BECHAROF NATIONAL WILDLIFE REFUGE
King Salmon, Alaska

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1984

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

Y.C.C.

Jenifer Bullock	EOD 6/11/84	Terminated 8/17/84
Kevin Riske	EOD 6/11/84	Terminated 8/17/84
Kelly Fundeen	EOD 6/25/84	Terminated 8/10/84

Review and Approvals

Refuge Manager Date 3-18-85

Regional Office Review Date 4/9/85

Larry P. Calvert 4/9/85

Back Row: Solberg Rogers Mumma
Front Row: Arment Wilk Berns

Personnel

1.	John Taylor	Refuge Manager	GS-485-12	EOD 08/26/79
2.	Vernon D. Berns	Acting Refuge Manager/Pilot	GS-485-12	EOD 02/18/82
3.	C. Randall Arment	Asst. Refuge Manager/Pilot	GS-485-12	EOD 10/03/82
4.	John Solberg	Asst. Refuge Manager	GS-485-07	EOD 03/06/83
5.	Randall J. Wilk	Wildlife Biologist	GS-486-07	EOD 06/27/83
6.	Dwight Mumma	Biological Technician	GS-404-05	EOD 02/19/84
7.	Alan Rogers	Maintenance Man	WG-4749-08	EOD 03/04/84
8.	Janice Collins	Refuge Assistant	GS-303-05	EOD 06/11/84

John Taylor, Refuge Manager GS-485-12 EOD 8/26/79
Transferred 12/21/84

Janice Collins, Refuge Assistant GS-303-5 EOD 6/11/84

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INTRODUCTION

In 1978, the lands of Becharof Refuge were withdrawn by President Jimmy Carter under the Presidential Proclamation 4614 and was established as the Becharof National Wildlife Monument. In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) made the 1.5 million acre monument part of the National Wildlife Refuge System. Becharof was one of only two wildlife monuments in the history of the National Wildlife Refuge System.

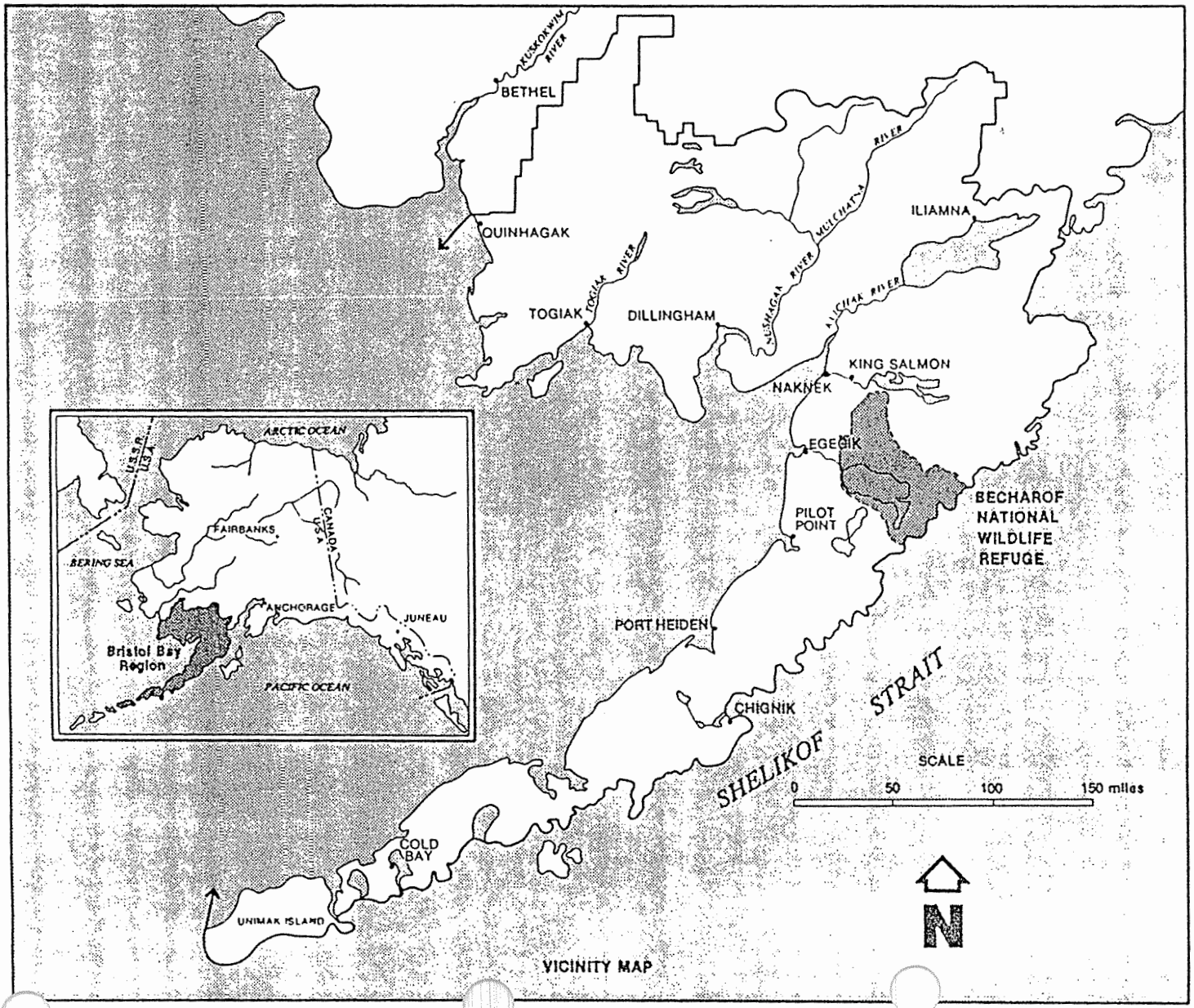
Becharof Lake, the second largest lake in Alaska, is nestled between the low tundra wetlands to the north and west and the Aleutian Mountain Range to the east and south. Mount Peulik drops to the edge of the lake about midway along its southern shores as does the geologically volcanic Ukinrek Marrs bares its scars of the eruption that took place in 1977. The lake is a nursery and its tributary streams provide important habitat for the multi million dollar salmon industry in Bristol Bay.

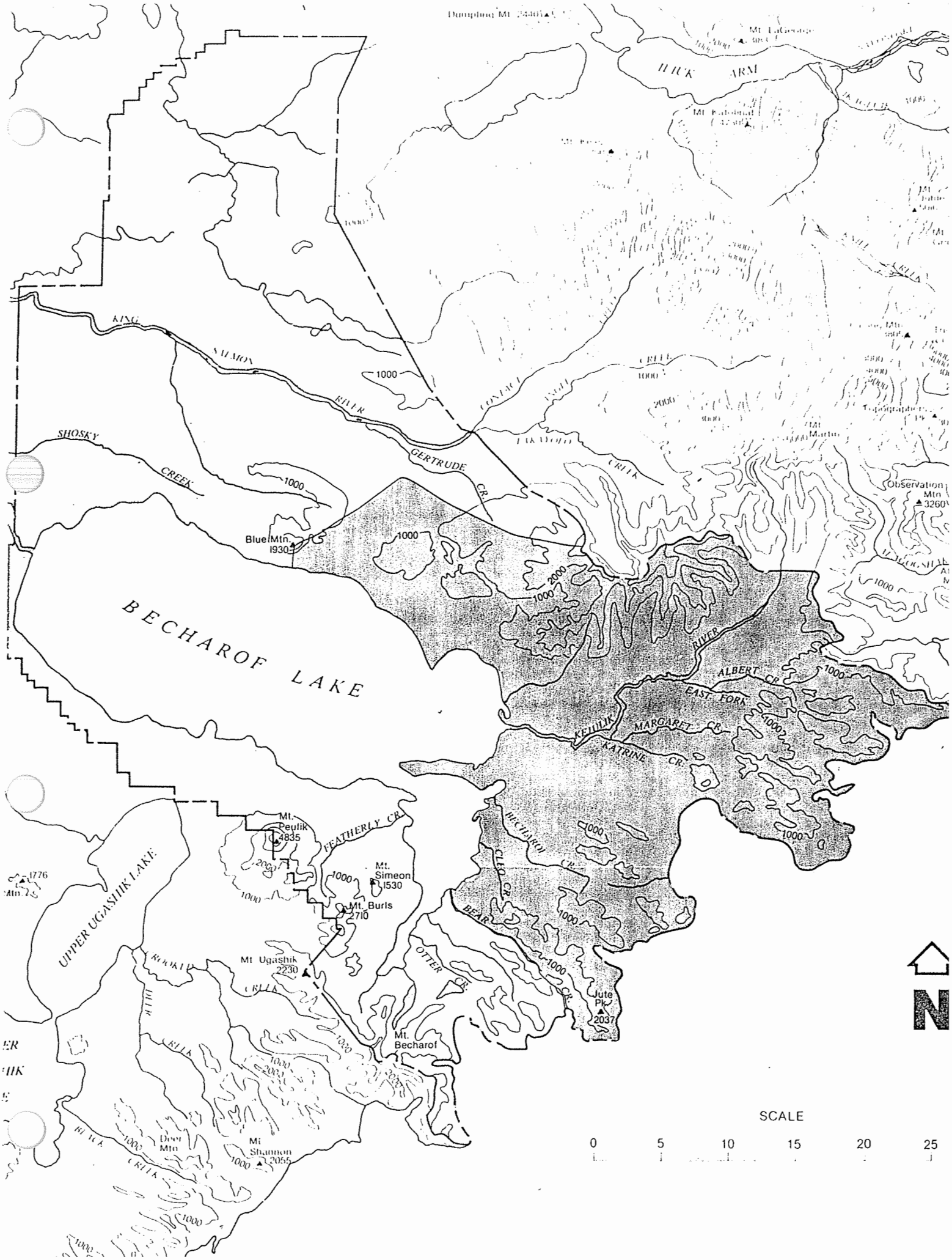
The refuge's fauna includes a large population of brown bears. Moose inhabit the area in moderate numbers and over 10,000 caribou migrate through the area during fall and winter. Dolly Varden, grayling, rainbow trout, all five species of Pacific salmon and other fish are found in the refuge streams. The Becharof Lake system is renowned for its spawning runs of red salmon, an important food source for brown bears. Other animals found are wolves, foxes, and wolverines, while sea otter, sea lions, and harbor seals inhabit the shorelines as do nesting bald eagles, peregrine falcons, and thousands of seabirds on the rocky seacliffs of the Pacific coast.

There are no settlements or permanent residences within the refuge. However, many of the local people rely on the refuge for subsistence hunting and fishing to get supplemental food.

To enjoy this wonderland wilderness, one must fly about 290 miles southwest of Anchorage to King Salmon and then charter an air taxi operator to fly at least 10 more miles south to reach the refuge as there are no roads.

Vicinity map.




