Volume 18 Study G-I-E

STATE OF ALASKA

Jay S. Hammond, Governor

Annual Performance Report for

INVENTORY AND CATALOGING OF SPORT FISH AND SPORT FISH WATERS OF THE BRISTOL BAY AREA

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Section B

RESEARCH PROJECT SEGMENT

State: ALASKA

Name: Sport Fish Investigations of Alaska.

Project No.: F-9-9

Study No.: G-I Study Title: INVENTORY AND CATALOGING

Job No.: G-I-E Job Title: Inventory and Cataloging of Sport Fish and Sport Fish Waters of the Bristol Bay Area.

Period Covered: July 1, 1976 to June 30, 1977.

ABSTRACT

The Bristol Bay area contains some of the best fishing waters within Alaska. To study selected sport fish stocks in these waters, a creel census was conducted at Brooks Camp, located adjacent to Brooks River. For the second consecutive year, an estimate of the chinook salmon, *Oncorhynchus tshawytscha* (Walbaum), sport catch was made in the Naknek River, aerial chinook salmon spawning counts were conducted in the Naknek and Branch River drainages, and spawning ground counts of rainbow trout, *Salmo gairdneri* (Richardson), were obtained by walking along selected streams and observing trout. Several streams were surveyed to determine existence of rainbow trout and to collect information about access and angler use along each stream.

In 1975, an attempt was made to estimate the guided angling effort based on a voluntary creel census. It met with only partial success and was discontinued after one year. Only a limited number of guides cooperated. Most reported partial or no information.

The 1976 Brooks River creel census revealed a slight increase in effort compared to 1975. The number of rainbow trout retained was nearly the same, however. Nearly twice as many Arctic grayling, *Thymallus arcticus* (Pallus), and sockeye salmon, *Oncorhynchus nerka* (Walbaum), were caught in 1976 as compared to 1975. A comparison of creel census data, collected

from 1954 to the present date, reveals increased effort with a similar number of rainbow trout retained in all years.

The 1976 Naknek River chinook salmon sports catch was approximately 800 fish, or twice last year's estimate. The aerial escapement estimates for both the Naknek and Branch River systems were the highest in the decade with 9,150 counted in the Naknek and 8,000 to 9,500 in the Branch.

Spawning rainbow trout were counted in Brooks River, Lower Talarik Creek, Dream Creek, and in the Naknek River. Estimates were 100, 1,000, 200 to 250, and 300 to 500 respectively. Except for a five-fold increase in Dream Creek, all estimates were similar to counts made in 1975.

Upper Talarik Creek, Chekok Creek, Kakhonak River, Belinda Creek, Funnel-Moraine Creek, Gibraltar River, Nanuktuk Creek, and Copper River were floated between July and October. Species captured by size frequency are presented along with angler use and comments on floating each stream.

BACKGROUND

In the last report (Gwartney, 1976) it was noted that no recent attempt had been made to estimate the recreational angler effort, distribution, or catch on an area wide basis. The attempt to collect these data in 1975 through a purely voluntary basis met with only partial success. Only a limited number of guides cooperated fully, with most reporting partial or no information. In 1976, without the usual letters of reminder as sent in 1975, only one lodge supplied complete information.

Katmai National Monument personnel continued their creel census at Brooks Camp on Naknek Lake, providing two consecutive years of angler use data for Brooks River. During 1977 a statewide creel census will be conducted, and effort in Bristol Bay will be estimated as a part of this study.

Creel census surveys of chinook salmon in the Naknek River and for rainbow trout in the Kvichak system have been conducted annually and results published in previous annual reports.

Rainbow trout spawning surveys have been conducted annually on selected streams to estimate the number of spawning fish and establish a minumum number of large rainbow trout available to angling pressure. Any management discussions based on these data should be done with extreme reservations due to the variability under which the counts are obtained.

RECOMMENDATIONS

1. Discontinue attempts to conduct a voluntary creel census program with guides and air taxi operators utilizing the Bristol Bay area.

2. Repeat the Naknek River chinook salmon creel census every third year.

3. Continue to enumerate chinook salmon spawning stocks in the Naknek drainage.

4. Discontinue aerial surveys of spawning chinook salmon in the Branch River.

5. Continue to enumerate rainbow trout spawning in selected streams within Bristol Bay.

6. Continue to survey selected streams within Bristol Bay to determine the existence or potential existence of a recreational fishery and to collect information about the fishes present.

OBJECTIVES

1. To determine the environmental characteristics of the existing or potential recreational fishing waters of the job area and to obtain estimates of existing and/or potential angler use and sport fish harvest.

2. To determine the magnitude of selected spawning stocks.

3. To provide management recommendations for sport fishing resources in these waters and direction for future studies.

TECHNIQUES USED

The voluntary creel census at Brooks Camp was conducted by Katmai National Monument rangers. Basically, it required contacting as many anglers as possible after their fishing trips were completed, usually just prior to their departures from the area. Anglers were asked how many fish they caught, retained, released, and how many hours they fished. It was estimated that 60% of the anglers were contacted.

The 1976 Naknek River chinook salmon creel census followed the same sampling scheme used in 1975 (Gwartney, 1976). Following a breakdown of the sampling program, a "best estimate" based on partial effort and harvest data was made. This estimate is probably accurate to within 100 salmon.

Chinook salmon were estimated by aerial surveys. An observer, with a pilot trained in stream surveying, flew each tributary near the peak of spawning and counted spawning chinook salmon. Chinook salmon were estimated in tens or hundreds in areas of large concentrations.

Spawning ground counts for rainbow trout were obtained by walking along the banks and observing the fish.

Stream surveys were made, to determine existence of rainbows and to measure pertinent related parameters, utilizing both hook and line and electro sampling. Sampling was conducted periodically throughout the entire stream. Access to these streams was by float plane.

FINDINGS

Results

Tables 1 and 2 present 1976 creel census information collected by Katmai National Monument personnel at Brooks camp, for the Brooks River.

The 1976 Naknek River chinook salmon harvest between Smelt and Big Creeks (the major fishing areas) is estimated to be 800 fish. Fishing effort, both in total number of anglers and man days, was roughly equal to last year's estimate. Table 3 presents estimated sport fish catches of Naknek River chinook salmon since 1967 (Gwartney, 1976).

Chinook salmon escapement estimates for the Naknek River system and the Branch River system are presented in Tables 4 and 5, respectively. Further, estimates of catch and escapement for chinook salmon in the Naknek are presented in Table 6.

Results of stream surveys to enumerate spawning rainbow trout are presented in Table 7.

