

AYK REGION
NS/K ESC. REPORT #1

NORTON SOUND-KOTZEBUE AREA ESCAPMENT REPORT

1962

(From AYK Area 1962 Annual Management Report)

AYK Staff

Alaska Department of Fish and Game
Division of Commercial Fisheries
Anchorage, Alaska

AERIAL SURVEYS:

The Noatak and Kobuk Rivers that empty into Hotham Inlet comprise the spawning grounds of salmon passing through the commercial fishery at Kotzebue. Over 245,000 salmon (mostly chums), 180,000 of which were counted in the Noatak River drainage, were counted while flying surveys of approximately 425 river miles of streams. These figures represent only the "high count" survey for each stream surveyed. Due to the vastness of the Noatak-Kobuk system, all portions of the drainages were not surveyed. None of the Noatak River drainage was surveyed above the mouth of the Nimiuktuk River. The Kobuk River drainage was not surveyed above the mouth of the Reed River. In addition, the following Kobuk River tributaries, believed to receive salmon runs, were not surveyed: Kallari-chuk River, Kaliguricheark River, Koguluktuk River, Mauneluk River, Beaver Creek, and Reed River. Some surveys were made early when the majority of salmon were not present on the spawning grounds. Also, the lower sections of some streams were unsurveyable because of deep, turbid waters. Because of these reasons, the aerial survey counts are minimum and should not be thought of as total escapements. Table XXIX lists aerial surveys made during 1962.

Concentrations of spawning salmon were noted in the following sections and tributaries of the Kobuk River: the main river from the village of Kobuk upstream to the mouth of the Reed River, the lower 20 miles of the Squirrel, Salmon, and Tutuksuk Rivers, and the lower 5-10 miles of the Hunt, Ambler, and Shungnak Rivers.

The lower Noatak (below mouth of Kelly River) was densely populated with spawning salmon. An estimated 168,500 salmon were present in a 40 mile stretch of river from just below Noatak to the mouth of Kelly River surveyed on September 18. The Noatak River below the village of Noatak was turbid, making counts impossible. The Eli and Kelly Rivers, tributaries of the Noatak, also contained considerable numbers of salmon.

Many chums in the lower Noatak and upper Kobuk Rivers were spawning in isolated pools, once channels of the main river. As the river drops during

TABLE XXIX

KOTZEBUE DISTRICT AERIAL SURVEYS, 1962

Stream	Date	Estimated River Miles Surveyed	Small Salmon	Comments
Kobuk River	8/8		0	Mouth to Kiana. Too muddy for counting. Gravel bottom upstream from Kiana.
" "	8/9		1,365	Spot Checks between Hunt and Squirrel Rivers. 1,000 salmon at mouth of Kaliguricheark River.
" "	8/15	35	425	Surveyed Shungnak River to Kobuk. Approximately 20% were carcasses.
" "	9/16	50	*22,500	Surveyed Kobuk to mouth of Reed River. Approximately 10% were carcasses. Concentrations of spawning salmon at mouths of Beaver and Selby Rivers.
Squirrel River	7/21	50	5,834	Mouth to headwaters. No spawning noted.
" "	8/8	60	16,050	Mouth to headwaters. 50% fish spawning. Stream shallow and braided above Mile 60. A few carcasses.
Salmon River	8/9	40	12,936	Mouth to headwaters. A few carcasses seen.
Tutuksuk River	8/9	40	10,841	Mouth to headwaters.
Hunt River	8/9	40	1,060	Surveyed main river up to and including Akiak Creek. Fish few and scattered.
Ambler River	8/15	40	690	Surveyed main river only. A few carcasses seen. Large concentrations of whitefish-grayling sized fish noted.
Shungnak River	8/15	30	640	No fish seen above gorge. 30% carcasses.
Selby River	9/15	7	-	A few salmon seen. Counting very difficult due to narrowness of stream and shadows.
Noatak River	7/21		-	No count--muddy.
" "	8/12		-	A few salmon seen. Because of muddy conditions, could only see into shallow riffles.
" "	9/18 & 9/19	100	**168,500	Surveyed five miles below Noatak to Nimiuktuk River. No salmon above a point five miles upstream from Kelly River. Most of spawning in side channels and isolated pools.
Kelly River	7/21		150	Majority of salmon in lower five miles.
" "	8/12		800	Majority of salmon counted in lower ten miles of stream. Many grayline-sized fish seen.
" "	8/21	5	1,818	Surveyed lower five miles only.
" "	9/19		1,500	Counted these salmon spawning in a lake, tributary to Kelly River.