BECHAROF LAKE
UPPER UGASHIK LAKE
BUCK ARM
KING SIMEON RIVER
SHOSKY CREEK
GERTRUDE CR.
CONTACT CREEK
DIAMOND CREEK
ALBERT CR.
EAST FORK
MARGARET CR.
KATRINE CR.
KEHLIK RIVER
BECHAROF CR.
CLEO CR.
BEAR CR.
OTTER CR.
FEATHERLY CR.
ROCKY CREEK
BLUE CREEK
Blue Mtn. 1930
Mt. Peulik 4835
Mt. Simeon 1530
Mt. Burls 2710
Mt Ugashik 2230
Mt. Becharof
Jute Pk 2037
Deer Mtn
Mt Shannon 2055
Observation Mtn 3260
1000
2000
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SCALE
0 5 10 15 20 25

A. HIGHLIGHTS

On February 6, we were able to move into offices upstairs after the Phase II construction project was completed and inspected by the Regional Engineers.

Maintenance Worker (MW) Alan Rogers entered on duty in March and began by repairing sick engines and sorting old and unused equipment left over from National Marine Fisheries (NMF).

Paug-Vik Native Corporation was conveyed 2.4 acres of the headquarters compound. Offers to buy the land back were rejected and the Service was given 30 days notice to remove their wind generator, radio antenna towers, and septic system from the land.

A Refuge Assistant-typist was added to the staff in mid-June. The position had been vacant for over six months. She is the best thing we have seen since high button shoes.

The refuge was host to numerous visiting dignitaries during the summer that included amoung them: Regional Director Putz, Director Jenzen, Undersecretary Arnett and son Chip, Congressman Conti and Carl Yaztremski, ARD Riffe, Ric Davidge, Vern Wiggins, Deputy Budget Director Kris Marcy, and MBM Dr. Rogers as well as several Regional Office (RO) personnel including the planning team to get information and an overview of the refuge.

It was a year of planning! Meetings and hearings were held on the Bristol Bay Cooperative Management Plan (BBCMP), Alaska Peninsula Refuge Comprehensive Conservation Plan (RCCP), and Becharof Refuge Comprehensive Conservation Plan (RCCP) at Nakenk, Egegik, Pilot Point, Port Heiden, Chignik Lagoon, Chignik Lake, Chignik Bay, Perryville, and Ivanof Bay. Many of the villagers are getting burned out on planning meetings.

Refuge Manager (RM) Taylor transferred to the Currituck Sound/ Alligator River NWR in North Carolina after 5 years in Alaska.

B. CLIMATIC CONDITIONS

January-March

Mild conditions caused a late freeze of the Naknek River. Mid January marked the first time since last year that the river was safe to cross by surface vehicles. On March 9th, the quarter's high was 50 degrees (Table 1) and the low was -23 degrees on Jan. 4th coupled with 30 mph winds that creating a wind chill factor of -85 degrees. Six inches of snow fell on the 6th of Jan. with the greatest snow depth for the

Table 1. 1984 Climatological Data - National Weather Service, King Salmon, Alaska.

Month	Temperatures				Precipitation (inches)			Max. Snow on ground (inches)	Wind (mph)		Sky Cover[1] (days)		
	High	Low	Avg.	Norm.	Total	Norm.	Snow		Avg.	Peak	Clear	Pt. Cldy.	Cldy
Jan	42	-23	17	13	1.16	1.04	8.4	10	10	40	3	11	17
Feb.	34	-30	-2	14	.55	.88	5.5	7	11	41	5	6	18
Mar.	50	-10	36	19	.44	1.13	T[2]	6	11	55	0	8	23
Apr.	56	2	29	31	.44	1.05	4.0	1	11	48	6	7	17
May	65	18	43	42	1.8	1.18		T	10	44	9	3	19
June	72	33	52	50	1.58	1.59		0	10	35	2	4	24
July	72	36	54	55	1.30	2.08		0	10	30	0	2	29
Aug.	75	25	54	54	2.41	3.13		0	19	35	1	11	19
Sept.	66	21	48	47	.92	2.78		0	10	33	3	7	20
Oct.	55	1	30	33	.56	1.92		3	9	59	8	10	13
Nov.	45	-08	23	23	1.00	1.40		4	8	47	5	17	18
Dec.	45	-17	25	13	1.79	.55	3.8	3	10	43	4	6	21
			Total		13.95	18.73	21.7						

[1]Sky cover: clear= 0 to .3 cloud cover; Partly cloudy= .47 to .7 cloud cover; and cloudy= .8 to 1.6 cloud cover.

[2]T=Trace

quarter at 10 inches on the 7th of Jan. The chill factor temperature was highest for the winter when a temperature of -26 degrees combined with 30-35 mph winds produced a wind chill in excess of -90 degrees. March averaged 17 degrees warmer than normal resulting in Becharof Lake and the Naknek River to open up.

April-June

April exhibited normal temperatures with 29 degrees as the average. Refuge lakes began opening the first of the month. It was not until the end of the month that they became ice free. The high of 56 degrees occurred on the 27th while the low remained above 0 degrees. May exhibited normal temperatures with 43 degrees as the monthly average. The high of 65 degrees occurred on the last day of the month while the low of 18 degrees occurred on the 4th. The first of the month brought high waterfowl concentrations to the Naknek River. June exhibited normal temperatures with 50 degrees as the monthly average. Temperatures remained above freezing during the entire month and hit the 70 degrees mark on four days. This taste of summer weather and a sprinkle of king salmon got the local salmon fishermen on their way to a fine salmon fishing season.

July-September

July exhibited normal temperatures with 54 degrees as the monthly average. The high of 72 degrees occurred on the 27th while the low of 36 degrees occurred on the 13th. The biting insects populations were down as a result of the slightly cooler, dryer spring. August produced 54 degrees as the monthly average. The high of 75 degrees occurred on the 1st while the low fo 25 degrees occurred on the 31st (first frost).

By September the salmon fishing had slowed down and people were gearing up for caribou that had migrated to the Naknek River. Most of the local residents were ready for the taste of fresh caribou meat and to resupply their freezers for the coming winter. Antler hunters descended upon the peninsula area from the Lower 48 to enjoy some of the great big game hunting. September exhibited normal temperatures with 48 degrees as the monthly average. The high of 66 degrees occurred on the 4th while the low of 21 degrees occurred on the 20th. Precipitation for the year has been below normal every month except for two which had normal amounts. Low precipitation can probably account for the poor salmonberry and blueberry productions yet cranberry production seemed unaffected. The fall colors changed from many shades of green to brown-gold and yellow as winter slowly arrived.

October-December

October exhibited slightly below noramal temperatures with 30 degrees as the monthly average. The high of 55 degrees occurred on the 3rd and 5th while the low of 1 degree occurred on the 28th. The first snowfall occurred on the 6th, however, the ground was snow free at the end of the month. The winds hit 60 mph on the 31st. November

exhibited normal temperatures with 23 degrees as the monthly average. The high of 45 degrees occurred on the 1st while the low of -8 degrees occurred on the 26th. The month started with no snow cover and ended with 3 inches. During the month lakes as far south as Egegik and Ugashik River froze over, however, the larger lakes and Naknek River remained open.

December exhibited temperatures well in excess of normal. The monthly average was 25 degrees which is 13 degrees above average. The high of 45 degrees occurred on the 31st while the low of -17 degrees occurred on th 12th. As a result of the mild weather, the Naknek River has not remained frozen solid. Ice crossing was unsafe to marginal throughout the month. December was the only month during the year with precipitation significantly above the normal.

C. LAND ACQUISITION

1. Fee Title

On December 1, 1978, President Carter established the Becharof National Wildlife Monument by Proclamation 4613. The Monument was set aside entirely from public domain. Legislation which affects land ownership includes the Alaska Statehood Act, the Alaska Native Claims Settlement Act (ANCSA), and the Alaska National Interest Lands Conservation Act (ANILCA). These laws transferred lands from federal to state and native ownership.

The land ownership status of refuge lands is constantly changing resulting from the process of being selected and conveyed to the state, native and native corporations. Of the 1,171,000 acres of land within the refuge boundaries, approximately 1,050,000 acres or 90% of the land is owned by the federal government while state, native corporations, and private interest either own or have selected the ramaining 10% of the land. The refuge lands status as of May 1983 is summarized in Table 2. and the location of selected and conveyed lands is shown in Figure 1.

Fig. 1 **Land status.**

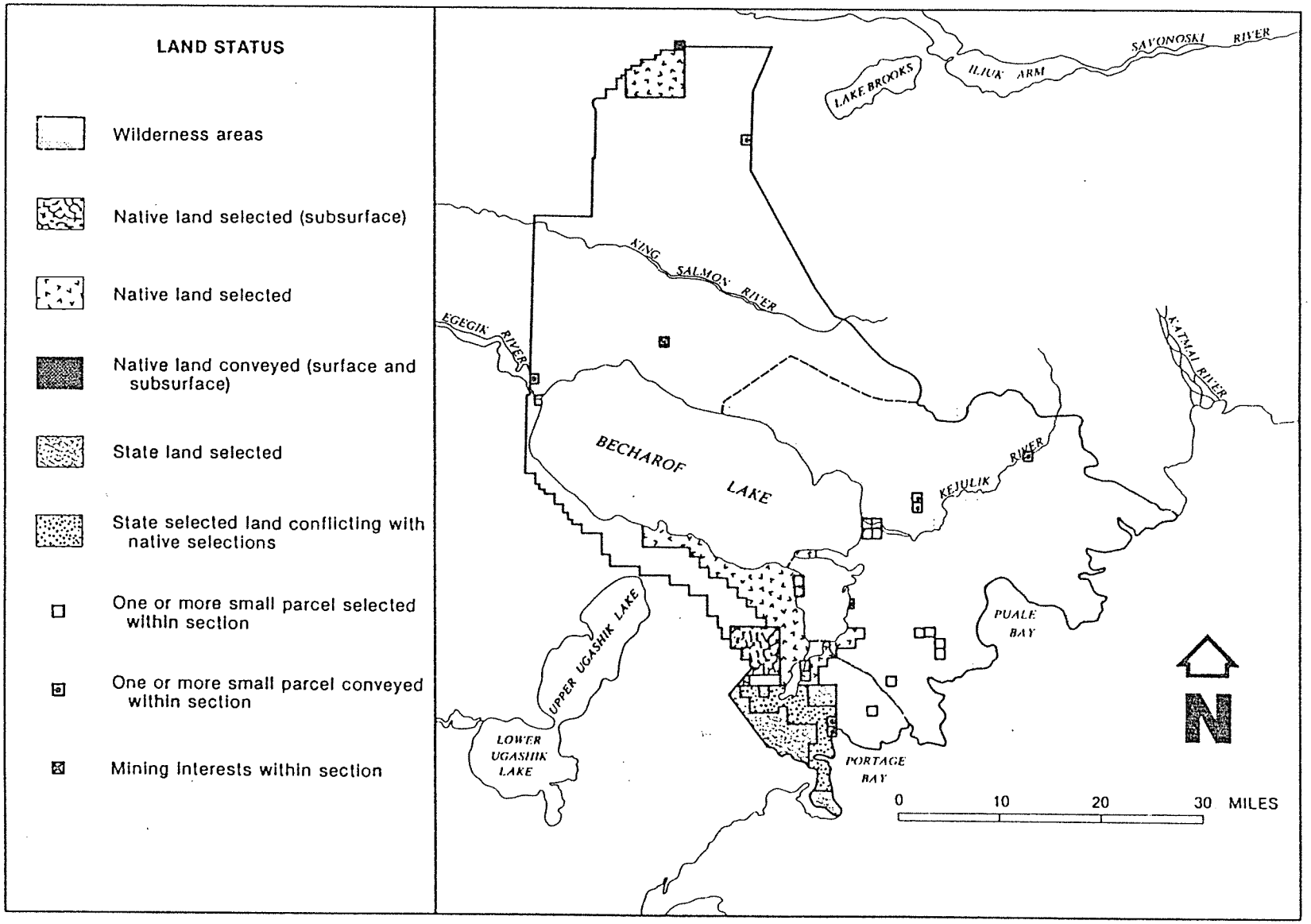


Table 2. Status of Lands within the Becharof NWR - May, 1983

Category	Land Status (acres) Selected	Conveyed[1]
Native Corporations[2]	102,640	640
State of Alaska	16,576	156
Private Selections	8	45
Native Allotments	255	
Total	119,479	841

[1]Land approved for conveyance to Native corporations must be surveyed before patent is issued. Since there are millions of acres and it will take many years to survey, an interim conveyance is issued. This conveys land subject to survey to determine exact boundaries and acreage.

