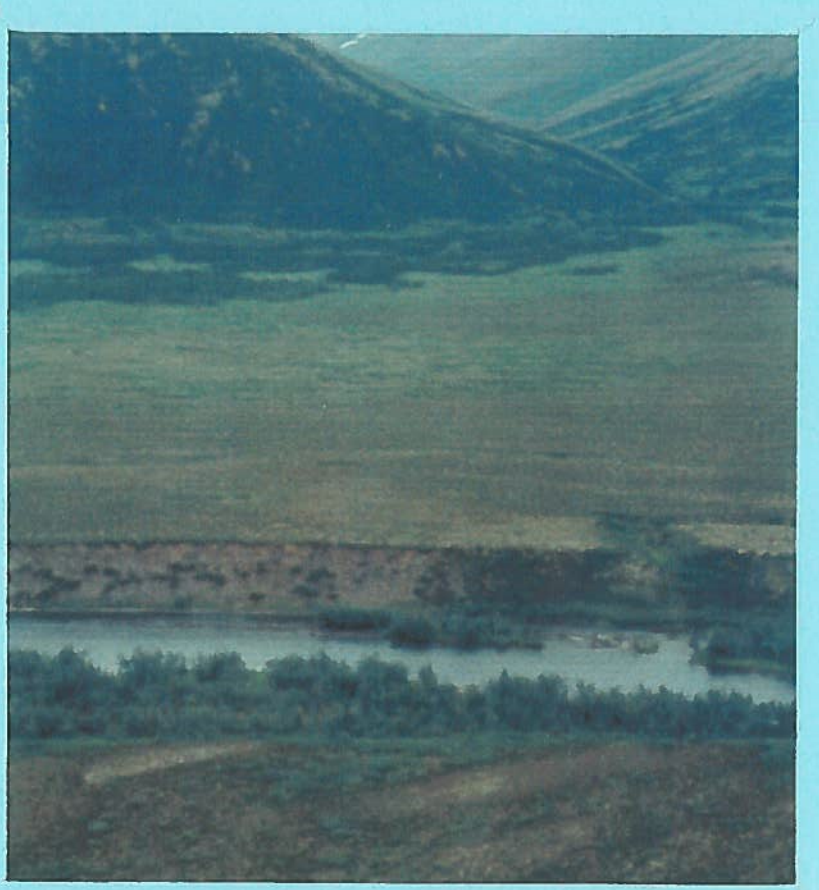
WRB 98-04

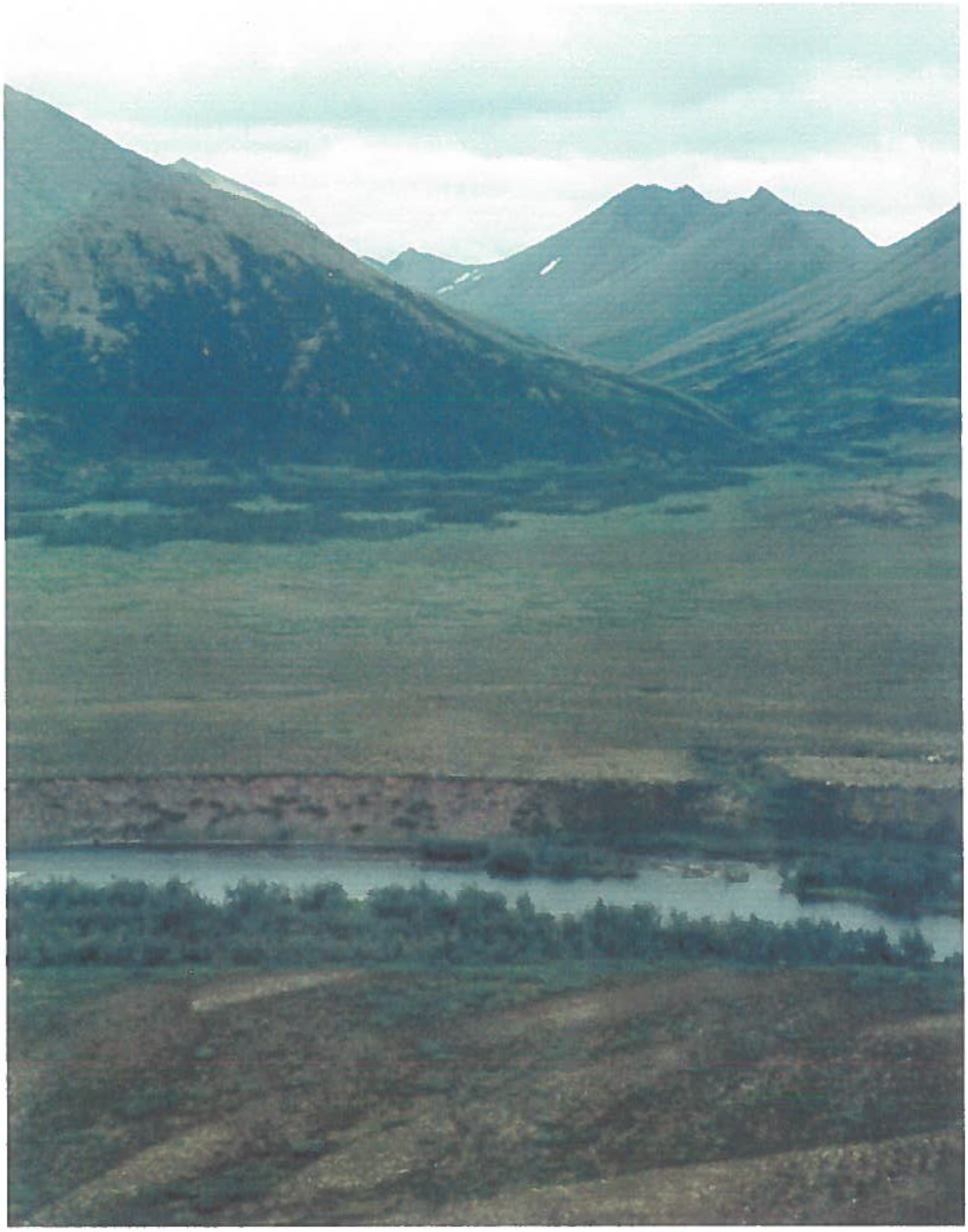
KANEKTOK RIVER

NAVIGABILITY REPORT



Water Resources Branch
Region 7
U.S. Fish and Wildlife Service

December 1998



Upper Kanektok River

WRB 98-04

KANEKTOK RIVER

NAVIGABILITY REPORT

Warren Keogh

Water Resources Branch
Region 7
U.S. Fish and Wildlife Service

December 1998

SUMMARY

This navigability report is a comprehensive examination of the main stem Kanektok River. The report reviews existing information about the physical character, land status, navigability status, and historical use of the river. Navigability issues are discussed without making recommendations or determinations of navigability.

The 89-mile long, clear water Kanektok River heads in the Kilbuck and Ahklun Mountains and discharges into Kuskokwim Bay near the village of Quinhagak. The upper 69 miles of the river lie within the Togiak Wilderness area, and the entire river is located within the Togiak National Wildlife Refuge boundary. The Kanektok River drains Kagati Lake, a 4-mile long water body situated in a high, dry tundra basin. From the lake outlet, the river begins as a primarily single channel stream with a relatively steep gradient, bisecting foothills and outlying mountains. The Kanektok evolves into a winding, multi-braided stream with insular features. In its lower reaches, the river meanders across a coastal plain of flat wet tundra. Several descriptive accounts of physical characteristics exist but no consequential hydrologic data are recorded for the river. Reported impediments to travel along some river segments include shallow and swift water, sweepers, boulders, narrow channels, and submerged trees and rootwads.

That segment of the Kanektok River in the non-wilderness area of Togiak NWR (the lower 20 miles) flows primarily through conveyed lands. Nearly all these lands have been conveyed to the Quinhagak village corporation (Qanirtuuq, Inc.), Calista Corporation, or recipients of Native allotments. Approximately 38 small tracts exist along the upper 69 miles of the Kanektok River that flow through the Togiak Wilderness. These tracts are Native allotments and historical site selections concentrated in two areas of the river's middle region.

The State of Alaska considers the main stem Kanektok River, several of its tributaries, Kagati Lake, and some Kagati Lake tributaries to be navigable water bodies. The State notified the Department of the Interior of its intent to file quiet title action for the submerged lands of the main stem Kanektok River in 1992 and 1996. The Bureau of Land Management (BLM) twice made Kanektok River navigability determinations for conveyance purposes only. In 1979 the BLM determined the river navigable from its mouth to a point 20 river miles (RMs) upstream. In 1989 the BLM determined the river navigable through or along small tracts between RM 20 and RM 70. The U.S. Army Corps of Engineers and the U.S. Coast Guard have not made navigability determinations.

Pre-statehood boat use on the Kanektok River is associated primarily with subsistence hunting, fishing, and trapping. Copious evidence exists of pre-historic hunting activity in the vicinity of Kagati Lake and the upper Kanektok River. In 1898 USGS explorers, who were guided by Quinhagak villagers paddling single-hatch kayaks, lined a wooden canoe upstream to Kagati Lake and beyond. They noted subsistence fishers and hunting encampments at points along the river. After spring break-up, open, shallow-draft, skin boats called "Angyaqatak" were used by Quinhagak villagers and other lower Kuskokwim Yu'pik people to descend the Kanektok River

following hunting and trapping activities of "squirrel camp". "Angyaqatak" were likely used in association with early century reindeer herding activities in the upper Kanektok basin as well. In one early instance of motorized boat use around 1935, several Yu'pik people ascended the Kanektok River to Kagati Lake in a home built wooden boat with a nine horsepower outboard. In the late 1930s, a territorial mining engineer described the Kanektok River as a river boat access route to Kagati Lake.

Since 1959 Kanektok River boat use has centered around subsistence and sportfishing activities. Subsistence use has continued uninterrupted from the pre-statehood era. In the early 1980s, nearly 100 households in Quinhagak owned outboard powered boats that served dual purposes as subsistence and commercial fishing craft. Typical Quinhagak boats at that time were 16-20 foot long aluminum skiffs powered by 35-75 horsepower motors.

The Kanektok River's outstanding fish resources (five Alaska salmon species, rainbow trout, grayling, and other gamefish) have attracted large and growing numbers of recreational sport fishers. Very little guided and unguided sportfishing occurred in the 1960s, but became a dominant activity on the river following dramatic growth during the 1980s. The Kanektok River has been the most heavily used river in the Togiak NWR since the 1980s. In 1996 it accounted for more than half of all sport fishing activity on Refuge waters. Sport fishers today typically travel by motorboats or rowed inflatable rafts, such as 18-foot, flat-bottomed "Lowe" aluminum skiffs with 40 horsepower jet outboards and 16-foot "Avon" inflatable boats with aluminum rowing frames and oars. Guided and unguided floaters usually fly to Kagati Lake via floatplane, put-in at the lake outlet, and float the Kanektok River to Quinhagak. One currently active sportfishing guide reportedly has floated the river over 100 times. Guided activity with motorboats is most intense on the lower 20 mile section of the river while float boat activity is most prevalent on the upper reaches. The cost per person of guided Kanektok River sport fishing packages in 1992 ranged from $2,000 to $5,000 for 6-10 day excursions. In 1997, the USFWS estimated 2,112 guided and non-guided sportfishers used the Kanektok River for a total of 10,984 use days.

In addition to subsistence and sportfishing activities, numerous State and Federal agency staff on official business have made several trips by motorboat, jetboat, canoe, or inflatable raft the entire length of the Kanektok River since statehood.

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Appendix D Kanektok River use data, 1984-1988 (Lisac 1989).

Appendix E Kanektok River use information, 1997 (Stanley and Hill 1997).

Appendix F Kanektok River guides, outfitters, and agents on the Internet, March 24, 1998.

I. INTRODUCTION

This report is one of a series of navigability research reports by the Services's Region 7, Water Resources Branch staff. The report is in response to 1992 and 1996 State of Alaska Attorney Generals notices of intent to file quiet title actions on submerged lands in Alaska (Cole 1992; Botelho 1996). Notices filed with the Secretary of the Interior, most recently December 17, 1996, claim that title to certain submerged lands were passed to Alaska at the time of statehood (Botelho 1996). The submerged lands claimed include those of the Kanektok River. The claim is based on the equal footing doctrine, the Submerged Lands Act of May 22, 1953, and the Alaska Statehood Act. The Kanektok River is one of only five Alaska rivers listed in both State of Alaska notices. The earlier notice (Cole 1992:4) describes the river's submerged lands as "Mouth of Kanektok River to Kagati Lake," while the most recent notice (Botelho 1996) simply reads "Kanektok River."

This comprehensive, rather than exhaustive, report examines the navigability of the main stem Kanektok River. The report makes no recommendations or determinations of navigability. This compilation of hydrologic and historical information should enhance river management by the Service, especially by Region 7 and Togiak NWR staff. The report will facilitate any future navigability litigation or negotiation between the U.S. Department of Interior and the State of Alaska. It presents current navigability status and land status information. The report focuses on the Kanektok River's physical characteristics and historical use. The use-oriented examination of the river differentiates pre-statehood from post-statehood activities.

The Region 7 Water Resources Branch, Division of Realty, Anchorage, funded and prepared this research report. A navigability file regarding the Kanektok River complements this written report and is located in the Water Resources Branch office.

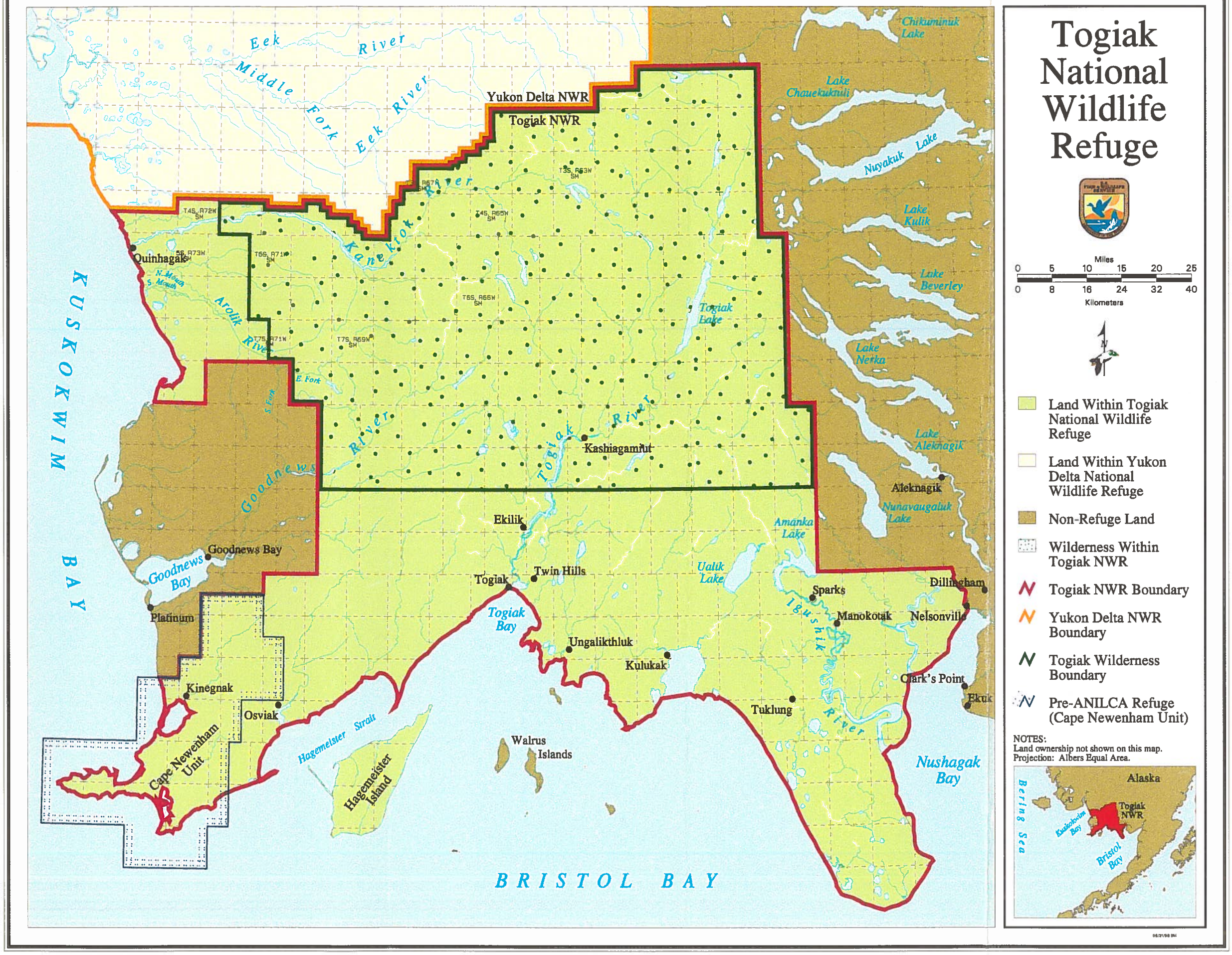


Figure 1. Togiak National Wildlife Refuge

II. RIVER BASIN CHARACTERISTICS

A. Environment

1. Location

The Kanektok River is situated in southwest Alaska, more or less midway between the communities of Bethel and Dillingham. This 89-mile long, clear water stream extends from Kagati Lake to Kuskokwim Bay. The entire main stem Kanektok River is within the boundaries of the Togiak National Wildlife Refuge. The upper 69 miles of the river are within the Togiak Wilderness (USGS 1981). Major tributaries include Takshilik, Nukluk, Klak, Kanuktik, Amakatatee, and Paiyun creeks, all joining the main stem Kanektok River in its upper half (USGS 1979a). Most Kanektok River tributaries head at mountain lakes.

2. Physiography

The Kanektok River heads at Kagati Lake, a 2,481 acre water body. The river drains a 910 square mile area of the Eek and Ahklun mountains (USGS 1979a; Alt 1978; USFWS 1990). The Kanektok River flows west for 89 miles, discharging into the Kuskokwim Bay estuary near the village of Quinhagak (Alt 1978). The physiography of the Kanektok valley can be segregated into three different regions. The upper region is a high, dry tundra, glacially worn plateau. The middle region has a steep gradient riverbed that bisects the foothills and outlying mountains. The lower region of the river flows across a coastal plain of flat wet tundra (White and Boyce 1978; NPS 1983; USGS 1979a).

3. Climate

Climatologic data for Quinhagak and the Kanektok River area are limited. There are no weather stations in the river basin. Weather information from adjacent communities, climate information covering broad areas, and early descriptive accounts of the river region permit the following generalized profile.

The Kanektok River basin lies in a transitional climate zone. The maritime climate of Kuskokwim Bay and the continental climate of interior Alaska influence the Kanektok basin. Storm patterns originating over the Bering Sea significantly impact area climate. Inland continental influences result in warm midsummer temperatures and very cold midwinter temperatures (U.S. Army COE 1990:7). The varied topography, ranging from flat coastal tundra to foothills and mountains, affects local temperatures, precipitation, and wind conditions.

Average daily temperatures in the Kanektok River area range from January minimums of 4°F to July maximums of 58°F to 64°F (Wahrhaftig 1965:9,10). Record temperatures from nearby Platinum on the Kuskokwim Bay coast, approximately 40 miles south of Quinhagak, range from

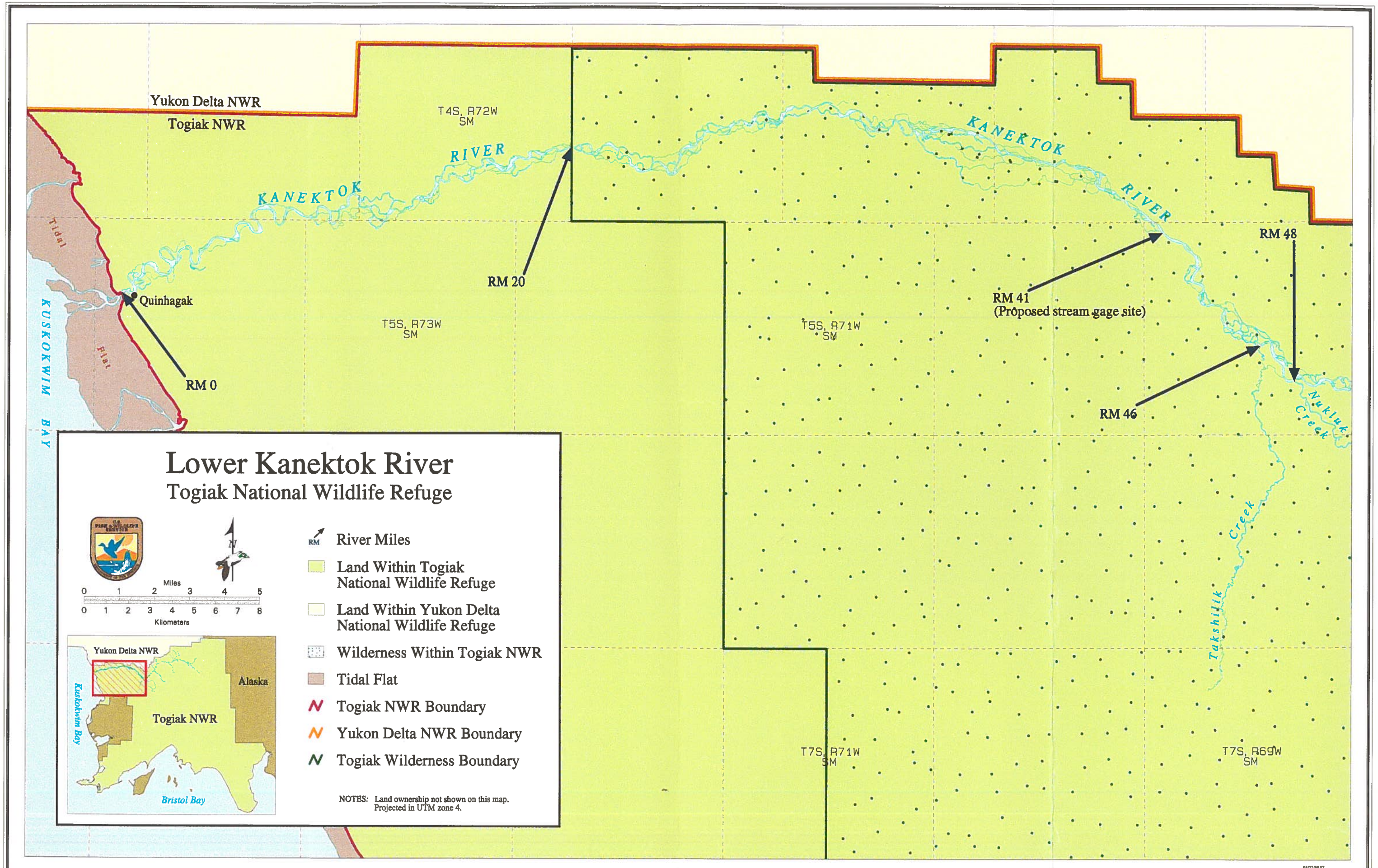


Figure 2. Lower Kanektok River

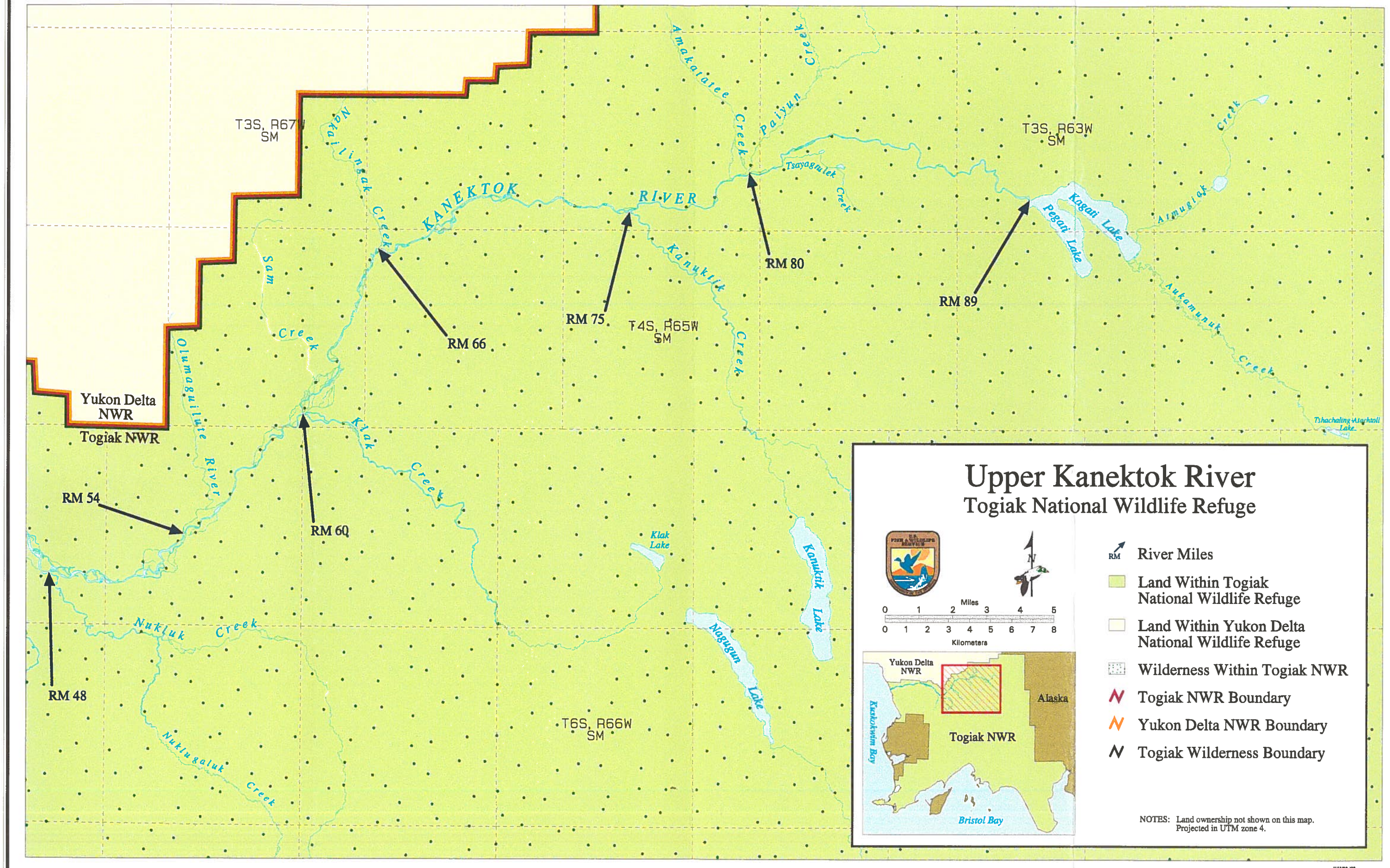


Figure 3. Upper Kanektok River

a high of 82°F to a low of -34°F (U.S. Army COE 1990:7). The R & M Consultants (1979:5) estimated temperature extremes ranging from 86°F to -50°F.

Area wide, most precipitation occurs in the fall, while spring is the driest season (USFWS 1986:43). In the general area, annual snowfall averages 60 to 70 inches along the coast but may be greater than 150 inches in the mountains (USFWS 1986:43). Mean annual precipitation varies along the Kanektok River according to a USGS climate chart (Jones and Fahl 1994). The mean annual precipitation along the lower half of the river basin is approximately 20 to 30 inches. Precipitation for the upper half of the river basin increases progressively upstream from the river's middle region, ranging from 30 to 60 inches (Jones and Fahl 1994). No climate data are available for Quinhagak at the mouth of the Kanektok. However, nearby Platinum averages 22 inches of annual precipitation that includes 43 inches of snowfall (Alaska Department of Community and Regional Affairs 1997; Cushing, pers. comm. 1997). Most snowfall occurs during the period from November to March. Bethel, along the lower Kuskokwim River and about 50 miles north of Quinhagak, has annual precipitation and snowfall values similar to Platinum.

Winds blow almost continually along the coast (USFWS 1986:43). Prevailing winds in the area have been described as northerly and northeasterly from October through March. South and west winds prevail from April through September (Darbyshire & Associates 1991; USFWS 1986). Winds are most variable during spring months.

The Togiak NWR Kanektok River Rangers made daily weather observations from their base camp at RM 22 during the summer of 1997 (Stanley and Hill 1997:4). They recorded daily cloud cover, visibility, wind direction and velocity, minimum and maximum temperatures, precipitation, and "river level." Seasonal Ranger camps on the Kanektok River have existed since 1991 (Miller, pers. com. 1998a). Pre-1997 River Ranger reports may contain additional weather observation data. Summer season weather observations were recorded by Refuge staff at the Kagati Lake camp from 1984 through 1990 (Lisac, pers. com. 1998b).

B. River Characteristics

Information presently available for the Kanektok River is primarily descriptive. Quantitative hydrologic data are scarce, limited, and dated. Federal and State government agency reports offer limited but valuable descriptive observations of the river's physical characteristics. The most informative reports are:

- *Inventory and Cataloging of Sport Fish and Sport Fish Waters of Western Alaska* (Alt 1978).

- *Draft Wild and Scenic River Study* (National Park Service 1983).

- *Kanektok River Fishery Investigations, 1983* (Dlugokenski, et al. 1983).

Review of historical records shows neither the USGS nor the USFWS has conducted an in-depth hydrologic assessment of the river. The Water Resources Branch, USFWS, Anchorage, installed a stream gage on the Kanektok River in August of 1998. The gage was placed at latitude 59°46.66' and longitude 161°05.10', approximate RM 41. It is anticipated the stream gage will be maintained and monitored through the water year 2002.

1. Kagati Lake

The large and significant Kagati Lake is the headwater of the Kanektok River (USGS 1979a). The four mile-long lake is divided into two twin arms, called Kagati Lake and Pegati Lake. A long, narrowing peninsula separates the nearly mile-wide arms, leaving only an approximate 1,000 foot-wide connecting channel between them. The lake is oriented northwest to southeast and has four inlet streams, including Atmugiak Creek and Aukumunuk Creek (USGS 1979b). The Kanektok River outlet is located at the westernmost point of the Kagati Lake (USGS 1979b). Though some baseline physical, biological, and chemical data were once collected for Kagati Lake, no discharge data for the four inlet streams were recorded (Alt 1978; MacDonald 1996:11).

The lake has a surface area of 2,481 acres and a maximum depth of 168 feet (MacDonald 1996:21; Alt 1978:44). The USGS (1979b) maps Kagati Lake elevation at 1,039 feet. This clearwater lake has observed Secchi disk values ranging from 23 to 29 feet (Alt 1978:45; MacDonald 1996:22). Rolling tundra and patches of dwarf willow surround Kagati Lake, whose narrow shore "is comprised of fine to medium gravel and some large rubble that quickly grades to large gravel and rubble" (MacDonald 1996:11). The lake is especially important as a red salmon spawning lake and is considered "one of the most scenic of all lakes in the Kuskokwim Bay drainage"(Alt 1978:43,45). The National Park Service (1983:15) described the lake as a "deep translucent, green-colored lake bordered by towering snowcapped mountains and ridges."

2. Physical character of the river

Historical description

J.E. Spurr (1900:85), a USGS geologist making the first scientific exploration of the Kanektok River area in 1898, offered the first written description of the Kanektok River. He generally characterized the river as rapid and often multi-channeled. He wrote:

> *"The fall of the river also becomes greater, making the stream very difficult to ascend, especially in time of high water. . . . The river forks many times into streams of nearly equal size, but the main or trunk stream, which we ascended, heads in beautiful lake several miles in length, which the natives call Kagati, a word meaning the source."*

Channel(s)

Twelve adjoining USGS topographic "Goodnews" quadrangle maps (1:63,360 scale) show the Kanektok River as a double-lined water body for its entire length. The twelve maps, all within the 1:250,000 scale *Goodnews Bay, Alaska* map area (USGS 1979a), were drawn photogrammatically from aerial photographs taken in 1952-1957 and 1972-1973. The USGS maps depicting the Kanektok River are:

Map Title	Date	Scale
Goodnews Bay, Alaska	1979	1:250,000
Goodnews (C-8) Quadrangle	1954	1:63,360
Goodnews (D-8) Quadrangle	1954	1:63,360
Goodnews (D-7) Quadrangle	1954	1:63,360
Goodnews (D-6) Quadrangle	1954	1:63,360
Goodnews (C-6) Quadrangle	1954	1:63,360
Goodnews Bay (C-5) Quadrangle	1979	1:63,360
Goodnews (D-5) Quadrangle	1954	1:63,360
Goodnews (D-4) Quadrangle	1954	1:63,360
Goodnews Bay (D-3) Quadrangle	1979	1:63,360.

Authors have reported varying lengths for the Kanektok River from Kagati Lake outlet to river mouth, i.e., 75 miles (Tileston 1973; Dinneford 1982), 85 miles (Alt 1977:40), 90 miles (Dlugokenski et al. 1983:4), 91 miles (USFWS 1986:51; 1990:2), and 93 miles (NPS 1983:1; Wagner 1991:2; Adams 1996:2). This author measured a distance of 89 miles between river mouth and lake outlet with a wheeled measuring device on USGS topographic maps (1:63,360 scale) noted above. Point to point measured miles may vary, depending upon the channel measured in multi-channeled segments of the river. Tributaries join the Kanektok River at the following river miles, as measured by this writer and rounded off to the nearest mile:

River Mile (RM)	Place
0	Mouth of Kanektok River at Kuskokwim Bay
1	Quinhagak
20	Wilderness Boundary
41	Stream gage (proposed site)
46	Takshilik Creek
48	Nukluk Creek
54	Olumaguilute River
60	Klak Creek
61	Sam Creek
66	Nakailingak Creek

75	Kanuktik Creek
79	Amakatatee Creek
80	Paiyun Creek
81	Tsayagtulek Creek
89	Kagati Lake outlet

The USGS maps, dated 1954 and 1979, show the main stem Kanektok River is predominantly multi-channeled with numerous meanders and insular features of varying size on the lower 45 miles. The maps depict the upper 45 miles as primarily single-channeled with occasional small islands and a gradually narrowing channel width approaching Kagati Lake. Alt (1978:40) generally described the river as "extremely braided" and having "many unstable channels."

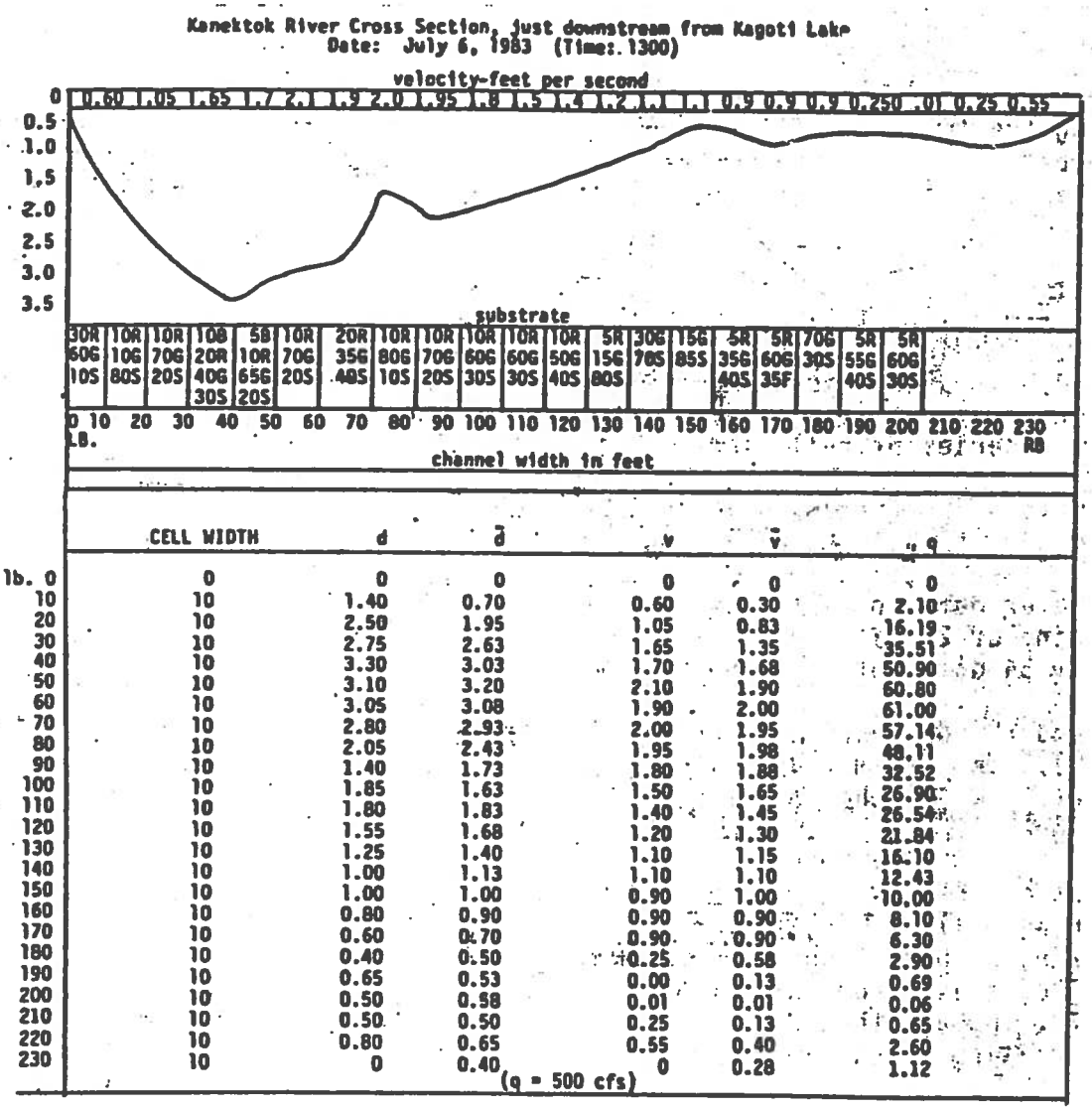
In 1898, the USGS geologist Spurr (1900:85,133-136) similarly described the river as depicted years later on the topographic maps cited above. He wrote:

> *"The current is rapid and often splits into several channels, like similar portions of other Alaskan rivers. . .*
>
> *"Below the junction of the Klak* [Creek] *the river becomes swifter and spreads into many channels, while directly above this junction it narrows again into a single channel. The banks along here are of coarse, stratified gravel 30 feet high. . ."*

In 1975, ADF&G biologist Alt (1978:40) described the lower 11 miles of the Kanektok River as being "200' wide". In 1997, ADF&G biologist DuBois (Menard and Caole 1998:109) measured a stream width of 169 feet at the fish counting tower (approximate RM5). Service biologists Dlugokenski, et al. (1983:15) described the lower 11 mile reach of the river in 1983 as flowing through a single channel and usually wider than 200 feet. The Service biologists then described the section of the river from RM 11 to about RM 48 as "extremely braided" with "undercut areas" and continuous sweepers. Further upstream, between Klak Creek confluence (RM 60) and Kanuktik Creek confluence (RM 75), they called the river "continuously braided, except for canyon areas where it was confined to a single channel". At a "Kanektok River side-channel" near the confluence of Klak Creek, they measured a maximum depth of 3.4 feet. Upstream of the Kanuktik Creek confluence (RM 75) to Kagati Lake outlet, the river was characterized as "primarily confined to a single channel 100' to 125' wide" and lacking pooled water and undercut banks. At a site 150 feet downstream of the Kagati Lake outlet, they found an average depth of 2 feet across a 230 foot wide channel transect (Figure 4).

Wagner (1991:2) less precisely described the river as "fairly narrow" and as "extremely braided and has many unstable and newly cut channels." Wagner described an approximate 20-mile long reach of the Kanektok River just above the wilderness boundary. She characterized three segments of this portion of the river as having a highly braided lower segment with no obvious

Figure 4. Kanektok River cross section [photcopy]
(Dlugokenski, Wagner, and Weide 1983:8)



	CELL WIDTH	d	$\bar{d}$	v	$\bar{v}$	q
lb. 0	0	0	0	0	0	0
10	10	1.40	0.70	0.60	0.30	2.10
20	10	2.50	1.95	1.05	0.83	16.19
30	10	2.75	2.63	1.65	1.35	35.51
40	10	3.30	3.03	1.70	1.68	50.90
50	10	3.10	3.20	2.10	1.90	60.80
60	10	3.05	3.08	1.90	2.00	61.00
70	10	2.80	2.93	2.00	1.95	57.14
80	10	2.05	2.43	1.95	1.98	48.11
90	10	1.40	1.73	1.80	1.88	32.52
100	10	1.85	1.63	1.50	1.65	26.90
110	10	1.80	1.83	1.40	1.45	26.54
120	10	1.55	1.68	1.20	1.30	21.84
130	10	1.25	1.40	1.10	1.15	16.10
140	10	1.00	1.13	1.10	1.10	12.43
150	10	1.00	1.00	0.90	1.00	10.00
160	10	0.80	0.90	0.90	0.90	8.10
170	10	0.60	0.70	0.90	0.90	6.30
180	10	0.40	0.50	0.25	0.58	2.90
190	10	0.65	0.53	0.00	0.13	0.69
200	10	0.50	0.58	0.01	0.01	0.06
210	10	0.50	0.50	0.25	0.13	0.65
220	10	0.80	0.65	0.55	0.40	2.60
230	10	0	0.40	0	0.28	1.12

(q = 500 cfs)

main channel, a braided middle segment that usually contained a main channel, and a less braided upper segment often bordered by bluffs.

