponsored by the Alaska Chapter of the American Fisheries Society (AFS) and the Service. The course was instructed by Dr. Jon Hooper, a professor from California State University in Chico. Dr. Hooper was both entertaining and educational, and did an excellent job of presenting effective ways to communicate with audiences using graphics and visual aids. Angie highly recommends this course to everyone who will be giving presentations to both general and technical audiences.

Other highlights of the year included:

<u>January</u>

On the 23rd-27th, WB Dewhurst attended the Pacific Seabird Group's annual meeting in Monterey, California. Presentations varied from current work

on marbled murrelets, to seabird studies off the California coast, and research in the South Pacific and Antarctica. Even more valuable was the opportunity to discuss current refuge seabird studies with outside researchers and to recruit seasonal volunteers.

February

ORP Rodriguez and RM Hood attended the annual meeting of the Association of Village Council Presidents (AVCP) Waterfowl Conservation Committee, the 19th-20th, held in Bethel, Alaska. The primary topic was the Yukon-Kuskokwim Delta Goose Management Plan.

On the 22nd-23rd, WB Dewhurst attended the regional Duck Production Planning and Budget Meeting in Anchorage.

March

RM Hood participated in an operational review of Alaska Maritime Refuge in Homer on the 5th-8th.

On the 18th, RM Hood represented the Service at a public hearing on the King Salmon Sewer Project held by the Bristol Bay Borough Assembly. The selection of property for sewage lagoons (aerated) and survey activity by an engineering firm has brought a firestorm of controversy. The sewer system is a much needed facility for King Salmon; but no one wants the S___ in their backyard.

April

DRM Poetter and WB Dewhurst attended a coordination/training meeting, with Exxon for May Shoreline Assessment Program (MAYSAP) surveys, on the 22nd-24th in Anchorage. The meeting included an extensive biological briefing, survey operation instructions, and Hazardous Waste Operations (HAZWOPER) refresher training. MAYSAP surveys are scheduled to begin on May 24th for Becharof Refuge beaches (Alinchak Bay to Dry Bay).

The annual Project Leaders' Meeting, held in Anchorage the 22nd-26th, was attended by RM Hood. A concurrent Administrative Workshop was attended by RS Jan Collins. Jan aided Don Lindberg, of the Budget and Finance Office in the presentation of the Travel session at the workshop. The workshop was informative and Jan reported she was able to learn a few things. RM Hood was heard to mutter, "Any paradigm shifts prompted by the vision of total quality management are in reality simply an illusionary paragon resulting from completed staff work." Or something like that!

On the 30th, WB Dewhurst attended a interagency scoping meeting held by the National Park Service. The meeting concerned revision of Resource Management Plans for Katmai National Park, Aniakchak National Monument, and the Alagnak Wild and Scenic River.

May

WB Dewhurst attended the Interagency Moose Conference in Anchorage on the 18th. A better understanding was gained of the various methods of moose surveys conducted by Alaska Department of Fish and Game and other refuges.

On the 23rd, BT Berkman attended a coordination meeting on seabird productivity monitoring, held by the Service Migratory Bird Management Division in Anchorage. The meeting was valuable in helping standardize data collection and analysis among the various seabird field camps across the state.

September

On the 13th, PR Terrell-Wagner attended an Environmental Education Strategies and Goals Workshop in Anchorage. Objectives of the workshop included discussions of current environmental education projects, activities and contacts within the region. Other objectives included the production of ranked lists of environmental education issues and support needs facing the region and the Service for FY 92-95. This was a very productive workshop to learn the direction Director Turner wants environmental education to go in the near future and to network with other environmental educators within the region.

RS Collins a attended General Services Administration (GSA) Seminar on the 17th-18th covering Customer Services provided by GSA. The Seminar provided an excellent update on GSA services.

November

WB Dewhurst attended the Alaska Bird Conference and Workshop entitled, "Shared Avian Resources of Beringia" held in Anchorage on the 19th-22nd. The conference was both informative and inspiring, presenting a new perspective for international bird research and cooperation.

The 1991 Fall Refuge Managers' Meeting was held in Anchorage on the 19th-22nd. RM Hood and DRM Poetter attended.

December

On the 16th, RS Collins was awarded a 10-year "Length of Service" certificate and medallion. Thanks for all of your hard work Jan!

On the 9th-11th, PR Terrell-Wagner attended the annual Alaska Natural History Association (ANHA) Branch Manager's Workshop in Anchorage. If we accomplish our goal of opening an inter-agency visitor center in King Salmon this spring, the Complex will have the opportunity to establish a close working relationship with ANHA. With approximately 26,000 passengers coming through the MarkAir and Pen Air terminals in 1991, and a similar number anticipated in 1992, the sales of ANHA interpretive materials should be good. Angie reports the workshop was very informative and feels the professional staff of the ANHA organization will be very helpful when opening an ANHA branch in the new visitor center.

On the 12th, PR Terrell-Wagner attended an Environmental Education (EE) strategy meeting in Anchorage to discuss the Complex EE Plan written last spring and the funding available to implement the plan.

Summary of Complex staff training and conference attendance.

Training/Meeting	Location	Dates
Refuge Manager Ronald Hood:		
Yukon-Delta Goose Meeting	Bethel, AK	02/19 - 02/20
Alaska Maritime Refuge's Review Team	Homer, AK	03/05 - 03/08
Law Enforcement Review	Marana, AZ	03/21 - 03/26
Guide Area Meeting	Anchorage, AK	04/17 - 04/18
Project Leaders' Meeting	Anchorage, AK	04/22 - 04/26
"Conducting Public Meetings"	Anchorage, AK	10/08 - 10/09
Fall Project Leader's Meeting	Anchorage, AK	11/19 - 11/22
Deputy Refuge Manager Rick Poetter:		
Public Involvement Training	Anchorage, AK	02/04 - 02/08
Watercraft Safety Training	Dillingham, AK	03/18 - 03/20
Law Enforcement Refresher Training	Marana, AZ	03/21 - 03/26
Aviation Management Seminar	Fairbanks, AK	04/09 - 04/12
May Shoreline Survey Assessment Program (MAYSAP)	Anchorage, AK	04/22 - 04/24
Supervisory Training	Anchorage, AK	04/26
Fall Project Leaders' Meeting	Anchorage, AK	11/19 - 11/22
Assistant Refuge Manager/Pilot Randy Arment:		
Watercraft Safety Training	Dillingham, AK	03/18 - 03/20
Law Enforcement Refresher Training	Marana, AZ	03/21 - 03/26
Supervisory Training	Anchorage, AK	04/17 - 04/19
OAS Recurrent Ground School	Anchorage, AK	12/02 - 12/06
Outdoor Recreation Planner Jose Rodriguez:		
Yukon-Delta Goose Meeting	Bethel, AK	02/19 - 02/20
Refuge Information Technician Training	Anchorage, AK	03/04 - 03/08
Watercraft Safety Training	Dillingham, AK	03/18 - 03/22
Basic Refuge Academy	Blair, NE	04/29 - 05/17
Wildlife Biologist Donna Dewhurst:		
Pacific Seabird Conference	Monterey, CA	01/23 - 01/27
Regional Duck Production Planning/Budget Meeting	Anchorage, AK	02/22 - 02/23
Watercraft Safety Training	Dillingham, AK	03/18 - 03/20
Law Enforcement Refresher Training	Marana, AZ	03/21 - 03/26

Training/Meeting	Location	Dates
May Shoreline Survey Assessment Program (MAYSAP)	Anchorage, AK	04/22 - 04/24
Interagency Scoping Meeting	King Salmon, AK	04/30
Interagency Moose Conference	Anchorage, AK	05/18
Alaska Bird Conference Workshop	Anchorage, AK	11/19 - 11/22
Refuge Secretary Jan Collins:		
Administrative Workshop	Anchorage, AK	04/22 - 04/26
GSA Customer Service Seminar	Anchorage, AK	09/17 - 09/18
Maintenance Worker Gary Terry:		
Arctic Survival Training	Eielson AFB Fairbanks, AK	02/11 - 02/15
Watercraft Safety Training	Dillingham, AK	03/18 - 03/22
Supervisory Training	Anchorage, AK	09/16 - 09/20
Biological Technician/Maintenance Helper "Moose" Mumma:		
Watercraft Safety Training	Dillingham, AK	03/18 - 03/22
Park Ranger Angela Terrell-Wagner:		
Environmental Education Training	Anchorage, AK	09/16 - 09/20
"Conducting Public Meetings"	Anchorage, AK	10/08 - 10/09
Natural Resource Communication Workshop	Anchorage, AK	10/21 - 10/22
ANHA Managers' Workshop	Anchorage, AK	12/09 - 12/11
EE Strategy Meeting	Anchorage, AK	12/12
Refuge Information Technician Shirley Kelly:		
New Employee Orientation	King Salmon, AK	09/09 - 09/13
Environmental Education Training	Anchorage, AK	09/16 - 09/20
"Conducting Public Meetings"	Anchorage, AK	10/08 - 10/09
Refuge Information Technician John Knutsen:		
New Employee Orientation	King Salmon, AK	09/09 - 09/13
Environmental Education Training	Anchorage, AK	09/16 - 09/20
"Conducting Public Meetings"	Anchorage, AK	10/08 - 10/09
Refuge Information Technician Orville Lind:		
New Employee Orientation	King Salmon, AK	09/09 - 09/13
Environmental Education Training	Anchorage, AK	09/16 - 09/20
"Conducting Public Meetings"	Anchorage, AK	10/08 - 10/09

Biological Technician Christine Berkman:

Seabird Productivity Monitoring Coordination Meeting	Anchorage, AK	05/23

2. Youth Programs

This year's Youth Conservation Corps (YCC) program started on June 3 and ran for eight weeks until July 27. Three enrollees were hired this year. A two female to one male mix was the goal, but turned out to be the reverse. A total of six new applications and one returnee application were received. Only two females applied and one (from Levelock) turned down the position because she had accepted another position elsewhere. Three male applicants from Port Alsworth, Nondalton and Homer could not find any sponsors to live with in the King Salmon area and had to decline. The applicants hired included: Heather Poetter from King Salmon; Matt Sutherland from Redmond, Oregon, who lived with his grandparents in King Salmon; and Mike Swain from King Salmon. Mike was a return enrollee from last year and functioned as the Youth Leader.

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ORP Rodriguez was the program coordinator, this year, with MW Terry providing the day-to-day supervision with stand-by assistance from MH Mumma. An indoctrination was provided by MW Terry and ORP Rodriguez. Program work rules, safety rules, program purposes, etc. were covered. The first two weeks involved a significant amount of safety training described in Section E.6.

Work projects completed in June included: seeding, fertilizing, and mowing compound lawns; painting the Fishery Assistance Office

trailer/office; assisting with putting out the field camps; starting the installation of protective barriers around the various gas pumps; and the week of the 24th was spent on a "Take Pride in America" cleanup project at the newly acquired cabin site on the Kejulik River on Becharof Refuge (see Section H.22.). During the cleanup project the entire area was policed for trash and debris and piled for removal by aircraft (three Beaver loads), the safety cabin painted, new bunkbeds constructed and an outhouse constructed. MW Terry and PR Terrell-Wagner provided the adult supervision for the week-long field project.

Enrollee work assignments in July primarily entailed making the headquarters compound area look impressive. Duties included: painting the porch and trim of Residence No. 8, vehicle guard rail at the office (Bldg. No. 4), shop (Bldg. No. 6) floor, fuel storage (Bldg. No. 35) floor, and the trim on the office (Bldg. No. 4); mowing of compound lawns; construction of a hand tool rack for the shop; installation of protective barriers around various gas tank filler pipes; cleaning and waxing all vehicles; installation of crawl spaces on the three residence cabins; and litter pickup on compound.

This year's three-enrollee program was excellent. The two male and one female crew worked well together and accomplished a large amount of quality work. MW Terry and MH Mumma provided excellent supervision and instruction of the enrollees. Youth Leader Mike Swain did a superb job and was very helpful in taking over when the maintenance staff was tied up elsewhere.

3. Other Staffing Programs

The Student Conservation Association (SCA) program proved again to be an excellent source of energetic and dedicated resource assistant volunteers. Utilization of this organization costs the Complex an additional $700.00 per volunteer due to administrative costs of SCA. On the flip side, SCA has a much better network for obtaining names of applicants than the FWS does at this time.

SCA Volunteer Toby Burke entered on duty on March 27th. He had recently completed a volunteer position with the Great Smokey Mountains National Park in Tennessee. Toby monitored waterfowl staging along the Naknek River this spring, including a migration watch for banded and radio-collared white-fronted geese. That appointment ended the first part of June. He then shipped-over to help staff the Puale Bay field camp. This assignment lasted until September 7th when he started duties as a Service Volunteer working for the Research Center in staffing the two person Cinder River Emperor Goose Migration Watch camp. After that camp assignment ended he volunteered for the Complex from November 1st to December 6th. Toby spent December completing his comprehensive report on waterfowl staging along the Naknek River in spring, 1991. These were all 40+ hour per week assignments and his diligent work has been greatly appreciated.

SCA Volunteer Mike Moore from Chicago, Illinois arrived on August 15th to take over the duties of Service Volunteer Carol Snetsinger in the Puale Bay field camp. After the camp was pulled in late September, Mike then

stayed on until December 13th to help with data entry and analysis. Mike's computer skills were a real asset this fall. He set up d-base files for the Complex's library and bird records, and drafted the 1991 Puale Bay field report.

4. Volunteer Programs

Our policy this year was to continue to pay the airfare of volunteers. They must commit to at least 12-weeks of full-time work for this benefit. This provides the Complex with a larger pool of candidates that have been found to be very dedicated to their assigned duties. It also allows Lower 48 volunteers an equal opportunity to gain the Alaska experience, without economic discrimination. A foreign volunteer's airfare is only paid from the point they enter the United States. The Complex also provides their food, housing and $3.00/day for miscellaneous expenses.

On April 16th, Angie Terrell-Wagner was signed up as a volunteer. Her husband had recently been transferred to Katmai National Park (King Salmon) from Crater Lake National Park in Oregon. Angie, who was also employed at Crater Lake, was talked into applying with this station for a NTE 2 year appointment as a Refuge (Park) Ranger, which she received on June 6th. In the meantime, she volunteered 40 hours per week providing much needed assistance in the public use program.

Brenda Eliason was signed on as a Service Volunteer with the Complex on May 5th. She assisted PR Terrell-Wagner in the field camp at Jute Peak. Brenda is a Brigham Young University student (conservation biology major) was staying with her parents, in King Salmon, during the summer. She put in 40 hours per week helping with the administrative design and set-up of the camp until June 22nd. She then took a paid position with the Alaska Deptartment of Fish and Game, Commercial Fisheries Division, sampling fish in the local canneries. On July 20th, she returned to volunteer, full-time, in the field camp. Brenda remained on board until August 28th when she returned to school.

Service Volunteer Jim McCarthy, from St. John's, Newfoundland, Canada started working for the Complex on May 28th. Jim was an integral member of the Puale Bay field crew and conducted a brown bear behavior study while at the camp. He returned to Newfoundland on October 6th.

Carol Snetsinger was selected as a Service volunteer to help staff the Puale Bay field camp. Traveling from Lander, Wyoming, she started her duties on June 2nd and departed on August 23rd.

5. Funding

Since FY 1987, a disturbing pattern has become the normal expectation - our funding has not been finalized until mid-fiscal year. This pattern continued in FY 1991. Funding figures were received in April. A final funds advice was received in August. The funding history for both refuges is presented in Tables 3 to 6. For the first time, funding for both refuges was combined into a single funding authorization. A new table is used this year to provide an overview of Complex funds (Table 6). The Exxon Valdez oil spill continued its fiscal impacts into FY 1990.

Authorization was received from the Assistant Regional Director - Oil Spill to spend $61,000 (6330 subactivity) for sea bird colony assessment work at Puale Bay.

Table 3. Alaska Peninsula Refuge funding Fiscal Years 1984 to 1990 (in thousands).

FY	1260					1360	TOTAL
	Base	MAINT.	RPRP	CIP	TOTAL		
90	$352.0	$ 37.0[a]	$20.0[b]	$ 6.0	$415.0	--	$415.0
89	$368.0	$ 12.0	$ 5.0[b]	$ 5.0	$390.0	--	$390.0
88	$234.5[c]	$ 75.5	$50.0	$27.0	$387.0	--	$387.0
87	$323.0[d]	$135.0[e]	--	--	$458.0	--	$458.0
86	$180.6	$ 66.4	--	--	$247.0	--	$247.0
85	$179.5	$235.5[f]	--	--	$415.0	$ 5.0[g]	$420.0
84	$285.0	$130.0[h]	--	--	$415.0	$10.0[g]	$425.0

[a]Maintenance Management System (MMS) funds
[b]Challenge grant funds.
[c]Includes $20,000 for arctic nesting goose information program.
[d]Includes $115,000 for radio system purchase.
[e]Includes $45,000 for large ARMM projects.
[f]Includes $180,000 for large ARMM projects.
[g]Earmarked to assist King Salmon Fisheries Resource Station in developing a Fishery Management Plan.
[h]Earmarked for large ARMM projects.

ARMM = Accelerated Refuge Maintenance Management
RPRP = Resource Problem-Related Projects
CIP = Contaminant Impact Problems

Table 4. Becharof Refuge funding Fiscal Year 1984 to 1990 (in thousands).

FY	1260					1360	TOTAL
	Base	Maint.	RPRP	CIP	TOTAL		
90	$314.0	--	--	--	$314.0	--	$314.0
89	$335.0	$ 5.0	--	--	$335.0	--	$335.0
88	$280.0	$ 68.0[a]	$ 30.0	$30.0	$408.0	--	$408.0
87	$237.0	$256.0[b]	$ 45.0	--	$538.0	--	$538.0
86	$201.6	$ 56.4	$101.0	--	$359.0	--	$359.0
85	$216.0	$169.0[c]	$101.0	--	$486.0	$ 5.0[d]	$491.0
84	$240.0	$ 80.0[e]	--	--	$320.0	$10.0[d]	$330.0

[a]Earmarked for large ARMM projects.
[b]Includes $151,000 for large ARMM projects.
[c]Includes $132,000 for large ARMM projects.
[d]Earmarked to assist King Salmon Fisheries Resource Station in developing a Fishery Management Plan.
[e]Earmarked for large ARMM projects.

Table 5. Base funding history for Alaska Peninsula Refuge Complex (in thousands).

FY	AKP	BCH	TOTAL
91	$739.0	----	$739.0
90	$352.0	$314.0	$666.0
89	$368.0	$335.0	$703.0
88	$234.5	$280.0	$514.5
87	$208.0[a]	$237.0	$445.0
86	$180.6	$201.6	$382.0
85	$179.5	$216.0	$395.5
84	$285.0	$240.0	$525.0
83	$280.0	$260.0	$540.0
82	$290.0	$287.0	$577.0
81	$ 62.0	$206.0	$268.0

[a]$115,000 earmarked for radio system removed from total.

Table 6. Funding history for Alaska Peninsula National Wildlife Refuge Complex (in thousands) beginning in FY 1991.

	1261			1262					
FY	FIXED	OVRHD	PROJ	FIXED	PROJ	MMS	6330	8610	TOTAL
91	$299.5	$37.5	$160.0	$222.0	$20.0	$28.0	$61.0	$34.8	$862.8

6. Safety

DRM Poetter completed a revision of the "Emergency Plan Checklist" for the 1991 field season. The plan was submitted to the Regional Safety Officer for signature on the 18th.

In June, the disfunctional wind generator was removed from its tower. The unit had provided electricity that was fed back into the office's electric meter. The electronic and mechanical braking system was no longer functional and at times the windmill would exceed safe speeds. This was a safety problem and required correction. The manufacturer had gone out of business and parts were not available. Local contractor Steve Thomas of Johnson Drilling, Inc. was awarded a contract to remove and dispose of the windmill. He utilized a helicopter to pluck the unit off the tower and haul it away.

Field operations on the Alaska Peninsula are unquestionably hazardous. Weather patterns are unpredictable and dictate when field camps are transported to and from their various set up locations. Operations are usually in remote, rugged areas and both refuges have a healthy population

of brown bears, which makes life interesting and creates a need for constant attention to safety.

Aircraft are the primary means of transportation within the Complex system on the Alaska Peninsula, although the refuge can be accessed by boating several rivers. Changing weather conditions dictate aircraft and boating activities.

No major injuries occurred this year. A minor injury occurred when volunteer Carol Snetsinger pulled a lower back muscle while lifting field camp gear.

Bear safety was at the top of the list when the Complex was involved with support of the Cinder River Emperor Goose field camp (see Section G.3.).

The Alaska Peninsula/Becharof Refuge Complex supports the safety program with an active station safety committee. Monthly presentations related to current field operations and climate hazards are made by the committee. Monthly safety topics covered for 1991 were as follows:

January

Stress. This video explained how stress effects our lives, on and off work. It explained how we can control our stress levels by mental and physical exercises. The staff participated in a relaxation exercise.

Fighting Fat. This video expressed the proper way to loose weight and keep it off. Food groups, eating habits and exercise were discussed in detail.

February

Emergency First Aid. This video covered basic First Aid and techniques for field and emergency situations.

Fluoridation in Alaska. The video explained how the fluoridation process worked and how there were documented results of some communities in use of this process.

March

Fire and Employee Evacuation. The video was viewed by KSFAO and Complex staff.

Boating Safety. DRM Poetter, ARM/P Arment, WB Dewhurst, BT Mumma, ORP Rodriguez and MW Terry attended Watercraft Safety Training at Dillingham March 18th-20th. The training hosted by Togiak Refuge was presented by the Marine Advisory Commission (Terry Johnson) and the Alaska Vocational and Technical Center (Jim Herbert) in Seward. The training was very good with a presentation of a variety of videos and class activities such as knot tieing, and survival suit and personal flotation device (PFD) of all kinds were demonstrated. Everyone had the chance to try them on and see how they really fit. A variety of distress signals were demonstrated to show which of the many flares and smoke makers were the most visible and would be most effective in an emergency situation. Other topics covered were: shore survival, survival kits, hypothermia, emergency locator transmitters (ELT),

emergency position indicator radio beacon (EPIRB), navigation and aid chart, tide and water reading, boat structure and outboard motor use and common problems, and small boat control on the ocean.

April

Aircraft Safety Training. Regional Aviation Manager (RAM) John Sarvis presented an 8-hour Aviation Management/Safety training program on April 2nd. The training included a variety of videos and slides, discussion of personal floatation devices, nomex clothing, survival gear to be carried in a float vest, proper helmets, go-no-go decision making, etc. John gave an excellent program, which was very beneficial to the staff.

May

Your Healthy Back and How To Prevent On The Job Injuries. These videos showed exercises and lifting methods and just how easy it is to mistreat your back.

June

Seasonal Training. A two week orientation training session was provided to all seasonal staff the 3rd thru 14th. Topics presented included: CPR, first aid, boating safety, motor maintenance, water and shore survival techniques and equipment, hypothermia, aviation safety, firearms handling and range practice, identification of local flora and fauna, field camp design, ATV operation and safety, radio system usage, photography, and sexual harassment. A total of six Complex and eleven KSFAO staff attended the two-week course. All training sessions were videotaped for future use on late arrivals, etc.

July

Portable Fire Extinguisher. A video on fire extinguishers and a discussion followed about types and uses.

August

Firearms And The Hunter. This video explained firearms safety and safe gun handling in the field.

September

Safety Is Your Responsibility. This video showed how supervisors should be careful not to short cut when it comes to dealing with safety issues and employees.

October

Room to live Parts I and II. These two videos were excellent in keeping your attention and getting the point across about wearing seat belts. The videos count for eight hours of training needed for Defensive Driving requirements.

November

Winter Driving, Aircraft Safety-Risk Assessment and Low Flight High Skill. One video showed winter driving techniques and the others were on aircraft safety.

December

Taken By Surprise (Ice Safety). A video detaining facts about ice and how to look for ice related hazards during the winter months.

Highlights of safety committee and station safety inspections throughout the years are listed below.

Items addressed at the March quarterly safety meeting and inspections:
-- Updated boating safety training was held at the Togiak Refuge during the month of March.
-- Staff members need to be updated in CPR. Training rescheduled at a later date.
-- Eye wash station needs to be replaced in laboratory.
-- Bobcat loader needs back up alarm repaired.
-- Slow moving shields need to be mounted on Bobcat and Case tractor.
-- All vehicles need to be checked for flares, shovels, fire extinguisher, and first aid kits.
-- Research sources for survival training other than the course offered by U.S. Air Force, Eielson Air Force Base, Fairbanks, Alaska.
-- Initiate tracking system for safety training of Complex personnel.
-- Complete replacement/renovation of ventilation fan in laboratory.