[2]Surface and subsurface rights.

3. Other

The draft BBCMP completed June, 1983 contains several proposals that will affect the boundaries of the refuge. The BBCMP recommends that lands in the upper Kejulik drainage, presently within Katmai National Park (NP) be redesiginated by Congress as part of the refuge. The boundary change would place virtually the entire drainage within the refuge. The proposal would provide visitors with additional opportunities for recreational hunting and would simplify management by placing the area under one administrative agency.

The Alaska Department of Natural Resources (DNR) and Fish and Wildlife Service (FWS) have agreed as part of BBCMP to resolve the statue of ANSCA section 11(a)(3) state selected lands in the refuge. Part of the agreement includes 42,400 acres in the Portage Bay drainage.

Finally, the BBCMP recommends that the three Alaska Peninsula refuges (Becharof, Alaska Peninsula, Izembek) be reorganized into two refuges to provide better management of fish and wildlife resources. If Congress agrees to this recommendation Becharof NWR would no longer exist as a separate refuge. The "Upper Peninsula" refuge would include what is now Becharof NWR and the Ugashik and Chignik units of the Alaska Peninsula NWR. The Pavlof Unit of APNWR would become part of Izembek NWR. Current administration reflects this strategy.

The aforementioned proposals will be studied and discussed with concerned parties as to the resource values, management needs and requirements, potential impacts and feasibility prior to any decision.

D. PLANNING

1. Master Plan

Alaska refuges do not utilize master planning as it exists for the refuges in the lower 48 states, but rather comply with Public Law 96-487 (ANILCA). ANILCA Section 304 authorizes the Secretary of Interior to enter into cooperative management agreements and to prepare comprehensive conservation plans (similar to "master plans"). As a result, the draft BBCMP was developed which includes 31 million acres of the Bristol Bay area. The plan was derived in part from the draft RCCP completed April, 1984.

A considerable amount of staff time and travel was spent on providing input for the plans and their various management alternatives. Some of the major commitments included but were not limited to:

May - RM Taylor attended a BBCMP public hearing held in Naknek, chaired by Regional Director Putz and Alaska DNR Commissioner Wunnicke. Public hearing for the Becharof RCCP were held in Naknek, Egegik, and Anchorage at various time during the month.

August - The refuge staff met with DARD(WR) Mazzoni, RS(S) Calvert, and PSS Planners Jerome and Nation at refuge headquarters to discuss the written and oral public comments on the Becharof RCCP.

October - RM Taylor briefed RD Putz, ARD Rogers, DARD Mazzoni and several other RO personnel on the Becharof RCCP public comments in the RO. RM Taylor presented the same briefing and justification to Director Jantzen and other FWS and Interior respresentatives in Washington, D.C.

2. Public Participation

Public participation in the form of meetings and written comment were used during the preparation and selection of the alternatives for the BBCMP and Becharof RCCP. Meetings were conducted in major villages on the Alaska Peninsula. Major issures centered around the oil and gas development and the contingent pipeline/corridor plans. Most villagers expressed mixed and generally negative feelings toward the proposed pipeline corridors. Attitudes could generally be grouped into one of three categories: (1) those opposing pipeline corridors completely; (2) those for energy development but against a pipeline corridor in their area; and (3) those for energy development and a pipeline corridor in thier area but against access roads. As a result of public sentiment, more recent oil and gas potential information, and the states' recent lease sale #41, it was agreed to change the FWS

RCCP preferred alternative from Alternative C to A. Alternative A provided for a more cautious approach to energy development on refuge lands.

4. Compliance with Environmental Mandates

Both the BBCMP and Becharof RCCP are considered major federal actions and include Environmental Impact Statements within the plans.

E. ADMINISTRATION

1. Personnel

In late December, John Taylor accepted a position at the newly established Alligator River NWR headquartered in Manteo, N.C. John was the first manager of the Becharof National Monument (NM) which received a change in size and designation (to a NWR) after the passage of ANILCA in late 1980. Taylor was stationed in King Salmon for about 5 years as project leader of Becharof NM/NWR with the added responsibility of managing the Alaska Peninsula NWR during the last 15 months of his stay.

Randall Wilk was selected for the Wildlife Biologist position advertised in July. Prior to being appointed biologist, Wilk served as a Biological Technician on the Becharof NWR staff. To add to his professional status, Wilk, using a combination of paid leave and leave with out pay (LWOP), attended the University of Wisconsin, Stevens Point, from September through December to complete the first half of required coursework toward a Masters degree.

Dwight Mumma was selected for the local hire Biological Technician position in February. Mumma has some knowledge of local area as a result of living here for 6 years.

The Refuge Assistant (RA) position was filled by Jan Collins. Jan has been here for 7 months now (she's challenging the record for length of stay by a RA!) and has been a real help in organizing the office and files. Jan has worked previously for the U.S. Postal Service. She and her husband (employed by FAA) moved to King Salmon from McGrath, Ak.

In March, Alan Rogers was selected for the Maintenance position that was converted from temporary to PFT in 1984. Alan transferred from Izembek NWR in Cold Bay, Alaska and his skills are a welcome addition to our staff. The FTE and funding for this position is shared with Alaska Peninsula NWR and the King Salmon Fishery Resource Station (FRS).

Although Becharof NWR and Alaska Peninsula NWR were combined at the beginning of the fiscal year to be managed by one project leader, budgets for FY84 were kept separate. Even with separate budgets some funding and FTE's were shared by both refuges which at times causes an administrative nightmare concerning budget tracking, FTE's and payroll.

The state of personnel affairs is shown in Table 3.

Table 3. Staffing Levels by FY - Becharof NWR.

FY	PFT	TEMP.
85	3.4	0
84	4.0	0
83	3.2	.2
82	3.0	0
81	2.0	0

2. Youth Programs

One enrollee completed a 7 week and two enrollees completed 10 week sessions this summer. Jenifer Bullock spent all of her time in the compound concentrated mainly in the office. She helped the Refuge Assistant with the routine office duties and assisted with some biological work (swan data transcribing and swan collar forming). Kevin Riske and Kelly Fundeen assisted MW Rogers mainly in the compound (see Section I, Facilities and Equipment) but did made a trip to the cabin at Becharof Lake for a couple of days "clean-up, paint-up and general fix-up" of that facility there.

YCC enrollees Fundeen and Riske helped fix-up Becharof Lake field camp. DDM

A problem exists in recruiting enrollees for our youth programs. The Youth Conservation Corps (YCC) work sessions occur (generally) at the height of the salmon processing season. Consequently teenagers can ususally find more lucrative summer employment with local canneries. There are five canneries in Naknek located 15 miles west of King Salmon.

5. Funding

Table 4. Becharof NWR Funding FY81 - FY84

FY	1210	1220	1260	1300	1360	TOTAL
85	--	--	901K[1]	--	--	$901K
84	--	--	320K[2]	--	$10K[3]	$330K
83	$96K	$164K[4]	--	--	--	$260K
82	$64K	$119K	--	$104K	--	$287K
81	--	$ 82K	--	$124K	--	$206K

[1]Combined budget with Alaska Peninsula NWR.
[2]Includes $80K earmarked for two Accelerated Refuge Maintenance and Management (AARM) projects.
[3]Earmarked to assist King Salmon FRS in developing a fisheries management plan.
[4]Includes $56K spent on BBCMP mapping.

6. Safety

Field operation in bush Alaska are inherently hazardous. A number of small aircraft accidents on and around the refuge reinforced the obvious fact that the primary means of transportation is not without peril. Unpredictable weather, operation in remote areas and a healthy population of brown bears all add to the need for constant attention to safety.

Portable Emergency Locater Transmitters (ELT's) were purchased this year for use in the field. The transmitters, when activated, emit a signal on 121.5 MHz and 243.0 MHz that can be received by passing aircraft or satellite. These radios are carried by field personnel as extra insurance in the event of an emergency.

In March those staff members who travel to peninsula villages began a series of hepatitis type B vaccinations (3 shots over six months time). Hepatitis B is quite common in villages in Western Alaska where sanitary conditions are often substandard. The state of Alaska picked up the tab for the shots.

The facilities occupied by Becharof NWR and Alaska Peninsula NWR were acquired from NMF. Much headway was gained this year in correcting numerous unsafe conditions relating mainly to facilities. These accomplishments are a result of the talent and motivation of our maintenance worker.

Monthly safety meeting were conducted throughout the year by various staff members covering a wide variety of saftey topics.

F. HABITAT MANAGEMENT

1. General

The Becharof Refuge lies in a transition zone between forest/tundra plant communities to the north and the generally treeless grass/sedge/low-shrub tundra typical of the peninsula to the south. The transition occurs between King Salmon River and a line running east-west of the lower arm of Naknek Lake.

Little documentation exists on the vegetation of the upper Alaska Peninsula. Most available data is from isolated studies or from local descriptions for military needs. The most recent study is the 1981 Bristol Bay Land Cover Cooperative Mapping Project. The study used Landsat satellite imagery and computer technology to provide more accurate and detailed information than previously existed. Ten main cover types were identified on the refuge by the study. Acreage of the cover types are listed in Table 5.

Table 5. Major Cover Types and Percentage of Total Cover on Becharof NWR[1]

Cover Type	Approximate Area (acres)	Approximate % Total Cover
Deep clear water	299,169	20.5
Shallow sedimented water	17,054	1.2
Snow/cloud/light barren	21,799	1.5
Barren	119,585	8.2
Open low shrub/beath tundra	69,066	4.7
Marsh/very wet bog	22,171	1.5
Closed shrub/grass	89,618	6.1
Miscelleaneous deciduous	70,905	4.9
Wet bog/wet meadow	17,363	1.2
Open low shrub/grass tundra	459,525	31.5
All other	273,304	18.7
Total	1,459,286	100.0%

[1]Data from Bristol Bay Land Cover Cooperative Mapping Project.