Eight streams in the Kvichak drainage were floated between the dates of July 18 and October 3, 1976. Figures 1 through 8 show location of each stream with campsites, electrofishing sites, and other pertinent information. Observations of fish present, angler use, and floatability were made for each stream. Table 8 presents a list of streams surveyed, the dates they were surveyed, the approximate number of miles surveyed, the species captured utilizing both the electroshocker and hook and line, the total number captured, and the length range in mm for each species caught.

Table 9 presents length frequencies for rainbow trout by capture method for the streams surveyed. Table 10 lists observed angler use and a floatability rating.

DISCUSSION

The 1976 Brooks River creel census produced almost identical overall effort and rainbow harvest data as in 1975, and ironically, a nearly identical harvest of rainbows as in 1954 (Greenbank, 1954). Table 11 presents angler effort, numbers of fish caught, and numbers retained by species for the 1954, 1975, and 1976 seasons. It is interesting to note that while the catch per hour of rainbow trout was over three times as high in 1954 compared to the past two years, the harvest of other species in 1954 was nil. Fishermen in 1975 and 1976 expended considerable time in angling for red salmon, a fishery which involves techniques nearly exclusive from rainbow angling techniques.

Table 1. A Summary of Angler Census Data at Brooks Camp, 1976*.

Week Ending	Angler Hours	Angler Days	Hours/ Day	Number of Fish: Rainbow Trout	Arctic Grayling	Dolly Varden	Sockeye Salmon	Lake Trout	Others**	Fish/ Hour	Rainbow/ Hour
6/8	53	14	3.8	13	3	1	0	0	1	0.34	0.25
6/13	135	53	2.5	34	54	0	0	6	1	0.70	0.25
6/20	133	35	3.8	100	45	10	10	7	2	1.31	0.75
6/27	272	54	5.0	79	48	38	130	5	0	1.10	0.29
7/4	909	190	4.8	88	56	1	624	56	0	0.91	0.10
7/11	686	135	5.1	94	95	1	507	6	0	1.03	0.14
7/18	264	78	3.4	22	33	0	500	7	1	1.13	0.08
7/25	153	42	3.6	18	5	1	196	3	2	1.47	0.12
8/1	187	57	3.3	51	10	0	118	18	1	1.06	0.27
8/8	136	33	4.1	21	37	0	119	1	1	1.32	0.15
8/15	144	29	5.0	24	5	0	132	0	5	1.15	0.17
8/22	259	55	4.7	128	199	0	176	1	2	1.95	0.49
8/29	52	44	1.2	29	15	0	61	12	2	2.29	0.56
9/5	52	27	1.9	9	1	0	12	1	0	0.44	0.17
Total	3,435	846	4.1	710	606	52	2,585	123	18	1.19	0.21

* Approximately 60% of all anglers were interviewed.

** Pike, coho salmon, and unknown species.

Table 2. A Summary of Fish Caught, Retained, and Released at Brooks River Based on Daily Interviews, 1976.*

Fish Species	Number Retained	Number Released	Total Caught	Percent Retained	Percent Released
Rainbow Trout	140	570	710	20	80
Sockeye Salmon	491	2,094	2,585	19	81
Arctic Grayling	78	528	606	13	87
Dolly Varden	17	35	52	33	67
Lake Trout	50	73	123	41	59
Pike	1	1	2	50	50
Silver Salmon	3	5	8	38	62
Other	2	6	8	25	75
Total	782	3,312	4,094	19	81

* Approximately 60% of all anglers were interviewed.

Table 3. Estimated Sport Fish Chinook Salmon Harvest by Year for the Naknek River System.

Year	Estimated Catch
1967	1,579
1968	2,293
1969	4,631
1970	2,730
1971	2,417
1972	1,668
1973	1,000
1974	1,700
1975	427
1976	800

Table 4. King Salmon Escapement Estimates for the Naknek River System, 1970-1976.*

Year	King Salmon Creek	Big Creek	Pauls Creek	Mainstem Naknek River	Estimated Total
1970	260	1,600	No Count	2,500	4,360
1971	704	490	52	1,620	2,866
1972	1,224	1,060	156	351	2,791
1973	115	1,106	No Count	1,300-1,600	2,671
1974	600-800	1,200-1,300	250	400-500	2,650
1975	350-400	800-850	200-250	2,250-2,750	3,925
1976	350-450	1,300-1,500	75-125	7,000-7,500	9,150

* Aerial Surveys

Table 5. Chinook Salmon Escapement Estimates for the Alagnak (Branch) River System, 1970-1976 Aerial Surveys

Year	Estimated Escapement
1970	4,600-5,300
1971	1,400-1,500
1972	2,200-2,500
1973	800-1,300
1974	1,600-1,800
1975	6,600-8,000
1976	8,000-9,500

Table 6. Estimated Catch and Escapement of Chinook Salmon in the Naknek River System, 1970-1976.

Year	Estimated Sports Catch	Estimated Subsistence Harvest	Estimated* Escapement	Total (total run size exclusive of commercial harvest
1970	2,730	300	4,360	7,390
1971	2,417	200	2,866	5,483
1972	1,668	400	2,791	4,859
1973	1,000	600	2,671	4,271
1974	1,700	900	2,650	5,250
1975	427	600	3,925	4,952
1976	800	700**	9,150	10,650

* Includes all tributary streams surveyed.
** Preliminary.

Table 7. A Summary of Rainbow Trout Spawning Surveys Made on Several Streams in the Naknek and Kvichak Drainages (Foot Surveys Unless Indicated).

Stream	Number of Rainbow Trout 1972	1973	1974	1975	1976
Copper River	630	102	91	85	*
Brooks River	No Survey	150	169	88	100
Lower Talarik Creek	600	1,000	1,200	1,100	1,000
Dream Creek	No Survey	218	43	46	200-250
Naknek River**	260	130	No Survey	500	300-500

* No Count possible due to turbid waters.
** Aerial Surveys.