Items addressed at the June quarterly safety meeting and inspections:
-- Eight days of safety training were conducted June 3rd-12th for all seasonal personnel.
-- Aircraft safety training completed for all permanent staff.
-- Quarterly safety inspections were completed and submitted June 27th.
-- Complex safety plan has been updated and is being reviewed by staff.
-- Complex emergency plan checklist has been updated and distributed.
-- A fire drill was conducted June 28th.
-- Clarification is needed for lockout/tag out procedures from MW Terry.
-- Dock ramp needs a non-slip coating applied.
-- Tank frame for fuel oil tank at Residence No. 10 needs replacement.
-- Complete replacement of ventilation fan in laboratory, as well as eye wash station installed.
-- Alarm in bunkhouse was repaired by MW Terry.
-- Some of the Complex staff needs to be updated in CPR and were unable to attend the class given at the seasonal training the first week in June. PR Terrell-Wagner to set a class ASAP for all who need the training.
-- The grinder on the work bench needs a guard on the front.
-- The ladders we have are new but need to be checked for non-slip bases.
-- Protection barriers for the standpipe of fuel system at Building No. 25 (Hanger) were installed by YCC and maintenance staff.
-- The old avgas hose used at the float plane dock has been replaced with a new hose. The old one was too short and deteriorating.
-- Bobcat still needs backup alarm repaired; MW Terry not available for update.
-- Slow moving vehicle shields have been placed on Bobcat and Case tractor.
-- All government vehicles have been supplied with first-aid kits and fire extinguisher.
-- Eye wash stations checked at quarterly safety meetings.

Items Addressed at September/October Quarterly Safety meetings and Inspections:

-- Quarterly and annual safety inspections were completed and submitted on October 10th.
-- Station Safety Management Plan reviewed and distributed.
-- Complex float plane dock will have cleats painted orange, surfaced with a non-slip coating, hangers for refueling ladder, and the fuel hose added before next spring; the fuel hose will be rolled up after each use.
-- Lock out/tag out procedures for machinery discussed and confirmed with maintenance staff.
-- Eye wash station in the laboratory has been refurbished.
-- Fuel tank frame for Residence No. 10 has been repaired.
-- The motor for the ventilation fan in the laboratory has been received.
-- To meet the requirements for safe driving (8 hours of training in 3 years) the emphasis for the upcoming safety meeting well be defensive driving.
-- Fume hood gloves and face masks for mixing chemicals in the laboratory will be ordered.
-- Safety health handbook (4485 DM), describing department wide safety procedures dated June 1991, was reviewed and distributed.
-- Fire drill will be held before the end of October.
-- Training needs for the safety officer are hazardous material handling and disposal. Any training in basic safety and health hazards and inspection of government facilities.
-- Exit light is burnt out in warehouse by office.
-- Need to check aircraft hanger and mount one fire extinguisher. Safety committee gave notice for all staff members to check their own fire extinguishers for charge and to check their smoke alarm/detectors.
-- Shop cabinets are full and some items will have to be moved to the fuel storage shed. Fuel containers were found in the warehouse in the KSFAO storage area. These items were corrected right away. Two boat gas cans were found in the main warehouse and have been removed and have been properly stored in the fuel storage shed.
-- Drill press and band saw are not anchored and were moved for better access due to lack of space in the shop.
-- Safety officer needs to show new employees where the material safety data sheet (MSDS) information is kept in the front office.
-- The back up alarm for the bobcat was repaired.

7. Technical Assistance

On April 15th, WB Dewhurst provided technical assistance, in the form of biological background information, to Jim Glaspell of the State Department of Transportation. Mr. Glaspell was writing the Environmental Assessment for a new public runway near Chignik Lagoon. Thanks to oil spill related surveys, we were able to provide him with recent waterfowl and marine mammal data. Additional impacts were also being investigated relative to a proposed rip-rap rock quarry site in the northwest finger of Castle Bay.

8. Other Items

In June, Regional Outdoor Recretion Planner Dave Patterson conducted a Public Use Standards Review for the Complex (see Section H.1. for details).

A complete operational review for the Complex was completed July 9th - 12th. The review followed national and regional guidelines, and concentrated on: 1) examining operations to ensure compliance with established policies, administrative guidelines, and public initiatives; 2) reviewing established goals, objectives, and management strategies to ensure that they conformed with current philosophies; 3) assessing the Complex staff's efforts to properly manage the Complex towards the attainment of the refuges' objectives; and 4) providing opportunities for in-depth discussions between the Regional Office and the Complex staff on ways to improve operations and identify situations or issues that are or will soon become a management problem.

The review team consisted of Deputy Associate Manager Jerry Stroebele (Team Leader), Acting Deputy Assistant Regional Director Dave Westly, Program Coordinator Fred Nolke, Classifier Dick Morris, and Yukon Flats Refuge Manager Ted Heuer. The review team was very effective. The review process was viewed by Complex staff as a very positive and beneficial process. The Alaska Peninsula weather exercised its muscle and all planned visits to the refuges had to be canceled.

The Operational Review Team: (left to right) Heuer, Morris, Stroebele, Nolke, and Wesley. 6/12/91, REH

The Operational Review report dated November 6, 1991 stated:

> Overall, the Refuge staff is doing an excellent job of managing the Refuge. Reports and assignments are properly submitted by established deadlines. The Refuge staff is knowledgeable of Service policies, guidelines, and public initiatives and are implementing these directives in a proper manner. The Refuge staff received high marks in the area of external communications and is commended for their efforts in establishing good lines of communication and trust with the various agencies, groups, and individuals that they deal with.

On September 12th, a team reviewing Region 7's Aviation Program visited King Salmon. Team members included Paul Kaufman (DOI), Gene Steffan (FWS), Ben Campbell (OAS), John Sarvis (FWS) and Paul Schmidt (FWS). RM Hood, DRM Poetter, ARM/P Arment, and King Salmon Fishery Assistance Office (KSFAO) Project Leader Larson provided comments on the program. Our comments centered on the need for helicopters, over-gross waiver for PA-18's (see Section K.) and our request for an incidental duties pilot.

Camp Logistics

The Puale Bay field camp finally made it out on June 21st after four days of false starts and delays due to fog and/or high winds. Aircraft chartered for the effort included a Yute Air (Dillingham) Dehavilland Otter on wheels which hauled most of the gear from the King Salmon hangar to the beach at Puale Bay. A Cessna 185 on wheels from Windy's Mag Air (Naknek) hauled personnel and a small amount of supplies from King Salmon to the "sand-blow" immediately behind the Puale Bay campsite. A Trans-Alaska Bell 206 helicopter (91TA) was utilized to sling the gear from the beach where the otter landed to the actual campsite. Once the weather and tides cooperated, everything went smoothly with 16,000 pounds of equipment moved and set-up in 24 hours.

The Jute Peak coastal seabird colony surveillance camp equipment was put in by helicopter on the 22nd during the Puale Bay camp evolution mentioned above. The two person field camp was staffed in July and August to monitor the effects of commercial fishing operations on the nesting seabird colonies (see Section H. 17 for more details).

Luck was on our side (for a change!) in pulling the Puale Bay field camp on September 25th and 26th. Chartered aircraft included Lake Clark Air (Dehavilland Otter on floats) and Trans-Alaska Helicopters (Bell 206 Jet Ranger). The helicopter was used to sling equipment from Puale Bay and Jute Peak field camp sites, through the Aleutian Range, to a float-plane landing site in the Island Arm portion of Becharof Lake. The mainland beach across from the Complex's administration cabin was chosen as the rendezvous point. After a week of high winds and rain, the weather cooperated and provided a workable window to accomplish the work on schedule and without incident.

F. HABITAT MANAGEMENT

1. General

Geographically, the Alaska Peninsula extends approximately 450 miles from an area near Lake Iliamna to Isanotski Strait at the beginning of the Aleutian Islands. The peninsula's width varies from about 100 miles at Lake Iliamna to three miles near the southern tip. The Becharof and Alaska Peninsula refuges extend over a wide area of land and variety of habitat types on the peninsula. By "Lower 48" standards, the manipulation of any of these habitats is not possible. The lack of access by any road system places an absolute limit of mechanical manipulation methods. In addition, the peninsula is considered an extremely low fire risk area. The precipitation and generally wet fuel preclude habitat manipulation using fire.

Little information is available on the cover types of either the Alaska Peninsula or Becharof refuges. Studies done to date have been restricted to small, isolated plots, local historical records and military surveys. The best information available is from the 1981 Bristol Bay Land Cover Cooperative Mapping Project. This study utilized Landsat satellite imagery and computer technology to create a gross overview of peninsula cover types (Table 7).

Open low shrub habitat is common in the Island Arm area around Becharof Lake. 6/91, REH

Table 7. Major cover types on the Alaska Peninsula and Becharof Refuges.[a]

Refuge	Cover Type	Approximate[b] Number	Total
Becharof	Open low shrub/grass tundra	460,000	31.5
	Deep clear water	299,000	20.5
	Barren	120,000	8.2
	Closed shrub/grass	90,000	6.2
	Open low shrub/heath tundra	69,000	4.7
	Miscellaneous deciduous	71,000	4.9
	Snow/cloud/light barren	22,000	1.5
	Marsh/very wet bog	22,000	1.5
	Shallow sedimented water	17,000	1.2
	Wet bog/wet meadow	17,000	1.2
	All other types	273,000	18.6
Total		1,460,000	100.0
Alaska Peninsula[c]	Closed shrub/graminoid	881,000	19.2
	Deep clear water	473,000	10.3
	Open low shrub/graminoid tundra	431,000	9.4
	Open low shrub/ericaceous tundra	297,000	6.5
	Wet bog/wet meadow	258,000	5.6
	Marsh/very wet bog	142,000	3.1
	Shallow sedimented water	27,000	0.6
	All other types	61,000	1.3
Total		4,591,000	100.0

[a]Data from Bristol Bay Land Cover Cooperative Mapping Project.
[b]Due to scale of Landstat cover type mapping, total land cover acreage does not correlate with land status acreage.
[c]Includes Ugashik, Chignik and Pavlof management units.

2. Wetlands

A close look at Table 7 shows a significant area of both refuges having some form of water at the surface. The Becharof Refuge has the second largest lake in Alaska as its dominate landmark. Becharof Lake is some 35 miles long and 15 miles wide covering 293,000 acres. The Refuge also contains 172 other lakes totaling over 25 acres in size and thousands of ponds and potholes under 25 acres along with three major drainages: Big Creek (a tributary of the Naknek River), the King Salmon River and the Egegik River.

The Alaska Peninsula Refuge is truly a land-of-many lakes with 300 lakes greater than 25 acres in size, nine lakes over 1000 acres and thousands of small "pothole" lakes. There are 18 major rivers, several hundred tributary streams and over 80 coastal bays.

Wild geranium, coastal paintbrush and cow parsnip brighten up wet meadows along the Meshik River. 7/91, DAD

6. Other Habitats

Tundra is the major vegetation type on the Alaska Peninsula. Three general categories of tundra are classified: wet, moist (heath) and alpine.

Wet tundra is generally found below 200 feet elevation. Crowberry, willow and a variety of forbs characterize the vegetation of this zone. Wet tundra is most common on the west side of the peninsula with much of it lying outside of the Complex boundaries.

Moderately well drained areas are dominated by moist tundra. This type makes up about five percent of the area on Becharof Refuge (Table 7) and is a minor habitat on the Alaska Peninsula Refuge. Moist tundra occurs primarily on poorly drained soils, upland sites and on slopes. These plant communities contain dwarf birch with willow or heath shrub, heath mat and cushion tundra.

One of the first signs of summer - fields of narcissus-flowered anemoues cover heath tundra along the Pacific Coast of the Alaska Peninsula. 6/90, DAD

On somewhat drier slopes, especially on the lower portions of the Alaska Peninsula Refuge, an open low shrub/graminoid tundra occurs. This tundra is very similar to heath tundra but usually has a dense shrub growth form.

Alpine tundra occurs at higher elevation on slopes and ridges of the Aleutian Range, as well as higher, well drained areas. These areas are dominated by crowberry, lichens and grasses.

12. Wilderness and Special Areas

Becharof Refuge. Approximately 400,000 acres or one third of the refuge was established under the Alaska Lands Act as the Becharof Wilderness. The values of the wilderness area are several fold. The area represents a variety of superlative pristine habitats with a complete compliment 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. Because of the area's designation as wilderness, it will mean that the special wildlife/wildland association within will be the last place on the refuge subject to irreversible development.

Cape Unalishagvak forms a dramatic coastline in the Becharof Wilderness area. 9/91, DAD

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

An additional 347,000 acres (29 percent) 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. No Congressional action has been taken on this proposal to date.

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 640,000 acres for wilderness designation. No Congressional action has been taken on this proposal to date.

Mount Veniaminof National Natural Landmark. Mount Veniaminof was determined to be eligible for natural landmark status in 1967. It was registered in August 1970. This unique active volcano is located in the Chignik Unit of the Alaska Peninsula Refuge. It is located about 20 miles northeast of Port Moller (Bristol Bay side) and 20 miles west of Chignik (Pacific Ocean side) and approximately 450 miles southwest of Anchorage.

View from the "top of the Complex", at 8,400 feet. This cone glacier descends from Mt. Veniaminof into the clouds towards Bristol Bay. 5/90, DAD

Named for Russian Orthodox priest Ivan Veniaminof, who studied Aleutian Chain cones early in the 19th Century, this 8,400-foot volcano is centered on the last wide lobe of the Alaska Peninsula. The climactic eruption that formed the Veniaminof caldera occurred about 3,700 years ago. Mount Veniaminof is massive. The summit crater is about 5.2 miles in diameter and contains a 25-square mile cupped ice field -- 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. The Landmark's boundaries encompass over 800,000 acres.

14. Exxon Valdez Oil Spill

On March 24, 1989, the oil tanker Exxon Valdez ran aground in Prince William Sound spilling 11 million gallons of crude oil into the Gulf of Alaska. Within two months, prevailing currents carried the oil into the Shelikof Strait impacting shorelines of Kodiak and the Alaska Peninsula. The first documented shoreline oil impacts on the Alaska Peninsula and Becharof refuges occurred on April 30, 1989. Personnel from the Refuge Complex, State of Alaska, and Exxon continued to monitor coastal impacts of the oil from May to November 1989. Clean-up activities were conducted by Exxon/Veco on the Becharof Refuge until September of that year. Over the winter, Exxon set up an oil impact monitoring program in Chignik, surveying beaches of the Alaska Peninsula Refuge's Chignik Unit through March 1990.

In spring 1990, Exxon developed interagency teams to survey beaches with known oil impacts in 1989. These Shoreline Survey Assessment Teams (SSAT) began surveying Complex beaches in April 1990. Following written guidance provided by Acting Regional Director Rogers, dated April 23, 1990, the Complex staff initiated an independent program of shoreline impact reconnaissance and assessment, using standardized SSAT survey techniques. The primary purpose of the Service's reconnaissance program was to survey, on foot, as much of the 1170 kilometers (km) (725 mi) of Complex coastline as possible. A total of 446 kilometers was surveyed during the summer of 1990, with results summarized in the 1990 Annual Narrative. No oil spill activities were conducted on Complex lands over the following winter.

In February 1991, Exxon initiated contacts with the Complex staff concerning special use permits and needed coordination to conduct May Shoreline Survey Assessment Program (MAYSAP) along the coast of Becharof Refuge, from Cape Kubugakli to Cape Unalishagvak. Much correspondence and discussion occurred over the next couple of months, with the final decision to base surveys out of King Salmon versus Kodiak and utilize a Complex staff member as the Service's representative. Permission was also granted to use Residence No. 10 (vacant) as their office, during the survey's duration.

In April, DRM Poetter and WB Dewhurst attended a coordination/training meeting, the 22nd through 24th in Anchorage, with Exxon for the MAYSAP surveys. The meeting included an extensive biological briefing, survey operational instructions, and Hazardous Waste Operations (Hazwoper) refresher training. MAYSAP surveys were scheduled to start on May 24th, with WB Dewhurst as the primary Service representative.

On May 16th, the Exxon sponsored MAYSAP team arrived at King Salmon to survey beaches on both Becharof Refuge and Katmai National Park. Two large, Super-Puma helicopters were used for transportation. John Hardister, on special assignment from the Denver Regional Office, arrived with the team to serve as the Service's representative. Exxon would allow only one representative on a team; therefore, no Complex personnel were permitted on the surveys! Film was provided to the survey crew for photo documentation, but no photos were ever received from the surveys. Surveys concluded on May 29th, with the helicopters departing for Kodiak.

The MAYSAP surveys were conducted to determine whether further shoreline treatment would be recommended by this interagency team. Beaches were surveyed from Alinchak to Dry Bays, with further "manual pickup" recommended for five segments of Alinchak Bay (Table 8). In seven cases, the survey crew itself conducted some manual pick-up during the course of the surveys. Roughly 3,025 lbs of oiled material was picked up during these surveys. Despite recommendations by the survey team, no further shoreline pickup was conducted after the surveys in 1991.

Table 8. Results and recommendations from the Exxon sponsored 1991 May Shoreline Assessment Program, Becharof Refuge.

Area	Subdivision	Date Surveyed	Amount Picked Up During Survey	Treatment Recommendation
Alinchak Bay	K1002AB2A	5/19/91	0	**Manual Pickup**
Alinchak Bay	K1002AS2B	5/26/91	5 lbs	No Treatment
Alinchak Bay	K1002AS3A	5/25/91	11 Bags	**Manual Pickup**
Alinchak Bay	K1002AS4B	5/26/91	Approx. 800 lbs	No Treatment
Alinchak Bay	K1002AS5A	5/19/91	0	No Treatment
Alinchak Bay	K1002AS7A	5/27/91	0	**Manual Pickup**
Alinchak Bay	K1002AS8A	5/27/91	Quantity Unknown	**Manual Pickup**
Alinchak Bay	K1002AS8B	5/27/91	5 lbs	**Manual Pickup**
Puale Bay	K1007PB1A	5/17/91	Quantity Unknown	No Treatment
Puale Bay	K1007PB2M	5/27/91	0	No Treatment
Puale Bay	K1007PB8A	5/28/91	Quantity Unknown	No Treatment
Puale Bay	K1007PB9M	5/28/91	Quantity Unknown	No Treatment
Puale Bay	K1007PB13A	5/17/91	11 Bags	No Treatment
Puale Bay	K1007PB14A	5/17/91	0	No Treatment
Puale Bay	K1007PB16A	5/19/91	0	No Treatment
Puale Bay	K1007PB19B	5/27/91	0	No Treatment
Dry Bay	K1009DB1M	5/28/91	0	No Treatment
Dry Bay	K1009DB2M	5/28/91	45 lbs	No Treatment
Dry Bay	K1009DB3M	5/28/91	0	No Treatment
Dry Bay	K1009DB11M	5/28/91	0	No Treatment

Wildlife Impact Damage Assessment

The assessment of oil spill impacts on Complex wildlife went beyond the initial documentation of beached carcasses. On a regional level, specially funded damage assessment projects were initiated in 1989 to emphasize species specific impacts. Of the projects started in 1989 involving the Complex, only the seabird study was continued in FY91. The 1991 damage assessment study concentrated on continued monitoring of murre populations and productivity. See Section G.5. for further discussion of this study.

G. WILDLIFE

2. Endangered and/or Threatened Species

Steller Sea Lions

Steller sea lions were added to the threatened list in 1990, providing only the second threatened and/or endangered species to use Alaska Peninsula habitat (first being Aleutian Canada geese). Most of the coastal habitat use is on the nearby islands of the Alaska Peninsula Unit of Alaska Maritime Refuge including: Alinchak Islets, Kekurnoi Islets, Aiugnak Columns, Ugaiushak Island, Sutwik Island, Kak Island, Atkulik Island, Chankliut Island, and Spitz Island. The only two documented mainland haul-outs are currently on Kupreanof Point of the Kupreanof

Peninsula and Seal Cape, both in the Chignik Unit of Alaska Peninsula Refuge. In 1991, Complex staff sought and received a three-year extension on the permit from National Marine Fisheries to observe and monitor sea lions along the Pacific coast. Records of abundance and distribution were kept throughout the summer, while conducting oil spill-related surveys. Careful observations were made for marked individuals and pups. None of the haul-outs appeared to be active breeding colonies.

Steller sea lions haul-out primarily on the Pacific nearshore islands, but do venture to the mainland along the Chignik Unit, Alaska Peninsula Refuge. 5/88, DAD

3. Waterfowl

Naknek River Spring Migration Watch

A spring waterfowl survey was conducted from April 3rd to May 23rd along the Naknek River of the Alaska Peninsula, by Student Conservation Association (SCA) Volunteer Toby Burke. This monitoring continued a series of annual surveys initiated in 1983, with the addition of comprehensive ground surveys. The purpose of these surveys was to determine species composition, abundance, phenology, and distribution and relate these variations to human disturbances along the river and migration phenology. Overall, waterfowl numbers remained relatively stable as compared to previous spring surveys, with migration staging peaking in late April for swans, geese, and dabbling ducks (Figure 4). Diving duck numbers peaked a week earlier (Figure 5). Numbers of geese staging on the Naknek River have decreased (Table 9), while dabbling ducks have increased, due primarily to higher numbers of northern pintail.

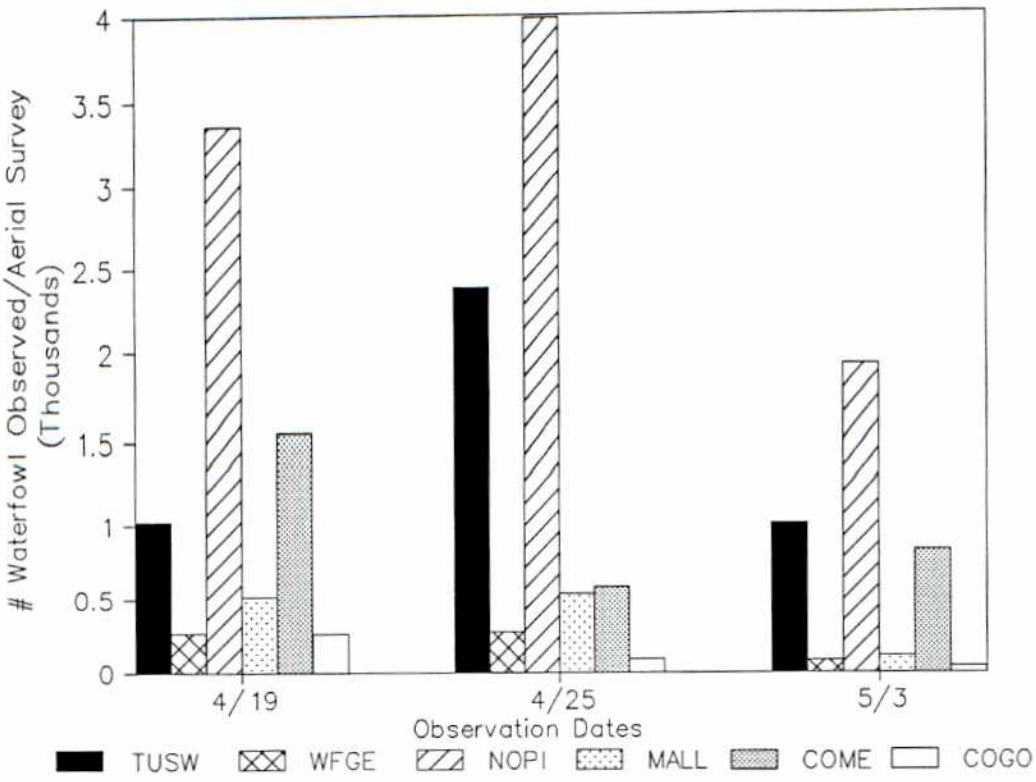


Figure 4. Waterfowl observed on aerial surveys on Naknek River during spring migration, 1991.