Vegetation on the refuge is generally limited to low-growing species that resist cool summer temperatures, strong winds, limited moisture, shallow soils and a short growing season. About 90 terrestrial species are known to occur on the refuge. At least 20 freshwater plant species (mostly algae) are found on the refuge, while more than 70 marine plant species (most algae) inhabit salt water adjacent to the refuge.

These morel mushrooms were found on the refuge. Most mushrooms found in Alaska are edible but a few will plant you 6 feet deep. RJW

Mount Peulik is a dormant volcano which is the most prominent landmark of the refuge. DDM

2. Wetlands

The refuge has four significant drainage basins: a tributary of the Naknek River, the King Salmon River, the Egegik River and east slope coastal streams. The first three basins drain the western slopes of the mountains on the refuge and the Bristol Bay lowlands in the north and west. The estimated mean annual runoff for the refuge west of the mountains is 2 cubic feet per second per square mile (cfs/mi^2). Freeze up for the western part of the refuge usually begins between November 30 and December 15; breakup occurs between March 25 and April 5.

The Pacific side of the refuge, along the coast of the Shelikof Strait, contains many streams ranging from 2 to 5 miles in length. The streams flow east into the Pacific Ocean. Average annual runoff varies from 25 to 50 cfs/mi^2 and the average annual low monthly runoff is one cfs/mi^2. The refuge contains 173 lakes of over 25 acres, as well as numerous ponds and potholes (Table 6). Only 35 lakes are larger than 100 acres and few lakes are glacially fed. Most of these lakes (79%) are located below 500 feet elevation, while approximately 35 percent of the lakes have inlets or outlets and 35 percent have ocean access.

Table 6. Becharof NWR Lake Summary.

Lake	Size, Surface Acreage	Quantity Number	Percent	Class Total Surface Acreage
1	25 to 100	138	79.8	8,600
2	101 to 500	32	18.5	9,600
3	501 to 1,000	2	1.2	1,500
4	1,001 to 5,000			
5	5,001 plus	1	.5	293,000
Totals		173		312,700

There are two major lakes on the refuge. Becharof Lake, approximately 293,000 acres, is the second largest lake in Alaska. The discharge from Becharof Lake is unknown, but its large size stabilized the discharge of the Egegik River. Ruth Lake, about 1,000 acres is located a few miles south of Becharof Lake and feeds the Ruth River which flows into Becharof Lake.

3. Forest

The refuge has no major forested areas. Small stands of cottonwoods are found along the Kejulik River and scattered open stands of spruce are found in the northernmost portion of the refuge.

12. Wilderness and Special Areas

Approximately 400,000 acres or one-third of the refuge was established under ANILCA as the Becharof National Wilderness Area. 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 association still intact. Wilderness designation will help to insure 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 associations within will be the last place on the refuge subject to irreversible development. Though protected, several uses are permitted with the Wilderness Area which include:

a. The use of snowmachines, motorboats, airplanes, and non-motorized surface transportation methods for traditional activities and for travel to/from villages and home sites, the latter of which are not located within the wilderness area.

b. The use and replacement of previous existing public use cabins.

c. The construction and maintenance of a limited number of new public use cabins and shelters if such cabins are necessary for the protection of the public health and safety.

G. WILDLIFE

1. Wildlife Diversity

Diverse topographic features, defacto wilderness and the narrow breadth of the Alaska Peninsula, extending into the Bearing Sea fosters a rich and unique variety of wildlife. The moderate polar and Aleutian maritime climates attract wintering wildfowl to coastal bays and estuaries from as far away as Asia. At least 183 bird species, 32 land mammal species, and 22 species of sea mammals probably occur on or near the refuge. Streams and tributaries harbor 22 species of fish and are nurseries for five Pacific salmonids.

2. Endangered and/or threatened Species

The endangered Aleutian Canada goose (Branta canadensis leucopareia) may occur on the Alaska Peninsula during migrations to and from their western Aleutian nesting areas, however, they have not been documented

by actual observations. The Arctic and American races of the peregrine falcon (Falco peregrinus tundrius and F.p. anatum, respectively) may occur in the area during migration, however, these species have not bee documented either. In 1984, F.p. tundrius was removed from the endangered list to threatened status. Peal's peregrine (F.p. pealei) is the non-endangered or threatened race that is a fairly common resident of the area.

3. Waterfowl

The importance of the Alaska Peninsula to waterfowl is evidenced by the thousands of birds that rest and stage there during migrations to and from the Aleutian Islands, Yukon-Kuskokwin Delta and Siberia. The North American population of emperor, cackling Canada (Brantus canadensis minima) and greater white-fronted geese stage in Bering Sea side estuaries during migration, as do brant, occurring at Izembek Bay at the peninsula's southern terminous. Most of the Bristol Bay tundra swan population nests on the northern peninsula lowlands, as do pintail, black scoter, scaup, mergansers and numerous other ducks.

Naknek River Survey

In spring, Naknek River aerial waterfowl surveys are conducted to record staging wildfowl (Table 7). The survey documents species abundance and phenology and in an intensive exercise in waterfowl recognition and data recordation. Because river bird populations are influenced by tides and diurnal activities, totals were highly variable since surveys were not always synchonized with the peak daily populations . Observer experience also biased the data.

Table 7. Naknek River Waterfowl Surveys, 1984

Species	4/10/84	4/15/84	4/24/84
Tundra Swan	86	444	2625
Greater white-fronted goose			2453
Canada goose		182	50
Northern pintail	10		
Goldeneye spp.	665	165	1102
Mallard	196	600	489
Common red-brested merganser			347
Common merganser	1070	1558	
Red-breasted Merganser	47		
American wigeon			30
Bufflehead		25	
Unid. Ducks	20		
Gull spp.	121	80	143
Bald Eagle	2	1	6
Common Raven	7		1
Yellowlegs spp.			2

Tundra Swan Survey

The first extensive aerial tundra swan surveys were initiated on the northern Alaska Peninsula in 1984. The total estimated summary habitat (5700 $mi.^2$ or 1.52 million ha^2) between the Naknek River and Port Moller on the Bristol Bay lowlands was censused in June. A similar resurvey for production was conducted in mid-July, covering 65% of the study area. Four thousand swans, including 1200-1300 pairs were determined summering on the study area (one third of the estimated Bristol Bay populations). Forty-two percent of the observed pairs had broods averaging 3.32 cygnets. Recruitment was 29% (Figure 2).

Emperor Goose

Spring and fall emperor goose surveys in southwestern Alaska were completed by aerial crews 28-30 April, 4 May and, 3-8 and 10-16 October 1984, respectively. Personnel from Izembek NWR, Migratory Birds, Alaska Department of Fish and Game (ADF&G), and the refuge participated. Spring estimates were 71,217 geese. Fall enumeration was 82,842 geese. Spring estimates were 10% lower than 1983 counts; fall counts were 14% higher, respectively. Better survey timing with peak staging may attribute to the increase in the latter (Tables 8 and 9.

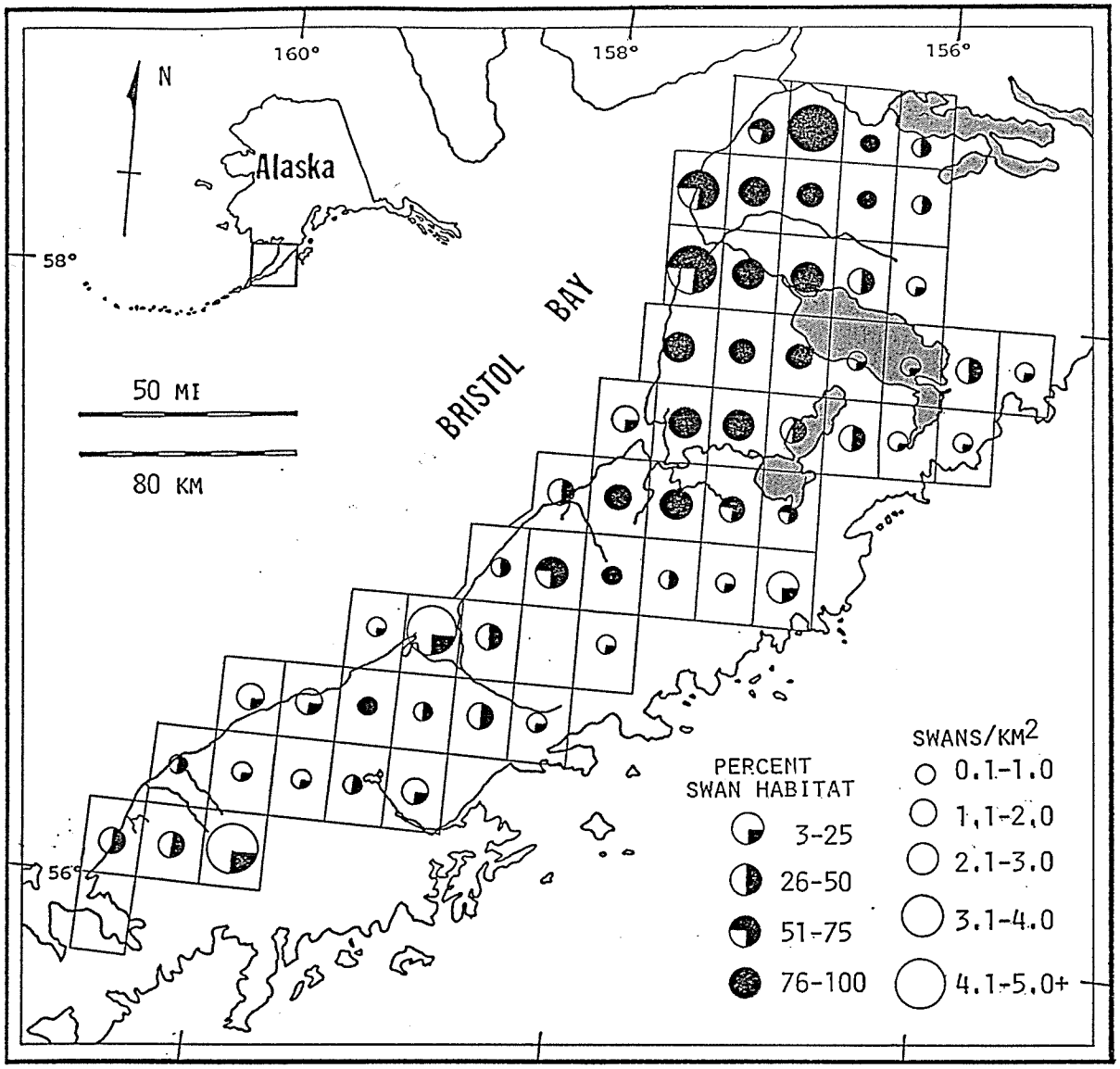


Fig. 2. Tundra Swan densities and habitat censused from June-August, 1984 aerial nesting surveys. Units without symbols were not surveyed.

Table 8. Spring population size and productivity trends in emperor geese.[1]

Year	Spring Population Size (% change from prev. year)	Production (% young in population)	Family Group size
1980	No Survey	24.8	2.3
1981	91,267	31.7	3.2
1982	100,643 (+10.3)	7.8	2.7
1983	79,155 (-21.4)	27.1	3.2
1984	71,217 (-10.0)	--	--

[1]Data from Izembek NWR

TABLE 9. Fall Population size of emperor geese.

