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STATE OF ALASKA

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ANNUAL REPORT OF PROGRESS, 1960-1961

FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-2

SPORT FISH INVESTIGATIONS OF ALASKA

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Introduction

This report of progress consists of the Job Completion Reports from the State of Alaska's Federal Aid in Fish Restoration Project F-5-R-2, "Sport Fish Investigations of Alaska".

The current Project is composed of eighteen separate studies and were designed to evaluate the various aspects of the State's recreational fisheries resources. The information gathered will provide the necessary background data for the development of future programs. During the current segment continued emphasis was placed on overall inventorying of accessible waters and the evaluation of general catch data.

Several problems of immediate concern appeared sufficiently defined to warrant independent studies. As a result, two independent creel censuses, one experimental silver salmon egg take and a Resurrection Bay area silver salmon population study were instigated. Data accumulated from prior jobs dealing with the Arctic grayling has resulted in the formulation of three separate investigations during the current segment.

The rapid expansion of Alaska's population is being reflected in the ever increasing numbers of "No Trespassing" signs encountered in the vicinity of population centers. Fortunately, much of Alaska's fishing waters are still in the public domain. An aggressive program of acquiring access to fishing waters, instigated in 1959, was continued during the present segment. Increased emphasis is being placed on this job and the successful continuation of this activity, now and in the immediate future, will forestall many of the serious recreational use problems currently facing other states.

The enclosed progress reports are fragmentary in many respects and the interpretations contained therein are subject to re-evaluation as the work progresses.

ANNUAL REPORT OF PROGRESS
INVESTIGATIONS PROJECTS
COMPLETION OF 1960 - 1961 SEGMENT

State: ALASKA

Project No: F-5-R-2

Name: Sport Fish Investigations
of Alaska

Job No.: 2-C

Title: Creel Census and Population
Sampling of the Sport Fishes
in the Cook Inlet and Bris-
tol Bay Drainages

Period Covered: July 1, 1960 to September 10, 1960

Abstract:

An investigation of the Bristol Bay sport fisheries for establishing creel census and population studies was made in the Katmai and the Wood River-Tikchik areas. This project was concerned with a general survey of the four Northern Consolidated Airlines sport fishing camps, Pearson's three Wood River-Tikchik sport fishing camps and three military sport fishing camps on the Naknek River.

The areas investigated encompass one of the major fresh water sport fishing areas in North America. For the most part, these are virgin fishing areas which have received little fishing pressure until the last decade.

The resorts directly involved were visited and information was collected, pertaining to the existing fishing pressure, species caught, existing camp facilities and other features of the fishery.

Camp operators were contacted for historical background information and geographical distribution of the various species.

An intensive creel census program was developed and carried out on the military sport fishing camps operating on the

Naknek River. All personnel fishing from the camps were required to complete a daily creel census form. This census was a continuation of work instigated by the Fish and Wildlife Service, and constitutes the major source of biological data pertinent to the trends of game fish stocks involved in the recreational fishery.

Recommendations are presented for collecting data from the fishing resorts and for future investigations necessary to formulate sound management practices.

Objectives:

To determine and evaluate the extent, the potential, and the present utilization of the sport fishing waters in Bristol Bay, with emphasis on the military sport fishing camps on the Naknek River and various commercial sport fishing camps throughout the Bristol Bay area.

To assess the effect of present management regulations.

To provide recommendations for management and to determine a course of future studies.

Introduction:

It was with some concern that a decline in the sport fisheries of the Bristol Bay area was noted by the Bureau of Sport Fish and Wildlife, (D-J project F-1-R-8, Vol. 8, report No. 5). The Bristol Bay drainage offers to the angler one of the best rainbow, dolly varden, grayling and salmon fishing waters to be found in North America today. It is to this area that many anglers (mostly non-residents) come for that "once in a lifetime" fishing trip, (Figure 1). Of concern in the management of these fisheries is the impact from the two major sources of angling pressure, the military establishments and the resorts (fishing camps). Specifically, information was needed from the Naknek River, where three military camps are operated; the Katmai area, where the Northern Consolidated Airlines operate four "angler paradise" camps and; the Wood River-Tikchik system where John Pearson operates three camps.

ALASKA

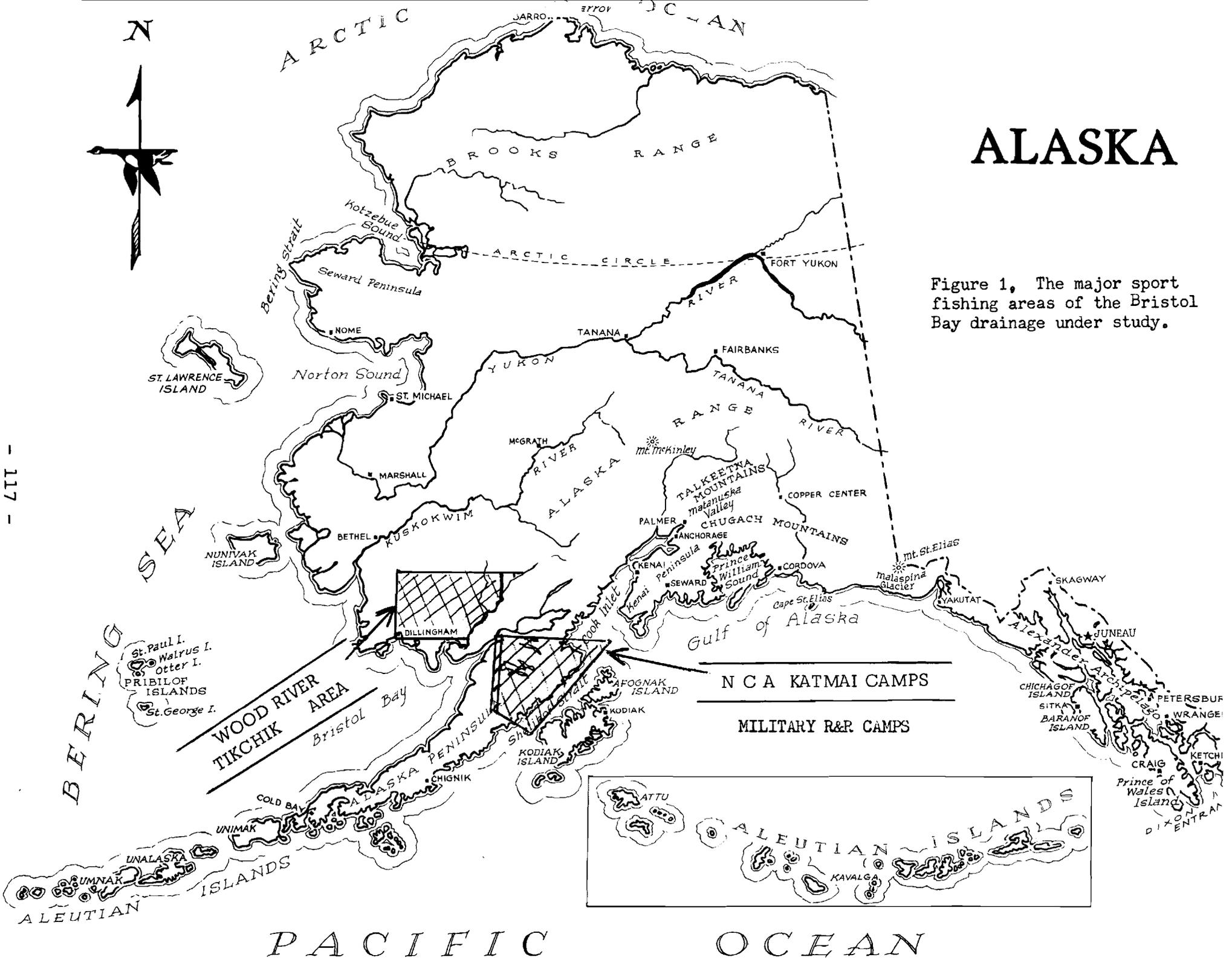


Figure 1, The major sport fishing areas of the Bristol Bay drainage under study.