A USFWS (1990:2) report describes the "upper portion" of the Kanektok River as a "single channel as it flows through mountain valleys." The river's lower portion is described as becoming "very braided with multiple side channels." A BLM navigability determination document generally reports the river as "clearly more than three chains [198 feet] wide" in several segments (Boden 1989:2).

Gradient and Velocity

The Kanektok Rivers drops 1,039 feet over a linear distance of 89 miles; an average slope of 11.5 feet per mile (USGS 1979a). The RM 0 to RM 20 river segment has the shallowest gradient with a fall less than 5 feet per mile. The river segment between Klak Creek and Paiyun Creek (RM60-RM80) has the steepest slope with a fall of over 400 feet in 20 miles. Figure 5 illustrates the Kanektok River gradient.

Service biologists Dlugokenski, et al. (1983:9-10,14-15) measured and estimated stream velocity along the Kanektok River. They measured a maximum velocity of 2.0 feet per second (fps) at a site 150 feet downstream of the Kagati Lake outlet with a Marsh-McBurney current meter. (See Figure 4.) In a Kanektok River side-channel near the Klak Creek confluence, they measured a maximum velocity of 2.8 fps. On wide, single-channel reaches of the lower river near Quinhagak, they estimated stream velocities at 1 fps.

Assessing the entire length of the river, ADF&G fishery biologist Alt (1978:40) stated, "The current averages 3-4 mph . . ." He also estimated the "pool to riffle ratio" for most of the river. Alt divided the river (estimated length 85 miles) into four segments and estimated stream velocity for each segment. He observed:

- Section 1 (Mile 0-11) — Current 2-4 mph.
- Section 2 (Mile 12-33) — Current 2-4 mph; water was "quite high"; pool to riffle ratio 3:1 with "many backwaters and deep pools."
- Section 3 (Mile 33-59) — Current "is generally 3-5 mph, although faster in some of the canyons"; pool to riffle ratio is "nearly even, and there are many deep holes and eddies."
- Section 4 (Mile 59-85) — Current 2-4 mph; pool to riffle ratio "approximately 1:1."

The USFWS fishery biologist Teresa Wagner (1991:2) conducted rainbow trout investigations on the Kanektok River from 1985 to 1987. She described the river as "swift" and noted that the average velocity was "1.4-1.7 m/sec", or about 4.6 to 5.6 feet per second. Neither observation sites nor method of measurement was reported. Spurr (1900) generally referred to the current in the same terms, describing it as "swift" or "rapid." Granzow (1973:3) estimated "9 knot" current velocity at the site of his 1973 canoe accident near RM 58.

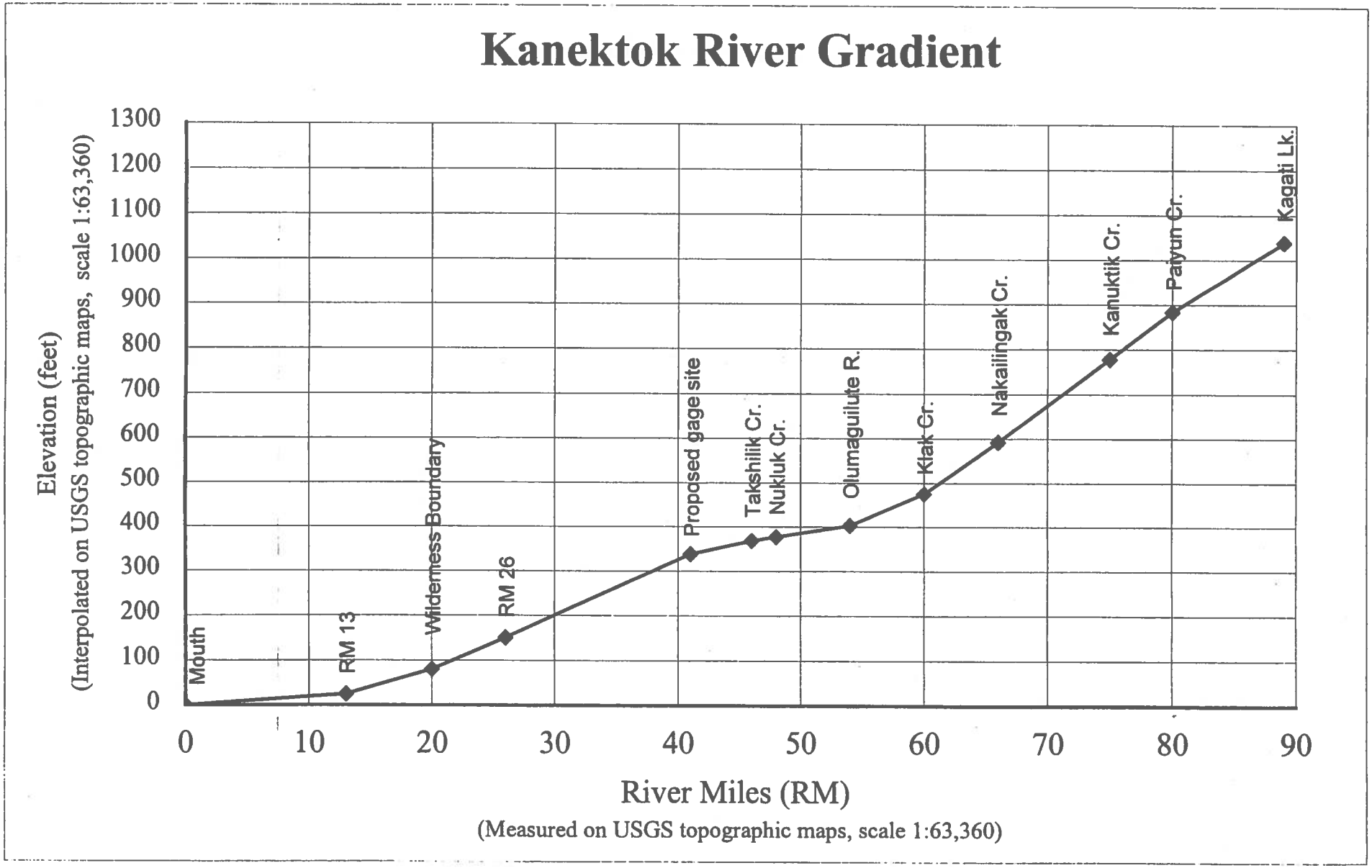


Figure 5. Kanetok River gradient

The ADF&G biologist DuBois (Menard and Caole 1998:109) calculated an average velocity of 2.69 fps at approximate RM 5 on July 27, 1997. The maximum velocity recorded for this discharge observation was 3.21 fps (Appendix A).

The USGS geologist Harrington (1921:208-209) estimated stream velocity for the Kanektok River and three other streams, the Arolik, Tunulik, and Goodnews rivers. He described this group of rivers as having "sluggish" lower courses but having faster water upstream. He wrote:

> *"Farther upstream the current quickens but is by no means uniform, as it alternatively accelerates on the riffles and slackens on the stretches in between. It was necessary to line the boat up some of these riffles, and it was judged that the current was running at a rate of 7 or 8 miles an hour."*

Discharge and depth

In a search for Kanektok River hydrologic data, only three measured stream discharges were found, all taken at different places. The ADF&G took a single measurement in 1975 in the vicinity of RM 50, the USFWS took a discharge measurement in 1983 near RM 89, and the ADF&G measured discharge in 1997 near RM 5.

The ADF&G biologist Kenneth Alt (1975:42) recorded a streamflow measurement of 1,882 cfs on the Kanektok River during his float trip and river assessment of July 25, 1975. The measurement was taken on a Kanektok River site located "above Nukluk Creek." His method of discharge measurement is unreported. Alt reported the Kanektok River "water levels in 1975 were slightly higher" than water levels observed two years earlier. He also described 1975 river stage as "quite high" downstream of his discharge measurement site.

On July 6, 1983, Service biologists chose a Kanektok River site for stream discharge measurement "just downstream from Kagati Lake" (Dlugokenski, et al. 1983:5,8). Measuring depths and velocities with wading rod and current meter, they calculated streamflow at 500 cfs and an average depth of 2 feet (Figure 4).

On June 27, 1997, the ADF&G recorded streamflow a short distance upstream from the fish counting tower. Using a wading rod and and a Price AA current meter, L. DuBois (Menard and Caole 1998:109) recorded a flow of 799.9 cfs and calculated an average depth of 1.97 feet (Appendix A). The maximum recorded depth was 2.68 feet. During a period of water stage observations at the tower between June 12 and August 21, highest water was recorded on June 12 and lowest water was recorded on August 7-8.

During 1997, Kanektok River water levels were "extremely low during most of the season" (Stanley and Hill 1997:1,4). The USFWS River Rangers Stanley and Hill, based at RM 22 for the entire summer, reported highest water levels on September 2 and lowest water levels on

August 9, noting a 1.5 foot difference between the high and low. They characterized river stage with the statement, "The depth of the water varies greatly from less than a foot in the upper river to as deep as 10-15 feet in the lower river during high water periods." Their season-end report records a statement from 68-year old, lifelong Quinhagak resident David Hunter who said the river was the lowest he had ever seen it.

Streambed

The USFWS described the substrate of the Kanektok River as predominantly gravel throughout the course of the river (USFWS 1990:2; Wagner 1991:2). The National Park Service (1983:18) offers a more detailed assessment of the Kanektok River streambed:

> *"Downstream from Kagati lake to about Kanuktik Creek, the streambed is composed of medium to large gravel. Below the Kanuktik, the streambed is at first mostly a single channel passing through several small canyons. The gravel, in varying sizes, continues but gradually smaller as the riverbed moves out onto the coastal plain. The lower river is still gravelly but more sand and silt are present."*

The ADF&G biologist Kenneth Alt (1978:40-42) offers the most detailed description of the Kanektok River streambed. He described sections of the Kanektok River as follows:

> *"Section I* [RM 1-11] . . . *The lower 5.5 miles of the stream has considerable sand and silt overlaying the gravel bottom, while the remainder has a bottom composed of 50% fine gravel, 40% medium gravel, and 10% sand and silt.* . . .
> *"Section II* [RM 12-33 not described]. . . .
> *"Section III* [RM 33-59]. . . *There are many large boulders scattered throughout the streambed.* . . . *Bottom composition is 20% fine gravel, 20% medium gravel, 40% large gravel and 20% rubble and bedrock.* . .
> *"Section IV* [RM 59-85]. . . *The bottom is composed of 10% fine gravel, 40% medium gravel, 40% large gravel and 10% rubble.*

The USFWS biologist Dlugokenski and others (1983:9) quantified substrate at their 1983 streamflow cross section site just below the Kagati Lake outlet ar RM 89. They found mostly gravel, considerable sand, some rubble, and occasional boulder substrate (Figure 4).

Sediment

In a July 1975 descent of the Kanektok River, Alt (1978:40-45) generally described water clarity ranging from a "dirty green" on lower reaches to "clear" on upper reaches. He attributed the dirty green coloration of river water in the lower 11 miles to the "river cutting into mud banks." Further upstream between about RM 12 and RM 33, he considered river water "clear green in

color" during a time of high water. Water at the Kagati Lake outlet was clear, with a Secchi disc reading of 27 feet.

The National Park Service (1983:17) described the Kanektok River as, "water clarity is generally excellent, except following heavy periods of rain." According to the *United States Coastal Pilot 9* (NOAA 1983:320), the Kanektok River runs "fine clear mountain water at all stages of the tide."

Freeze-up and Break-up

Reported annual periods of break-up and freeze-up vary. The U.S. Army Corps of Engineers (COE) (1990:7) cites specific dates for river ice conditions at Quinhagak. The COE notes the average last date to be safely on the river is April 28 and break-up allows boating on the river in early May. It also states the earliest date the Kanektok River ice is thick enough to support a person's weight averages November 7, though R&M Consultants (1979:5) wrote that river ice at Quinhagak "is generally safe for human passage by October 21." They also estimated the last date of "safe ice" on the river as May 15. Wolfe et al. (1984:318-326) reports the Kanektok River ice usually breaks up in April and that freeze-up occurs in late October and November. The USFWS (1991:113) also reports April as break-up month. In contrast however, a National Park Service assessment of the Kanektok River states break-up of lake and river ice occurs in early June while freeze-up of the river occurs in September (NPS 1983:10). The USFWS biologist Lisac (pers. com. 1998) notes that Kagati Lake commonly is ice bound until late June, but has been ice bound as late as July 1.

Flooding

The main flood season for the Kanektok River is during spring break-up, which usually occurs in May (R&M Consultants 1979:7). Regarding Quinhagak, the U.S. Army COE (1990:8) notes that most of the village is built on a raised upland that lies entirely within a 100-year flood plain. Only the lowest areas of the village are subject to annual flooding. The potential for flooding from storm-driven waves is high. Kanektok River flooding at Quinhagak during break-up occurs infrequently and is usually not a problem for the village (COE 1990:8; R&M Consultants 1979:7). The USFWS biologist Lisac (pers. com. 1998) notes however that the village sewege lagoon floods annually. Wind blown high tides, rainfall, spring snowmelt, and river ice break-up coupled with ice jams cause the highest stage (R&M Consultants 1979:7).

Extent of Tidal Influence

In 1975 correspondence relating to village land selections, Peter Williams (n.d.), the Village Land Representative for Qanirtuuq, Inc. (Quinhagak village corporation), indicated to the BLM that the "exact" extent of tidal effect was 1.5 miles up the Kanektok River. The *United States Coast Pilot* for Alaska does not mention the extent of tidal influence up the Kanektok River (NOAA 1983:320-321). The R&M Consultants (1979:7) note the "great degree" of variance in

Figure 6. "Source of Kanektok", Kagati Lake
Photo by Neil Granzow, August 2, 1973
U.S. Bureau of Outdoor Recreation

Figure 7. "Kanektok River near outlet"
Photo by Pat Pourchot, August 2, 1973
U.S. Bureau of Outdoor Recreation

Figure 8. "Braided channels", Kanektok River
Photo by Neil Granzow, August 2, 1973
U.S. Bureau of Outdoor Recreation

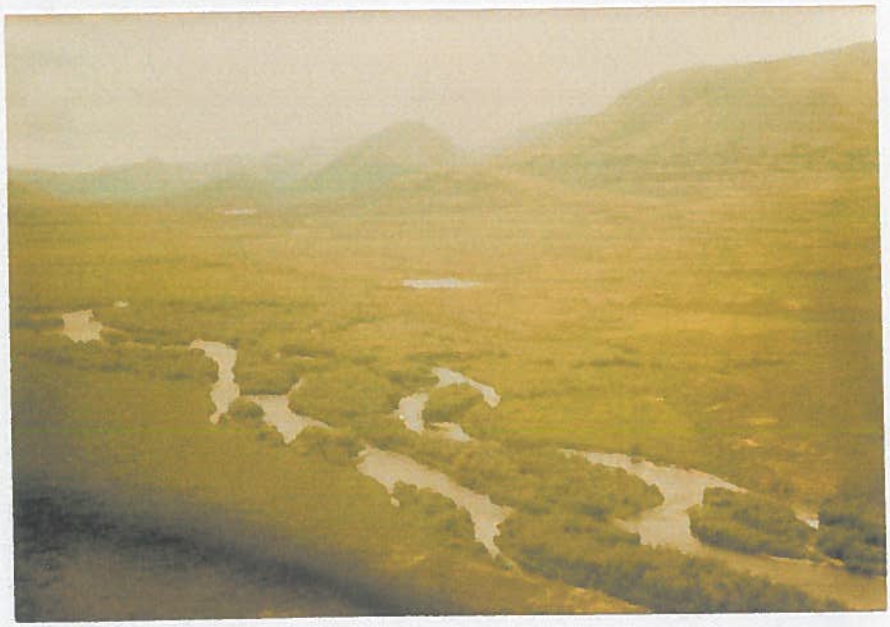


Figure 9. "Confluence of Paiyun Creek", Kanektok River
Photo by Neil Granzow, August 2, 1973
U.S. Bureau of Outdoor Recreation

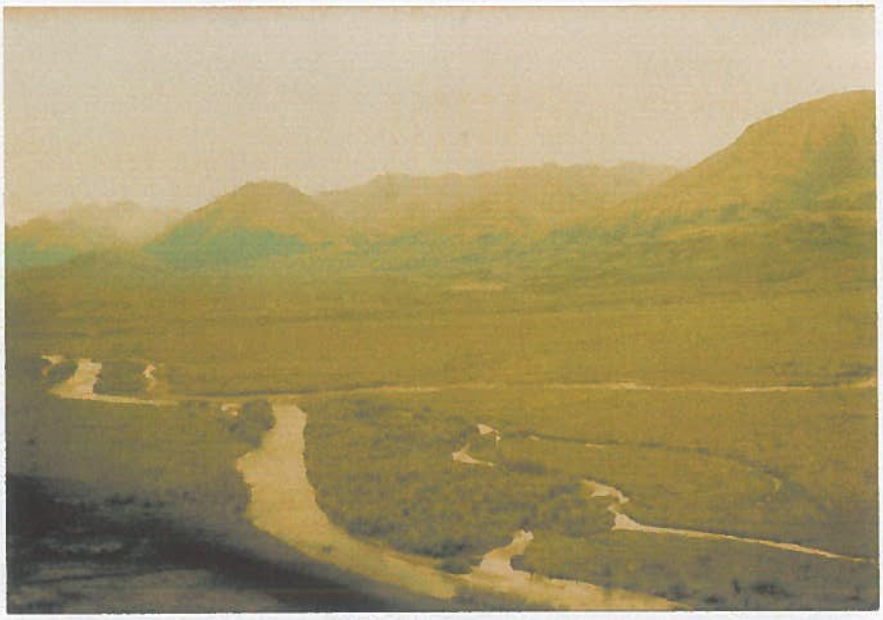


Figure 10. "Whitewater on upper Kanektok River"
Photo by Neil Granzow, June 27, 1972
U.S. Bureau of Outdoor Recreation

Figure 11. "Kanektok 5 mi. Above Nakailingak [Creek]""
Photo by Neil Granzow, August 5, 1973
U.S. Bureau of Outdoor Recreation

Figure 12. "Kanektok River, upper river, BOR-22"
Photo by Pat Pourchot, August 2, 1973
U.S. Bureau of Outdoor Recreation

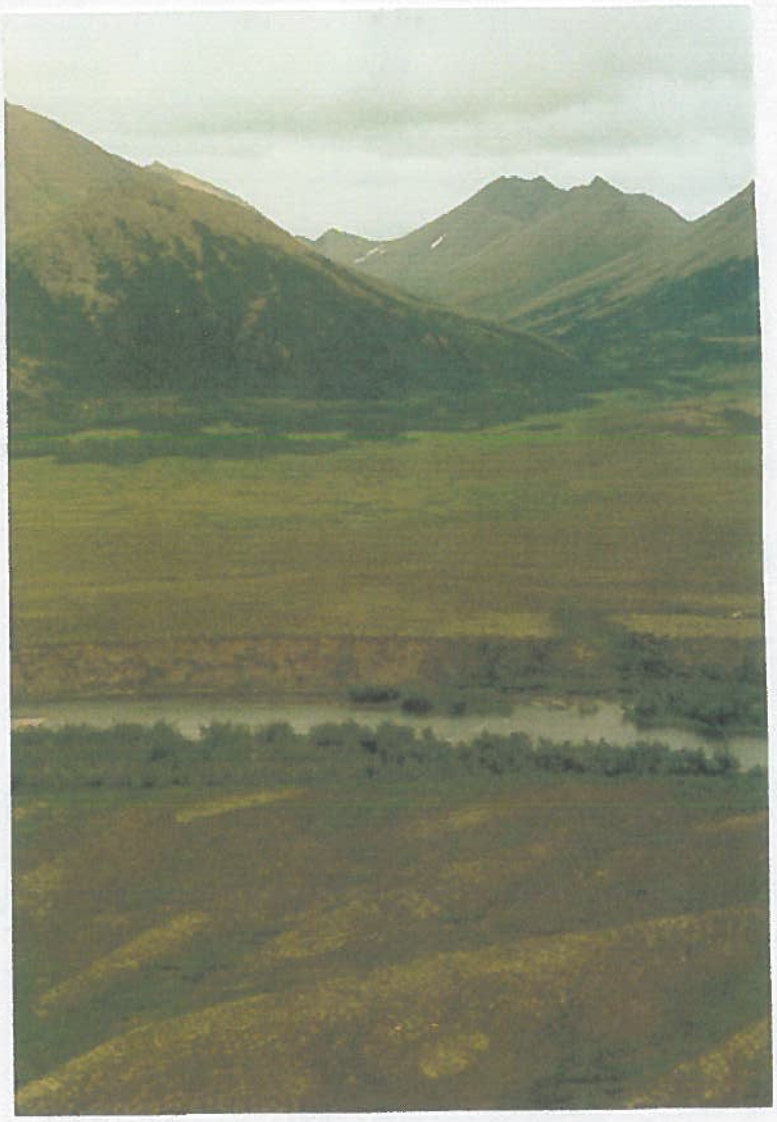


Figure 13. "Kanektok, Mile 64"
Photo by Neil Granzow, August 4, 1973
U.S. Bureau of Outdoor Recreation

Figure 14. "Kanektok, Neil's sweepers"
Photo by Lew Waller (?), August, 1973
U.S. Bureau of Land Management

Figure 15. "Kanektok, lower area"
Photo by Pat Pourchot, August 2, 1973
U.S. Bureau of Outdoor Recreation

Figure 16. "Quinhagak Village", Kanektok River
Photo by Neil Granzow, August 2, 1973
U.S. Bureau of Outdoor Recreation

water levels due to tidal influence, but do not indicate the upstream extent of tidal influence. In 1919, USGS geologist Harrington (1921:208) described the Kanektok River as "tidal" in its lower course, but less so than the Tunulik and Goodnews Rivers. He noted that boaters usually take advantage of the incoming tide when ascending the river "as there is an appreciable current on the ebb or slack tide."

Impediments and Obstructions

Quinhagak and the mouth of the Kanektok River are difficult to approach from marine waters because of the extensive mudflats bordering the shores (NOAA 1983). Launches can access the river from the bay only during the highest tides. Even smaller boats can barely get within sight of Quinhagak and stay afloat at low water. Supplies are landed with great difficulty because of the mudflats and their exposure (NOAA 1983:320; National Ocean Service 1990). There are numerous accounts of ships and boats going aground on the mud. Wolfe et al. (1984:91) noted that it is common for visiting boats and barges approaching Quinhagak to miss bends in the marine channel, run aground, and remain stuck in the mud until the next high tide.

The ADF&G biologist Alt (1978:42) described impediments on lower reaches of the Kanektok River between about RM 12 and RM 33. He noted, "This section, located on the coastal plain, had many cottonwood trees along the shore and in the stream, forming navigational hazards. . ." Along the same reach of river and continuing upstream to RM 48, Dlugokenski, et al. (1983:15) reported, this section of the river is extremely braided and sweepers constitute continuous navigational hazards." During a period of "high water" in the vicinity of "Bill Martin's camp" in July, 1985, Dlugokenski took a wrong turn on the river and inadvertently piloted an inflatable boat into a braided channel with tree hazards (Lisac, pers. com. 1998). The raft became wedged and took on an estimated 250 gallons of water. This resulted in the loss of gear and one person for awhile, who was saved by the quick action of a raft crewmember.

Several authors comment on the difficulty of boating on the upper Kanektok River. Wolfe et al. (1984:90) offered this observation:

> *"Unlike the Togiak River, the Kanektok River is relatively difficult to navigate by skiff from about 30 miles upstream* [from the mouth]. *Its swift currents, ever-changing gravel bars, and twisting channels overhung with sweepers require skillful boatmanship. Most boat travel occurs along the lower portions of the River, where the braided river channels broaden and currents diminish. Unlike the Togiak River, which is commonly navigated to Lake Togiak, the Kanektok River is infrequently traveled by boat to its source at Kagati Lake during summer."*

The Togiak NWR Public Use Management Plan (PUMP) (USFWS 1991:112) reports the Kanektok River is floatable over its entire length and that the whole river can be floated in high water conditions. The report also notes that increasing use of jet boats has probably expanded

motorboat use into the upper 65 miles of the river. The report describes river travel impediments as, "swift currents, twisting channels with sweepers, and ever-changing gravel bars throughout much of its course requiring careful navigation."

Spurr (1900:134-135) noted the presence of boulders in upper reaches of the river. Similarly, Dlugokenski, et al. (1983:9) observed "scattered large boulders up to 6' in diameter were present in the channel" in the upper 25 miles of the Kanektok River.

Shallow water has limited or slowed boat travel on the river's upper reaches. In a August 1973 reconnaissance of the Kanektok, a four-person government team experienced "quite shallow" water levels as they began their river descent (Granzow 1973:1). Granzow wrote, "we spent much of the morning dragging the canoes over rocks and gravel bars, covering approximately 7 miles in 3-1/2 hours." The National Park Service (NPS) (1983:27) mentions "occasional shallow stretches" in reference to river rafting. Alt (1978:42) refers to the upper 27 miles of the river as "clear and shallow." Kanektok River Rangers noted boat travel by subsistence users was limited during 1997 (Stanley and Hill 1997:13). They reported, "the majority of people owned prop outboards and could not access the upper portions of the river unless it was in flood stage."

In her book *The Alaska River Guide - Canoeing, Kayaking, and Rafting in the Last Frontier*, author Karen Jettmar (1993:167-169) lists four cautions for floating the Kanektok River. They are "swift current, twisting course, sweepers, log jams." She notes that the difficulty in floating the river increases in high water, with a greater danger from sweepers and submerged trees. Jettmar also noted that the "upper 55 miles constitute a swift winding watercourse, requiring quick maneuvering."

The USFWS fish biologist Wagner (1991:2) conducted rainbow trout investigations on the Kanektok River from 1985 through 1987. She described the river as swift and narrow, and:

> *"Boating is made hazardous by numerous undercut banks, newly cut channels through thick brush, and overhanging trees caused by bank erosion and beaver activity."*

The National Park Service (1983:30) stated the entire river can be floated by raft, canoe, or kayak. They also commented, "the numerous braided sections, sweepers, root wads, sometimes fast-current, and narrow, passable channels (sometimes less than 10 feet wide) can combine to upset the unskilled or unwary."

Sweepers are perhaps the most commonly noted hazard for river travel, especially for those floating downstream. Boating accidents and/or observations regarding the danger of sweepers can be found in numerous accounts of river travel (Granzow 1973; Mosby 1982; Carter 1982; Mosby and Dapkus 1986; Jettmar 1993, USFWS 1991; Wagner 1991). Granzow's (1973:2-3) field report includes an account of his near-drowning incident near the confluence of Klak Creek. While paddling downstream through an "S" bend, swift current carried him into a sweeper that

knocked him out of a canoe (Figure 14.) He credited his fellow travelers with saving his life after being forced under the sweeper. Service personnel (Lisac, pers. com. 1998) have stated that inexperienced canoeists and rafters have lost equipment during float trips and some river guides have rescued people and gear.

Whitewater classification

Karen Jettmar's (1993:17-23,167-169) recreational river guide classifies the difficulty of travel on the Kanektok River as flat water on the lower third, "easy to medium" on the middle reach, and "easy" on the upper 25 miles. She rates travel on the middle reach of the river as "medium to difficult"during "high water." She generally defines a medium level of difficulty as "frequent rapids characterized by, regular waves up to three feet," easily negotiated eddies and currents, and a channel with best routes easily recognized. Jettmar defines "difficult" as having numerous rapids with high, irregular waves, rollers, breakers, and back eddies, requiring complex maneuvering. She classifies the entire length of the river as suitable for hard-shell canoes, hard-shell kayaks, folding canoes and kayaks, inflatable canoes, inflatable kayaks, and inflatable rafts.

M. Carter's *Floating Alaskan Rivers - Whitewater & Family Floats* rates the Kanektok River as a "Class I" and "Class II" on the international whitewater scale (Carter 1982:10,28). Class I waters are considered "easy" and defined as the current having "some riffles and small waves" and stream velocity "less than hard backpaddling speed." Class II waters are considered "medium" and defined as having "some unobstructed rapids with regular waves, easy eddies and bends" where some maneuvering is required.

3. Biota

Vegetation

Vegetation cover type along the Kanektok River is primarily deciduous scrub and dwarf shrub land (USFWS 1986:56-57). Most riparian areas exhibit thick stands of willow and alder. Some scattered stands of cottonwood trees exist (Wagner 1991; Adams 1996). Downriver stands of willows and "poplars" (cottonwoods) are larger and denser than upriver stands. Poplar trees in the vicinity of Klak Creek (RM 64), Nukluk Creek (RM 52), and elsewhere are large enough to serve as eagle nesting habitat (White and Boyce 1978; Amaral and Bollinger 1985). Alt (1978:40) described Kanektok River as having a thick band of willows and some cottonwood trees along its entire course, with the exception of the upper reaches. He further described vegetation along the lower 11 miles of the river as "coastal tundra" with "few willows present." The National Park Service (1983:15) generally characterized riverine vegetation as "willow backed by wet tundra." Dlugokenski, et al. (1983:25) identified 25 plant species along the Kanektok River. Detailed vegetation descriptions for the Ahklun and Kilbuck Mountains eco-region are available (Gallant et al. 1995:36-38).

Wildlife

In 1898 Spurr (1900:86) reported the following wildlife observations for the river:

> *"During our ascent we found the banks of the river everywhere trampled down by bear, and there were many dead fish which had been half eaten and flung aside, for at this time of the year the bear revels in fish and in blueberries. Waterfowl were abundant along the entire river, and, on the whole, the region is a fairly good game country."*

Large mammals in the river area include grizzly bear, caribou, moose, and wolves. Smaller mammals include red and arctic fox, wolverine, weasel, arctic ground squirrel, beaver, muskrat, mink, land otter, lynx, and arctic hare (NPS 1983:24; Dinneford 1982:5). Bears are occasionally sighted along the Kanektok River where they congregate during salmon runs, but density appears to be low. A few moose are observed along the river each year but have low density populations also. Caribou are seen rarely in the vicinity of Kagati Lake (USFWS 1991:121-123).

The Kanektok River has an abundance of birdlife (Amaral and Bollinger 1985; White and Boyce 1978; Petersen, et al. 1991; Dlugokenski, et al. 1983; Dinneford 1982:5; Fisher 1982:4). Waterfowl include pintail, harlequin, mallard, common and red-breasted merganser, green wing teal, common golden eye, arctic loon, scaups, scoters, and tundra swan. Passerines occur in abundance, particularly warblers, thrushes, swallows, and sparrows. Other birds reported along the river are ptarmigan, sandpipers, yellowlegs, plovers, terns, ravens, and gulls. Raptors observed include golden eagles, bald eagles, rough-legged hawks, merlins, northern harriers, gyrfalcons, marsh hawks, and goshawks.

Beaver colonies exist along the Kanektok River (White and Boyce 1978). Service biologists Amaral and Bollinger (1985:4) observed "beavers, lodges, and fresh beaver sign the entire length of the river." The ADF&G biologist Dinneford (1982:3) similarly noted "dams, lodges, gnawed sticks and braided river-slough situations, were found along the entire length of the [Kanektok River] system." In 1982, a beaver colony count revealed 1.5 active lodges per mile for 80 river miles surveyed (NPS 1983:24). Beavers likely effect the physical character of the river more than other wildlife. Service biologist Wagner (1991:2) noted their activity created impoundments and log debris, especially in riparian areas of cottonwood stands along the river (Wagner 1991:2). Dlugokenski, et al. (1983:13) reported Nukluk Creek, RM 48 on the Kanektok River, blocked by beaver dams in 1983.

Fish

Several species of anadromous and resident fish are found in the Kanektok River, its tributaries, tributary lakes, and Kagati Lake. Populations of chinook, chum, coho, pink, and sockeye salmon can be found in the main stem river and most tributaries and lakes (Alt 1978:40-47; USFWS 1990:13). As a salmon producing river, the Kanektok is the second most important in the

Kuskokwim Bay fisheries area; only the Kuskokwim River has larger runs (NPS 1983:21). Rainbow trout, Arctic grayling, whitefish, smelt, Dolly varden, char, and blackfish also occur. Kagati Lake supports lake trout, burbot, char, and whitefish, as well as salmon.

The excellent fish habitat of the Kanektok River drainage has historically supported abundant populations. The ADF&G and USFWS have completed numerous fishery studies and annual reports regarding the Kanektok River (Alt 1978; ADF&G 1984; Huttunen 1985; Minard 1987; Minard and Brookover 1988; USFWS 1990; Wagner 1991; Adams 1996). USGS explorers made the earliest recorded account of fish abundance on the Kanektok River in 1898. Spurr (1900:86,133) wrote:

> *"At the time of our ascent* [up Kanektok River by canoe in August] *the number of dead salmon in the river was something remarkable, often covering the shore so that it was impossible to find any place to step except upon them, and in places heaped by the current into stacks, so that the stench was at all times very disagreeable. The live fish, too, were so abundant that a native fisherman whom we met had no trouble filling his boat as fast as he could work with a small drift net, and our own natives were in the habit of spearing them with their small bone harpoons. . . ."*
>
> *"The low bars of the stream and the river bottom itself, where the current is not too swift, was at the time of our journey thickly covered with decaying salmon of all sorts. . ."*

C. Quinhagak

Quinhagak is the only community situated on or near the Kanektok River. The village of 567 people is located on the banks of the Kanektok River less than one mile from the Kuskokwim Bay coast of the Bering Sea. Quinhagak, or *Kuinerraq,* is a long established Yup'ik community whose name translates as "new river" or "new river channel" (Jacobsen 1984:211; Pleasant 1986a). The village was described in the 1890 census as situated on a "narrow peninsula between the river and the sea," consisting of six large sod huts and one council house, and populated by 109 Natives (Porter 1893: 4,100-101).

The following sketch of history, culture, demographics, economy, and transportation of Quinhagak is excerpted from 1997 State of Alaska *Community Information Summary (CIS)* database (Alaska Department of Community and Regional Affairs 1997).

> *"It* [Quinhagak] *was the first village on the lower Kuskokwim to have sustained contact with whites. After the purchase of Alaska in 1867, the Alaska Commercial Co. sent annual supply ships to Quinhagak with goods for Kuskokwim River trading posts. A Moravian Mission was built in 1893. In 1904 a mission store opened, followed by a post office in 1905 and a school in 1909.*

Between 1906 and 1909, over 2,000 reindeer were brought in to the Quinhagak area. They were managed for a time by the Native-owned Kuskokwim Reindeer Company, but the herd had scattered by the 1950s. In 1915 the Kuskokwim River was charted, so goods were barged directly upriver to Bethel. 93.8% of the population are Natives. A federally-recognized Native organization is located in the community. The community is primarily Yupik Eskimos who fish commercially and are active in subsistence food gathering. . . .

"Most of the employment is with the school, government services or commercial fishing. Basket weaving, skin sewing and ivory carving also provide income. Subsistence remains an important part of the livelihood. 86 residents hold commercial fishing permits for herring roe and salmon net fisheries. The Incorporated Fishermen of Quinhagak has been organized to improve market conditions and stabilize prices. A fish processing facility was recently completed, owned by the village IRA council. The 1992 Community Development Quota (CDQ) program has increased the pollock ground fish quota for small communities like Quinhagak. Quinhagak relies heavily on air transportation for passenger, mail and cargo service. A State-owned 2,800' gravel airstrip and seaplane landing area are available. Plans are underway to relocate the airport. Barge services visit at least twice a year. A harbor and dock were recently completed. Boats, ATVs, snow machines, and some vehicles are used for local transportation."

No roads or railroads access Quinhagak. Goods and materials are brought in by barge during open water months, and by cargo, mail, and passenger planes year-round. Several air taxi companies served Quinhagak in 1997, including ERA, Kusko Air, Camai Air, Yute Air, Arctic Circle Air, YK Air, Yukon Aviation, and Metervik Air (Stanley and Hill 1997:3). Freshwater Adventures is a major air charter company using amphibious aircraft that frequently flies clients to Quinhagak and Kagati Lake during the sport fishing season (Lisac, pers. com. 1998). There is daily air service to Bethel and Goodnews Bay. Private aircraft also frequent Quinhagak during the fishing season "because of the easy access to good fishing spots near the airport" (Stanley and Hill 1997:3). Some other air carriers providing past scheduled or charter air service to Quinhagak include Hermen's Mark Air Express, Manokotak Air, Kusko Aviation, Bush Air, Hageland Aviation Services, and Fox Air (Darbyshire & Associates 1991).

Flood hazard for Quinhagak is high. The entire village lays within a 100-year floodplain and lowest areas are subject to annual flooding. Channels of the Kanektok River in the vicinity of the village constantly change. Severe bank erosion occurs during spring break-up and the late summer storm season. Hazardous wind driven waves typically occur in fall and early winter. Village flood waters reportedly reached a depth of 3 feet in 1979 (U.S. Army COE 1993:252; Darbyshire & Associates 1991).

III. LAND STATUS

A. Federal and Non-federal Lands

Major legislation affecting land ownership in the Togiak NWR includes the Native Allotment Act of 1906, the Alaska Statehood Act of 1958, the Alaska Native Claims Settlement Act of 1971 (ANCSA), and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). Land status within the Refuge changes constantly as lands are conveyed, relinquished, invalidated, or acquired. Proposed acquisitions may cause additional changes in land status. The exterior boundary of the Togiak NWR encompasses approximately 4,722,534 acres. Just over one-half of the refuge (2,379,776 acres) is designated wilderness. Figure 1 shows lands within the Togiak NWR boundary and identifies the Togiak Wilderness.

As of May 1998, about 3,927,973 acres, or 83.2% of the lands within the Refuge are Federal lands (Brewer, pers.com. 1998). The remaining 16.8% of lands (794,561 acres) are lands that have been conveyed, selected, or applied for. About 491,818 acres have been conveyed to Alaska Native corporations under ANCSA; another 251,439 acres have been selected. About 35,221 acres have been conveyed under the Native Allotment Act and another 10,776 acres have been applied for. The State of Alaska has selected 3,438 acres, but none have been conveyed. Other private party conveyances and selections account for approximately 1,869 acres.

Federal and non-Federal lands may be identified by referencing Bureau of Land Management (BLM) land status records. These records, including Master Title Plats (MTPs), Historical Indices (HIs), patent certificates, U.S. Surveys, and other materials, are typically filed by Range and Township. Figure 17 (following page) illustrates generalized land status in the Kanektok River area. Land status records and documents may be examined at the BLM Public Information Center (Public Room), 222 W. 7th Avenue, Anchorage, Alaska, or the USFWS, Division of Realty, 1011 East Tudor, Anchorage, Alaska.

B. Native Lands

Under ANCSA, Native village corporations are entitled to select lands from within 25 townships adjacent to and including their core village township. Quinhagak is the only village on the Kanektok River. After making land selections, Federal lands were conveyed to the Quinhagak village corporation (Qanirtuuq, Incorporated) in 1980 and 1984 via Interim Conveyance (IC) 342 and IC 978. The subsurface estate of these lands was conveyed to Calista Corporation (regional corporation) via ICs 343 and 979. A portion of these conveyed lands are located along the Kanektok River, from its mouth, upstream to the eastern boundary of T. 4 S., R. 72 W., SM, approximately RM 20. In addition to conveyances, Calista Corporation has made several historic site selections.