Year	Fall population size (% change from Prev. year)
1979	59,114[1]
1980	63,091[1] (+6.7)
1981	63,156
1982	80,608 (+27.6)
1983	72,551 (-10.0)
1984	82,842 (+14.2)

[1]Surveys on south side of peninsula not conducted.

4. Marsh and Waterbirds

The peninsula is an important summering area for lesser sandhill cranes which nest in the sedge-grass marshes of the wet lowland tundra. Common and red-throated loon probably nest along refuge lakes and rivers as do Arctic loon. Yellow-billed loons are rare and

probably winter on the Pacific coast. Red-necked grebes have been observed breeding on the peninsula.

5. Shorebirds, Gulls, Terns and Allied Species

Numerous shorebirds migrate along the Alaska Peninsula in spring and fall. Major staging areas are off-refuge in Izembek and Nelson Lagoons, Port Heiden, and Ugashik and Egegik Bays. Some species occurring on the refuge include rock sandpipers, black oystercatchers, least sandpipers, black turnstones, common snipe, yellowlegs, dunlins, short-billed dowitchers, red-necked phalaropes, semi-palmated plovers, and wandering tattlers. Mew and glaucous-winged gulls and arctic terns are common larids.

Nesting seabirds flourish along the peninsula's coast. The steep, rocky, cliffs of the Pacific coast are particularly suited for colony-nesting species of black-legged kittiwakes, common and thick-billed murres, horned and tufted puffins, red-faced pelagic and double-crested cormorants, pigeon guillemots and gulls.

Seabird colonies flourish along the Alaska Peninsula's coast. These nesting black-legged Kittiwakes were taken at Cape Seniavin. DDM

6. Raptors

The bald eagle is a common nesting species on the refuge. Aeries are constructed atop cliffs and Pacific seastacks. The population was estimated at 1422 ± 21% for adults and 418 ± 38% for juveniles (95% C.I.) from a recent survey conducted by Jack Hodges. Eagles and other birds of prey are not regularly inventoried by refuge personnel.

A gyrfalcon aerie was documented atop an abandoned building in Port Heiden this summer. An immature female gyrfalcon was found gunshot but alive in Naknek and was flown to Anchorage for rehabilitation.

Other raptors known or probably occuring on the refuge are great-horned, northern hawk, great-gray, snowy, boreal and short-eared owls, osprey, northern harrier, rough-legged hawk, and golden eagles.

7. Other Migratory Birds

Eight passerine species and 53 individuals were banded by refuge personnel in 1984. All banding was accomplished at baited traps and mist nets placed outside one of the refuge residences. Species banded included tree, fox, golden-crowned and white-crowned sparrows, dark-eyed junco, tree swallow, robin and common red poll.

8. Game Mammals

Brown bear

Aerial brown bear surveys of Becharof Lake/Island Arm tributaries were conducted again in 1984 (Table 10). Bad weather precluded completion of the traditional series of counts used for determining peak concentrations (data from previous years indicated peak bear densities on salmon streams occuring between 17-20 August). Refuge survey crews conducted surveys between 22-23 August. Comparisons with previous years are shown in Table 11 and Figure 3.

Table 10. Becharof Lake Brown Bear Survey.

Survey #1 8/22/84			Survey # 2 8/23/84		
0829-1129 = 180 min. Salmon run good Calm; overcast 700'			0842-1012 = 90 min. Salmon run good Calm-fog Kejulik aborted (foggy)		
Composite Summary	#	%	Composite Summary	#	%
Female w/young	13	20.6	Female w/young	10	21.7
cubs	20	31.7	cubs	9	19.6
yearlings	3	4.8	yearlings	8	17.4
Single bears	27	42.8	Single bears	19	41.3
Total	63		Total	46	
BREAKDOWN:	#	%		#	%
Female & young all ages	36	57.1		27	42.9
Average litter size:					
cubs	2.0			2.0	
yearlings	1.0			1.6	
all young/females	1.7			1.7	
Single Bears:					
Small	10	37.0		6	31.6
Medium	17	63.0		13	68.4
Large	0	0.0		0	0.0
Total	27			19	

Table 11. Comparison of annual brown bear surveys 1980-1984[1]

	1980		1981		1982		1983		1984	
Class	No	%	No	%	No	%	No	%	No	%
Cubs	90	26	89	16	65	25	198	19	29	29
Yearlings	55	16	48	9	25	9	64	19	11	11
Sows w/cubs	48	14	47	9	36	14	36	10	23[2]	23[2]
Sows w/yearlings	30	8	29	5	13	5	34	9		
Single Bears	124	36	329	61	121	47	147	43	46	46
Sample Total	347		542		260		345		99	
Avg. Litter size (cubs)	1.9		1.9		1.9		1.8		2.0	
Avg. Litter Size (yearlings)	1.8		1.7		1.9		1.9		1.6	

[1]Categories are based on lumped observation for all surveys. 1980-1983 Data are from 1983 Narrative Report.

[2]Sow w/cubs and sows w/yearling totals combined.

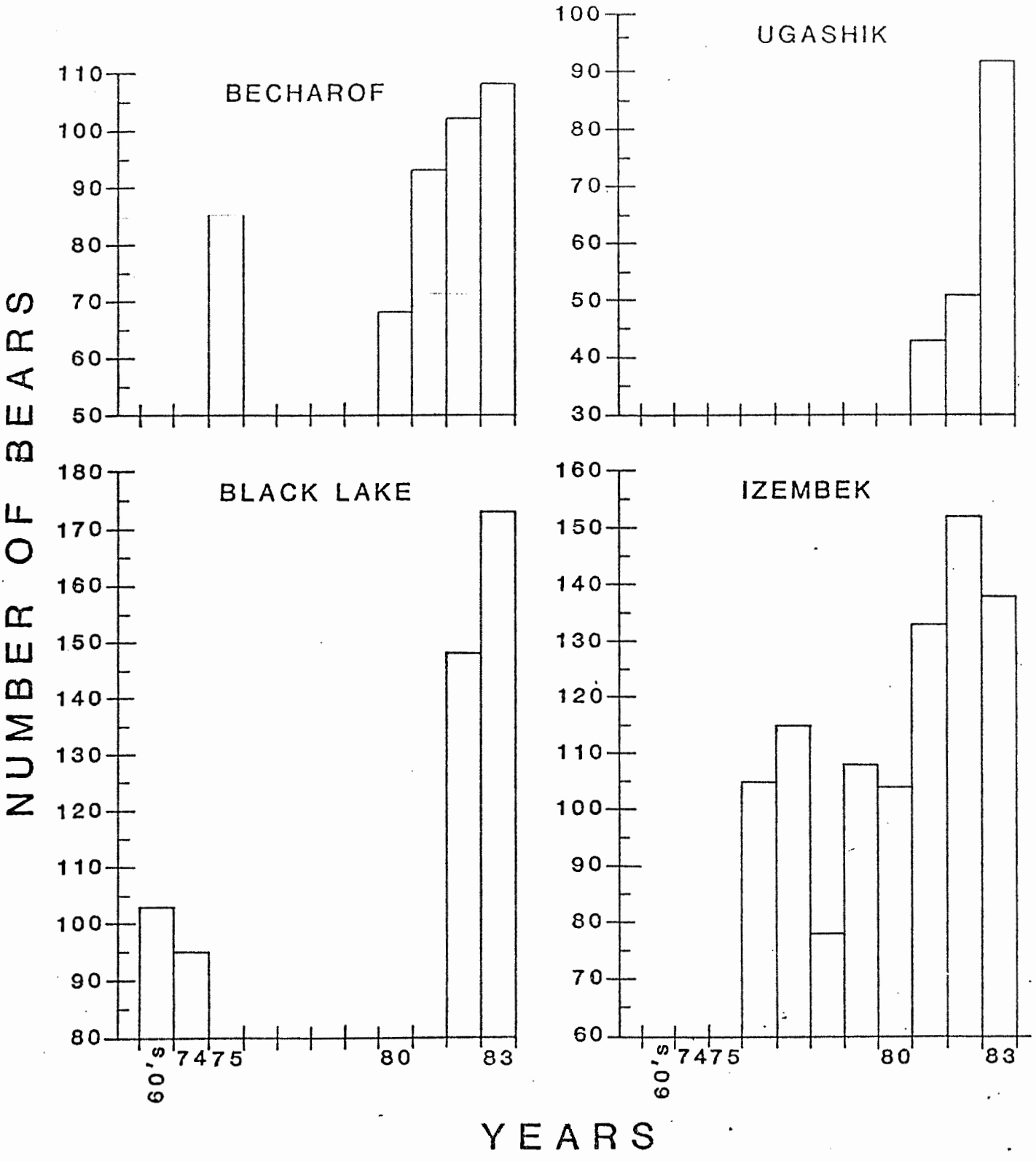


Fig. 3. Highest single counts of brown bears in four trend areas surveyed by USFWS and ADF&G on the Alaska Peninsula.

April brown bears emerging from winter den. CRA

Caribou

State game biologist have conducted annual spring/fall counts for the Alaska Peninsula caribou herd. In 1984, post-parturition counts showed 19,000 animals in the northern herd, of which 24.5% were calves. During October, calves composed 22% of the herd. Calf/cow ratios were 39/100 and bull/cow ratios were 39/100.

The FWS is assisting state biologist in tracking 20-25 radio collared caribou form the northern subherd to monitor the movements.

The estimated herd harvest is 1000-1200 animals. Most hunters take bulls.

A segment of the northern Alaska Peninsula's caribou sub-herd in August JWS

Moose

Aerial stratification surveys of moose by state biologist in Game Management Unit (GMU) 9(E) estimated 2500 moose. At least 2500 roam the peninsula's northern reaches.

Moose trend surveys have been flown by state biologists on the peninsula since 1962. Trend data for GMU 9(E) from 1969-72 compared with 1982-83 suggest moose numbers have declined by 60% during the 12 year period (ADF&G data).

Some of the densest moose populations on the refuge occur in the Kejulik River drainage.

9. Marine Mammals

In May, four decapitated carcasses with "oosiks" removed were investigated by refuge personnel. Subsequent law enforcement "stake outs" resulted in investigations of local fishermen in Naknek who were observed shooting at beached walrus from their boats. No arrests were made.

Close quarters for walrus hauled out at Cape Seniavin. DDM

10. Other Resident Wildlife

Wolves, wolverine, lynx, red foxes, river otter, mink, weasel, and beaver are furbearers occuring on the refuge. Spruce grouse, willow and rock ptarmigan and arctic and snowshoe hare and other game species are also residents of the peninsula. No population data are available for the above species.

11. Fisheries Resources

No data are available on the sport fisheries in Becharof NWR. Salmon, char and grayling are plentiful, particularly in summer. Rainbow and lake trout, northern pike, whitefish and smelt are also endemic to refuge waterways. Gertrude Creek is the presumed southern most range of rainbow trout on the Alaska Peninsula.