Procedures:

In July of 1960, a general survey was started on the four camps operated by the Northern Consolidated Airlines and the three camps belonging to John Pearson. Included in the survey was a physical description of the individual camps, its accommodations and its transportation facilities.

Northern Consolidated Airlines Anglers Paradise" Camps

Northern Consolidated has spent about \$100,000 on improvements of their camps in the past few years. Because of this outlay of capital, the company has limited plans for expansion in the near future. Sleeping tents are being replaced by log cabins and the installation of modern plumbing facilities is expected to be completed in time for the 1961 season.

The resort season at the Northern Consolidated Airlines camps begins on May 28 and lasts through early September. There is no set closing date; the camps close with cessation of angler demand.

Kulik Camp: Kulik Camp is located at the west end of the stream that connects Kulik and Nonvianuk Lakes, (Figure 2). This Camp is headquarters for the "Anglers Paradise" Camps because of the 5,000 foot runway which can accommodate large aircraft. About a mile of graveled road connects the airstrip with the camp.

From here, guests travel to other camps and fishing areas. The Kulik Camp has accommodations for 38 people. Individual log cabins accommodate guests and a large log building serves as a recreation center and dining room. Two cooks, their assistants who double as waitresses, and five guides are employed at this camp.

Most of the fishing is done along the river which connects Nonvianuk and Kulik Lakes. Anglers fish with spoons and spinners to take lake trout and rainbow trout from the river. Lake trout fishing is good throughout the season, while rainbow trout fishing does not start until late July.

The Northern Consolidated Airline fish camp manager provided the investigation with information concerning the sea-

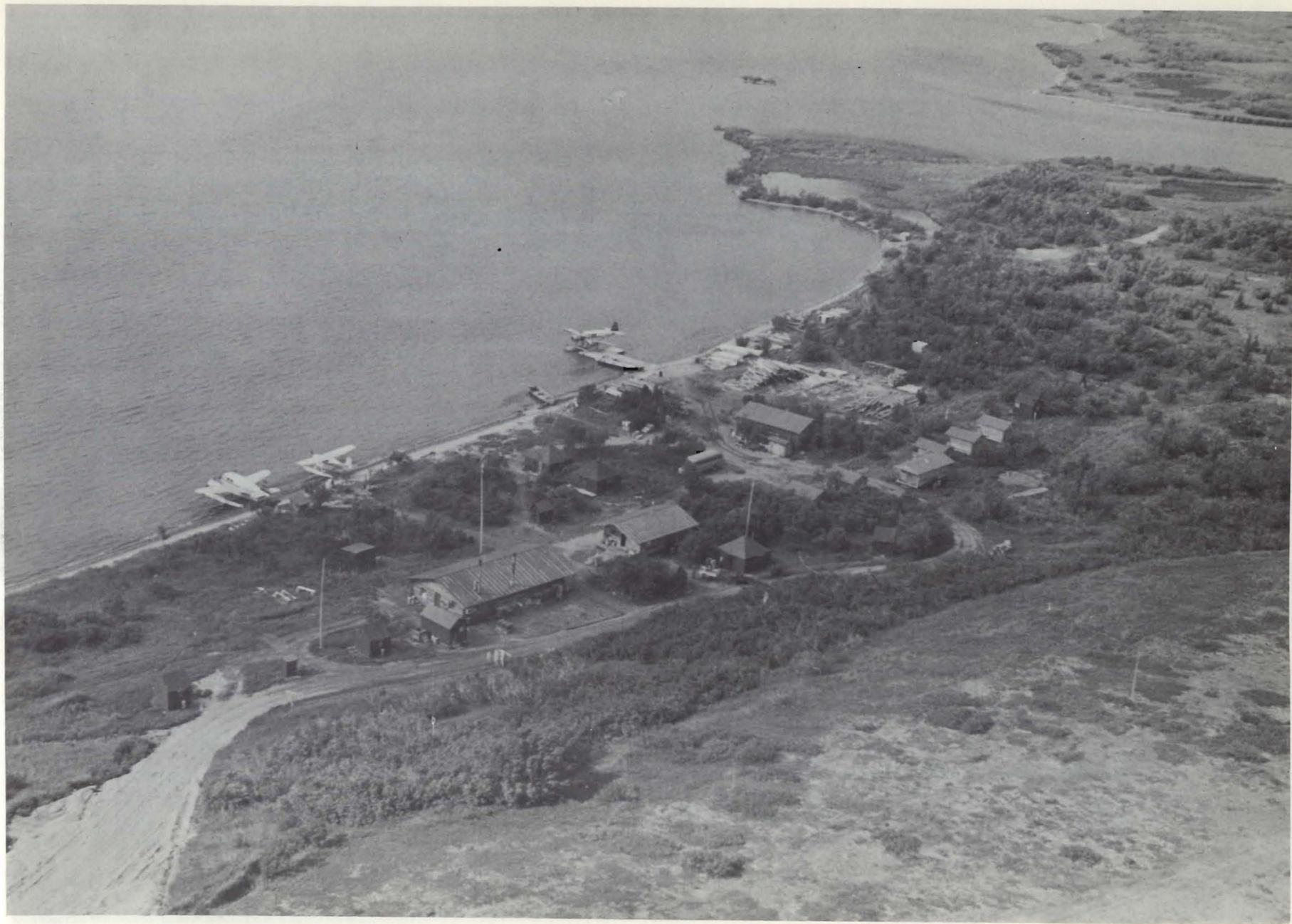


Figure 2. Kulik Camp, on Nonvianuk Lake, Bristol Bay, Alaska, 1960.

sonal abundance of fish and their fluctuations. The manager stated that "good rainbow trout fishing has begun later and later each year over the ten year period that the camp has been operation". The majority of non-resident anglers expressed less desire for lake trout fishing, explaining that good lake trout fishing is available in places nearer their homes. A small number of anglers charter a float plane from Kulik for a trip to Battle Lake camp, figure 3, and take three to four pound rainbow trout. Little fishing occurs in Kulik and Nonvianuk Lakes proper as the connecting stream is sufficient to accommodate the guests.

The many small tundra-type lakes in the vicinity of Kulik Camp do not provide a fishery. They are, for the most part, quite shallow (2-3 feet).

Nonvianuk Camp: Nonvianuk Camp is located at the mouth of the Nonvianuk River on the west end of Nonvianuk Lake, Figure 4. This is the smallest of the Northern Consolidated Airline camps. It accommodates eight guests. A small number of fishermen stayed overnight during the 1960 season. Anglers who fished from this camp were usually brought in daily for fishing. The camp manager and another man served as guides while the manager's wife took care of the camp needs.