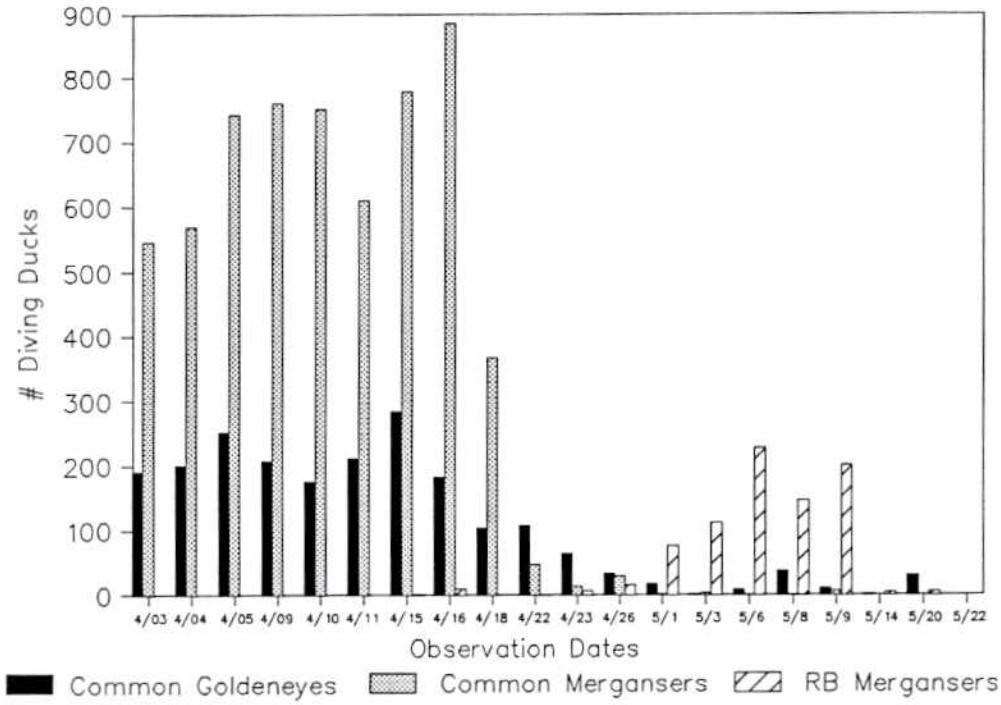


Figure 5. Phenology of diving ducks staging along the Naknek River during April-May, 1991.

Table 9. Highest recorded abundance of waterfowl by species for each year of aerial and ground surveys on the Naknek River, Alaska Peninsula, Alaska, March - May 1983-1988, 1991. (Taylor et al. 1983; Hood et al. 1984, 1985, 1986, 1987, 1988; Wilk 1985; Hood 1987; Wilk and Wilk 1988).

	1983	1984	1985	1986		1987	1988	1991	
Species	A[a]	A	A	A	G[b]	A	A	A	G
Tundra Swan	720	2625	2776	1965	1145	2903	1970	2379	1544
Gr. white-fronted goose	63	2453	1610	1129	758	309	124	277	252
Emperor goose						1			
Brant			1						4
Canada goose	40	182	846	234	52	21	68	38	34
Green-winged teal	7		13		114			47	32
Mallard	280	600	263	650	44	621	199	539	252
Northern pintail	640		1638	1319	1704	988	5573	3983	5183
Northern shoveler	2			150	75			4	38
Gadwall			25		4				2
Eurasian wigeon					3	4			6
American wigeon	354	30	375		35	52	9	161	206
Canvasback				3				6	11
Redhead				2	1				
Greater scaup	142		17	150	53	32	139	156	193
Common eider									75
King eider									5000
Harlequin duck									6
Oldsquaw	2		2	4		1		9	410
Black scoter				50		1	3	20	357
White-winged scoter				20		5			25
Surf scoter									6
Scoter spp.	42		2						
Bufflehead		25			1	4		3	11
Common goldeneye	315	1102	733		171	82	66	265	285
Barrow's goldeneye									2
Common merganser					199			1552	886
Red-breasted merganser					3			833	228
Merganser spp.	2075	1558	1644	1126		771	908		

[a]A=Aerial surveys
[b]G=Ground surveys

Ground surveys provided much new information concerning waterfowl species diversity during spring staging on the Naknek River. Brant, gadwalls, Eurasian wigeon, canvasbacks, common and king eiders, and Barrow's goldeneyes were all observed for the first time during the 1991 spring surveys. Of these species, Eurasian wigeon and canvasback were considered, in the past, to be rare migrants on the Alaska Peninsula, but were encountered more frequently suggesting their status to be "uncommon" rather than "rare" migrants. Also because of ground surveys, common and red-breasted mergansers were distinguished from each other for the first

time. Red-breasted mergansers arrived much later than common mergansers; arriving as common mergansers were peaking (Figure 4).

The most valuable staging area on the Naknek River was the Big Creek/Paradise Point area which also is subject to numerous human disturbances. Of these disturbances motor boat traffic (sport fishing) has proven more intrusive than even jet aircraft.

Tundra swans and white-fronted geese (on the tundra bank) stage along the Naknek River, adjacent to the Complex office. 4/91, DAD

Emperor Geese

Emperor geese are a northern flyway species, with 80 to 90 percent of the population remaining within Alaska throughout the year. This Alaska contingent nests along the coastal fringe of the Yukon-Kuskokwin Delta and the eastern coast of Siberia. Thousands of geese stage along the Bristol Bay coastline each spring and fall enroute to and from their Aleutian Island and Alaska Peninsula wintering areas.

"Migration watches" for emperor geese were initiated in 1986 during fall staging on the lagoon at Cinder River, along the Bristol Bay side of the Alaska Peninsula. In 1988, the Alaska Fish and Wildlife Research Center (Research Center) initiated a six-year study of neck-collared emperor geese to examine mortality, behavior, and migration routes. In past seasons, geese were monitored at two sites: Cinder River and Nelson Lagoon. In autumn 1990, two sites were added to the survey: Port Heiden/Strogonof Point and Seal Islands.

During the spring surveys the proportion of juveniles increased from April to May. Apparently, breeding adults migrated to the Yukon-Kuskokwim Delta before juveniles and non-breeders, and family associations were weak. Mean re-observation rates were 54 percent for adult geese and 45 percent for juveniles, which was the highest ever recorded during the spring study period. The monthly rate of survival from fall to spring 1990-1991 was 95 percent for adult geese and 76 percent for juveniles. Even with survivorship of adults at greater than 90 percent, it has been estimated that less than 5 percent of eggs laid will result in birds recruited into the breeding population.

During the 1991 autumn migration watch, 329 unique emperor goose neck collars were sighted along the Alaska Peninsula. 10/90, JAS

During autumn 1991, a total of 329 unique collars were sighted, with many individuals being seen numerous times. As in past seasons, less than 10 percent of geese were seen at multiple study sites. A total of 84, 64, and 69 uniquely collared individuals were seen at Cinder River, Strogonof Point and Seal Islands, respectively. Collar recovery was considered good considering no banding was conducted during the summer of 1991. At Port Heiden/Strogonof Point there was a distinctly smaller proportion of geese using this staging area relative to other staging areas, as compared to past years.

Greater White-fronted Geese

The Pacific Flyway population of greater white-fronted geese is currently recovering from a population decline of 80 percent. The major breeding areas of these geese are in western Alaska and include the Bristol Bay Lowlands. For The past three years, the Complex staff has assisted the Alaska Fish and Wildlife Research Center in a study of subpopulations of

greater white-fronted geese on the Alaska Peninsula. Based on observations of white-fronts in the Ugashik drainage, in early summer, it was determined that a small population of molting geese (both greater white-fronts and Taverner's Canada geese) use the habitat in the vicinity of Hook Lagoon, along the Bristol Bay coast. An effort to band the molting geese was successfully initiated in 1988, providing incentive to continue the banding project on an annual basis.

Results of following collared white-fronted geese over the winter season yield positive motivation to continue the Bristol Bay banding effort. In summary, during 1989 and 1990, geese were radio-collared on the Yukon-Kuskokwin Delta and the Bristol Bay Lowlands (Alaska Peninsula and Nushagak Peninsula), with the latter being all non-breeding birds. Over 82 percent of the Bristol Bay collared birds were relocated on staging or wintering grounds in 1990, with Klamath Basin, California being the most important for fall staging. Bristol Bay geese migrated significantly earlier in the fall than did Yukon-Kuskokwim Delta geese, with a mean arrival date in Oregon of August 31. One Bristol Bay goose was observed at Ash Meadows National Wildlife Refuge in southern Nevada on September 4th.

At least 76 percent (n=55) of the Bristol Bay geese sighted south of Alaska were relocated in Mexico, with a mean arrival time of September 12th. Two geese spent the winter in the Klamath Basin and five were relocated in the Sacramento Valley. Most of the radioed geese in Mexico were located in the state of Chihuahua at Laguna Babicora, with eight geese tracked moving among different wetlands in Mexico. Three geese arrived in Babicora and migrated to Sinoloa, a distance of approximately 650 miles. Mean departure dates from Mexico were January 20th in 1991. Northbound migrating geese were documented stooping at the Sacramento-San Joaquin Delta, the Klamath Basin, Malheur National Wildlife Refuge (Oregon), and the Snake River of Idaho.

White-fronted geese radio-tracking flights were conducted in the Complex's Cessna 206 on May 21st and 24th, by Biologist Craig Ely of the Research Center, SCA Toby Burke, and ARM/P Arment. The purpose of these flights was to identify possible white-fronted geese breeding areas on the Alaska Peninsula. Twelve radio-collared geese were located, with the most interesting being one mile south of the Kejulik River mouth, along Becharof Lake and on Becharof Refuge!

In June 1991, Biologist Dennis Orthmeyer, Northern Prairie Wildlife Research Center, again lead this year's cooperative banding effort between Togiak and the Complex to capture the molting Bristol Bay white-fronted geese. Unfortunately, the weather would not cooperate on the Alaska Peninsula. Attempts were initiated in late June and extended through July 11th, to capture and radio-collar geese near Hook Lagoon. An extended period of morning and early afternoon fog and low ceilings, either in the Hook Lagoon area or the King Salmon area, prevented us from even leaving the dock with the plane on most days. The unused radios were placed on geese from the Nushagak Peninsula and the rest taken back to California for placement on wintering birds.

Logistics did allow for radio-tracking flights to be conducted in late July and August, to relocate previously collared geese. During a tracking flight on July 31st, two birds were located, both near where they were documented in May. No geese were located during tracking flights on August 25th and 28th. These August flights concentrated on the Kejulik River and Island Arm area of Becharof Lake, where white-fronts have been documented to stage during fall migration.

A white-fronted goose fitted with a collar-mounted radio transmitter. 6/90, DAD

The Alaska Peninsula and Laguna de Babicora are newly documented breeding and wintering areas for Pacific Flyway white-fronted geese. The majority of these geese winter in Mexico in the Babicora wetland and have relatively little interchange to other wetlands, with the exception of the Sinoloa coastal marshes. These geese may represent a race intermediate to the Tule geese and Yukon-Kuskokwim Delta geese, but in the very least are a distinct, manageable subpopulation. Studies of Pacific Flyway White-fronts in Mexico will be concluded in 1992, with a shift in the project emphasis to examining the breeding areas on the Alaska Peninsula.

Duck Production Surveys

The new state-wide plan for duck brood surveys was initially implemented in 1990. The Complex became one portion the Bristol Bay Lowlands - Waterfowl Production Area. Also included Togiak and Izembek refuges and all State and Native lands from Togiak Bay south to False Pass.

This square mile plot along the Kejulik River in Becharof Refuge has the highest density and most diversity of the Bristol Bay Lowlands duck production survey, with 13 broods of mallards, American widgeon, pintail, tundra swans, greater scaup, and red-throated loons. 7/91, DAD

The entire production area, 22,020 square miles, was classified as "low strata" for waterfowl brood densities. In 1991, it was decided to reselect survey plots and double the number of plots, due to the relatively low percent coverage of the area combined with the higher than expected productivity observed in 1990. Forty new one-mile-square sampling plots were chosen using a computer program that randomly selects latitude-longitude coordinates within the study area boundaries. Sampling plot distribution was: Kvichak River west to Togiak River (Togiak Refuge) - 20 plots; Alaska Peninsula, Kvichak River to Port Moller (Becharof, Ugashik and Chignik units of Alaska Peninsula Refuge) - 15 plots; and the Alaska Peninsula, Port Moller to False Pass (Pavlof Unit, Alaska Peninsula Refuge) - 5 plots. Of the 15 plots in this station's management area, six were actually on Complex lands.

Mallards were the most common breeder observed in the 1991 Bristol Bay Lowlands duck production surveys, with an estimated 70,000 young produced. 6/12/91, REH

In 1990, a standard operating procedure was developed for brood surveys across the State, with the low density strata of Bristol Bay to be surveyed by helicopter only. WB Donna Dewhurst has been the primary observer for the entire production area during both survey years, but in 1991, a second (backseat) observer was added. Backseat observers included Volunteer Carol Snetsinger and Togiak Refuge Biological Technician Beverly Short. Surveys were conducted on June 14th-23rd, and included 572 waterbodies. Of the 86 broods observed, species breakdown included: 24 Mallard; 20 green-winged teal; 18 northern pintail; eight American wigeon; seven greater scaup; four red-breasted merganser; three tundra swan; three oldsquaw; two northern shoveler; and two red-throated loon, averaging 1 brood to 6.6 waterbodies.

Expanding the survey results using statistics yielded substantially lower totals than recorded in 1990. Bristol Bay duck production was estimated at (in thousands of broods): 39.6 dabblers; 3.9 divers; 3.9 miscellaneous; totalling 47.5. The miscellaneous production included tundra swans, red-necked grebes, red-throated loons, and sandhill cranes. Estimated young produced were: 202,804 dabblers (1990 - 430,000); 22,097 divers (1990 - 66,900); and 25,874 miscellaneous (1990 - 67,000), totalling 251,876 (1990 - 569,300). This represented almost a 50 percent reduction in the estimated waterfowl production on the Alaska Peninsula from 1990 to 1991. Unfortunately, our reselecting of survey plots in 1991 made direct comparisons and overall interpretation of the apparent decrease difficult.

Tundra Swans

The first coordinated random plot survey for tundra swans of western Alaska was conducted this year. Western Alaska was chosen because annually the bulk of the western population of tundra swans spends their summers there. The survey used fixed, high wing aircraft to conduct a search of a random sample of 1/5 of the 1735 quarter sections of 1:63,360 scale U. S. Geological Survey maps thought to contain swan habitat plus a portion of Kodiak Island. Surveys for the Alaska Peninsula portion of the Bristol Bay lowlands were flown by Wildlife Biologist/Pilot Jack Hodges (Migratory Bird Management, Juneau) with a series of observers including: WB Dewhurst, Service Volunteer Jim McCarthy, Fishery Assistance Office Volunteer Dan Rogers, and Chief of Migratory Bird Management Bob Leedy. The Complex's Cessna 206 on floats was used for the surveys conducted August 13th to 21st.

Results from the Bristol Bay area included estimates of 12,230 total swans, 817 broods, and 2,370 cygnets. The average brood size was 2.9 with a range of 6.0, to 0.23 broods/pair. Nineteen percent of the swans observed were juveniles. Bristol Bay was second to Yukon-Kuskokwim Delta in estimated swan populations and productivity.

Tundra swan broods of six cygnets were observed on three occasions during the Bristol Bay Lowlands duck production and swan surveys. 7/91, DAD

Estimates of swan populations and productivity were also available from the annual duck brood survey, and interestingly enough, were not very similar. Results from the duck brood survey included estimates of 42,389

total swans, 1,652 broods and 6,606 cygnets. Likely, results from the swan survey were more accurate due to the higher percentage of area surveyed and thus, smaller expansion factor used... but, only the swans know for sure.

Snow Geese

In an international cooperative effort with the Soviet Union this year, lesser snow geese were captured for the first time on Wrangel Island and fitted with satellite transmitters. Craig Ely, Project Coordinator in the Research Center called this station requesting that we attempt to find two of the transmitters recorded as down in the Cape Chicagof area, near Egegik. Unfortunately, the transmitters could not be tracked with standard Telonics receivers, so only a visual search was possible. On November 7th, SCA Volunteer Mike Moore and ARM/P Arment searched the area from a Supercub, and surprisingly, did not find the white geese in the partially snow covered tundra.

Historically, snow geese were reported to stage in the tens of thousands along the Alaska Peninsula during migration, but in recent years only small, scattered flocks have been seen. Only two snow goose sightings were recorded in 1991. On October 1st, a flock of 10-12 snows were sighted near Naknek and on October 8th, 30 snows were sighted near Strogonof Point.

5. Shorebirds, Gulls, Terns and Allied Species

Seabird/Oil Related Studies
Puale Bay Field Camp

The Puale Bay field camp (located just left of mid-photo).
7/91, DAD

Sponsored by monies from continuing Exxon Valdez oil spill wildlife damage assessment projects in 1991, the Complex operated a remote field camp, from June 21st to September 26th, in Puale Bay, along the Pacific coast of Becharof Refuge. This was the third year for this field camp, located near the mouth of Teresa Creek, on the south side of the bay (Figure 6). The camp was staffed by four volunteers (both SCA and Service) with a seasonal biological technician as camp coordinator. Camp objectives included: 1) Population censusing seabird colonies from Puale Bay to Cape Unalishagvak; 2) productivity monitoring of murre and cormorant colonies; 3) beached bird surveys; and 4) collecting murre eggshells for hydrocarbon analysis.

Nestled in the grassy dunes, the Puale Bay field camp was staffed for its third year from 7/21-9/26. 8/91, DAD

Population Censusing of Seabird Colonies

Approximately 156,580 murres have been reported to breed along the Alaska Peninsula, with most of these birds (74,000 to 93,000) concentrated in colonies around Puale Bay. Censusing seabird colonies in Becharof Refuge was conducted from July to August to determine if numbers of selected species of breeding colonial seabirds in oiled areas have significantly changed from pre-spill surveys. Species studied emphasized common and thick-billed murres, but also included black-legged kittiwakes, tufted and horned puffins, and red-faced, pelagic and double-crested cormorants. Data from Alaska Peninsula colonies was incorporated into a larger study encompassing the entire spill area. Survey methods involved a combination of land-based plots and total counts from boats. Inflatable rafts were used to conduct replicate counts, but observers were not able to count the larger (less than 5,000 birds) murre colonies due to the instability of the rafts. The Service's Motor Vessel (M/V) Surfbird, from the Raptor Management Office in Juneau, was used again this year to successfully census these larger colonies.

"Dances With Wolves". This lone female was photographed by a Puale Bay camp member. 7/91, JHM

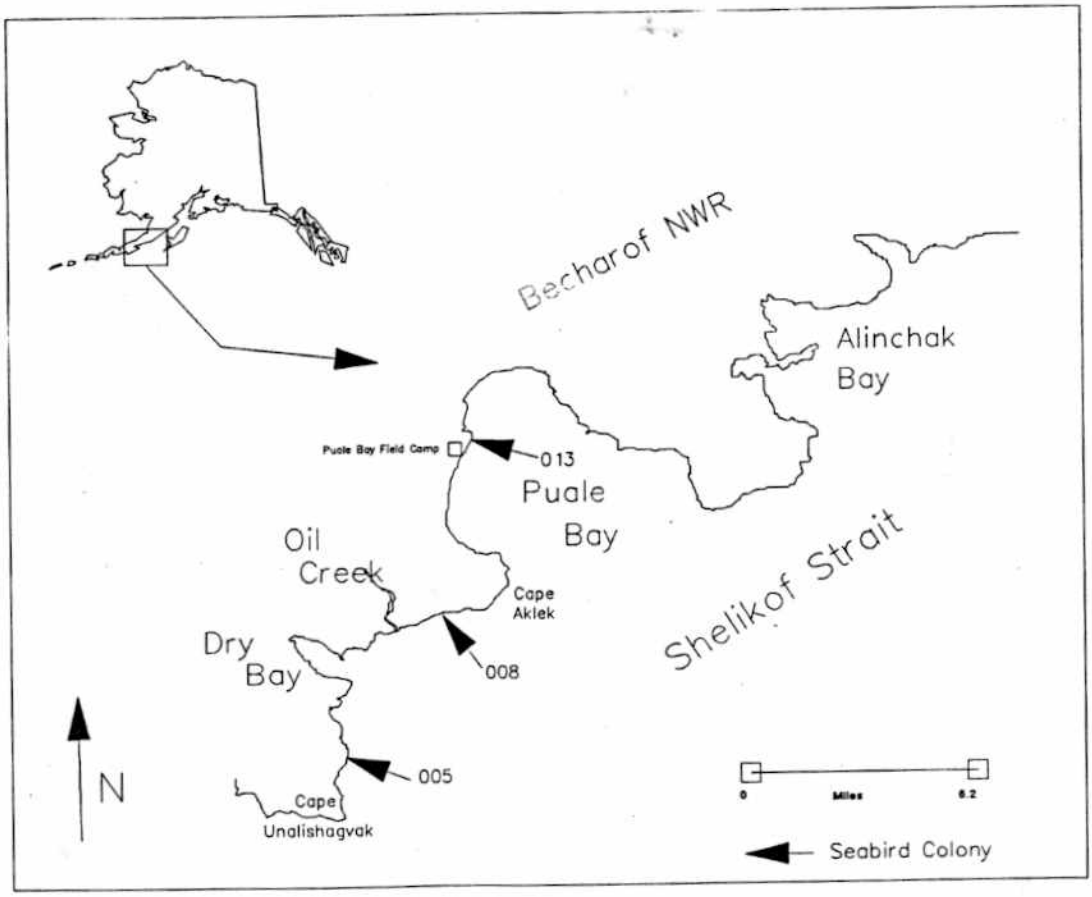


Figure 6. Location of the Puale Bay field camp in relation to studies seabird colonies, Becharof Refuge.

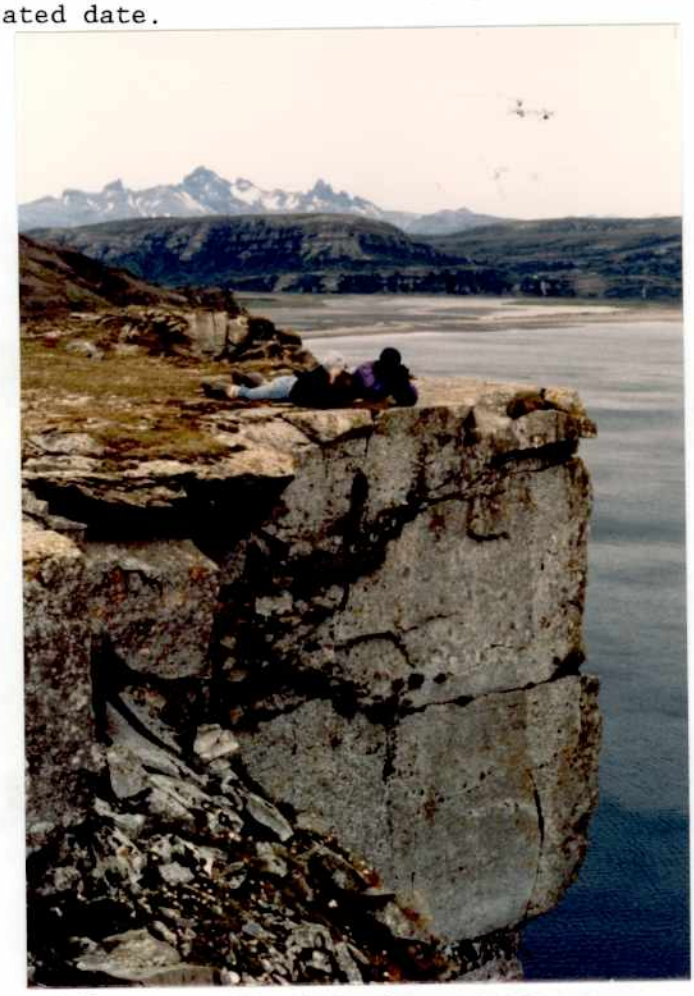
The cooperative use of the M/V Surfbird, shown anchored in Port Wrangell Bay along the Pacific Coast of the Ugashik Unit, Alaska Peninsula Refuge, was essential for counting the large murre colonies. 8/91, DAD

Murre and kitiwake colonies form Chignik to Wide Bay were surveyed for the first time since 1984, including Cupcake Island (pictured above) in Chiginagak Bay. 8/91, DAD

Combined counts of the three Puale Bay area murre colonies in 1991 resulted in 35,826 were more similar to those of 1989 than of 1990. The Jute Peak colony (005) has remained remarkably consistent in population size, while the Cape Aklek colony (008) has fluctuated and the Puale Bay colony (013) has steadily increased. However, the post oil spill numbers combined were significantly lower than the pre-oil spill counts ($P < 0.005$).