The second largest sockeye salmon run in the world occurs in the Egegik-Becharof system. Data on age, composition size, and numbers of Egegik river salmon smolt migrating to Bristol Bay are used by ADF&G in forecasting salmon runs. The data are obtained using hydroacoustic gear and sonar arrays anchored to the river bottom (for out migration counts) and fyke nets (for age composition).

Alaska Peninsula streams are world class sport fisheries.
DDM

16. Marking and Banding

Telementry equipment, helicopter and staff were on hand at Becharof Lake on August 12 for radio collaring 15 female bears see Table 12. The plans for fitting the radio collars are:

a. Determine the extent and characteristics of island denning of brown bear on the refuge.

b. Determine the seasonal movement of the brown bear.

c. Locate and describe winter denning sites.

d. Establish baseline data of brown bear use of the refuge.

Table 12. Brown Bear Radio Collared in 1984.

Date	Bear #	sex/young	Radio Freq.	Location tagged
8/13/84	01-4	F/2C[1]	164.030	Cleo Creek
8/13/84	02-4	F/1Y[2]	164.300	Cleo Creek
8/13/84	03-4	F/2Y	164.280	Bear Creek
8/13/84	04-4	F/1Y	164.2195	Bear Creek
8/13/84	05-4	F/3C	164.260	Bear Creek
8/13/84	06-4	F/2C	164.200	Bear Creek
8/13/84	07-4	F/2Y	164.380	Bear Creek
8/13/84	08-4	F/1C	164.181	Bear Creek
8/13/84	09-4	F/2C	164.420	Bear Creek
8/14/84	10-4	F/2C	164.101	Becharof Creek
8/14/84	11-4	F/1Y	164.339	Becharof Creek
8/14/84	12-4	F/3C	164.241	Bear Creek
8/14/84	13-4	F/3C	164.160	Salmon Creek
8/14/84	14-4	F/2Y	164.361	Salmon Creek
8/15/84	15-4	F/3Y	164.051	Becharof Creek

[1]C - cub(s)
[2]Y - yearlings

Each time a bear was located by aircraft after radio collaring, its location was plotted on a map to determine its movement and activity. The following list explains observations made during fall tracking surveys. See Figure 4 for general areas of bear locations.

01-4 Was located twice during the period of August 13-27 at Cleo Creek. Since that time no signal has been picked up from this bear.

02-4 Stayed near Cleo Creek until October 2 when she moved to the Pacific side near Puale Bay. She then moved into the mountains about 5 miles north of Alinchak Bay at the 1500 foot elevation and the last signal was picked up on October 19; at that time her yearling offspring was still with her.

03-4 Stayed within a 2 mile radius of Bear Creek until mid-September then the signal was located in the foothills near the area until the end of October, leading us to belive the collar had come off or she had died.

04-4 Was located 3 times during the period of August 13 to Novemeber 3. The area of travel was about 6 miles to Porcupine Creek. She was last located at the 1,000 foot elevation.

05-4 Stayed in the Cleo Creek area until August 27. The next signal from this bear was picked up on October 3 at Alagogshak Creek, about 5 miles from Katmai Bay, which meant she had moved 40 miles

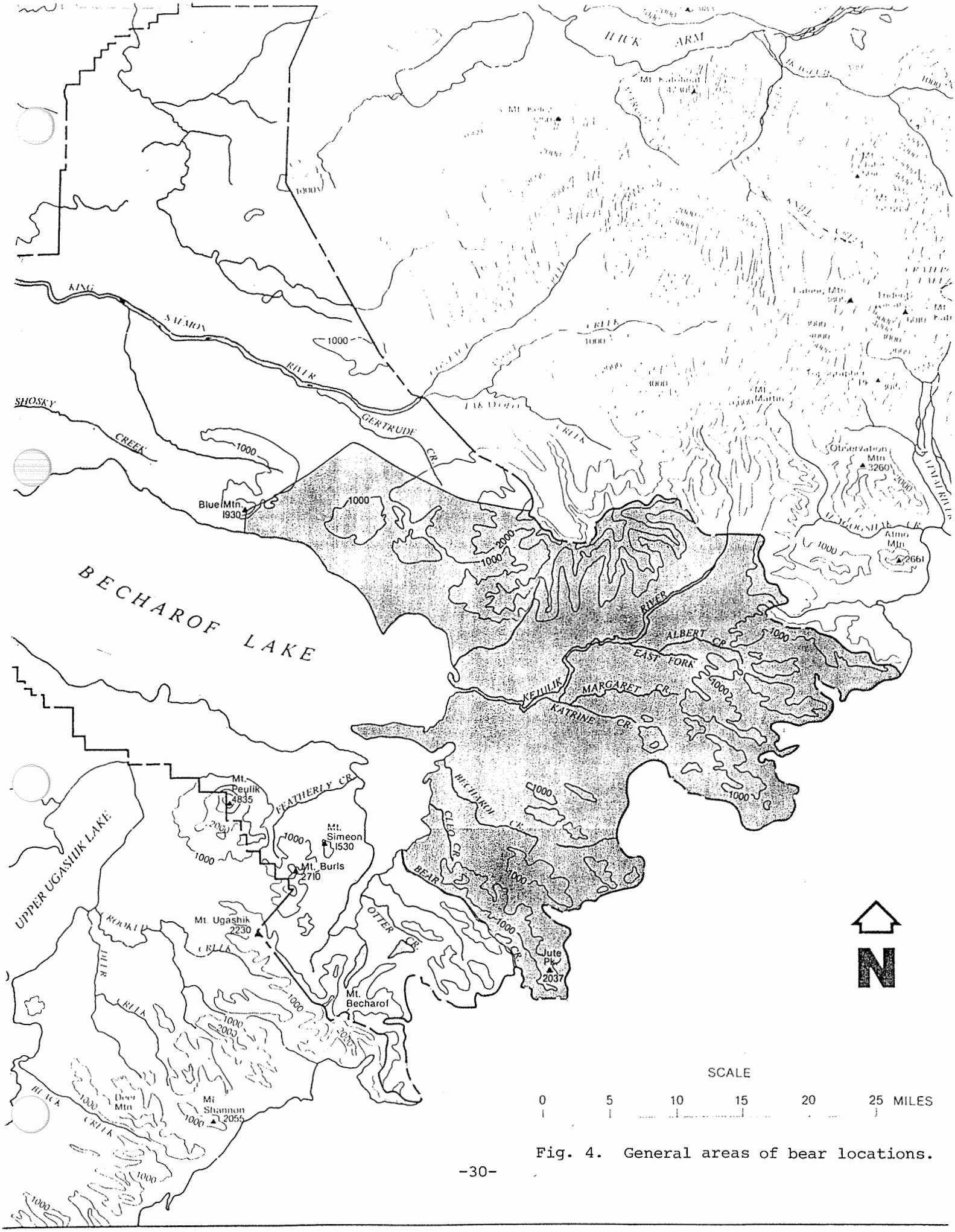


Fig. 4. General areas of bear locations.

and was at the 1,800 foot elevation of the foothills. The last signal was on November 11 in the Alagogshak Creek bottom in a small grove of cottonwoods.

06-4 Remained within a 5 mile radius of Island Arm of Becharof Lake. On September 27 she and her cubs were seen feeding on a caribou carcass about a mile from Ruth Lake. From October 18 to October 29, the signal was always in the same spot; by a beaver pond. It is presumed that the collar came off.

07-4 Remained near Bear Creek until October 2 when her signal was picked up at Ruth Lake. The signal was next picked up on October 18-19 in the Kashvik Bay Drainage at the 1800 foot elevation. She was on the same mountain as bear 02-4. The distance of movement was 40 miles during the 68 day period from capture to the last signal.

08-4 Moved from Bear Creek to Becharof creek then returned to Bear Creek via Dry Bay on the Pacific Side. The range of travel was 6 1/2 miles during the period of August 13 to October 19.

09-4 Was the only bear that moved south into the Alaska Peninsula NWR during our tracking surveys this year. The family unit was found on Moore Creek (drainage of Ugashik Lake) on September 17; by September 27 she had returned to Becharof Lake and was last monitored on Katrine Creek about 3 miles from Puale Bay. The bear had moved nearly 20 miles to the southwest, returned, then 17 miles to the northeast by the last tracking survey.

10-4 Remained within a 3 1/2 mile radius of Becharof Creek. On October 28 a member of the refuge staff was dropped off in this area by a helicopter and found the collar in an alder thicket under the snow. The bear had apparently rubbed the collar off shortly after it had been put on.

11-4 The signal was always received from the same area near a fork of Porcupine and Becharof creeks indicating this bear has possibly lost its collar also.

12-4 Remained near Bear Creek. She was seen fishing in the Creek on August 16. However, after October 2 the signal did not move. On October 28 a ground search was made for the collar but due to snow cover it could not be located. It's hard to understand how the bears get out of the collars after wearing them for several weeks!!

13-4 On September 17 this bear was only a mile from the capture area. On October 2 we found her and her cubs about 2 miles south on the trail going to Kanatak in Portage Bay. This bear was only monitored a total of 3 times.

14-4 Reamained within a 2 mile radius of Salmon Creek until October 2 when she started moving northeast to Katmai Bay on the Pacific Coast. The last signal on November 8 was heard on the east side

of Katmai River about 5 miles from the Bay. Weather conditions prevented flying across the valley bottom in Katmai NP to pinpoint the exact location. This bear had moved in area of about 50 miles.

15-5 At the time of capture she had 2 large yearlings with her. She remained in the area of Becharof Creek drainage and it is suspected the yearling were 2-2 1/2 year olds and were about to break the family bond as they were never seen with her again. The last signal receive was in the mountains at the headwaters of Becharof Creek.

All the family groups of bears were on gravel bars or fishing when sighted and then darted from the helicopter. Some took as long as 26 minutes for the drug to take effect.

JT

Marginal weather and mountain turbulence resulted in few tracking flights and incomplete coverage. Of the 100 signals encountered, visual contact was limited to 62%.

Premolar teeth were extracted from 14 of the bears for aging, using cementum layers. ADF&G Game Division Laboratory did the sectioning and reading. Table 13 list the results.

Table 13. Becharof Brown Bear Teeth-Cementum Age Estimates

Bear #	Sex	Date	# Cem Lines	Cem Age	Comments
01-4	F	8/13/84	13	12.7	Poor,aberrant tooth deformed root, tooth chipped at gum line.
02-4	F	8/13/84	16	15.7	Ecellent
03-4	F	8/13/84	12	11.7	Excellent
04-4	F	8/13/84	10	9.7	Good
05-4	F	8/13/84	7	6.7	Good
06-4	F	8/13/84	9	8.7	Fair, cementum is diseased; some line are discontinuous whorled
08-4	F	8/13/84	9	8.7	Very poor, resorbed root with no cementum lines on side of tooth; some lines occur just at gum line. Recommend another tooth be pulled when possible.
09-4	F	8/13/84	13	12.7	Poor; broken root, cementum has aberrent inclusions.
10-4	F	8/14/84	12	11.7	Fair
11-4	F	8/14/84	9	8.7	Good
12-4	F	8/14/84	11	10.7	Good
13-4	F	8/14/84	15	14.7	Fair
14-4	F	8/14/84	15	14.7	Excellent
15-4	F	8/15/84	9	8.7	Poor; broken adn resorbed root; cementum is grainy and has inclusions.