Rainbow trout, grayling, lake trout and red salmon are the species caught. Rainbow trout fishing is at its best in early June and also during the first half of September. After the salmon ascend the river the catch of large rainbow trout drops off. In the interim, when red salmon are in the stream, only small rainbow trout (9-12 inches) are taken. The rainbow trout readily take flies and lures. Grayling appear to be present in large numbers but for the most part, are caught sporadically. Lake trout are taken at the mouth of the river on lures. The red salmon are most frequently taken by snagging at the mouth of the river where they are readily observed. The first dolly varden to be taken at this camp was reported in 1960 and was caught at the head of the river. The Nonvianuk River, except at its mouth, is rarely fished below a point approximately one quarter mile downstream from the camp.

Grosvenor Camp: Grosvenor Camp is located at the junction of Coville and Grosvenor Lakes, Figure 5. Accommodations at Grosvenor Camp are for 16 guests. A staff of four, a cook, a waitress, and two guides, takes care of the camp. Tents are used for sleeping quarters and a dining room.



Figure 3. Battle Lake Camp on Battle Lake, Bristol Bay, Alaska. 1960.

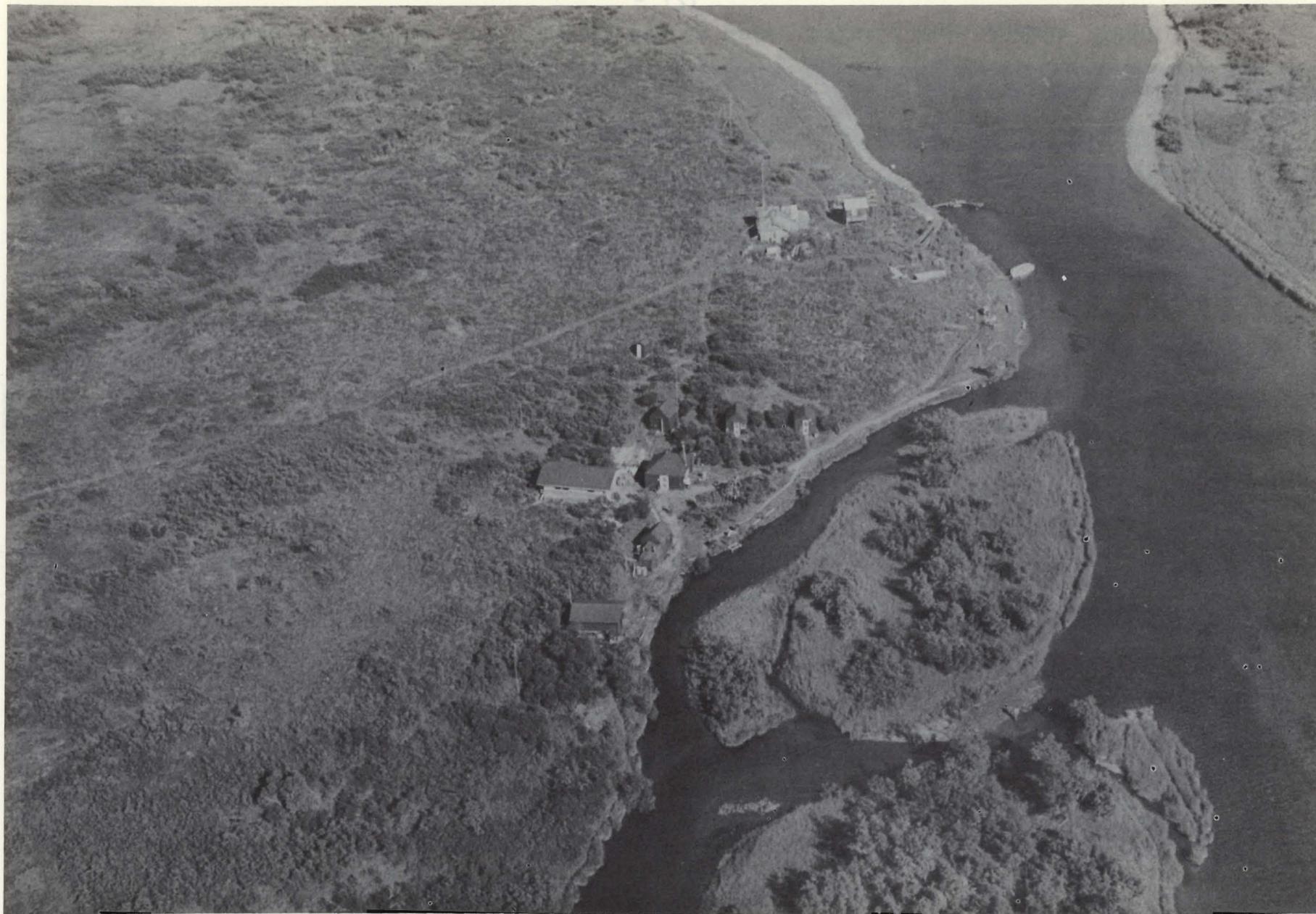


Figure 4. Nonvianuk Camp, on Nonvanuk Lake, Bristol Bay, Alaska, 1960.



Figure 5. Grosvenor Fishing Camp, on Lake Grosvenor, Bristol Bay, Alaska, 1960.

At Grosvenor Camp, anglers fish for rainbow trout, dolly varden, red salmon and pike. The best rainbow trout fishing is available in American Creek where three to four pounders are consistently taken. Small dolly varden are caught in conjunction with the rainbow trout. American Creek provides good fishing by the first of June, but later in the month red salmon arrive and the rainbow trout fishing drops off. Rainbow trout fishing is good in several streams on the north shore of Lake Grosvenor, although somewhat sporadic. Anglers usually fish the creek mouths from boats. Rainbow trout, red salmon and pike are caught in front of the camp.

Brooks Lake Camp: The Brooks Lake Camp is located at the mouth of the Brooks River which connects Brooks Lake with Naknek Lake, Figure 6. It has facilities for 22 guests. Wall tents with wooden floors are used for sleeping rooms, a dining room and a shower house. Construction of three log cabins was started during 1960, but will not be ready for use until the following year. The Brooks Lake Camp staff consists of three guides, a cook, and an assistant cook, in addition to three men who work on construction and maintenance. The manager serves as a guide when the camp is full. A pilot, with float plane, is based at the camp for flying guests to and from King Salmon and for use on daily fishing trips.

This camp caters to fly fishermen who fish for rainbow trout, grayling, and red salmon. Brooks River is one of the few places where red salmon "take" an artificial lure and can be readily caught on a fly.

Rainbow trout fishing is at its best from May until about the third week of June when the red salmon arrive. At this time, the rainbow trout fishing deteriorates and the anglers catch grayling and red salmon.

Grayling are taken throughout the fishing season. The best fishing is below the falls where the water is not swift and where large pools are found. Relatively few grayling are taken above the falls, Figure 7.

Red salmon are taken on flies, both upstream and directly downstream from the falls, while those caught at the mouth of the Brooks River are snagged.

Boats and guides are available for anglers desiring to fish



Figure 6. Brooks Lake Camp, on mouth of Brooks River, Bristol Bay, Alaska, 1960.

