

STATUS OF BROWN BEARS
AND OTHER
NATURAL RESOURCES
IN THE
McNEIL RIVER STATE GAME SANCTUARY AND REFUGE

Annual Report to Alaska State Legislature

Frank Rue, Commissioner
Alaska Department of Fish and Game

January 1996

Executive Summary

The draft McNeil River State Game Sanctuary and Refuge Management Plan was available for public review and will be finalized in September 1996. The interagency plan will provide guidelines for land use activities in the sanctuary and refuge.

The Board of Game, in October 1995, closed the refuge to brown bear hunting, effective July 1, 1996. One brown bear was killed during the fall 1995 hunting season. Four brown bear hunting permits, selected in May 1995, are valid for the spring 1996 season. It is not known how many permits will be used.

A total of 83 recognizable bears were observed in the sanctuary during the 1995 season; the same number as seen in 1994. The number of bear-use days was up slightly (four percent) from the previous season, ending a decline that began in 1989. The decline appears to be related to poor salmon returns to the sanctuary.

Public use of the sanctuary averaged 8.8 persons/day, with 212 permittees (standby and drawing combined). A total of 1,486 applications were received for the 280 permits; declining for the second year. All 15 special permits were issued by the department.

Sockeye salmon escapement index to Mikfik Creek totaled 10,050 fish. Very little commercial harvest was directed at this stock. The entire run of chum salmon entered McNeil River.

However, the escapement index of 14,400 was significantly less than the minimum goal of 20,000 fish.

A new staff facility was constructed this season, replacing an old structure used since the early 1970s. A research program was initiated by a UAF graduate student to investigate the relationship between chum salmon and brown bears in the sanctuary.

Introduction

The Alaska State Legislature passed legislation (AS 16.20.160) in May 1991, which expanded the McNeil River State Game Sanctuary and created the McNeil River State Game Refuge. The legislation became effective on January 1, 1993, when the Commissioner of Fish and Game certified the Paint River fish ladder as operational.

The sanctuary was established to (1) provide permanent protection for brown bears and other fish and wildlife populations and their habitats so that these resources may be preserved for scientific, aesthetic, and educational purposes; (2) manage human use and activities in a way that is compatible with the permanent protection of brown bears and other purposes described in (1) and, to manage uses and activities that would maintain and enhance the unique bear viewing opportunities within the sanctuary; and (3) provide opportunities that are compatible with (1) for wildlife viewing, fisheries enhancement, fishing, temporary safe anchorage, and other activities.

The refuge was established for similar, but somewhat different purposes. The differences are that human uses and activities in the refuge are to be managed to maintain and enhance the unique bear viewing opportunities within the sanctuary, that opportunities for brown bear hunting shall be determined by the Board of Game, and that mineral entry is allowed.

The statute requires the Commissioner of Fish and Game submit an annual report to the legislature regarding status of brown bears and other fish and wildlife resources within the

sanctuary and refuge and effects of fishing and fishery enhancement activities on these resources.

This report is provided in response to that requirement.

Land Status

All land in the newly established refuge and sanctuary extensions is state-owned or tentatively approved, except 14 sections that encompass Chenik Lake and Chenik Head. These sections were jointly selected by the state and Seldovia Native Corporation. They are not subject to refuge authority unless they become tentatively approved state land.

The Department of Fish and Game is not aware of any new developments in the court case regarding this property. To our knowledge, the case between CIRI and Seldovia Native Corporation is still pending.

A private commercial interest is continuing efforts to obtain a lease for approximately 10 acres of land in the Chenik Head area. This site contains several nonpermitted buildings that serve as the headquarters for a private bear watching/wilderness retreat enterprise. The Department of Fish and Game has previously recommended that BLM deny the lease application until the land ownership question is resolved. In further discussions with the Department of Natural Resources, Division of Lands, the Department of Fish and Game agreed with a recommendation to offer the

applicant a ten-year nontransferable, nonrenewable lease for the site. The applicant has refused that offer.

A section of the recently completed land management plan addresses commercial facilities in the refuge. This section would be used to guide future decisions regarding commercial facilities.

Regulatory Changes and Management Plan

The Department of Fish and Game, through an interagency planning team consisting of representatives from state, federal, and local agencies, developed a draft McNeil River State Game Sanctuary and Refuge Management Plan. The draft plan was available for public review and comment in November 1995 with comments being accepted until February 15, 1996. The final plan will address public comments and be available for distribution in September 1996.