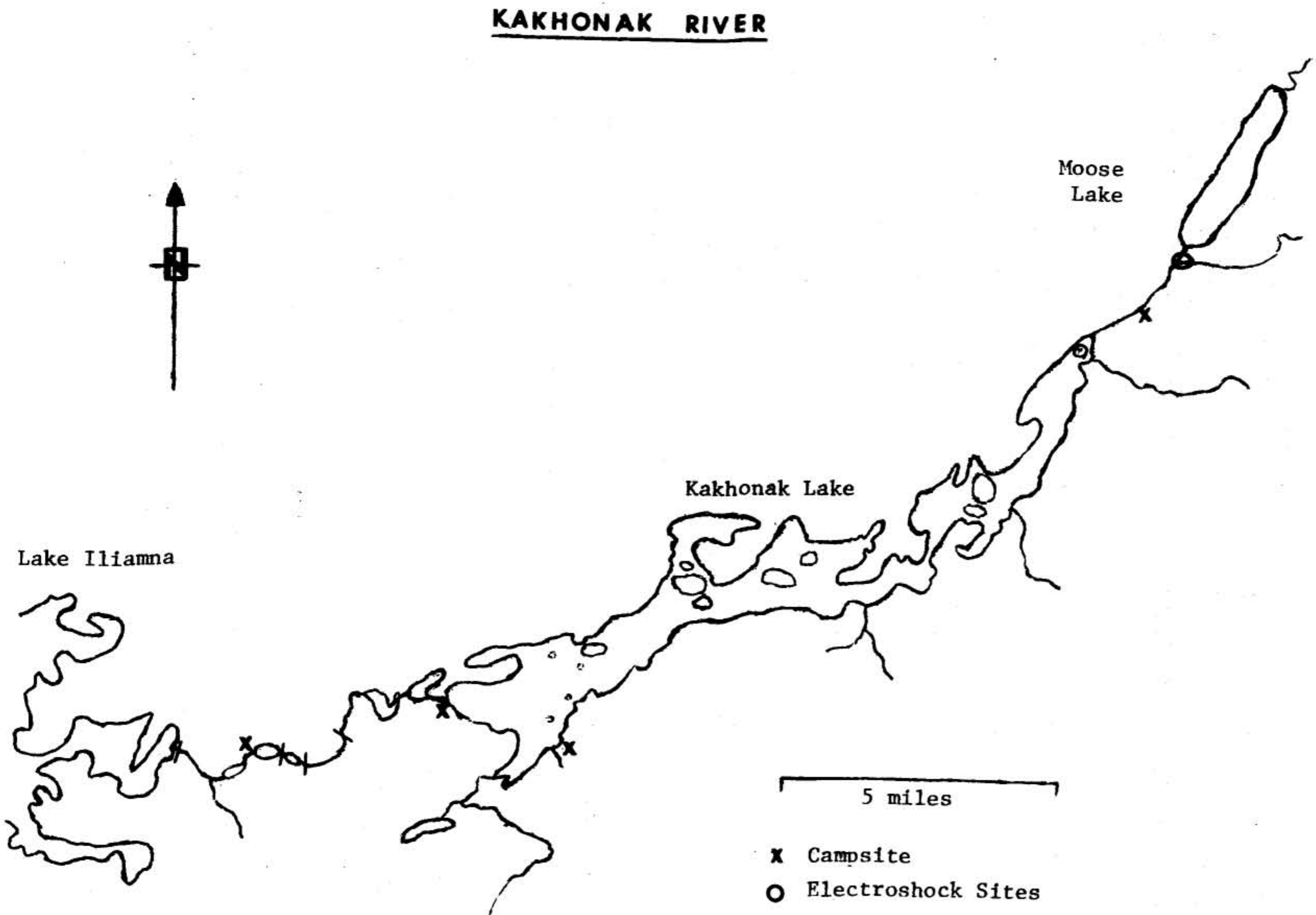
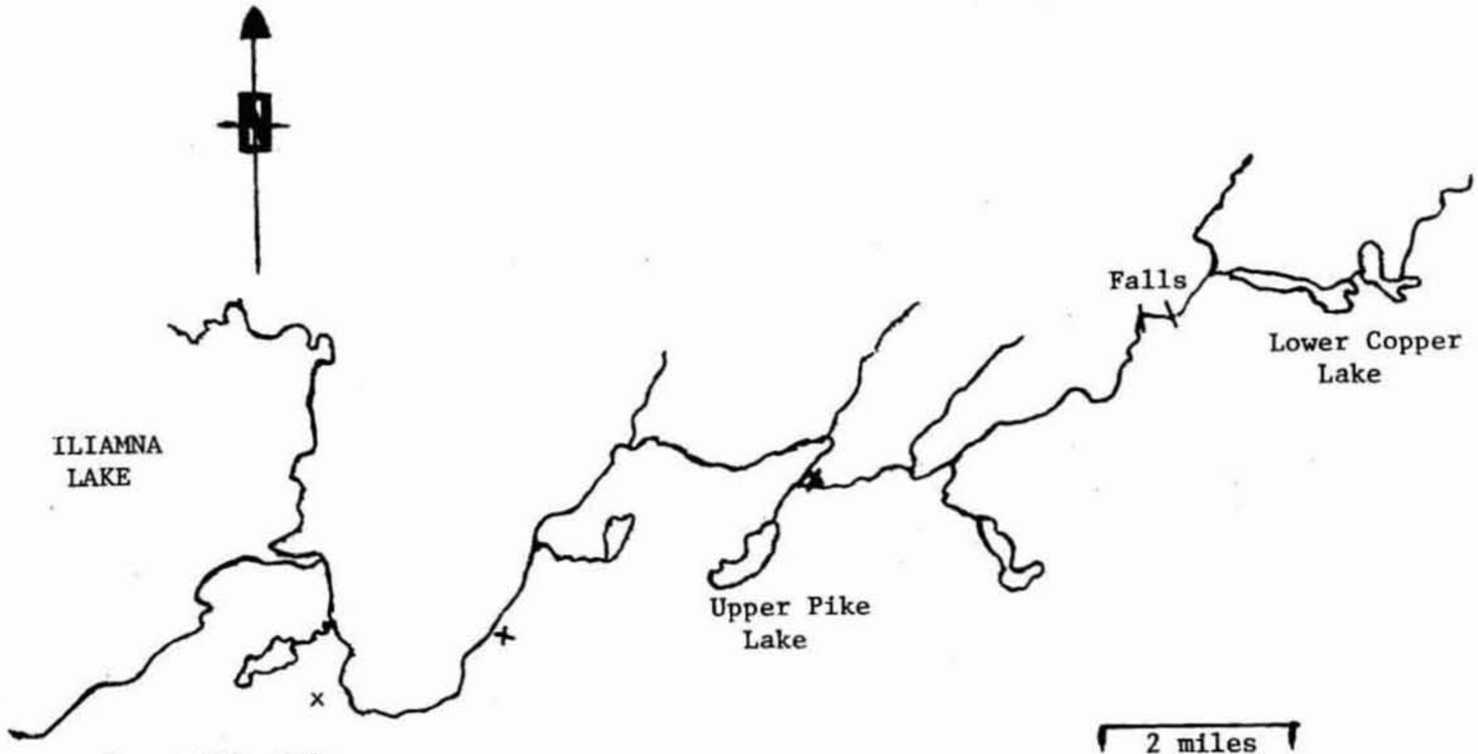


Figure 1. Kakhonak River, surveyed on August 3-7, showing campsite, electroshocking sites, and waterfalls.