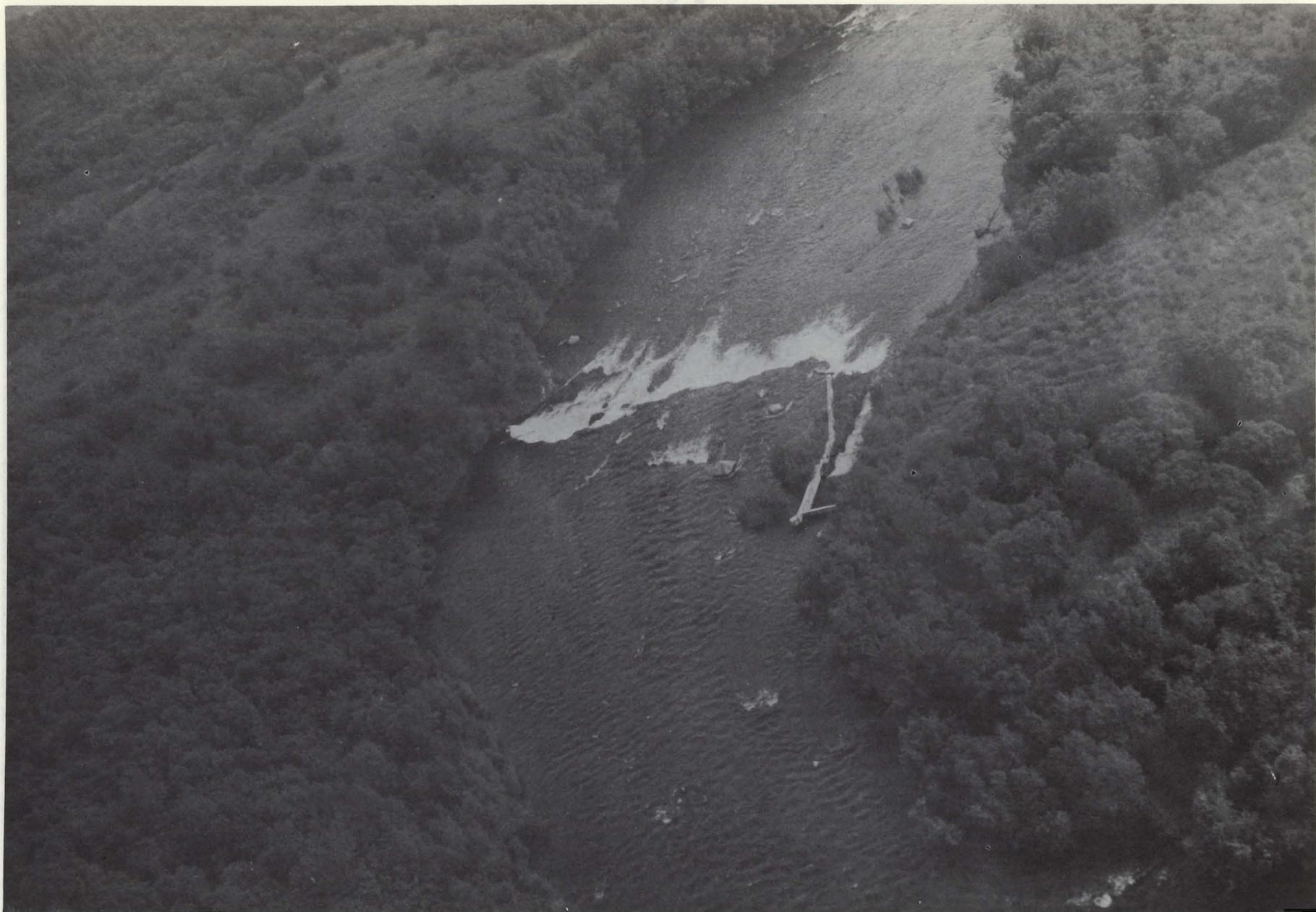


Figure 7. Brooks River Falls and fish ladder, Brooks River, Alaska, 1960.

for lake trout in Naknek Lake. Most of the lake trout are taken while trolling, but some have been taken while angling for salmon at the mouth of the Brooks River. Naknek Lake has abundant shoal areas terminating in steep drop-offs. It is at these drop-off points that the greatest success may be had in trolling for lake trout.

Arctic char are taken in Naknek Lake and at the mouths of several small creeks entering Naknek Lake south of Idavain Lake. Char fishing is sporadic and is reported to be at its best in late summer.

Fishing Pressure at Northern Consolidated Airline Camps, 1960 Season

A total of 550 anglers used the various camps during the 1960 season. Of this number, 450 anglers were non-residents. The average stay per fisherman was seven days, for an estimated total of 3,850 angler days. It is not possible to arrive at an accurate estimate of the total catch with the available data. Expansion of the data does reveal the following: The average catch per angler per fishing day has been estimated at 10 fish; therefore, approximately 38,500 fish were caught. Of the fish caught, only a small number were kept. The remainder of the fish caught were released. The camp manager estimated the average "take home" catch was two fish per angler.

John Pearson's Wilderness Camps, Wood River-Tikchik System

John Pearson of Dillingham, Alaska, operates three fishing resorts during the summer season in the justly famous Wood River-Tikchik System. The camps are the only resorts in the area and have operated for the past three seasons. Other fishing pressures come from chartered flights out of Dillingham and Anchorage. Some commercial fishermen make an annual trip up the river into the lakes to sport fish after the commercial fishing season. Only small boats can get to the upper lakes. Accommodations at the camps are rather primitive but enjoyable, to those wishing to rough it. The owner reports he will have hot running water and showers at the main camp next season. A staff of four attend the camps. The owner and one helper act as guides for the fishermen, while the owner's wife cooks and a college girl is employed as assistant cook and waitress.

Table 1.

List of equipment at NCA Camps

A. Kulik Camp

- 2 - 25 foot outboard boats and motors
- 1 - Twin Cessna float plane
- 1 - Cessna 180 aircraft for charter trips
- 1 - Jeep
- 1 - Bus
- 1 - Sawmill
- 1 - Gasoline generator for power

B. Grosvenor Camp

- 1 - Turbo-Craft boat
- 1 - 14' outboard boat and motor
- 1 - 8' skiff
- 1 - 16' canoe
- 1 - Gasoline generator for power

C. Nonvianuk Camp

- 1 - Turbo-Craft boat
- 1 - Gasoline generator for power

D. Brooks Camp

- 1 - Turbo-Craft boat
- 2 - Outboard run-abouts and motors
- 1 - Twin Cessna float plane
- 1 - Gasoline generator for power

Lower Camp: Lower Camp served as headquarters for the 1960 season. Most anglers reach the camp by driving from Dillingham to Aleknagik Village, a distance of some 20 miles over a gravel road. From Aleknagik Village, the guests travel to the Lower Camp in a turbo-craft (water jet-powered small boat). Anglers also charter aircraft to take them to the camp.

Lower Camp is located at the mouth of the Agulawak River. There are accommodations for four people in the main cabin, which also serves as the dining room. Additional accommodations for ten guests are available in a converted tally scow anchored at the mouth of the Agulawak River.

Second Camp: Second Camp is located at River Bay, Lake Nerka, where it narrows to become the Agulopak River. There are accommodations at Second Camp for four people. It is reached by boat from Lower Camp. A log cabin serves as sleeping quarters and dining hall.

Third Camp: Third Camp is located at the south end of the Agulopak River which connects Lake Beverly and Lake Nerka. A single log cabin accommodates three guests for eating and for sleeping and is reached by boat from Lower Camp.