Under terms of the Native Allotment Act of 1906 and ANCSA, individual Natives are entitled to land parcels not to exceed 160 acres. Allotments are conveyed by the BLM. Individual

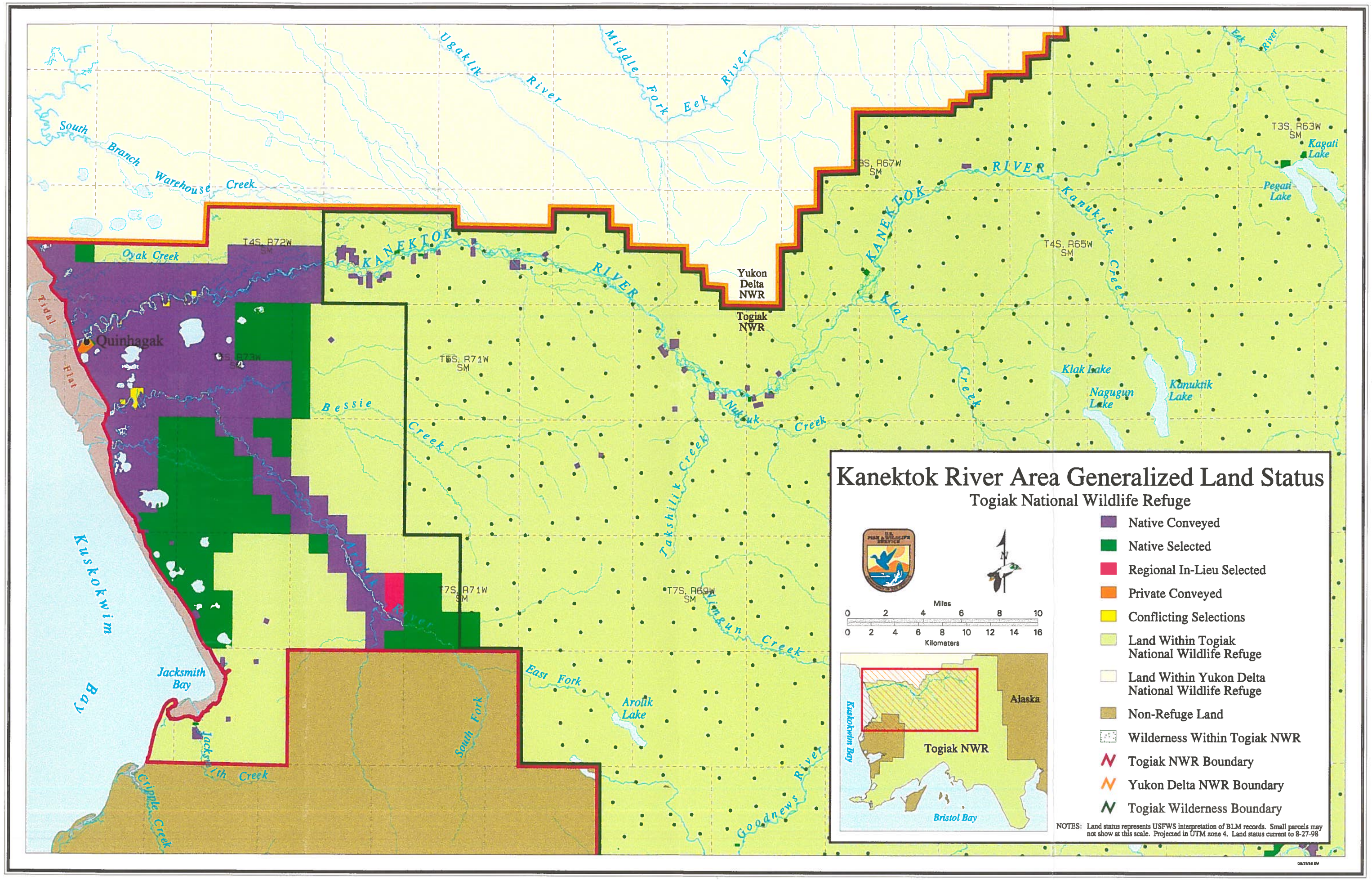


Figure 17. Kanektok River Area Land Status

allotment information and location can be determined by referencing MTPs. Numerous individual allotments, applied for or conveyed, are located along the Kanektok River from the river's mouth to the shores of Kagati Lake.

C. Kanektok River

The following land status assessment was made in March 1998. It is based primarily on a review of BLM MTPs current to March 13, 1998, located in the Service's Division of Realty, Anchorage office. Selected U.S. Surveys, BLM documents, and a Division of Realty generalized land status map (Figure 17) were used as well.

The entirety of the 89-mile long Kanektok River is within the boundary of the Togiak NWR. The large majority of the Kanektok River basin lies within the Togiak Wilderness. The lower river, from the mouth to the wilderness area boundary at RM 20, flows through Native lands conveyed to Qanirtuuq, Inc., and Calista Corp. Some of these village and regional corporation lands are patented. Interspersed with Native corporation lands on the lower 20 mile reach of the river is a concentration of patented Native allotments. Also, there are a few instances where Native allotment applications conflict with village and regional conveyances. In addition to ANCSA conveyances and Native allotments, a unique land transfer occurred in 1912 involving a 257 acre tract (U.S. Survey 876; Patent number 259415) encompassing the Quinhagak village site near the river's mouth. Under a 1900 act reaffirming grants to missionary stations provided for in the 1884 Organic Act, a mission site called the "Moravian Mission Reserve" was conveyed to a religious society, "The Society of the United Brethren for Propagating the Gospel among the Heathen" (Case 1984:198).

Upstream of RM 20 the Kanektok River flows through Federal lands designated as the Togiak Wilderness. Upstream of this wilderness boundary, about 38 small parcels are situated along the Kanektok River, most of which are located downstream of RM 54. Along the approximate 34 mile segment of the Kanektok River between the wilderness boundary (RM 20) and the Olumaguilute River confluence (RM 54) there are two concentrations of small parcels. (See Figure 17.) Between RM 20 and approximate RM 35, 17 patented Native allotments and 2 historical site selections [14(h)(1) sites] are adjacent to the Kanektok River. Further upstream, more or less between RM 46 and RM 54, 11 patented Native allotments and 2 historical site selections are adjacent to the river.

The uppermost 35-mile long segment of the Kanektok River (RM 54 through RM 89) has only 6 small parcels. They consist of 4 historical site selections, 1 Native allotment application, and 1 patented Native allotment. No other Kanektok River small parcels are situated upstream of the uppermost parcel, patented Native Allotment (50-91-0282), located at approximately RM 70. However, 2 additional Native allotment applications (F17813 and F18462) are situated upstream of the head of the Kanektok River on the north shore of Kagati Lake.

IV. NAVIGABILITY STATUS

As a general matter, the lands beneath navigable waters are granted to the State by the Equal Footing doctrine, the Submerged Lands Act of 1953, and the Alaska Statehood Act of 1958. If water bodies were reserved or withdrawn by the Federal government prior to statehood on January 3, 1959, lands beneath these waters are retained by the United States. Within this framework, generally, if a water body is not navigable, the bed of the water body belongs to the adjacent landowner. Determinations of what waters are navigable, and what waters are non-navigable, is an on-going process in Alaska at both administrative and judicial levels.

The Federal test for determining navigability was established over one hundred years ago in the landmark Supreme Court case *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1870), a portion of which reads:

> *"Those rivers must be regarded as public navigable rivers in law which are navigable in fact and they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways of commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. . . ."*

The Daniel Ball test is accepted as the standard for determining navigability. In situations where navigability and the ownership of submerged lands is disputed for a specific water body, the final navigability determination authority resides with the Federal courts.

The BLM has determined the Kanektok River, for purposes of conveyance, is navigable through ANCSA village selections (RM 0 through RM 20) and along small tracts located between RM 20 and RM 70. Lands conveyed by the BLM have excluded the bed of the Kanektok River. The State of Alaska considers the entire length of the Kanektok River to be navigable. The State has twice notified the Department of the Interior of intent to file property quiet title actions on submerged lands of the Kanektok River. A more detailed explanation of Kanektok River navigability related statements and actions by the United States and the State of Alaska is chronicled below.

A. United States

The BLM (McVee 1979; Boden 1989a) has made navigability determinations for the Kanektok River while other Federal agencies, such as the U.S. Army Corps of Engineers (1995) and the U.S. Coast Guard (1996), apparently have not. Some Federal agency personnel have made navigability related statements (Roehm 1938; Tileston 1973; Mattice 1990; Fisher 1990).

The BLM determined portions of the Kanektok River to be navigable for conveyance purposes in two instances only. In 1979 the BLM (McVee 1979) first determined navigable waters extended through Quinhagak village ANCSA selections to a point approximately 20 miles upstream from

its mouth. Ten years later the BLM (Boden 1989a) determined the Kanektok River navigable in or along small tracts through RM 70.

In **1937,** Associate Engineer J.C. Roehm (1937a:1), **Territorial Department of Mines,** reported the Kanektok River "is navigable with river boats to Kagati or Quinhagak Lake." His comment is made in a mining investigation report that followed summer field work. The Kanektok River navigability comment is in reference to access of the "Togiak Lake region," an area of mining activity that included Kagati Lake and its tributaries.

In a **1973** preliminary draft section of a wild and scenic river report, the **U.S. Bureau of Outdoor Recreation** stated, "The US Army, Corps of Engineers does not consider the Kanektok a 'navigable' river" (Tileston 1973). The COE's most recent *Fact Sheet Alaska Navigable Waters* (U.S. Army COE 1995), listing navigable waterways in Alaska, does not include the Kanektok River. However, it should be noted that COE navigable waters lists "represent only those waterbodies for which determinations have been made; absence from that list should not be taken as an indication that the waterbody is not navigable" (U.S. Army COE Definition of Navigable Waters of the United States 33 CFR 329.16 (1996)).

In **1973,** the **U.S. Bureau of Outdoor Recreation** further addressed navigability in one section of that same initial draft report (Tileston 1973). That section, titled "Water Rights, Navigability and Riverbed Ownership", included the following statements:

> *"Under the Alaska Statehood Act, the state owns the river bottom of all 'navigable' streams and rivers. The question of which streams are 'navigable' has not yet been determined in Alaska; however, under criteria being developed by the State of Alaska to determine streambed ownership, the Kanektok would appear to be navigable. The U.S. Army, Corps of Engineers, does not consider the Kanektok a 'navigable' river.*
>
> *"It is most unlikely the river has been used as a 'navigable' stream in terms of the movement of commerce. The Kanektok is navigable to Kagati Lake during early summer and after heavy rains by small motorized riverboat, and by canoe or raft at all times."*
>
> *"Evidence collected in this study indicates that there generally is sufficient water volume to permit a pleasurable recreation experience in canoe, raft, or kayak and, in the lower reaches, by riverboat."*

The following is a chronological review of **BLM** documents located in the BLM's "Goodnews Bay" navigability "Quad File," and "Village Files" of the Anchorage BLM Navigability Section office. The large easement file for the village of Quinhagak was also reviewed at the Campbell Tract offices of the BLM. The chronology also includes and itemizes documents addressing navigability that were taken from **USFWS** and **NPS** files.

In **1974** or **1975**, the **BLM** solicited comments for easement recommendations on Quinhagak Village selections. Correspondence regarding easement proposals sent to the BLM in 1975 include comments about the Kanektok River and its use and navigability (Williams n.d.; Watson 1975). In an undated letter to a BLM project leader named Jan Miller (received June 2, 1975), Quinhagak Village Land Representative Peter Williams (n.d.) commented on navigable waters and the Kanektok River. He wrote:

> *"On the use of the Rivers, the Kanektok River is too shallow for any Trade & Commerce. The only way we travel thru the river is by small skiffs, also, the only way to enter the Kanektok River is when the tide is high, even small skiffs cannot enter the river at low water. The annual barge which brings in freight and fuel comes in into the river only at high tide. Therefore, I would consider the Kanektok River to be Non-navigable. Arolik River likewise.*
>
> *"In our phone conversation as you remember, I said the tide affected the Kanektok and Arolik Rivers two River miles. That was an estimated guess, so therefore, the exact tidal affect is one and one-half miles as shown in the map inclosed."*

The **USFWS** (Watson 1975) reviewed Quinhagak village withdrawal maps (ANCSA selections) and identified possible easement reservation areas. The Service made no navigability-specific comment, but did note that the lower reach of the Kanektok River was used for boat travel by residents of Quinhagak, Goodnews, and Platinum, and used as access to Kanektok River headwaters for subsistence hunting and fishing.

On September 12, **1975**, the **BLM** held a public meeting in Quinhagak regarding twelve easement proposals for Quinhagak selected lands (Ells 1976). The meeting was attended by fourteen villagers, including village corporation officers. One easement proposal by the State of Alaska Division of Lands apparently urged that the Kanektok River and other water bodies be determined navigable to facilitate public ingress and egress. The Quinhagak village corporation opposed this proposal, indicating that it "does not support these general easements for they have had little public use" (Ells 1976:4).

On November 16, **1976**, a **BLM** "Easement Task Force" (Bronczyk 1977) met to consider easements and navigable waters for Quinhagak selections, lands that extended approximately 12 miles up the Kanektok River from its mouth. The BLM Realty Specialist Stanley Bronczyk (1977:1) noted in a memorandum that navigable waters were discussed and that "the Kanektok River was determined to be navigable by reason of its susceptibility to travel, trade, or commerce".

In **1979**, **BLM** State Director Curtis McVee (1979) signed the "Final Easements for the Village of Quinhagak" in a memorandum to the Chief, Division of ANCSA Operations. In the memorandum, McVee noted that the easement staff met in February 1979 to consider major

waterway and navigability recommendations for Quinhagak selected lands. He determined the Kanektok River to be a "Major Waterway" and to be "navigable". He wrote:

> *"MAJOR WATERWAYS:*
>
> *"Major waterways were discussed and the Kanektok was considered to be major. This river provides the primary intervillage surface transport route between the nearby villages. It is used by the visitors to the village as well as the local inhabitants for intervillage travel, movement of supplies and equipment, and the gathering of resources, such as driftwood and edible plants, from public lands."*
>
> *"NAVIGABILITY:*
>
> *"The Kanektok River was determined to be navigable by reason of its susceptibility to travel, trade, or commerce. No other rivers were considered to be navigable except as to the portion of each river which is subject to tidal influence."* (McVee 1979:1).

A few weeks later, **BLM** Branch of Adjudication Chief Sue Wolf (1979) wrote the decision for Quinhagak village selected lands approved for interim conveyance (IC), a land area of nearly 110,000 acres. Her decision (Wolf 1979:10) notes that "within the above described lands, only the following inland water body is considered to be navigable: Kanektok River."

In **1984**, the **NPS** (1984:5) modified landownership language of the *Draft Wild and Scenic River Stidy Kanektok River, Alaska* (NPS 1983:30), apparently in response to correspondence comments by Tina Cunning (1984:1-2), Alaska State CSU Coordinator. In the final study, the last sentence regarding navigable waters and land ownership reads, "Should upstream portions of the Kanektok be determined navigable, additional land area encompassing the bed of the river would belong to the state."

The **USFWS's 1986** *Togiak National Wildlife Refuge Comprehensive Conservation Plan/Environmental Impact Statement/Wilderness Review (CCP)* includes several statements about navigable waters in the Refuge, though none specifically regard the Kanektok River. The CCP discusses State and Federal management and regulatory authority over navigable waters. It also simply notes, "The navigability status of many of Togiak Refuge's waters has not been determined" (USFWS 1986:39).

Following the **BLM**'s 1979 navigability determination and interim conveyance decision, the next reference to the Kanektok River is found in a **1988** memorandum from BLM Deputy State Director for Conveyance Management, Robert Arndorfer (1988), to the BLM Deputy State Director for Cadastral Survey. This memorandum primarily addresses navigable waters in the Arolik River drainage but notes that "the Kanektok River was excluded from the interim conveyances as navigable," and references the October 1979 memorandum cited above. The

table attached to the memorandum lists the Kanektok River as navigable in three townships: T. 4 S., R. 73 W., SM, T. 5 S., R. 73 W., SM, and T. 5 S., R. 74 W., SM.

In **1989**, the **BLM** extended the navigability of the Kanektok River upstream considerably. In a memorandum titled "Navigable Waters on or along Small Tracts in Quinhagak (Window 1562)," BLM Deputy State Director for Conveyance Management, Wayne Boden (1989a) identified navigable waters to BLM Deputy State Director for Cadastral Survey. In this second navigability determination for the Kanektok River, the river is identified as navigable on or along small land tracts in nine townships that extend upstream to a parcel in Section 27, T. 3 S., R. 66 W., SM., at latitude 59° 53.0' north, longitude 160° 36.1 west. This determination identifies navigable waters to a site at approximately RM 70, a patented Native allotment (50-91-0282; U.S. Survey 9913) situated midway between the mouths of Kanuktik Creek and Nakailingak Creek. This furthest upstream determination extends navigability for purposes of conveyance to a point 19 miles from the head of the river, or, nearly four-fifths of the river's entire length. [Note: The U.S. Survey for this Native allotment contains a disclaimer of not transferring any interest in submerged lands to which the State of Alaska may be entitled. (See Appendix A for survey plat with text.)]

This 1989 navigability determination for the Kanektok River was based upon four criteria that are noted in memorandum (Boden 1989a). They are the 1976 Garner Memo, the 1979 ANCAB decision on the Kandik and Nation rivers, the 1980 Solicitor's interpretation of the Kandik and Nation rivers decision, and the dicta in the 1987 Gulkana River decision. The general criteria stated in the memorandum reads, "the BLM considers nontidal waterbodies navigable if, at the time of Statehood, they are navigable for crafts larger than a one-person kayak."

The **BLM** Deputy State Director Wayne Boden (1989:3) concluded the Kanektok River navigability determination for small tracts with this statement:

> *"I determine the Kanektok navigable in or along small tracts located on the river to and through T. 3 S., R., 66 W., SM. In the nineteenth century, the river may have been a segment in a Native travel route to the Bristol Bay region. Today, the river is a popular recreational boating stream. Commercial guides offer float trips down the river from Kagati Lake. All small tracts in or along the Kanektok River to tide water are to be meandered and segregated from the river."*

In three **1990** memoranda, the **USFWS** considered the issue of regulating and managing navigable waters prior to the final adopted "Togiak Refuge Public Use Management Plan" of 1991. In a memorandum regarding the draft Togiak PUMP, and authored by USFWS Deputy Chief of Realty for Alaska, Bill Mattice (Janis 1990:3-4), stated:

> *"Kagati Lake and the entire* [Kanekok] *river are navigable. The refuge has no jurisdiction. These are state lands and waters. . . .*

"Susceptibility to guided float trips makes the lake and river navigable. The refuge has no authority to limit or issue permits for float boat guides on navigable waters."

Three months later, in a memorandum regarding the regulation of navigable waters in Togiak NWR, Manager Dave Fisher (1990:2-3) referred to the upper Kanektok River as possibly navigable. He noted that both the State of Alaska's Office of Governmental Coordination and DNR accept USFWS management authority over sport fishing guides on "waters which may be navigable (e.g., Upper Togiak River, Upper Kanektok River, Upper Goodnews River) that are surrounded by refuge lands."

In response to Fisher's memorandum and other comments by refuge management in the Anchorage Office, Mattice (1990:1) applied his interpretation of the Gulkana River court decision to Togiak NWR rivers as described in the Refuge's draft management plan. He wrote:

"There need not be cavil about whether the rivers within the boundaries of the Togiak NWR are navigable and thus are state owned. The draft PUMP [Public Use Management Plan] *is itself clear evidence that the rivers have the uses that the federal court in Gulkana said would prove a river to be navigable."*

In **1995**, the **BLM** posted a notice of "Intent to Issue Patent" for Quinhagak (Qanirtuuq Inc.) and Calista Corporation for interim conveyed lands of 1980 and 1984, ICs 342, 343, 978, and 979 (Coats 1995). This notice contains a statement noting that the navigability determination remains unchanged from the time the ICs were issued (Coats 1995:2). The bed of the Kanektok River is excluded in lands described in the 1980 and 1984 IC documents.

B. State of Alaska

In **1992** and **1996** the State of Alaska **Attorney General** (Cole 1992; Botelho 1996) notified the DOI of its intent to file property quiet title actions on submerged lands in Alaska, including the Kanektok River. The 1992 notice refers to the submerged lands of the Kanektok River as encompassing the "Mouth of Kanektok River to Kagati Lake". The 1996 notice describes the river's submerged lands simply as "Kanektok River."

In **1973** and **1975**, the **ADF&G** conducted a stream survey along the Kanektok River (Alt 1978:40). Fishery biologist Alt described the river's physical characteristics and commented on the navigability of the Kanektok River. He wrote:

"The [Kanektok] *river is extremely braided and has many unstable channels. It is navigable by propeller driven boat during normal water levels only upstream 10 miles. With a jet unit it might be possible to travel to Kagati Lake."*

In correspondence regarding the Kanektok River, the State of Alaska **Department of Natural Resources** (DNR) in **1977** wrote to the Joint Federal/State Land Use Planning Commission regarding proposed easements for Quinhagak Village land selections along the Kanektok River and other streams (Nation 1977). Apparently, their correspondence was in response to the 1977 easements recommended by the BLM's "Easement Navigability Task Force" (Bronczyk 1977). Among other comments, the State (Nation 1977) noted, "Our position on navigable waters and on easements for the transportation of Federally owned energy, fuel and natural resources remains as stated several times previously."

In **1979** the State of Alaska **DNR** responded to the BLM's final decision for easements and navigability and the subsequent approval for interim conveyance of Quinhagak Village selections (McVee 1979). In December 1979, the State notified Qanirtuug, Inc. (Quinhagak Village), Calista Corporation, and the BLM, of the State ownership of lands under navigable waters within the village selections (Mathews 1979).

In **1983**, the State made comments to the National Park Service regarding the "Kanektok Wild and Scenic River brochure" (Eide 1983). The State's **Conservation System Unit (CSU)** Coordinator Sterling Eide stated, "The State will probably assert that the Kanektok River is navigable and, therefore, State owned." He further stated the National Park Service did not recognize this probability and attached the State's 1982 policy on navigability criteria titled, *State of Alaska's Position on Navigability Criteria for Determining Ownership of Submerged Lands in Alaska*. This 15 page policy outlines the State's viewpoint on title navigability, summarizes disputed criteria between State and Federal governments, and discusses ten "criteria test cases."

In correspondence the following year, **1984**, State **CSU** Coordinator Tina Cunning (1984:1-2) suggested corrective statements to the *Draft Wild and Scenic River Kanektok River, Alaska*, regarding river navigability. In this instance the State suggested expanding the section on navigability, "to include a description of the amount and types of water craft which use the Kanektok River and the reasons for which it was determined navigable."

In **1985**, the State of Alaska commented extensively on the *Togiak National Wildlife Refuge Draft Comprehensive Management Plan/Environmental Impact Statement/Wilderness Review (CCP)* (USFWS 1986:340-347). The State made several suggestions to add, delete, or modify navigable waters language in the draft CCP. None of the suggestions specifically addressed the Kanektok River. In response to State comments, the USFWS made some changes to the final CCP (USFWS 1986:39,154,158,350). The changes mostly regard the management of navigable waters within the Refuge.

The State of Alaska **DNR** indicates the extent of navigability of the Kanektok River and many of its tributaries on the **1990** *Bristol Bay Easement Atlas* (Alaska Department of Natural Resources 1990:103-104, 107-110). The atlas shows the Kanektok River and its tributaries upstream of RM 38. The upper Kanektok River and Kagati Lake are depicted as "State Determined

Navigable" waters. Further, the easement atlas shows the Kanektok River tributaries Kanuktik Creek, Klak Creek, Nakailingak Creek, and other unnamed streams and lakes as "State Determined Navigable." Even further upstream, Kagati Lake tributaries Atmugiak Creek, Aukamunuk Creek, and other streams also are indicated as navigable.

In **1991**, **DNR** Commissioner, Harold Heinze, adopted management guidelines for "state-owned-shorelands" in the Togiak NWR (Heinze 1991; Gustafson 1991; USFWS 1991:43-46). In the Togiak National Wildlife Refuge Public Use Management Plan (Togiak NWR PUMP), the State designated the "shorelands" within the Refuge as "Special Use Land." Shorelands are defined in the Alaska Administrative Code as those State lands covered by nontidal waters that are navigable under Federal laws up to the ordinary high water mark (OHWM) (11AAC 83.625).

The Alaska Department of Natural Resources wrote Chapter 3 of the 1991 Togiak NWR PUMP that identifies management guidelines (USFWS 1991:43-46). The State also commented about public trust doctrine duties and cited the Alaska Constitution and Alaska Statutes as they relate to access to navigable waters. An introductory excerpt from that chapter follows:

> *"The State of Alaska has special duties and management constraints with respect to waters and shorelands (the lands underlying navigable waters). These arise from the Alaska Constitution which embraces the principles commonly known as the public trust doctrine. The public trust doctrine requires the State to exercise authority to insure that the right of the public use to use navigable waters for navigation, commerce, recreation, and related purposes is not substantially impaired."*

Again, in **1992** and **1996** as noted above, the State of Alaska **Attorney General** notified the United States of its intent to file quiet title property action for the Kanektok River's submerged lands (Cole 1992; Bothelo 1996).

V. HISTORICAL USE

A. Pre-Statehood Use

1. Subsistence

Numerous prehistoric sites have been located in the vicinity of the Kanektok River. They include areas around Kagati Lake, upper Kanektok River, Eek Lake, upper Kwethluk River, and Security Cove near Cape Newenham (Dumond 1987:51; Ackerman 1979). The type of stone tool technology (projectile points and scrappers) collected from these sites suggest human activity in the area at least 4,000 years before present, and perhaps as long as 10,000 years before present (Dumond 1987:47-51; Dumond 1984:73-75; Ackerman 1980; Ackerman 1979). Archaeologists found evidence of prehistoric hunting and tool-making encampments around Kagati Lake, along the shores of the upper Kanektok River, and in the area between Eek River and Kanektok River headwaters. (See Figure 18). Archeologist Ackerman (1979:9) stated, "the shores of Kagati Lake were literally covered with the flaking debris left behind by the people who camped along its margins." The lake is situated in an intermountain basin and is approachable from five major river valleys. It is situated at the head of a valley that served as a passage for caribou and man (Ackerman 1980:1). In addition to many stone tool-making sites in the vicinity of Kagati Lake, stone cairns aligned as caribou drive fences are located on the north shore. At this location, an enclosure is formed by rock cairns drive fences along ridges where caribou were funneled into a pond at the lake shore where they were speared (Ackerman 1979:29). Ackerman (1979:22) also found evidence of stone toolmaking on a few ridge sites along the first four river miles of the Kanektok downstream the lake outlet.

The resources of the Kanektok River have supported human settlements in the area for thousands of years, and ancestors of Quinhagak people have fished and hunted along the river since before historic times (Wolfe 1983:1). At the time of contact, the area in the vicinity of the Kanektok River was occupied by Central Alaska Yup'ik-speaking Eskimos, the Kusquqvamiut, the people of the Kuskokwim (VanStone 1984b:225). James VanStone (1984b:227,231) generally characterized regional subsistence activities and specifically referenced kayaks as follows:

> *"In this area* [central Bering Sea coast] *, from the earliest times people were oriented toward a maritime economy in which the seal was the most important animal hunted. On the adjacent tundra there was some caribou hunting, and fishing for salmon was significant at the mouths of the rivers and in certain bays. . . . Along the lower reaches of the rivers of southwestern Alaska each man owned a sealskin-covered kayak, the frame of which had a projecting stern piece and a large hole at the bow."*

Early European explorers and American missionaries documented contact with Yup'ik people from Quinhagak and the lower Kuskokwim area. Though there are few specific references to early boat use on the Kanektok River, boat use related to some subsistence activities may be

Figure 18. Map section of prehistoric lithic sites, vicinity of Kagati Lake and Kanektok River [photocopy]. (Ackerman 1979)

inferred. Historical examples that note pre-statehood historical subsistence activities or skin-boat use follow.

Though Kodiak Island area Russians were familiar with Eskimos in the Bering Sea area by 1761, the English explorer James Cook apparently is the first European documented to have sailed into Kuskokwim Bay and make contact with indigenous people (Oswalt 1990:4-6). In 1778, while aground for five days on the shoals of the lower bay, Cook's ship, the *Resolution*, was approached by 27 "Kusquqvagmiut" men in kayaks.

The Russian Petr Korsakovskiy was dispatched from Kodiak to explore Bristol Bay and expand the trade area of the Russian-American Company (VanStone 1988). In 1818, accompanied by more than 20 men in "sealskin baydarkas" [kayaks], he traveled as far west as Kuskokwim Bay and reached Quinhagak. Korsakovskiy's brief description of the Quinhagak people in mid-July included the following comments (VanStone 1988:46-47):

> *"This people occupies most of the land. It abounds in trees and moss for caribou forage. Their settlement is near the sea at the mouth of the Kuskokwim or on the Kvingpak* [Kanektok River] *which flows from the north or northeast. . . . Their clothing is made of beaver, fox, marten, wolf, or caribou skin. . . their shoes are made of caribou skin.*
>
> *". . . Their weapons, as with other Indians, consists of spears, bows, and arrows. They have a few knives with wood handles; very little of this metal all told. They make their seines and fish lines from the sinews of bearded seals and beluga."*

Comments in the 1890 Alaska census describe the Kanektok River, food resources, and ubiquitous "canoes" (Porter 1893:101).

> *"Quinhagak river* [Kanektok River] *is a very crooked, sluggish stream, the outlet of a lake, upon the banks of which these people have another village, temporarily occupied at certain seasons. Their principal food is the flesh and blubber of seal and beluga, but there is also a short run of chavicha or king salmon during the first month of June. . . .*
>
> *"Every male individual in these communities* [Quinhagak and two others], *from half-grown boys upward, possesses his own canoe* [bidarka], *and many of the females, especially widows, are also thus equipped. This custom is an absolute necessity in a country which is practically inaccessible on foot and subject to sudden tidal overflows. As it is, it requires but a few minutes for the whole population of a village to be afloat and ready to paddle away to some place of safety."*

Moravian missionaries John and Edith Kilbuck worked and resided in the lower Kuskokwim River region for many years between 1885 and 1922 (Fienup-Riordan 1988). John Kilbuck visited Quinhagak several times before 1900 in his capacity as an itinerant minister. He and his wife also briefly resided there in 1894, establishing a mission and school. The Kilbucks made historically and ethnographically significant observations of Yup'ik people. Included in their accounts are extensive subsistence fishing and hunting related comments and a mention of boats from this nineteenth century era. John Kilbuck recorded crossing the Kanektok River by dogteam and fishing through the river ice, but he apparently left no account describing boat travel on the Kanektok River. He did describe Quinhagak people as "lower river" Kuskokwim people, or "Unegkumiut", who used skin boats as opposed to the birch bark covered canoes of "up river" Kuskokwim people, or "Kiatagmiut" (Fienup-Riordan 1988:5-6). Kilbuck wrote:

> *"They* [lower river people] *are a seafaring people--which* [sic] *habit is turned to tundra hunting and trapping by those living some distance from the sea--as by the people occupying the villages immediately below Bethel.--Skin boats, kayaks [qayat] and the open dory shaped angyak [angyaq]."*

The "angyaq" is loosely defined as, "any boat or ship other than a kayak or canoe" (Jacobson 1984:72). Anthropologist Ann Fienup-Riordan (1988:459) edited the Kilbucks' writings and described these boats in the book's endnotes. She wrote:

> *"The qayaq was a relatively small skin-covered craft, capable of holding one or two individuals and light enough for one man to transport easily on a small wooden sled. The larger angyaq, made from a heavy wooden frame, was much more cumbersome. It required over 20 skins in the construction of the covering as opposed to the five or six skins necessary to cover a qayaq. However, its size and strength made it well-suited for longer journeys and larger loads. It was capable of carrying over a dozen passengers and with the use of a mast and twined grass mat or canvas sail could operate by wind power."*

The USGS geologist J.E. Spurr (1900:86) made subsistence related remarks following his 1898 ascent of the Kanektok River. He noted the presence and activity of "Eskimos," as well as an abundance of fish and wildlife resources. In addition to his comments in the excerpt that follows, he noted that Natives gathered grit used for whetstones in an area near the confluence of Nukluk Creek and the Kanektok River at approximate RM 48 (Spurr 1900:133, Map No. 10). The map accompanying his report also shows a "deserted" Eskimo village site named "Chwarlitiligamut," located at approximate RM 69. This place name refers to the people occupying the place where the river is like a "clear throat"; an unobstructed, open channel or passageway (Dyasuk pers. com. 1998). Topographer C.S. Post accompanied Spurr and noted two other river habitation sites on his map field sheets. They are "Quiukachamut," an up river site at approximate RM 64, and "Pamatairutmut," a down river site at approximate RM 16 (Orth 1967:737,788-789; USGS 1979). Spurr commented:

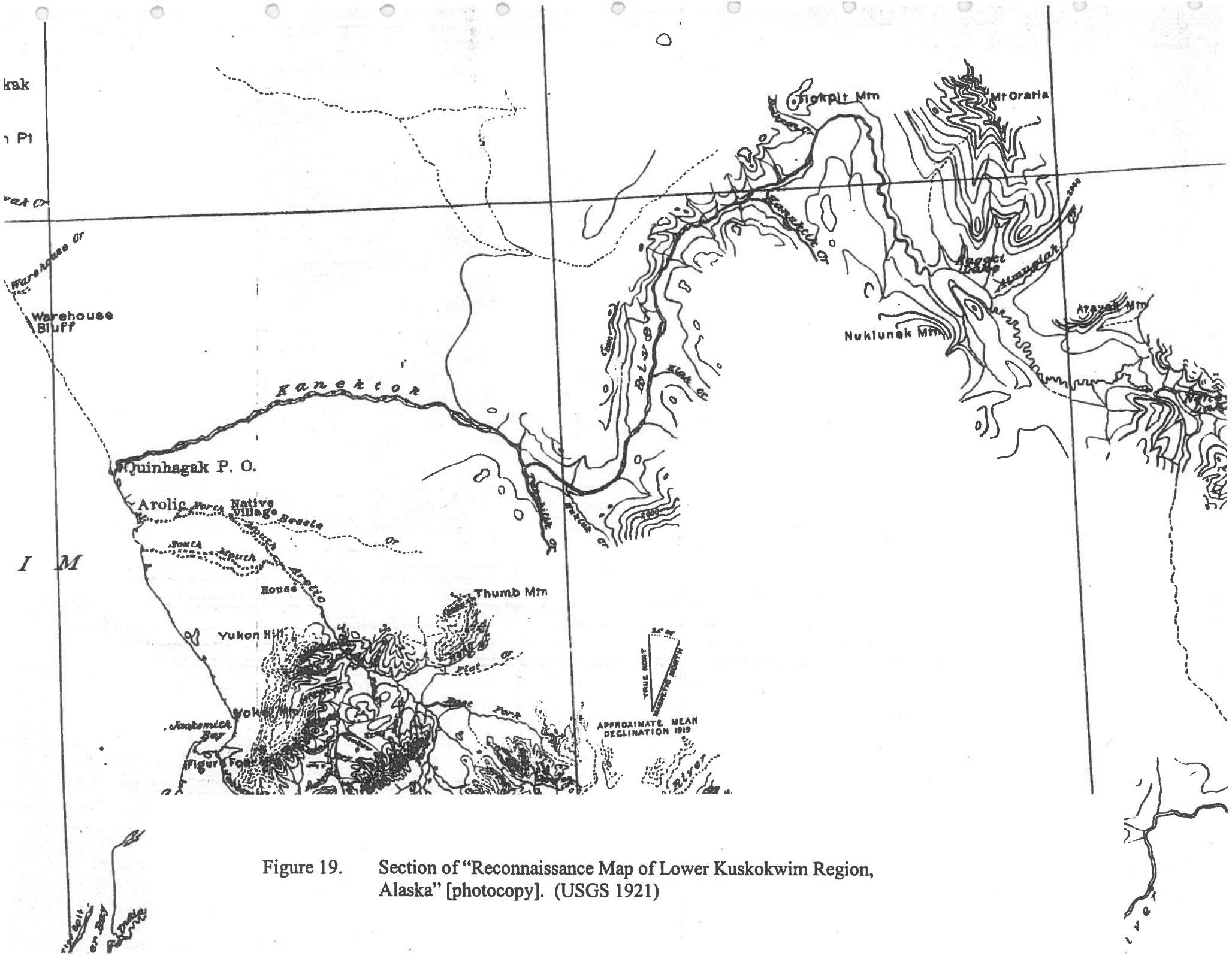


Figure 19. Section of "Reconnaissance Map of Lower Kuskokwim Region, Alaska" [photocopy]. (USGS 1921)

"In the tundra on the lower part of the Kanektok River and also in that part of the mountains which lies not far from the tundra were small villages (so called) of Eskimos, consisting sometimes of a single habitation and sometimes of several; but so far as observed, these were all deserted, although perhaps only temporarily. During nearly the entire summer the lower part of the river is teeming with fish, since the different species of salmon follow one another in succession, according to their period of spawning. . . .

"Farther up in the mountains there are no permanent habitations, but the whole of this range is the winter and spring hunting ground for the adventurous Eskimos from the various villages on the Lower Kuskokwim. Here they come to hunt the caribou and also the bear, which is very abundant." (Spurr 1900:86).

Spurr (1950; 1975) wrote a popular account of his 1898 expedition 30 years later. In that account he reported the common use of kayaks by Quinhagak villagers and made other observations too. While aground in the tide flats approaching Quinhagak, he reported "many Natives came out to visit us, skimming along at first in the kayaks, and later, as the tide went down, on foot." He recounted observing and participating in skin boat races as well (Spurr 1975a:31-32). Two Quinhagak villagers in kayaks, "Paviak and Uia," guided Spurr up the Kanektok River to Kagati Lake and beyond. The Kanektok River sites noted above were further described in his popular accounts (Spurr 1950:107-108). He wrote of sites a short distance downstream of the Klak Creek confluence:

"We passed a deserted village, as Paviak called it (nunet yuituk, in Eskimo). It consisted of one log hut. Back or downstream a little, and on the opposite side of the stream, there were tepee poles, the only ones I had seen in Alaska. Further down the river, Paviak had pointed out several "villages" of one or two huts, but they were all deserted. The natives, he said, did not live in this region. They came up here to hunt, and these were their hunting lodges."

A photographic example of Quinhagak kayaks used at the turn of the century can be found in an ethnological overview of southwest Alaska Eskimos (VanStone 1984b:231). The 1907 photograph shows two Quinhagak men seated in single-hatch kayaks "at the mouth of the Kuskokwim River." One kayak has bird hunting tools (bird spears and throwing boards) attached to the craft's outer skin.

In 1986, BIA ANCSA investigators interviewed 84 year old Charlie Pleasant (1986a; 1986b) of Quinhagak. He made several subsistence related comments regarding travel, fishing, hunting, and reindeer herding. Charlie recalled early childhood fishing with his parents at Quinhagak where kayaks were used for fishing and red salmon were netted with caribou hide nets. He mentioned Quinhagak people camping "up the river" in the fall and returning to the village in November. He also said he and other Quinhagak people would go back up the river to hunt squirrel and marmot in the spring, identifying the headwaters of the Kanektok River and beyond

as places familiar to him (Pleasant 1986a:5-6,20-23). Charlie further mentioned the existence of "many old sites and graves up and down the river," calling two of the river sites by name, *Curaturyaraq*, a "place to eat ", and *Sayalek*, a "place with red/sockeye salmon" (Pleasant 1986b:31-33).

In addition to kayaks, another type of skin boat traditionally used by residents along the lower Kuskokwim River is the "angyaqatak." The "angyaqatak" described below is a riverine boat while the very similar "angyak" described by Fienup-Riordan above may reference marine boats. The angyakatak is an open, shallow draft boat constructed of brown bear, caribou, or moose hides, or a combination of these hides. This type of boat use has been reported on the Kanektok River by Quinhagak people and others (Guy pers. com. 1998; pers. com. Andrew 1998a). The ADF&G Subsistence Resource Specialist Mike Coffing (1988:12-13) reported the use of these boats on the Kwethluk River in an article titled *Bear Boats: Floating home from squirrel camp*. He described the boats as being used to descend the lower 90 miles of the Kwethluk River following spring hunting activities. It should be noted that subsistence hunting areas for Kwethluk and Quinhagak hunters and trappers overlap, the subsistence seasonal round for both villages is very similar, the headwaters of the Kanektok and Kwethluk rivers are very near one another, and the physical characteristics of the two rivers are similar (Coffing 1991; Wolfe et al. 1984). Coffing described the construction and use of the angyaqatak as follows:

> *"The boat is made almost entirely of materials gathered near the construction site. Trees, split or cut into one-inch thick planks, are used for the sides and bottom of the frame. A strong keel, made from a straight tree, runs the full length of the bottom. Roots and curved tree limbs are used to fashion the bow and stern stems. Bottom ribs are joined to the side ribs in the same way. The different parts of the frame are carefully examined and any sharp points or edges are removed. The frame is lashed together using cord or rope that is at hand.*
>
> *"While the frame is being built, the hide covering is made. Sometimes the cover may be made of brown bear hides sewn together. At other times the cover is made from caribou. The type of hide used depends largely on the hunter's luck. It is not unusual for a cover to be made of a combination of hides from bear, caribou or moose. Sewing the hides together takes great skill. The seams must be strong enough so that they don't pull apart when the hide is stretched over the frame. They must be placed just right, so the seams don't leak too much. Sometimes a patch must be sewn onto a hide to cover a bullet hole or cut.*
>
> *"When the cover is finished, it is stretched over the outside of the overturned boat frame so that the hair side of the cover is against the frame. The hair helps protect the skin from rubbing against the frame. Besides, having the hair on the outside of the boat would cause the fur to become saturated with water and the boat would ride much lower in the water. The hide is folded over the gunwales and lashed to the frame.*

"When all is finished, the 'angyaqatak' is ready for loading. Measuring 14 feet long, 8 feet wide at the gunwales, and 15 inches deep amidships, the boat is ideal for the shallow mountain rivers. Dried meat, parka squirrel skins, sleeping bags, duffle bags, all the camping gear, children, and adults fill the boat.

"In some years, the hunting party needs only one boat. In other years two or three 'angyaqatet' are built. The number of people, the amount of cargo, and the number of hides available determine how many boats are built.

". . . Brown bear, moose and caribou are productive sources of food, but they also provide a traditional and efficient way to transport meat and hunters from the spring camps back home."