Breeding Phenology - Murres

The breeding schedules for both common and thick-billed murres at the Puale Bay colony were 30-45 days later than that reported for murres in the Semidi Islands, but paralleled colonies at the Barren Islands. The 1991 murre breeding schedule for Puale Bay closely paralleled that of 1990 for mean dates of egg laying (August 1st), hatching (September 5th) and fledging (September 22nd). Increased fledging success permitted actual observations of the mean fledging dates, rather than depending on extrapolation, as in the past two years. With a sample size of 42 common murre fledglings, the actual mean fledging date was 6 days earlier than the extrapolated date.



Volunteers Jim McCarthy and Mike Moore monitoring murre production in Colony 013 of Puale Bay. 7/91, DAD

The late breeding phenology did not cause a loss of chicks this year, as occurred in 1989 and 1990. In the past, chick creches were formed due to the late phenology combined with early "winter-force" storms coercing many of the adults to abandon their chicks and the colony. This year, the adults remained with their chicks despite two back-to-back winter storms with 50 plus knot winds. Chick creches were not formed, minimizing chick exposure to avian predators. The end result were a high fledging success and overall productivity than has been recorded in the past two years of the study.

Murres "fill" the ledges of the Puale Bay colonies, but less than 10 percent were active breeders in 1991. 8/91, DAD

Lack of synchronization was still apparent in the breeding schedules observed at Puale Bay, possibly causing a continued low hatching success. Early attempts at egg laying (July 17 - 21) before the majority of the ledge population settled down only resulted in individual harassment by avian predators. Chicks were born over 32 day period with common murres in 1990 demonstrating the only strong peak (September 3).

Productivity - Murres

Reproductive performance was monitored on 8 mixed species (common and thick-billed murres) plots at Puale Bay. Hatching success declined from 1990 to 1991 (Table 10), while fledging success and overall productivity increased greatly. Productivity at Puale Bay, was for the first time in this study, comparable to that previously reported in the Semidi Islands, which averaged around 50 percent. The late breeding phenology and lack of synchronization likely contributed to the low hatching success at Puale Bay. While the average age of successful fledging increased from 16.2 ± 3.2 days (1989) to 17.9 ± 2.4 days (1990) to 19.2 ± 3.0 days (1991) paralleling the increase in 1991 fledging success and productivity.

Table 10. Reproductive success of common and thick-billed murres, 1989 - 1991, Puale Bay, Alaska Peninsula, Alaska.

	Years		
	1989	1990	1991
Common murres			
Total eggs laid[a]	266	388	109
Total chicks[b]	133	289	64
Total chicks fledged[c]	20	39	41
Hatching success[d]	0.50 ±0.15	0.74 ±0.08	0.59 ±0.07[g]
Fledging success[e]	0.15 ±0.15	0.13 ±0.04	0.64 ±0.13
Productivity[f]	0.07 ±0.08	0.10 ±0.04	0.38 ±0.09
Thick-billed murres			
Total eggs laid	20	43	21
Total chicks	4	15	15
Total chicks fledged	1	2	10
Hatching success	0.20 ±0.54	0.42 ±2.12	0.71 ±0.40
Fledging success	0.25 ±2.58	0.13 ±1.03	0.67 ±0.56
Productivity	0.05 ±0.42	0.06 ±0.54	0.48 ±0.65

[a]Three sequential incubating postures was considered equal to one egg, a s per 1990 Conventions (Appendix II).
[b]One brooding posture observed was considered equivalent to one chick, as per 1990 Conventions (Appendix II).
[c]Chicks were presumed to have successfully fledged if observed a minimum of 15 days prior to disappearance, as per 1990 Conventions (Appendix II).
[d]Chicks observed/eggs laid.
[e]Chicks fledged/chicks hatched.
[f]Chicks fledged/eggs laid.
[g]Data expressed as means ± 90% confidence bounds.

This shortail weasel was a regular visitor to the murre plots and likely accounted for some egg loss.
9/91, JHM

Populations and Productivity - Cormorants

In 1991, the only nesting cormorants were found in the Puale Bay colony. Most cormorants were concentrated primarily in population plot 3. Only red-faced and pelagic cormorants were observed nesting, the vast majority being red-faced. In 1991, land-based counts of the established plots yielded a mean of 186 cormorants. The population peaked on June 23rd, with a total of 244 adults. After that date, the colony size decreased rapidly until July 3rd, when the colony was abandoned.

Cormorant plots were established on June 28th. At that time 87 nests were present. No eggs or chicks were observed. By July 3rd, all of the plots had been abandoned.

These red-faced and pelagic cormorants abandoned this nesting colony at Puale Bay by July of 1991. 6/91, DAD

Conclusions of Puale Bay Seabird Studies

The future of the murre, cormorant and kittiwake colonies in the Puale Bay area is uncertain at best. The murres have shown encouraging behavior by remaining with their chicks and boosting fledging success. Their breeding schedule, however, continues to lag over a month behind those of colonies unaffected by the spill. Continuing population and productivity monitoring is essential to determining when and if the colonies will return to a phenology more in synch with other area colonies and if productivity will improve.

A tufted puffin out from its nesting crevice between Puale Bay murre plots. 7/91, JHM

6. Raptors

In January, WB Dewhurst compiled a report entitled, "History and Status of Bald Eagle Population and Productivity Studies on the Alaska Peninsula, Alaska." The purpose of this document was to: 1) provide an overview of the complicated history of bald eagle surveys recorded on the Alaska Peninsula; 2) compare survey methods and study areas; and 3) summarize and compare survey results.

Methodology for bald eagle nesting and population surveys on the Alaska Peninsula were found to evolve from boats to fixed-wing aircraft to helicopters, improving survey accuracy and precision, but not cost effectiveness. Helicopters appeared to be the only way to accurately map nests along the Peninsula's pacific Coast, due to the complexity of terrain. The 1989 Exxon Valdez oil spill provided a new funding source permitting comprehensive surveys to be done along the Pacific Coast for the first time in 1989 and 1990. Results were digitized into a computer database. This report recommended that a similar survey effort be made for the Pavlof Unit, Alaska Peninsula Refuge and the Shumagin, Pavlof and

Sanak Islands, to complete the picture for the Alaska Peninsula. Additionally, all nesting surveys replicates were recommended on a three-year cycle to be accomplished by helicopter only. For eagle population monitoring on the Alaska Peninsula, use of the stratified random plot survey method was recommended using fixed-wing aircraft, and continued on a five-year cycle.

7. Other Migratory Birds

The sixth annual King Salmon-Naknek Christmas Bird Count took place on December 14th. Local results were submitted to the National Audubon Society, which sponsors and publishes results in the ornithological journal American Birds. Even though the count is not held on Complex lands, we coordinate this event. Seven volunteers donated their Saturday to seek out birds from Lake Camp to Pederson Point.

Despite blowing snow and the Naknek River being mostly frozen, 18 different species were spotted, with a total count of 1,639 individuals. Three new species (northern hawk owl, three-toed woodpecker and mew gulls) and record high counts for three species were recorded during the year's count (Table 11).

Mew gulls made their first appearance during the 1991 Christmas Bird Count. 5/91, DAD

Table 11. Species composition and numbers of birds recorded in the King Salmon-Naknek Christmas Bird Count, 1986-1990.

Species	1986	1987	1988	1989	1990	1991
Greater scaup	0	0	0	2	0	0
King eider	0	0	0	2	0	0
Oldsquaw	0	0	1	0	0	0
Common goldeneye	30	0	2	340	0	19
Common merganser	293	1,259	44	827	767	124
Red-breasted merganser	0	0	1	147	70	0
Merganser sp.	125	0	0	117	49	484
Duck sp.	0	0	0	36	0	0
Bald eagle - adult	8	14	4	8	5	11
immature	2	2	2	4	3	6
unknown	0	3	1	4	1	0
Northern goshawk	0	0	1	0	0	1
Peregrine falcon	1	0	0	0	0	0
Willow ptarmigan	0	1	0	24	47	3
Glaucous-winged gull	0	60	80	107	0	101
Mew gull	0	0	0	0	0	26
Gull sp.	0	0	3	2	0	535
Rock dove	1	0	0	0	0	0
Boreal owl	0	0	0	0	1	0
Northern hawk owl	0	0	0	0	0	1
Owl sp.	0	0	0	0	2	0
Downy woodpecker	0	0	0	0	2	0
Three-toed woodpecker	0	0	0	0	0	1
Gray jay	0	0	21	38	11	9
Black-billed magpie	42	26	41	40	65	37
Common raven	231	246	285	237	226	231
Black-capped chickadee	20	5	18	23	63	26
Boreal chickadee	4	3	0	7	9	7
Chickadee sp.	0	6	0	29	0	0
Northern shrike	1	3	0	1	0	3
White-crowned sparrow	1	0	0	0	0	0
Snow bunting	0	0	0	1	31	1
Pine grosbeak	4	0	10	36	0	4
White-winged crossbill	0	0	0	175	0	0
Common redpoll	19	0	60	71	4	0
Hoary redpoll	0	0	0	0	3	0
Redpoll sp.	0	0	0	99	12	9
Fringillidae sp.	0	0	0	85	0	0
Totals	782	1,628	574	2,467	1,399	1,639

Note: New species recorded during 1991 count are highlighted in bold print.
Species recorded in record high quantities are underlined.

8. Game Mammals

Both the Alaska Peninsula and Becharof refuges are open to sport and subsistence hunting of game animals. A complete discussion of harvest is found in Section H.8. This section deals with the population biology of several large game mammals found on the refuges.

Brown Bear

Black Lake Bear Study - Alaska Peninsula

The need for baseline data on brown bear population parameters on the Alaska Peninsula was the primary motive for this study. The bear population at Black Lake in the Chignik Unit of the Alaska Peninsula Refuge was chosen at the study site. Earlier studies in this area provided an opportunity to compare characteristics of a heavily over-exploited population with those of the current population. Bears in the earlier study were tagged during 1970-1975, excluding 1973, by Alaska Department of Fish and Game (ADF&G). During these studies 344 bears were handled 489 times and 136 of the bears were shot by hunters. The number of bears captured in the current study by years were 59, 40 (including 7 recaptures), 5, and 39 (including 22 recaptures) in 1988-1991 respectively. In total, 78 radio collars, including 22 with break-away features and 19 glue-on radios were deployed. Between June 2nd and 6th, WB Dewhurst participated in the interagency capture effort at Black Lake with the National Park Service (Rick Potts) and ADF&G (Dick Sellers, Bill Taylor and Dennis McAllister).

ADF&G veterinarian Bill Taylor finishes replacing a radio collar on a brown bear sow near Black Lake.
6/91, DAD

The Capture-Mark-Resight estimate of population density was completed in 1989 with a calculated density of 191 bears/2.02 mi^2, ranking this population the fifth highest among nine areas in Alaska where these estimates have been made. Bear densities at Black Lake ranked behind Katmai Coast, Admiralty Island and two areas on Kodiak Island. Bears at Black Lake were over seven times more dense than in any study in interior Alaska.

Sex ratios in the sample of captured bears during recent studies were compared with those of previous studies. The adult sex ratio increased significantly from 21 adult males:100 females during the 1970-1974 to 39 males:100 females during 1988-1989 ($t=1.63$, $df=194$, $P=0.052$). This increased proportion of adult males in the population probably reflects lower harvest rates during 1975-1985 that permitted the population to recover. Based on the percentage of marked bears killed and on the total harvest from a 1,531 sq. mile area around Black Lake, where the population was estimated by extrapolation from the census area, average annual exploitation rates during 1989-1990 were calculated as 5.1 to 5.7 percent.

Preliminary survival rates were calculated to be: 49 percent newborn cubs; 84 percent yearling cubs; 87 percent adult females; and 85 percent adult males. Over 1,200 relocations have been recorded, and 28 bears (all females except one) with functioning radio collars entered dens in the winter of 1990-1991.

Bear/Stream Surveys

Annual bear/stream surveys were conducted in August by MH Mumma and ARM/P Arment in the Becharof and Ugashik lakes area. Streams with concentrations of spawning sockeye salmon were aerially surveyed for bears using Kenai Refuge's supercub on floats. A series of four to five replicate surveys were conducted of the Becharof Lake/Island Arm, Ugashik lakes, and Bible Creek/Kejulik River drainages on August 8th - 28th, with a one week break in the middle. Survey techniques were modified in 1990: a) to standardize the distance traveled up each stream; and b) to add streams omitted in previous years' surveys. Additions included Bible Creek, the Kejulik River drainage, Ore creek, Lodge Creek, and the side branches of Mumma Creek.

Previous surveys of Bible Creek demonstrated earlier salmon runs with a peak on the 14th, which was the first survey date last year. In 1991, surveys were started five days earlier to check for earlier trends. This year, bear numbers were dramatically lower or the peak may have been even earlier than when surveys were initiated.

Bears using the Kejulik River drainages peaked on the 10th with 61 bears observed. The Kejulik tributaries had heavy concentrations of salmon early in the surveys, revealing a much larger salmon run than in previous years. Quite likely, this was due to the commercial fishermen's strike in Bristol Bay, in early July, permitting a higher than usual escapement into the Becharof Lake system.

Six survey repetitions were conducted in the Island Arm area, reveling a peak of 107 bears on the 13th. Similar to Kejulik, the Island Arm streams

displayed earlier, more abundant salmon runs this year. Franks Creek displayed the highest concentrations of salmon in the area, estimated at 15,000 sockeyes. Salmon were still abundant in the streams on the last survey flown on the 27th, with much higher numbers of dead spawned-out salmon as compared to previous years.

Streams in the Ugashik lake system also demonstrated earlier peaks of both salmon and fishing bears. Five survey repetitions were flown with a peak of 53 bears recorded on the 13th.

Comparisons from previous year's surveys showed an increase in total number of bears observed and in all of the individual categories. Surveys on the Becharof Lake/Island Arm streams provided the only comprehensive comparison over the past decade (Figure 7). At Island Arm, the number of bears sighted was the highest ever recorded (Figure 7). An increase in observed newborn cubs was also recorded for the first time since 1988.

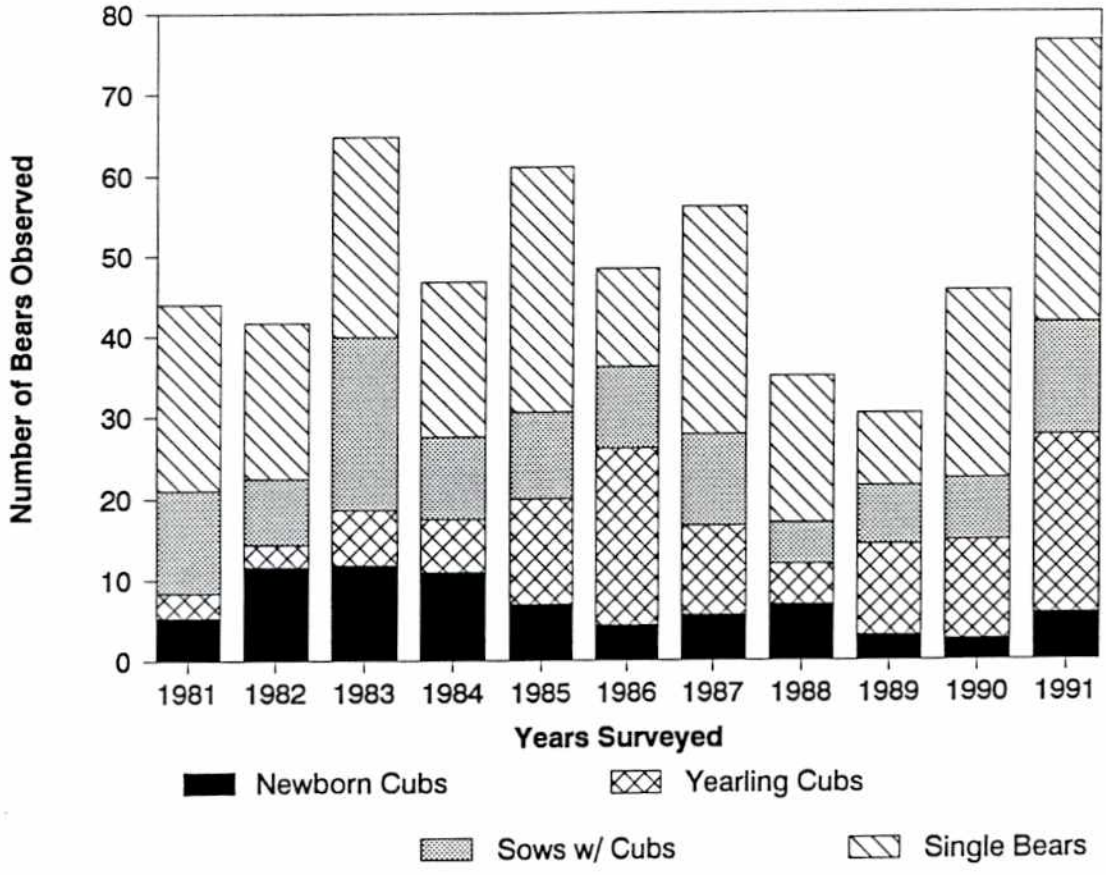


Figure 7. Sex and age composition of bears observed on bear stream surveys in the Island Arm portion of Becharof Refuge, 1981-1991.

Summer 1991 Field Camp Bear Encounters

During the 1991 field season, June through October, detailed records of encounters and observation of brown bears were kept by field camps at Puale Bay, Jute Peak, Becharof Lake/Island Arm, Gertrude Creek, Ugashik Lakes, Cinder River, and Strogonof Point. Camps were operated by the Complex, the King Salmon Fisheries Assistance Office (KSFAO) and the Research Center. These field camps documented 236 total people/bear encounters. Of these encounters, the highest percentage (41 percent) occurred at the Puale Bay field camp, but this may be attributable to better record keeping. As in the past, most of the 1991 bear encounters required no actual interactions (78 percent), usually consisting of visual observations only. Hazing devices were used as last alternatives and tried in an order of escalation of force: wave/shout; shot in the air; cracker shells; flares; hazing grenade; and rubber slugs/birdshot.

Who says bears don't like salt water...this sub-adult was photographed swimming 1.5 miles off shore in Aniakchak Bay. 8/91, DAD

The field camp at Puale Bay was the only camp to have a history of past years' encounters to provide a comparison. The number of Puale Bay bear encounters requiring hazing, more serious than waving/shouting, went from 22 in 1989 to 17 in 1990 to one in 1991 (Table 12). At the same time, camps in the interior of the Peninsula had numerous encounters requiring hazing. The increased escapement of sockeye salmon and consequential increased bear densities in the lakes system (discussed under "Bear/Stream Surveys") likely contributed to the higher numbers bear/human encounters there. Likewise, this over-abundance of salmon in the lakes probably attracted many of the usual coastal bears, decreasing the encounters at Puale Bay and Jute Peak.

Table 12. Brown bear deterrents used in field camps on the Alaska Peninsula, June-October 1991.

Hazing Methods	Effects				
	No Response	Stood Upright	Slow Depart	Fast Approach	Non-Agress
Waving/Shouting	11[a]	5	16	10	9
Cracker Shells	3	0	11	19	0
Flare Gun	0		1	3	0
Shot in the Air	0		3	4	0
Rubber Slug at Bear	1	0		2	0
Birdshot at Bear	0			1	0
Flashlight at Night	0		2	1	0
Hazing Grenade	0			1	0

[a]Numbers designate how many times use of the hazing technique generated the given response.

"Let sleeping bears lie" -- Puale Bay field crew, 1991. 9/91, JHM

After the high number of people/bear encounters and bear damage to inflatable boats at the coastal field camps in 1989, extra precautions were taken to minimize these for the 1990 and 1991 Puale Bay camps. A 20 ft. by 20 ft. electric fence was installed around the inflatable boats and other camp gear stored on the beach. The fence was made of five high-

tensile wires spaced eight inches apart, starting from the ground. Alternating ground and hot wires will ensure the trespasser will receive the full load from the New Zealand type charger. In 1991, a solar panel was added to recharge the 12-volt battery powering the charger.

A brown bear strolls by the electric fence exclosure at Puale Bay. 7/91, CJS

Along the Bristol Bay coast, several bears risked becoming "Defense of Life and Property" casualties in September. Problem bears were encountered by the Research Center field camps at both Cinder River and Stroganoff Point. In both cases, local commercial fishermen (setnetters) left edible trash around their cabins earlier in the season, developing some bad habits for local bears. The fall research camps then had problems with these "garbage bears." Camp food was not kept in bear-proof containers, so local bears helped themselves without first filling out the necessary volunteer agreements with the government. MH Mumma was sent to the Cinder River camp to help with hazing efforts while equipment was being gathered to construct an electric fence. In the meantime, camp staff hazed the Cinder River bear 17 times with everything from rubber slugs at point blank range to throwing a "bear grenade" (large hand-thrown fireworks). The Strogonof Point field crew hazed their problem bear 18 times including use of strobe flashlights, cracker shells, flares, and birdshot. Ultimately, electric fences were set up around both camps and all bear problems ceased. Unfortunately, no one witnessed either of the problem bears actually contacting the fences for positive proof that the fence was the deterrent. Moral of the story may be that the any continued camp use of these types of areas should institute the mandatory use of electric bear exclosure fences. If it had not been for the installation of the fences, these bears would have been destroyed!

The electric fence and solar chargers set-up around the cabin at Cinder River---preventing at least one bear from being shot in "Defense of Life and Property." 10/91, DAD

Barren-ground Caribou

The Alaska Peninsula caribou herd is subdivided into northern and southern herds. The southern herd remains south of Port Moller and ranges to Cold Bay, and is monitored by ADF&G, assisted by Izembek Refuge. The northern herd ranges from Port Moller northward to the Naknek River drainage, utilizing both the Alaska Peninsula and Becharof refuges. The northern herd is managed by ADF&G, assisted by Complex staff.

Historically, the size of the northern herd fluctuated widely with apparent peaks just prior to the turn of the century, and again in the early 1940's when the population was estimated at 20,000 caribou. The last population low occurred during the late 1940's with an estimated 2,000 caribou. Since that time the herd experienced steady growth until 1984 when the population peaked at 20,000 (Figure 8). In 1990, caribou counts started to decline steadily with a decrease of 4,000 animals over the past two years. ADF&G management objective for the herd has been to try for a stability in the range of 15,000-20,000 animals. Counts recently have gone from the top of that range to the bottom in three years. Factors theorized to be involved in the decline include: decline in productivity of the herd and increased harvest pressure due to caribou being available along the road system. In July, ADF&G recommended a

reduction in the bag limit (four to two) to make the Mulchatna herd more attractive to non-local hunters while still allowing local residents to get two caribou over the course of the winter. The Alaska Board of Game failed to approve the proposed regulation. Additionally, ADF&G is considering a future cropping of the Mulchatna herd, via more liberalized bag limits, to prevent depletion of the common winter range that is continuing to become more important to the northern herd.

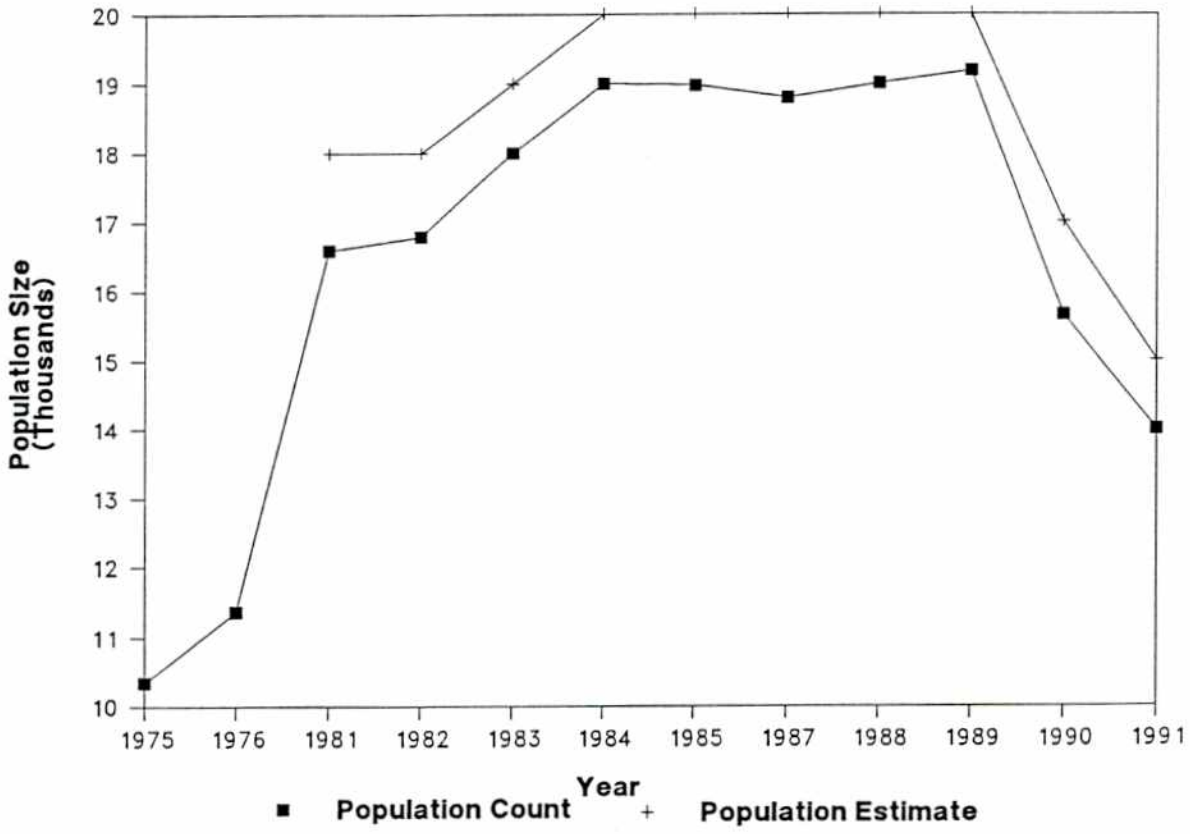


Figure 8. Trends in caribou population counts and estimate for the Northern Alaska Peninsula herd, 1975-1991.