Sport Fish Catch: Anglers at the Pearson's Camps can fish for pike, dolly varden, arctic char, rainbow trout and grayling.

The pike fishing is centered at the north end of Alegagik Lake where they are found in shallow, grassy bays. Lures are used exclusively. If the pike are not hitting in the deep waters, a turbo-craft is run through the weeds in an attempt to move the fish out into deep water where they can be more easily fished, apparently with some degree of success.

Dolly varden and arctic char are caught where the Agulowak River enters Aleknagik Lake. The best char fishing is enjoyed from boats located where the river current enters the lake producing waves and a chop on the shoals. Char can be caught in fewer numbers upstream in the Agulowak River. Dolly varden and arctic char fishing is also good in Lynx Creek, which enters Lake Nerka's south arm.

Both the Agulowak and Agulopak Rivers are fished for rainbow trout. Anglers use both spinning gear and flies from shore, but more frequently fish from a drifting boat. Lures and flies are effective on the rainbow trout and fishing is best during

the spring and fall. The red salmon arrive in July and mark the disappearance of the large rainbow trout from the catch, although numbers of smaller trout are still caught.

Grayling fishing is good in the Agulowak River; they are caught on both lures and flies. When taken on flies, grayling in the Agulowak provide the finest of sport. The camp operator reported that grayling seemed to be more abundant during the 1960 season than in the preceding years.

Fishing Pressure at the Pearson Camps: During the 1960 season, between 60 and 70 anglers fished from the camps. Of this number, approximately 50 per cent were non-residents. No data is available for this season's catch. The operator reported that all of the anglers at his camps caught more fish than they actually wanted. He further related that an average party of four anglers will catch and release from 50 to 100 fish per day, keeping only a few for eating and for trophies.

Recommendations for Management

Three problems exist at present which are of vital concern to the management of the sport fisheries in the Katmai and Wood River-Tikchik systems.

The first problem is the scarcity of data regarding the catch; specifically, the actual numbers of fish caught, their size, age, rate of growth, seasonal distribution and fluctuations in abundance. Part of the problem can be rectified with the cooperation of the camp managers in collecting catch data. It is recommended that a fish record book be designed and made available to the camps. The camp managers were solicited for assistance by letter. All indicated a willingness to cooperate.

The second problem concerns the existing practice of hooking and releasing large numbers of fish. Unsubstantiated reports from anglers and camp operators indicate the hooking and releasing mortality is appreciable. The operators of the camps are generally in favor of restricting the use of barbed and treble hooks as a means of alleviating the mortality. It is recommended that the effects of this practice be further evaluated and appropriate regulatory proposals be formulated.

The third problem concerns the effectiveness of the existing regulations in preventing overfishing on the Brooks

and Agulowak Rivers. The Brooks River is about 1.5 miles long, and the Agulowak River is about 3.5 miles long. These are comparatively short streams and the concentrated fishing pressure could have a deleterious effect on resident stocks. While the adjacent lake waters undoubtedly contribute appreciably to the river fishery, the extent of intermovement is not known. It is recommended that an investigation be undertaken to study the populations of fish and the fishing pressures in these two streams.

Military Sport Fishing Camps, Naknek River

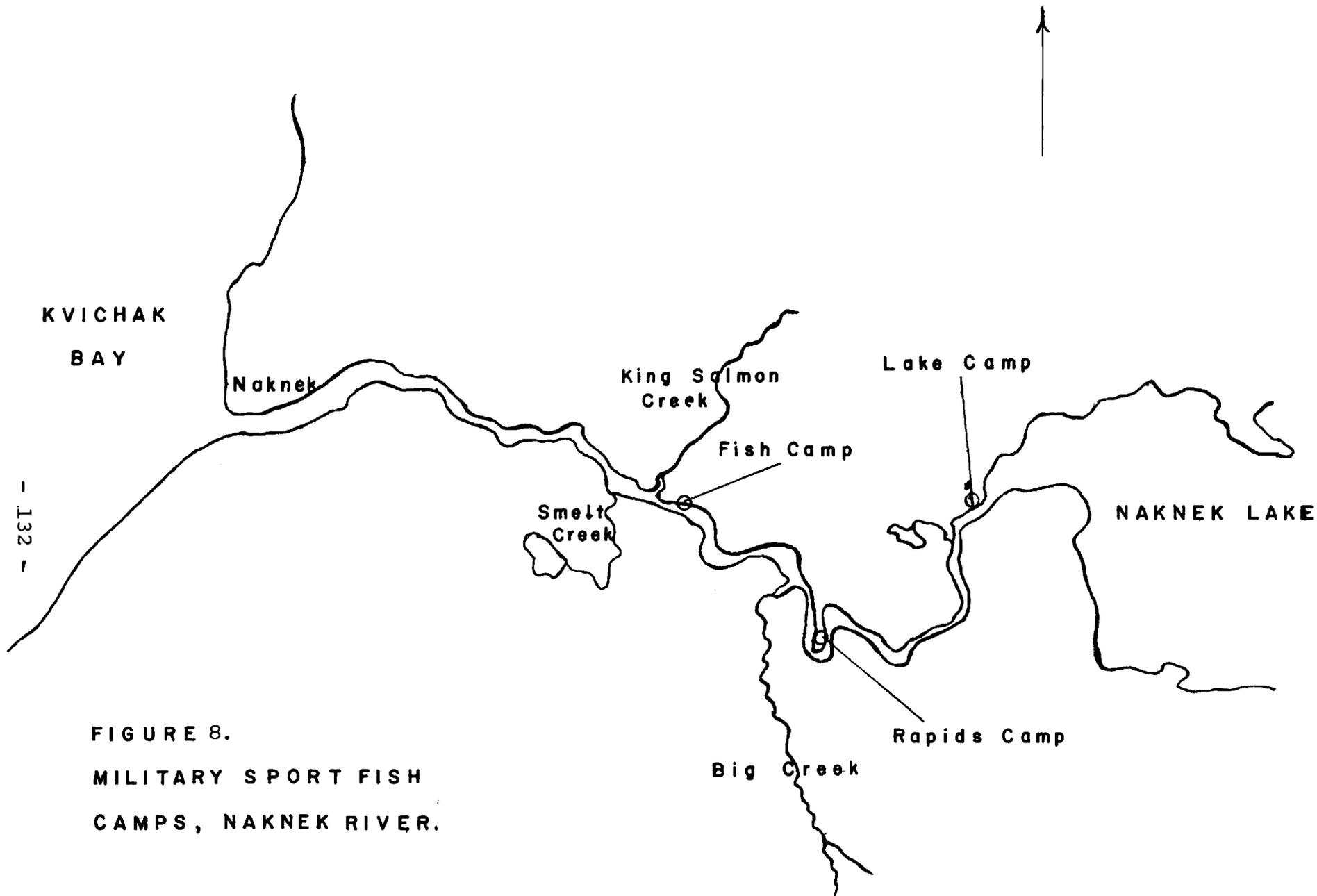
The present investigation was conducted from May 28 to September 16, 1960. It is a continuation of studies instigated by the U.S. Fish and Wildlife Service, and the Bureau of Sport Fish and Wildlife from 1956 through 1959, (Federal Aid in Fish Restoration Job Completion Report, Vol. 8, Report No. 5).

The status of the sport fisheries on the Naknek River is of major importance. The greatest source of angling pressure in this area is from military personnel utilizing three military camps established for sport fishing and recreational use. These camps are Fish Camp, Rapids Camp, and Lake Camp, Figure 8.