Included in the above cited article are three photographs taken by Kwethluk resident John Andrew, who later became the Bethel Station Regional Coordinator for the Service's Office of Subsistence. He is aware of past skin boat use by Kwethluk area people on many rivers in the lower Kuskokwim River area, including the Eek, Kisaralik, and Kanektok Rivers (Andrew pers. com. 1998a). Downstream floats occur after break-up when spring hunting activities conclude. He said the Kanektok River could be floated from Kagati Lake or anywhere along the river downstream of the lake outlet. Kwethluk resident and Yup'ik elder James Guy (pers. com. 1998) and John Andrew reiterated skin boat use on the Kanektok River following spring camp activities. They noted people from Kwethluk, Eek, possibly Quinhagak and Goodnews, and perhaps other villages, would construct bear skin boats or other skin boats and float down the Kanektok River to Quinhagak. After arriving at Quinhagak, Kwethluk and Eek people would contact people from their respective villages, who would then come to pick them up, or Quinhagak residents who would volunteer to take them home. As noted above, the first white explorers to document upriver activities reported hunting camps along the Kanektok River that belonged to people other than those of Quinhagak (Spurr 1950:107).

As a 7 year-old child, James Guy (pers. com. 1998) accompanied his father Daniel Guy (also know as Guy Tegylre) and another relative on a boat trip up the Kanektok River in about 1935. They traveled in a home built wooden boat powered by a 9 horsepower outboard, that according to James, was considered very big for its time. They ascended the river to Kagati Lake and spent the entire summer and winter in the area hunting, trapping, and prospecting. In August 1937, Associate Engineer J.C. Roehm (1937a:1), Territorial Department of Mines, reported, "several families of Eskimos were encountered camped on the northwest end of Kagati or Quinhagak Lake on and near the head of the Kanektok River." Roehm's (1938:6, Map 1; 1937a:1) reports show Guy Tegylre's name, as well as others from Quinhagak and Akiak.

Historical subsistence activity in the Kanektok River region by lower Kuskokwim River Yup'ik people has been documented since 1898 (Spurr 1900). The entire Kanektok River area, including Kagati Lake, has been a place of historical subsistence activity by residents of Quinhagak and Kwethluk (Wolfe 1983; Wolfe, et al. 1984; Coffing 1991). The upper Kanektok

River and Kagati Lake also have been subsistence use areas of Twin Hills and Togiak residents (USFWS 1986:115-116). Villagers from Eek, Goodnews Bay, Kwethluk, and other nearby locales used the regions for subsistence purposes too. In 1978, the ADF&G noted the "Kanektok River has a traditional subsistence fishery" (Alt 1978:43).

2. Trapping and Hunting

The BLM historian James Ducker (1986) contacted several authoritative academics with Alaska field research in regard to watercraft used in trapping activities around the time of statehood. Though Ducker recorded comments by southwestern Alaska authorities VanStone and Oswalt regarding boat use on the large Kuskokwim and Nushagak rivers, they do not reference trapping or boat use on the Kanektok River, or any other rivers within Togiak NWR. As noted earlier, river freeze-up occurs in September or October and river break-up occurs in late May or early June.

In a 1983 subsistence report regarding Quinhagak, Wolfe, et al. (1984:320) note that parka squirrels and marmots were major trade items historically but do not specifically define the dates of trade activity. They wrote that the furs were "traded from the Kuskokwim area north to the Yukon River for caribou and domestic reindeer skins from Siberia via Bering Strait and Norton Sound traders." There is no reference to boat use in regard to historical squirrel and marmot fur trade, but Wolfe et al. note Quinhagak residents in the 1980s sometimes returned to their village via boat in late May following spring squirrel camp activities.

In a 1986 BIA ANCSA interview, Quinhagak village elder Charlie Pleasant (1986a:29-30) stated he sold furs in Goodnews, in Quinhagak "to the Moravian [store?]", and in Bethel to the Kuskokwim Company and the "AC." He did not discuss the type or quantity of furs sold, nor does he say how he transported his furs to Quinhagak. The frequency and magnitude of his fur sales is not determined. He did state he "hunted" squirrel and marmot "up to the head-water" area of the Kanektok River (Pleasant 1986a:20).

Spurr (1975b:20) made generalized comments about barter and fur trade at the turn of the century for the area that now includes the Togiak NWR. In 1898, the Yup'ik Quinhagak guide "Paviak" bartered tea and tobacco on behalf of the Spurr expedition for fish and supplies. Spurr described trade in furs as follows:

> *"Money as such was unknown to these people. Their legal tender was skins, in return for which they received at the trading posts all those things which their hearts desired - if the trader had it and they had enough skins. So we had arranged to pay our Eskimos three minks a day. Paviak, who was the leader and the genius of the expedition, got one fox per day. Now as we had no store of foxes or minks, we found later that we could arrange with the traders simply to give them credit for the correct number of skins, and we could settle with the trader in*

cash (if we had it) at the rate of 25 cents per mink and $1 per fox. Their simple currency, therefore, ran thus: four minks=one fox."

In a summary of Quinhagak village history, pre-statehood trapping activity is referenced. Darbyshire & Associates (1991) made no mention of boat use but wrote the following:

"During World War I, the price of furs dropped 50% to 75% and cash, which was obtained principally from trapping, was in short supply. This made it difficult to obtain 'luxuries' such as flour and tea."

Archeologist Ackerman (1979:14) reported historical trapping activity in the vicinity of Kagati Lake. He said, according to local people, trapping for beaver was once a widespread activity that had given way to ground squirrel trapping. He noted, "Two trap lines with pan type spring traps were found to the east and north of Kagati Lake."

3. Early USGS exploration

As noted above, a USGS reconnaissance expedition ascended the Kanektok River in late summer of 1898 (Sherwood 1992:175; Spurr 1900; 1950). Geologist J.E. Spurr, topographer W.S. Post, camp hands Oscar Rohn and George Hartman, two Native "Kwinhagamut" [Quinhagak] guides named Paviak and Uia, and a "Memtrelegamut" [Bethel] Native named Andrew departed Quinhagak on August 26. The USGS staff and the two Quinhagak guides reached Kagati Lake 13 days later, where they traveled east and portaged to the headwaters of the Togiak River.

The USGS party members traveled in the expedition's single remaining wooden canoe. Spurr (1900:55) stated each Native accompanying him on the Kanektok River had his own "kayak or seal-skin boat." The USGS boat was a 18 to 19-foot long, cedar canoe. Spurr (1900:44) described the canoe as especially built for the expedition, light weight with a large carrying capacity, durable, and versatile.

"As means of transportation for ourselves, our food, and our outfit we depended upon light cedar canoes. These were specially built for the expedition in Peterboro, Ontario, and combined lightness with large carrying capacity, durability, and staunchness of model. They were built in three lengths, for the purpose of nesting in transportation -- 18 feet, 18 1/2 feet, and 19 feet. Our object in selecting these boats was to procure a craft which would be equally serviceable in upstream and downstream work, in rapid or in slow water, and on the portage; and the result of our trip showed that, while for any particular phase of the work a different boat might have been better, for all purposes taken together very light craft of large carrying capacity, such as these, is unexcelled."

Spurr noted that the river was difficult to ascend from the time the party left Quinhagak. He stated that the river's rapid current required them to line the canoe up the river for its entire

length, often necessitating wading in the river for the entire day. He also stated that the three Natives propelled their boats upstream by "pushing with small, sharpened sticks against the bottom in shallow places" (Spurr 1900:55). On-going rainy weather slowed their upstream travel and resulted in a "swollen and rapid current" and a river of overflowing banks. Their difficult ascent was further compounded by the diminishing size of the main channel as they drew nearer Kagati Lake. Spurr reported the three Natives became lame and exhausted, with one returning downstream before reaching the lake. He also noted that the party traveled as much as ten river miles on some days.

In the three following decades, USGS geologic exploration reports regarding the lower Kuskokwim River region and the Goodnews Bay region refer to adjacent river basins such as the Eek, Arolik, Kisaralik, Kwethluk, and Goodnews river basins (Maddren 1915; Harrington 1921). The Kanektok River is scarcely mentioned however, undoubtedly due to the minimal level of mineral discovery and activity in the Kanektok River basin. One reference to the Kanektok River suggests members of a 1919 USGS party, that included a topographic surveyor and a geologist, may have ascended the lower reach of the river (Harrington 1921:208-209).

4. Mining

Pre-statehood mining activities in the Kanektok River drainage basin may be best characterized as light, and centered in the vicinity of Kagati Lake headwaters. Placer gold prospects situated just outside the Kanektok River drainage, a few miles northwest of the Kagati Lake outlet, were discovered in 1911 by early prospectors (Maddren 1915). These prospectors reportedly reached the area by ascending the Eek, Kwethluk, and Kisaralik rivers, rather than the Kanektok River (Maddren 1915:301). The USGS geologists Hoare and Cobb (1977:38) cite reports noting exploration activity in 1927. In 1937, families from Quinhagak and Akiak staked seven silver-lead lode claims, called the "Winchester group of claims," at the head of Atmugiak Creek, a north shore tributary of Kagati Lake. The claims were staked and owned by Willie Keseyulie, Guy Tegylre, Kilila Wessilie, and Phillip Keseyulia (Roehm 1937b:1). Guy Tegylre and William Keseyulia also staked numerous claims called the "Iron Creek Group," that apparently were located along Gemuk Creek, a tributary of Aukamunuk Creek which discharges into Kagati Lake (Roehm 1938). As noted above, in the mid-1930s James Guy (pers. com. 1998) ascended the Kanektok River to Kagati Lake with his father Guy Tegylre in a motorized wooden boat.

In the late 1930s, access to the "Togiak Lake region," that included the Kagati Lake area, was by "airplane or riverboat" according to an engineer with the Alaska Territorial Department of Mines (Roehm 1938). Floatplane access was via Kagati Lake. Wheeled airplane access was via a short airstrip in the upper Eek River drainage, near the confluence of Eek River and Rainey Creek. Riverboat access was via Togiak River and Kanektok River. Togiak River travel was via pole boat and described as the "shortest route by boat" into the region. The Kanektok was referred to as the "other route." The Territorial mining engineer reporting on this area in 1937 made no explanatory comments on the extent of Kanektok River travel, noting only that "the riverboat

route is up the Kanektok River from the village of Quinhagak a distance of nearly 100 miles by river" (Roehm 1937b:1).

Cinnabar and mercury exploration occurred near Mt. Oratia and Kagati Lake in the late 1940s and late 1950s (Rutledge 1948; Sainsbury and MacKevett 1965). Exploration was accomplished mainly by bulldozer stripping and trenching, some performed by the U.S. Bureau of Mines (Rutledge 1948). Access to the area in the 1940s was via a 120-mile long tractor trail from Bethel or by small charter airplane companies such as Bethel-based "Al Jones Airways." Kanektok River access to the area is not mentioned and Eek River access is described as impractical (Rutledge 1948:2). Several sources cited by Hoare and Cobb (1977:38) note that no mineral production was reported from this area.

Twelve cinnabar claims were staked six miles northeast of Kagati Lake in 1956 by Noah Jackson and John Long of Bethel. These claims were located along Arsenic Creek ("Rainey Creek Prospect") in the Eek River headwaters. In 1957 the claims were assumed by the Sunshine Mining Company and managed by Pat DeWilliams and John Magura. According to a USGS report, the mining prospects were accessed by floatplanes and overland vehicles using winter tractor trails from Bethel (Sainsbury and MacKevett 1965). Floatplanes landed on Kagati Lake or, weather permitting, on a small lake one mile from the prospects. There is no mention in the report of accessing this area by river or boat. An eight mile long tractor road from Kagati Lake was constructed in the late 1950s (Brown 1985:762). In 1978, Ackerman (1980:4) observed a "haul road" and a nearby abandoned caterpillar, probably associated with the historical mining activity.

Though considerable gold and platinum mining activity occurred in adjacent river basins during the early twentieth century, it appears the Kanektok River was not an access route to other drainage basins. Some regional boat travel supporting mining exploration and development did occur on the Arolik, Goodnews, and Kisaralik Rivers (Harrington 1921; Reed 1931; Seim and Hansen 1998; Roehm 1938). Due to the Kanektok River's location and length however, boat use on the river supplementing mining activities in either the "Goodnews - Arolic [sic] gold field," the upper Kisaralik River, or the upper Eek River likely would have been extremely light or non-existent. Alternative and superior overland and river access routes existed to these areas (Harrington 1921:210-211; Seim and Hansen 1998; Rutledge 1948; Roehm 1938; Sainsbury and MacKevett 1965).

For many years, Quinhagak was a supply point and way point for winter and summer travel that supported miners. The Moravian mission's diesel motorship *Moravian* reportedly made twice per summer stops at Quinhagak, and a mail carrier boat made a monthly stop as well. From the 1910s to the early 1930s, most supplies for miners and prospectors in the Arolik River area were freighted from Quinhagak or Goodnews Bay (Mumtrak village) by dog team or reindeer team (Harrington 1921:211; Reed 1931). Quinhagak was on the Bethel to Goodnews Bay winter trail that was used extensively during the 1920s and the 1930s (Brown 1985:758-763). The USGS geologist Harrington (1921:210) generally referred to this area of southwest Alaska as very

difficult to reach in 1919 and earlier years. He stated, "In many respects this region is one of the most inaccessible in Alaska for a small expedition."

5. Reindeer Herding

Reindeer herding in Alaska began on the Seward Peninsula in 1892 and spread to southwestern Alaska within a decade. The industry grew after the turn of the century, thrived during the 1920s and 1930s, peaked in the early 1930s, and collapsed during the 1940s. Southwestern Alaska Natives participated in reindeer herding programs during the first half of this century as early as 1901, mainly through the efforts of Moravian missionaries (VanStone 1984a:156). The ethnohistorian James VanStone, doubted the effects of the reindeer herding program were extensive or long lasting.

The whole Kanektok River basin was within the historic reindeer range of southwestern Alaska (Calista Professional Services 1984:6). Reindeer were first sent to Quinhagak from Bethel in 1909 and numbered 600 animals (Darbyshire & Associates 1991). By 1928 the Quinhagak reindeer herd had grown to 8,910 animals, approximately one-fifth of all reindeer in the Yukon-Kuskokwim region (Calista Professional Services 1984). The reindeer were managed for one period of time by the Kuskokwim Reindeer Company (Alaska Department of Community and Regional Affairs 1997).

Many Kuskokwim people served as hired herders, including some Quinhagak villagers in the Kanektok River basin. Quinhagak village elder Charlie Pleasant (1986a:21-31) was a reindeer herder and stated he became very familiar with the mountainous headwater areas of the Kanektok and Kwethluk rivers. Another village elder, Adolph Foster (1986a; 1986b), likewise mentioned his experience as a reindeer herder for six years, indicating the caribou disappeared in 1945 due to heavy wolf predation. Foster worked as a herder for the Moravians, the "K Company," and the "guards," earning 10 caribou per year in one instance and wages in another. Though skin boat use supporting reindeer herding activities is reported on the nearby Kisaralik River and skin boat use occurred on the Kwethluk River, neither Pleasant or Foster mentioned boats in reference to reindeer herding near the Kanektok River (Seim and Hansen 1997:93-94; Coffing 1984:12-13). [Note: Reindeer herding activities in the Kisaralik River basin, addressed in detail by Seim and Hansen (1998:82-94), may closely parallel those of the Kanektok River basin. Herding related activities included occasional Kisaralik River descents in skinboats.]

B. Post-Statehood Use

Since 1959 Kanektok River boat use has centered around subsistence and sportfishing activities. Subsistence use has continued uninterrupted from the pre-statehood era and is on-going. Guided and unguided sportfishing activities rarely occurred in the 1960s, but have become the dominant activity on the river following dramatic growth during the 1980s. Sport fishers today travel by motorboats or rowed inflatable rafts as they have in the past. Guided float trips typically begin at Kagati Lake and continue to Quinhagak. Guided activity with motorboats is most intense on the lower 20 mile section of the river. Commercial fishing (non-sportfishing) is limited to the mouth of the Kanektok River and adjacent marine waters. This industry began at Quinhagak in 1960 with outboard powered boats that continue to serve a dual commercial-subsistence purpose. Numerous State and Federal agency staff have traveled by motorboat, jetboat, canoe, or inflatable raft the entire length of the Kanektok River.

1. Subsistence

Subsistence activities occurring in the Kanektok River drainage include fishing, hunting, trapping, berry picking, and firewood gathering. Traditional subsistence sites are concentrated along the lower reach of the river and correspond with salmon harvest areas (USFWS 1991:112). Fifty-one subsistence sites, described as fishcamps, hunting camps, and other locations, have been identified by Wolfe and others (USFWS 1991:113; Wolfe 1982). Twenty-three sites are located on the lower river (RM 0 - RM 20) and twenty-eight sites are relatively evenly spaced along the upper Kanektok River within the wilderness area (RM 20 - RM 91). In 1990, the USFWS (1990:13) estimated the Kanektok River "supports over 400 subsistence users."

In a 1984 socioeconomic assessment of Quinhagak, analysts characterized the village as a place where subsistence activity "is very important" and "the majority of houses literally depend on such activities for survival" (Impact Assessment, Inc. 1984:327). They also portrayed it as a place having a relatively undeveloped cash economy compared to other villages in the region, and as a place where people are involved in "extensive exchange networks" with Bristol Bay and lower Kuskokwim communities. In the 1990s, the presence of Quinhagak village in Federal courts litigating river subsistence activities demonstrated the importance of subsistence fishing to local Natives. In Native Village of Quinhagak v. U.S., 35 F.3d 388 (9th Cir. 1994), local Native villagers challenged State regulations that prohibited subsistence rainbow trout fishing on the Kanektok River. In another lawsuit, the so-called Katie John case (consolidated with State of Alaska v. Babbitt, 72 F.3d 698 (9th Cir. 1995)), the Village of Quinhagak joined Katie John as amicus curiae over the issue of subsistence fishing in navigable waters.

In 1982, Qanirtuug, Incorporated, the Quinhagak village corporation, commented on the subsistence and cultural significance of the Kanektok River (Mark 1982). The comments were directed to the National Park Service regarding the possible designation of the river as a "wild and scenic river." The following year, the Quinhagak I.R.A. and the City of Quinhagak passed resolutions strongly opposing such a designation, further noting their subsistence dependence on

the Kanektok (Pleasant et al. 1983). Paul Mark (1982) made the following statements that express the importance of the Kanektok River area as a subsistence area for residents of Quinhagak and other lower Kuskokwim River villagers:

> *"The Yupik Eskimos that inhabited the Kanektok River for untold periods of time utilized all of the Kanektok River, including the Kagati Lake. The legends and folklore are still told to our younger generation by our elders, of the Kagati Lake. The river is still a part of our Cultural Heritage. It has, for ages, supplied our subsistence needs. Kagati in translation means "the source". . . .*
>
> *"My ancestors shared the lands surrounding Kanektok River with other Yupik Natives surrounding the area. The Kisaralik River area villages such as the Kwethluk and Akiachak permitted Kanektok River area Natives to hunt and fish. Goodnews and Arolik Rivers was consequently shared."*

Boats used by Quinhagak residents to access subsistence sites along the Kanektok River are described in a following section on commercial fishing. Small aluminum or wooden skiffs powered by outboard motors used for subsistence purposes on the Kanektok River double as commercial fishing and subsistence hunting boats in Kuskokwim Bay (Wolfe et al. 1984:271).

State of Alaska and Federal employees in the early 1980s investigated subsistence-based economies in four southwest Alaska communities, including Quinhagak, and wrote the most authoritative work regarding subsistence for the area (Wolfe et al. 1984). The subsistence seasonal round for Quinhagak during 1983 is described in considerable detail (Wolfe et al. 1984:315-326). Though many subsistence activities by Quinhagak villagers are marine oriented, i.e., seal hunting and walrus hunting, the Kanektok River plays an extremely significant role year-around as a place of harvest activities and as a travel route to other harvest areas.

In late winter large numbers of smelt appear in the lower reaches of the Kanektok River. Large quantities of smelt and some Bering cisco are jigged from the river ice from late January through May (Wolfe et al. 1984:318). About April, as the river ice breaks up above the village, large numbers of arctic char, whitefish, grayling, and rainbow trout are netted in ice-free sections of the river.

Between the end of April and the end of May, some families travel to spring squirrel hunting camps in the mountain valleys above the Kanektok River (Wolfe et al. 1984:320). Parka squirrels and marmots, major barter items historically, are sewn into fur parkas that are valuable prestige items. Squirrels are shot or trapped, the meat is eaten fresh or dried, and the furs are stretched and bundled in lots of 45 skins, selling locally for $150 per bundle in 1983. Some wolverine trapping and ptarmigan hunting also occurs in the spring camps. The families may return to Quinhagak by snowmachine if adequate snow cover exists or be retrieved by a relative with a boat.

From late May to early July, salmon migrate from Kuskokwim Bay up the Kanektok River where kings, chums, reds, and pinks are gill netted near the river's mouth (Wolfe et al. 1984:321). Late in the summer during August and September, large numbers of coho, char, grayling, whitefish, and rainbow trout are harvested from the Kanektok River. Most families make day trips up the river from Quinhagak to harvest these fish while several families move to camps on the lower Kanektok to harvest coho and char. Six of eleven contemporary fishing camps on the lower 15 miles of the Kanektok River were occupied in 1983. Quinhagak subsistence fish harvest survey data are available in *Annual Management Reports - Kuskokwim District* from the 1960s through the 1980s (Dlugokenski, et al. 1983:15).

From September through October, small groups of hunters travel by skiffs up the Kanektok River for moose, brown bear, squirrel, and beaver (Wolfe et al. 1984:322). Hunters operate from traditional camps and the hunts last from several days to several weeks. Bears are usually shot along tributaries of the Kanektok River.

Following freeze-up during late October to November and after the river's ice has firmed, the Kanektok River becomes a major travel route for a variety of winter subsistence activities (Wolfe et al. 1984:324-326). Snowmachines originating in Quinhagak pull "*sledges*" and travel trails within the river drainage and into the mountains for the purposes of trapping, ice fishing, wood cutting, and moose and caribou hunting.

In Wolfe's subsistence report, the Kanektok River is described as being difficult to navigate upstream of approximate RM 30 and infrequently traveled by boat to Kagati Lake during the summer (Wolfe, et al. 1984:90).

> *"The clear waters of the Kanektok River fall rapidly down sand and gravel courses westward about 95 miles to enter the vast flats comprising Kuskokwim Bay. Unlike the Togiak River, the Kanektok River is relatively difficult to navigate by skiff from about 30 miles upstream. Its swift currents, ever-changing gravel bars, and twisting channel overhung with sweepers require skillful boatmanship. Most boat travel occurs along the lower portions of the River, where the braided river channels broaden and currents diminish. Unlike the Togiak River, which is commonly navigated to Lake Togiak, the Kanektok River is infrequently traveled by boat to its source at Kagati Lake during summer. Kagati Lake is more frequently visited during winter, especially by residents of Kwethluk along the Kuskokwim River, who access the mountain basin from the Kwethluk drainage."*

The cultural significance of the Kanektok River is intertwined with subsistence activities. Wolfe (1983:4) put the cultural value of the river into perspective with the following account, which was later included in the draft and final *Wild and Scenic River Study, Kanektok River, Alaska* (NPS 1984:27):

"As mentioned previously, in addition to its subsistence and commercial values, the Kanektok River has other cultural values for the area's residents. The river is part of the region's history, and part of the personal histories of the local people. The Kanektok River area is known intimately by the residents of Quinhagak through learned traditions and personal experience. There is a complex system of names and traditional knowledge about the river's features from the mouth of Kagati Lake -- the bends of the river, tide channels, tributaries, sandbanks, hills, and mountains. Many names are descriptive of the river's resources and uses. Other names depict former users, historic village sites, camping locations, and gravesites. At least five year-round historic settlements and twenty-three named seasonal settlement sites exist along the river. Other named places derive from oral traditions of historic and legendary events, enshrining in the naming system the places where special events occurred in the history of the people. The system of traditional knowledge of the Kanektok drainage shows that the river is not a "wilderness" to the area's people. The river is part of a familiar landscape, a "home territory," with a deep heritage and important social, cultural, and historic values to local people."

The USFWS personnel monitoring public use on the Kanektok River between June and September of 1997 briefly reported their observations of subsistence activities and noted that Quinhagak residents "still depend heavily on their local resources for subsistence" (Stanley and Hill 1997:12-13,18,30-32). They reported most subsistence use occurred between RM 0 and RM 10. By early August subsistence activities increased above RM 20, where Quinhagak villagers were observed fishing, picking berries, duck hunting, and gathering wood. In late August and early September many locals hunted moose, caribou, geese, and swans. Most boat travel above RM 20 required boats being powered by jet units because boats with propeller outboard motors "could not access the upper portions of the river unless it was in flood stage." The USFWS River Rangers reported a total of 93 people in 32 boats ascended the Kanektok River above RM 20 for subsistence purposes between June 22 and September 6.

2. Commerce

Commercial Fishing

Commercial fishing activities, excluding commercial sportfishing, occur primarily at the mouth of the Kanektok River and in Kuskokwim Bay, while subsistence activities are oriented to both marine and riverine locales. In a thorough assessment of western Alaska rivers, an ADF&G report notes that the Kanektok River has a traditional subsistence fishery and that "a commercial fishery was begun in 1960" (Alt 1978:43). The National Park Service (1983:21), also noting the commercial fishery started in 1960, further described the early fishery as "sporadic." Most commercial fishermen are residents of Quinhagak (NPS 1983:21). Essentially the same watercraft, the aluminum skiff, are used for all subsistence and commercial activities (Wolfe, et al. 1984:241-242,269-270). In 1996, sockeye, chum, and coho salmon were most

heavily harvested in the Kanektok River fishery of the "Quinhagak (W-4) Commercial Fishing District" (USFWS 1997:47). Over 250,000 fish worth more than $500,000 were harvested in the Quinhagak District for 1996.

In 1983, Quinhagak residents from 98 households owned 109 boats and 107 motors. The 1983 watercraft are described as 72 aluminum skiffs, 24 wooden skiffs, 7 aluminum herring boats, and 6 "Togiak skiffs." The outboard motors were inventoried by engine size with 37 motors having less than 35 horsepower, 42 motors having a range of 35 to 75 horsepower, 27 motors having 55 to 85 horsepower, and one having greater than 90 horsepower. Typical Quinhagak fishing vessels used for commercial and subsistence purposes in 1983 are described in the following report excerpt (Wolfe, et al. 1984:269-271).

> *"Most fishermen utilize aluminum or plywood skiffs, about 16 to 20 feet in length, with small outboard engines in the 35 to 75 hp range. These vessels have fewer amenities than even the Togiak skiffs; almost all are without cabins, sheltered sleeping areas, electronic gear, and hydraulic equipment. Fishers may use a small Coleman stove to heat water and to keep warm. Nets are set and pulled by hand. Aluminum skiffs have been replacing wooden skiffs over the past decade. The semi-V hull aluminum Lund is the preferred make, about 16 to 18 feet in length, with load capacities of 1,500 to 2,000 pounds. In a census of boats taken a day before the commercial fishery opened, there were 66 semi-V hulled aluminum skiffs counted. Of these, 56 were Lunds, 6 were flat-bottomed aluminum riverboats, 7 were aluminum open herring skiffs, 24 were open flat-bottomed wooden skiffs, and 6 were semi-V bottomed wooden Togiak skiffs. The flat-bottomed wooden skiffs vary in size. Some are narrow and long, about 3-1/2 to 4-1/2 feet wide and 18 to 21 feet long, resembling skiffs used along the Kuskokwim River. Others are larger, between 4 to 9 feet wide and 18 to 24 feet long. About 6 fishermen used wooden boats similar to those in Togiak, about 9 feet wide, 26 to 30 feet long, with cabins, steering consoles, and CB units. These larger crafts were powered by outboards ranging between 70 to 140 hp.*
>
> *"The smaller aluminum or wooden skiff is particularly suited to environmental and economic conditions of the fishery. The shallow draft boats perform well in the mud flats and shoals at the mouth of the Kanektok and Arolik rivers where fishing is conducted. . . .*
>
> *"At Quinhagak a person's boat typically does double duty as both subsistence and commercial fishing craft. The aluminum Lund skiff has been found to be a versatile craft for salmon fishing, freshwater fishing up the Kanektok River, and sea mammal hunting in open water and off the sea ice. Its lightweight hull makes transporting the vessel across the ice floes easier than wooden craft; the aluminum hull also resists damage by ocean ice. The aluminum boats are*

relatively inexpensive, about $3,000. The village corporation allows fishers to purchase boats with a small down payment and lenient monthly installments."

Photos taken in 1997 by a newspaper photographer on the Kanektok River illustrate two types of watercraft mentioned above (Kizzia and Hunter 1997:O-1,O-4,O-5). One photo shows Quinhagak subsistence fisher and hunter Henry Matthew with his aluminum Lund skiff powered by a 45 horsepower outboard motor. The other photo shows Quinhagak tribal police officer Edward Mark piloting a flat-bottomed aluminum river boat powered by a jet outboard on the Kanektok River.

Sport fishing

Sport fishing on the Kanektok River is considered excellent and draws the majority of visitors to the Togiak NWR (Alt 1978:43; USFWS 1990:40; USFWS 1996:91-92). King and coho salmon, char species, and rainbow trout are the fish species most sought. Fishing for these species occurs primarily from June through October (USFWS 1991:114).

The outstanding fishing for anadromous and resident fish in the Kanektok River has drawn increasing numbers of guided and unguided sport fishers over the past three decades (Martin 1985; Lisac 1989; USFWS 1986; USFWS 1990; USFWS 1991; USFWS 1996; Stanley and Hill 1997). Prior to the late 1970s, very few sport fishing guides operated in the Kanektok River area and unguided sport fishing activity was reportedly very light (Fisher 1984b; Hotchkiss 1984; USFWS 1991:114). Light sport fishing activity continued until the early 1980s when guided and unguided sport fishing activity increased dramatically on the Kanektok River and became a prominent concern for Refuge management. In the past two decades, sport fishing activity has become increasingly studied, regulated, and monitored. (See Appendices B,C, and D.) Increasing river use and resultant conflicts between local residents (subsistence users), sport fish guides, and unguided visitors caused Togiak NWR to initiate a moratorium on issuing special use permits to guides in the spring of 1984, limiting permits only to those guides able to substantiate use prior to 1984 (Lisac 1989). Sport fishing guides continue to utilize both motorized and non-motorized boats for guided river trips (USFWS 1986; Lisac 1989; Stanley and Hill 1997). Currently, the dollar value of the Kanektok River sport fishing industry can be crudely estimated to easily exceed $1,000,000 per year (USFWS 1997:63; Stanley and Hill 1997; Whittaker 1996).

The USFWS has made on-going efforts to accurately quantify public use on Kanektok River, primarily by making public use surveys in the field that began in 1984 and continue to the present (Martin 1985; Lisac 1989; MacDonald 1993; Whittaker 1996; Whittaker 1997; Stanley and Hill 1997). A limited effort by the USFWS was made in 1984 to estimate pre-1984 historical recreational use of the Kanektok River (Fisher 1984a; Fisher 1984b; Hotchkiss 1984). Especially insightful reports regarding the magnitude and evolution of sport fishing on the Kanektok River are:

- *Public Use on the Kanektok River System* (Martin 1985)

- *Estimated Public Use within Togiak National Wildlife Refuge 1984 - 1988* (Lisac 1989)
- *Estimated Public Use within Togiak national Wildlife Refuge 1989 - 1992* (MacDonald 1993)
- *Kanektok, Goodnews, and Togiak Rivers - Summary of findings and implications from the 1986 National River Recreation Survey* (Whittaker 1995)
- *Kanektok, Goodnews, and Togiak Rivers - Summary of Use Information* (Whittaker 1996)
- *River Ranger Program on the Kanektok River - End of season report 1997* (Stanley and Hill 1997).

The following chronology portrays the character of recreational sport fishing use of the river since statehood.

Pre-1965 Use

Former Togiak NWR Manger Dave Fisher summarized 1960-1965 "recreational use" for the area after he and Refuge staff conversed with guides operating in the Refuge in 1984, individuals in Dillingham, and village residents (Fisher 1984b; Hotchkiss 1984). They obtained information from Bob Curtis, P.G. Brannon, Tom Tucker, Dick Armstrong, Leon Braswell, Jr., and Leon Braswell, Sr., and others. Fisher's handwritten notes indicate that he was not aware of any records regarding historical recreational use of Togiak NWR rivers. His notes do not reference the Kanektok River or any other river except the Togiak River, which appears to have been the center of activity and which was accessed by aircraft and by boat. Fisher estimated from 1960 to 1965, two to four guides were using the area that later became the Togiak Refuge, with the majority of guided activity occurring on the Togiak River or its tributaries. He mentioned two Togiak River guide/outfitters by name, John(?) Pearson operating out of Dillingham and Dan Nanalook, Sr., from Togiak. Two air taxi companies reported to have flown Pearson and unguided fishers were "Kodiak Western" and "Armstrong Air." Fisher estimated the guides had an average of four to eight people each season, whose average stay lasted three to six days. He estimated 20-40 unguided people visited the future Togiak Refuge area annually during the period 1960-1965. Fisher surmised most unguided users came from Dillingham, but others came from Bethel and the Anchorage area.

According to BLM historian Mike Brown (1985:592,688), citing correspondence in BLM ANCSA files, Edwin W. Seiler of King Salmon reported rubber raft and canoe travel down the Kanektok River from Kagati Lake as early as 1964. Mr. Seiler, proprietor of Enchanted Lake Lodge, wrote in 1976 that each year since 1964 a number of parties consisting of five people

each floated the river, which provided excellent fishing. Seiler noted the river also was "used by Tikchik Narrows Lodge, Bethel residents, and a Dr. Sedwick." [Note: Attempts to locate Mr. Seiler for an interview were unsuccessful.]

Dr. Sedwick's son, Anchorage dentist Dr. William Sedwick (pers. com. 1998), recounted fishing activity on the Kanektok River by him and his father. In a telephone interview, William Sedwick said his father fished the Kanektok River for recreational purposes as early as 1961 or 1962. He accessed the river by airplane, landing near the present day airstrip near Quinhagak, and camped across the river. From their camp, Dr. William Sedwick went no further than a point one mile upstream, which they reached by walking. Recreational fishing activity by the Sedwicks on the lower Kanektok River occurred until 1974, when increasing sport fishing activity on the river caused them not to return. He recalled that Natives were the only people on the river in the early days (1960s), and that they used gill nets to subsistence fish in the river.

1965-1980

In 1973, a draft Bureau of Outdoor Recreation Kanektok River wild and scenic river report summarized existing recreational use of the river area (Tileston 1973). The report states:

> *"Although an outstanding resource, existing use is minimal due to the lack of access into the river corridor and to the lack of widespread knowledge of this fishery resource. Use is limited to fly-in hunting and fishing at the present time and is exceptionally light.*
>
> *". . . . It is, however, because of this lack of access, combined with the relatively remote location of the river in reference to population centers, that the river is today* [1973] *an outstanding resource untrammeled by man."*

Former Refuge manager Dave Fisher continued the pre-1965 summary of historical recreational use on Togiak Refuge cited above with a few Kanektok River-specific comments (Fisher 1984b). Some excerpts from his handwritten notes follow:

> "*1965-1970*
> *". . . Some use on Kanektok River - mostly from Bethel side = est 1-2 outfitters using K. River* [Kanektok River] . *Some fly-ins (lower river) from Dlg* [Dillingham] *and lodges* [possibly Royal Coachman Lodge and Goldenhorn Lodge].
>
> *". . . Unguided use increases on all rivers (Togiak, Goodnews & Kanektok). Estimate 4-7 guides outfitters using refuge. Armstrong Air Service flying people into areas on refuge, Unguided use increases slightly - probably 30-50 visits = average about 2-4 days."*

"1970-1975

". . . Activity on K. River [Kanektok River] *continues. . . .Estimate 5-8 guides/outfitters using the refuge - still mostly fly-ins from lodges. 4-8 people/guides for 3-6 days on refuge - 2 1/2 months. River floats - this use is increasing. Non guided use increases - est. 40-60 visits."*

One of the Kanektok River guides or outfitters Fisher referred to may have been Bill Lyle. Mr. Lyle was reported as being a guide on the river in the 1970s and was associated in some way with Quinhagak Natives (Sedwick, pers. com. 1998).

Fisher's description of the 1975-1980 period does not specifically reference the Kanektok River but it does indicate the growing sport fishing activity in the Togiak Refuge area (Fisher 1984b). He generally noted increasing use by non-residents, more fly-in visitors, more unguided users, "more floaters," and "river float use increases during the late 70's." He attributed higher levels of activity to an increased general interest in Alaska. He further stated use increases around 1980 were secondary to the identification of the area as a refuge.

In 1991, the Togiak NWR PUMP described the emergence of Kanektok River sport fishing activities in the 1970s (USFWS 1991:114).

"Sport fishing is a relatively new activity to the area with a few guides starting in the area in the late 1970s. Little effort was expended until the mid 1980s when use dramatically increased."

ADF&G biologist Alt (1978:45) surveyed Kagati Lake and Kanektok River in the mid-1970s, describing the lake as "an important sport fishing lake mainly because of its close proximity to Bethel." He further noted "much evidence of angler use but no permanent facilities on the lake."

1981-1990

Public use on the rivers of the Togiak NWR in 1981 was estimated at 450 guided and unguided visitors accounting for 2,000 "use days". [Note: "Use days" are defined as the number of days a person spends on a river, e.g., 2 people spending 4 days on a river equals 8 use days.] Three years later, public use on Refuge rivers increased to nearly 3,000 visitors and over 11,000 use days (Lisac 1989). The USFWS reported the following number of "use days" on the Kanektok River during the 1984 to 1988 period: 1984 - 4,698 use days; 1986 - 5,900 use days; and, 1988 - 4,579 use days (Lisac 1989). Citing ADF&G sources, Faurot and Jones (1992:16) reported the following number of "angler days" for the Kanektok River during a similar period: 1983 - 1,517 angler days; 1984 - 6,881 angler days; 1985 - 4,630 angler days; and, 1986 - 3,319 angler days.

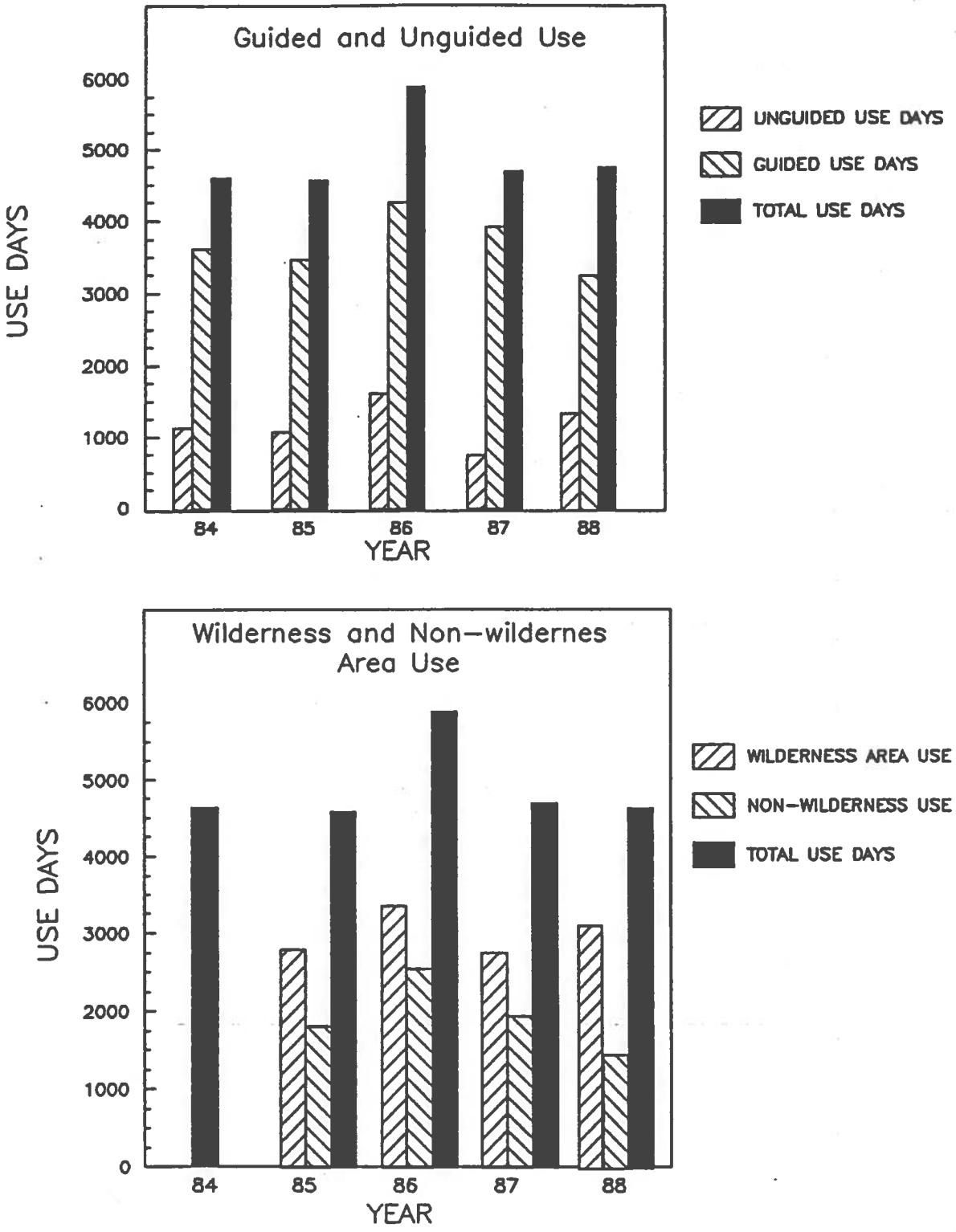
Concerns about growing sport fishing use of the Kanektok River were raised during the early 1980s. Sport fishing guides voiced concerns to biologists conducting fishery investigations on

the river in 1983 (Dlugokenski, et al. 1983:16). Diverse concerns were voiced during public meetings held during the Refuge's comprehensive conservation plan process (USFWS 1986:17-23). Regulating use of the Kanektok River was identified as a major issue. The volume and range of Kanektok River-specific comments on the draft Togiak Refuge CCP/EIS indicates the intensity of interest about river use by numerous user groups and individuals, especially those with an interest in recreational sport fishing (USFWS 1986:335-449). Nearly all concerns raised relate to the high use and rapid growth of commercial and private sport fishing activity. Concerns included need to limit guided and unguided use at existing levels, management of rainbow trout and other fish stocks, protection of wilderness values of the river, restriction or elimination of power boats on the river, inadequate enforcement of fishing regulations, impacts on subsistence activities, and trash and trespass problems.