Composition of the northern Peninsula herd (bull/cow/calf), surveyed in the fall, has demonstrated a decrease in productivity from 1987 to 1990; however, productivity increased in 1991 (Figure 9).

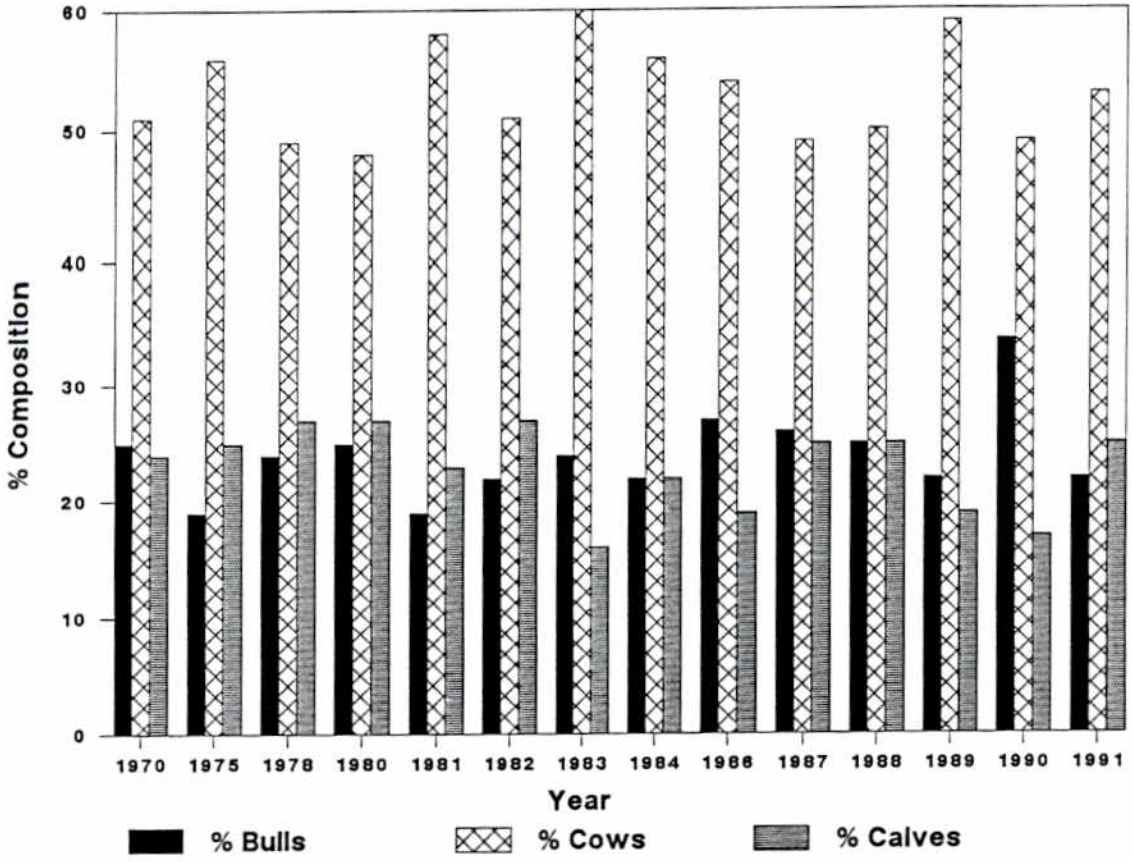


Figure 9. Composition changes of the Northern Peninsula caribou herd, 1970 -1991.

The northern herd's primary calving grounds are in the Bering Sea flats between Cinder River and Sandy River. On July 12th, ADF&G Biologist Dick Sellers and ARM/P Arment flew a radio-telemetry caribou survey to document movement from the calving areas. Seventeen radio collars were recorded among the 13,000 caribou located between Mount Veniaminof and Gertrude lake. About 3,000 animals were located south of the Meshik River in the Chignik Unit, Alaska Peninsula Refuge. Approximately 6,500 animals were located between the Meshik and Egegik Rivers in and adjacent to the Ugashik Unit, Alaska Peninsula Refuge. The remaining 3,500 were located in one herd near Gertrude Lake on Becharof Refuge. It was interesting to note that many of the caribou in the Gertrude Creek area were located four days earlier south of Cinder River - a distance of 120 miles.

Historically, there had been no caribou spending the summer in the Alagnak/Big Mountain area, but in recent years several groups of mostly bulls have been seen. During 1989, for the first time, calving was documented in the hills between King Salmon Creek and the Alagnak River; however, it is not known if these caribou were originally from the Mulchatna or Northern Peninsula herd.

Bull caribou are often curious during the summer and will walk right up to quiet photographers. 7/91, CJS

In recent years, the post calving northward migration has progressed earlier, with most of the herd moving north of the Egegik River by August 1st. Traditionally, this herd wintered between the Egegik and Naknek Rivers. However, starting in 1986, the northern herd expanded their winter range across the Naknek River northward to the Alagnak River, eventually overlapping with the Mulchatna herd. During the mid-winter months, the Northern Peninsula herd intermingles with virtually the entire Mulchatna herd between the Naknek River and Lake Iliamna. Radio collared caribou from both herds confirmed to be associated in the large groups. The presence of perhaps 40,000-50,000 caribou of both herds, within this area, represented a major shift in winter distribution. A combination of deteriorating range conditions and deep snow are speculated to have caused the shift in distribution. In autumn 1991, caribou almost completely bypassed the King Salmon area by crossing near the Naknek Lake outlet and quickly proceeding north of Sugarloaf Mountain, demonstrating an even further northward push than in recent years. Now there is a growing concern over future depletion of this new common wintering ground. Interestingly, spring radio tracking over the past two years has revealed that the caribou apparently sort themselves out, back into the original herds prior to migration back to the calving areas.

In autumn 1991, caribou migration again altered recent patterns. In the past several years, most of the northern herd crosses the Naknek River by the end of October and spends the next couple of months in the flats between Leader Creek and Naknek Lake. This year, several thousand crossed at the Naknek Lake outlet and quickly moved north of Sugarloaf Mountain (within Katmai National Park), while another couple of thousand remained

on the south side of the river near Smelt Lake. The end result was a decrease in local King Salmon hunter success due to the caribou staying in more inaccessible and hunting-prohibited areas.

Moose

Moose did not become abundant on the Alaska Peninsula until the 1940s to 1950s. Range expansion from the Lake Clarke/Lake Iliamna area boosted the Peninsula populations allowing for the first sport moose hunting in the mid-1950s. However, the Peninsula's population declined in the mid-1960s to the early 1970s, attributed to poor browse situations. Beginning in the early 1970s, ADF&G liberalized the moose hunting season to bring the population in line with the carrying capacity of the range. The liberalized seasons resulted in a composition disparity of many older animals with fewer younger animals. This was attributed to younger animals being more susceptible to the gun. As a result the population decline continued, compounded by loss of recruitment animals to predation by brown bear, especially on moose calves. In the late 1970s, ADF&G instituted trophy only (bulls with greater then 50 inch antler spread or three brow tines) restrictions on hunter take. As a result, the percentage of cows was allowed to increase, helping stabilize the population. In 1986, the management goal of 40 bulls per 100 cows was reached, and current efforts are to maintain the population at this level.

Annual aerial moose surveys, by the Complex staff, are conducted to supplement similar surveys done since 1981 by ADF&G. The staff conducts surveys on Bible Creek and the Kejulik River on Becharof Refuge. The ADF&G surveys are done at the extreme northern boundary of Becharof Refuge, partially within Katmai National Park and the Dog Salmon River drainage on the Ugashik Unit, Alaska Peninsula Refuge. Lack of adequate snow cover, combined with poor flying weather, painted an all too common picture... none of the usual ADF&G or Complex surveys were able to be conducted in 1991.

9. Marine Mammals

Walrus

Several surveys were conducted, incidental to other missions, of beached marine mammals along the Bristol Bay coastline, from Naknek south to the Muddy River. On a partial survey conducted on July 22nd, the carcass count was eight headless walrus, from Port Heiden to Muddy River and 300 hauled-out bulls at Cape Seniavin. On October 2nd, a survey was conducted from Port Heiden north to Naknek. This survey revealed 16 headless walrus, three beached gray whales, and one beached beluga whale. Headless walrus counts this year were the lowest in the past three years despite increasing numbers of bulls hauling out at Cape Seniavin during the summer.

This lone walrus was photographed at Cape Seniavin only weeks before becoming a headless casualty 125 miles north, near Egegik. 7/90, DAD

11. Fisheries Resources

King Salmon Fishery Assistance Office Activities

Southwest Alaska Rainbow Trout Investigations: Gertrude Creek and other tributaries of the King Salmon River (Egegik drainage). Information gathered in 1988, 1989, and 1990 indicated that rainbow trout in Gertrude Creek are old fish and vulnerable to over-exploitation. These fish exhibited considerable movements within Gertrude Creek as well as movements between Gertrude Creek and other tributaries of the King Salmon River. To provide additional information for management of this population, the investigation was expanded in 1991 to include the other tributaries and to: sample the streams more frequently; intensify sampling for juvenile rainbow trout; continue the mark-recapture study; document overwintering areas; and conduct a summer creel survey on Gertrude Creek and a winter creel survey in the village of Egegik.

Six hundred seventy-six rainbow trout were captured during the field season. Fork lengths ranged from 75 to 656 millimeters (mm); weights from 6 to 2,675 grams (g). One hundred forty-nine of these fish were less than 300 mm in length. Forty-three of the fish less than 300 mm and 14 fish larger than 300 mm were sacrificed for age verification. Scale samples were taken, adipose fins were clipped, and Floy t-tags were used to mark the remainder of the sampled rainbow trout.

Recaptures of rainbow trout tagged for the study showed substantial movements within and between the tributaries. The most within-stream recaptures occurred in Gertrude Creek (61). Movements between tributaries were characterized by more frequent recaptures upstream (28) than downstream (13) from their original tagging stream. The most frequent recapture of marked fish (15) was between Gertrude Creek and a smaller tributary approximately one kilometer (km) downstream.

Surgical implantation of a radio tag in a rainbow trout on Gertrude Creek. 8/91, DLR

To complement the movement information from the open water season and document overwintering areas, radio tags were implanted into 39 rainbow trout. Implantation of the radio tags was distributed evenly among the tributaries, and fork lengths of the implanted fish ranged from 355 to 574 mm. Relocation of the implanted fish throughout the winter will be performed by aircraft.

Special use permit reports appear too general to provide meaningful information for the management of fisheries on the Complex. For this reason a creel survey crew was stationed at Gertrude Creek for the entire field season. Most anglers practiced catch and release and considered the Gertrude Creek fishery to be good to excellent in quality. Comparison of the special use permit data with the creel data will provide direction in amending the reporting requirements of the special use permits.

To document the winter harvest of fish from the King Salmon and Egegik rivers, RIT Kelly has been designated as a creel clerk for the ice fisheries that occur near the village of Egegik.

Arctic Grayling Investigations: Ugashik Lakes and Becharof Lake tributaries. In 1990, the Alaska State Board of Fisheries closed arctic grayling fishing in the Ugashik Lake drainage of Ugashik Unit, Alaska Peninsula Refuge. The closure was implemented after the ADF&G documented a decline in arctic grayling abundance from historical levels. As the Ugashik Lake drainage supported a trophy arctic grayling fishery, the closure came as some concern to the general public and resource managers. The exact cause for the decline was not identified, but may be related to over-exploitation or environmental factors such as volcanic activity. To identify the cause of the decline and prevent similar fishing closures to other arctic grayling populations, the King Salmon Fishery Assistance Office, in cooperation with the University of Arizona Cooperative Fish and Wildlife Research Unit, initiated a three year study of the arctic grayling populations in the Ugashik Lake system and Becharof Lake tributaries in 1991. Becharof Lake is a good parallel system to study because of the proximity and relatively unimpacted population. Comparison of the arctic grayling population from Becharof Lake tributaries should provide reasons for the population decline in the Ugashik Lake drainage.

Data gathering began in Fiscal Year 1991 and sampling progressed smoothly although several problems related to access and brown bears surfaced. Because the stream flows prevent the use of even small jetboat operation, access at Becharof Lake tributaries was by foot and sampling was limited to the lower reaches. As it is assumed the arctic grayling migrate further upstream as salmon concentrations increase and the season progresses, an inaccurate description of distribution will result. This problem was further complicated as larger arctic grayling seem to migrate further upstream than the smaller fish, which will result in inaccurate estimates of age, length, and weight composition if sampling is limited to the lower streams. Large numbers of brown bears also migrate to the streams to feed on sockeye salmon. As the bears often would not move from the stream when the sampling crew approached, sampling had to be curtailed. Sampling in the Ugashik drainage went smoothly but the project did not sample streams in Fiscal Year 1991. In Fiscal Year 1992, the sampling will be expanded into the tributaries and similar problems to those encountered in Becharof Lake tributaries can be expected. Alternate means of access are presently being explored.

Steelhead Trout Investigations. A second project was initiated in Fiscal Year 1991 funded by the Fishery Resource Monitoring Program, Global Climate Change Work Group. The purpose is to study the effects of global warming on the distribution of steelhead trout on the Alaska Peninsula.

It is hypothesized that increased global temperatures will raise water temperatures and expand the range of steelhead trout. In addition to gathering distribution data, the survey collected biological data on captured fish. Because funding for the project was authorized late in the year, sampling was scheduled to begin in August. Poor weather conditions delayed the project until early September, then continued bad weather hampered logistical support. Of the original four drainages selected (Meshik and Chignik rivers, Russell and Steelhead creeks) for sampling, only two (Chignik River and Russell Creek) were studied. Sampling will begin earlier in Fiscal Year 1992 and should allow at least successful access to selected streams.

BT Mike Vaughn sampling for steelhead on Cucumber Creek, Chignik Unit, Alaska Peninsula Refuge.
9/91, DBI

13. Surplus Animal Disposal

Five bald eagle carcasses were sent to the National Eagle Repository in Ashland, Oregon on January 14th. The birds had been found dead by the staff or local citizens. Deaths were primarily caused by flying into powerlines, etc. The carcasses were not needed in law enforcement cases and are now being put to good use by the repository, which distributes the feathers and parts to authorized American Natives, etc.

18. Subsistence

A series of aerial moose surveys were conducted in the Big Creek drainage and Park Boundary portion of Becharof Refuge in December. Surveys were conducted on the 5th, 18th, 20th, and 31st using a variety of available

aircraft including the Complex's Cessna 206, the Park Service's PA-18 and a chartered PA-18 from Windy's Mag Air. Observers included WB Dewhurst, MH Mumma, and RIT Knutsen. Uncooperative weather conditions and shorter day lengths never permitted a survey of the complete study area in any single day. However, surveys conducted on the 18th and 20th, under stable weather conditions, permitted an overall estimate of 89 moose for the area, with 85 percent antlerless (Table 13).

Surveys, over the month, indicated movement of at least 14 moose from the hills to the lower creek drainage (Table 13), likely due to heavy snowfall mid-month. No public use was observed on the earlier surveys, but on the 31st, eight all-terrain vehicles, three snow machines, two pick-up trucks and one car were observed on Big Creek. Two moose were reported taken by hunters along Big Creek in December, with both animals taken being antlered bulls.

Table 13. Moose composition observed during aerial surveys of the Big Creek drainage and Park boundary portion of Becharof Refuge and adjacent Katmai National Park, December 1991.

Date	Area	Antlered Bulls	Antlerless	Cows w/ 1 calf	Cows w/ 2 calves	Total
12/05	Big Creek (Refuge)	0	0	0	1	3
	Big Creek (Katmai)	0	0	1	0	2
	Granite Peak (lower)	2	1	3	1	12
	Brooks Hills (East)	1	2	4	1	14
12/18	Granite Peak	3	17	1	2	28
	Brooks Hills	8	19	6	2	45
12/20	Big Creek (Refuge)	2	6	4	0	16
12/31	Big Creek (Refuge)	2	5	2	2	17
	Big Creek (Katmai)	4	20	2	0	28

H. PUBLIC USE

1. General

The majority of public use currently occurring on Complex lands involves subsistence and sport hunting of caribou, moose, and bear; game fishing for arctic grayling, burbot, dolly varden/arctic char, rainbow trout, lake trout, northern pike, and five species of Pacific Salmon; trapping furbearing animals; and the gathering of berries.

Complex resources are utilized by the residents of 12 villages on or near the boundaries, primarily for subsistence uses. Other Alaska residents and out-of-state visitors commonly utilize Complex resources pursuing sport hunting and fishing activities.

The desire by the public for quality outdoor and wildlife associated activities continues to expand. Demands for off-Complex programs continue to increase. We accommodate these requests when time and staffing

permits. Expansion of our educational program has been possible with the addition of three RITs to the staff.

The Alaska Peninsula and Becharof refuges offer many outdoor recreation opportunities, such as wilderness camping near Jute Peak on the Pacific coast.
8/91, ART-W

Fish and Wildlife Service (Service) emblems and "Government Property" signs were installed on the four sides of the hangar. This was coordinated with the Katmai National Park (NP) staff. They will also be installing their emblem once they are obtained. The cooperatively utilized building had no identifiers on it prior to this effort.

In taking advantage of the misfortunes of other programs not being able to accomplish a mission due to bad weather, DRM Poetter was able to complete the installation of new (first time) boundary signs at major access points of the two refuges. The Bell 206 helicopter (91TA), piloted by Jack Gordon, was utilized to do work that was planned to be accomplished primarily by boat, which would have involved weeks of work by accessing the major river systems.

On June 20th, a 3-foot wide x 2-foot high brown and white boundary sign was installed where the "Jensen Strip Road" crosses into the northern tip of the Ugashik Unit, Alaska Peninsula Refuge. Another sign was placed alongside an alternate route that has been made less than a mile to the south. In another location, a sign was put up where the Meshik River flows out of the Chignik Unit, Alaska Peninsula Refuge. On June 24th, a sign was installed behind the debris-line of the Portage Bay beach of Becharof Refuge in front of the abandoned Kanatak Village. Another sign

was erected at the Katmai NP boundary with Becharof Refuge on the King Salmon River. Yet another sign was put at the other end of the King Salmon River, where it leaves Becharof Refuge.

Several new signs were erected at key access points of the two refuges' boundaries. This sign is next to a non-designated ORV trail which runs along the northeastern boundary of the Ugashik Unit, Alaska Peninsula Refuge, from the Jensen Strip area. Mt. Peulik is cloud covered in the background.
06/09/91, RDP

On the 26th, the project was completed when a sign was installed alongside the King Salmon River, where it flows out of the Ugashik Unit, Alaska Peninsula Refuge. Another sign was put along the northwest shoreline of Lower Ugashik Lake. Three signs were placed within two miles of each other on the winding Dog Salmon River, where it flows on and off the Ugashik Unit, Alaska Peninsula Refuge.

MW Terry and DRM Poetter proudly display a newly erected boundary sign located on the Meshik River of the Chignik Unit, Alaska Peninsula Refuge.
06/09/91, JG

Three RITs were hired in early September to assist with subsistence, public use and environmental education (EE) programs on the Complex. Major duties of the RITs include: facilitating the exchange of information between the Complex and local villages; preparing and conducting environmental education and subsistence programs; acting as liaisons between villages and the Service; and assisting in other Complex programs as needed. We are happy to have on board Mrs. Shirley Kelly of Egegik, Mr. John "Smiley" Knutsen of Naknek and Mr. Orville Lind of Port Heiden. The three officially entered on duty September 8th (see Section E.1.).

The RITs are very excited about working for the Service and thus far have provided an invaluable service to us in communicating Complex activities in the villages and schools. With all of the excellent work they have accomplished in just three months we are wondering what we ever did without them!

Public use inquiries continued to increase again this year. There were inquiries from 28 states and 11 foreign countries (Canada, England, Sweden, Germany, Switzerland, Italy, Israel, Czechoslovakia, Poland, Lithuania, and Africa). Over 90 public use inquiries were answered during the year.

April was a month of mail-outs for this office. Information was mailed to every box holder in our area concerning regulations for Subsistence Waterfowl Hunters and a bulletin requesting input on subsistence issues. Educational material in the form of, "We Want Waterfowl for Our Children" posters/tear-outs were also mailed to each post office. Information was provided to ten village schools concerning not harvesting migratory birds during the closed season.

The last Public Use Standards Review for the Complex was conducted in June 1986. It was in dire need of an update. During June 17th thru 20th, Regional ORP Dave Patterson visited the Complex headquarters to facilitate that update. ORP Rodriguez, RM Hood and DRM Poetter provided the necessary assistance. Dave was able to visit several local establishments and meet with people in the Naknek/King Salmon area regarding the subjects of public use and how the Complex's public use program can be improved or modified. A draft revision of the Public Use Standards Review and a "completion report" for the 1986 review were prepared by Dave from Jose's preliminary work and sent it to us on June 26th.

The development of the Public Use Management Plan (PUMP) which will guide the future development of recreation within the Alaska Peninsula/Becharof Refuge Complex, is continuing with the help of Public Use Planner Helen Clough. Helen has been working extensively on the Togiak National Wildlife Refuge PUMP and her expertise will be invaluable in completing the PUMP for this Complex (see Section D.2. and D.3.).

2. Outdoor Classrooms (Education Programs) - Students

In late February, BT Dwight Mumma gave a presentation entitled, "Brown Bears" to the 6th grade class at the Bristol Bay Borough School in Naknek. As an introduction, Dwight explained the mission of the Service and the purposes of the Complex. His presentation then concentrated on brown bear biology and behavior using visual aids and a movie.

A steel shot seminar and shooting clinic was held in King Salmon on April 26th and 27th. This educational effort was sponsored by the Alaska Department of Fish and Game (ADF&G) and the Service. The seminar was conducted by BT Mark Lisac of Togiak Refuge and Interpreter Chuck Hunt of Yukon Delta Refuge. Attendance at the seminar was truly disappointing. Only five duck hunters participated in the seminar and seven in the shooting clinic. ORP Rodriguez served as the Complex's coordinator. An intensive advertising campaign was conducted utilizing posters, a front page article in the local newspaper, and a public notice made on the local cable TV announcements.

DRM Poetter and King Salmon Fishery Assistance Office (KSFAO) Biologist Jeff Adams co-instructed a Hunter Education Course during the evenings of November 6th, 7th, 13th and 14th. A hunter education course had not been presented in the local area for many years and there is a high need for them. The course was sponsored primarily through the ADF&G Hunter Education Program which provided instructor certifications and course materials (hand-outs, study guides, films, tests, certificates, etc.). Co-sponsors of the class included the Service (provided instructors, firearms, and backup audiovisual equipment), the Bristol Bay Borough Parks

and Recreation Department (advertised the activity and coordinated the classroom facilities), and Bristol Bay Borough School District (allowed use of classroom facilities and audio-visual equipment). Eleven middle-school students from the King Salmon/Naknek area attended this class. ADF&G Biologist Dick Sellers and Fish & Wildlife Protection Officer Gary Folger assisted by serving as guest speakers in presenting the topics of wildlife conservation, hunter ethics, and wildlife laws & regulations. Future classes will be conducted to educate and certify more of the local hunters.