The three camps normally operate from late May until the first part of September. Facilities at each camp are for a maximum of 22 men, and the men are generally rotated every three days. Boats, motors and fishing tackle are available at each camp for use by the guests. In addition, freezing facilities, to preserve the fish caught, are available at each camp.

During the 1960 fishing season, a creel census was conducted with the aid of the military. Using a standard form, devised for the military by the Alaska Department of Fish and Game, Sport Fish Division, anglers were required to record all fish caught by species and the total hours fished for each day of fishing. Weighing scales and measuring boards were made available at each site and the weights and lengths of all fish caught were taken and recorded.

During the 1960 fishing season, 1,296 anglers completed creel census forms accounting for 7,009.1 hours of fishing time. 3,744 fish were caught for a combined weight of 19,309.5 pounds.



KVICHAK
BAY

Naknek

King Salmon
Creek

Lake Camp

Fish Camp

Smelt
Creek

NAKNEK LAKE

- 132 -

FIGURE 8.
MILITARY SPORT FISH
CAMPS, NAKNEK RIVER.

Rapids Camp

Big Creek

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All species of pacific salmon occur in the Naknek drainage as well as rainbow trout, steelhead trout, northern pike, dolly varden, grayling and lake trout.

King salmon, silver salmon, rainbow trout, and grayling are taken in considerable numbers and are the main interest of the sport fishermen. Steelhead trout are enthusiastically sought, but because steelhead are late arrivals in the Naknek, entering in numbers in late August and early September, they are not taken in quantity. There is a spring fishery on steelhead, prior to the opening of the camps, for which there is little recorded data. These steelhead are taken on their downstream spawning migration or after completion of spawning as they are returning to the ocean.

Figure 9 is a diagrammatic outline of the seasonal occurrence of the various fish species in the Naknek River as reflected by the sport fishing catch. The rainbow trout fishing effort begins at a relatively high level but falls off sharply as the king salmon catch increases. It could be that this drop is due to some conflict between the king salmon and the rainbow trout, or more likely, a decrease in the angler's interest in the trout when the king salmon arrive.

A change in the sport fishery appears in the tabulated annual catches, Table 2. From 1956 through 1960, there is no significant difference in the average length of the rainbow trout, grayling, dolly varden, king and silver salmon entering the fishery. There is, however, a very definite change in the species sought. The interest in rainbow trout seems to have fallen off slightly and more extensively in the grayling and dolly varden. Interest, meanwhile, has increased for the king and silver salmon. Over four times as many king and silver salmon are now being taken by the sport fishery in this area.

Tables 3 through 16 present the tabulations of the creel census conducted during the period of investigation.

Recommendations:

The Naknek River sport fishery is of growing importance and magnitude. The area should receive project attention with a trained biologist to conduct thorough investigations to include pressure studies, creel census, age and growth studies, and surveys of the spawning areas.

The steelhead trout in the Naknek River are gaining status as one of the more desirable species. An investigation should be instigated to obtain information as to abundance, seasonal adult migratory movements, spawning areas, migration timing of smolts and age and growth studies.

The trophy status of the fishery should be protected by regulations until such time as this status may change. It is recommended that Section 207.18 of the sport fishing regulations be changed to read: 207.18 Tikchik River and Naknek River drainage exception.

In the Tikchik River drainage, including Nuyakuk and Tikchik Lakes, and Nuyakuk River to a point 500 feet downstream from its origin with Tikchik Lake; and the Naknek River drainage, including Naknek Lake, sport fishing is permitted only with single, barbless hooks.

A cooperative program with the Commercial Fish Division, Alaska Department of Fish and Game, should be undertaken to obtain adult escapement counts of king salmon, silver salmon, and steelhead in the Naknek River.

The present investigation should be continued during the forthcoming season to provide continuity of the creel census data.

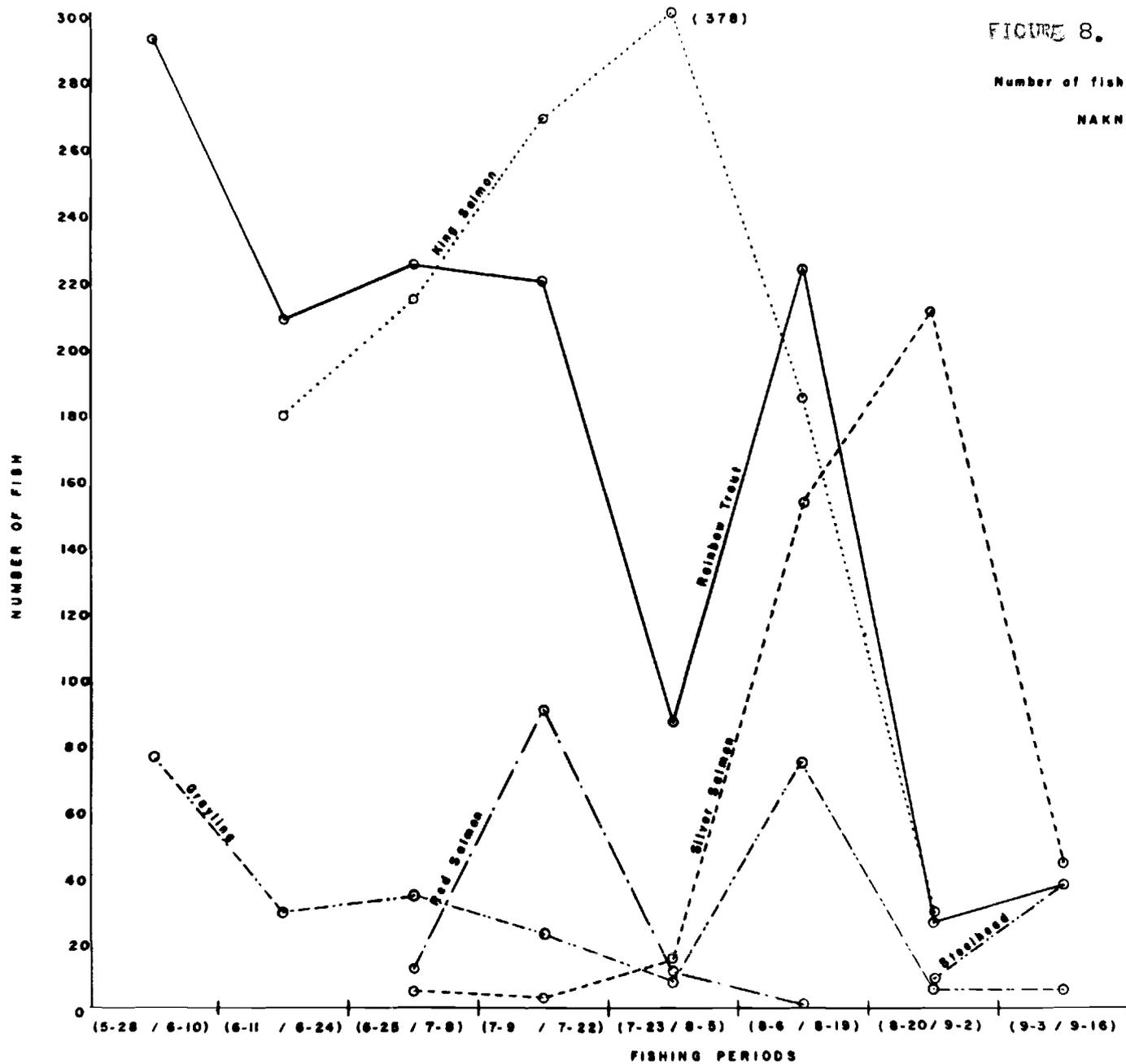


FIGURE 8.