COPPER RIVER



x Campsites
/ Waterfalls

FIGURE 2. Copper River, surveyed on September 28-October 3, showing campsites and waterfalls.

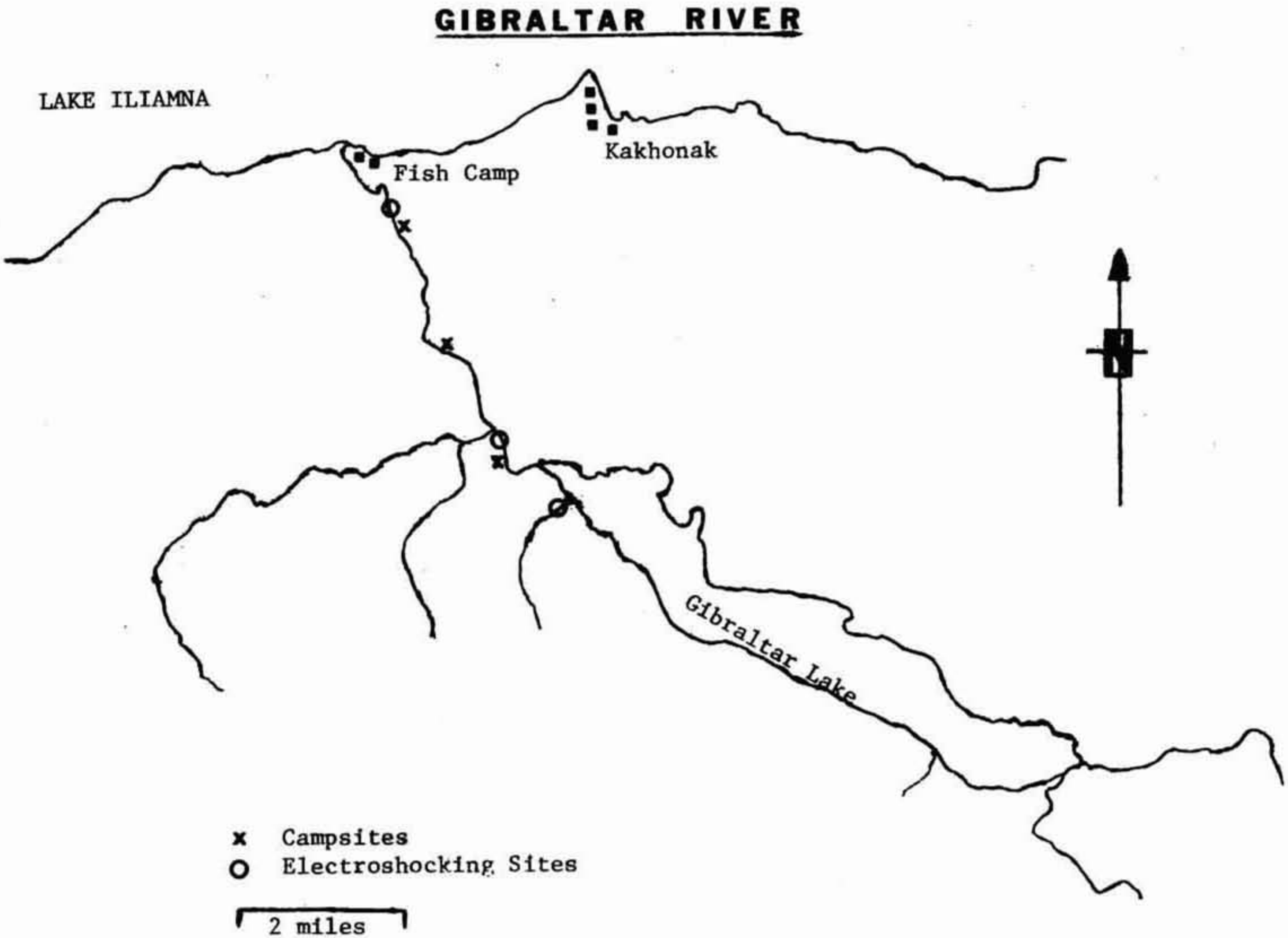


FIGURE 3 . Gibraltar River, surveyed on September 9-12, showing campsites and electrofishing sites.