Due to Togiak NWR staff concern with increased activity on the Kanektok River, the Refuge conducted a 1984 public use survey of the river, contacting floaters only (Martin 1985). A field camp was established at the Kagati Lake outlet, head of the Kanektok River and staging area for nearly all river float trips, which was maintained for the entire summer season. All float parties arriving at Kagati Lake were contacted. A total of 384 people in 56 parties floated the Kanektok River from Kagati Lake during the time of survey, June 21 through September 15. Generally, the boats used for floating were inflatable river rafts that ranged in size from 12-18 feet in length, complete with rowing frames and oars. One party had an 8-hp outboard motor and another party traveled the river by Klepper (folding kayak). Most people, 294 floaters in 35 parties, traveled in guided groups. The average size of a commercial guided river float was 8.5 people. The average duration of float trips was 8.1 days. An average of 4.7 parties began float trips each week (2.9 guided float parties per week and 1.8 unguided float parties per week). Kanektok River use days by commercial guides and their clients in 1984 numbered 2,436 days, which included 194 clients with 100 guides on 35 trips (Appendix B). Commercial guides that operated on the Kanektok River in 1984 were Dave Duncan & Sons, Bus Bergman, Mike Edwards, Mike Trotter, Chuck Wirschem, and Doyle Williams (Martin 1985:6-12).

The field camp established at the Kagati Lake outlet in 1984 was manned through 1988 during the summer months and public use surveys of the river continued. The on-going use of the Kanektok River between 1984 and 1988 was reviewed in another Service report that estimated public use on several Togiak NWR rivers (Lisac 1989). The Kanektok River experienced the heaviest public use of any water body in the Refuge during the 1984-1988 period, about 42% of the total. (See Figure 20 and Appendix C for Lisac's estimated public use of the Kanektok River from 1984 to 1988.) The following excerpt details the incidence of use for this period, differentiates guided from non-guided use, and distinguishes between float use, motorboat use, and fly-in use. Terms used in the report excerpt are defined by Lisac (1989:3) as follows: "float" visitors use a river raft, canoe.or kayak to descend a river and access fishing areas; "fly" visitors are those who fly to a lake or river and fish from where the plane has landed for one to two days; "fly/motorboat" visitors are guided users who fly to an area or guide camp on a daily basis and are provided with motorboat transportation to a fishing area for up to three days; "motorboat"

Figure 20. Estimated public use by guided and unguided users, and use within the wilderness and non-wilderness areas of the Kanektok River, 1984-1988 [photocopy]. (Lisac 1989:7)



visitors are those who either stay at a river base camp and fish from boats or those who travel upstream from the village in rented, borrowed, or owned boats.

> *"Estimated Public Use for the Kanektok River*
>
> *"Total use days on the Kanektok River rose from 4,698 in 1984 to 5,900 in 1986, falling back to 4,579 by 1988. Total visitors to the Kanektok River declined from 1,023 in 1984 to 731 in 1988. River rafting accounted for 62.6% (3,067 use days) of the total use on the Kanektok River in 1988. Motorboat use accounted for 34.4%, while the two fly in groups accounted for 3% of the total use in 1988. Use within the wilderness portion of the river* [RM20 to RM 91] *has been approximately 61%* [of total river use] *from 1985 to 1988. Non-wilderness area use days have increased slightly from 1985 to 1987, but declined in 1988.*
>
> *"Guided use days on the Kanektok River peaked in 1986 at 4,272 use days. Guided use days declined slightly from 1984 to 1985, and again from 1986 to 1988. The number of guided visitors ranged between 531 and 571 from 1984 to 1988. Guided effort accounted for 72% (1986) and 84% (1987) of the total use days on the Kanektok River. Guided motorboat use has been higher than float use for all except the 1987 & 1988 seasons. In 1988 the proportions of guided use types on the Kanektok River were: float use 51.6%, motorboat use 45.2%, and the two fly in uses 3.2%. Between 51% and 64% of the guided effort during the 1985 to 1987 occurred within the Kanektok wilderness portion. Guided use increased slightly within the non-wilderness portion of the river from 1985 to 1987 and declined in 1988.*
>
> *"Unguided use fluctuated from 1984 (1,069 use days) to a peak in 1986 (1,628 use days), and declined by more than half in 1987 to 763 use days. Unguided use days increased to 1,245 in 1988. The number of unguided visitors decreased from 468 in 1984, to 173 in 1988. The bulk of this decrease is attributed to the decline in fly-in and motorboat use. Unguided fly-in and motorboat traffic is estimated to have declined sharply from 378 to 50 people from 1984 to 1987. Float use has been the dominant access activity for unguided visitors, accounting for 94.8% of the unguided use days in 1988. Approximately 72% of unguided use between 1985 to 1988 occurred within the wilderness area."* (Lisac 1989:8).

1990-1995

The 1992 *Togiak National Wildlife Refuge Annual Report* (USFWS 1996) characterizes guided sport fishing activity on the Kanektok River. Refuge River Rangers monitoring sport fishing use in the Refuge reported 5,536 guided sport fishing use days occurred on the Kanektok River during the 1992 fishing season, a significantly higher level of use than on other high activity rivers such as the Togiak and Goodnews rivers (USFWS 1996:92). During the 1992 fishing

season, approximately twice as many guided sport fishing use days were observed as unguided sport fishing days on the Kanektok River. The report also notes that all operators reported a decline in client bookings from previous seasons.

The following excerpt from the above cited 1992 annual report characterizes the guided sport fishing industry Refuge-wide and discusses the manner in which unguided sport fishers access the rivers. Though the characterization is Refuge-wide, the Kanektok River's status as the most popular sport fishing river in the Refuge and the commercial significance of sport fishing activity makes the following river use summary insightful (USFWS 1996:91-92).

> *"Both subsistence fishing and sport fishing efforts are concentrated on the Togiak, Goodnews, and Kanektok Rivers. Due to the remoteness of much of the refuge, access is primarily by plane and boat during the ice free months and by snowmachine during frozen periods.*
>
> *"Refuge sport fishing guides offer fishing packages of various types to people from all over the world. These sport fishing packages range in price from $2,000 to nearly $5,000 for a 6-10 day fishing excursion. The excursions include float trips, tent basecamps on rivers, and or full lodge accommodations located off the refuge, with daily fly-in fishing to various refuge rivers and lakes. During 1992, sport fishermen are estimated to have spent over $3 million to fish within the refuge. This cost does not include airfare to Alaska or fishing tackle and licenses. Including the costs of all gear and transportation, the total was probably over $6 million.*
>
> *"Unguided anglers constituted approximately 30% of 1992's angling visitors. They were primarily river rafters, hiring one of five air taxis permitted to operate on the refuge to fly into the headwater lakes of a major river system. Some unguided anglers may fly private aircraft into the refuge to fish for one or two days. During the chinook and coho salmon sport fisheries, flying scheduled seat fare to Quinhagak and fishing the Kanektok River has also become very popular. In the village, it is possible to rent a boat and motor or to hire someone to give you a ride to a prime fishing spot and fish for the day. The village corporation in Quinhagak is making plans to expand these services and to provide lodging and personal guides."*

The 1991 public use management plan for Togiak NWR (USFWS 1991) places limits on the extent of commercial sport fishing on the Kanektok River. A prospectus was offered initially for Special Use Permits (SUPs) on the Kanektok River in 1992. The offerings included guided motorboat based sport fishing, guided float boat sport fishing, and guided fly-in sport fishing. Permits were awarded to numerous guides in the three offerings affecting the river. The following excerpt from the 1992 Refuge's annual report identifies the nature of the permits and those individuals awarded permits. The excerpt illustrates the magnitude of permitted

commercial sport fishing activities on the Kanektok River during the 1992 season and lists commercial operators (USFWS 1996:39-40).

> *"Offering Number 1: Guided motorboat based sport fishing - **Upper Kanektok River** (Unit 9). A total of 24 people at one time and a maximum of 6 boats will be authorized between two base camps. Single boat capacity will be limited to no more than 2 clients and 1 guide. Permits to (in alphabetical order):*
>
> *Dave Duncan, dba Dave Duncan and Sons, Ltd.*
> *Bill Martin, dba Bill Martin's Fish Alaska, Inc.*
>
> *"Offering Number 2: Guided float boat sport fishing - **Upper Kanektok River** (Unit 9). Maximum guided float party size will be 12 people (including guides, clients, pilots, etc.) using a maximum of 4 boats. Guided float trips will be scheduled in advance (on even or odd numbered days) to minimize the opportunities for the guided parties to encounter each other. Successful applicants will be contacted in order to establish trip dates. The number one applicant will have first choice of dates, etc. Permits to (in alphabetical order):*
>
> *Paul Allred, dba Ouzel Expeditions, Inc.*
> *Bus Bergmann III, dba B & B Fishing Adventures, Inc.*
> *Michael Cusack, dba Mike Cusack's King Salmon Lodge*
> *Dave Duncan, dba Duncan and Sons, Ltd.*
> *John Harkey, dba Alaska Rafting and Outfitting*
> *Rene Limeres, dba Ultimate Rivers*
> *John Ortman, dba Wood River Lodge*
> *Daniel Rawding, dba Silver Highlander*
> *Michael Trotter, dba Beyond Boundaries Expeditions*
>
> *Offering Number 3: Guided fly-in sport fishing - Wilderness Lakes (Unit 13A and 13B). Party size will not exceed 8 people (including guides, clients, pilots, etc.) At one time; no more than one visit per lake per week per permit holder will be authorized; landings are not authorized if other parties are visible on the lake or lake shore except on Togiak, Goodnews, and **Kagati Lakes**; and storage of fuel, equipment, and boats will not be allowed. Permits to (in alphabetical order):*
>
> *Michael Cusack, dba Mike Cusack's King Salmon Lodge*
> *Fuminori Kindaichi, dba Golden Horn Lodge, Inc.*
> *John Ortman, dba Wood River Lodge*

Doug Whittaker (1996) summarized and compared use of the Kanektok, Goodnews, and Togiak rivers from 1984 through 1995. He identified general trends of river use by assembling data from earlier reports, while noting some apparent measurement errors from reports pre-dating

River Ranger reports. He determined use of the Kanektok River has been considerably higher than that of the other two rivers. There have been between 150 and 250 people on the Kanektok River in recent years during high use days (Whittaker 1996:16). Guided use on the river was relatively static during the 1984-1995 period, while unguided use increased significantly in the mid-1990s. (See Figure 21.) Whittaker (1996:6) wrote:

> *"In most years* [1984-1995], *there are more guided that unguided float trips on the river, but that ratio appears to be shifting. Guided motor use (people staying at base camps or fly-in day users that utilize motorboats to get to fishing areas) was relatively high in 1984, but was generally lower than float trip use until recently. Anecdotal information suggests that guided motor use is dramatically increasing in the lower river (below the wilderness boundary).*

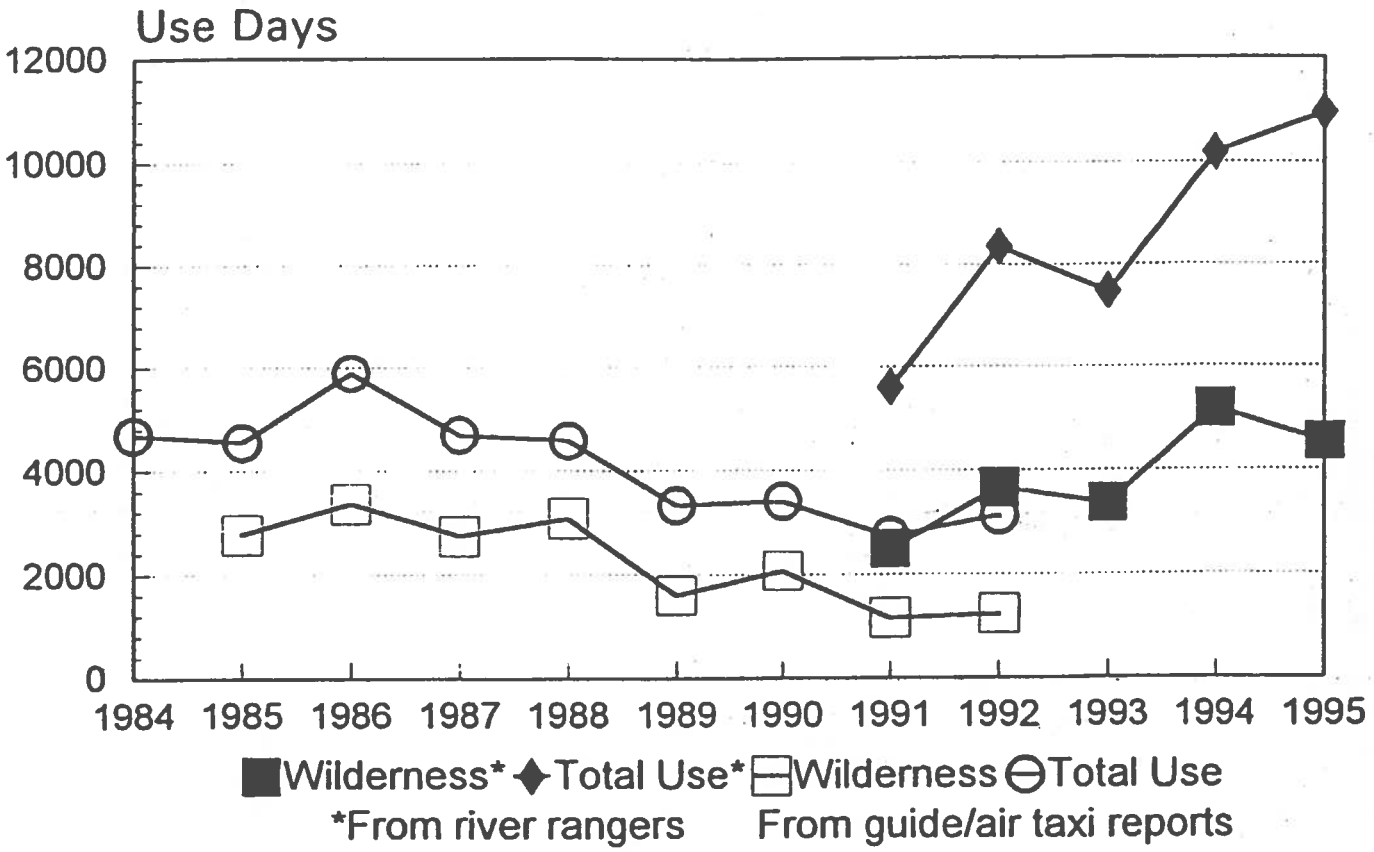
1996-1997

In 1996, sport fishing activity on the Kanektok River accounted for more than half of all sport fishing activities on waters within Togiak Refuge (USFWS 1997:63). Refuge staff estimated 15,340 sport fishing use days on the Kanektok River. Guided use days numbered 8,561, while non-guided use days numbered 6,779. This use estimate was based on river ranger surveys, air taxi trip reports, and sport fish guide reports. This level of activity suggests sport fishing anglers spend multiple millions of dollars annually to fish the Kanektok River. The following excerpt from the Refuge's 1996 annual report characterizes contemporary sport fishing commerce:

> *"Refuge sport fishing guides offer fishing packages of various types to people from all over the world. These sport fishing packages range in price from $2,000 to $5,000 for a 6-10 day fishing excursion. Packages include float trips, tent-base camps on rivers, or full accommodations at lodges located off the refuge with daily fly-in fishing to refuge rivers and lakes. It is estimated that sport anglers spend more than $3,000,000 to fish within the refuge. This cost does not include airfare to Alaska or fishing tackle or licenses. Costs of all gear and transportation will probably increase the total to more than $6,000,000."*

A 1997 report by Kanektok River Rangers of the Togiak NWR and an extensive 1997 article in the *Anchorage Daily News* are especially insightful about public sportfishing use of the Kanektok River (Stanley and Hill 1997; Kizzia and Hunter 1997). The newspaper article focuses on the people of Quinhagak (population 540) and how the impact of "unchecked sportfishing" on the Kanektok River resulted in accelerating social and political change within the village. The lengthy article, containing 11 photographs, addresses issues and problems associated with the recent sportfishing boom. Sportfishing related topics covered include trespass on village corporation lands, river pollution from upstream litter and human waste, activities of the recently created tribal police force and river rangers, inadequate enforcement of state regulations on the river, unlawful long-term river-bar camps, conflicts between tribal police and commercial

Figure 21. Kanektok River use (1984-1995) as reported by river rangers and guide/air taxi reports [photocopy]. (Whittaker 1996)



sportfish guides, emerging guided sportfish enterprises by Quinhagak Natives, and cooperative agreements concerning the river between federal, state, and tribal governments.

A 42 page-long, end of season report by USFWS Kanektok River Rangers (Stanley and Hill 1997) clearly details the magnitude of public use during the 1997 sportfish season. It addresses many of the topics in the newspaper article listed above. The report documents activity on different reaches of the river, number of people, commercial sportfishing operations, use by unguided fishers, and types of boats. River use survey figures for the summer of 1997, excluding subsistence activity, show the sportfish boating public consisted of an estimated 2,112 guided and non-guided users. They spent a combined total of 10,984 use days on the Kanektok River. Within the Refuge's wilderness area (RM 20 to RM 89), float boat use was the dominate travel mode. People in unguided float boats were the largest user group, outnumbering guided floating users by a 519 to 219 margin. Outside the wilderness area (RM 0 to RM 20), motorboats were the dominant travel mode. People in guided motorboats were the largest user group, outnumbering unguided motorboat users by a 370 to 310 margin. (See Appendix D for tables and graphs depicting river use between June and September, 1997.)

Commercial guides used several types of boats on the river. One type described was an 18-foot "Lowe," flat bottom skiffs with 40 horsepower Suzuki jet units. Another type was custom "Willie boats" with 40 horsepower Suzuki outboards and transom jacks enabling travel through water 5" - 8" deep. Common float boats used by commercial guides were 16-foot long "Avon Pro's" with aluminum frames and oars. (See Appendix E.)

The following River Ranger report excerpt describes 1997 season activities for "B&B Fishing Adventures." This commercial float company is one of fourteen commercial operators on the Kanektok River (Stanley and Hill 1997:8-9). Similar profiles summarize activities of other float and motorboat operators. Summaries in the River Ranger report show names of owners, number of guides and clients, types of boats used, dates of operation, modes of access to the river, and extent of river use. B&B Fishing Adventures is the largest commercial float operation on the Kanektok River. The owner/operator has a long history of floating the river's entire length. B&B's uses a type of inflatable boat representative of other float operators (Appendix D). The company's river activity is increasing.

> *"B & B FISHING ADVENTURES: OWNER AND OPERATOR BUS BERGMAN*
>
> *"GUIDES/CAMP HELP: 6, including Bus*
>
> *"RAFTS: Six Avon Pro's* [sic] *with aluminum frames and Carlisle oars.*
>
> *"DATES OF OPERATION: First float began on 7/12/97 and the last one ended on 9/12/97, for a total of 62 days in operation, with 13 guided floats. Clients used 492 WA* [Wilderness Area - RM 20 to RM 89] *use days and 90 NWA*

[Non-Wilderness Area - RM 0 to RM 20] *use days, and guides used 246 WA use days and 45 NWA use days, for a total 738 WA use days and 135 NWA use days. There were 873 total use days.*

"CAMP COMPONENTS: Bus Bergman's operation consisted of six rafts, six guides, and 12 clients (two separate groups). All his trips were 7-day packages, spending six days on the river and one at Kagati Lake. Usually, six days were spent in the WA and one in the NWA. All the clients arrived in Dillingham and were flown to Kagati Lake via a Freshwater Adventures Goose. They spent the first night at the lake and started downriver the following morning. At the end of the trip, guests were transported from Quinhagak to Bethel via Kusko Air.

"They had three large tents used for cooking/dining/guide sleeping and three sleep tents for guests per group. Bus also had a hot shower setup. He used a 'ROCKET BOX' and carried all human waste out with him. The waste was then taken to the village dump at the end of the trip.

"B & B is the largest float operator on the river and has been guiding on the Kanektok River for over 10 yrs. Almost all of their clients were fly-fisherman and just a hand full of spin fisherman [sic].

"Bus made his 100th trip down the Kanektok in 1994. He began doubling up on float trips in 1994 and had two separate float groups operating for the majority of the summer. Both groups consist of three guides and six clients per trip, and started two days apart. Bus was awarded four additional start dates last year, and used all but one."

In late 1997 the *Anchorage Daily News* reported State officials and leaders from Quinhagak village were making an attempt to mitigate impacts of heavy sportfishing on the Kanektok River by a greater law enforcement presence (Kizzia 1997:A-1,A-8). The State may allow Quinhagak tribal police to enforce trespassing and sanitation regulations on the river. The newspaper reports, "Tribal officials say someone needs to enforce the three-day camping limit on state-owned gravel bars, because guide operations can now ignore the rule and set up summer long camps." Letters to the editor of the *Anchorage Daily News* offer opposing perspectives and descriptions of one confrontational incident between sport fishers and village residents (Caole 1998; Wade 1997).

Trapping

In 1983, the ADF&G's Research Director, Division of Subsistence, briefly described post-statehood winter trapping and hunting activity in the Kanektok River area (Wolfe 1983:3; NPS 1983:26). Robert Wolfe wrote:

"During the winter, trappers and hunting parties harvest furbearers and small game within the Kanektok drainage -- beaver, red fox, mink, land otter, snowshoe hare, arctic hare, ptarmigan, and an occasional wolverine, lynx, and porcupine. Furs are stretched and dried; sold for income; and used for clothing and other crafted items. The meat of beaver, hare, ptarmigan, and porcupine is eaten. Some hunters trap from winter camps established along the Kanektok River, while others trap from the community. Travel up and down the river occurs almost daily during this season."

Area wide, Wolfe, et al. (1984:195-198) report that residents of southwestern Alaska continued to trap for furs for commercial sale in the early 1980s as they did in earlier times. Boats used to support trapping activities are mentioned by Wolfe, et al. only in regard to end of spring season trapping when relatives sometimes retrieve upriver family members in a boat when lack of snow does not allow return to the village by snowmachine.

In 1983 the magnitude of "cash trapping" was diminishing, accounting for only $17,000 income for 34 Quinhagak trappers, or, 1.1 percent of the total community income. Trapping income for Quinhagak residents was low, with the average active trapper earning $500 for the 1983-1984 season. Wolfe, et al. (1984:198) wrote that most trappers "barely cover expenses from trapping unless the red fox is abundant and the pelts are in good shape." They also wrote:

"In short, productivity is still relatively high in fur harvests, but its significance as a source of income has markedly decreased. A major value of the fur industry at the local level is that it subsidizes subsistence harvests which would have to be paid from some other source. It provides opportunities to pursue other subsistence resources and also provides the raw materials for skin crafts which are used by the household or sold on the commercial market."

According to Wolfe, et al.'s subsistence report (1984:320,324-325), commercial trapping was a significant source of income for only a few Quinhagak individuals in 1983, some of whom apparently trapped in the Kanektok River basin. Quinhagak residents trapped during the winter and spring seasons. Wolfe, et al. reported that during winter some Quinhagak men establish traplines and winter trapping camps. Fox taken with traps and loop snares is the most numerous pelt taken for sale, selling for $67 per pelt. Beaver is taken as a source of red meat; pelts being used for domestic hats and mittens. In 1983 beaver was not considered profitable to trap because of their low market value, $16-$24 for large pelts and $28-$37 for blanket size pelts. Land otter and mink were taken in small numbers while very few lynx or wolverine were taken. The ADF&G biologist Dinneford (1982:3-4,6) reported commercial fur sales by Quinhagak trappers between 1978 and 1981. He further noted the magnitude of beaver trapping activity in the Kanektok River drainage from 1978 to 1982. ADF&G reported an average total annual beaver harvest of 56 animals for this four year period. The number of licensed trappers taking beaver from the Kanektok basin for this time period ranged from three in 1980-1981, to eleven in 1978-1979; an average of 5.8 beaver per trapper per year.

During the end of April and the end of May, a few Quinhagak families travel to spring "squirrel camps" located "in the mountain valleys above the Kanektok" river where squirrels, marmots, wolverines, and ptarmigan are harvested (Wolfe, et al. 1984:320). In 1983 squirrel skin parkas were sewn for family members and were considered valuable prestige items in the Kuskokwim region. Regarding spring trapping, Wolfe, et al. (1984:320) wrote:

> *"The squirrel meat is eaten fresh or dried. The furs are stretched and bundled in lots of 45 skins, selling locally for $150 per bundle untanned. Many Quinhagak households have bundles of squirrel skins hanging in their arctic entryways. . .* [Squirrel camp] *families may return by snowmachine when there is still snow on the ground or be retrieved by a relative with a boat. The number of spring camps has diminished over the past 30 years primarily because of the school system. As late as the early 1950s parents took children out of school to move to squirrel camps. After a tightening of school policy, parents ceased doing this. Currently* [1983], *spring camps are established primarily by older couples accompanied by a select number of children or grandchildren."*

The Togiak Refuge's 1996 annual narrative report generally characterized trapping activity refuge-wide (USFWS 1997:65). The Refuge noted trapping seasons generally reflect the period of pelt primeness that begins in early November and ends in February or March. According to the report, most trappers access trapping areas by snowmachine.

Hunting

In 1982, the ADF&G noted some commercial hunting guide activity for grizzly bear in the Kanektok River drainage (Dinneford 1982:3). Only six harvested bears were reported for the Kanektok River watershed for the period 1971-1981. It is undetermined whether those bears were taken by subsistence hunters, unguided recreational hunters, or hunters associated with commercial guides.

According to Togiak NWR files, from 1992 through 1998, one big game guide was permitted to operate within the Kanektok River basin on Refuge lands (per. com., Miller 1998b). He averaged one bear harvested, 2.6 clients, and 17 client days per year for this seven year period. All sport hunting activity was conducted within walking distance of Kagati Lake.

Mining

No economic mineral deposits are known along the Kanektok River (USFWS 1986:47-49). Similar to the pre-statehood era, it appears little if any mining activity occurred in the Kanektok River area after statehood. The mineral lode claim "Wally", in the vicinity of Atmugiak Creek, a short tributary of Kagati Lake, was filed in 1979 by Bethel Exploration (BLM 1997b). The claim was abandoned in 1986.

In 1982, Quinhagak residents filed thirty-two placer claims on Sam Creek, RM 65 (BLM 1997a; USFWS 1986:49). The claims, such as "Kanektok Sam #1" filed by Alice and David Gilbert, began at the Sam Creek - Kanektok River confluence and extended upstream along Sam Creek. The "Kanektok Sam" placer claims were determined null and void in 1985, apparently because they were filed on refuge land closed to mineral entry. [Note: BLM case files for these claims are stored in Seattle.]

3. Government agencies

Various Federal and State government agencies, as well as universities, have sponsored numerous post-statehood activities requiring boat use on the Kanektok River. Some boat trips are listed below. There are many instances of motorized and non-motorized float boat use that extend the entire length of the river. Many of the more recent government agency trips were associated with fishery investigations and growing sport fishing activities of the 1980s and 1990s.

Around 1980, the DOI's Heritage Conservation and Recreation Service (n.d.) printed the guide *Alaska Float Trips - Southwest Region* for the recreational boating public. The guide describes the Kanektok River as suitable for canoe, raft, or kayak.

In **1969**, ethnographer Wendell Oswalt from the University of California at Los Angeles, "traveled up the Kanektok River to Kagati Lake" (Ackerman 1979:1-2). Archaeologist Robert Ackerman (pers. com. 1998) vaguely recollected Oswalt hired "two Eskimos" who transported him up the river by boat to Kagati Lake.

In mid-July **1973**, the ADF&G made a "preliminary float trip" of the Kanektok River (Alt 1978:40). This float trip was followed by a 1975 raft trip for the purpose making a sport fish survey.

In August **1973**, four men representing different government agencies descended the entire length of the Kanektok River via canoes from August 3 through August 9 (Granzow 1973). The U.S. Bureau of Outdoor Recreation (BOR) sponsored the trip to reconnoiter the river for suitability as a designated Wild and Scenic River. They accessed the Kanektok River by flying to Kagati Lake in a Widgeon aircraft that transported the men, gear, and canoes. Participants included Noel Granzow (BOR), Jerry Hout of the U.S. Bureau of Sport Fisheries and Wildlife, Lew Waller of the BLM, and Bill Gassaway of ADF&G. Granzow's trip report notes numerous difficulties descending the river including heavy rains, extensive lining of canoes over rocks and gravel bars, the presence of "hundreds of sweepers", swift moving water, multi-braided channels, the abandonment of one canoe, and a near fatal accident. The participants concluded:

> *". . . the* [Kanektok] *river is not suited to novice canoeists; that the topographic maps are 'out of date' as they do not show the new channels; that the river can be run but it should not be attempted by one canoe as there are literally hundreds of*

sweepers waiting to clutch a canoe and hold it fast; the prospective traveler should be prepared to line and even portage often; . . ." (Granzow 1973:4-5)

In July **1975**, the ADF&G surveyed the Kanektok River from the Kagati Lake outlet to Quinhagak (Alt 1978:40). The ADF&G survey team floated the river in "a 12' rubber raft with a 4 hp motor" over a three to five day period (Alt 1977: 8). As a part of ADF&G's stream survey efforts in the lower Kuskokwim region, two or three biologists ascended the Kanektok River "as far as possible with a 24' aluminum river boat using an outboard motor with either a propeller or a jet unit" (Alt 1978:8). The date of travel and the extent of their upstream travel from Quinhagak is not determined.

In June **1977**, Clayton White and Douglas Boyce, Jr., conducted a raptor survey for the BLM along a 33 mile reach of the Kanektok River, from approximately RM 84 to RM 52 (White and Boyce 1978:iv,4-5,7; Brown 1985:590-591). They accessed the river by a Cessna 185 floatplane, getting dropped off at a small lake in Section 21, T. 3 S., R. 64 W., S.M. They portaged to the river on June 16, assembled an Avon Redshank raft, and floated downstream. On June 18 they left the river in the vicinity of RM 52 and portaged to "Otter Lake" in Section 20, T. 5 S., R. 68 W., S.M., where they were picked up by a floatplane on June 20. They described river conditions as "poor," noting that high water, river bars, flooded banks and islands, and a gradient drop of about 20 feet per mile "made boat work difficult."

In **1978**, two BLM officials ascended 10 miles of the Kanektok River by river boat on a trip relating to ANCSA land selections (Brown 1985:591-592,688). They presumably began at Quinhagak and traveled upstream about 10 miles before shallow water prevented them from continuing further up the river.

In **1982**, an interagency study team again examined the Kanektok River as a potential Wild and Scenic River (Mosby 1982). A six person team descended the entire length of the river from July 20 through July 25. Participants included Jack Mosby (NPS), Dave Fisher (USFWS), Calvin Skaugstad (1982), Bob Schroeder (ADF&G), Bruce Dinneford (1982), and Allison Smith (Calista Corporation). They accessed the river via a Grumman Goose aircraft that transported all people and field gear, including two 13-foot long inflatable rafts and a 4 horsepower motor. They floated the upper river (RM 28-91) and used the outboard motor only between RM 0 and RM 28. Mosby (1982:4) noted that access to Kanektok River is limited to float planes at Kagati Lake and several other lakes along the river that all require portages to the river. He also noted riverboats can access the Kanektok River upstream from Quinhagak as far as Kagati Lake "at higher water levels." Dave Fisher (1982:2), Togiak NWR Manager, commented, "It is possible to take an outboard driven boat (preferable with a jet unit) from Quinhagak to Kagati Lake."

In **1983**, three USFWS biologists investigated the Kanektok River fishery during July (Dlugokenski, et al. 1983). They spent two weeks floating down the river from Kagati Lake in an inflatable Zodiac raft. They accessed the lake with a Grumman Widgeon aircraft that

transported them and all gear. The biologists surveyed Kanektok River tributaries by foot as they descended the river by raft.

In **1985**, two USFWS biologists, Michael J. Amaral and Karen S. Bollinger (1985), accessed Kagati Lake by floatplane and floated the Kanektok River in an Avon raft with a rowing frame. They conducted a six day-long raptor survey in July along the Kanektok River.

In **1985**, four USFWS float trips were made down the Kanektok River for the purpose of investigating rainbow trout (Wagner 1991:2). The 5-7 day-long trips, beginning at Kagati Lake and ending at Quinhagak, were accomplished with "Avon Adventure and Pro rafts" with rowing frames (Lisac, pers. com. 1998).

In **1986** and **1987**, USFWS fish biologists floated the entire river using Avon rafts with rowing frames (Wagner 1991:4; Lisac, pers. com. 1998). They conducted rainbow trout investigations both years from a base camp located at approximately RM 20. For both years they operated "outboard jet motor boats" to access sample areas and conduct creel surveys along a 20 mile reach of the lower river, from RM 20 to RM 40.

In **1986** and **1987**, the Sport Fish Division of ADF&G (Minard 1987:3; Minard and Brookover III 1988:5) conducted a roving creel survey on the lower Kanektok River, approximate RM 0 to RM 20. The type of boat used to conduct the survey is undetermined.

In **1991**, the Sport Fish Division of ADF&G conducted creel surveys for salmon on the lower 10 miles of the Kanektok River (Dunaway and Bingham 1992:6). Researchers used a boat on the lower river during June, July, and August as they investigated salmon sport fishing.

In **1991**, USFWS personnel Mark Lisac (pers. com. 1998) and A. Felton Jenkins, III, flew to Kagati Lake, bringing a 40 horsepower jet outboard with them. They mounted the jet outboard on a 14 foot Lowe skiff that had been kept at the lake for public use survey purposes. Lisac and Jenkins then "drove" the skiff downstream to Quinhagak during a period of "moderately high, but dropping" water around July 2 or 3. The skiff was subsequently used as the first river ranger boat.

In **1993** and **1994**, the USFWS replicated a 1985-1987 investigation of the status of rainbow trout on the Kanektok River (Adams 1996; Wagner 1991). Biologists studied an area of the river extending from RM 20 to RM 40. Operating out of a base camp during the summer of 1993, "outboard jet motor boats were used as transport throughout the study area" by USFWS personnel (Adams 1996:4).

In **1996**, a Service party of four floated the Kanektok River from August 7-13 (USFWS 1997:5). Service personnel were members of a team revising the Togiak NWR PUMP. Team members included Togiak Deputy Refuge Manager Donna Stovall, Togiak Maintenance Worker Robert Doyle, Regional Planner Helen Clough, and former Togiak Refuge Manager Dave Fisher.

Togiak NWR Refuge staff functioning as River Rangers operated "Ranger camps" on the Kanektok River from 1991 through 1997 (Miller, pers. com. 1998a). In **1997**, USFWS River Rangers operated out of a Kanektok River camp in the vicinity of RM 22 from June through September (Stanley and Hill 1997). The rangers had two boats to support their patrolling, surveying, and educational activities on the river. They used an 18-foot Lowe flat bottom skiff powered by a 35-horsepower Honda Jet Drive unit. They also had a 14-foot Lowe semi-vee skiff which was lent to and used by an ADF&G counting tower/weir crew. The rangers typically spent six to ten hours per day, four to five days per week, on the Kanektok River between June 16 and September 11. Their area of operation usually ranged between Quinhagak and the confluence of Klak Creek at RM 59, though they did report patrolling the "entire upper river" and reaching Kagati Lake on August 23 for the "first time in the history of the River Ranger program" (Stanley and Hill 1997:17). In addition to their own river travel, they noted travel by other government personnel, including river rangers of the Quinhagak Tribal Council, an ADF&G fishery technician, and Alaska Department of Natural Resources personnel.

VI. ENDNOTE

Navigability related information for this water body continues to become known. Some sources of information undoubtedly are unrecognized and undiscovered, while other sources are known or suspected to exist, but have not been researched. As noted in the introduction, this navigability report of the Kanektok River is not exhaustive. Additional research in some areas certainly could be productive and amplify the data and other information collected here. The following are suggested for further inquiry.

1. Interview the owner of the Kanektok River's uppermost Native Allotment (50-91-0282) in the vicinity of RM 70 for any historical boat access to the property. Also interview the applicants for the two Native allotment applications on the shores of Kagati Lake for access history. Alternatively, allotment case files could be reviewed.

2. Contact Native elders in Quinhagak for information about the nature and extent of boat use (especially wooden boats) on the river before statehood, particularly the 1940s and 1950s.

3. Review Quinhagak-specific articles of *Fairbanks Daily News-Miner*. The BLM historian Mike Brown is aware of 26 such articles dating from 1924 to 1960. They may contain information pertinent to navigability issues. A database of the *Anchorage Daily News*soon to be available on the Internet will allow searches of Kanektok River post-statehood newspaper stories.

4. Interview sportfishing guide Bus Bergman, who reportedly floated the Kanektok River more than 100 times since the 1980s, for post-statehood guided use information and description of the upper Kanekotk River's physical character.

5. For a more detailed assessment of extent of tidal influence, channel widths, and some other physical characteristics, BLM photo-interpreters of the Anchorage office have the aerial photographs and expertise to make factual, river-mile specific analyses if necessary.

6. Review original field notebooks by USGS explorers and geologists Mertie (1941), Harrington (1921), Maddren (1915), and Spurr (1900) for boat use references not noted in their final technical reports. These fieldnotes are archived at the USGS Anchorage Office in the care of Jill Schneider, Geologist/Librarian.

7. In addition to forthcoming hydrologic data from the recently installed stream gage at RM 41, a thorough USFWS hydrologic reconnaissance of the river by boat would significantly improve our understanding of the Kanektok River's physical character, particularly the upper Kanektok River.

REFERENCES CITED

Ackerman, Robert E. 1979. Southwestern Alaska archeological survey 1978: Akhlun-Kuskokwim mountains a final field report. Arctic Research Section, Laboratory of Anthropology, Pullman, Washington. 30 pages, plus maps.

Ackerman, Robert E. 1980. Southwestern Alaska archeological survey Kagati Lake, Kisaralik-Kwethluk rivers. Final Research Report to the National Geographic Society, Grant No. 2032. Unpublished report. Laboratory of Anthropology, Washington State University, Pullman. 20 pages.

Adams, F. Jeffery. 1996. Status of rainbow trout in the Kanektok River, Togiak National Wildlife Refuge, Alaska, 1993-1994. Alaska Fisheries Technical Report Number 39. King Salmon Fishery Resource Office, U.S. Fish and Wildlife Service, King Salmon, Alaska. 29 pages.

Alaska Department of Community and Regional Affairs. 1997. Community information summary (CIS) Quinhagak. [Online] Available http://www.comregaf.state.ak.us/ QUINHAGA.htm, September 30, 1997.

Alaska Department of Fish and Game. 1984. Kuskokwim Bay commercial catch fisheries monitor report. Unpublished Report. Bethel, Alaska.

Alaska Department of Natural Resources. 1990. Bristol Bay easement atlas. Division of Land and Water, Alaska Department of Natural Resources, Alaska. 233 pages.

Alt, Kenneth T. 1978. Inventory and cataloging of sport fish and sport fish waters of western Alaska. July 1, 1976-June 30, 1977, Federal Aid in Fish Restoration Study G-I-P. Vol. 18. Sport Fish Division, Alaska Department of Fish and Game, Juneau. 128 pages.

Amarall, Michael J. and Karen S. Bollinger. 1985. A survey for birds of prey along the Kanektok River, Togiak National Wildlife Refuge. Unpublished Report. Division of Endangered Species, U.S. Fish and Wildlife Service, Anchorage, Alaska. 10 pages.

Arndorfer, Robert W. 1988. Memorandum to Deputy State Director for Cadastral Survey (923), Bureau of Land Management re: Navigable waters in group survey 171 (window 1562), March 29, 1988. 6 pages, plus attachment.

Boden, Wayne A. 1989. Memorandum to Deputy State Director for Cadastral Survey (923), Bureau of Land Management re: Navigable Waters on or along Small Tracts in Quinhagak (Window 1562), February 21, 1989. 6 pages, plus table.

Boden, Wayne A. 1989. Memorandum to Deputy State Director for Cadastral Survey (923), Bureau of Land Management re: Navigable waters in group survey no. 268 (window 1836), May 8, 1989. 6 pages, plus attachments.