With the new RIT program in place, staff time and talents are being devoted to developing and presenting EE programs for adults and children in nearby villages. Towards this goal of providing quality education programs, RIT Kelly coordinated and instructed a week-long EE class for students in the village of Egegik in late December. She used the curricula "Wildlife and Wetlands" to instruct 10 students in grades 4th-6th. She met with the students each day for four hours. The week after Christmas was chosen to take advantage of the children's vacation. We wanted to provide an educational experience for the village children during the quiet time after Christmas and before returning to school. Shirley reports the children had a lot of fun learning about the natural environment and the importance of protecting habitat for wildlife. We are planning to present more of these environmental workshops in other villages throughout the school year.

Throughout the year several video tapes were sent to local schools for use in the classrooms. We are actively expanding our audio-visual library and currently make these materials available to village teachers. Beverly Farfan and Cathy Rezabeck in RO Resource Support have been very helpful by providing the Complex with video materials to use. We will also make use of the extensive video library at the Kenai National Wildlife Refuge.

3. Outdoor Classrooms (Education Programs) - Teachers

One Complex goal, in expanding EE, is to "teach the teachers" so that they can then teach their students in the village schools. Working towards this goal ORP Rodriguez requested assistance from the RO to conduct an in-service EE workshop for the two local school districts (Bristol Bay Borough and Lake & Peninsula). An in-service EE training session was conducted in August for the Lake and Peninsula School District. This training was held in Anchorage and instructed by RO Resource Information Specialist Beverly Farfan. A similar in-service workshop for the Bristol Bay Borough School District was in the planning stage for the fall, but could not be accomplished due to the resignation of the Complex ORP. We are planning to conduct the in-service workshop in spring 1992.

6. Interpretive Exhibits/Demonstrations

The third annual winter festival (Winterfest) was held in early February. This local event is held in Naknek and King Salmon to help combat the "winter blues." In connection with the festival, a one day bazaar is held in the school building. This year, ORP Rodriguez set up a large "Nomad" exhibit, provided by the RO, for display during the bazaar. The exhibit

presented information on the North American Waterfowl Management Plan. WB Dewhurst staffed the display to answer questions about a variety of Complex/Service activities. Key information disseminated dealt with the closed season on migratory bird hunting. This educational effort was aimed at increasing the public's understanding of waterfowl problems and informing them of the Service's policy in addressing these problems.

In December, a "Nomad" exhibit obtained from the RO was placed in the Paug-Vik Native Corporation Building and then the Bristol Bay Borough Building, both in Naknek. The exhibit was available for viewing for one week at each location. A total of 125 people viewed the exhibit. This brand new exhibit gives the viewer a general orientation to the Service missions, goals, and recreational opportunities.

The King Salmon inter-agency (ADF&G, NPS, & Service) information kiosk was relocated to a site more accessible to the visiting public last year. Since this move to an area north of the MarkAir and Pen Air terminals, many more people now utilize the exhibit. It is not the most ideal location but is the best for now. We identified a parking problem at the kiosk early this spring. The area on either side of the kiosk was being used as a parking lot by local workers, which interfered with public access to the exhibit. To help solve this problem the staff installed "No Parking" signs on either side of the kiosk structure.

The need for an inter-agency visitor center in King Salmon has been discussed for a number of years. In late September, a meeting was held with representatives from the Complex, NPS and Bristol Bay Borough to discuss the possibility of cost-sharing space, in the west end of the MarkAir terminal building, to house an inter-agency visitor center. The concept of an inter-agency visitor center in King Salmon is very exciting, and if the needed funding can be generated, we will be able to provide this much needed service to the visiting public. We would very much like to have the funding and administrative details worked out in time to have a visitor center open by spring or early summer. On October 29th, a second meeting was held with representatives from the Service, the NPS and the Bristol Bay Borough to continue discussing the possibility of cost-sharing space to house an inter-agency visitor center. In attendance at the meeting were Steve Hurd (Chief Ranger) and Mark Wagner (Interpretive Specialist) representing the NPS, Scott Janke (Community Development Director) and Mike Maynard (Recreation Supervisor) representing the Bristol Bay Borough, and RM Hood who represented the Complex. The three agencies would very much like to be able to open an inter-agency visitor center in the spring or early summer.

7. Other Interpretive Programs

In May, advantage was made of village visits (spring waterfowl hunting discussions) to conduct interpretive programs at some of the schools. DRM Poetter, ARM/P Arment and Service Volunteer Angie Terrell-Wagner (filling in for ORP Rodriguez) traveled to the villages of Chignik Bay and Chignik Lagoon in mid-May to meet with community members. During the day, school programs were given in the two villages. At Chignik Lagoon, 12 students in grades K thru 12 were given a 30-minute presentation concerning local wildlife/waterfowl. The video, "Wild Heritage: Alaska Geese" was shown.

The presentation at Chignik Bay exposed the students to the Service's Spring Waterfowl Hunting Policy. The "Alaska Geese" video tape was also shown. The program was attended by 22 students (grades 3 thru 12), four teachers, the school maintenance man and the village Public Safety Officer.

Also in May, ORP Rodriguez developed a slide show about the Complex as requested by staff of the Alaska Maritime National Wildlife Refuge. The slide program was used on the Alaska Marine Highway Ferry that sails from Homer to Dutch Harbor during the summer months.

In an inter-agency cooperative education effort, WB Dewhurst traveled to Brooks Camp in Katmai NP, in late May, to conduct plant identification training for the new seasonal park rangers. She instructed a total of 15 people in a three hour class. The course included both classroom instruction and field identification.

Volunteer Terrell-Wagner and ORP Rodriguez drafted an extensive EE Plan (EEP) for the Complex in June. The plan will provide direction for the EE Program at this Complex for the next 3 to 5 years. It was submitted to the RO on the 4th. In late December, PR Terrell-Wagner attended a follow-up workshop to discuss the EEP and the funding available to implement the plan.

An EE Strategies and Goals Workshop in Anchorage on September 13th. Objectives of the workshop included discussions of current EE projects, activities and contacts within the region (see Section E.1. for more details).

A Natural Resources Communication Workshop was held in Anchorage on October 21st and 22nd. The two-day class was sponsored by the Alaska Chapter of the American Fisheries Society (AFS) and the Service (see Section E.1. for more details).

In late October, WB Dewhurst reviewed a draft copy of a publication entitled, "Natural History of Katmai National Park and Surrounding Areas." This book contains a section on the natural wonders of the Complex. The appropriate chapter was reviewed for accuracy. The book is scheduled to be published in spring 1992.

Advantage was made of village visits (Draft Environmental Impact Statement on Subsistence Management on Federal Public Lands) to conduct a presentation for the school children at Chignik Lake. On November 6th, RM Hood, PR Terrell-Wagner, RITs Kelly, Knutsen and Lind, and Katmai NP Subsistence Ranger Susan Savage talked with approximately 30 students in grades K-12 about career opportunities with the two federal agencies.

RM Hood, Subsistence Biologist Dave Fisher and RIT Knutsen are pictured with the K-3rd grade students of Chignik Lake. Career opportunities were the topic of discussion. 11/91, SK

On November 19th, PR Terrell-Wagner and RIT Knutsen participated in a "Career Day" for middle and high school students at the Bristol Bay Borough School in Naknek. A total of 30 young adults learned about career opportunities with the Service including summer jobs available for high school students with the Youth Conservation Corps and the Resource Apprenticeship Program for Students. Ten students expressed a strong interest in these programs so we anticipate no problems recruiting for these positions next summer.

Several Complex staff reviewed and gave constructive comments on an ADF&G pre-test questionnaire booklet entitled, Alaska's Wildlife, What is it Worth to You? In final form, the questionnaire will be distributed to both hunters and non-hunters throughout the state to gather comments about how the public feels state wildlife resources should be managed.

The 1992 Yukon-Kuskokwim Delta (YKD) Goose Calendars and contest rules/entry forms for the 1993 YKD Goose Calendar Art and Essay Contest were received in late November. We appreciate the efforts of ORP Vicki Davis and RIT Billy Lincoln of Yukon Delta Refuge in getting the calendars to us for distribution before the new year begins. The calendars were sent to the 12 villages on or near the boundaries of the Complex. We have several very talented young artists in the local villages so we have been actively promoting the 1993 poster and essay contest. We are hoping that at least one local student will become a winner next year. To promote the

poster/essay contest we had RITs Kelly, Knutsen and Lind visit schools in Naknek, Egegik, Levelock and Port Heiden to explain the contest to teachers and students. We sent copies of the contest rules and entry forms to schools at Chignik Bay, Chignik Lagoon, Chignik Lake, Ivanoff Bay, Nondalton, Perryville, and Pilot Point. On December 10th and 11th, RIT Knutsen spent time talking with approximately 300 students in grades K-12 at the Bristol Bay Borough School in Naknek about the goose calendar contest.

RIT Knutsen and NPS Subsistence Ranger Savage took advantage of the village visit to Levelock, on December 5th, to talk with the school children. They spoke with 20 students about the mission of the two federal land management agencies and highlights of the natural resources managed within the boundaries of the Alaska Peninsula/Becharof National Wildlife Refuge Complex and Katmai National Park. RIT Knutsen then explained the 1993 YKD Goose Calendar Art and Essay Contest, and encouraged the students to submit their art and creative writing for the contest.

8. Hunting

Hunting is a major category of public use on the Complex. Commercial guiding includes hunts for world-class trophy brown bear, caribou and moose. Some hunters take advantage of overlapping seasons of the three species. However, brown bear seasons occur on an 18 month rotation (spring hunt during even years and fall hunt in odd years).

For both the Alaska Peninsula and Becharof refuges, King Salmon has been the hub for commercial air service. Once a hunting party arrives in King Salmon, air taxi and charter services are available to most areas on the two refuges. King Salmon is the base of operation for numerous guide/lodge businesses operating 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, species of animal hunted and the area hunted. Commercial guide fees for caribou or moose hunts may range from $2,500 to $3,500 and a brown bear hunt may cost $5,000 to $10,000.

Individuals wishing to go hunting on their own will have to be more prepared, but can save money. According to state law, if you are a non-resident hunter you are required to be "guided" on brown bear hunts. The fees set by ADF&G for resident and non-resident licenses and tags are listed in Table 14. Once the proper licenses and tags are obtained, the cost of an air charter can range from $150 to $625 per hour of flight time. An average round-trip flight to a hunting location will take three or more hours.

Table 14. Alaska resident and non-resident license and tag fees for 1991.

Type of License	Non-resident	Resident
Hunting	$ 85.00	12.00
Sport fishing and hunting	$ 135.00	22.00
Caribou tag	$ 325.00	0
Moose tag	$ 400.00	0
Brown bear tag	$ 500.00	25.00

An "above average" size (60 inch rack) moose shot near Granite Peak on Becharof Refuge. 9/91, DDM

Hunters are required to submit a "hunt report" to ADF&G at the close of the hunting season. The report includes information on harvest success. Due to the long hunting seasons, ADF&G lags behind one year in processing the harvest reports, thus hunter success in calendar year 1990 is shown in Tables 15 and 16.

Table 15. Caribou and moose reported harvest for Alaska Peninsula Game Management Units (GMU) 9C and 9E, 1990 (ADF&G data).[a]

Species	Bulls	Cows	Unknown	Total
Caribou	679	110	2	791[b]
Moose	143	4	0	147

[a]Harvest reports include both Alaska Peninsula and Becharof refuges. (Reporting dates for caribou are from August 1989 to March 1990. Moose are for the 1989 season only.)
[b]Other Alaska residents (not local) took 345 caribou, non-resident hunters took 358 caribou and local resident hunters reported 49 caribou taken (this number is considered to be way low as the majority of local subsistence hunters do not report their success to ADF&G.

Table 16. Brown bear harvest for the Alaska Peninsula, 1975-1989, GMUs 9C and 9E (ADF&G data).

	Total	Percent	Mean Age		Percent Harvest[a]	
Date[b]	Bears	Boar	Boar	Sow	Boar	Sow
1975-76	261	62	6	7	49	51
1977-78	311	64	6	7	45	55
1979-80	316	68	6	6	47	53
1981-82	339	59	6	6	47	53
1983-84	268	61	6	8	53	46
1985-86[c]	263	64	7	8	60	37
1987-88[d]	398	62	6	6	69	29
1988-89	347	66	-	-	66	34
1989-90	328	67	-	-	-	-

[a]Figure represents bears 5 years of age or older.
[b]Brown bear hunting season on the peninsula is on a rest-rotation schedule, e.g., the fall of 1985 was open, followed by a season in the spring of 1986. There was no other open season until the fall of 1987, essentially an 18 month cycle.
[c]Includes seven bears of unknown age and/or sex. Drainages listed on harvest reports indicate 144 (55 percent) of the total harvest was taken either on Alaska Peninsula or Becharof refuges.
[d]Includes 12 bears of unknown age and/or sex.

In early April, RM Hood and ORP Rodriguez attended a meeting of the King Salmon Air Force Station's Wildlife Ethics Committee. Opportunities for cooperative activities for this summer were discussed, as well as the Service's Spring Waterfowl Hunting Policy. The Wildlife Ethics Committee (members of Base Police) were requested to assist our efforts by reporting any spring hunting that they observed. Also attending the meeting was Jim Larson, KSFAO Project Leader and Steve Hurd, Chief Ranger for Katmai NP.

The 1991 brown bear hunting season on Complex lands opened on October 7th and closed on the 21st, except for the Naknek River drainages of Unit 9C which ran from September 1st thru October 31st. Special Agent (SA) Roger Parker provided assistance by patrolling the Alaska Peninsula from October 5th thru 13th. He based out of Complex headquarters in King Salmon for half of the period and out of field camps during the rest of the tour. We really appreciated his efforts!

On November 29th, ADF&G issued Emergency Order No. 02-21-91 closing the entire Naknek River drainage to the taking of antlerless moose. The ADF&G closure included the Big Creek drainage on the Becharof Refuge. ADF&G's decision was based on their concern for the moose population north of the Naknek River, along the King Salmon Creek drainage. They did not survey moose populations south of the river. When the need for Federal action became apparent, we began attempting to survey the moose population in the Big Creek drainage. As a result of our survey, on December 10th, we forwarded a recommendation to the Federal Subsistence Board that an emergency order be issued closing Federal lands within Naknek River drainage portions of Unit 9C to the taking of antlerless moose.

A "Hunter Education" course was instructed by DRM Poetter and KSFAO Biologist Jeff Adams during four evenings in November (Section H.2.).

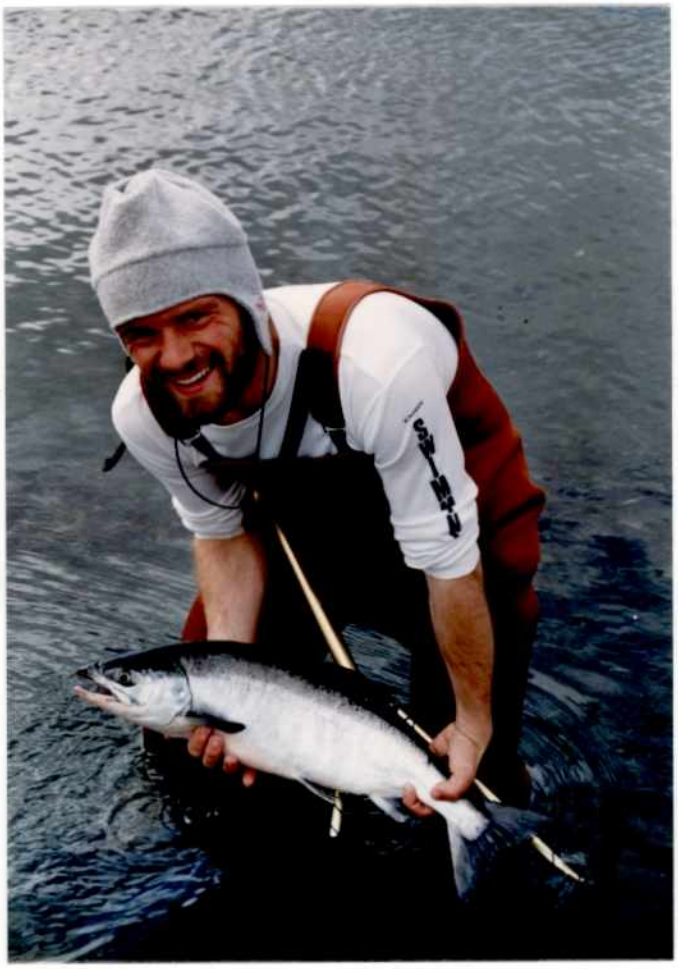
9. Fishing

A fly-in visitor enjoys the unique opportunity of "surf fishing" for chum and pink salmon in Puale Bay on the Alaska Peninsula. 7/91, JHM

The rivers and lakes within the Alaska Peninsula/Becharof Refuge Complex provide world-class fishing opportunities. Game fish include arctic grayling, burbot, dolly varden/arctic char, rainbow trout and five species

of Pacific salmon. 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 (Narrows). In 1981, the Alaska record arctic grayling was caught in the Narrows.

Based on studies done by ADF&G, the State Board of Fisheries issued a regulation closing the Ugashik lakes' drainage to the taking of arctic grayling in 1990. The study showed that the arctic grayling stock at the Narrows decreased significantly from 1,200 fish in 1988 to approximately 500 in 1989. The Narrows is a half mile stretch of stream connecting Upper and Lower Ugashik lakes.



The formula for a happy fisherman is, a successful day of chum salmon fishing in coastal streams of Becharof Refuge.
7/91, TAB

Over 20 guides/lodges and transporters/air taxis offering fishing packages, are permitted for operating on the Complex. 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 $1500 to $5000, depending on the length of stay and quality of amenities offered by the lodge.

To document the winter harvest of fish in the King Salmon and Egegik Rivers, RIT Kelly has been designated as a "creel clerk" for the ice fisheries that occur near the village of Egegik. The information she is collecting will be used by the KSFAO.

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 the price fluctuation of raw hides. Fox, mink, ermine and beaver are commonly trapped. To a lesser extent, coyote, wolf, wolverine, lynx and land otter are caught. As a method of monitoring take, ADF&G requires a sealing tag be placed on the untanned skin of wolverine, wolf, lynx, land otter and beaver. Data from the sealing records is listed in Table 17. No records are available on ermine, fox, mink, or coyote.

Table 17. Fur bearer harvest in GMUs 9C and 9E (ADF&G data).

Year	Number Harvested				
(winter)	Beaver	Otter	Lynx	Wolverine	Wolf
1984-85	---[a]	24	4	14	14
1985-86	166	25	23	20	10
1986-87	240[b]	112[b]	27	22	10
1987-88	254[b]	152[b]	3	30	14
1988-89	57	53	4[c]	36	23
1989-90	108	52	2	31	23
1990-91	91	31	2	23	12

[a]No data available.
[b]Indicative of increasing prices for short-hair furs.
[c]All taken from Unit 9E.

A press release was written and distributed to local media in late October regarding the upcoming trapping season and the Complex/Service's desire to prevent unnecessary bald eagle deaths that result from some trapping methods currently used. Suggestions were given on how to reduce bird mortality while at the same time increasing trapping success. The public was also encouraged to contact the nearest U.S. Fish & Wildlife Service Office (Dillingham or King Salmon) if a raptor is caught in a trap, so that injured birds can be rehabilitated and dead bird parts distributed, to Native Americans in the Lower 48, for customary and traditional uses.

15. Off-Road Vehicles

The Alaska National Interest Lands Conservation Act (ANILCA) modified the way we manage off-road vehicles in Alaska. When a person is pursuing

traditional activities on Complex lands (including wilderness) they may use snow machines, motorboats, airplanes and non-motorized surface transportation. When rural residents are involved in subsistence activities they may use snow machines, motorboats, off-road vehicles and other means of surface transportation that have traditionally been used.

Some commercial big game guides used tracked all-terrain vehicles before the passage of ANILCA. Refuge policy limits this use to: 1) Trails between camps and/or 2) access to inholdings (43 Code of Federal Regulations (CFR) Part 36.10 and 36.1). Three special use permits have been issued to guides for use of tracked all-terrain vehicles.

The Alaska Peninsula's ever-changing weather prevents long term snow cover in winter. Thus, snow machines cannot be relied upon for surface transportation. As a result, the three-wheeled all-terrain vehicle and, more recently, the four-wheeled all-terrain vehicle have become the main method of cross-country transportation for Alaska Peninsula residents.

17. Law Enforcement

Bill and Ruth Ivanoff standing outside their smokehouse where they were drying the subsistence taken beluga whale. Bill proclaims he is "the last beluga hunter in the area." 04/10/91, DAD

WB/Refuge Officer Dewhurst responded to reports of possible beluga whale poaching in Naknek on April 10th. After a preliminary investigation,

contact was made with Special Agents of the National Marine Fisheries Service. Donna was asked to serve as investigator for them due to travel costs. Carcasses of an adult beluga cow with unborn fetus were discovered tied to the river bank near the Martin Munson Park. It was determined to be a subsistence take, but possibly a wanton waste case. Interviews of local residents provided tips which led to the hunter, a local Yupik Native originally from Unalakleet. Upon inspection of the meat and muktuk taken, it was determined to be a legal subsistence take with no violations. Much was learned from this case as to subsistence whale hunting activities around King Salmon and the pertinent regulations.

This spring an intensive effort to locate and contact subsistence waterfowl hunters was undertaken in most parts of Alaska, including on the Alaska Peninsula. Several flights were made to patrol for waterfowl hunters and egg collectors in late April and in May. During ground waterfowl surveys along the Naknek River, an eye and ear was kept alert for any hunting activity. The emperor goose migration watch field camps located at Cinder Lagoon, Strogonof Point, Seal Islands and Nelson Lagoon all kept watch for activity. A total of 23.9 staff days were logged by the combined effort of the Complex's three refuge officers. Another 45.9 staff days were recorded by other staff members. Two hundred and forty staff days were spent afield by other Service employees (primarily emperor goose migration field camps). No activity was heard or observed.

WB/Refuge Officer Dewhurst traveled to Seal Islands and Strogonof Point, on May 2nd, on a chartered re-supply flight along the Bristol Bay coast to the emperor goose migration watch camps located there. A spring waterfowl law enforcement patrol along with radio-tracking for emperor geese was conducted enroute. No spring hunting was observed.

Three brown bears were killed in one incident on September 9th. Tom Shuler, a National Marine Fishery Service enforcement officer from Mississippi, and a male companion were hunting caribou and moose on Becharof Refuge. They set up camp along the shoreline on the Severson Peninsula of Becharof Lake. After one day of hunting, a sow and two yearling cubs approached the camp and reportedly did not heed the waving of arms and shouting. The sow was shot dead and then the two cubs shortly thereafter. The cubs were reported to have become agitated upon the shooting of the sow. The Complex staff heard of the incident through the local Fish and Wildlife Protection Officer, who had received word a note had been left in a camp across the lake telling of the incident. The individuals had been flown in from Kodiak and returned that way. The hides and skulls of the two cubs were taken into the ADF&G office in Kodiak for reporting as a "Defense of Life and Property" shooting. The sow's hide and skull were reported as being unrecoverable, after being buried for later retrieval prior to the hunters leaving the area. The shooting was declared justified by the Kodiak office, but doubt remains in our minds. Were the shooters the cause of the shooting due to the closeness of the camp to the shoreline, and obvious high traffic area by bears, or was it a messy campsite, or was there game meat in camp?

This wolf was observed near the lower end of the Kejulik River on Becharof Refuge. Through recent development of the "Wolf Management Plan", it is now illegal to shoot them from airplanes or land and shoot (same-day-airborne) in Unit 9. 06/27/91, REH

DRM Poetter patrolled the Naknek River and Big Creek for waterfowl hunters September 7th, 14th, 15th and 21st. Very little activity was discovered. Bird numbers in the area had been extremely low. Most of the local birds were "gunned" out of the area during the first week-end of the season. The duck production survey figures verify that this year's production was close to half of what it was last year. During the patrol for waterfowl hunters, on the Becharof Refuge portion of Big Creek, all moose and caribou hunter activity was closely monitored.

On September 18th, information was provided by permitted guide Gus Lamoureaux that a man and wife were stranded on Upper Ugashik Lake and another man was in his camp. The party was described as having been hunting moose on the Alaska Peninsula Refuge up Deer Creek and on their way back to the lake their motor broke down. Mr. Lamoureaux had rescued the one man and taken him to his camp by plane. It was suspected that the man was guiding (without a permit) the couple on a moose hunt. DRM Poetter and WB Dewhurst quickly responded, with the assistance of the Katmai National Park Pilot Joel Collins, to investigate. Contact was made with the man at the camp, but the couple with the disabled boat were gone. All individuals were located and interviewed. It turned out that all the individuals were employees or co-owners of the Bears Den Lodge (located on the outlet of Lower Ugashik Lake just off refuge) and were on private hunts, not guided.