MORAINE CREEK

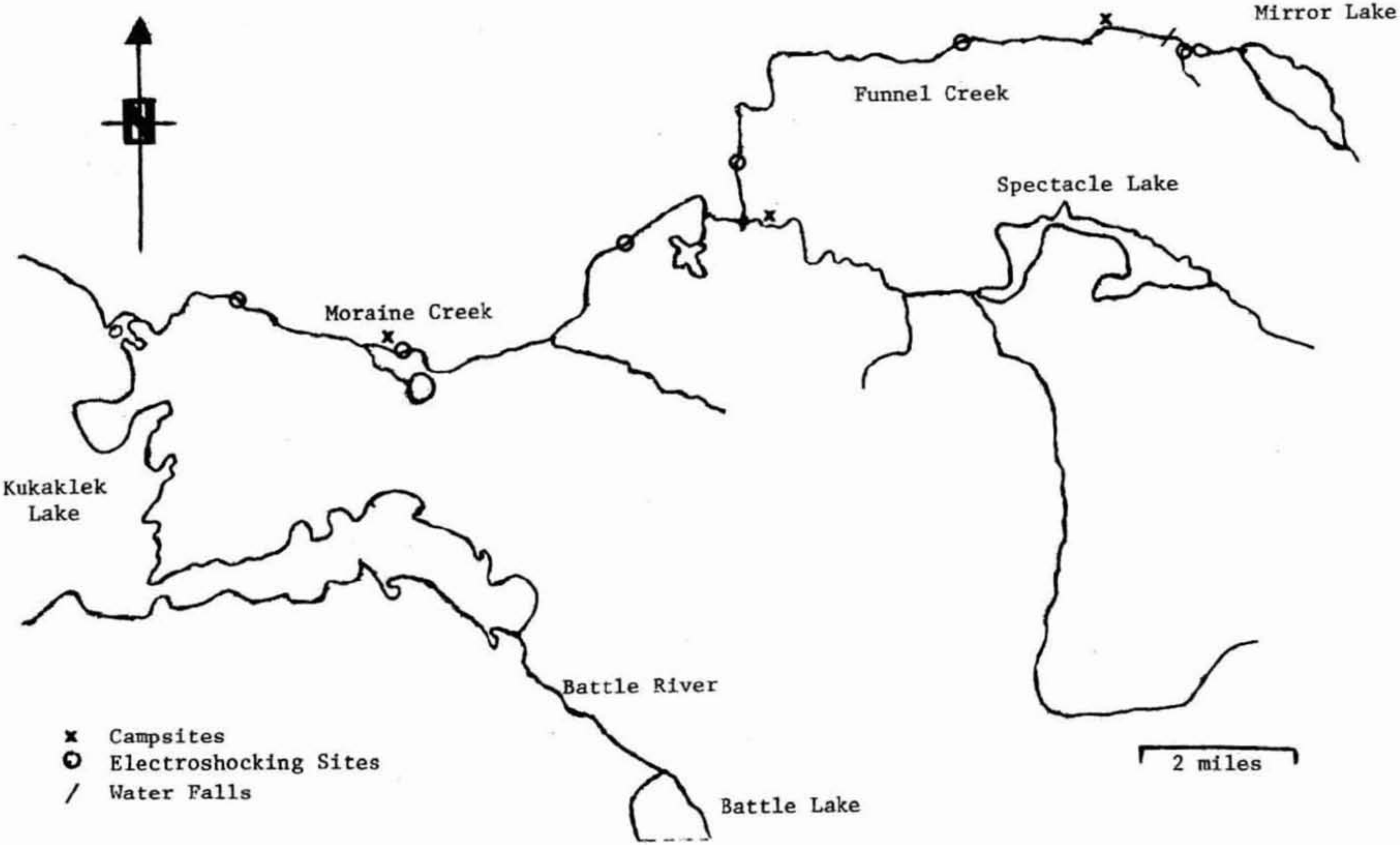


FIGURE 5. Moraine Creek, surveyed on August 21-24, showing campsites, electrofishing sites, and waterfalls.

NANUKTUK CREEK

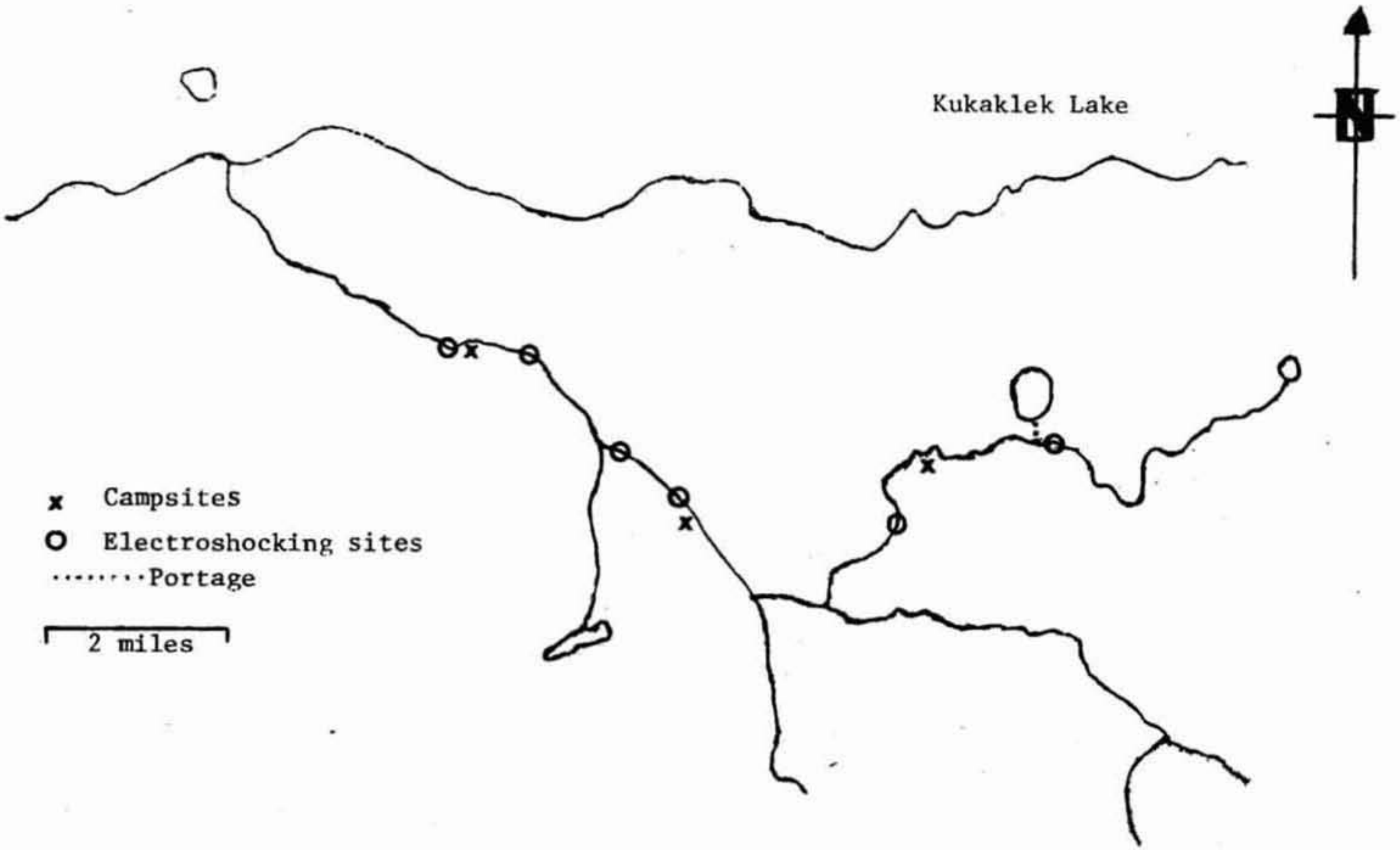


FIGURE 6. Nanuktuk Creek, surveyed on September 16-19, showing campsites, electrofishing sites, and portage.