The legislation establishing the refuge stated that the Board of Game would determine the status of brown bear hunting in that area. Several previous efforts had been made by the public to close the refuge to brown bear hunting. The public believed that some individual bears that used the McNeil Sanctuary would be in jeopardy if hunting in the refuge continued. The position of the board was that the brown bear population was not threatened and a limited permit hunt was reasonable. The board had approved a drawing permit hunt for the refuge and adjacent area, with four permits available for each hunting period—fall 1995 and spring 1996.

The Board of Game met in October 1995 and considered a proposal to eliminate brown bear hunting within the refuge and adjacent area. After considerable discussion and debate by the board, a proposal was approved that closed brown bear hunting in the McNeil River State Game Refuge. That regulatory action will take effect July 1, 1996.

Additionally, a Board of Game regulation restricting successful viewing permit holders to one visit every four years went into effect on July 1, 1995. This regulation did not affect the 1995 permit drawing, as that procedure was completed prior to the effective date; however, it will influence the 1996 application process.

Brown Bear Status

Sanctuary staff record the number and sex of bears observed at Mikfik Creek, McNeil Falls, and other portions of the sanctuary during June, July, and August. The number of recognizable bears, excluding cubs, observed in the sanctuary during 1995 totaled 83 (Figure 1), which is the same number identified during the 1994 season (Table 1). Except for the 1993 record number of 90 recognizable bears, the number of bears using the sanctuary has been relatively stable during recent years. The 1990-94 average number of identified bears was 84.4, similar to the 1995 total.

A method used to determine bear use in the sanctuary is to record the number of bear-use days. A bear-use day is any portion of a day that a recognizable adult or sub-adult bear (cubs are excluded) is observed in the sanctuary. Sightings are made on an opportunistic basis, and therefore represents the minimum number of bear-use days for the area.

A total of 1,741 adult and sub-adult bear-use days were recorded for the 1995 season (Table 2). This is only a slight (four percent) increase over the 1994 recorded use of 1,661 bear-use days, and reverses the observed decline in bear-use days that began in 1989. The decline in bear-use days appears to be related to the consecutive poor returns of chum salmon to the McNeil River. The low salmon returns may influence the number of days that an individual bear stays at the sanctuary, and therefore the total number of bear-use days; while at the same time not affecting the total number of bears using the area. Bear use in other portions of the sanctuary, such as Mikfik Creek and the intertidal area, contributes to the bear-use day total. However, division staff believe that continued low salmon returns will eventually influence the number of bears using the sanctuary, particularly if other sources of salmon become available.

Numbers of available salmon and related bear activity at McNeil Falls declined rapidly in late July, normally when a peak in use is just starting. By early August, there were occasions when no bears were visible from the viewing platform. Maintaining substantial salmon returns to McNeil River is a critical factor in providing a quality viewing experience and, obviously, in protecting the salmon stocks for all user groups in Alaska. The Division of Commercial Fisheries Management

and Development has recognized this situation and is continuing cooperative efforts with the Division of Wildlife Conservation in management of the area.

Maximum Daily Counts

In early 1993, during development of the McNeil River State Game Sanctuary and Refuge Operational Management Plan, the public advisory group determined that a consistent, reliable method of determining fluctuations in bear numbers was needed. To address that concern, a "bear threshold criterion" was established and identified as a predetermined level of change in the population that would trigger an assessment of potential factors that may be adversely affecting the bear population or the sanctuary viewing program. The necessary statistical test, developed by division statistical staff, is based on the proven Shewhart-CUSUM quality control test. The test will detect large, short-term declines and gradual, long-term drift in the average number of bears.

Maximum daily counts, consistently collected at McNeil Falls from 1983 to 1992, were averaged to establish a standard of 48.6 bears as the benchmark for maintaining bear numbers and viewing opportunity. The median maximum count will be compared annually with the predetermined lower level of change to determine whether the number of bears observed is within the range of normal fluctuations. If the median annual maximum count drops below the threshold level of 41 bears, then this will trigger an investigation of probable causes.

In 1995, the median annual maximum count was 40.0 bears, and appears to have broken the lower threshold level for the season (Figure 2). However, in reviewing the original data, staff have determined there is a methodological explanation for the low counts in 1994 and 1995. Because of the new techniques being utilized, the daily maximum number of bears in sight was not consistently noted during 1994 and 1995. Typically, a count of the maximum number of bears in sight is slightly higher than the highest of the systematic daily counts conducted regularly every one-half hour regardless of bear numbers. This appears to be the case for the last two years. Consequently, the median annual maximum count was artificially low, and in 1995 broke the threshold level of 41 bears. Staff have had additional training on the new techniques; data collection is now standardized, and data collection problems will not be repeated.