Botelho, Bruce M. 1996. Letter to Bruce Babbit, Department of the Interior, Washington, D.C., December 17, 1996. 1 page, plus appendix.

Bronczyk, Stanley H. 1977. Memorandum to files re: Easement task force meeting on Quinhagak, February 1, 1977. 3 pages.

Brown, C. Michael. 1985. Alaska's Kuskokwim River region: A history. Bureau of Land Management, Anchorage, Alaska. 806 pages.

Bureau of Land Management. 1997a. Alaska Land Information System (LIS). Case Abstract AKAA 047923 (Kanektok Sam #1), Division of Information Technology Services, Alaska State Office, Anchorage.

Bureau of Land Management. 1997b. Alaska Land Information System (LIS). Case Abstract AKAA 035833 (Wally), Branch of Information Technology Services, Alaska State Office, Anchorage.

Calista Professional Services, Inc. 1984. Prospects for reviving the reindeer industry in the Yukon-Kuskokwim region. Calsita Professional Services, Anchorage, Alaska. 174 pages.

Caole, Anthony. 1998. Letter to editor, Anchorage Daily News, January 9, 1998. 1 page (B-7).

Carter, M. 1982. Floating Alaskan rivers: Whitewater & family floats. Aladdin Publishing, Palmer, Alaska. 111 pages.

Case, David S. 1984. Alaska Natives and American laws. University of Alaska Press, Fairbanks, Alaska. 586 pages.

Coats, Heather A. 1995. Notice: Intent to issue patent, April 6, 1995. 3 pages, plus attachments.

Coffing, Mike. 1991. Kwethluk subsistence: Contemporary land use patterns, wild resource harvest and use, and the subsistence economy of a lower Kuskokwim River area community. Technical Paper No. 157. Division of Subsistence, Alaska Department of Fish and Game, Juneau. 244 pages.

Coffing, Mike. 1988. Bear boats floating home from squirrel camp. Alaska Fish and Game 26(16):12-13.

Cole, Charles E. 1992. Letter to Manuel Lujan, Jr., Secretary, Department of the Interior, Washington, D.C., August 27, 1992. 1 page, plus appendix.

Cunning, Tina. 1984. Letter to Roger Contor, Regional Director, National Park Service, April 9, 1984. 2 pages.

Darbyshire & Associates. 1991. Lower Kuskokwim community profiles: A background for planning Kwethluk, Mekoryuk, Napakiak, Oscarville, Platinum, Quinhagak, Tuntutuliak, Tununak. REAA 4. 8 sheets.

Dinneford, Bruce. 1982. Kanektok River wild and scenic river field study. Unpublished report. Division of Game, Alaska Department of Fish and Game, Bethel. 4 pages, plus tables and maps.

Dlugokenski, Chris, Teresa Wagner, and Rick Weide. 1983. Kanektok River fishery investigations, 1983. Unpublished report. King Salmon Fisheries Resource Station, U.S. Fish and Wildlife Service, King Salmon, Alaska. 18 pages, plus appendices.

Ducker, James H. 1986. Memorandum to Gulkana Litigation File re: Interviews concerning types of watercraft used in trapping, January 24, 1986. 6 pages.

Dumond, Don E. 1984. Prehistory: summary. Pages 72-79 In D. Damas, Volume Editor. Arctic. Handbook of North American Indians. Vol. 5. Smithsonian Institution, Washington, D.C.

Dumond, Don E. 1987. The Eskimos and Aleuts. Thames and Hudson, New York, New York. 180 pages.

Eide, Sterling. 1983. Letter to Jack Mosby, Kanektok Study Team Leader, National Park Service, February 28, 1983. 2 pages, plus 15 page attachment.

Ells, Cliff D. 1976 . Memorandum to files re: Summary of Quinhagak Village easement proposals meeting on September 12, 1975. 4 pages.

Faurot, Dave and Ray N. Jones. 1992. Fishery resources in the Kisaralik River basin, Yukon Delta National Wildlife Refuge, Alaska, 1986. Alaska Fisheries Technical Report Number 15. U.S. Fish and Wildlife Service, Kenai, Alaska. 26 pages.

Fienup-Riordan, Ann. 1988. The Yup'ik Eskimos as described in the travel journals and ethnographic accounts of John and Edith Kilbuck who served with the Alaska Mission of the Moravian Church 1886-1900. The Limestone Press, Kingston, Ontario. 495 pages, plus appendices.

Fisher, Dave. 1982. Memorandum to Files (Kanektok River) re: Trip Report, September 24, 1982. 3 pages, plus table.

Fisher, Dave. 1984a. Memorandum to Refuge Supervisor (S) re: River public use data for Togiak C.C.P., July 26, 1984. 3 pages, plus attachments.

Fisher, Dave. 1984b. Recreational use Togiak N.W.R. 4 pages.

Fisher, Dave. 1990. Memorandum to Associate Manager, Refuges and Wildlife re: Federal regulation on navigable waterways, August 30, 1990. 6 pages.

Foster, Adolph. 1986. Oral recording, BIA ANCSA 86PLA21, August 4, 1997. Quinhagak resident.

Foster, Adolph and Wassilie Britton. 1986. Oral recording, BIA ANCSA tape 86PLA20, August 4, 1986. Quinhagak residents.

Gallant, Alisa L., Emily F. Binnian, James M. Omernik, and Mark B. Shasby. 1995. Ecoregions of Alaska. U.S. Geological Survey Professional Paper 1567. Government Printing Office, Washington, D.C. 62 pages, plus appendices and map.

Granzow, Noel P. 1973. Memorandum to ATF Leader, Tileston (Bureau of Outdoor Recreation) re: Trip report-- Kanektok River evaluation, August 3-9, 1973. 6 pages, plus attachment.

Gustafson, Gary. 1991. Notice: State owned land & water within the Togiak National Wildlife Refuge, March 4, 1991. 1 page, with attachment.

Harrington, George L. 1921. Mineral resources of the Goodnews Bay region. Pages 207-229 In A. H. Brooks and others. Mineral resources of Alaska: Report of progress of investigations in 1919. Government Printing Office, Washington, D.C.

Heinze, Harold C. 1991. [Untitled] (adoption of guidelines for Chapter III of the Togiak NWR Public Use Management Plan for state-owned shorelands), May 10, 1991. 1 page, plus attachment.

Heritage Conservation and Recreation Service. nd. Alaska float trips: Southwest region. U.S. Department of the Interior, Anchorage, Alaska. 28 pages.

Hoare, Joseph M. and Edward H. Cobb. 1977. Mineral occurrences (other than mineral fuels and construction materials) in the Bethel, Goodnews, and Russian Mission quadrangles, Alaska. U.S. Geological Survey Open-File Report 77-156. 98 pages.

Hotchkiss, Lee. 1984. Letter to Dave Fisher, Refuge Manager, Togiak NWR re: Bob Curtis info, July 6, 1984. 1 page, plus attachment.

Huttunen, D. C. 1985. 1984 Kanektok River sonar report. Kuskokwim Escapement Report. Alaska Department of Fish and Game, Bethel.

Impact Assessment, Inc. 1984. Sociocultural/socioeconomic organization of Bristol Bay: Regional and subregional analyses. Alaska OCS Socioeconomic Studies Program Technical Report Number 103. 528 pages.

Jacobson, Steven A. 1984. Yup'ik Eskimo dictionary. Alaska Native Language Center, University of Alaska, Fairbanks. 757 pages.

Janis, Sharon N. 1990. Memorandum to Assistant Regional Director/Refuges & Wildlife re: Draft Togiak "Public Use Management Plan", May 14, 1990. 7 pages.

Jettmar, Karen. 1993. The Alaska river guide: Canoeing, kayaking, and rafting in the last frontier. Alaska Northwest Books, Seattle, Washington. 302 pages.

Jones, Stanley H. and Charles B. Fahl. 1994. Magnitude and frequency of floods in Alaska and conterminous basins of Canada. Water-Resources Investigations Report 93-4179. U.S. Geological Survey, Anchorage, Alaska. 122 pages, plus 2 map sheets.

Kizzia, Tom. 1997. State, village look at police contract. Anchorage Daily News :A-1.

Kizzia, Tom and Don Hunter. 1997. Indian Country two destinies, one land. Anchorage Daily News (June 29, 1997):O-1 to O-8.

Lisac, Mark J. 1989. Estimated public use within Togiak National Wildlife Refuge 1984-1988. Togiak National Wildlife Refuge, Dillingham, Alaska. 21 pages, plus appendices.

MacDonald, Rob. 1993. Estimated public use within Togiak National Wildlife Refuge 1989 - 1992. Togiak National Wildlife Refuge, Dillingham, Alaska. 7 pages.

MacDonald, Rob. 1996. Baseline physical, biological and chemical parameters of 21 lakes, Togiak National Wildlife Refuge, 1984-1990. Fishery Data Series Number 96-5. Togiak National Wildlife Refuge, U.S. Fish and Wildlife Service, Dillingham, Alaska. 34 pages, plus appendices and maps.

Maddren, A. G. 1915. Gold placers of the lower Kuskokwim, with a note on copper in the Russian Mountains. Pages 292-360 In A. H. Brooks and others. Mineral resources of Alaska: Report on progress of investigations in 1914. U.S. Geological Survey Bulletin 622. Government Printing Office, Washington, D.C.

Mark, Paul D. 1982. Letter to Jack Mosby, National Park Service, November 3, 1982. 2 pages.

Martin, Steve. 1985. Public use on the Kanektok River system. Unpublished report. 17 pages.

Mathews, Amos C. 1979. Letter to Qanirtuuq, Inc. [Quinhagak village corporation] re: Notice of State of Alaska's ownership of submerged lands, December 10, 1979. 2 pages.

Mattice, Bill. 1990. Note to ARW, DARW, AM, RE, RF, RS, AFWE-FMS [managers and divisions of USFWS's regional office in Anchorage] re: Togiak Public Use Mgmt Plan (PUMP), September 5, 1990. 3 pages.

McVee, Curtis V. 1979. Memorandum to Chief, Division of ANCSA Operations (960) re: Final easements for the Village of Quinhagak, October 25, 1979. 9 pages.

Menard, Jim, and Anthony Caole. 1998. Kanektok River counting tower cooperative project, 1997. Unpublished report. Alaska Department of Fish and Game.

Minard, R. Eric. 1987. Effort and catch statistics for the sport fishery in the lower Kanektok River, 1986. Fishery Data Series No. 29. Division of Sport Fish, Alaska Department of Fish and Game, Juneau, Alaska. 23 pages, plus appendices.

Minard, R. Eric and Thomas E. Brookover ,III. 1988. Effort and catch statistics for the sport fishery for chinook salmon *Onocorhynchus tshawytscha* in the lower Kanektok River, 1987. Fishery Data Series No. 44. Division of Sport Fish, Alaska Department of Fish and Game, Juneau, Alaska. 20 pages, plus appendices.

Mosby, Jack. 1982. Memorandum to files re: Kanektok Wild and Scenic River field report, September 21, 1982. 4 pages.

Mosby, Jack and David Dapkus. 1986. Alaska paddling guide. J & R Enterprises, Anchorage, Alaska. 113 pages.

Nation, Dean J. 1977. Letter to Joint Federal/State Land Use Planning Commission re: Quinhagak village F-14885-A proposed easements, May 6, 1977. 1 page.

National Ocean Service. 1990. Kuskokwim Bay [map]. United States Alaska-West Coast 16000. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, D.C. (scale 1:200,000).

National Oceanographic and Atmospheric Administration. 1983. United States Coast Pilot 9, Pacific and Arctic coasts Alaska: Cape Spencer to Beaufort Sea. National Ocean Service, National Oceanographic and Atmospheric Administration, Washington, D.C.

National Park Service. 1983. Draft wild and scenic river study for the Kanektok River, Alaska. Denver Service Center, Denver, Colorado. 46 pages.

National Park Service. 1984. Final wild and scenic river study Kanektok River, Alaska. Denver Service Center, Denver, Colorado. 6 pages, plus attachments.

Orth, Donald J. 1967. Dictionary of Alaska place names. Geological Survey Professional Paper 567. Government Printing Office, Washington, D.C. 1084 pages.

Oswalt, Wendell H. 1990. Bashful no longer, an Alaskan Eskimo ethnohistory, 1778-1988. University of Oklahoma Press, Norman. 270 pages.

Petersen, Margaret R., Douglas N. Weir, and Matthew H. Dick. 1991. Birds of the Kilbuck and Ahklun Mountain region, Alaska. North American Fauna 76. 158 pages.

Pleasant, Charlie. 1986a. Oral history transcription, BIA ANCSA files 86PLA18 and 86PLA19, August 1, 1986. Quinhagak resident.

Pleasant, Charlie. 1986b. Oral history transcription, BIA ANCSA files 86PLA22 and 86PLA23, August 4, 1986. Quinhagak resident.

Pleasant, Wassilie, Frank Fox, Paul Mark, and Mary J. Jones. 1983. Letter to National Park Service, Alaska Area Office, February 15, 1983. 2 pages, plus resolutions and petition.

Porter, Robert P. 1893. Report on population and resources of Alaska at the eleventh census: 1890. Government Printing Office, Washington, D.C.

R&M Consultants, Inc. 1979. Lower Kuskokwim School District school site investigation for Quinhagak, Alaska. R&M Consultants, Inc., Anchorage, Alaska. 21 pages, plus tables and maps.

Reed, Irving. 1931. Report on platinum placers south of Goodnews Bay, Alaska. Territory of Alaska Mining Department, 26 pages.

Roehm, J. C. 1937a. Preliminary report of Winchester group of claims, Goodnews Bay District, Lower Kuskokwim, Alaska. Alaska Territorial Department of Mines, 2 pages.

Roehm, J. C. 1937b. Summary report of mining investigations in the Goodnews Bay District to the Commissioner of Mines, Juneau, Alaska and itinerary of J. C. Roehm, Associate Engineer, Territorial Department of Mines, July 6 to August 1, 1937. Unpublished report. 5 pages.

Roehm, J. C. 1938. General preliminary report of Togiak Lake region, August 9-20, 1937. Unpublished report. 7 pages, plus maps.

Rutledge, F. A. 1948. Investigation of Rainy Creek mercury prospect, Bethel District, Kuskokwim Region, southwestern Alaska. R.I. 4361. 7 pages, plus maps.

Sainsbury, C. L. and E. M. MacKevett, Jr. 1965. Quicksilver deposits of southwestern Alaska. U.S. Geological Survey Bulletin 1187. Government Printing Office, Washington, D.C. 88 pages, plus maps.

Seim, Sharon, and Mada Hansen. 1998. Draft Kisaralik River research navigability report. Water Resources Branch, U.S. Fish and Wildlife Service, Anchorage, Alaska.

Sherwood, Morgan B. 1992. Exploration of Alaska 1865-1900. University of Alaska Press, Fairbanks. 207 pages, plus illustrations.

Spurr, J. E. 1900. A reconnaissance in southwestern Alaska in 1898. Pages 31-264 In Twentieth annual report of the U.S. Geological Survey. Part 7. U.S. Geological Survey, Washington, D.C.

Spurr, J. E. 1950. The log of the Kuskokwim, an exploration in Alaska. Petersham, Massachussetts. 173 pages.

Spurr, J. E. 1975a. Into an unknown country: The recollections and journals of an Alaskan expedition--1898 (fifth of seven parts). Alaska Magazine 41(9):28-32, 53-54.

Spurr, J. E. 1975b. Into an unknown country: The recollections and journals of an Alaskan expedition--1898 (sixth of seven parts). Alaska Magazine 41(10):18-23, 66.

Stanley, Ronnie D. and Peter H. Hill. 1997. River ranger program on the Kanektok River, end of season report 1997. Togiak National Wildlife Refuge, Dillingham, Alaska. 42 pages.

Tileston, Jules V. 1973. Memorandum to Assistant Director Eastman re: Kanektok wild and scenic river report, May 17, 1973. 1 page, plus 20-page attachment with maps.

U.S. Army Corps of Engineers. 1990. Navigation improvements preliminary reconnaissance report Quinhagak, Alaska. Unpublished Report. U.S. Army Engineer District Alaska, Anchorage. 19 pages.

U.S. Army Corps of Engineers. 1993. Alaska communities flood hazard data. Flood Plain Management Services, U.S. Army Corps of Engineers, Alaska. 335 pages.

U.S. Army Corps of Engineers. 1994. Fact sheet, Alaska navigable waters as of November 21, 1994. 1 page.

U.S. Army Corps of Engineers. 1995. Fact sheet, Alaska navigable waters as of October 19, 1995. 2 pages.

U.S. Coast Guard. 1996. Navigable waters of the U.S. within the seventeenth Coast Guard district (State of Alaska), revised January 10, 1996. 5 pages.

U.S. Fish and Wildlife Service. 1986. Togiak National Wildlife Refuge final comprehensive conservation plan, wilderness review, and environmental impact statement. U.S. Fish and Wildlife Service, Anchorage, Alaska. 514 pages, plus maps.

U.S. Fish and Wildlife Service. 1990. Fishery management plan, Togiak National Wildlife Refuge, fiscal year 1990-1994. King Salmon Fishery Assistance Office, U.S. Fish and Wildlife Service, King Salmon, Alaska. 80 pages, plus appendices.

U.S. Fish and Wildlife Service. 1991. Togiak National Wildlife Refuge public use management plan and environmental assessment. U.S. Fish and Wildlife Service, Dillingham, Alaska. 244 pages.

U.S. Fish and Wildlife Service. 1996. Togiak National Wildlife Refuge annual narrative report calendar year 1992. Unpublished Final Report. U.S. Fish and Wildlife Service, Dillingham, Alaska. 100 pages, plus enclosure.

U.S. Fish and Wildlife Service. 1997. Annual narrative report, calendar year 1996, Togiak National Wildlife Refuge. U.S. Fish and Wildlife Service, Dillingham, Alaska. 71 pages.

U.S. Geological Survey. 1979a. Goodnews Bay, Alaska [map]. Alaska Topographic Series. U.S. Geological Survey, Reston, Virginia. (scale 1:250,000).

U.S. Geological Survey. 1979b. Goodnews Bay (D-3) quadrangle, Alaska [map]. 1:63,360 Series (Topographic). U.S. Geological Survey, Reston, Virginia.

U.S. Geological Survey. 1981. Togiak National Wildlife Refuge [map]. Alaska Boundary Series. U.S. Geological Survey, Reston, Virginia. 5 sheets. (scale 1:250,000).

VanStone, J. W. 1967. Eskimos of the Nushagak River, an ethnographic history. University of Washington Press, Seattle. 192 pages.

VanStone, J. W. 1984a. Exploration and contact history of western Alaska. Pages 149-160 In D. Damas, editor. Arctic. Handbook of North American Indians. Vol. 5. Smithsonian Institution, Washington, D.C.

VanStone, J. W. 1984b. Mainland southwest Alaska Eskimo. Pages 224-242 In D. Damas, editor. Arctic. Handbook of North American Indians. Vol. 5. Smithsonian Institution, Washington, D.C.

VanStone, J. W., editor. 1988. Russian exploration in southwest Alaska: The travel journals of Petr Korsakovskiy (1818) and Ivan Ya. Vasilev (1829). University of Alaska Press, Fairbanks. 117 pages.

Wade, Charles. 1997. Letter to editor, Anchorage Daily News, December 28, 1997. page F-3.

Wagner, Teresa A. 1991. Southwestern Alaska rainbow trout investigations, Kanektok River, Togiak National Wildlife Refuge, Alaska, 1985-1987 final report. Alaska Fisheries Technical Report Number 13. King Salmon Fishery Assistance Office, U.S. Fish and Wildlife Service, King Salmon, Alaska. 34 pages.

Watson, Gordon W. 1975. Memorandum to District Manager, Bureau of Land Management re: Identification of easements - village selections, June 17, 1975. 2 pages.

White, Clayton M. and Douglas A. Boyce, Jr. 1978. A profile of various rivers and their raptor populations in western Alaska 1977. BLM/AK/TR/78/01. Bureau of Land Management, Anchorage, Alaska. 77 pages.

Whittaker, Doug. 1995. Kanektok, Goodnews, and Togiak rivers: Summary of findings and implications from the 1986 National River Recreation Survey. Unpublished report. 16 pages.

Whittaker, Doug. 1996. Kanektok, Goodnews, and Togiak rivers: Summary of use information. Unpublished Report. 31 pages.

Williams, Peter. nd. Letter to Jan R. Miller, Project Leader, Bureau of Land Management, [ca. May 20, 1975]. 2 pages.

Wolf, Sue A. 1979. Decision: Section 14(h)(1) applications rejected in entirety, lands proper for village selection approved for interim conveyance or patent, December 10, 1979. 13 pages.

Wolfe, Robert J. 1983. Letter to Jack Mosby, National Park Service, April 27, 1983. 1 page, plus attachment.

Wolfe, Robert J., Joseph J. Gross, Steven J. Langdon, John M. Wright, George K. Sherrod, Linda J. Ellanna, Valerie Sumida, and P. J. Usher. 1984. Subsistence-based economics in coastal communities of southwest Alaska. Technical Paper Number 89. Division of Subsistence, Alaska Department of Fish and Game, Juneau. 629 pages.

PERSONAL COMMUNICATIONS

Ackerman, Robert E. 1998. Telephone conversation, March 3, 1998. Department of Anthropolgy, Washington State University.

Andrew, John. 1998a. Interview re: River users in ten southwestern Alaska villages, February 5, 1998. Regional Coordinator (Bethel), Office of Subsistence, U.S. Fish and Wildlife Service.

Andrew, John. 1998b. Telephone conversation re: Skin boat use, January 20, 1998. Regional Coordinator (Bethel), Office of Subsistence, U.S. Fish and Wildlife Service.

Brewer, John. 1998. Note re land status and acreage in Togiak NWR, May 21, 1998. Cartographic Technician, Division of Realty, U.S. Fish and Wildlife Service. 1 page.

Cushing, Michael. 1997. Telephone conversation, September 30, 1997. Research and Analysis Section, Alaska Department of Community and Regional Affairs.

Dyasuk, John. 1998. Telephone conversation, January 22, 1998. Interpreter, Togiak NWR.

Guy, James and John Andrew. 1998. Interview re: River travels and boat use by James Guy and others, January 30, 1998. Kwethluk resident; U.S. Fish and Wildlife Service Regional Subsistence Coordinator (Bethel).

Lisac, Mark. 1998. Editorial comments to draft Kanektok River Navigability Report, November 1998. Biologist, Togiak NWR.

Miller, Allen. 1998a. E-mail to Warren Keogh re: Navigability information for Togiak Refuge, January 5, 1998. Park Ranger, Togiak NWR. 1 page.

Miller, Allen. 1998b. Editorial comments to draft Kanektok River Navigability Report, November 1998. Park Ranger, Togiak NWR.

Sedwick, Dr. William R. 1998. Telephone conversation, March 26, 1998. Dentist, Anchorage.

APPENDICES

Appendix A Kanektok River water discharge profile (Menard and Caole 1998).

Appendix B U.S. Survey No. 9913 (BLM 1990).

Appendix C Kanektok River use information, 1984 (Martin 1985).

Appendix D Kanektok River use data, 1984-1988 (Lisac 1989).

Appendix E Kanektok River use information, 1997 (Stanley and Hill 1997).

Appendix F Kanektok River guides, outfitters, and agents on the Internet, March 24, 1998.

APPENDIX A

Kanektok River water discharge profile, July 27, 1997.

The ADF&G recorded a Kanektok River discharge at the fish counting tower near RM 5. This data table shows depths, velocities, and flows (Menard and Caole 1998:109).

Appendix C.2. Kanektok River water discharge profile, July 27, 1997.

DISCHARGE
AH-81-04

File No. 97KAN — Page 1 of 1
Crew L. DuBois — Date July 27, 1997
Habitat — Sampling — River — Meter
Location S04S74W35 — Site Kanektok Tower — Mile 5 — Type Price AA — No.
HUC 19030502 — Gage — Number — Height 6 inches
Description Sample site 5 river miles from mouth, 75 feet upstream of tower. Head pin RB facing downstream. Right bank 10 ft at 80°, grass and shrubs. Left bank gravel and sand, 75 ft to edge of channel and willows. Low water level.
Weather 75 % overcast, air 16.5°C, water 13°C, 1330 hrs.

Distance from Head Pin (ft.) LB RB	Angle	Angle Coef.	Vel Depth (ft.)	Stream bed Elev.	Obs. Depth %	No. Revo-lutions	Time (sec)	Velocity fps: Point	Velocity fps: Mean Vertical	Velocity fps: Mean Cell	Mean Cell Depth (ft.)	Cell Width (ft.)	Cell Area (ft.^{2})	Flow (ft^3/s)
0			0.00					0.000						
5		1	0.32					0.352	(est.)	0.18	0.16	5	0.8	0.1
7.5		1	1.31		0.6	28	44	1.407		0.88	0.82	2.5	2.0	1.8
10		1	2.02		0.6	40	43.5	2.025		1.72	1.67	2.5	4.2	7.1
12.5		1	2.52		0.6	50	46	2.389		2.21	2.27	2.5	5.7	12.5
15		1	2.65		0.6	50	43.5	2.524		2.46	2.59	2.5	6.5	15.9
17.5		1	2.68		0.6	50	37.5	2.923		2.72	2.67	2.5	6.7	18.1
20		1	2.60		0.6	60	47	2.800		2.86	2.64	2.5	6.6	18.9
22.5		1	2.42		0.6	55	42	2.872		2.84	2.51	2.5	6.3	17.8
25		1	2.40		0.6	60	42	3.130		3.00	2.41	2.5	6.0	18.1
27.5		1	2.35		0.6	60	43	3.058		3.09	2.38	2.5	5.9	18.4
30		1	2.28		0.6	60	44	2.989		3.02	2.32	2.5	5.8	17.5
35		1	2.15		0.6	60	43.5	3.023		3.01	2.22	5	11.1	33.3
40		1	2.05		0.6	60	45.5	2.892		2.96	2.10	5	10.5	31.1
45		1	1.97		0.6	60	45.25	2.907		2.90	2.01	5	10.1	29.1
50		1	1.98		0.6	50	41.5	2.644		2.78	1.98	5	9.9	27.4
55		1	1.92		0.6	50	40	2.743		2.69	1.95	5	9.8	26.3
60		1	1.83		0.6	60	44.5	2.956		2.85	1.88	5	9.4	26.7
65	5	0.996	1.85		0.6	55	42	2.872		2.91	1.84	5	9.2	26.7
70	5	0.996	1.80		0.6	60	45	2.923		2.90	1.83	5	9.1	26.3
75	5	0.996	1.92		0.6	55	43.5	2.774		2.85	1.86	5	9.3	26.4
80		1	1.95		0.6	55	42	2.872		2.82	1.94	5	9.7	27.3
85		1	1.93		0.6	70	48	3.195		3.03	1.94	5	9.7	29.4
90		1	1.90		0.6	55	41	2.941		3.07	1.92	5	9.6	29.4
95		1	1.95		0.6	60	41	3.206		3.07	1.93	5	9.6	29.6
100		1	1.95		0.6	60	44	2.989		3.10	1.95	5	9.8	30.2
105		1	1.98		0.6	60	42	3.130		3.06	1.97	5	9.8	30.1
110		1	1.95		0.6	55	41	2.941		3.04	1.97	5	9.8	29.8
115		1	1.88		0.6	60	43.5	3.023		2.98	1.92	5	9.6	28.6
120	5	0.996	1.90		0.6	50	44.5	2.468		2.75	1.89	5	9.5	25.8
125	2.5	0.999	1.90		0.6	45	40.5	2.441		2.45	1.90	5	9.5	23.3
130		1	1.90		0.6	50	44	2.498		2.47	1.90	5	9.5	23.5
135		1	1.82		0.6	50	44	2.496		2.50	1.86	5	9.3	23.2
140		1	1.68		0.6	45	42.25	2.341		2.42	1.75	5	8.8	21.2
145		1	1.40		0.6	40	42	2.097		2.22	1.54	5	7.7	17.1
150		1	1.20		0.6	35	42	1.837		1.97	1.30	5	6.5	12.8
155		1	1.08		0.6	35	46.5	1.661		1.75	1.14	5	5.7	10.0
160		1	0.80		0.6	25	44	1.259		1.46	0.94	5	4.7	6.9
165		1	0.25					0.420	(est.)	0.84	0.53	5	2.6	2.2
169		1	0.00					0.000	(est.)	0.21	0.13	4	0.5	0.1

Kanektok River 709.9

Depth: Average 1.97 ft; Maximum 2.68 ft
Velocity: Average 2.69 ft/sec; Maximum 3.21 ft/sec

Notes: Average depth and average velocity are calculated using data from 7.5 ft through 155 ft, which is approximately 87 percent of stream width. Estimates for a given row apply to point velocity, mean cell velocity, and flow.

APPENDIX B

U.S. Survey No.9913, 1990.

Survey at location of upstream limit of Kanektok River navigability for conveyance purposes, RM 70. Survey plat contains submerged lands transfer disclaimer.

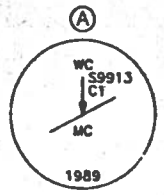
Officially Filed
DATE AUGUST 13, 1990

ORIGINAL

MEANDERS OF THE KANEKTOK RIVER

Along a well-defined bank, 0 to 2 ft. high, at the line of ordinary high water.

1.	N. 52° 48' W.,	3.55 chs.	
2.	N. 81° 02' W.,	3.43 chs.	
3.	S. 81° 41' W.,	5.81 chs.	
4.	N. 70° 21' W.,	2.08 chs.	
5.	S. 76° 48' W.,	3.14 chs.	
6.	S. 68° 19' W.,	3.43 chs.	
7.	S. 68° 42' W.,	2.50 chs.	
8.	S. 45° 51' W.,	2.28 chs.	
9.	S. 73° 37' W.,	2.11 chs.	
10.	N. 75° 14' W.,	3.53 chs.	
11.	S. 85° 29' W.,	2.43 chs.	
12.	N. 81° 51' W.,	2.03 chs.	
13.	N. 21° 31' E.,	1.06 chs.	
14.	N. 70° 47' W.,	2.11 chs.	
15.	N. 14° 05' E.,	1.06 chs.	At end of course, creek, 40 lks. wide, 5 ft. deep, course S. 83° W.
16.	S. 80° 24' W.,	1.10 chs.	
17.	S. 53° 16' W.,	1.73 chs.	
18.	S. 60° 52' W.,	1.71 chs.	
19.	S. 62° 25' W.,	0.94 ch.	

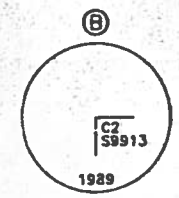


Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 25 ins. in the ground, with brass cap mkd. as shown, from which

A silver DEEP-1 magnet bears N. 45° E., 15 lks. dist., 18 ins. below ground.

An orange DEEP-1 magnet bears N. 45° W., 15 lks. dist., 18 ins. below ground.

Bury a clear DEEP-1 magnet at the base of the steel post.

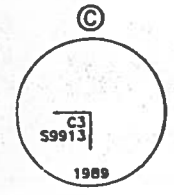


Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 25 ins. in the ground, with brass cap mkd. as shown, from which

A cottonwood, 4 ins. diam., bears S. 70 1/4° E., 104 lks. dist., mkd. X BT.

A cottonwood, 4 ins. diam., bears S. 56 3/4° W., 131 lks. dist., mkd. X BT.

Bury a clear DEEP-1 magnet at the base of the steel post.

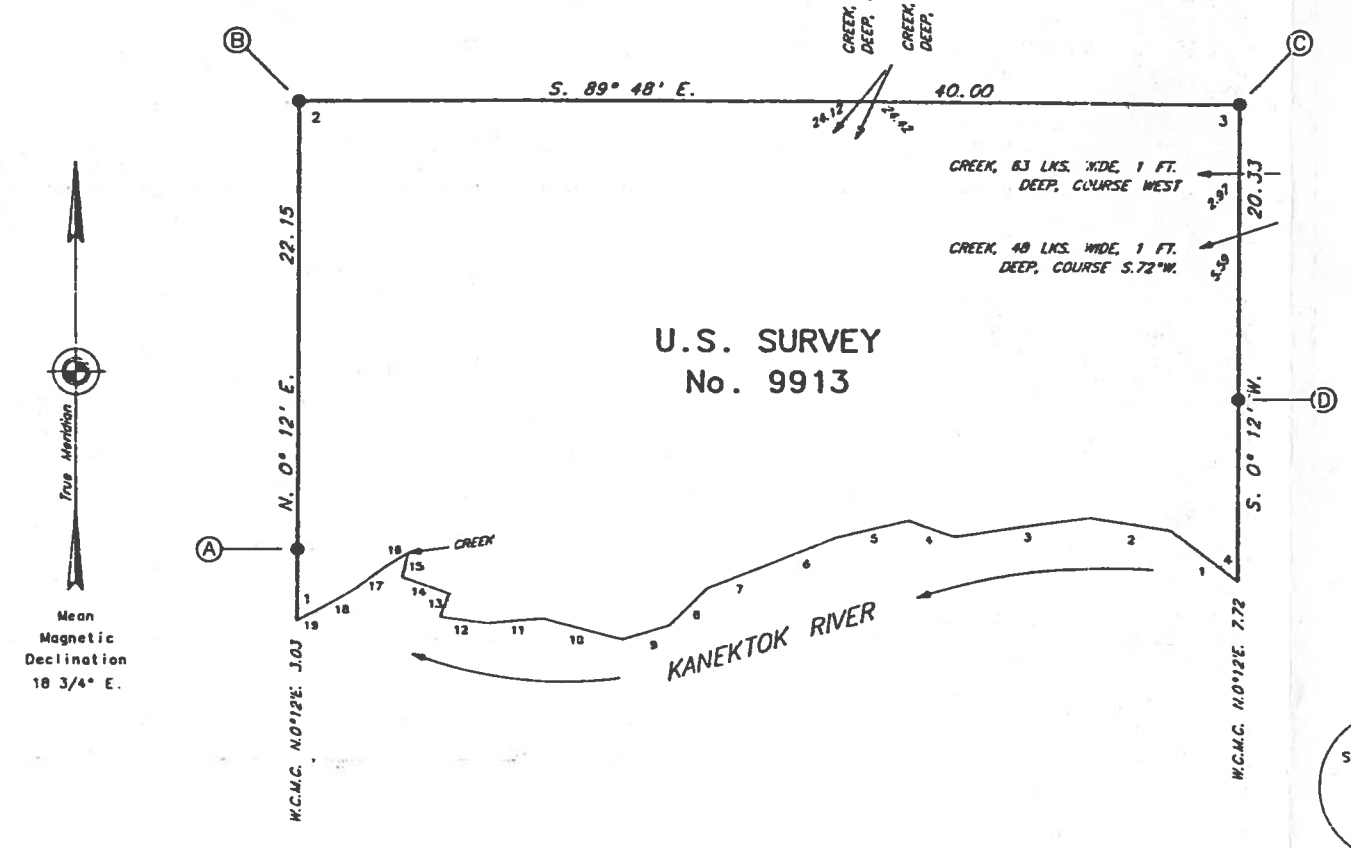


Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 25 ins. in the ground, with brass cap mkd. as shown, from which

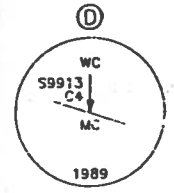
An alum. rod, 6 ft. long, 3/4 in. diam., driven 5 ft. in the ground, bears S. 45° W., 10 lks. dist., with an orange triangular marker on the top.

An orange DEEP-1 magnet bears N. 45° W., 15 lks. dist., 18 ins. below ground.

Bury a clear DEEP-1 magnet at the base of the steel post.



U.S. SURVEY No. 9913



Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 24 ins. in the ground, with brass cap mkd. as shown, from which

A cottonwood, 4 ins. diam., bears N. 48° E., 31 lks. dist., mkd. X BT.

A cottonwood, 2 ins. diam., bears N. 64° W., 32 lks. dist., mkd. X BT.

Bury a clear DEEP-1 magnet at the base of the steel post.

1 0 1 2 3 4 5 10 15 20
Chains

I, Michael H. Schoder, Registered Alaska Land Surveyor No. LS-5368, HEREBY CERTIFY upon honor that, in pursuance of Special Instructions dated April 28, 1988, and Contract No. YA651-CT9-340047 awarded May 5, 1989, I have executed the survey depicted on this plat of survey, in strict conformity with said special instructions, the Manual of Instructions for the Survey of the Public Lands of the United States, 1973, and the specific manner described on this plat.

May 30 1990 (Date) (Signature)

STATE OF ALASKA 49TH Michael H. Schoder LS 5368 Registered Professional Land Surveyor

GDK

U.S. SURVEY No. 9913, ALASKA

This plat contains the entire survey record.

This survey was executed by Michael H. Schoder, Registered Alaska Land Surveyor No. LS-5368, for R&M Consultants, Inc., June 12 through June 27, 1989, in accordance with the specifications set forth in the Manual of Surveying Instructions, 1973, Special Instructions dated April 28, 1988, approved July 13, 1988, Contract No. YA651-CT9-340047 awarded May 5, 1989, and Notice to Proceed dated May 30, 1989.

Field assistants were:

Michael J. Tietz
John K. Cassity
Barry M. Blanchard
Walter K. Rice

Area: 79.97 Acres.

The azimuth was obtained from a solar observation and refers to the true meridian.

The approximate geographic position of the witness corner to corner No. 1, a meander corner, as scaled from U.S. Geological Survey quadrangle map "Goodnews (D-5), Alaska", 1954 edition, is:

Latitude: 59° 53.0' North
Longitude: 160° 36.1' West
NAD 27

The mean magnetic declination was taken from the National Oceanic and Atmospheric Administration Kodiak Sectional Aeronautical Chart effective March 9, 1989, and is a 1985 isogonic value.

This survey is situated on the right bank of the Kanektok River, approximately 46 miles northeasterly of the city of Quinhagak, Alaska.

The B.L.M. Location Tag was found. The position of this survey was determined by the Contract Inspector from the description given in the Land Examiner's report.

The land, which is 0 to 100 feet above ordinary high water, is gently southerly sloping tundra, vegetated by grass and berry plants, low willow brush, with scattered stands of cottonwood trees.

Permafrost was not encountered below the topsoil of silt and sand.

Acceptance of this survey does not purport to transfer any interest in submerged lands to which the State of Alaska is entitled under the Equal Footing Doctrine and Section 6(m) of the Alaska Statehood Act, P.L. 85-508, notwithstanding the use, location, or absence of meander lines to depict water bodies.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Anchorage, Alaska

The survey represented by this plat, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director

Robert H. Arndorfer 27 JULY 1990
Date

Deputy State Director for Cadastral Survey, Alaska

APPENDIX C

Kanektok River use information, 1984.

Tables and graphs showing public use of the Kanektok River during 1984; from *Public Use of the Kanektok River System* by Steve Martin (1984:11-14).