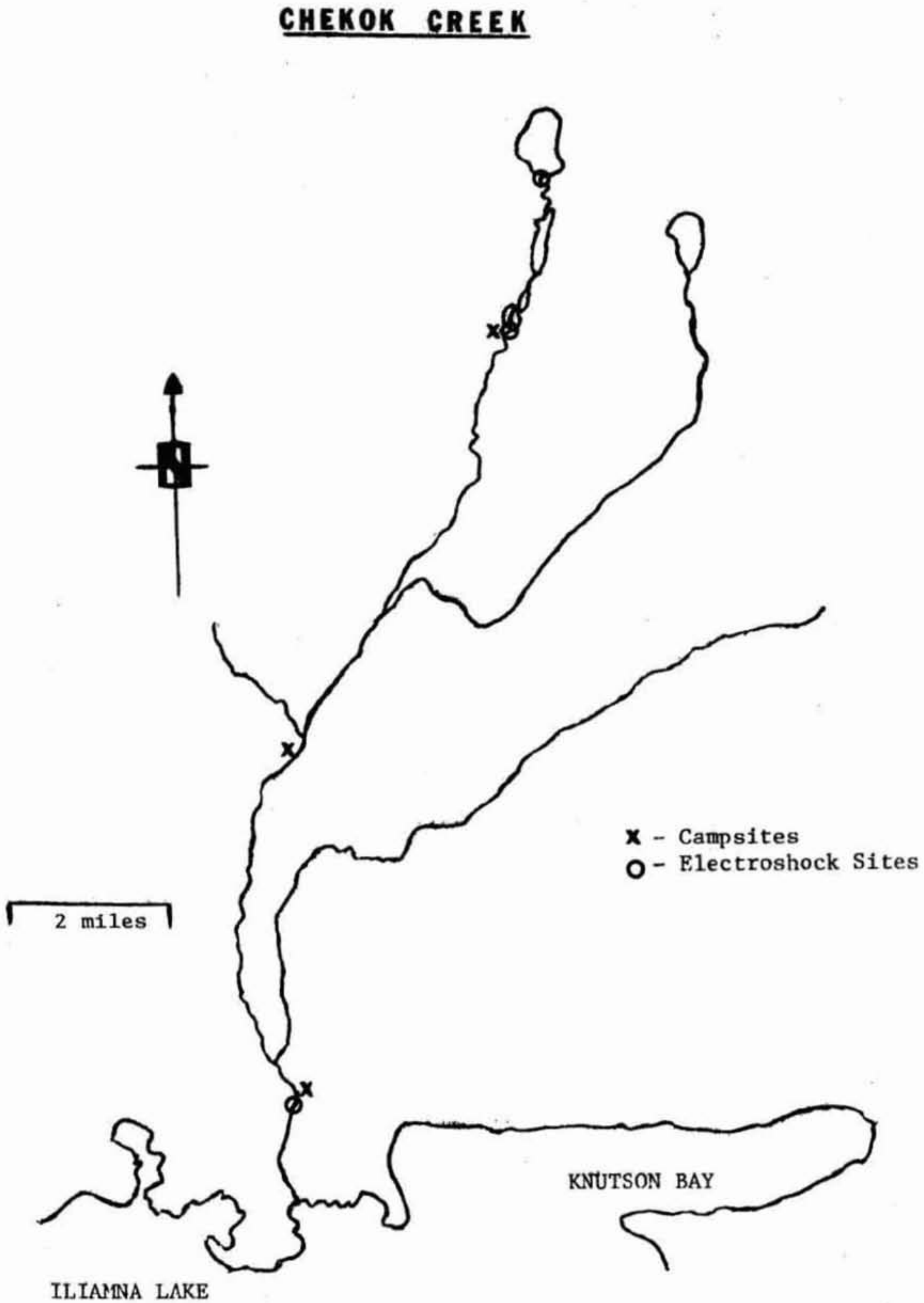


FIGURE 7. Chekok Creek, surveyed on July 25-30, showing campsites and electrofishing sites.