Public Use

A permit is required for access to the sanctuary. In 1993, a new system was in place that required both regular and standby permits to be issued through a lottery process. This system was established to reduce staff time required to manage the previous standby system and to reduce the potential for members of the public to receive more than one permit per year. The period when permits are required to visit bear viewing areas was extended to June 7 (from June 15) to increase viewing opportunity. Lottery permits are also still required for July and August.

The number of people taken to a bear viewing area is limited to ten per day. In 1995, from June 7 to August 25, an average of 8.8 people per day visited bear viewing areas in the sanctuary (Table 3). A sanctuary goal is to maximize the number of bear viewers within this constraint. However, all time slots are not always filled despite use of standby permits, primarily because occasional periods of stormy weather dampen visitors' enthusiasm to view bears. Additionally, bear viewing is less reliable at both ends of the season, and some vacancies occur as people cancel their visits to the sanctuary.

In 1995, ADF&G received 1,486 applications for the 280 available permits (185 regular and 95 standby). This represents a decline in permit applications for the second year in a row (Table 4). The 1990-1994 average number of applications was 1,777. Staff have no information regarding the decline in applications except to note that application numbers have fluctuated considerably, especially after a media presentation on the sanctuary.

A total of 212 people (standby and drawing permittees) visited the sanctuary in 1995. The number of visitors has shown a declining trend since 1990 (Table 4). The decline in public use has been expected and is related to regulatory changes established to address discrepancies in the permitting system. We anticipate that use will stabilize around the 225 visitor level with the permit system now in place.

All fifteen special permits were issued for the 1995 season. Several significant media projects were conducted at the sanctuary this season, including filming for a major IMAX format

production. This film is scheduled to be aired in 1997 to large audiences in major cities around the world. Additionally, the governor visited the sanctuary in July to obtain personal information regarding management of the sanctuary. The demand for special permits continues to be high and the department receives numerous requests each year. The criteria developed by the department for issuing these permits provides consistency during the review of future proposals.

Brown Bear Hunting

The sanctuary is closed to brown bear hunting.

Refuge statutory language leaves the decision to allow brown bear hunting with the Board of Game. At the fall 1991 meeting, the board adopted a registration hunt for three bears per year for the refuge and adjacent Amakdedori Creek drainage. Five bears were reported taken in this area during the fall 1991 season, and ADF&G closed the spring 1992 hunting season by emergency order. Brown bear hunting seasons on the Alaska Peninsula are only open in the fall of years ending with odd numbers and in the spring of even years. Therefore, the next scheduled hunting season was October 1993. ADF&G extended the emergency order closing this area to hunting pending the board's decision on the bear hunting issue in November 1993.

During the fall 1993 board meeting, a lottery permit drawing, with up to twelve lottery permits issued, was established by the board to allow limited bear hunting to continue in the area. The

spring 1994 bear season remained closed because the board actions of fall 1993 would not be in effect until July 1, 1994.

A total of eight lottery permits, four for fall 1995 and four for spring 1996 brown bear hunting seasons, were drawn in May 1995 amid considerable public interest and controversy. Only one permit winner reported hunting in the area during fall 1995 and that hunter was successful. As of this writing, the spring 1996 season has not started.

Bear Mortality

Since 1976 (initial year of record keeping), observed mortality of cubs (of all ages) has been about 1.4 per season. This includes mortality from all causes including infanticide, drowning, and separation from females.

In 1995, two individual cubs of the year (COY) from two separate litters were killed by other bears. On July 25, two females, one with a litter of three COY and another with two COY, were observed in the same area and then disappeared from staff view into streamside brush. A short time later, the one female was seen with a dead cub in her mouth and the second was later observed with only one cub. It is presumed that the first female killed one of the second female's cubs, because the first was later observed with her three COY. On July 28, an unidentified COY was seen dead at McNeil Falls when an unidentified female with one COY of her own, was

observed to pick up the cub carcass in her mouth, drop it, and then move away with her cub. No other details of this incident are known.

Sport Fishing

Sport fishing occurs in McNeil Lagoon and Chenik Creek but is incidental to bear viewing activities. The only area that attracts significant sport fishing interest is the lower Kamishak River. Due to low sampling effort and questionnaire returns, the Division of Sport Fish's annual survey of sport anglers does not accurately portray angler effort on the Kamishak River.