TABLE XXIX (Cont'd)

Stream	Date	Estimated River Miles Surveyed	Small Salmon	Comments
Eli River	8/12	20	9,080	Very few fish noted spawning. 2,000-3,000 salmon just inside the mouth.
" "	9/19		7,496	Majority of salmon spawning. Includes 10% carcasses. Overcast sky and slightly turbid water.
Kugururok River	9/19	2	0	Lower two miles surveyed. No fish seen.
***Unnamed Tributary	9/19	2	0	Lower two miles surveyed. A few char seen.

* 9,224 salmon actually counted but only an estimated 1/3 to 1/2 of the rivers width was surveyed. Therefore, the count listed is expanded 2 1/2 times from the actual count.

** 33,700 salmon actually counted but only an estimated 1/5 of the river's width was surveyed. Therefore, the count listed is expanded 5 times from the actual count.

*** Located between Kugururok and Nimiuktuk Rivers.

the fall, more and more of the side channels populated with spawning salmon and deposited eggs become isolated pools. A low river level at freeze-up could result in a high mortality of eggs deposited in such areas. Also, high river levels at time of spawning and then a sudden drop in level would expose proportionately more spawning gravel and eggs to freezing conditions. Great fluctuations in the Kotzebue salmon run size in the past have been fairly well documented. In 1960, members of Project Chariot personnel (AEC) counted 930,000 salmon in aerial and boat surveys of the Noatak River from its mouth to the mouth of the Kelly River. Local fishermen substantiate the large run in 1960 in that they reportedly caught large numbers of salmon in their subsistence nets during that year as well as in 1961. One long-time resident of the upper Kobuk who was interviewed noted that in some years it was difficult to locate salmon in that area, while in other years salmon were present in great abundance. One of the major influences governing run size then, might be the freezing of eggs under unfavorable river and weather conditions.

SUBSISTENCE UTILIZATION:

Surveys of subsistence catches were conducted in 1962 of five (5) villages. The Department has no information, with the exception of Noatak, of the magnitude of subsistence catches in years prior to 1962. The surveys were made after the peaks of the salmon runs had passed by the villages. The majority of the salmon in the Noorvik-Kiana area were taken in late July and early August, mid-August in the Kobuk-Shungnak area, and between September 10-30 in Noatak. The catch figures for Noorvik and Kobuk were derived from on-the-spot surveys of these villages by counting fish on drying racks and in caches. Catch figures for Kiana and Noatak were supplied to the Department on catch forms maintained by each fisherman.

1962 SUBSISTENCE SURVEY, KOTZEBUE DISTRICT

<u>Village</u>	<u>Pop.</u> <u>(1960)</u>	<u>Date of</u> <u>Survey</u>	<u>No. of</u> <u>Fishermen</u> <u>Surveyed</u>	<u>Chums</u>	<u>Char</u>	<u>Whitefish</u>	<u>Shees</u>	<u>Other</u> <u>Species</u>
Noorvik	384	9/14/62	24	15,934	103	2,951	21	8
Kiana	253	9/17/62	9	3,138	80	3,160	25	209
Kobuk	<u>54</u>	9/16/62	<u>7</u>	<u>2,321</u>	<u>2</u>	<u>740</u>	<u>42</u>	<u>2</u>
KOBUK RIVER								
TOTALS:	691		40	21,393	185	6,851	88	219
Noatak	<u>275</u>	11/1/62	<u>41</u>	<u>48,890</u>	<u>27,623</u>	<u>9,508</u>	<u>0</u>	<u>0</u>
DISTRICT								
TOTALS:	966		81	70,283	27,808	16,359	88	219