In November, through his investigative efforts, ARM/P Arment discovered three violations had occurred during the October brown bear hunting season. Citations were issued to two Kodiak based air taxis companies and a big game guide for "conducting a commercial enterprise on a National Wildlife Refuge without a permit." The two air taxis argued that since they were permitted for operating on Kodiak Refuge, they could also conduct business on Becharof Refuge. We disagreed! The big game guide has been issued permits in the past. The staff had his permit ready for his signature and fee payment, but he failed to complete the process and went afield to conduct his business without finalizing his permit. One air taxis and the guide paid their $250.00 fines in December. The other air taxi decided to go before the judge and was found guilty and fined $250.00.

Jute Peak Field Camp

Environmental monitoring connected with the 1989 Exxon Valdez oil spill has been beneficial in discovering a variety of non-spill activities occurring in remote areas on the Complex's Pacific coast. One such activity is the substantial amount of commercial salmon fishing occurring within close proximity of nesting colonies of common/thick billed murres and black-legged kittiwakes. The commercial fishermen utilize purse seines to catch salmon directly below the nesting cliffs. To increase fishing success fixed-wing aircraft are used for spotting the schools of fish. Based on observations made by Puale Bay field camp crews in previous years, it was suspected that the close proximity of both the fishing vessels and the spotter aircraft was causing undue hardship on reproduction of the murres and kittiwakes. It was hypothesized that activities of the fishing vessels and aircraft were causing occupants of the colony to take flight resulting in eggs being destroyed, young being exposed to avian predators and disturbance to rafts of birds feeding on the water. The Migratory Bird Treaty Act prohibits the harassment of these species.

To investigate the suspected seabird disturbance, a law enforcement surveillance camp was established, this summer, near Jute Peak on the Pacific coast of Becharof Refuge. Jute Peak is located approximately 15 miles south of the Puale Bay field camp.

The primary objective of the Jute Peak camp was to monitor the effects of commercial fishing operations (fishing vessels and low flying aircraft) on the nesting seabird colony (No. 005) of 15,000 common/thick-billed murres and 2,000 black-legged kittiwakes.

Secondary objectives of the camp included: 1) establish population plots and conduct population surveys of the sea birds; 2) establish productivity plots and monitor productivity of common/thick-billed murres; 3) maintain daily records of mammalian and avian sightings; 4) record human/brown bear interactions and the effectiveness of various hazing techniques; and 5) collect and photograph local flora for the refuge herbarium and keep weekly flowering phenological records.

Staff for the two person "survival" camp included PR Angie Terrell-Wagner (field camp supervisor) and Service Volunteer Brenda Eliason. Brenda is a

conservation biology major at Brigham Young University and was signed on as a volunteer on May 5th.

Because of remoteness and limited accessibility to the Jute Peak area, rotary-wing aircraft used to transport Puale Bay field camp gear was also utilized to move Jute Peak camp equipment on June 22nd. The limited camp equipment was left on site in "bear proof" barrels. The Jute Peak field camp was then staffed on July 14th, when PR Terrell-Wagner and Volunteer Jim McCarthy were delivered by helicopter to the remote area. This date coincided with the opening of the commercial salmon fishing season. During the week of July 14th-21st, Puale Bay field assistant Jim McCarthy was detailed to the Jute Peak camp to help set up the camp, assist with fishing operation surveillance, and to establish population and productivity plots of the colony nesting seabirds. McCarthy was detailed to fill in for Brenda while she completed a paid work assignment with ADF&G. On July 21th, Brenda was flown in by helicopter to replace Jim. Jim was then flown back to Puale Bay to resume his assigned duties at that field camp.

The Jute Peak surveillance camp was in operation from July 14th-August 21st. The camp was dismantled on August 21st and the two person staff transported by zodiac boat to Puale Bay, then flown on to King Salmon by fixed-wing aircraft. Jute Peak camp gear was removed during the Puale Bay field camp dismantling that occurred September 25th and 26th.

These three commercial vessels are fishing at the base of the Jute Peak nesting colony of 15,000 common and thick-billed murres and 2,000 black-legged kittiwakes during the height of the nesting period.
07/91, ART-W

Jute Peak camp staff spent approximately six weeks monitoring the effects of commercial salmon fishing operations on nesting seabird colonies. Daily monitoring included observing and recording all activities of fishing vessels and aircraft visible from an established observation point directly south of the bird cliffs. The viewing area was located approximately 400 feet above the ocean. During six weeks of operation, field camp staff observed a total of 19 different fishing vessels, three tenders, and 17 fixed-wing aircraft.

Most commercial fishing activities that disturbed the common/thick billed murre and black-legged kittiwake colonies occurred 1/8 to 1/2 mile off-shore. A variety of disturbance to the cliff colonies and birds in the water were documented.

Forms of disturbance observed include: 1) fishing vessels motoring through rafts of feeding birds; 2) birds displaced as fishing nets were released, pursed, and then drawn back on board the fishing vessels; 3) birds getting caught in fishing nets resulting in bird mortality; 4) shots fired from a handgun aimed directly at the bird cliffs; 5) numerous fuel spills; and 6) garbage thrown overboard.

As a result of the surveillance activities SA Roger Parker investigated a crew member and captain of one of the fishing vessels for harassing wildlife. The fisherman was observed discharging a handgun directly at the nesting seabird colonies. It was determined that the offender was a juvenile, so no citation was issued.

A detailed report summarizing surveillance activities, and observations made during the Jute Peak Camp operation, will be completed in early 1992.

18. Cooperating Associations

On December 9th-11th PR Terrell-Wagner attended the annual Alaska Natural History Association (ANHA) Branch Manager's Workshop held in Anchorage. If we accomplish our goal of opening an inter-agency visitor center in King Salmon in spring 1992, then the refuge will have the opportunity to establish a close working relationship with ANHA. With approximately 26,300 passengers coming through the MarkAir and Pen Air airline terminals in 1991 and a similar number anticipated in 1992, the sales of ANHA interpretive materials should be good.

20. Cabins

It is the policy of the Service to allow the continued customary and traditional uses of existing cabins (constructed prior to December 2, 1980), provided that the uses are consistent with existing laws and regulations and are compatible with the purposes for which the refuge was established (ANILCA 304(d), 1303(b), 1315 and 1316). Service policy is to limit new cabins to those essential for the continuation of an "ongoing activity" or use allowed within the refuge (ANILCA 304(d), 1303(b)).

The Complex office currently maintains a database of all cabins located within the Complex exclusive of those on private inholdings. The database includes: 55 cabins by Complex Unit, Township, Range and Section(s); a

description of each structure in terms of construction material; square footage of floor space; and type of use pattern.

The Becharof Refuge currently has six cabin sites with usable structures. Current status of these cabins are: three have been permitted (big game guide 1, subsistence use 1 and youth camp 1); one is pending and being handled in conjunction with Bureau of Land Management as part of a "Trade and Manufacturing" site application; and two are designated for administrative purposes. The Becharof Refuge also has six private inholdings with associated cabins.

The Ugashik Unit, Alaska Peninsula Refuge currently has 13 cabin sites with usable structures. Current status of these cabins are: eleven have been permitted (big game guide 9, sport fish guide 1, and subsistence 1); one application is pending and located on a 14(h)(1) historic site; and one is designated for administrative purposes. The Ugashik Unit also has ten inholdings with associated cabins.

The Chignik Unit, Alaska Peninsula Refuge currently has 13 cabin sites with usable structures. Current status of these cabins are: nine have been permitted (all big game guides); three applications are pending under two cases; and one is designated for administrative purposes. The Chignik Unit has four inholdings with associated cabins.

Remnants of cabin owned by big game guide John Swiss located near Black Lake on the Chignik Unit, Alaska Peninsula Refuge. 6/91, DAD

A cabin was suspected to have been built in trespass along Landlock Creek on the Chignik Unit, Alaska Peninsula Refuge. Landlock Creek is a tributary of the Meshik River. On June 19th, a helicopter was utilized,

while working in the area, to look for any unknown cabins. One was discovered about two miles upstream of the confluence of the waterways. A return visit was made weeks later to post notice of trespass and request the owner to identify themselves. By year's end, no positive identification had been made; we do have a suspect.

This cabin is located alongside Landlock Creek. It was discovered to be in trespass and a notice posted on the door. 06/91, DAD

21. Guides-Outfitters

The Alaska State Supreme Court ruled on October 21, 1988 (Owsichek vs. State of Alaska, Guide Licensing and Control Board) that exclusive guide areas were unconstitutional. The State subsequently established a legislative task force to develop a system for managing commercial big game hunting. The Service supported the State's effort and announced a "moratorium" policy that limited guiding activities on Refuges to those levels of 1988. This was done in order to protect big game resources on Refuges while giving the State time to develop an allocation system.

After the State failed to pass legislation in the spring of 1990, the State's Big Game Commercial Services Board (Board) was established. The Board's task was to develop an allocation system through regulations. To give the newly appointed Board time to develop and implement a system, the Service extended its moratorium to January 1, 1991. The Board failed to meet that date, but had developed satisfactory proposed regulations which they planned to implement in 1992. Therefore, the Service extended the moratorium policy another year because we continued to believe that a single statewide allocation system would benefit both the wildlife resources and the guiding industry.

It has now been over three years since the Owsichek decision and the State of Alaska has failed to implement an allocation system to date with no satisfactory action in sight. The Service is now in a position, where in fairness to the guiding industry, the moratorium should be ended. The Service is proposing to implement its own allocation system on Refuge lands until such time that the State implements a system which meets statewide as well as Service needs and mandates. The objectives of this program are:

-- The management program will ensure commercial hunting operations are compatible with refuge purposes.
-- Commercial big game hunting will be regulated in a manner which does not significantly displace other public uses on refuges.
-- The program will provide the public with high quality and safe recreational hunting opportunities.
-- The allocation system shall provide equal opportunity to all qualified and interested individuals to compete for refuge special use permits.
-- Management of big game commercial services should be as consistent as possible on all Service lands.
-- Management of big game commercial services will be coordinated with other Federal agencies to maintain consistency whenever agencies' policies/mandates allow.
-- Opportunities to compete for big game commercial services will be provided annually.

Selection of permittees for all guide use areas on Refuges is planned to be completed by December 31, 1992. Selection will be conducted on a competitive basis using a prospectus with invitation for proposal system.

Other alternatives were considered during Service contingency planning. On April 17th and October 23rd-25th, RM Hood participated as a team member of the Region 7 Big Game Guide Work Group which was charged with drafting a Regional policy and contingency plan which included consideration of other alternatives. These alternatives and highlights of the reasons they were not selected follow:

-- Full and Open Competitive Bid - This alternative discriminates against less affluent guides who may be very qualified to provide high quality and safe guiding services to the public on refuge lands.
-- Concession Contracts - This would be a very expensive alternative for the government to administer and fees would have to be high in order for the government to recover costs.
-- Lottery - The Service would not have the control needed to select the most highly qualified guides in order to ensure that the public receives high quality and safe guiding services on Refuge lands.
-- Seniority (grandfather existing permittees) - Does not conform with the Service's equality policy and does not ensure that the most highly qualified guides are selected.
-- First Come, First Serve - Also does not ensure that the most highly qualified guides are selected and that the public receives high quality and safe guiding services.

-- Harvest Permit by Lottery - This is in direct conflict with the State's primary role to regulate harvest.
-- No Action (maintain moratorium) - The Service has a responsibility to the guiding industry to fairly allocate permits.

The Service believes the prospectus with invitation for proposal method is the fairest system to the guiding industry while also meeting Service needs and objectives.

Applications for Big Game/Outfitter, Fishing Guide/Outfitter, and Transporter special use permits were updated and revised in January to reflect the latest status of the interim management policy.

A total of 60 special use permits were issued for commercial big game and fish guiding, and transporting activities occurring within the refuges (Table 18).

Table 18. Special use permits issued for Big Game/Fish Guides/Outfitters and Transporters 1982-1991.

YEAR	GUIDE-OUTFITTER	FISHING GUIDE	TRANSPORTER	TOTAL PERMITS
1982	33			33
1983	30			30
1984	33	2		35
1985	33	3	4	40
1986	30	8	4	42
1987	36	13	4	53
1988	36	19	6	61
1989	30	20	8	58
1990	27	24	9	60
1991	27	20	10	57

A total of 48 commercial guide/outfitter permittees recorded approximately 6,279 total client use days within the Complex last year (Table 19). Fishing clients represented approximately 79 percent of the total clients and 60 percent of the total client use days.

Table 19. Permittees and total associated client use within the Complex - 1990.

	Big Game Hunting		Fishing		Total	
Permittee	Clients	Client Days	Clients	Client Days	Clients	Client Days
Aldridge	9	68	5	25	14	93
Branham			130	260	130	260
Brod			22	172	22	172
Carlson			20	140	20	140
Cerami	3	21			3	21
Cusack, M.			242	242	242	242
Cusack, M. JR[a]						
Flynn, D.	14	55	6	11	20	66
Flynn, H.	3	15	2	10	5	25
Gaudet[a]						
Gillis	15	97	6	6	21	103
Grasser	13	76	125	857	138	933
Hammond[a]						
Hancock	7	52			7	52
Harms			12	84	12	84
Hautanen	6	32			6	32
Hayes			50	110	50	110
Hendricks	8	42	4	12	12	54
Holman			32	32	32	32
Johnson, B.			16	16	16	16
Johnson, K.	24	140			24	140
Jones, B.	23	257	16	75	39	332
Jones, E.	6	44			6	44
King	4	30	9	90	13	120
Kirstein	19	202	17	119	36	321
Klutch	39	249	21	55	60	304
Lamoureux	11	119	12	104	23	223
Langvardt	16	160	10	100	26	260
Lazer	11	99	11	55	22	154
Martin			120	420	120	420
Matthews			102	102	102	102
McNutt	5	27			5	27
Meredith	4	32			4	32
Munsey[a]						
Meyers, J.	6	30			6	30
Pederson, H.	1	14			1	14
Runyan	8	75	3	3	11	78
Shoemaker	27	151	15	65	42	216
Sims			20	20	20	20
Smith, J.W.			35	245	35	245
Sugimato			7	7	7	7
Suiter			89	89	89	89
Summerville			9	19	9	19
Swiss	8	75			8	75
Tudor			10	10	10	10
Vrem	38	331	20	84	58	415
Wooden[a]						
Woods			55	147	55	147
Totals 48	328	2493	1253	3786	1581	6279

[a]Names associated with no data are individuals not having exercised the privileges of their permit.

Table 20. Permittees, clients use and big game harvested within the refuges - 1990.

	Bear					Moose					Caribou					
Permittee	Clients	Client Days	Harvest M	F	T	Clients	Client Days	Harvest M	F	T	Clients	Client Days	Harvest M	F	T	Harvest Unit(s)
Aldridge						2	10	2		2	7	58	5		5	Ugashik
Cerami	3	21	2	1	3											Becharof
Flynn, D.						3	12	1		1	11	43	9		9	Ugashik
Flynn, H.	1	5				2	10	2		2						Ugashik
Gaudet[a]																
Gillis	7	49	6	1	7	2	6	2		2	6	42	6		6	Chignik
Grasser	2	12		1	1	2	10	1		1	9	54	8		8	Ugashik
Hammond[a]																
Hancock	3	30	2		2	2	10	1		1	2	12	1		1	Ugashik
Hautanen						2	18	2		2	4	14	4		4	Ugashik
Hendricks	2	16				3	13	3		3	3	13				Ugashik
Johnson, K.	12	100	5	1	6	6	34	5		5	6	6	6		6	Chignik
Jones, B.	9	144	5	2	7	5	55	4		4	9	58	9		9	Ugashik
Jones, E.	4	33	1	2	3	1	10	1		1	1	1	1		1	Chignik
King	2	10				2	20									Chignik
Kirstein	5	53	1	1	2	6	66	4		4	8	83	6		6	Ugashik
Klutch	12	96	4	1	5	6	48	3		3	21	105	21		21	Bech/Chig
Lamoureux	4	40	3	1	4	3	36	3		3	4	43	4		4	Ugashik
Langvardt	6	60	3		3	4	40	2		2	6	60	4		4	Ugashik
Lazer											11	99	11		11	Bech/Ugas
McNutt	5	27	4	1	5											Ugashik
Meredith	4	32														Becharof
Munsey[a]																
Myers, J.						3	15	3		3	3	15	3		3	Becharof
Pederson, H.	1	14														Ugashik
Runyan	1	14	1		1	1	5				6	56	5		5	Ugashik
Shoemaker	3	21	3		3	6	30				18	100	18		18	Becharof
Swiss	4	35	3	1	4	2	20	2		2	2	20	2		2	Chignik
Vrem	5	80	4	1	5	5	55	2		2	28	196	21		21	Bech/Chig
Totals 29	95	892	47	14	61	68	523	43		43	165	1078	144		144	

M = Male; F = Female; T = Total

[a]Names Associated With No Data Are Individuals Not Having Exercised The Privileges Of Their Permit.

A total of 29 big game guide/outfitter permittees were responsible for harvesting 61 brown bears, 43 moose and 144 caribou last year (Table 20). Sows represented approximately 23 percent of the bear harvest, while no cow moose and no cow caribou were harvested.

A total of 36 fish guide/outfitter permittees were responsible for the harvest of approximately 2,571 fish (Table 21). Approximately 70 percent salmon, 21 percent arctic char, 3 percent arctic grayling and 6 percent rainbow trout made up the total reported harvest.

Table 21. Permittees, client use and fish harvested within the Complex - 1990.

			Fish					
Permittee	Clients	Client Days	Salmon	Char	Grayling	Trout	Total	Harvest Unit(s)
Aldridge	5	25	5	30			35	Ugashik
Branham	130	260	60	32	2		94	Bech/Ugas
Brod	22	172	214	96		85	395	Ugashik
Carlson	20	140	40				40	Ugashik
Cusack, M.	242	242	37	23			60	Bech/Ugas
Cusack, M. JR[a]								
Flynn, D.	6	11	5				5	Ugashik
Flynn, H.	2	10	10				10	Ugashik
Gaudet[a]								
Gills	6	6						Chignik
Grasser	125	857	200				200	Bech/Ugas
Harms	12	84	20	10			30	Ugashik
Hayes	50	110	100				100	Becharof
Hendricks	4	12	6				6	Ugashik
Holman	32	32						Ugashik
Johnson, B.	16	16	40	65	15	10	130	Bech/Ugas
Jones, B.	16	75	70	20		20	110	Ugashik
King	9	90	45				45	Chignik
Kirstein	17	119	68	25			93	Ugashik
Klutch	21	55	40	20	3	2	65	Bech/Chig
Lamoureux	12	104	30	15			45	Ugashik
Langvardt	10	100	10	20			30	Ugashik
Lazer	11	55	60	25	30		115	Bech/Ugas
Martin	120	420	275	25			300	Ugashik
Matthews	102	102						Bech/Ugas
Runyan	3	3	3				3	Ugashik
Shoemaker	15	65	25	2	3		30	Becharof
Sims	20	20	120	40	25	25	210	Ugashik
Smith, J.W.	35	245	65	80			145	Ugashik
Sugimato	7	7	15	2			17	Ugashik
Suiter	89	89	150	15			165	Bech/Ugas
Summerville	9	19	15				15	Becharof
Tudor	10	10						Becharof
Vrem	20	84	70	8			78	Bech/Ugas
Woodin[a]								
Woods	55	147						Bech/Ugas
Totals 36	1253	3786	1798	553	78	142	2571	

[a]Names associated with no data are individuals not having exercised the privileges of their permit.

A total of 18 permittees were responsible for the harvest of approximately 731 game birds (Table 22). Game bird harvest was incidental to big game hunting.

Table 22. Permittees and game birds harvested within the Complex - 1990.

Permittee	Ptarmigan	Ducks	Harvest Unit(s)
Aldridge	3		Ugashik
Brod	3		Ugashik
Grasser	15		Ugashik
Harms	60		Ugashik
Johnson, K.	50		Chignik
Jones, B.	10	10	Ugashik
Jones, E.	5		Chignik
Kirstein	23	34	Ugashik
Klutch	80	25	Bech/Chig
Lamoureux	3		Ugashik
Langvardt	10		Ugashik
Lazer	25		Bech/Ugas
Runyan	3		Ugashik
Shoemaker	100	10	Becharof
Suiter	30		Bech/Ugas
Summerville	2		Becharof
Swiss	30		Chignik
Vrem	200		Bech/Ugas
Totals 18	652	79	

22. Take Pride in America/Alaska

The "Take Pride in America/Alaska" program was continued this year. One major project was undertaken; Youth Conservation Corps enrollees Heather Poetter, Matt Sutherland and Mike Swain completed a "Take Pride in America" project during the week of June 24th-28th. The "Take Pride" cleanup project involved the newly (1990) acquired cabin site on the Kejulik River of Becharof Refuge. During the cleanup project the entire area was policed for trash and debris, piled for removal by aircraft (three Beaver loads), the cabin painted, and new bunkbeds and an outhouse constructed. MW Terry and Park Ranger Terrell-Wagner provided the adult supervision for the week-long project.

The newly acquired Kejulik River safety cabin in need of extensive repairs was selected as "Take Pride in America" project this year. 6/91, REH

The YCC crew participate in a "Take Pride in America" clean-up project at the new Kejulik River safety cabin in June. 6/91, ART-W

RM Hood has been working with Joe Dygas, Chief, Branch of Lease Operations, BLM to promote and encourage two oil companies to initiate a "Take Pride In America" project to clean up oil exploration well sites, access road, and port site at Jute Bay. This includes a large cache of 55-gallon drums. Letters to Exxon Company USA and Mobil Exploration and Producing U.S., Inc. were drafted requesting them to submit cleanup plans pursuant to BLM regulations. We are encouraging them to clean up these sites as a "Take Pride" project rather than taking a more contentious approach.

23. Subsistence

Historically, recreational and subsistence use by local residents are nearly inseparable. The two activities have long meshed as residents have hunted, fished, trapped and gathered berries. However, recreational use by out-of-state visitors and non-locals is easily distinguishable from subsistence use. Most subsistence use comes from twelve villages in and around the boundaries of the Complex. These include Naknek, South Naknek, King Salmon, Egegik, Pilot Point, Ugashik, Port Heiden, Ivanof Bay, Perryville, Chignik Bay, Chignik Lake and Chignik Lagoon. Most out-of-state and non-local recreational use begins in King Salmon, since this is the major terminal on the Alaska Peninsula for commercial jet service from Anchorage. Access to Complex lands is primarily by aircraft; however, Big Creek, and the Egegik, Ugashik and Dog Salmon rivers are well used corridors by non-locals and subsistence users alike. The streams also serve as winter trails for all-terrain vehicles for subsistence hunting of moose and caribou by local residents.

On June 29th, RM Hood reviewed and submitted comments on the Federal Subsistence Hunt Permit form to be used for caribou hunting in Unit 9E. The requirement for a separate permit for Aniakchak National Monument and Preserve and Alaska Peninsula Refuge appeared to be extremely bureaucratic - and was a requirement that most subsistence hunters would likely ignore.

A steel shot seminar and training session was coordinated in April (see Section H.2.).

The staff conducted three public hearings and five informal meetings to gather public comments on the Draft EIS for Subsistence Management on Federal Lands in November and December (Section D.3.).

I. EQUIPMENT AND FACILITIES

1. New Construction

The headquarters flagpole was assembled and erected on November 5th. It has been positioned near the office entrance to guide visitors to the correct building and public entryway. The pole stands 50 feet high and can be seen from most places in King Salmon.

The new flagpole adds to the appearance of the compound and guides visitors to the office entrance. 12/03/91, RDP

The maintenance staff built a wooden frame to display a series of aerial photos of the King Salmon area. The office exhibit at refuge headquarters. What an improvement!

2. Rehabilitation

Due to the enormous expense in replacing the aircraft/boat dock, MW Terry undertook the job of rehabilitating it. He developed a new way to attach the cumbersome sections of the dock. Hinge brackets and pin connectors were welded on each connecting end of the dock. A large pin will be used to keep the sections together; thus replacing the old "bolt-it-together" method that has been very difficult to manage. A new heavy duty walkway ramp was constructed to attach the dock to the shore structure; therefore eliminating the need for the massive pole system that was driven into the riverbed. The floats were re-secured to the dock, since wear and tear through the years tore the securing bolt holes out.