To address this problem, the department included an angler reporting requirement for lodges receiving special area operating permits for the Kamishak River portion of the sanctuary. Six lodges operating in the area during July, August, and September reported a total of 698 individual anglers catching 820 coho, 245 chum, 81 pink, and 1,484 Dolly Varden. During that period, anglers also observed bears a total of 130 times along the river.

Commercial Fisheries

Sockeye salmon returns within the sanctuary were strong enough to provide good spawning escapements and a small harvestable surplus. Once again the 1995 sockeye return to Mikfik Creek

attracted very little commercial fishing effort, and virtually the entire run entered the system to spawn. The estimated escapement index of 10,050 sockeyes exceeded the desired goal of 5,000-7,000 by 3,000 fish.

The 1995 commercial harvest of chum salmon in the Kamishak Bay District totaled 10,300 fish, well below average for a seventh consecutive year. However, 92 percent of these fish were taken in the northern end of the district and none were caught in the McNeil River Subdistrict. Like previous years, the entire chum salmon run to McNeil River was allowed into the system to spawn. Even so, the chum salmon escapement index of 14,400 was significantly below the minimum goal of 20,000 fish. This marks the sixth straight year that the McNeil River chum salmon run has failed to meet the desired escapement level despite the absence of significant commercial harvests.

Fisheries Enhancement

Fisheries enhancement continues to play a major role in Lower Cook Inlet (LCI) salmon production. Enhancement and rehabilitation projects have made substantial contributions to commercial fishing harvests in the Kamishak Bay District. However, sockeye salmon returns to the Paint River enhancement project in 1995 were again poor, as they have been for the past several years. No commercial harvest occurred, since only about 250 fish returned. The run strength was insufficient to warrant opening the ladder to fish passage for a fourth straight year.

The Paint River Lakes were first stocked with sockeye fry in 1986 in an effort to develop a new sockeye salmon return to the drainage, which is blocked to upstream salmon migration by a steep waterfall at tidewater. From 1991 to 1995, approximately 600,000-750,000 sockeye fry have been stocked annually in the Paint River Lakes. Although construction of the Paint River fish ladder was completed in October 1991, the number of returning adults has only ranged from 250 to 800 fish. Consequently, the structure has never been opened to allow fish passage upstream through the ladder system. The low returns may be related to the current low productivity potential and high predation within both lake systems.

Cook Inlet Aquaculture Association continues to evaluate other suitable sockeye salmon broodstocks from the west side of Cook Inlet as potential replacements for the Tustamena sockeye stock that has been repeatedly released into the Paint River Lakes. Pink and chum salmon broodstock development is also being evaluated but is currently on hold until an adequate funding source is secured.

The Tustemena sockeye stock has also been used to stock Chenik Lake for many years. This sockeye salmon enhancement project has contributed substantially to the LCI commercial seine fishery. For example, in 1988 a new historic high record return to Chenik Lake was documented at 173,000 sockeye salmon, representing over 50 percent of the entire LCI commercial sockeye harvest. However, in recent years this contribution has declined significantly.

Due to expected weak returns to the Chenik Lake enhancement project, the Chenik Subdistrict remained closed to fishing this season. Unfortunately, the closure failed to boost returns, as

escapement past the Chenik Creek weir totaled only 1,086 fish. The 1995 sockeye salmon outmigration from Chenik Lake totaled approximately 12,250 smolts.

Results of sockeye salmon returns to other enhancement projects in the Kamishak Bay District were somewhat more encouraging in 1995. Kirschner Lake and the relatively new Bruin Lake stocking project produced a combined commercial harvest totaling 33,600 fish.

Research Activities

Beginning in 1995, a University of Alaska Fairbanks graduate student began a study on the relationship between chum salmon and brown bear at McNeil Sanctuary. Major questions the study will focus on include determining the total number of chum salmon caught by different sex and age classes of bears at the falls, and stream life of chum salmon in McNeil River.

Efforts to collect this information included systematic sampling scans to determine bear fishing effort and success at the falls. This information has been collected previously; however, the new sampling scheme will provide increased statistical validity.

An effort to catch and visually tag immigrating salmon was also initiated in 1995. Relatively few tags were placed on salmon because of the difficulty of catching an adequate sample of the small

return. Increased efforts will be made during the 1996 season. Stream life information is very important to fisheries managers, as it affects the escapement index used by department staff.