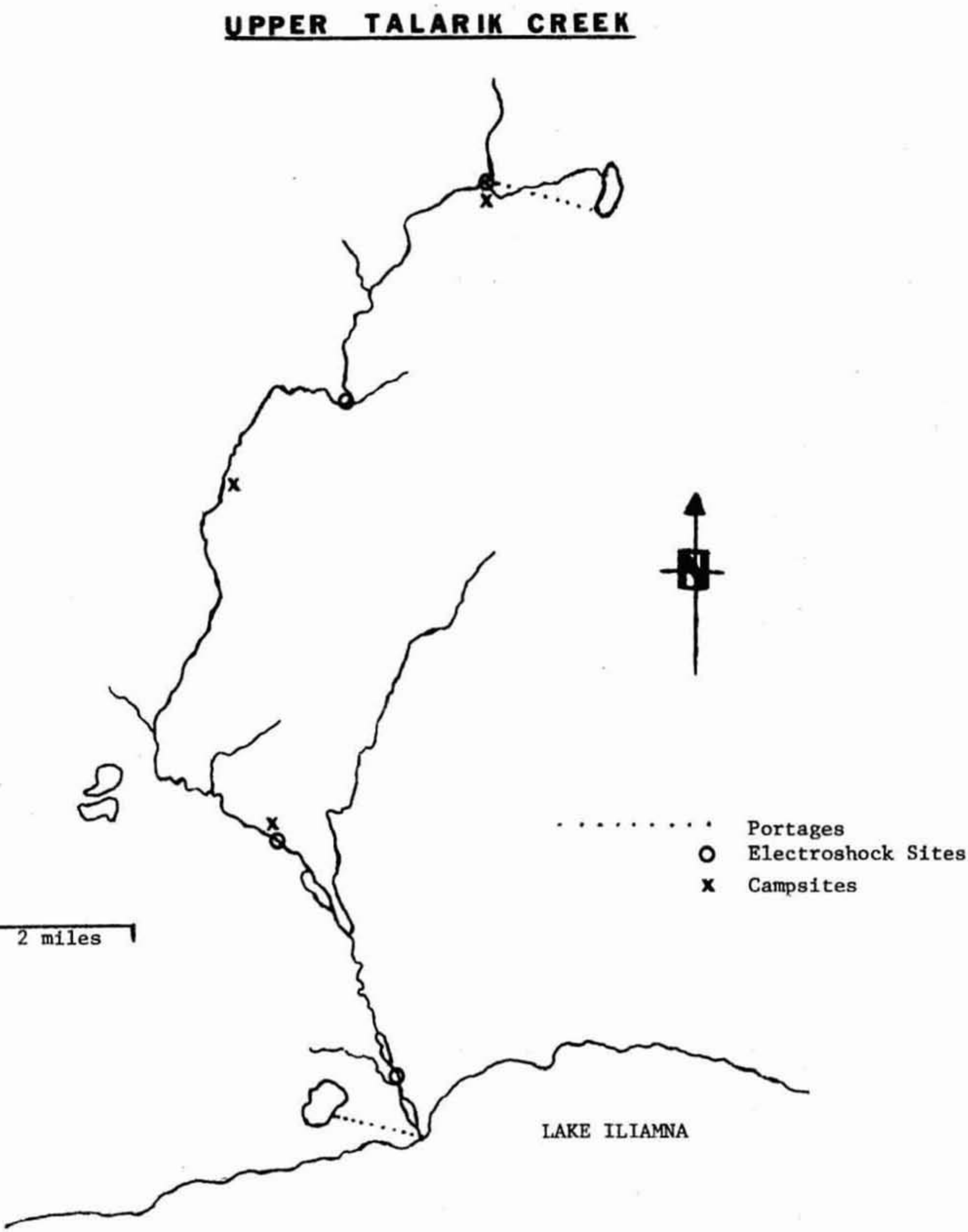


FIGURE 8. Upper Talarik Creek, surveyed on July 18-21, showing campsites and electroshock sites.

Table 8. Results of Stream Surveys, Kvichak Drainage, July-October, 1976.

Stream	Date	Miles Surveyed	Species Present*	Number Captured	Length Range (mm)	Fry Captured
Upper Talarik Creek	July 18-21	23.9	RT	23	57-358	-
			GR	18	34-420	X
			DV/AC	11	32-280	X
			SS	8	48- 53	X
Chekok Creek	July 25-30	15.0	RT	109	29-431	X
			DV/AC	38	39-438	X
Kakhonak River	August 3-7	28.5	RT	42	27-364	X
			GR	5	161-348	-
			LT	3	400-410	-
Belinda Creek	August 10-13	9.5	RT	106	31-351	X
			GR	66	56-360	X
			DV/AC	8	167-288	-
Funnel-Moraine Creek	August 21-24	17.0	RT	19	78-546	-
			GR	17	295-461	-
			DV/AC	40	30-690	X
			LT	7	405-567	-
			NP	1	85-	-
Gibraltar River	Sept. 9-12	6.0	RT	190	41-555	X
			DV/AC	10	93-262	-
Nanuktuk Creek	Sept. 16-19	13.0	RT	29	32-127	X
			GR	31	100-421	-
			DV/AC	63	41-471	X
			SS	35	41-193	X
Copper River	Sept. 28-Oct. 3	9.0	RT	18	300-574	X

RT = Rainbow Trout
GR = Arctic Grayling
DV/AC = Dolly Varden-Arctic Char
SS = Coho Salmon
LT = Lake Trout
NP = Northern Pike

Table 9. Length Frequencies of Rainbow Trout Captured During 1976 on Several Selected Streams in the Kvichak Drainage.

Length Range (mm)	Upper Talarik Creek		Chekok Creek		Kakhonak River		Belinda Creek		Funnel-Moraine Creek		Gibralter River		Nanuktuk Creek		Copper River	
	ES*	H&L**	ES	H&L	ES	H&L	ES	H&L	ES	H&L	ES	H&L	ES	H&L	ES	H&L
25-49	-	-	5	-	8	-	24	-	-	-	8	-	21	-	-	-
50-74	5	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
75-99	4	-	5	-	-	-	1	-	1	-	7	-	1	-	-	-
100-124	2	-	2	2	-	2	-	4	9	-	11	-	5	-	-	-
125-149	4	-	-	5	-	1	-	5	1	-	1	-	1	-	-	-
150-174	2	-	1	7	-	1	-	24	-	-	1	-	-	-	-	-
175-199	1	-	-	17	-	1	-	24	-	-	-	-	-	-	-	-
200-224	-	3	2	17	-	9	-	14	-	-	-	2	-	-	-	-
225-249	-	1	-	15	-	9	-	4	-	-	-	2	-	-	-	-
250-274	-	-	-	10	-	2	-	1	-	-	-	4	-	-	-	-
275-299	-	-	-	6	-	6	-	-	-	-	-	-	-	-	-	-
300-324	-	-	-	5	-	2	-	-	-	-	-	25	-	-	-	2
325-349	-	-	-	3	-	-	-	-	-	-	-	32	-	-	-	2
350-374	-	1	-	3	-	1	-	2	-	-	-	19	-	-	-	6
375-399	-	-	-	1	-	-	-	-	-	-	-	19	-	-	-	1
400-424	-	-	-	1	-	-	-	-	-	-	-	12	-	-	-	2
425-449	-	-	-	2	-	-	-	-	-	1	-	11	-	-	-	1
450-474	-	-	-	-	-	-	-	-	-	1	1	9	-	-	-	1
475-499	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
500-524	-	-	-	-	-	-	-	-	-	4	-	2	-	-	-	2
525-549	-	-	-	-	-	-		-	-	1	-	5	-	-	-	-
550-574	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
575-599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	18	5	15	94	8	34	25	81	11	8	30	160	29	0	0	18

* Electroshock
** Hook & Line

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25-49	-	-	5	-	8	-	24	-	-	-	8	-	21	-	-	-
50-74	5	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
75-99	4	-	5	-	-	-	1	-	1	-	7	-	1	-	-	-
100-124	2	-	2	2	-	2	-	4	9	-	11	-	5	-	-	-
125-149	4	-	-	5	-	1	-	5	1	-	1	-	1	-	-	-
150-174	2	-	1	7	-	1	-	24	-	-	1	-	-	-	-	-
175-199	1	-	-	17	-	1	-	24	-	-	-	-	-	-	-	-
200-224	-	3	2	17	-	9	-	14	-	-	-	2	-	-	-	-
225-249	-	1	-	15	-	9	-	4	-	-	-	2	-	-	-	-
250-274	-	-	-	10	-	2	-	1	-	-	-	4	-	-	-	-
275-299	-	-	-	6	-	6	-	-	-	-	-	-	-	-	-	-
300-324	-	-	-	5	-	2	-	-	-	-	-	25	-	-	-	2
325-349	-	-	-	3	-	-	-	-	-	-	-	32	-	-	-	2
350-374	-	1	-	3	-	1	-	2	-	-	-	19	-	-	-	6
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400-424	-	-	-	1	-	-	-	-	-	-	-	12	-	-	-	2
425-449	-	-	-	2	-	-	-	-	-	1	-	11	-	-	-	1
450-474	-	-	-	-	-	-	-	-	-	1	1	9	-	-	-	1
475-499	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
500-524	-	-	-	-	-	-	-	-	-	4	-	2	-	-	-	2
525-549	-	-	-	-	-	-		-	-	1	-	5	-	-	-	-
550-574	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
575-599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	18	5	15	94	8	34	25	81	11	8	30	160	29	0	0	18

* Electroshock
** Hook & Line

Table 10. Observed Angler Use and Float Rating of Selected Streams Surveyed During 1976.