COMMERCIAL GUIDE USE

GUIDE	# CLIENTS	#GUIDES	#USE DAYS ON RIVER**	# TRIPS
Dave Duncan & Sons				
7-Day float	48	24	504	7
10 Day float	75	39	1140 1710	9
Kibbons 11-Day float	4	2	66	1
Bus Bergman 7-Day float	36	18	378	9
Mike Edwards	8	4	96	3
Mike Trotter	12	6	126	3
Chuck Wirschem	7	5	84	2
Doyle Williams 7-Day float	4	2	42	1
Total	194	100	2436**	35

**Indicates actual use days on River. Does not include days at Lake by guides getting ready to float the river.

FIGURE 1

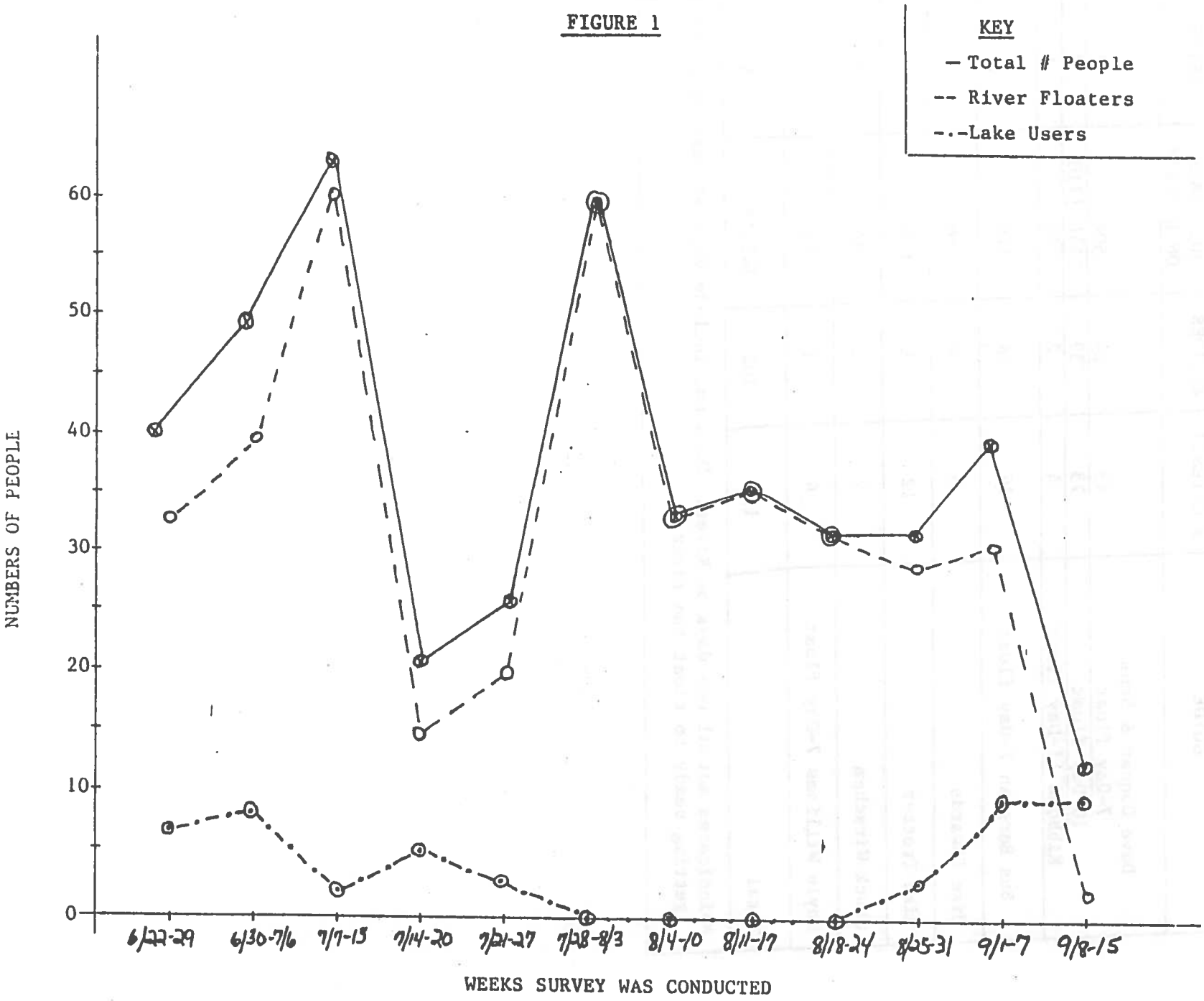
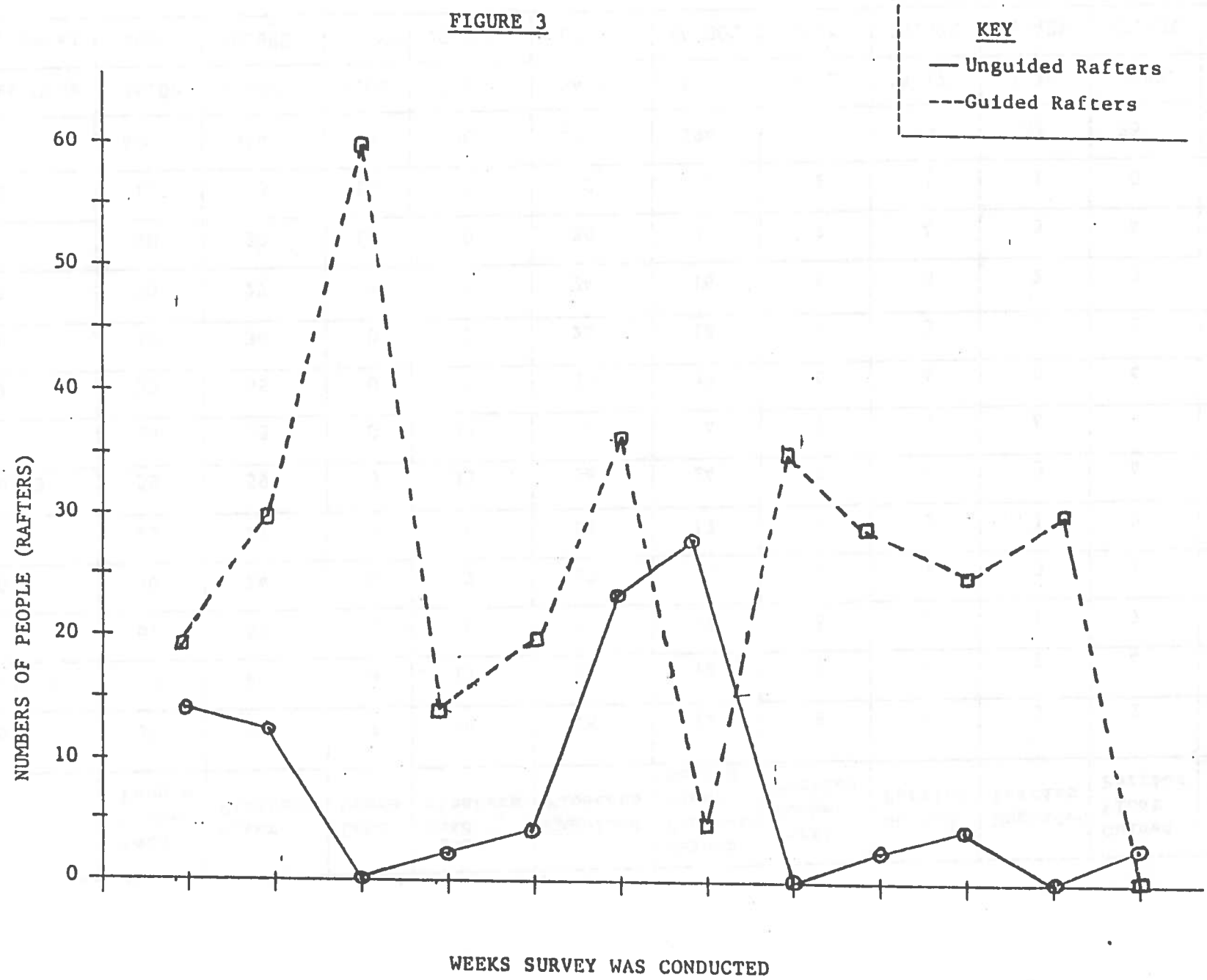

KEY
— Total # People
-- River Floaters
-·-Lake Users
NUMBERS OF PEOPLE
0
10
20
30
40
50
60
6/22-29
6/30-7/6
7/7-13
7/14-20
7/21-27
7/28-8/3
8/4-10
8/11-17
8/18-24
8/25-31
9/1-7
9/8-15
WEEKS SURVEY WAS CONDUCTED

FIGURE 2	Total Number People	River Floaters	Lake Users	Non-Guided Floaters	Guided Floaters	Guided Floaters Minus Guides	Total Number Parties	Guided Parties	Unguided Parties	Guided Float Parties	Unguided Float Parties
...ne 21-29	39	32	7	14	18	12	8	3	5	2	4
...ne 30-July 6	48	40	8	12	28	18	11	4	7	4	3
...uly 7-13	61	59	2	0	59	39	8	7	1	7	0
...uly 14-20	20	14	6	2	12	8	4	1	3	1	1
...uly 21-27	25	22	3	4	18	12	4	3	1	2	1
...uly 28-Aug.3	59	59	0	23	36	24	7	4	3	4	3
...g. 4-10	33	33	0	27	6	4	7	1	6	1	6
...g. 11-17	35	35	0	0	35	23	4	4	0	4	0
...g. 18-24	30	30	0	2	28	18	4	3	1	3	1
...g. 25-31	30	27	3	3	24	16	5	3	2	3	1
...pt. 1-7	40	30	10	0	30	20	7	4	3	4	0
...pt. 8-15	13	3	10	3	0	0	2	1	1	0	1
...tal	433	384	49	90	294	194	71	38	33	35	21
...erage per Week	36.08	32.00	4.08	7.5	24.5	16.17	5.92	3.17	2.75	2.92	1.75
...rcent of Total	100%	88.68%	11.32%	20.79%	67.90%	44.80%	100%	53.52%	46.48%	49.30%	92.58%

FIGURE 3


KEY
Unguided Rafters
Guided Rafters
60
50
40
30
20
10
0
NUMBERS OF PEOPLE (RAFTERS)
WEEKS SURVEY WAS CONDUCTED

APPENDIX D

Kanektok River use data in tables, 1984-1988.

The table segregates use in wilderness and non-wilderness areas, and separates guided from unguided use. The tables also differentiate motorized boat and float boat use. Excerpt from *Estimated Public Use within Togiak National Wildlife Refuge 1984 - 1988* by Mark J. Lisac (Table 2).

TABLE 2. ESTIMATED PUBLIC USE FOR THE KANEKTOK RIVER, 1984-1988.

GUIDED SUBTOTALS

	1984 REPORTED USE		1985 REPORTED USE DAYS				1986 REPORTED USE DAYS				1987 REPORTED USE DAYS				1988 REPORTED USE DAYS			
	CLIENTS	USE DAYS	CLIENTS	WILD AREA	NON-WILD AREA	TOTAL	CLIENTS	WILD AREA	NON-WILD AREA	TOTAL	CLIENTS	WILD AREA	NON-WILD AREA	TOTAL	CLIENTS	WILD AREA	NON-WILD AREA	TOTAL
FLOAT	194	1602	170	1067	340	1407	209	1395	482	1877	247	1479	498	1977	228	1472	415	1887
FLY	18	52	25	25	0	25	5	5	0	5	8	12	0	12	19	19	0	19
FLY/MBOAT	96	270	98	420	0	420	39	231	0	231	68	350	20	370	51	98	0	98
/MBOAT	247	1705	238	545	1182	1641	318	555	1604	2159	229	382	1193	1575	260	551	779	1330
TOTAL	555	3629	531	2057	1522	3493	571	2186	2086	4272	552	2223	1711	3934	558	2140	1194	3334

UNGUIDED SUBTOTALS

	1984 ESTIMATED USE		1985 ESTIMATED USE DAYS				1986 ESTIMATED USE DAYS				1987 ESTIMATED USE DAYS				1988 ESTIMATED USE DAYS			
	PEOPLE	USE DAYS	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL
FLOAT	90	691	120	680	271	951	164	1168	380	1548	92	529	184	713	123	920	260	1180
FLY	210	210	45	51	24	75	40	17	23	40	20	3	17	20	20	21	14	35
/MBOAT	168	168	30	0	30	30	30	0	40	40	30	0	30	30	30	10	20	30
TOTAL	468	1069	195	731	325	1056	234	1185	443	1628	142	532	231	763	173	951	294	1245

KANEKTOK RIVER
TOTAL USE

	1984 ESTIMATED USE		1985 ESTIMATED USE DAYS				1986 ESTIMATED USE DAYS				1987 ESTIMATED USE DAYS				1988 ESTIMATED USE DAYS			
	PEOPLE	USE DAYS	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL	PEOPLE	WILD AREA	NON-WILD AREA	TOTAL
FLOAT	284	2293	290	1747	611	2358	373	2563	862	3425	339	2008	682	2690	351	2392	675	3067
FLY	228	262	70	76	24	100	45	22	23	45	28	15	17	32	39	40	14	54
FLY/MBOAT	96	270	98	420	0	420	39	231	0	231	68	350	20	370	51	98	0	98
/MBOAT	415	1873	268	545	1212	1671	348	555	1644	2199	259	382	1223	1605	290	561	799	1360
TOTAL	1023	4698	726	2788	1847	4549	805	3371	2529	5900	694	2755	1942	4697	731	3091	1488	4579
AROLIK RIVER						0				173				276				324
						4549				6073				4973				4903

APPENDIX E

Kanektok River use information, 1997.

Tables and graphs showing use of the Kanektok River, June 23 through September 7, 1997. These figures are taken from *Togiak National Wildlife Refuge River, Ranger Program on the Kanektok River, End of Season Report 1997* by Ronnie D. Stanley and Peter H. Hill (1997:30-42). The figures are:

Table - *Kanektok River: Visitor use count summary (1997), Wilderness.*
Table - *Kanektok River: Visitor use count summary (1997), Non-Wilderness.*
Table - *Kanektok River: Visitor use count summary (1997), Wilderness and Non-Wilderness.*
Table - *Impact information summary.*
Graph - *Total public use, Kanektok River (1997)* .
Graph - *Total public use, Kanektok River (1997)* [Non-Wilderness].
Graph - *Total public use, Kanektok River (1997) Wilderness Area.*
Graph - *Public use of the Kanektok River (1997) Wilderness Area* [guided, unguided, and subsistence].
Graph - *Public use of the Kanektok River (1997) Non-Wilderness Area* [guided, unguided, and subsistence].
Graph - *Public Use of the Kanektok River (1997) Wilderness Area* [guided and unguided].
Graph - *Public use of the Kanektok River (1997) Wilderness Area* [unguided].
Graph - *Public use of the Kanektok River (1997) Non-Wilderness Area* [guided and unguided].
Graph - *Public use of the Kanektok River (1997) Non-Wilderness Area* [unguided].
Graph - *Number of unguided float group party starts on the Kanektok River (1997).*

KANEKTOK RIVER: VISITOR USE COUNT SUMMARY (1997)

Survey Area: Wilderness

	FLOAT						MOTORBOAT						SUBSISTENCE		TOTAL	
	Guided				Unguided		Guided				Unguided					
Date	Guides	Clients	# People	# Parties	# People	# Parties	Guides	Clients	# People	# Parties	# People	# Parties	# People	# Parties	# People	# Parties
06/23/97	0	0	0	0	12	3	0	0	0	0	5	1	0	0	17	4
06/27/97	0	0	0	0	9	2	0	0	0	0	0	0	0	0	9	2
07/01/97	5	11	16	2	26	7	2	4	6	2	2	1	0	0	50	12
07/05/97	6	9	15	3	29	9	3	6	9	3	3	2	14	3	70	20
07/09/97	1	2	3	1	39	11	3	6	9	3	0	0	0	0	51	15
07/13/97	7	12	19	2	30	5	3	6	9	3	0	0	0	0	58	10
07/17/97	6	9	15	2	24	4	3	6	9	3	0	0	3	1	51	10
07/21/97	7	14	21	2	14	3	3	6	9	3	12	4	0	0	56	12
07/25/97	8	15	23	3	18	4	3	6	9	3	0	0	0	0	50	10
07/30/97	9	7	16	3	29	7	3	6	9	3	0	0	0	0	54	13
08/02/97	10	20	30	3	31	6	3	6	9	3	0	0	37	13	107	25
08/06/97	7	14	21	2	27	7	3	6	9	3	0	0	3	1	60	15
08/10/97	10	20	30	3	40	10	3	6	9	3	3	1	3	2	85	19
08/14/97	7	14	21	2	37	10	3	6	9	3	0	0	0	0	67	15
08/18/97	9	15	24	3	28	7	3	6	9	3	0	0	5	1	66	14
08/22/97	10	17	27	3	38	9	3	6	9	3	0	0	16	5	90	20
08/26/97	7	14	21	3	52	12	3	6	9	3	0	0	8	4	90	22
08/30/97	7	8	15	3	29	7	3	6	9	3	0	0	0	0	53	13
09/03/97	6	12	18	2	7	2	3	5	8	3	0	0	0	0	33	7
09/07/97	3	6	9	1	0	0	0	0	0	0	1	1	4	2	14	4
Total use*	125	219	344	43	519	125	50	99	149	50	26	10	93	32	1131	262
				30%		70%										

* Reflects actual numbers attained without occassional duplication derived from every forth day count.

KANEKTOK RIVER: VISITOR USE COUNT SUMMARY (1997)

Survey Area: Non-Wilderness

Date	FLOAT						MOTORBOAT						SUBSISTENCE		TOTAL	
	Guided				Unguided		Guided				Unguided		Subsistence			
	Guides	Clients	Total # People	# Parties	# People	# Parties	Guides	Clients	Total # People	# Boats / # Parties	# People	# Boats / # Parties	# People	# Boats / # Parties	# People	# Parties
06/22/97	0	0	0	0	0	0	17	30	47	15	56	15	7	3	110	33
06/26/97	0	0	0	0	8	2	13	24	37	12	65	21	3	2	113	37
06/30/97	0	0	0	0	4	2	14	24	38	14	29	10	8	5	79	31
07/04/97	4	8	12	1	3	1	9	17	26	5	23	8	3	2	67	17
07/08/97	0	0	0	0	6	2	11	19	30	10	8	2	37	12	81	26
07/12/97	0	0	0	0	6	2	4	8	12	4	8	7	25	13	51	26
07/16/97	4	6	10	1	6	1	11	23	34	11	2	2	2	2	54	17
07/20/97	3	6	9	1	0	0	3	7	10	3	18	8	15	5	52	17
07/24/97	4	8	12	1	0	0	6	10	16	6	3	1	11	4	42	12
07/28/97	4	6	10	1	0	0	8	14	22	8	7	2	19	8	58	19
08/01/97	0	0	0	0	0	0	1	3	4	1	6	3	9	6	19	10
08/05/97	3	6	9	1	9	1	14	28	42	14	0	0	9	4	69	20
08/09/97	0	0	0	0	2	1	12	27	39	12	12	8	5	2	58	23
08/13/97	3	6	9	1	4	1	14	31	45	14	7	5	3	3	68	24
08/17/97	4	8	12	1	12	4	14	27	41	14	36	13	5	2	106	34
08/21/97	3	6	9	1	17	4	17	35	52	18	14	4	17	9	109	36
08/25/97	4	8	12	1	10	3	13	27	40	13	5	2	5	3	72	22
08/29/97	0	0	0	0	6	2	3	6	9	3	0	0	3	3	18	8
09/02/97	0	0	0	0	1	1	5	10	15	5	4	1	15	9	35	16
09/06/97	0	0	0	0	7	2	0	0	0	0	7	5	15	7	29	14
(Total use #)	36	68	104	10	101	29	189	370	559	182	310	117	216	104	1290	442

KANEKTOK RIVER: VISITOR USE COUNT SUMMARY (1997)

Survey Area: Wilderness & Non-Wilderness

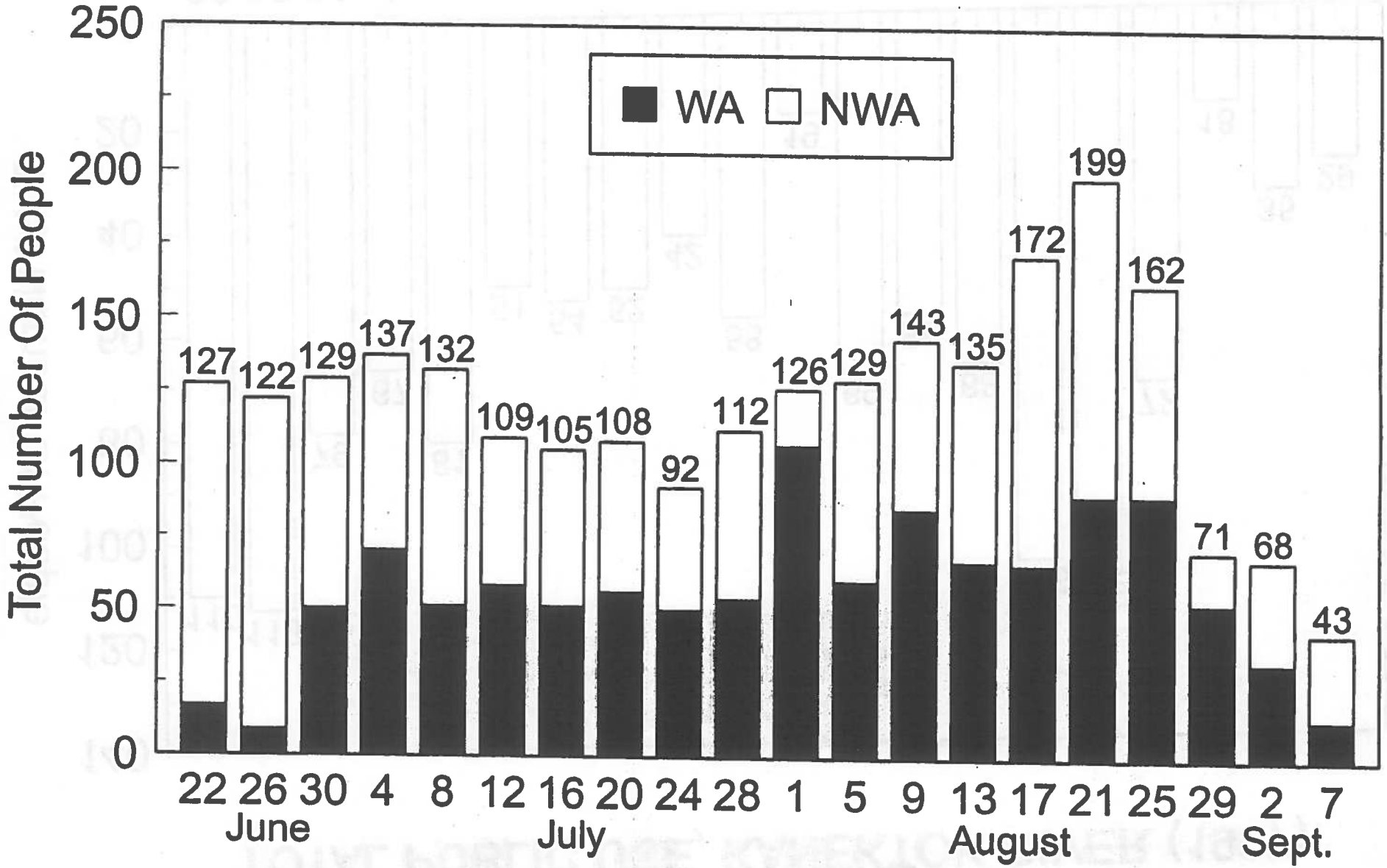
Date	FLOAT						MOTORBOAT						SUBSISTENCE		TOTAL	
	Guided				Unguided		Guided				Unguided		Subsistence			
	Guides	Clients	Total # People	# Parties	# People	# Parties	Guides	Clients	Total # People	# Boats / # Parties	# People	# Boats / # Parties	# People	# Boats / # Parties	# People	# Parties
06/22/23	0	0	0	0	12	3	17	30	47	15	61	16	7	3	127	37
06/26/27	0	0	0	0	17	4	13	24	37	12	65	21	3	2	122	39
6/30-7/1	5	11	16	2	30	9	16	28	44	16	31	11	8	5	129	43
07/04/05	10	17	27	4	32	10	12	23	35	8	26	10	17	5	137	37
07/08/09	1	2	3	1	45	13	14	25	39	13	8	2	37	12	132	41
07/12/13	7	12	19	2	36	7	7	14	21	7	8	7	25	13	109	36
07/16/17	10	15	25	3	30	5	14	29	43	14	2	2	5	3	105	27
07/20/21	10	20	30	3	14	3	6	13	19	6	30	12	15	5	108	29
07/24/25	12	23	35	4	18	4	9	16	25	9	3	1	11	4	92	22
07/28/30	13	13	26	4	29	7	11	20	31	11	7	2	19	8	112	32
08/01/02	10	20	30	3	31	6	4	9	13	4	6	3	46	19	126	35
08/05/06	10	20	30	3	36	8	17	34	51	17	0	0	12	5	129	35
08/09/10	10	20	30	3	42	11	15	33	48	15	15	9	8	4	143	42
08/13/14	10	20	30	3	41	11	17	37	54	17	7	5	3	3	135	39
08/17/18	13	23	36	4	40	11	17	33	50	17	36	13	10	3	172	48
08/22/23	13	23	36	4	55	13	20	41	61	21	14	4	33	14	199	56
08/26/27	11	22	33	4	62	15	16	33	49	16	5	2	13	7	162	44
08/30/31	7	8	15	3	35	9	6	12	18	6	0	0	3	3	71	21
09/03/04	6	12	18	2	8	3	8	15	23	8	4	1	15	9	68	23
09/07/08	3	6	9	1	7	2	0	0	0	0	8	6	19	9	43	18
Total use #	161	287	448	53	620	154	239	469	708	232	336	127	309	136	2421	704

IMPACT INFORMATION SUMMARY

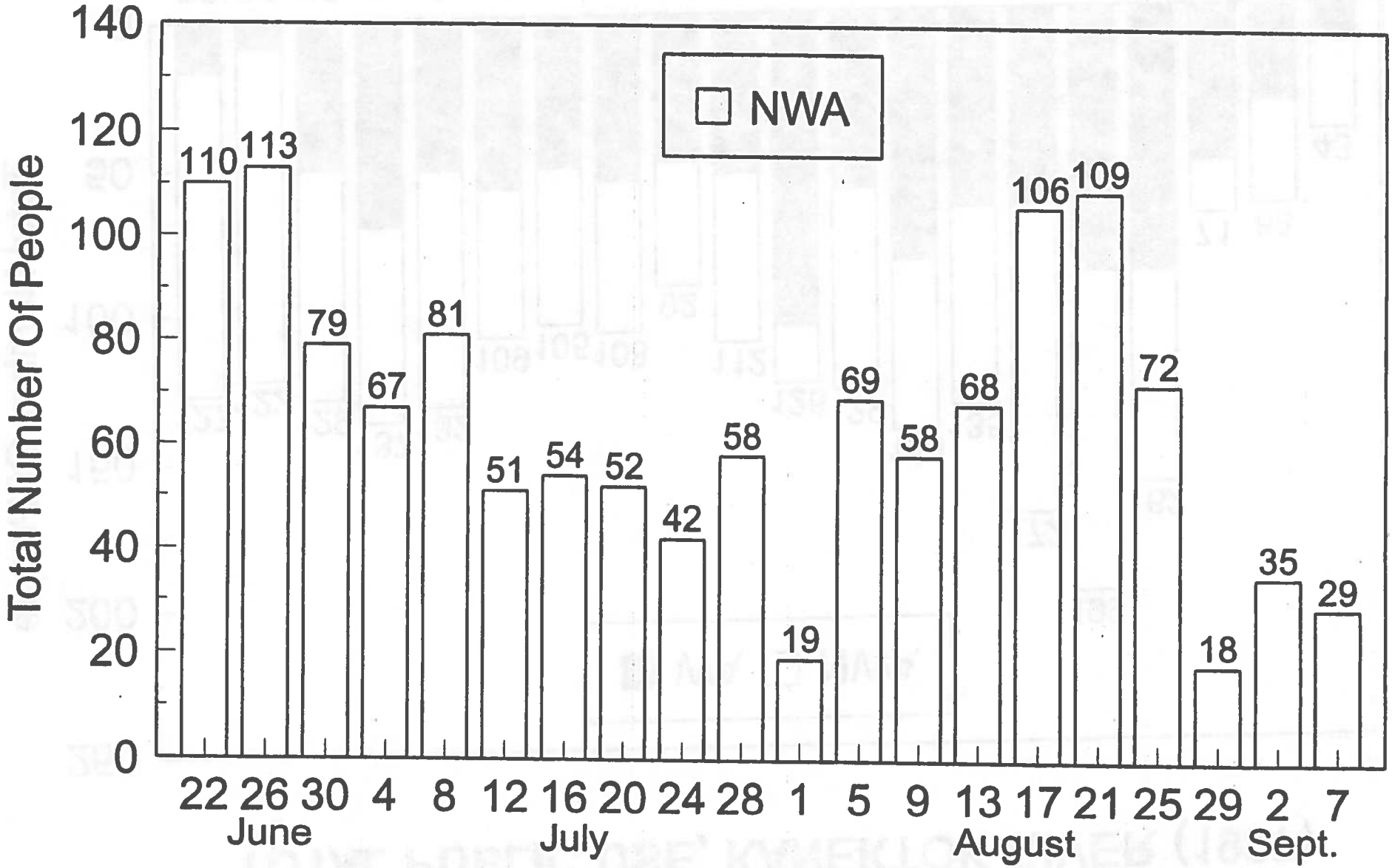
*** NOTE: Wilderness Area is shaded blocks***

Month	June	July	August	September	Total
# of sites W visited NW	4	22	13	3	42
	0	17	3	1	21
# with visible human waste	0	0	0	0	0
	0	0	0	0	0
# with visible litter	0	14	8	0	22
	0	11	2	0	13
# with excessive litter	0	4	2	1	7
	0	2	1	0	3
# with fire ring	1	15	7	0	23
	0	12	3	0	15
# with multiple fire rings	0	3	6	1	10
	0	4	0	0	4
# of parties spoken to	2	40	75	8	125
	50	27	45	9	131
# of discourt. behavior	0	7	4	1	12
	2	1	3	0	6
# of warnings to users	0	4	0	0	4
	3	0	2	0	5
# of crowding complaints	0	3	6	0	9
	5	0	4	0	9
# of MB complaints	0	2	2	0	4
	2	0	0	0	0
# observed trespassing on native lands	0	0	0	0	0
	2	1	2	0	5
# of bear encounters	0	4	7	1	12
	1	0	0	0	1
1-5 Scale RUL	1=3 2=0 3=0 4=0 5=0	1=2 2=3 3=5 4=2 5=1	1=0 2=0 3=7 4=3 5=4	1=1 2=3 3=2 4=0 5=0	1=5 2=6 3=14 4=11 5=5
	1=0 2=0 3=1 4=3 5=0	1=0 2=2 3=9 4=0 5=0	1=1 2=1 3=1 4=6 5=1	1=0 2=2 3=2 4=0 5=0	1=1 2=25 3=13 4=9 5=1

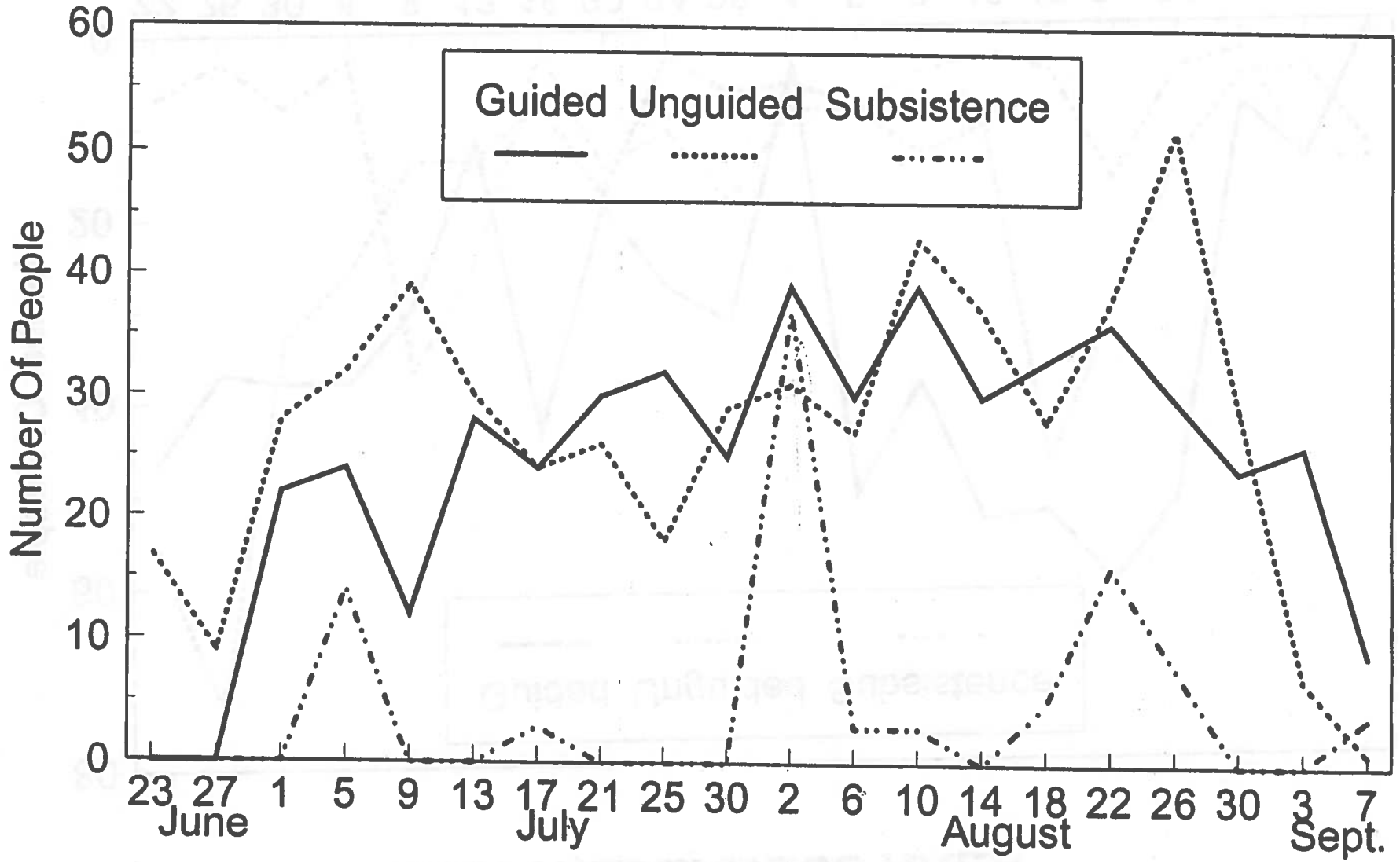
TOTAL PUBLIC USE, KANEKTOK RIVER (1997)



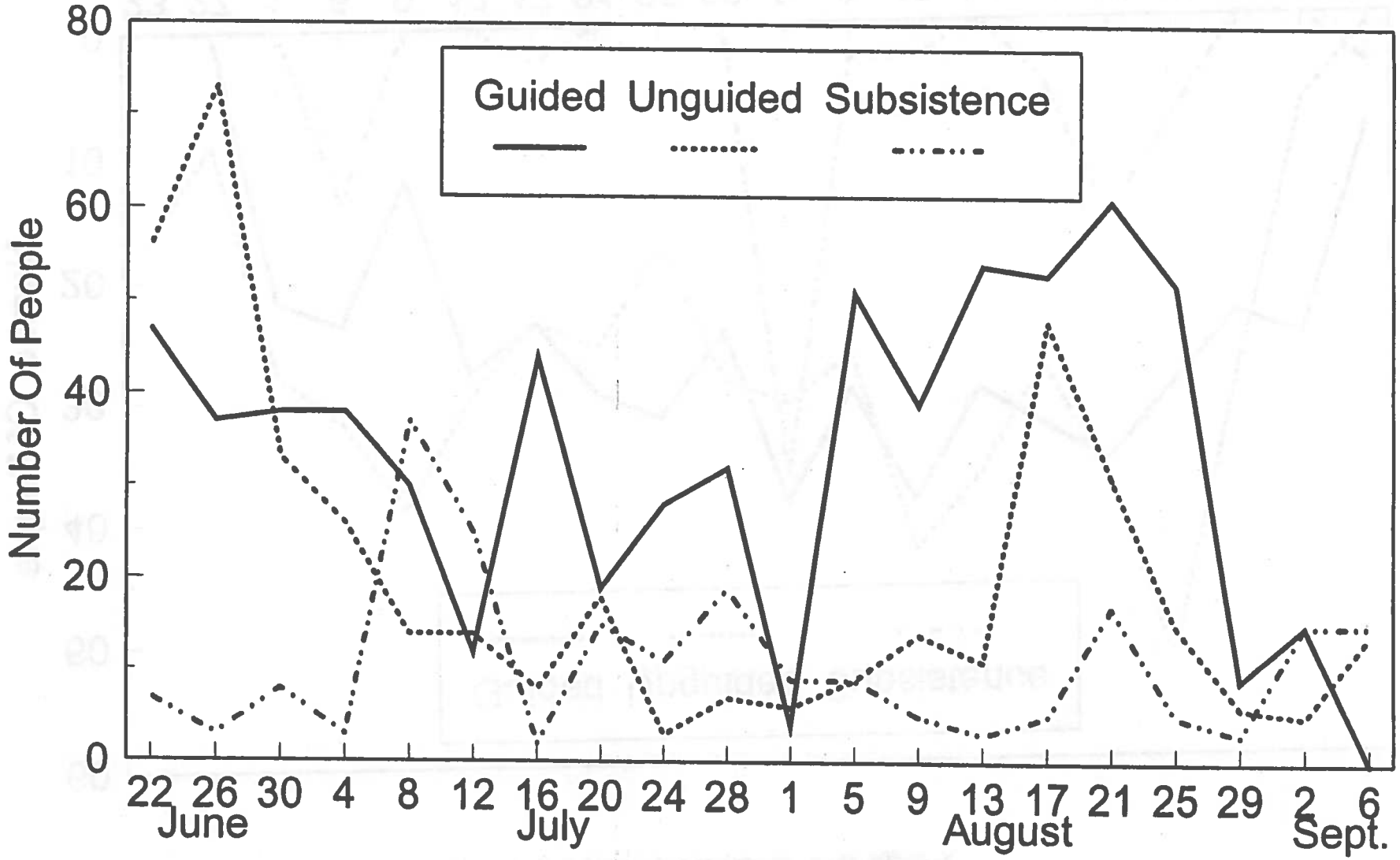
TOTAL PUBLIC USE, KANEKTOK RIVER (1997).