Construction Project

A new staff cabin was constructed at the sanctuary campground in May 1995. The facility replaces inadequate staff housing that has been in use since the early 1970s. A crew of six Division of Wildlife Conservation volunteers arrived on May 14 to begin construction. Materials were barged to the site on May 17, and construction was mostly completed by May 31. Additional work on the facility (painting and minor cleanup) was completed by other volunteers.

Volunteers

As mentioned, staff volunteers assisted in the preliminary construction of the new facility. Completion of the facility, and other sanctuary activities, was accomplished by volunteers representing various conservation groups. This is the third year that nondepartment volunteers have participated in a work party to prepare the sanctuary for the season. Snow depths and spring weather affect the ability of staff to conduct routine maintenance of the facility prior to the arrival of public permittees. Volunteers, working under staff supervision, complete these routine activities and participate in some limited bear viewing as opportunities are available.

Land Use Permitting

Six permits were issued for the establishment of sport fishing guide camps on the Kamishak River within the sanctuary. These camps appear to be operating in a manner compatible with sanctuary guidelines. Reporting requirements regarding number of clients and total fish caught are typically late in arriving at the Anchorage regional office. Additional compliance monitoring will be necessary in upcoming seasons. Only two camps were erected on-site during 1995, and they were again located on the bluff away from the river to minimize damage to streamside vegetation. The additional fishing activity was done on a day-use basis only.

An additional land use issue involves the private lodge facilities at Chenik Head. These facilities were first established as tent platforms in about 1978 and have expanded considerably since then. Neither DNR nor BLM have issued permits for permanent facilities at this location. The department has provided comments to DNR stating that the trespass situation should be finalized before the state receives title to these lands. Negotiations between the state and the operator are continuing.

Air Space Violation

The airspace immediately surrounding McNeil Falls and McNeil Cove has been placed in a special FAA airspace advisory to eliminate the possibility of low elevation aircraft flight, which could cause dangerous conditions between bears and humans at the falls.

On July 21, staff observed a DeHavilland "Otter" aircraft making several low elevation passes over the falls and around McNeil Cove. The serial number of the aircraft was taken and provided to the FAA with information on the event. After further investigation, the FAA issued a written warning to the pilot with potential future action based on the pilot's record. The FAA and department staff considered this an appropriate response to the situation.

Bear-Human Conflicts

There were no known adverse interactions between bears and people in the sanctuary or refuge during the 1995 field season.