Swan Marking

Due to scheduling conflicts with brown bear collaring, stream surveys and poor weather conditions toward the end of August, only 8 tundra swans were banded at the Becharof Refuge during the 1984 season.

When a brood was located on a lake where we could land the Supercub, we would then water taxi the plane and drive the birds into the grass along the shoreline. Some of the cygnets would hide while others would start running overland or try to get back into the lake.

Banding began on August 16 and 8 cygnets were captured from near Becharof Lake. Remaining family groups were in lakes either too short or too shallow to land the float plane. See Table 14.

Plans had been made to place radio transmitters on six cygnets at Becharof and Alaksa Peninsula Refuges to track their movements on the breeding grounds and migration route. However scheduling conflicts and advanced development of the cygnets, which were getting to flight stage resulted in no transmitters attachments this year.

Catching the cygnets in the tall grass and marsh area can be exiciting, tiring and wet if you fall. JWS

Table 14. Becharof Swan Banding - 1984

Date	Collar#	FWS Band #	Age/ Sex	Wt. (kg)	Parasite [1]	Location
8/16/84	P040	609-08040	L-M	2.8	-	3/4 Mi N Featherly Creek 1/2 mi W Becharof Lake
8/16/84	P041	609-08041	L-F	2.8	-	1 mi W Featherly Creek
8/16/84	P042	609-08042	L-F	3.8	-	1 mi W Featherly Creek
8/16/84	P043	609-08043	L-M	4.6	-	1 mi W Featherly Creek
8/16/84	P044	609-08044	L-F	5.2	-	1 1/2 mi N Featherly Creek 1 mi N. Becharof Lake
8/16/84	P045	609-08045	L-M	5.4	-	1 1/2 mi N Featherly Creek 1 mi N Becharof Lake
8/19/84	P050	609-08050	L-M	5.9	1L-T	1 1/2 mi N Featherly Creek 1 mi N Becharof Lake
8/19/84	P051	609-08051	L-M	5.8	-	1 1/2 mi N Featherly Creek 1 mi N Becharof Lake

[1] Parasite is Leech (Theromyzon sp.) unless noted as T (tapeworm). L=left eye, R=right eye. Also listed if number of leeches found under nictitating membrane.

All captured swans were fitted with a blue on white, alpha-numeric necl collar and tarsus band as well as the FWS metal band. JWS

H. PUBLIC USE

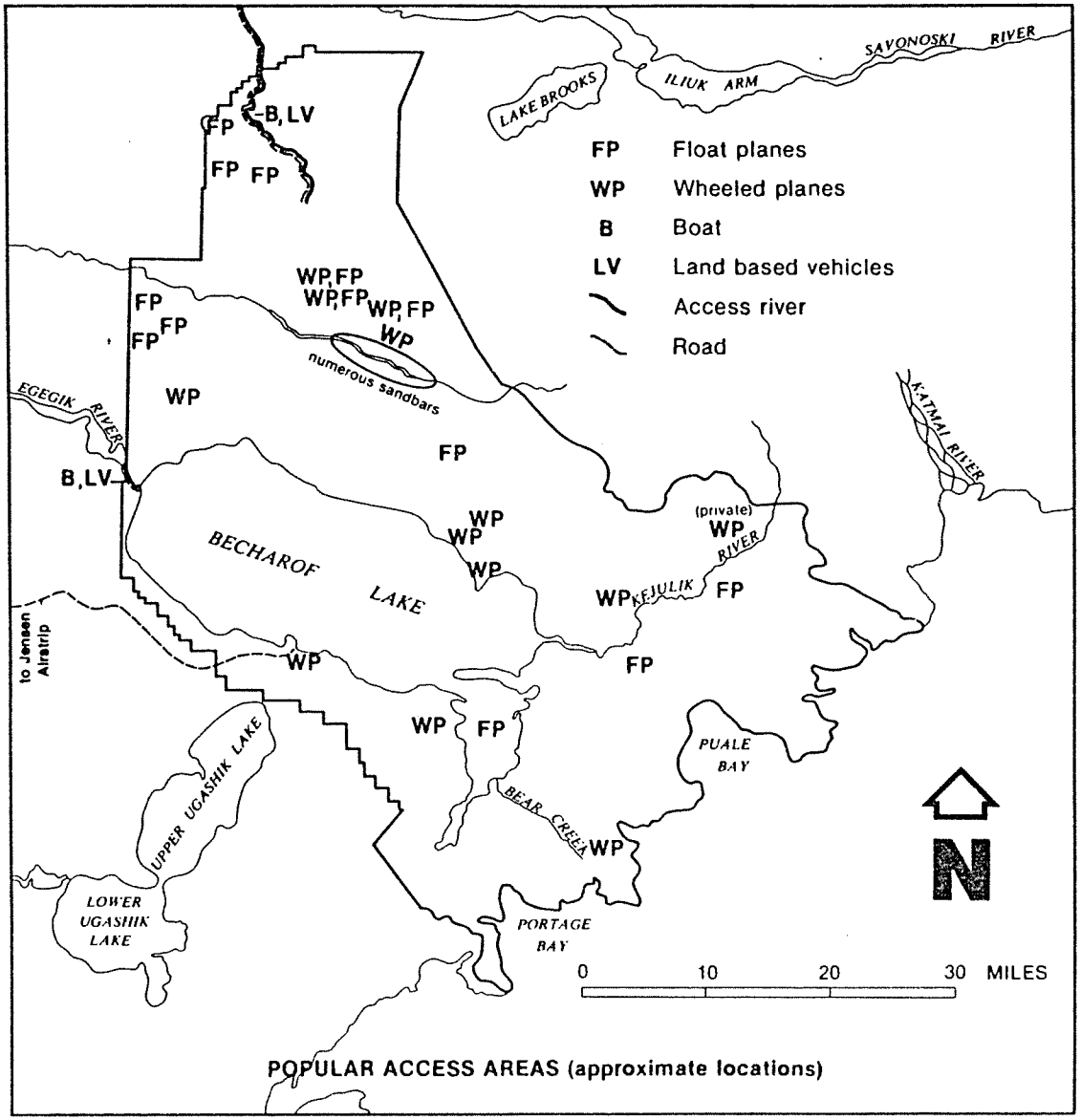
1. General

Most users of Becharof NWR are non-local and non-resident sportsmen. Residents from the Bristol Bay Borough, Egegik and the U.S. Air Force Station (King Salmon) are more frequent users of the refuge, but fewer in number. The local population is estimated at 1,100 year-round residents.

Recreational use of the refuge is difficult to distinquish from subsistence use since local residents combine the two activities. Non-local use is increasing, evidenced by the increase in the activity of local air-taxi operations, outfitters and commercial guides.

Figure 5. shows popular access areas of the refuge.

Figure 5. Popular access areas (approximate locations).



8. Hunting

Hunting is a major public use of Becharof NWR. Commercial guiding includes hunts for world-class trophy moose, brown bear, and caribou. Eleven guiding areas have been designated on the refuge by the State Guide Board. Some hunters partake in overlapping seasons of the three species, however, brown bear seasons occur only one season every year, in either spring or fall (Table 15).

TABLE 15. Brown Bear Harvest for the Alaska Peninsula. 1975-1983.

Date	Total	%non-res.	%male	age M	age F	% 5 yr. old M	% 5 yr. old F
1975-76	261	67	62	6.4	6.8	48.7	51.3
1977-78	311	72	64	5.9	7.1	45.3	54.7
1979-80	316	77	68	6.1	6.2	46.7	53.3
1981-82	339	76	59	5.9	6.4	47.0	53.0
1983-fall	165	—	61	—	—	—	—
Mean		73	63	6.1	6.6	46.9	53.1

Waterfowl and ptarmigan hunting usually occur incidental to big game outings. Gross hunting estimates for 1984 include 644 visits and 14,284 activity hours.

Harvest of moose and caribou for 1984 are unavailable. The ADF&G in King Salmon has provided both harvest and hunter data for 1983, Table 16 and 17.

Table 16. Estimated Caribou and Moose Harvest on Becharof NWR.

Species	M	F	?	Total
Caribou	151	38	2	191
Moose				20

Table 17. Caribou and Moose Hunter Success of the Alaska Peninsula.

Species	resident[1] +	resident[1] o	non-resident +	non-resident o	? +	? o	Total
Caribou GMU 9C, 9E	332	70	155	10	34	5	606
Moose Becharof NWR	16	16	4	4			40

[1] + = successful, o = unsucessful, ? = unknown.

9. Fishing

Becharof NWR receives only light fishing due to its distance from inhabited areas. The King Salmon River, Gertrude Creek, Big Creek, and Featherly Creek are the main sport fishing areas. Game species include rainbow trout, Dolly Varden arctic char, arctic grayling and salmon.

Gertrude Creek is accessible by wheel (gravel bar) or float plane (Gertrude Lake) and by boat from Egegik. The commercial guide operating in the area books 120 clients per season with the average stay of 4 days. Catch and release fishing ethics are encouraged but clients are allowed to retain a trophy rainbow over 22".

Gross estimates of refuge fishing use for 1984 were 422 visists and 2,000 activity hours.

10. Trapping

Eight individuals are known to trap on the refuge (Table 18).

Table 18. Furbearer harvest by trap and gun, Becharof NWR and adjacent areas, 1983-1984.

Species	Date	M	F	UKN	Total
Wolverine	1984	1	0	0	1
Wolf	1983-84	3	1	0	4
Otter	1984	3	3	0	6

11. Wildlife Observation

The high cost of travel, lack of support facilities and weather hinders refuge visitors exclusively interested in wildlife observation. Most wildlife observation on the refuge is done via aircraft and incidental to ferry flights to predesignated locations.

12. Other Wildlife Oriented Recreation

Nature photography usually occurs incidental to hunting and fishing.

13. Camping

Most camping on the refuge is associated with hunting and fishing. The average trip is usually 3-4 nights. Most commercial guides have cabins on the refuge, but also operate out of spike camps. Gross estimates of refuge camping use in 1984 were 378 visits and 12,752 activity hours.

15. Off-Road Vehicling

Three-wheehed all-terrain vehicles (ATV's) are a mainstay means of transportation for off-road movement on the peninsula. Most of villagers around the refuge have three-wheelers. ANILCA allows traditional means of surface transportation for subsistence purposes however, use of three-wheelers are not considered traditional. Big Creek having provided traditional access from the local community to the refuge was desiginated as a public use trail for winter use. This permits the use of any ATV to be used by both native and non-native to get to their winter food supply (caribou). Big Creek is usually used for this purpose during December, January and February. The mild weather precluded such use in December.