Stream	Observed Angler Use	Float Rating
Upper Talarik Creek	None observed, but remains of campfires and tent site indicate recent use at mouth of stream.	Difficult due to shallow water, poor access to upper stream areas, numerous sweepers, and numerous small log jams.
Chekok Creek	None observed or reported by local residents.	Difficult due to small volume of water and rockiness in upper reaches and sweepers and numerous log jams in lower area. Put-in area is suitable. Take-out area is questionable for most people, due to the necessary portaging of gear to a place where a plane can get in, unless Iliamna Lake is calm. Anyone planning to go down this creek with float gear should plan on a lot of walking and lining.
Kakhonok River	Apparently some angling occurs at the outlet to Moose Lake, on certain tributaries to Kakhonak Lake, at the outlet to Kakhonak Lake, and below the lowest falls on Kakhonak River. One private cabin and canoe were observed.	Difficult in the rivers due to big white water, four waterfalls, and numerous swift rocky areas.
Belinda Creek	Three anglers were observed fishing the stream near our put-in lake. Foot prints and lost fishing tackle further downstream indicate they've been in on other recent occasions also. The road from the Big Mountain White Alice installation to Lake Iliamna continues down the beach to the outlet of Belinda Creek. This is to provide residents of the site with recreational fishing. Access to other stream areas is limited by a lack of lakes suitable for float plane use.	Overall, difficult. Belinda Creek has some of everything (rocks, sweepers, bedrock outcrops, log jams, shallows). The upper area near the put-in lake is easy floating, but the canyon more difficult. There are no falls or severe rapids. There is no good place to get picked up right at the mouth of the creek, unless Lake Iliamna is calm. However, approximately one mile to the east of the mouth there is a spit lake that's suitable for small float planes.
Funnel-Moraine Creek	Four anglers were observed on the stream.	Fairly easy stream to float. Some walking necessary in upper Funnel Creek. One small falls in upper Funnel Creek must be portaged (15-20 foot portage). Moraine Creek has one small rapids area that is floatable, with caution. Beware of brown bears. Put-in and take-out lakes are suitable for large and small float planes.

Table 10. (Cont.) Observed Angler Use and Float Rating of Selected Streams Surveyed During 1976.

Stream	Observed Angler Use	Float Rating
Gibraltar River	During the four days of our trip we observed only 2 anglers on the river. They fished for at least two days each. We found monofilament line and a couple of lures downstream indicating that some anglers have visited the mid-river canyon area. Local villagers indicated that some anglers have fished the Gibraltar River outlet area, but none were there when we arrived and little evidence of recent use was noted.	Fairly easy to float. Some walking or pulling the boat is necessary in periods of low water. If Lake Iliamna is rough, a pick-up can be arranged at the village of Kakhonak.
Nanuktuk Creek	Apparently some occurs. We saw no anglers. We did find one lure in the creek, plus campfire remains at the outlet, and other debris at the outlet where people have camped or at least spent some time.	The stream isn't an easy float due to its small, shallow, brushy, at-times-rocky nature. A portage is necessary to get to it initially. The take-out area is at the mercy of the winds whichever way they blow. But there are no waterfalls or serious rapids in the stream

Table 11. A Comparison of Three Brooks River Creel Censuses Conducted During Years 1954, 1975, and 1976.

	Years		
	1954*	1975**	1976**
Angler Hours	843	3,209	3,435
Fishing Days	227	715	846
Hours Per Day	3.7	4.5	4.1
Rainbow Trout			
Caught	694	831	710
Retained	139	134	140
Dolly Varden-Arctic Char			
Caught	20	38	52
Retained	Unknown	16	17
Grayling			
Caught	94	304	606
Retained	Unknown	64	78
Red Salmon			
Caught	98	1,179	2,585
Retained	20	199	491
Lake Trout			
Caught	0	81	123
Retained	0	25	50
Northern Pike			
Caught	0	4	2
Retained	0	0	1
Silver Salmon & Unknown Species			
Caught	0	1	16
Retained	0	0	5
Fish/Day	4.0	2.1	4.8
Fish/Hour	1.07	0.76	1.19
Rainbow/Hour	0.82	0.26	0.21

* Approximately 75% of all anglers were interviewed.

** Approximately 60% of all anglers were interviewed.

Table 12. Chinook Salmon Harvest and Escapement Data for the Naknek-Kvichak System, 1970-1976.

Years	Commercial Catch Naknek-Kvichak	Naknek River Sport Fish & Subsistence Catch & Escapement	Branch River Escapements	Total River*
1970	19,037	7,390	4,950	31,377
1971	10,254	5,483	1,450	17,187
1972	2,262	4,859	2,350	9,471
1973	951	4,271	1,050	6,272
1974	480	5,250	1,700	7,430
1975	964	4,952	7,200	13,116
1976	2,979	10,650	8,750	22,379

The 1976 Naknek River chinook salmon escapement was the largest since the late 1960's. The low sport fish catch of 800 (table 6) compared to past years reflects the low effort expended on the river and the relatively short season. Table 12 presents all available catch and escapement data for the Naknek-Kvichak district. Since it is impossible to apportion the commercial catch to either the Naknek or the Branch River, the total numbers in Table 12 represent the best estimate of the annual run to the Naknek-Kvichak drainage. It is important to note here that in years of big runs, the commercial fishery is the major user of the resource. Table 6 presents the estimated sports catch and subsistence harvest for the Naknek drainage. Note again in Table 6 that the subsistence fishery took nearly as many chinook salmon as the sport fishery in 1975 and 1976.

Until effort increases significantly in the Naknek River for chinook salmon and in the Kvichak River for rainbow, it is recommended we discontinue creel censuses on these streams and concentrate on spawning enumerations as an indicator of stock strength. In the future, it may be advantageous to repeat the census for comparisons to previous years' data. Since there is very little apparent sport fish effort on chinook salmon in the Branch River, it is also recommended we discontinue these surveys. The Commercial Fish Division has indicated that they will continue the Branch River surveys.

Finally, we should expand our survey efforts into areas where we suspect an existing or potential sport fishery may increase. The first such system chosen for to study is the Mulchatna drainage.

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