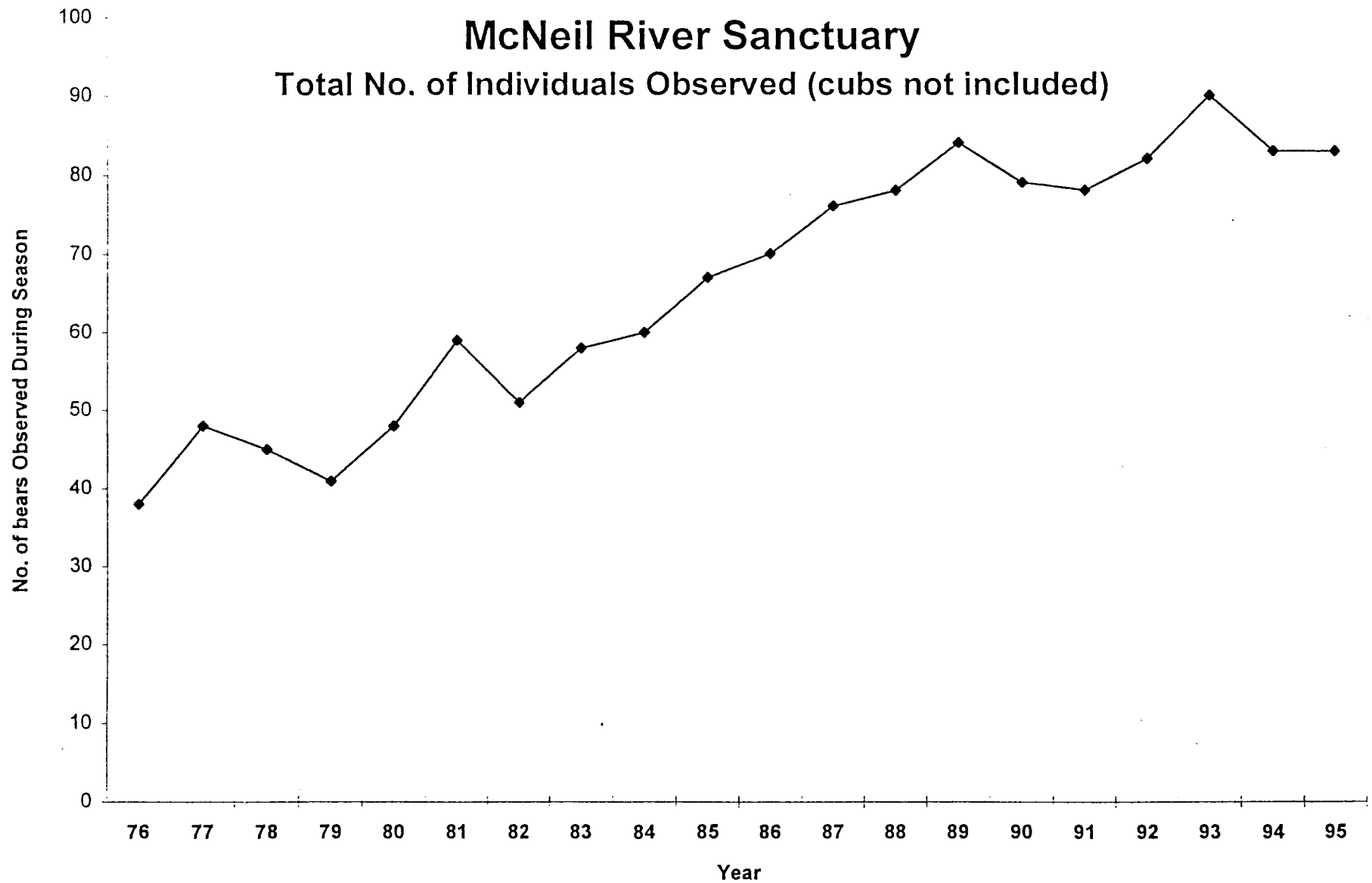


Figure 1.

Prepared by ADF&G - Wildlife Conservation 11/1/95

Table 1. Sex and age composition of brown bears at McNeil River State Game Sanctuary: 1976-1995

	1976	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95
Total Females w/cubs	9	10	8	9	6	8	7	7	9	16	14	14	14	19	16	15	16	11	11	14
Single Adult Females	5	8	6	8	8	10	9	15	16	12	11	13	13	14	16	12	19	19	15	12
Single Adult Males	16	18	18	19	23	26	20	22	22	27	31	34	34	42	37	41	39	48	45	49
Adult Sex Unknown	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Adults	31	36	32	36	38	44	36	44	47	55	56	61	61	75	69	68	74	78	71	75
SubAdult Females	4	3	4	2	6	9	11	9	8	2	7	7	9	4	5	6	6	8	9	3
SubAdult Males	0	5	4	0	0	1	1	4	5	10	7	8	8	5	5	4	2	4	3	5
SubAdult Sex Unknown	3	4	5	3	4	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Sub-Adults+	7	12 ^d	13	5	10	15	15	14	13	12	14	15	17	9	10	10	8	12	12	8
Total Adults and Sub-Adults *	38	48	45	41	48	59	51	58	60	67	70	76	78	84	79	78	82	90	83	83
Total Cubs	20	21	20	17	12	14	16	12	17	28	26	30	31	42	34	30	31	24	22	25
Total Bears	58	69	65	58	60	73	67	70	77	95	96	106	109	126	113	108	113	114	105	108

^d -- defined as 5.5 years old and younger from 1977 through the present

* Only the bears that are recognizable as individuals and given names are included. Hence these figures represent minimum number of bears present at the sanctuary.

Table 2. McNeil River State Game Sanctuary Bear use totals for June, July, and August. (Does not include May or Sept. use)

	McNeil Falls			Lower McNeil River			Mikfik Creek			All other areas (flats, bluffs, etc.)			Total Bear Use		
	adult/ sub-ad	all cubs	Total	adult/ sub-ad	all cubs	Total	adult/ sub-ad	all cubs	Total	adult/ sub-ad	all cubs	Total	adult/ sub-ad	all cubs	Total
1980	709	140	849	14	15	29	46	21	37	162	56	218	924	218	1142
1981	878	224	1102	-	-	-	18	21	39	77	63	140	973	308	1281
1982	925	142	1067	21	9	30	28	2	30	83	33	116	1054	186	1241
1983	926	172	1098	-	-	-	8	0	8	100	41	141	1032	213	1245
1984	1218	274	1492	50	9	59	43	0	43	123	39	162	1432	322	1754
1985	1514	451	1965	37	31	68	150	56	206	195	100	295	1888	642	2530
1986	1649	494	2143	34	42	76	192	126	318	214	172	386	2061	825	2886
1987	1723	465	2188	9	12	21	235	86	321	161	152	313	2126	715	2841
1988	1515	417	1932	30	40	70	201	28	229	142	48	190	1873	524	2397
1989	1863	699	2562	119	80	199	156	71	227	174	189	363	2300	1032	3332
1990	1606	551	2157	76	57	133	229	159	388	264	251	515	2089	936	3025
1991	1393	388	1781	1	0	1	428	120	548	246	138	384	2039	631	2671
1992	1510	480	1990	3	6	9	385	115	500	178	139	317	2075	738	2813
1993	1240	86	1326	94	57	151	234	26	260	358	164	522	1921	227	2248
1994	1165	125	1290	95	59	154	212	29	241	208	103	311	1661	307	1968
1995	1137	147	1284	113	64	177	229	6	235	298	120	418	1741	329	2070