17. Law Enforcement

Law enforcement activities focused on the spring brown bear season and spring subsistence waterfowl hunting along the Naknek River. Refuge personnel flew patrol flights over and into bear guiding camps. An observation post was set along a major hunting area near Becharof Lake during bear season. Taylor, Wilk, and Mumma scoped the Naknek River for waterfowl hunting activities on several occasions. however no violations were observed. Late August through September, ARM Berns made several contacts with "outfitters" using the Gertrude Lake area without a refuge permit. As a result of the investigations the "outfitters" moved off the refuge.

Illegal guiding activity is one of the major abuses of the refuge. Here, outfitters have set up an operation without a permit on Gertrude Lake infringing on another guide who had a permit for the area. CRA

20. Cabins

ANILCA mandates FWS to require permits of all people who currently own or use cabins on the refuge. The permit gives legal statute to use the cabin(s) for traditional and customary purposes such as commercial fishing, guiding, trapping and subsistence activities. The permit also protects refuge wildlife, habitat and other resources, ensuring that the cabin(s) and associated uses will not be detrimental to the refuge through its special conditions.

The permits normally issued for five-year periods, may be renewed until the death of the last immediate family member using the cabin(s), provided the cabin's continued use is compatible with the purposes for which the refuge was established. However, contension of ownership, etc. have resulted in the issuance for some permits for less than the five-year period.

The refuge currently has 11 cabin sites still standing which were built prior to refuge establishment. Most of the claimed cabins are being used by commercial guides, however, one is used for administrative purposes and another periodically serves as a Bible Camp.

Typical guide cabin. This one on the Kejulik River is one of two owned by Jay Hammond. CRA

The refuge has one cabin on the Becharof Lake Island Arm used for administrative purposes. JT

I. EQUIPMENT AND CONSTRUCTION

1. New Construction

In late January, Kreuger Construction Company completed Phase II of the office construction. The Phase II portion added 2,000 sq ft (a second floor added to the existing ground floor) to be utilized as office space, conference room, and resource center (reference library, study skins, herbaruim, etc.). Final inspections of the Phase II project were conducted in February and September by engineering.

With the help of other staff members, Rogers installed a new AVGAS fuel system for refueling aircraft during float operation. The new improved system provides for: reduced hassels associated with 55 gallon drums, no more hand pumping, bulk delivery from supplier, and reduced contamination (by better filters and virtually no contact with sand).

MW Rogers constructed six 10' x 10' storage areas for compound residents. The new storage rooms will replace storage area lost to bunkhouse rehabilitation scheduled for FY85.

Upon conveyance of 2.4 acres of refuge compound land to Paug-Vik native corporation we were given 30 days to remove our facilities (radio antennas, wind generator/tower, leach field). Numerous visits by RO engineers conducting soil percolation tests indicated no suitable sites existed on remaining Service lands for a new septic system. An agreement was reached in August to install the new system on ADF&G property, our neighbors to the east. The contract was awarded to Terry Brauner of Kodiak, Ak. and was accomplished for $13,700. The project required approximately 1 week to complete and involved installing a new leach field approximately 30 yards east of the old one. The holding tank and pump station from the previous set-up was used with the new system.

MW Rogers and various other refuge personnel poured a new wind generator tower foundation. Ready-mix concrete was purchased locally for $250/yd (delivered of course)!! The tower will be erected in early FY85 with help from the Air Force and their crane.

2. Rehabilitation

In June, a crew from King Construction replaced wall and ceiling insulation and added sheetrock to the walls of the auto shop. The furnace doesn't seem to be "working as hard" as in the past (suggesting better energy efficiency) but its hard to tell as we've had a mild winter thus far. The new drywall has also improved lighting conditions in the shop. Total cost for the project was $13K (FY84 ARMM project).

MW Rogers remodeled the bathroom in Quarter #8 in November. The sub-flooring was replaced and covered with new linoleum. New sheet rock was hung and an exhaust fan added. New fixtures include: toilet, sink, tub with shower enclosure, and cabinets.

3. Major Maintenance

Our dock, purchased in 1983 from Meeco Marina's of Oklahoma, functions pretty well in general. The structure was designed for warmer climates where installation is permanent. However, here in King Salmon the dock must be removed annually due to freezing temperatures. The design of the structure hinders quick and easy assembly and take down. Once in place the dock is sturdy and stable. As in the past the dock was placed in the river with help from the U. S. Air Force and their crane.

The dock purchased in 1983 is structurally sound but the hinders quick installation and removal. RJW

MW Rogers along with the YCC completed the following projects: painting (trailer add-ons, fuel tanks, trailer windows, shop interior, sewage pump barricade), carpentry (office shelves and equipment stands, replaced windows in trailers, sewage pump barricade), mowed lawns, fertilized and seeded lawns, and cleaned and organized the warehouse. The YCC also helped MW Rogers remove the chain-link fence surrounding the 2.4 acres that was conveyed to the native corporation in July.

In October, MW Rogers conducted a maintenance inspection of all facilities and equipment as part of this stations participation in the Maintenance Management System task force.

4. Equipment Utilization and Replacement

Efforts continued this year in cleaning up most of the junk around the headquarters compound that has accumalated through the years. Bidding closed on excess property about mid-July and by the end of the month most items had been picked-up. It has really improved the appearance of the compound to have items like a D-8 cat and 2 24' wooden hulled Chris-Crafts out of the way.

In April, MW Rogers removed and replaced the engine in our forklift. By October the transmission needed an overhaul. The machine is old and quite worn but by repairing the forklift we were able to redirect $70K (85 ARMM money) toward an aircraft hanger (to be shared with National Park Service NPS).

Personnel from Information Resource Management (IRM) visited the refuge headquarters in late July to set up a new Data General micro-computer. For the time being the system will be utilized solely as a word processor for refuge business. Eventually the system will have budget tracking capabilities added. IRM has visited 2-3 times since installation trying to get the "bugs" out of the system. It seems to be a pretty good rig but it appears that IRM has a few more visits to make.

5. Communications Systems

In mid-June, MW Rogers (with the help of the YCC crew) dismantled and removed the HF antenna system located on the 2.4 acres of land that was conveyed to the natives. As a temporary replacement for the multi-thousand dollar antenna system, Rogers strung-up a $300.00 system (using nylon rope and a commercial bailum which out performs its predecessor).

In early October, 4 hand-held Motorola Ht-440's (walkie-talkies) were purchased for use in the field. They don't have the frequency capability of any of our aircraft radios, but are compatible with NPS repeater equipment giving us an extra margin of safety during remote operations.

6. Energy Conservation

In August, the wind generator was taken down from its tower and the tower was removed from the original site. This action resulted from the loss of 2.4 acres in the North end of the compound to the local native corporation.

With the help of the Air Force (and their crane) and YCC the wind generator and tower were removed from the 2.4 acres fo Service land lost to the Native Corporation. JWS

The performance of the wind generator in 1984 was poor; for that matter, it was poor throughout its life. Between January and August the generator operated for about two weeks. Enertech has sent us a new generator (5KW) for freight cost only. When considering the track record of the old unit, it make us wonder how much this "free" generator is going to cost us before it is producing electricity.

7. Other

With land selections being provided for in the ANCSA, Paug-Vik Corporation requested conveyence of 2.4 acres in the north end of the headquarters compound. Because we could not prove use prior to ANSCA, the land was conveyed. Visits by RO Realty on two occasions to the native corporation headquarters with offers of $53K and $100K were met with an "eviction" notice and given 30 days to move our facilities (HF antenna system, wind generator and tower, leach field, and chain-link fence) from the property. As far as commercial value is concerned, the land is one of the best in King Salmon. It is located on the main road near the air terminal and is on a hill that provides a view of the river.

J. OTHER ITEMS

1. Cooperative Programs

Becharof NWR is continuing to work cooperatively with the local ADF&G personnel on wildlife surveys. This year we have not been as active with them since they have acquired their own Supercub and have not needed logistical support. On one flight with the ADF&G, 14 radio collared caribou were located in February. Seven of them were found in the Kejulik drainage which was unusual for this time of year. Another support flight was a moose survey in November for the State. The area starting at Naknek Lake (within Katmai NP) and extending south and west into the refuge was flown for moose composition counts.

A survey was conducted from the Naknek River along the Bristol Bay coastline to Cold Bay for emperor geese and related waterfowl. The local ADF&G Biologist, Dick Sellers assisted in this survey and participated in a meeting on survey methods conducted by waterfowl biologists while at Cold Bay.

Four minnow traps were flown to and set out in an unnamed lake about 5 miles south of Jensen Strip for Fisheries Resources. A second flight was made the following day to retrieve them. The objective of this project was to determine if anadromous fish used the lake and streams flowing into it before permitting AMOCO from taking water for drilling and culinary purposes at their camp.

2. Items of Interest

Dwight Mumma joined the staff under local hire for the Biological Technician position.

Refuge Manager Taylor attended the Advanced Refuge Management training course in March.

At last! After being without a Clerk Refuge Assistant for months, we had the good fortune to have Jan Collins join the staff. Jan had previous government experience working for the U.S. Postal Service so she knows how to handle paper.

Berns was requested through Flight Service to rescue an Anchorage pilot and his young son that had become stranded in a refuge lake too shallow for their float plane. The rescue was fine but ended as a costly fishing trip for the pilot getting his plane off the lake.

Wilk took leave in August for a semester of graduate studies at the University of Wisconsin, Stevens Point.

ARM Solberg attended the Refuge Management Training Academy in Blair, Nebraska during May. Most of his peers enjoyed his refuge slide presentation but were not impressed with the high prices in the Alaska Bush.

ARM Berns was presented a length of service certificate for 30 years of Federal Service in December.

3. Credits

This narrative was a joint effort by all the refuge staff with special kudos to our typist for deciphering our penmanship. Section authors are listed below:

Berns	Sections A, G-16, J, K and editing.
Arment	Sections C, D, H-15-17-20 and editing.
Solberg	Sections E, I, and editing.
Wilk	Sections G-1-15, H-1-12, and editing.
Mumma	Sections B and F.
Collins	Editing and typing.

K. FEEDBACK

It is difficult to understand how our FWS system works in the upper ranks and offices. Why is it that we have all the big inspections, VIP trips, fact gathering trips and etc. in the summer when the salmon are running at King Salmon? VIP's fly out here in government aircraft for a couple days, talk to the manager or staff for an hour and spend the rest of their time here on the river using Government boat, motor and fuel.

Checking the Federal Register in section 20.735-15 it states "--an employee is prohibited from directly or indirectly using or allowing the use of Government equipment and supplies for other than officially approved activities. The willful misuse of a Government vehicle or aircraft require a suspension action of not less than one month." Are all of these officially approved activities? Why is it that these trips must be flown here in a Government Goose when there are four or more daily commercial flights?

I do not mean to imply that this occurs with all the visiting dignitaries but it is very noticeable to the public as well as Service employees. Perhaps some planning and feedback on their part would give the people in the field a better understanding of the FWS system and their roles.

Why do most of the inspections and trips occur from June through September and we seldom see or hear from these people the rest of the

year? If more trips were scheduled during the winter they would have an opportunity to talk to all of the staff and discuss problems. Instead the trips are conducted during the summer when the staff is doing field work and are usually under pressure due to weather conditions and the short field season so only the Refuge Manager can schedule his time to be with them.

Like all things good and bad, there comes THE END.