It is believed that surveys for Noorvik, Kobuk, and Noatak were complete as all fishermen were surveyed. Only nine fishermen from Kiana turned in catch forms. This seems to be relatively few fishermen for a village of its size and the catch for Kiana is probably low. Shungnak and Ambler (total population of 205), located a few miles downstream from Kobuk, were not surveyed. Assuming a similar fishing effort and success of these villages to that of Kobuk, a catch of approximately 7,000 salmon would have been realized. Shungnak and Ambler have a combined population, that is approximately three times that of Kobuk, and so the salmon catch can be assumed to exhibit a proportional increase. The subsistence take of Kotzebue fishermen is not known, but the relatively few subsistence fishermen there reportedly took many salmon. A few fishermen took as many as 2,000 salmon during the course of the season. This is understandable as most of the subsistence catches were taken by commercial fishermen legally fishing during closed periods for subsistence purposes.

The total subsistence catch from Kobuk River salmon stocks in 1962 probably lays between the 40,000 to 50,000 figure. A subsistence catch of slightly over 50,000 salmon was likely taken from the Noatak River spawning population and therefore, the total subsistence take from Kobuk and Noatak River stocks is believed to be near 100,000 salmon.

Noatak fishermen took 40,693 salmon in 1961 when a commercial fishery did not exist as compared to 48,390 salmon taken this year.

RUN-TIMING:

On July 21, a total of 5,834 salmon (mostly chums) were counted in the Squirrel River, tributary to the Kobuk River. On the same date, 150 salmon were observed in the Kelly River, tributary to the Noatak River. No other surveys were made this early in the season. This early portion of the run completely escaped the commercial fishery at Kotzebue which began on July 23. A considerable number of carcasses were noted along with live salmon on August 15 during aerial surveys of the upper Kobuk River drainage. These carcasses probably represent this early run of salmon also. It is reported by local bush pilots that a similar early run of salmon spawn in the upper Noatak drainage.

Local residents report that normally the peak salmon runs to the lower Kobuk River (Noorvik-Kiana) occur in late July to early August and in mid-August to the upper Kobuk River (Shungnak-Kobuk). Noorvik fishermen report that usually the first salmon are caught around July 4.

The peak commercial chum catches were made during the period July 30 to August 2, and August 13 to 14. There was a 72 hour closure beginning 6:00 p.m. on August 2 that obscured the relative strength of the runs during this time.

In the light of the relatively small commercial catch made this year, escapement to spawning grounds seemed adequate. It is very likely that a greater commercial catch could have been made from Noatak River stocks, but at the present time, there is no means to separate Noatak from Kobuk salmon stocks in the fishery. When additional funds become available, a tagging program will be initiated to better pinpoint salmon migration patterns. It may be possible to differentiate Noatak and Kobuk stocks largely on the basis of run-timing.

MISCELLANEOUS SPECIES:

Two red salmon (Oncorhynchus nerka) taken commercially were positively identified. It is likely that some reds were mistaken as chums and not included in the red salmon catch. A group of 10-12 of what appeared to be red salmon were observed spawning in a lake which has an outlet draining into the Kelly River (Noatak River drainage). Further observation should reveal if there is a small recurring run of reds in the area. The Kotzebue area is the northernmost known extension of red salmon distribution along the American Coast.

The pink salmon run as shown by declining catches at the start of the fishing season was largely completed by late July. Also the majority of the king salmon run probably passed through the Kotzebue area prior to the advent of the commercial fishing season. This population may also represent the northernmost distribution of king salmon in North America.

Large numbers of char (Salvelinus species) in mid to late August were taken incidentally by salmon fishermen. Although no weights or lengths were taken, these char appeared to be of the same size as chum salmon.