- Each time a recognizable bear is seen in an area of the sanctuary, it is counted as one bear use day for that area. Hence if 10 different bears are seen at McNeil falls 10 days in a row, that equals 100 bear use days for McNeil falls. The total bears column may be less than the sum of the first four columns if a bear is counted using more than one area in the same day. Bears are noted opportunistically and figures reflect not only actual bear use but to some degree the amount of time spent viewing.
- McNeil falls sightings are made from the viewing pad and include any recognizable bear no matter where it is or how far down stream it is.
- Lower McNeil River sightings are made from the mouth of McNeil River, generally from Enders Island. Viewing occurs here in mid to late August after bear activity ceases at McNeil falls. Little or not time was spent viewing here from 1980-1983.
- Mikfik Creek is defined as the area up creek from the last area of tidal influence, including the area referred to as the "riffles".
- All other areas includes anywhere in McNeil cove that is not included in the first three categories. This includes the sedge flats, beach, by camp, or on any of the bluff areas. Through the years notations of bear use in these areas has been very casual as very little time comparatively is spent systematically bear watching away from the first three areas.

One-Sided Control Chart for Maximum Daily Bear Counts
(7 highest counts) at McNeil River Falls ($\alpha = 0.01$).

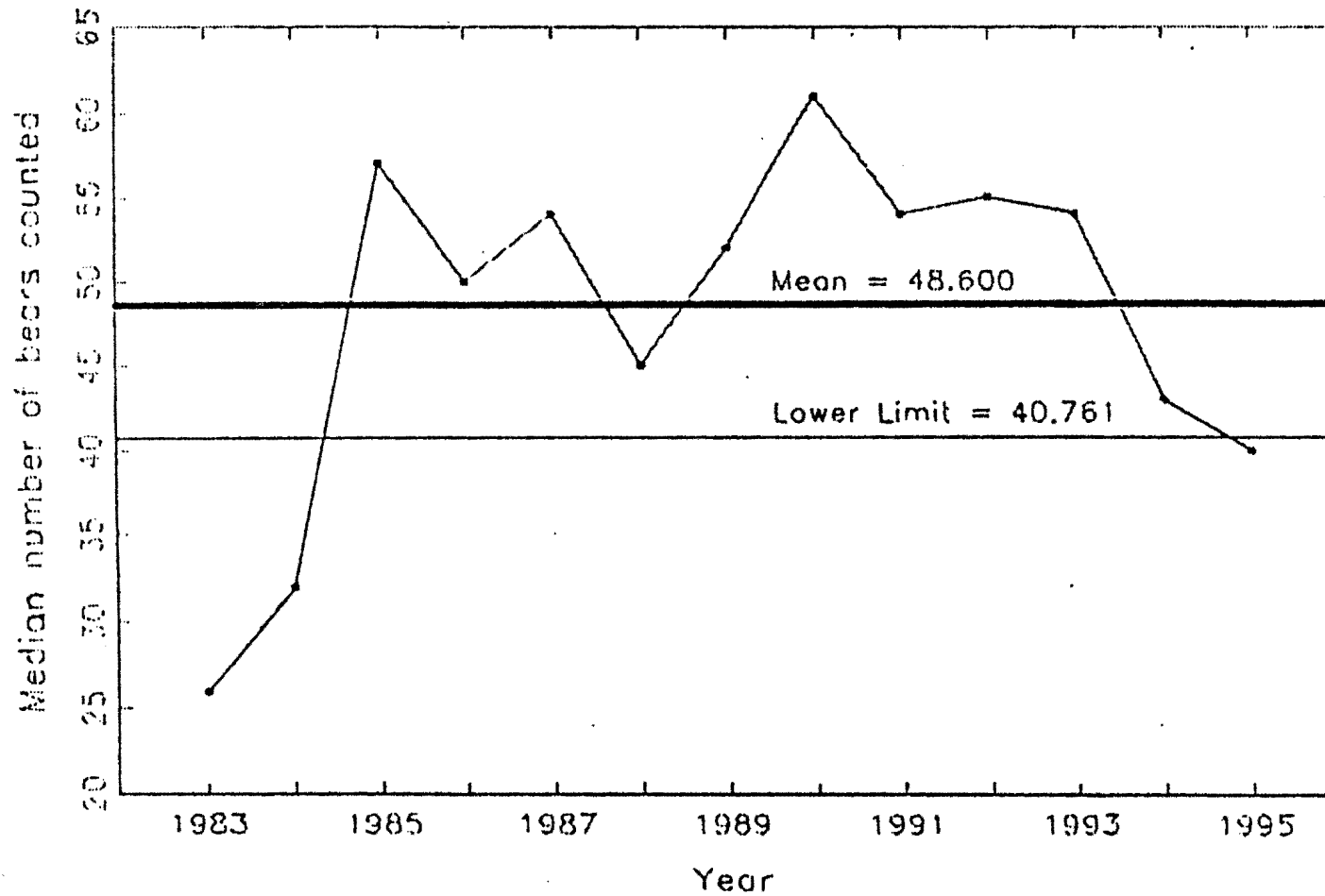


Figure 2.

Table 3. Visitor use comparisons McNeil River State Game Sanctuary

	1989 ^a	1990 ^a	1991 ^b	1992 ^c	1993 ^d	1994 ^d	1995 ^d
June 7-30 (24 days)							
\bar{x} permits used daily	7.4	8.3	10.7 ^e	8.9 ^e	8.5	8.0	9.0
% with regular permit	0	0	0	0	74	76	82
% with standby permit	100	100	100	100	26	24	18