Anchor points were placed in the river to secure the dock. Duck bills were driven into the ground at low tide. This is the first time we have tried this type of anchor. The speed with which the new attachment system goes together is a vast improvement. Summer high tides and winds gave it a thorough testing and it passed with flying colors. MW Terry's modifications saved the Complex several thousands of dollars.

This new "pinning system", invented by MW Terry significantly improved the ease of putting the dock in and out of the river. 05/16/91, RDP

This view shows the entire dock, utilizing the new assembly system. Note the lack of poles no longer needed to drive into the riverbed to hold the dock in place.
05/16/91, RDP

At least once a summer extreme high tides cause the river to rise and flow over the dock's permanent walkway. The new system held up to the severe strain. 07/12/91, REH

3. Major Maintenance

We are experiencing more problems in relation to the construction of the four newer residences. It has been about five years since their completion and Residence No. 27 has experienced a failure in the air circulating system. Both of the two speed fan motors quit operating due to sealed bearing failures. Typically, this manufacturer is no longer in business and the regional engineering staff is attempted to find a suitable replacement motor. None could be found but the bearings were replaced after an extensive search for a company to do the work. One other unit in another quarters also went belly up and it is anticipated the two other residences may experience similar malfunctions in the near future. We thought the problem was solved, but in December the unit has again gone "belly-up". It appears that the electronic circuitry is now the source of the problem.

Sliding storage cabinets were constructed of wood to fit under the bunkbeds in the bunkhouse. This now provides each occupant with a storage unit for their personal items while residing in the bunkhouse. Reading lights were also installed for each bunk to allow after-hours reading. Coat racks were constructed and installed in the entrance hallway of the bunkhouse to accommodate wet raingear and coats.

In April, a metal and pipe rack was built to store all of our scrape metal and pipe supplies. The new rack enables us to store the metal and pipe in an orderly fashion. Also, the outer storage area between the rear warehouse and river was cluttered with a collection of old fencing, support poles encased in cement, scrap metal, pipes, pallets, and other miscellaneous items. Eight dump-truck loads of unwanted material were hauled to the dump and the rest reorganized on the newly constructed pipe racks. We now have a tidy bone-yard.

S & J Enterprises was contracted to deliver 225 yards of "D-1" grade crushed gravel. The gravel was spread on the compound driveways and parking areas.

Entry ways to access under each of the Residences Nos. 9, 10 and 11 were constructed in July. They are going to be very useful in completing maintenance and repair projects under these housing units.

The Fuel Storage Bldg. No. 35 developed a large crack in the cement floor over the past winter. The crack, extending from one wall to the other, was filled with cement and the entire floor painted in July.

Contracted work was completed on the driveway of Residence No. 28 in mid-September. Local contractor Steve Thomas, Johnson Drilling Inc., was the successful bidder to improve the drainage of the residence driveway. Snow melt run-off has been accumulating on the cement driveway pad in front of the garage and large accumulations of ice and water have been causing problems with access to and integrity of the structure. A drainage tube and overlay of large gravel was installed at the head of the cement pad and drainages cut into the lawn and tundra will facilitate the movement of water away from the tube. The lawn was re-seeded. The company has agreed to re-seed again in the spring if this first planting effort fails.

Moorcroft Construction, Inc. delivered another 250 cubic yards of "D-1" gravel on November 4th. Also, D.R. Lax Construction, Inc. delivered 50 cubic yards of top-soil. This material had been procured with fiscal year 1991 funds. One load of gravel was spread on the common driveway of Residences Nos. 26 and 27 with the rest stockpiled for future use. Portions of the top-soil was used to fill large and small depressions in the compound lawn between Residence No. 1 and the office buildings.

During November, MW Terry repaired over 31 breaks in the cold and hot water lines in the Fishery Office's Residence No. 1. This residence has been unoccupied for almost two years and last winter the heating system failure warning device was accidentally turned off. The heating system did fail and the entire house froze. The house was to become occupied in December so the massive repair job needed completing. Drain traps were broken and faucets were cracked in the bathrooms and kitchen. The clothes washer pump survived but needed a new gasket to keep it from leaking. The toilet tank cracked in the master bedroom. To access all the waterline breaks, the walls had to have holes punched in them and then repaired. What a mess! To attempt to prevent further heating system failures, the copper fuel lines from the heating oil tank were replaced with 1/4" black iron pipe and the furnace fuel pump and control unit were replaced. A vapor barrier was installed on the inside of the foundation and a circulating fan was installed to force warm air under the house.

The inside walls of the Building No. 6 (shop) and Residence No. 10 received a new coat of paint in November.

Cold temperatures during the first part of December resulted in several frozen water lines. With an overnight low of minus 22 degrees (F) one night the main water line to Residence No. 1 froze. The line was thawed with a heater and fortunately, no breaks occurred. The main heater in Residence No. 10 was not functioning and the small electric heater placed behind the washer/dryer units was not sufficient to keep the water line from freezing. The heating unit in the cabin was repaired by replacing both the filter and the seal around the blower fan. The couplings on the water pipes were also replaced. A handle was welded on the main water shut-off valve for water lines that service Residence Nos. 1, 9, 10 and 11.

The overhead door on the aircraft hangar was given a thorough inspection in December. Problems were identified and corrected included: tightening loose connecting pins; and re-attaching the door seal which had pulled loose in spots (caused by freezing/thawing snow and ice that builds up at the door).

4. Equipment Utilization and Replacement

In last year's Annual Narrative we reported on MW Terry's new invention, the 5-gallon Can Crusher. In October 1989, a working model had been assembled and put to use during the clean-up of the old Myers' lodge at the Ugashik Narrows. In April 1990, all the paperwork (Report of Invention, Job Hazard Analysis, drawings of the invention and components list) was assembled and submitted to the RO for review and submission to the Solicitor's Office to obtain a government patent. The need for the patent is not only for the protection of the invention (created with government materials during government work hours), but more importantly, an invention/cash award to the employee may be processed upon notification that the Solicitor has filed a patent application. The invention has gone through safety and engineer reviews and slight safety modifications were made.

In October 1990, the process advanced to the point of, "solicitation for legal services necessary to conduct an art search (a review of existing patents to determine whether similar inventions would preclude obtainment of a patent) and to prepare the patent application, if warranted." Should the art search result in an unfavorable report the costs will not exceed $500.00, but if favorable, the preparation of the patent application and processing fee should cost no more than an additional $1,450.00. In May of this year, the contractor conducting the art search recommended to Region 7 that a patent not be filed due to a closely related design already patented, the power log splitter. Appearantly, the Region went along with that reasoning. Neither the Complex nor inventor were notified of this development, that took place in May. A call to the Washington Office in early 1992 revealed this information and lack of communication.

In February, an amber color strobe light was mounted on the roof of the 1990 Dodge 4x4 pickup to make the vehicle more visible during snow plowing operation. A backup alarm was also installed.

DRM Poetter and ARM/P Arment flew to the Puale Bay field camp on July 8th and installed the 30 by 20 foot bear enclosure fence. With assistance from the field camp crew, the five wire electric fence was erected and operational in a few hours. The unit provides protection for the two inflatable boats and the four-wheeled ATV that are stored at the base of the dunes.

MW Terry fabricated, from 2 inch aluminum angle, a device to hold a radio telemetry antenna on a Cessna 185. Two sets of the devices were made for the King Salmon Fishery Assistance Office (KSFAO) for their on-going rainbow trout radio-tracking project.

The furnace in Residence No. 10 shut off when the weather dropped below zero on November 17th. The problem was first thought to be the fuel filter and a crimp in the fuel line. Problems continued, so a backup furnace was put in its place. After dismantling the bad furnace, it was discovered that the air recirculation fan shroud had a 6 inch crack and was the cause for the furnace shutting down.

The Bobcat loader was given a six-month preventative maintenance in November. The air, oil and hydraulic filters were replaced. The oil was changed and all the grease fittings serviced. The backup alarm has been inoperative and was found out of adjustment. The left servo linkage was unhooked and was causing the machine to pull to the left. Adjustments were made and the loader is back in service.

The old 1,000 gallon heating fuel tank behind the Building No. 6 (shop) was removed due to its deteriorated condition and replaced with a new 500 gallon tank. This was accomplished in November.

5. Communications Systems

In April, the antenna system for the HF radio system was reassembled with new ropes. The old ropes had parted during the winter making the system inoperable.

The Complex was fortunate to be included in the Regional Office's funded Radio Site Maintenance project. Regional Telecommunications Manager Tim Miller, contracted Radio Technician Ted Collins of Alaska Radio in Fairbanks, and a Bell 206 helicopter with pilot spent June 12th-14th giving the radio systems (UHF/VHF and HF) a thorough review and servicing. The Mother Goose Lake repeater had been tipped over by the wind and was repositioned. A new power regulator had to be installed. The Whale Mountain repeater/base station equipment required some internal modifications and was brought back to headquarters for work and returned later. The telephone patch capability was dysfunctional and was repaired. The aircraft VHF radio and all nine King hand-held radios were reprogrammed with the standard 1-8 Service channels, and 9-14 with station specific frequencies. The following recommendations were made to upgrade and improve communications at the Complex:

-- The GE Master Two UHF base station at headquarters needs to have the receiver module replaced.
-- Replacement of the base station and repeater on Whale Mountain. This equipment is temperature sensitive and subject to failure.

-- The Mother Goose Lake repeater should have additional guy cables installed to secure it on the east side. More rocks should be stacked around it to secure the base.
-- The Fishery Assistance Office and the Complex should purchase a combined telephone key system for the building. This would allow sharing of the FTS 2000 services when they are installed and possibly eliminate some trunking costs. A 12 by 32 line system is recommended.
-- Install new power-backup batteries on the UHF and VHF base units.

Two new single-side band (HF) radios were purchased this year. One unit will serve as a replacement for the base station. The other is a backpack field unit that also has a solar panel to maintain the batteries charge while afield. This unit is going to be a big help, due to its portability, during short-term remote operations where the UHF system can't reach.

6. Computer Systems

This was a "big" year for the acquisition of IBM compatable personal computers, printer and software. The following is a list of hardware:

Management and Public Use Staff
- Computer, desktop 386/SX w/80MB hard drive and tape backup (RM).
  - Printer, 24-pin dot matrix.
- Computer, desktop 386/SX w/80MB hard drive and tape backup (DRM).
  - Mouse.
- Computer, desktop 386/SX w/80MB hard drive and tape backup (ARM/P).
- Computer, desktop 386/SX w/80MB hard drive and tape backup (PR).
  - Mouse.
- Printer, 24-pin dot matrix.
- Peripheral sharing device.

Clerical Staff
- Computer, desktop 386/33 w/80MB hard drive and tape backup (RS).
- Computer, desktop 386/SX w/80MB hard drive and tape backup (CT).
- Printer, 24-pin dot matrix.
- Printer, laser-jet.
- Peripheral sharing device.

Biological Staff
- Computer, desktop 386/33 w/180MB hard drive and tape backup (WB).
  - Mouse.
- Printer, laser-jet.
- Peripheral sharing device.

Prior to the above computers being purchased the only ones on hand included: a Data General System (no longer in use); an IBM compatible AT desktop computer; two IBM compatible laptop computers; and an IBM compatible protable computer. The old Data General daisy wheel and two 9-pin dot matrix made up the available printers. A limited amount of WordPerfect, dBase III+ and Lotus 1-2-3 software were on hand.

Refuge Manager Hood took a break from his new computer to exclaim, "Who says you can't teach an old dog new tricks!"
12/03/91, RDP

Software packages purchased included:

Upgrade

- WordPerfect 4.2 to 5.0 version (1 each)
- WordPerfect 5.0 to 5.1 version (3 each)

New

- WordPerfect 5.1 version (3 each)
- dBase III+ version (5 each)
- Lotus 1-2-3, 2.01 version (4 each)
- Lotus 1-2-3, 3.1 version (1 each)
- Lotus Freelance Plus, 3.0 version (2 each)
- PC Tools, version 6 (2 each)

In addition, six varied sets of computer furniture were procured. With the addition of all this computer equipment, has enabled several reluctant staff members to venture into the computer age. Office effeciency has been increasing at a fast rate!

7. Energy Conservation

For years we have had heat regulation problems in the office building (No. 4). The hot water loop system basically ran all the time with the only thermostatic control being a water sensor at the boiler. Usually, the temperature was too hot and the best way to control it was to manually turn off the water-circulating pump. This was a potentially disastrous method of control due to the possibility of forgetting you turned it off

for the night, leaving the system off-line. If the temperatures dropped during the night or week-end, the building could have easily frozen up.

One day the light finally clicked on and a possible solution was realized. A thermostat located in the receptionists area was wired in to control the circulating pump. Now the heat controls itself and after years agonizing over the problem, and we have a controlled office environment. A significant energy savings should also be realized. Sometimes the answer to a problem is right under your nose and all one needs to do is take a moment, step back and take a look.

A "Water Maker" hot water heater was installed in Quarters No. 26. The old element type unit was utilizing an excessive amount of electricity. This new unit is highly efficient in producing household hot water from the furnace boiler.

8. Other

A Sony Handycam 8mm video recorder was purchased in February. It is a model CCD-SP9 (water resistent) that will be utilized for a variety of documentation type projects.

J. OTHER ITEMS

1. Cooperative Programs

Five bald eagle carcasses were sent to the National Eagle Repository in Ashland, Oregon on January 14th. (See Section G.6. for details.)

Cooperative assistance was provided by MH Moose Mumma in preparing the field camp gear, boating equipment, survival gear, and by picking up fuel supplies for the Cinder Lagoon Spring Emperor Goose camp. Biologist Karen Bollinger and Service Volunteer Matt Irinage of the Alaska Fish and Wildlife Research Center conducted the Spring camp running from April 16th thru May 16th. Upon completion of the camp the gear is returned to King Salmon and, with the assistance of the field camp personnel, Moose cleans and re-stores the equipment. From September 10th thru October 25th, Biologist Amy Snidel and Service Volunteer Toby Burke repeated the process when they staffed the fall camp. This has been an annual set of events of the past seveal years. See Sections G.3. and G.8. for further details.

On May 15th, ARM/P Arment, serving as an Accident Prevention Counselor, attended the Federal Aviation Administration (FAA) sponsored Accident Prevention Program in King Salmon. The seminar was held in the FAA COMSERFAC Building. Approximately 35 people were in attendance.

In an interagency cooperative effort, WB Dewhurst traveled to Brooks Camp in Katmai NP, on May 30th, to conduct plant identification training for the new seasonal staff of park rangers.

On July 12th, ADF&G Biologist Dick Sellers and ARM/P Arment flew a radio telemetry caribou survey to locate the Alaska Peninsula herds (see Section G.8.).

On August 6th, a coordination meeting was held with the Alaska Department of Natural Resources, Division of Forestry, Katmai NP and the Alaska Peninsula/Becharof Refuge Complex to discuss the Division of Forestry's fire fighting responsibilities on the Alaska Peninsula. Bill Beebe, Area Forester and Andy Alexandrou, Assistant Area Forester represented the Division of Forestry and led the discussion. Steve Hurd, Chief Ranger and Rick Potts, Natural Resource Specialist represented the National Park Service (NPS), while RM Hood and DRM Poetter represented the Complex.

On August 14th, DRM Rick Poetter provided a couple of hours of assistance to the neighboring Alaska Department of Fish and Game office in clearing a space for two container units to be used for storage of their equipment. The Complex's Case tractor with front-end loader and back-hoe were operated by Rick to clear and level a 50 foot x 50 foot area.

DRM Poetter and King Salmon Fishery Assistance Office (KSFAO) Biologist Jeff Adams instructed a hunter education course during the evenings of November 6th, 7th, 13th and 14th (see Section H.8.).

The prospects of an inter-agency visitor center were brought to the forefront when the Bristol Bay Borough, Katmai National Park and Preserve, and the Complex initiated discussions of utilizing the portion of the MarkAir Airlines terminal building vacated by the U.S. Post Office. (See Section H.6. for further details.)

2. Other Economic Uses

In addition to 56 special use permits issued for cabins, guides, outfitters and transporters, nine permits were issued for other uses (Table 23). Seven of the nine permits were issued for non-economic uses.

Table 23. Special use permits issued for other economic use and non-economic uses.

	Other Economic Uses		Sub	Non-Economic Uses			Sub	
Year	Oil/Gas	Mineral	Total	Federal	State	Other	Total	Total
1984	9	1	10	4	2	1	7	17
1985	5	1	6	3	2		5	11
1986		1	1	2	2	1	5	6
1987	1	1	2	4	1		5	7
1988	1		1	5	1	1	7	8
1989		1	1	4	1		5	6
1990	2	2	3	2	2	2	9	9
1991	2		2	3		4	7	9

3. Items of Interest

Visits

On April 18th and 19th, Associate Manager (AM) Constantino, Chief of Planning Leslie Kerr, and Natural Resource Planner Helen Clough met with the refuge staff to discuss the Operational Plan and the Public Use Management Plan. The intense discussion helped to bring all parties up to speed on refuge needs (See Sections D.2. and D.6.).

Acting AM Bill Seawell visited the Complex on June 21st and 22nd. On the 21st, RM Hood and ARM/P Arment gave him an overflight of parts of the Complex plus the Bristol Bay fishing in action. On the 22nd, Bill assisted with putting in the Puale Bay and Jute Peak field camps. The work included a helicopter ride to Puale Bay on Becharof Refuge. In the real world, Bill is Director of the National Fish Hatchery and Technology Center in San Marcos, Texas.

On June 27th and 28th, Joseph Dygas, Chief, Branch Lease Operations, Bureau of Land Management (BLM) was provided an overview of historic oil exploration activities on the Refuge Complex. The Trans-Alaska Bell 206 helicopter (91TA) was used as a platform to visit well sites completed in 1905, 1940 and 1959. We are enlisting Mr. Dygas' assistance in contacting oil exploration companies about cleaning up physical remains (and possibly chemical contaminants). He has administrative oversight on these old well leases.

BLM's Joe Dygas inspects cache of empty 55 gallon barrels at Island Bay, Becharof Refuge. 6/27/91, REH

At the request of AM Constantino, the Complex hosted Pam Hays, Washington Office. Pam was transported to our Puale Bay field camp, by air charter, on August 28th (one hour after arriving in King Salmon). She met with field camp staff and WB Dewhurst to gain insight into the logistics and costs of operating a field camp in Alaska. On August 30th, ARM/P Arment transported Ms. Hays back to King Salmon in the Katmai NP supercub. Pam was then taken to the airport to return to the real world. The entire operation was atypical of our summer, no weather delays at all!

On September 12th, a team reviewing Region 7's Aviation Program visited King Salmon. Team members included Paul Kaufman (DOI), Gene Steffan (FWS), Ben Campbell (OAS), John Sarvis (FWS) and Paul Schmidt (FWS). RM Hood, DRM Poetter, ARM/P Arment, and KSFAO Project Leader Larson provided comments on the program (see Section E.6. for details).

Acting Deputy Regional Director Phil Million traveled to King Salmon for a station visit October 10th and 11th. He was on temporary duty in Region 7 from his duties in the Public Affairs Office in Region 9. The refuge staff briefed him on the past summers activities as well as on-going and future projects. His visit was fortuitous in that all three of the Station's newly hired Refuge Information Technicians (RIT) were in King Salmon. Mr. Million stated he was very impressed with the staff, especially the RIT. He had been unaware of the details of the RIT duties and importance of the work they perform for the Service. He took a number of photographs of the area for use in his duties back in Washington, D.C. It was a pleasure to have him visit and provide the staff with a Washington office perspective.

Refuge User Accidents

At approximately 3:00 p.m. on June 26th, while posting signs with the aid of a contracted Trans-Alaska Bell 206 helicopter, DRM Poetter discovered a recent and unreported (to the local FAA office) aircraft accident on the Ugashik Unit of the Alaska Peninsula Refuge. The site of the accident was in Township 32 South, Range 50 West, Section 31 involving a flipped Cessna 180 on wheels (N420SB). Nobody was found at or near the site; however, significant gear (setup tent, two sleeping bags with pads, camp stove and fuel, backpack, and misc personal gear) was discovered adjacent to and within the wreckage. With no landing sites in the area, it appeared that the aircraft may have lost power and flipped over upon a controlled landing on the rugged tundra. Upon return to headquarters, the information was passed on to ARM/P Arment who conducted an investigation. He discovered that the aircraft is registered to a Complex commercial guiding permittee. The two occupants were picked up several weeks earlier by the Coast Guard.

On October 6th as reported by the FAA, N4205B, a C180 on wheels owned by Painter Creek Lodge, flipped over approximately 12 miles southeast of Pilot Point near the Dog Salmon River of the Ugashik Unit, Alaska Peninsula Refuge. No injuries were reported.

On October 6th, N1681R, a C185 on wheels operated by OAS certified Mag Air, flipped over on landing at Amber Bay. According to FAA the aircraft

On October 9th, N7056, a State Trooper PA18 on wheels, was wrecked on landing at Port Heiden after apparently sustaining damage during a landing attempt near the Muddy River of the Chignik Unit, Alaska Peninsula Refuge. According to FAA the one person on board reported no injury.

On October 17th, N2756J, another C185 on wheels operated by OAS approved Mag Air, crashed on landing near the upper Dog Salmon River of the Ugashik Unit, Alaska Peninsula Refuge. According to FAA the one person on board reported no injury.

During the bear season a Service PA18 "ground looped" near Sandy River of the Chignik Unit, Alaska Peninsula Refuge. No injuries were sustained.

4. Credits

Without the efforts of the following people, this annual narrative would not be possible. Thanks and appreciation go to everyone.

Arment	Sections B.; H.20. and 21.; J.1., 2., and 3.
Collins	Sections J.4.; typing, editing and compiling.
Dewhurst	Sections D.5.; F.; G.; and editing.
Hood	Introduction; Sections A.; C.; D.1., 2., 4., and 6.; E.5., and 8.; K. and editing.
Mumma	Section E.6.
Poetter	Sections E.1., 2., 3., 4., and 7.; H.17.; I.; and editing.
Terrell-Wagner	D.3.; H.1., 2., 3., 6., 7., 8., 15., 18., 22., and 23.
KSFAO	Section G.11.

Photograph credits are listed in the order in which they appear in the narrative.

DAD	Donna Dewhurst	Complex Staff
CJS	Carol Snetsinger	Complex Volunteer
BE	Brenda Eliason	Complex Volunteer
REH	Ronald Hood	Complex Staff
JCK	John "Smiley" Knutsen	Complex Staff
JPL	James Larson	KSFAO Staff
RDP	Richard Poetter	Complex Staff
JHM	James McCarthy	Complex Volunteer
ART-W	Angela Terrell-Wagner	Complex Staff
JAS	Joel Schmutz	Research staff
DLR	Daniel Rogers	KSFAO SCA Volunteer
DBI	David Irving	KSFAO Staff
JG	Jack Gordon	Helicopter Pilot
SK	Shirley Kelly	Complex Staff
DDM	Dwight "Moose" Mumma	Complex Staff
TAB	Toby Burke	Complex SCA Volunteer

K. FEEDBACK

Each year we conduct brown bear stream surveys in the Island Arm area of Becharof Lake. These surveys have been conducted for ten years using a supercub on floats as an observation platform. Since 1988, we have had to beg, borrow or steal a supercub to accomplish the mission. This year we were the happy recipient of a new supercub (shared with Togiak Refuge on a 50/50 basis). We were looking forward to accomplishing the surveys without all the hassle.

Wrong! The new cub does not have a 10 percent overgross waiver. In the float configuration, and with standard weight (170 pound) pilot and observer, the average OAS cub is near or above the standard gross weight -- that's with no fuel and no survival gear! Thus our new supercub is totally useless for this mission. In the past, overgross waivers have been requested/granted on a case-by-case basis. A waiver for PA-18's as a class has never been accomplished. It appears that current OAS management will no longer pursue case-by-case waivers and funds are not available for a class evaluation ($100,000 mentioned).

Cutting to the chase, a supercub without a 10 percent overgross waiver seriously reduces it usefulness. All float equipped cubs need the waiver and should have one. The Service should pursue the issue with OAS and get it settled. I have been told repeatedly that it is not a safety issue. If it is safe to fly a cub with the waiver, then all cubs should have it. If it is not safe to fly with the waiver, then no cub should have it!

Sunset on Agripina Bay, Ugashik Unit, Alaska Peninsula Refuge. 8/91, DAD