Number of fish by fishing periods.

NAKNEK RIVER

Table 2. Comparison of Average Lengths by Species and Year - Naknek River

Year	Rainbow Trout		Grayling		King Salmon		Silver Salmon		Dolly Varden	
	No.	Avg. L.	No.	Avg. L.	No.	Avg. L.	No.	Avg. L.	No.	Avg. L.
1956	748	15.70	102	13.31	239	20.47	51	18.80	87	15.32
1957	2,817	17.04	430	11.68	298	28.80	66	21.13	311	13.43
1958	3,689	14.56	483	14.41	-	-	-	-	404	15.60
1960	1,297	15.92	257	14.67	1,258	23.30	429	22.46	73	14.98

Table 3.

Creel Census, Naknek River, 1960
705th Fish Camp (King Salmon) Area

Fishing Period	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals	Pounds
Men	83	132	41	21	78	46	54	11	466	
M.H.	231.0	467.7	173.5	90.0	280.2	150.5	186.0	42.0	1,620.9	
%F.H. Succ.	6.0%	52.3%	95.1%	90.4%	98.7%	89.1%	88.9%	81.8%	66.5%	
<u>Number:</u>										
Rainbow	3	6	1	0	3	0	4	1	18	21.6
Steelhead	1	5	0	0	0	0	0	0	6	52.0
Grayling	0	0	0	0	0	0	1	0	1	2.0
D. Varden	0	1	0	1	0	0	9	0	11	11.7
Lake Trout	0	0	1	0	0	0	4	1	6	7.5
King Salmon	3	110	81	34	152	21	23	0	424	7,101.6
Silver Salmon	0	0	1	0	14	139	174	40	368	2,613.2
Red Salmon	0	0	0	0	1	1	0	0	2	33.0
Dog Salmon	0	3	2	0	0	0	0	0	5	23.5
Totals	7	125	86	35	170	161	215	42	841	9,866.1
f/hr.	.030	.265	.495	.388	.607	1.096	1.150	1.00	.518	
<u>Species</u>	DV	RB	KS	SS	GR	LT	RS	DS	SH	
Mean Length	11.2	12.5	29.5	23.2	14.0	13.2	30.0	19.5	26.5	
Mean Weight	1.06	1.2	16.7	7.1	2.0	1.25	16.5	4.7	8.7	

Table 4. Size of Fish Taken by Fishing Period
 Naknek River
 (King Salmon) Fish Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
12		1	1						2
13									0
14	1	1			1				3
15		3							3
16		3	3	1	2				9
17		2	2		2				6
18		6	1		10				17
19			1	1	1				3
20		7	1		1		2		11
21		5			1				6
22		13	3	1	2	1	2		22
23		11	1			1			13
24		11	3	1	3	3	3		24
25		4	6	3	3		4		20
26		1	2	1	4		3		11
27		5	2	1	3				11
28		4	3		5	1	2		15
29		3			1	1	1		6
30		5	3	3	8	1			20
31		1	4	3	9	1			18
32		3	7	2	4	2	1		19
33		4	4		7				15
34	1	1	8	1	6				17
35		3	6		11	1	1		22
36		2	3	8	14	1			28
37	1	6	7	3	13		1		31
38		2	3	1	10	3			19
39		2		3	10	1	1		17
40			2		6	3	2		13
41					4	1			5
42					3				3
43			1						1
44					2				2
45				1					1
46		1			3				4
47			1						1
Total									418

Table 5. Size of Fish Taken by Fishing Periods
 Naknek River
 (Silver Salmon) Fish Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
8							1		1
9									
10							1		1
11									
12							1		1
13							1		1
14							2		2
15							2		2
16									
17					1		3	6	10
18					1		15		16
19					1		3	6	10
20					1	11	3	1	16
21					1	3	2		6
22						5	14		19
23					1	17	21	2	41
24					1	35	38	16	90
25					4	37	37	4	82
26			1		1	18	12	1	33
27						7	13	2	22
28						2	4		6
29					2		1		3
30								1	1
Total									363

Table 6. Size of Fish Taken by Fishing Periods
 Naknek River
 (Rainbow Trout) Fish Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
9		1					1	1	3
10							1		1
11									
12	2	4			1		1		8
13									
14	1				1		1		3
15			1						1
16					1				1
17									
18		1							1
Total									18

Table 7.

Creel Census, Naknek River - 1960
Rapids Camp Area

Fishing Period	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Total	
Men	65	83	84	107	97	68	1	0	505	
M.H.	411.0	590.5	612.0	766.0	671.0	424.5	11.0	0	3,486.0	
%F.M. Succ.	95.4	95.2	90.5	87.8	85.6	39.0	100	0	82.3	
<u>Number:</u>										<u>Pounds</u>
Rainbow	112	61	100	112	46	41	0	0	472	915.3
Grayling	67	15	18	12	4	3	0	0	119	121.9
Dolly Varden	11	0	10	2	10	2	0	0	35	65.4
Lake Trout	0	0	1	2	1	0	0	0	4	13.0
Northern Pike	13	147	7	1	4	0	0	0	172	402.0
King Salmon	0	69	133	234	215	145	5	0	801	4,330.3
Silver Salmon	0	0	4	0	0	4	0	0	8	40.0
Red Salmon	0	0	4	0	1	0	0	0	5	15.5
Dog Salmon	0	0	2	3	14	2	0	0	21	134.5
Pink Salmon	0	0	0	0	8	0	0	0	8	31.5
Total	203	292	279	366	303	197	5	0	1,645	6,069.4
f/hr.	.494	.494	.455	.477	.451	.464	.454	0	.472	
<u>Species:</u>	RB	GR	DV	LT	NP	KS	SS	RS	DS	PS
Mean Length	16.0	13.5	17.1	20.1	19.4	20.6	21.9	19.2	23.7	21.1
Mean Weight	1.9	1.02	1.8	3.3	2.3	5.4	5.0	3.1	6.4	3.9

Table 8. Size of Fish Taken by Fishing Periods
 Naknek River
 (King Salmon) Rapids Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
10			1	2		1			4
11				1					1
12			1	2	7	2			12
13				1	1	1			3
14			9	4	8	3			24
15		9	11	9	17	3			49
16		12	30	35	26	10		1	114
17		6	17	38	31	24		1	117
18		2	10	37	46	40			135
19		3	1	9	13	9		1	36
20		3	7	7	8	7		2	34
21		4	3	6	6	7			26
22		3	4	10	4	5			26
23		4	2	7	3	4			20
24		1	2	6	2	6			17
25		12	8	10	5	4			39
26		1	4	12	4	4			25
27			2	8	1	4			15
28		1	1	1	3	3			9
29		1	2	3	4	2			12
30		1	2	2	6	1			12
31			1		1				2
32		1	6	2	2				11
33		1		1					2
34			1	1	3	1			6
35			1	4	2				7
36		2	2	4	4				12
37			4	1	1				6
38		1		1	2	1			5
39		1	1	2	3				7
40				6	1	2			9
41				1	1				2
42				1		1			2
Total									801

Table 9. Size of Fish Taken by Fishing Periods
 Naknek River
 (Rainbow Trout) Rapids Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
7			1						1
8	2	1							3
9	3			3					6
10	2	4	2	3					11
11	1	2	6	1	1				11
12	21	1	5	10	7	2			46
13	8	8	6	5	7				34
14	12	10	14	13	10	4			63
15	12	13	12	13	3				53
16	15	11	24	15	5	3			73
17	8	4	9	13	6	9			49
18	2	4	4	19	3	11			43
19	3	2	5	8		3			21
20	5	1	3	3	1	2			15
21	1		3	3	3	4			14
22	3			1		2			6
23			4			1			5
24	2			1					3
25	1		1						2
26	1								1
27			1	1					2
28	1								1
29	4								4
30	3								3
31	2								2
Total									472

Table 10.