Total visitors	59	89	82	82	64	69	63
\bar{x} daily visitors in sanctuary ^f	9.3	15.5	17.9	14.2	13.0	12.2	13.9
\bar{x} overnight visitors at campground	7.3	12.6	15.0	11.4	10.9	9.8	11.6
July/August 1-25 (56 days)							
\bar{x} permits used daily	8.7	9.4	9.4	8.5	9.2	8.6	8.5
% with regular permit	60	62	76	74	67	79	83
% with standby permit	40	38	24	26	33	21	17
Total visitors	205	210	167	158	161	159	149
\bar{x} daily visitors in sanctuary ^f	17.1	19.3	17.1	15.1	14.6	14.1	13.2
\bar{x} overnight visitors at campground	13.9	15.4	13.9	12.1	11.5	11.1	10.3

^a = No limit on standbys or camp limits

^b = First-come, first-served, for standbys with no camp limit

^c = First-come, first-served for standbys, camp limit of 15

^d = All permits (regular and standby) by lottery including June

^e = Unlimited permits prior to June 15, then 10/day

^f = Includes all visitors (Those who flew out as well as those who stayed overnight)

Table 4. Visitor use of McNeil River State Game Sanctuary (MRSGS)

Year	Number of Applicants	Number of Visitors ^a	Total User Days in Sanctuary ^a	Total Permit days for July/Aug ^b	Comments on Season Length
1976		76	256	232	6/28 - 8/19
1977		122	365	311	6/29 - 8/14
1978		143	390	345	6/28 - 8/25
1979	669	75	185	91	6/28 - 8/25
1980	532	116	520	356	6/13 - 8/25
1981	397	133	519	434	6/17 - 8/27
1982	485	132	556	420	6/24 - 8/23
1983	625	178	738	454	6/11 - 8/25
1984	992	159	574	377	6/5 - 8/27
1985	832	216	816	449	6/10 - 8/25
1986	806	255	967	430	6/9 - 8/25
1987	1,757	252	1,054	473	6/9 - 8/23
1988	1,094	304	1,328	498	6/1 - 8/29
1989	1,306	264	1,183	488	5/22 - 8/26
1990	1,481	299	1,435	524	6/8 - 8/25
1991	1,818	249	1,415	526	6/1 - 8/27
1992	1,672	245	1,210	478	6/1 - 8/25
1993	2,150	225	1,128	516	6/7 - 8/25
1994	1,766	228	1,086	484	6/7 - 8/25
1995	1,486	212	1,074	475	6/7 - 8/25

^a Includes June visitation

^b 560 maximum possible (56 days x 10)