Creel Census, Naknek River - 1960
Lake Camp Area

Fishing Period	5-18 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Total	Pounds		
Men	35	30	41	50	28	67	32	42	325			
M.H.	212.0	176.0	253.5	301.5	179.5	331.5	194.0	254.2	1,902.2			
%F.M. Succ	100	100	95.1	98.0	96.4	95.5	75.0	95.2	71.9			
<u>Number:</u>												
RB	177	141	123	107	37	182	22	36	825	1,673.2		
GR	9	14	16	10	6	71	5	6	137	179.3		
DV	1	0	6	1	0	9	9	1	27	47.7		
LT	7	3	1	0	0	0	0	1	12	83.8		
SH	0	0	0	0	0	0	9	37	46	400.9		
NP	0	1	0	0	0	0	0	0	1	4.5		
KS	0	0	0	0	11	18	1	0	30	107.8		
SS	0	0	0	3	1	9	36	4	53	309.9		
RS	0	0	8	90	9	0	0	5	112	529.4		
DS	0	0	0	3	2	0	2	0	7	24.5		
PS	0	0	0	0	1	0	0	0	1	3.5		
WF	5	0	2	0	0	0	0	0	7	9.5		
Total	199	159	156	214	67	289	84	90	1,258	3,374.0		
f/hr.	.938	.903	.615	.709	.373	.872	.433	.354	.661			
Species:	RB	GR	DV	LT	SH	NP	KS	SS	RS	DS	PS	WF
(inches)												
Mean Length	15.85	15.15	16.65	25.6	26.56	-	19.8	22.3	21.93	20.0	19.0	15.1
(pounds)												
Mean Weight	2.0	1.3	1.7	7.0	8.7	-	3.6	5.8	4.7	3.5	3.5	1.4

Table 11. Size of Fish Taken by Fishing Periods
 Naknek River
 (King Salmon) Lake Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
15						1			1
16						1			1
17						5			5
18					1	6			7
19					2		1		3
20					2	2			4
21					2	1			3
22									
23					3	1			4
24									
25									
26									
27						1			1
28									
29									
30									
31									
32					1				1
Total									30

Table 12. Size of Fish Taken by Fishing Periods
 Naknek River
 (Silver Salmon) Lake Camp

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
15				1					1
16								1	1
17								1	1
18				1		2	1		4
19									
20							2		2
21						1	5	1	7
22						3	3		6
23						1	7	1	9
24				1		1	9		11
25							5		5
26							2		2
27							1		1
28						1			1
29									
30									
31									
32									
33									
34									
35									
36									
37									
38						1			1
Total									52

Table 13. Size of Fish Taken by Fishing Periods
 Naknek River
 (Rainbow Trout) Lake Camp - 1960

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
8			2			4			6
9		1	3			7			10
10	1	5	10	3	1	16		3	39
11	2	9	3	3	1	16			34
12	18	21	23	11	2	20		3	98
13	6	12	7	6	3	26	2	1	63
14	20	27	10	20		18	3	3	101
15	26	13	16	10	4	13	3	2	83
16	23	7	7	13	8	13	1	2	74
17	18	10	11	8	3	10		1	61
18	18	9	11	7	3	9	1	1	59
19	14	8	4	7	3	8	1	5	50
20	8	7	3	3	3	8	2		34
21	5	8	3	5	2	2		1	26
22	4	1	3	4		5	1		18
23			3	4	2	1			10
24	9			2		1		1	13
25	1		1		1				3
26	3	1				1		1	6
27							1	2	3
28	1		1					1	3
29		1	1			1	2	1	6
30	1						1	3	5
31	2	1	1	1		1			6
32	1						1		2
33					1				1
34									
35							1		1
Total									815

Table 14. Size of Fish Taken by Fishing Periods
 Naknek River
 (Dolly Varden) All Camps

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
6							1		1
7									
8							1		1
9							1		1
10	1						2		3
11							1		1
12	2		1						3
13			1		1		1		3
14	1		2			1	1		5
15	1		1		3	2	4		11
16				1	1	3	5	1	11
17	3		4	1	2	2	1		13
18	3		1		1	2			7
19		1	1		1	1			4
20			2						2
21				1	1				2
22			3						3
23				1					1
24									
25									
26									
27									
28									
29									
30									
31	1								1
Total									73

Table 15. Size of Fish Taken by Fishing Periods
 Naknek River
 (Grayling) All Camps

Size in Inches	5-28 6-10	6-11 6-24	6-25 7-8	7-9 7-22	7-23 8-5	8-6 8-19	8-20 9-2	9-3 9-16	Totals
9	1	1				2			4
10	4	2	3	4	1				14
11	9			2	1	2			14
12	13	1	3	3		3	1		24
13	8	1	1	2		4			16
14	10	8	14	6	4	12	3	2	59
15	13	8	4	1	2	13	1	2	44
16	13	5	5	2	2	13	1	1	42
17	3	3	4	2		11	1		24
18	2					14			16
Total									257

Table 16.

Summary of Number of Fish Taken by Camp Area

FISH CAMP

Species	Number	Total Pounds
DS	5	23.5
DV	11	11.7
GR	1	2.0
KS	424	7,101.6
LT	6	7.5
RB	18	21.6
RS	2	33.0
SH	6	52.0
SS	368	2,613.2
Total	841	9,866.1

RAPIDS CAMP

Species	Number	Total Pounds
DS	21	134.5
DV	35	65.4
GR	119	121.9
KS	801	4,330.3
LT	4	13.0
RB	472	915.3
RS	5	15.5
SS	8	40.0
NP	172	402.0
PS	8	31.5
Total	1,645	6,069.4

Table 16. (Cont'd).

Summary of Number of Fish Taken by Camp Area

LAKE CAMP

Species	Number	Total Pounds
DS	7	24.5
DV	27	47.7
GR	137	179.3
KS	30	107.8
LT	12	83.8
NP	1	4.5
PS	1	3.5
RB	825	1,673.2
RS	112	529.4
SH	46	400.9
SS	53	309.9
WF	7	9.5
Total	1,258	3,374.0

TOTAL ALL CAMPS

Species	Number	Total Pounds
DS	33	179.0
DV	73	124.8
GR	257	303.2
KS	1,255	11,539.7
LT	22	104.3
NP	173	406.5
PS	9	35.0
RB	1,315	2,610.1
RS	119	577.9
SH*	52	452.9
SS	429	2,963.1
WF	7	9.5
Grand Total	3,744 Fish	19,309.5 Pounds

* Does not reflect spring catch.

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