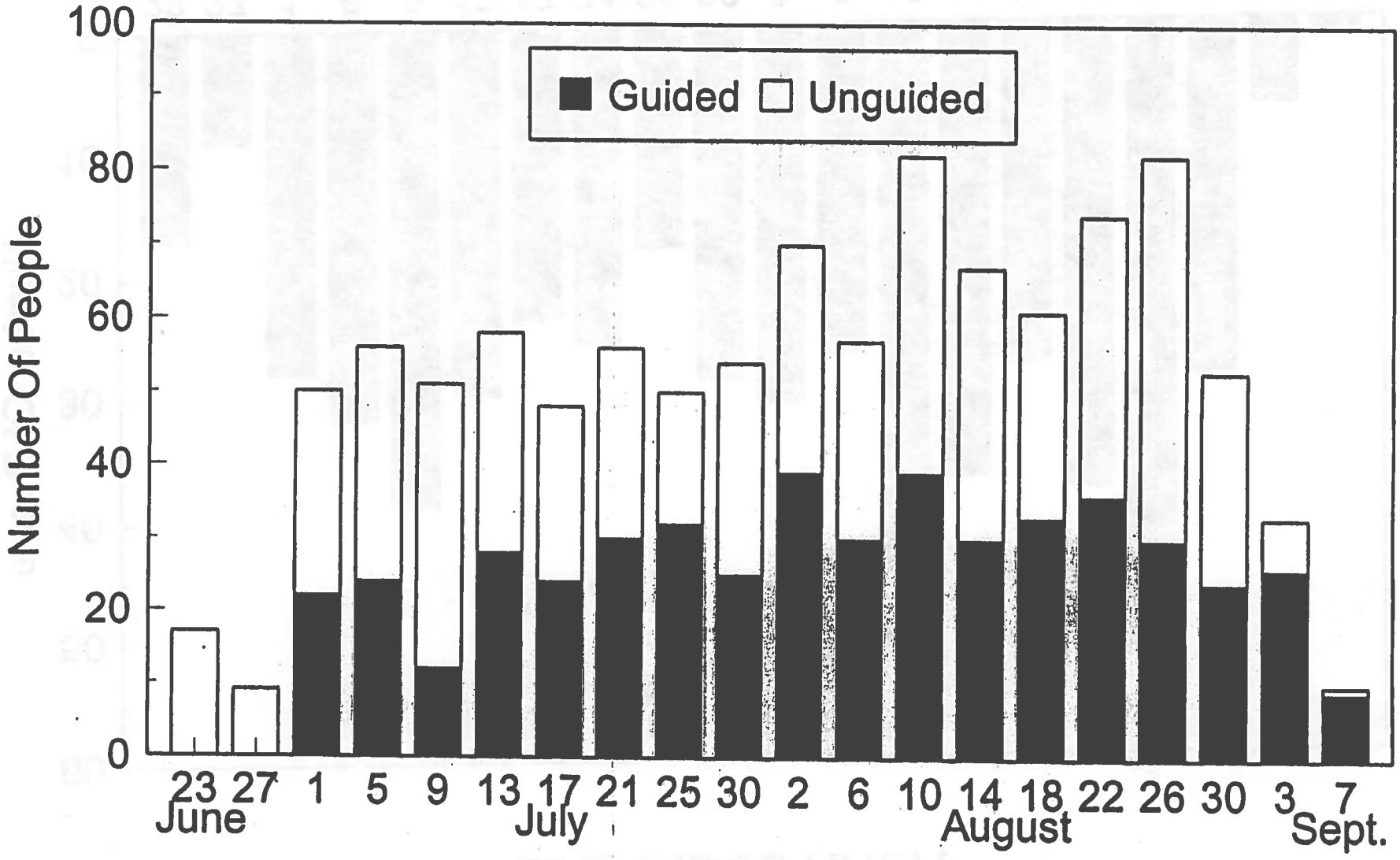
PUBLIC USE OF THE KANEKTOK RIVER (1997)
WILDERNESS AREA



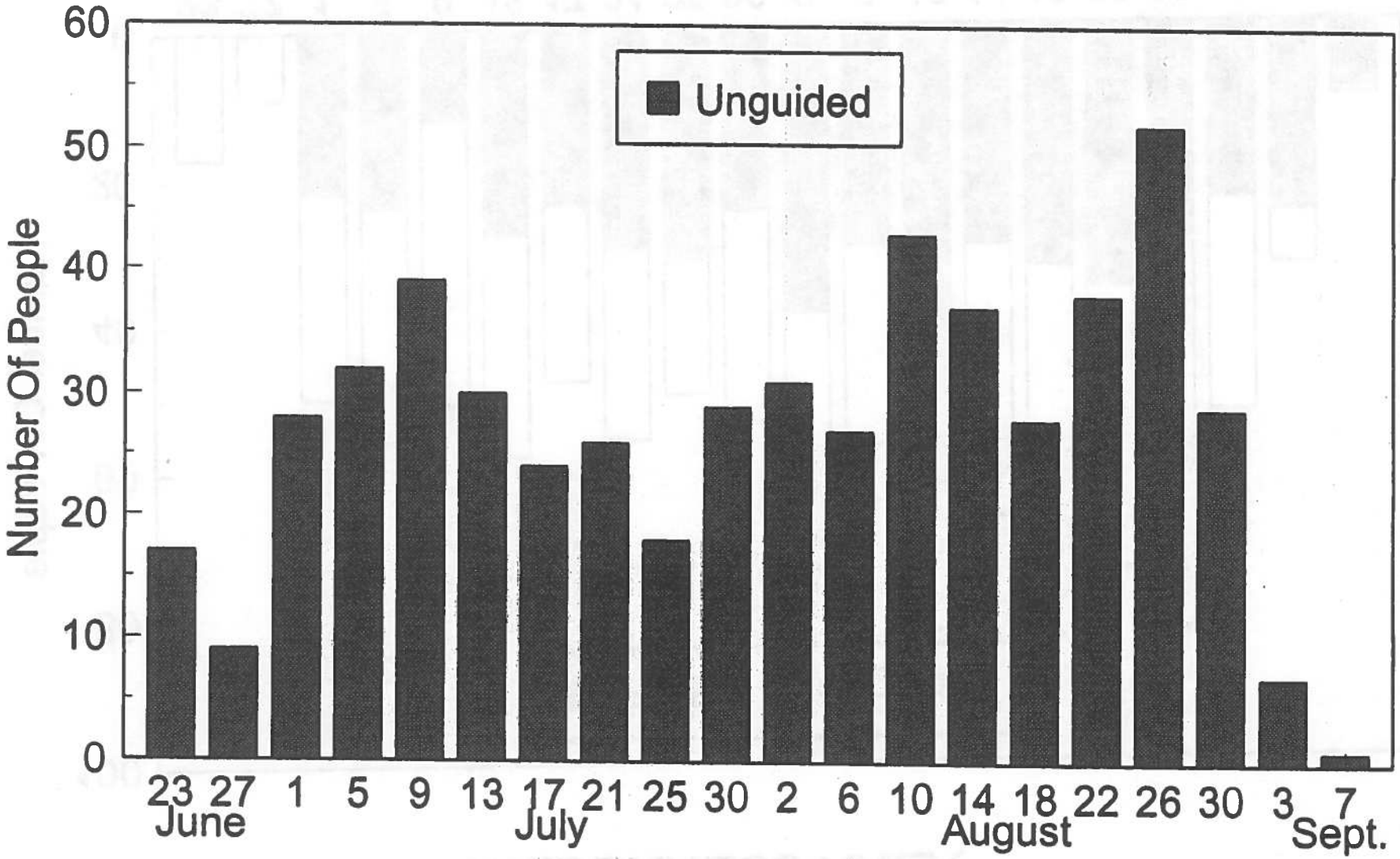
PUBLIC USE OF THE KANEKTOK RIVER (1997)
NON-WILDERNESS AREA



PUBLIC USE OF THE KANEKTOK RIVER (1997) WILDERNESS AREA



PUBLIC USE OF THE KANEKTOK RIVER (1997) WILDERNESS AREA



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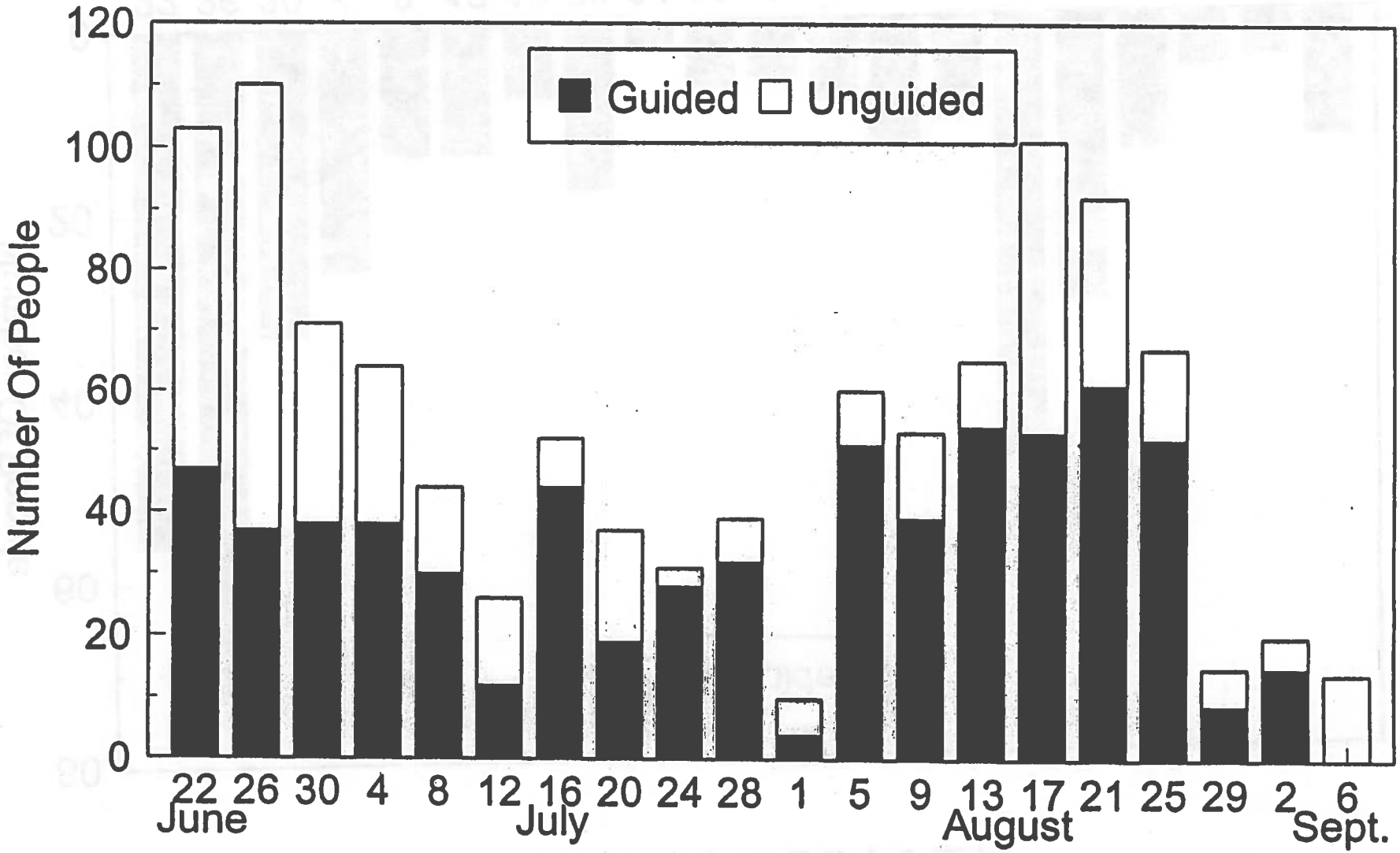
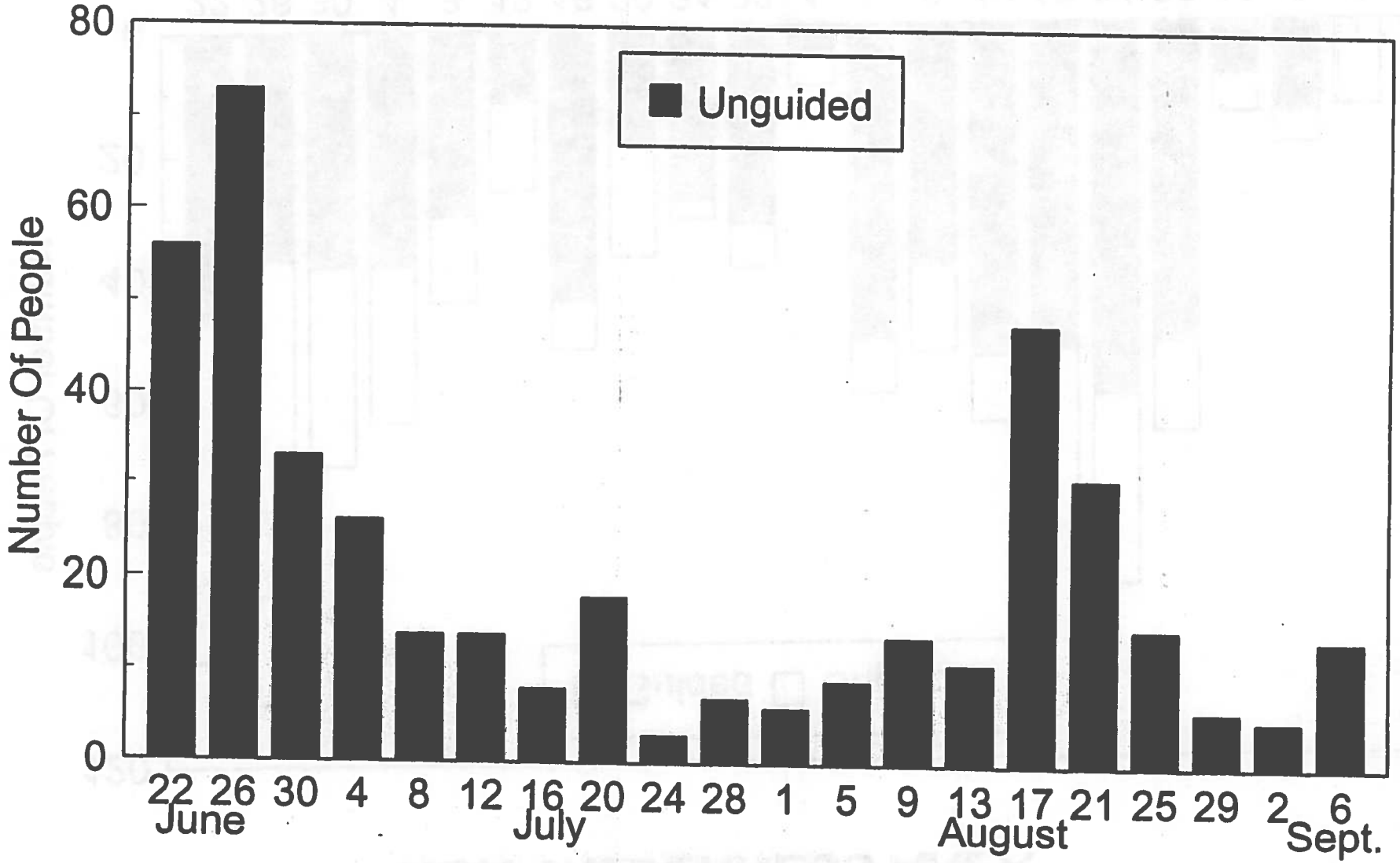
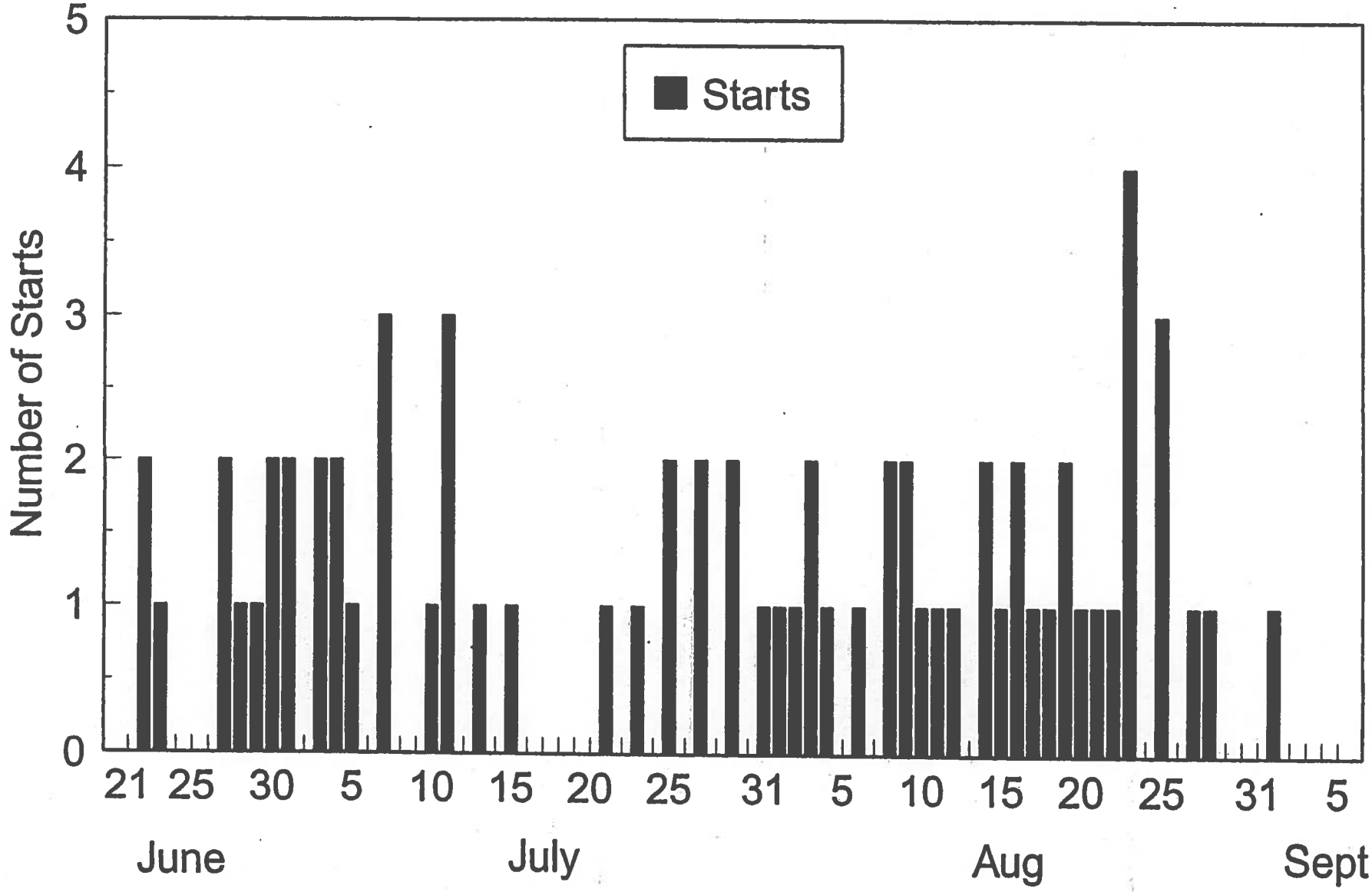
NON-WILDERNESS AREA



PUBLIC USE OF THE KANEKTOK RIVER (1997)
NON-WILDERNESS AREA



Number Of Unguided Float Group Party Starts On The Kanektok River (1997).



APPENDIX F

Kanektok River guides, outfitters, and agents on the Internet, March 24, 1998.

The following commercial entity web pages were located using Alta Vista and Yahoo search engines for the terms "Quinhagak", "Kanektok", and "Kagati". Complete or partial hardcopy of these enterprises' webpages are included in this appendix.

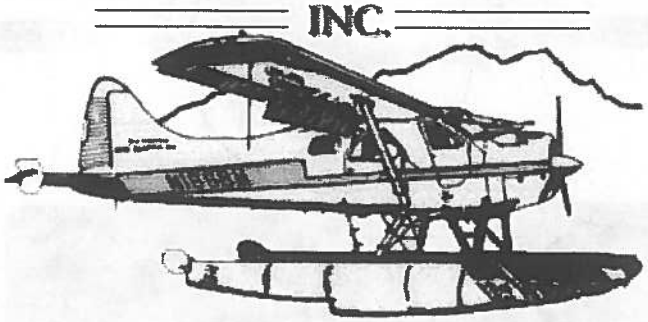
Bill Martin's Fish Alaska, Inc.	http://www.royalcoachmanlodge.com/kanektok.htm
Freshwater Adventures, Inc.	http://www.alaskaone.com/freshwater
Bergie's Guide Service	http://www.bergies.com/
River Expeditions of Alaska	http://www.hunters.com/outfitters/
BayAir	http://www.alaskaoutdoors.com/BayAir/
Tikchik Adventures	http://www.nushtel.com/~grant/tikchik.html
Angler Adventures.	http://www.angleradventures.com/intro.htm

Note: By using alternative search terms, other commercial operators with Kanektok River interests are locatable on the Internet, e.g.,

http://www.alaska.net/~ouzel/

http://www.eburg.com/~duncan

Bill Martin's FISH ALASKA INC.



"The Royal Coachman Lodge"
"Wilderness Fishing Camps"

- Royal Coachman Lodge
- Incredible Yantarni Fish Camp
- Kanektok River Wilderness Camp
- Photo Gallery
- Alaska Map and Camp Locations
- Local Weather
- Reservations Guide
- Contact Us

A Lot of Salmon !

Click on Picture for Larger View

Alaskaweek.com Alaska & Canada

This page has been visited [redacted] times since 11 / 24 / 97

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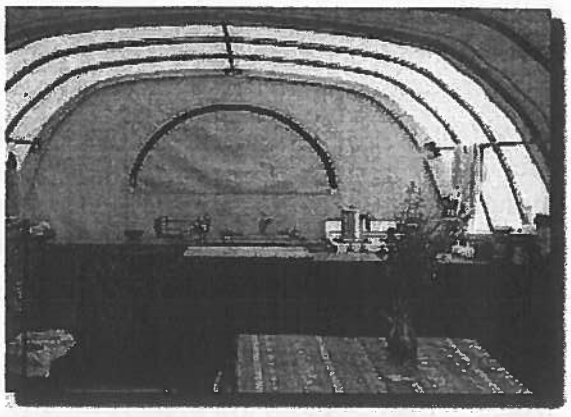
This site maintained by Alaska Internet Marketing, Inc.

The Kanektok River, located in the famous Bristol Bay region of western Alaska, is among the finest fishing streams in the country. The river has been popularized in several outdoor magazines and is frequently written about in fly fishing publications. Many people who prize remote locations annually visit the Kanektok. The Kanektok is best known for its King and Silver salmon, sea run Dolly Varden and, the famous "Leopard Rainbow Trout." It also has large numbers of Chum, Red (Sockeye) and Pink salmon in addition to Arctic Grayling. The river is well suited to both conventional fishing gear and fly fishing. It is relatively small and the water is usually very clear. It is a fly fisher's paradise.

If you desire great fishing in a remote location, you will find the stream and the **Kanektok River Wilderness Camp** to be among the finest fishing destinations in Alaska. Access to the wilderness portion of the river is severely limited by government regulation. The camp is permitted a maximum of six clients per week. We utilize a staff of four including three full time guides and a camp cook. The Kanektok River Wilderness Camp has all of the comforts of camp living with the great fishing right at the front door. If you are looking for a true Alaskan experience and some of the best sportfishing left in North America, you should consider this camp.

CAMP DESCRIPTION

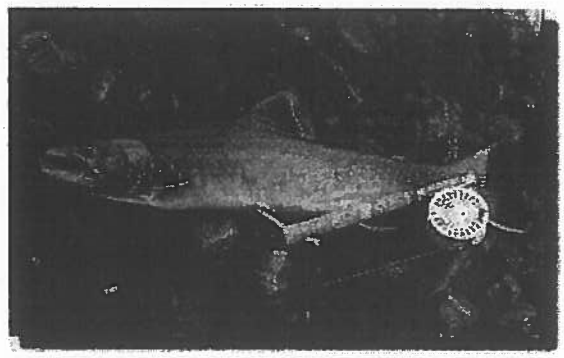


The **Kanektok River Wilderness Camp** is a remote camp located in a federally established wilderness area that is surrounded by the Togiak National Wildlife Refuge. The camp is situated 35 river miles from the mouth of the river where it empties into Kuskokwim Bay at Quinhagak. The camp is accessible by river boat from Quinhagak and by float equipped aircraft. As no permanent structures are allowed, under our permit, we use heavy duty Weatherport tents.

The camp consists of four 12' x 20' tents, two of which are used for guest sleeping accommodations. The other two tents or this size are used for staff quarters and storage. In addition, the camp has a 14' x 20' combination kitchen/dining tent and smaller shower tent. Hot water is provided for showers and lavatory uses. All tents are erected on wooden platforms. Daily maid service is provided.

Other equipment includes three fully rigged jet equipped outboard motor boats, radios for communication and a supply of fishing equipment. All fishing is done on the Kanektok river and its tributaries using boats for transportation to and from fishing locations. Except for some King salmon fishing, all fishing is done either by wading or from the bank of the river.

TRANSPORTATION



Guest transportation to the **Kanektok River Wilderness Camp** is provided by riverboat or by float equipped DeHavilland Beaver aircraft from Dillingham or Bethel, either directly to the camp or via the Royal Coachman Lodge. Guests will be met in Dillingham or Bethel by a member of the staff and will be transported to the camp in the most efficient manner possible. The fishing week will be from Sunday to Sunday. Most guests will find it necessary to overnight in Anchorage before continuing to Dillingham or Bethel and on to the camp. Guests will return to Dillingham or Bethel on the following Sunday.

COSTS, DEPOSITS AND PAYMENT POLICY

The cost is $3, 250 per person per fishing week. All costs are included after arriving in Dillingham or Bethel except for Alaska fishing licenses (which are available at the camp), King salmon stamps (if appropriate), and gratuities. Transportation to the camp from Dillingham or Bethel, meals, lodging and guiding services on the river are included in the cost.

A deposit of $1,500 is required at the time of booking to confirm and to hold space. We will provisionally hold space for 10 days from the date of booking until deposits are received. Thereafter, we may cancel bookings not confirmed by deposit. Deposits and other payments are not refundable. However, guests may transfer deposits/payments to another person using the space of the week booked. Further, deposits may be transferred to a future year, provided such request is made by April 1. A final payment of $1,750 is due 60 days prior to the beginning date of the trip. We are happy to discuss the reasons for this policy with any guest who wishes to have additional information.

FOOD SERVICE

Your day at the camp begins with a hot breakfast. Since we are usually some distance away, we rarely return to the camp for the noon meal. Rather, your guide will be transformed into a riverside chef and will prepare the catch of the day for your dining pleasure. Our cooking skills are suplimented by some items that the camp cook has prepared in advance in case the catch of the day occurs after the midday meal time. Full course meals are served each evening and usually consist of prime rib, New York steak, turkey or similar menu items. A variety of snacks are available at any time throughout the day or evening. If requested, the catch of the day is always on the menu for any meal. Special menus to meet dietary needs can be arranged, provided we have sufficient advance notice.

We serve complementary wine with diner and provide beer and soft drinks. Guests who prefer other alcoholic beverages should provide their own supply.

Home | More Information | Contact Us

1998 Summer Schedule | Reservations

Last revised:Thu Feb 19 10:49:31 1998
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Bill Martin's Fish Alaska, Inc.

KANEKTOK RIVER WILDERNESS CAMP

Fax: (907) 346-3733 E-mail: salmonak@alaska.net Telephone: (907) 346-2595

Last week of June

The Kings are in! This is the finest small stream, clear water fishing for King Salmon in western Alaska. Fly fishers who want to test their mettle against these bright and fresh monsters will get all they can handle. The name of the game isn't how many but rather can you land them. This river offers the best chance that we know of to hook and land King Salmon on a fly rod. Spin or bait casters can catch a bunch of them, too. There are "Leopard Rainbow Trout" and Grayling in the upper river, but we concentrate on the Kings. Very nice weather, usually.

Lots of Kings and the Chum salmon arrive. Chums, the most under rated of the salmon, are great fighters, but not real good jumpers. We like these fish because a few of them will put you to snoozin' on the bank,

First Week of July	guaranteed. Because you are in a remote area, you can get a nice long nap unless the salmon smashing around in the river keep you awake. The Kings are moving up river where we also find trout and grayling.
Second Week of July	King and Chum remains hot and the Red Salmon begin to show up. These are good eaters! Shore lunches improve, but not too much because we know how to cook Kings, and yes Chums, too. Rainbow and Grayling in the upper river. Great fishing in a remote wilderness area.
Third Week of July	The first sea run Dolly Varden arrive! The Kings, Chums, and Reds have all pushed up river. This means that there are lots of fishing options. We start building shore lunch fires as soon as we see those fabulous Dollies.
	More Dollies and the salmon are all over the river. Rainbow, Dollies are beginning to bunch up behind

Fourth Week of July	spawning Chums. Fishing is excellent, and the shore lunches are good, too. You may see a bear on the river and remember, you are in the wilderness.
Last of July, First of August	Silvers enter the lower river. The dolly fishing heats up and 100 fish days are the norm, if your arm is strong enough. We begin to concentrate on the side chanels and braids of the river where Dollies, trout and Grayling are concentrated making this a fly fishers paradise. Big male dollies in the upper river.
First Week of August	Dollies, dollies, dollies everywhere, and the silvers push up river closer to the camp. We travel both up river and down river. Up for dollies, rainbows and grayling, and down for silvers. Big numbers this week.
Second Week of August	The heart of Silver Salmon fishing on the Kanektok. If we tire of silvers, we concentrate on dollies and begin to mouse rainbows that are holding

	behind spawning kings and chums. Exciting fishing and lots of fish.
Third Week of August	Another great silver week. We fish the side chanels and braids for rainbow and dollies. The dollies begin to show some spawning color. Truly beautiful fish. And big numbers. This is pick a direction week. You can go anywhere and find lots of fish including those rainbow that are stacked up behind spawning salmon. Try skimming a Pink Pollywog for silvers. That is really exciting. Great scenery because we begin to spend more time up river in the more remote environs.
Fourth Week of August	Great fishing everywhere; up, down or across the river. Everyday is different. Good mousing for rainbow and sight fishing for big dollies in the side chanels and tributaries of the river. A few less bright silvers but still some excellent action. We break out the pollywogs and mice and go

	up river. If you can't catch 100 fish per day, you aren't really trying.
First Week of September	This week on the Kanektok is one of the best. We concentrate on dollies that are in full spawning colors (the prettiest fish in Alaska) and on rainbow. You can skim dry flies for dollies, silvers and rainbow plus fish the very popular flesh fly for rainbow. Grayling are still hanging around , too! The temperature begins to cool and the fall colors literally pop.
Second Week of September	Closing week and we are in the middle of beautiful fall conditions. It is hard to decide whether to fish or look at the scenery. If you fish, expect big "Leopard" Rainbow Trout and fantastic Dolly Varden in full fall regalia. Pick your fish. There are still plenty of silvers that will readily come to a skimmed Pollywog or a traditional salmon fly. You probably won't see any other fishermen.

* Although this river, because of its size, water clarity and abundance of fish is a fly fishers dream, spin and bait casters can expect equally good fishing. This is not a fly fishing only river but all anglers are limited to single hook flies and lures.

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www@alaskanet.com

Freshwater Adventures, Inc.

We'd like to assist you in planning your own independent, surprisingly affordable Bristol Bay Alaska outdoor adventure. Hunting, Fishing, Rafting, Kayaking, and Eco-Touring!

To contact us, you may either E-Mail us or order a free Destination Guide.

How To Reach Us

Oregon Winter Office:
10/16 - 5/24

Lester Bingman
P.O. Box 126
Cheshire, OR 97419
Voice: 541-998-3284
Fax: 541-998-1285

Alaska Summer Office:
5/25 - 10/15

Fresh Water Adventures, Inc.
P.O. Box 62
Dillingham, AK 99576
Voice: 907-842-5060
Fax: 907-842-4231

email: FRESHH2O@FRESH-H2O.COM

Fresh Water Rafters

Average size Rainbow Trout

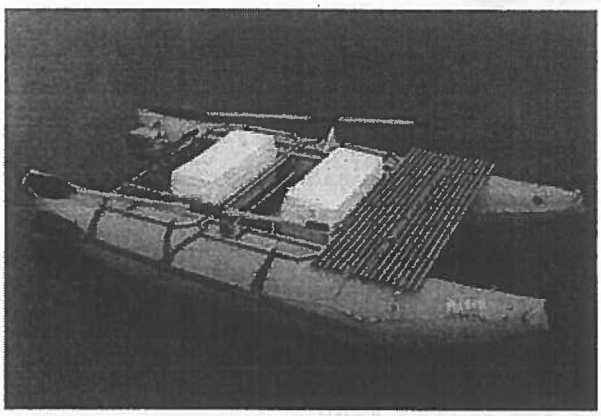
Fresh Water Rafters was created in 1991 to assist **Fresh Water Adventures Air Service** in providing convenient accessibility to the many lakes and river systems in the Bristol Bay region.

Fresh Water Rafters is owned and operated by Phillip P. Bingman, the grandson of Philip L. Bingman, founder of **Fresh Water Adventures** who has operated in the area since 1965.

The quality of equipment used in a raft rental business is critical, therefore, we use only ***AIRE*** products, the 16' Jaguarundi, 18' Leopard and ***AIRE*** inflatable seatiger II kayak's.

All the frames are custom designed for the specific area we operate in. Each raft has the capability to be setup to fit your specific needs. Example: extra decking, outboard ready etc..

Fresh Water Rafters offers a 44 page destination guide to assist you in planning your own adventure.



16' cataraft - standard lake setup

Sturdy, safe, and reliable equipment

Typical King Salmon in mid to late July

World Class Fishing Destinations!

- **Kisaralik Lake & River**
- **Kagati Lake & River**
- **Goodnews Lake & River**
- **Kukaktlim Lake & Kukaktlik River**
- **Ongivinuk Lake & River**
- **Togiak Lake & River**
- **Wood River System**
- **Tikchik River**
- **Nuyakuk River**
- **Nushagak River**
- **Mulchatna River**

Fresh Water Rafters

is now taking reservations for the '98 season.

Winter Contact Address and Phone

P.O. Box 126, Cheshire, OR 97419
Phone 1-541-998-3284 / FAX 1-541-998-1285

Summer Contact Address and Phone

P.O. Box 62, Dillingham, AK 99576
Phone 1-907-842-5060

To Request More Information

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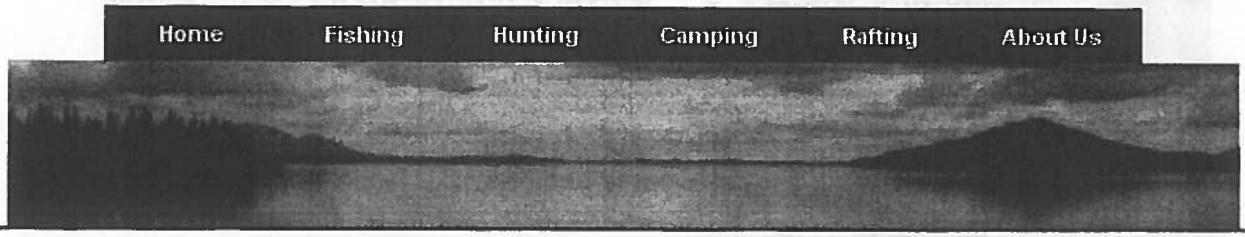


Raft Rental Rates

(Click on the thumbnails below for larger images.)

16' CAT standard river setup	16' CAT standard lake setup	We recommend 2 max 3 people ...	16' CAT standard river setup	Fresh Water Adventures can book...

Raft rental fees begin the first full day of your adventure and end the last full day of your adventure. ***(If your trip is at least 4 days, there is no charge for the days traveling in or out with FWA!)***

1. 16' Cataraft with rowing frame	**$70/day**	**(270 lbs. complete)**
2. 18' Cataraft with rowing frame	**$90/day**	**(290 lbs. complete)**
3. 16' Cataraft with rowing/outboard frame	**$120/day**	**(430 lbs. complete)**
4. 18' Cataraft with rowing/outboard frame	**$140/day**	**(450 lbs. complete)**
5. 20' Sea Tiger Kayak	**$50/day**	**(70 lbs. complete)**

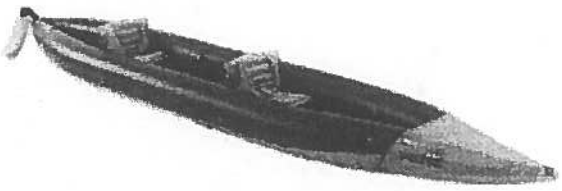
All raft rentals include:

- 3 oars
- Ice Chest
- Cargo Nets
- Rowing Frame
- Complete repair kit

Extra Gear: ***(upon request)***

- Propane or Coleman fuel and cooking stoves available for $25 per trip.

Sea Tiger II



Fresh Water Rafters has a limited supply of rental equipment so be sure to schedule as early as possible. FWR requires a $200 deposit on all rental equipment at the time of booking. Your deposit will be refunded upon the safe return of equipment to Fresh Water Rafters in Dillingham.

ALL outboard rentals will be returned with no damage to propeller or outboard engine. If damage occurs, the deposit will be forfeited.

Fresh Water Rafters sells new and used AIRE inflatable rafts and kayaks. Contact us at: 541-998-3284/Winter or 907-842-5060/Summer. E-mail: FRESHH2O@FRESH-H2O.COM

Kagati Lake and Kanektok River

(Click on the thumbnails below for larger images.)

Firewood is in abundance along the Kanektok river.	"Sweepers" are brush and trees ...	The Kanektok river has many branches and offshoots.	Lower Kanektok river as it leaves the Ahklun mountains.	Rafters exit the river within 50' feet of the airport ramp.

Kagati Lake is a 45-minute flight Northwest of Dillingham and is the headwaters of the Kanektok River. The Kanektok River is 90 miles long (approximately 21 floating hours) and has many off shoots and braided areas. The first half of the float is through the scenic mountains. There is no white water to speak of. However, late in July the river may become a little shallow until the fall rains.

In late July and August the river can rise in as little as two days and become murky. It can also clear out as fast as it clouds up. The majority of the anglers on the Kanektok are on guided float trips or guided daily by motor boats out of base camps along the Kanektok River and up into the Wildlife Refuge.

The Pegati and Kagati lakes have great fishing at numerous locations around the lakes, especially at the bottom of the two small creeks that flow in at the opposite end of the lakes from the beginning of the Kanektok River. You can choose from several drop-off locations as long as you are wearing chest waders, although we don't recommend them because of the high winds that frequently blow up and down the lake. Our designated drop off location is at the top of the Kanektok River and you will not need any type of waterproof boot for that location.

Please Note:
Campers must stay well clear of beaching area while setting up equipment or camping. Please stay well clear of the aircraft taxiing up onto the beach and departing from the beach.

The first one third of the river is known for the excellent char and grayling fishing, as you float down and meet tributaries flowing into the main river, you will find schools of holding fish.

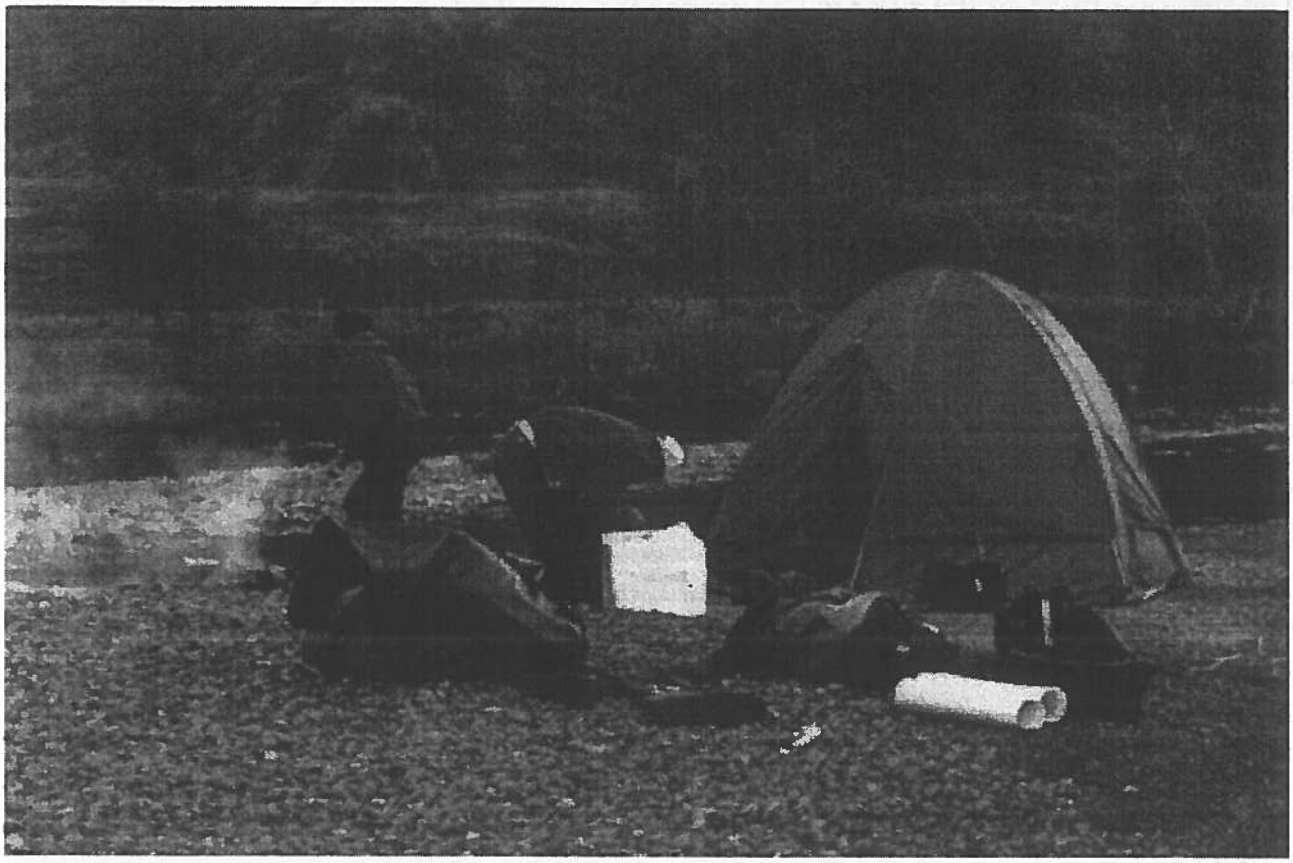
The main river flows along high cliffs with thousands of tiny cliff dwelling sparrows. The skies are full of tiny birds darting in and out of thousands of holes scattered along the dirt cliffs. About 10 miles before you leave the mountains you will begin to enter some of the best rainbow trout fishing on the river. These fish run anywhere from 3 to 7 lbs. As you float out of the hills the off shoots become more intense. These offshoots are not dangerous but can easily cause delays in your trip, as you drag your boat out of a dead end.

As you leave the mountains, you will be on the Kuskokwim side of the Ahklun Mountains. The last half of the float is through miles of flat tundra. The river flows right by the airport at the small native village of Quinhagak, on the edge of the Bering Sea. There is a small slough that brings you right up to the loading zone where you can break down your raft and wait for our amphibious aircraft to land on the airstrip and load you and your gear for the one hour flight back to Dillingham.

The king salmon season is from the 15th of June through the last week of July. The red and chum salmon start coming into the river about the last week of June and are available until about the first week in August. Silver salmon start showing up about the last week in July and keep coming into the river until early September. Humpys run hot and heavy on even years. For more information on the fishing you should encounter while floating the Kanektok, contact the Refuge Manager for the Kanektok River. We recommend at least a seven-day trip down the river.

Kanektok River 1998 High Water Times and Heights			
June	July	August	September

Home Fishing Hunting Camping Rafting About Us



Firewood is in abundance along the Kanektok river

"Sweepers" are brush and trees that are bunched up along or out into the river.

The Kanektok river has many branches and offshoots.

Lower Kanektok river as it leaves the Ahklun mountains.

Rafters exit the river within 50' feet of the airport ramp.

Bergie's Guide Service

HELLO

My name is Bruce Bergman.

I am the owner, master guide, and host of Bergie's Guide Service. I fish the pristine, remote waters of the Kanektok River. The Kanektok River is located 500 miles due west of Anchorage, along the southwest coast of Alaska. The headwaters of the Kanektok start at Kagati Lake in the Kilbuck Mountains and travel in a westerly flow for 92 miles through the Togiak National Wildlife Refuge until it empties into the Bering Sea at the Eskimo village of Quinhagak.

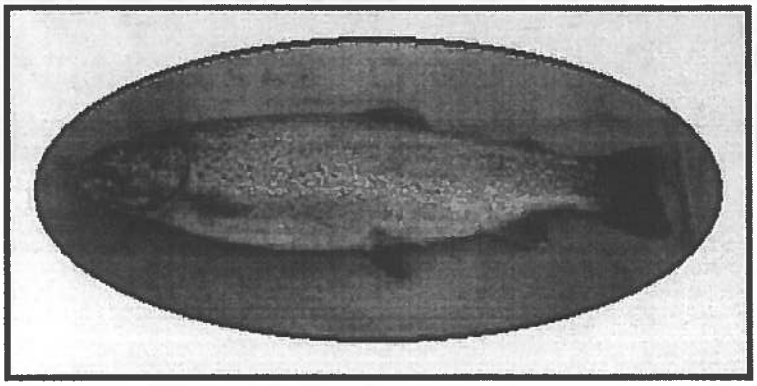
Hook Into Alaska's Finest!

E-mail your questions to: bergies@unicom-alaska.com

The Fishing Hotline is: (907) 543-4148

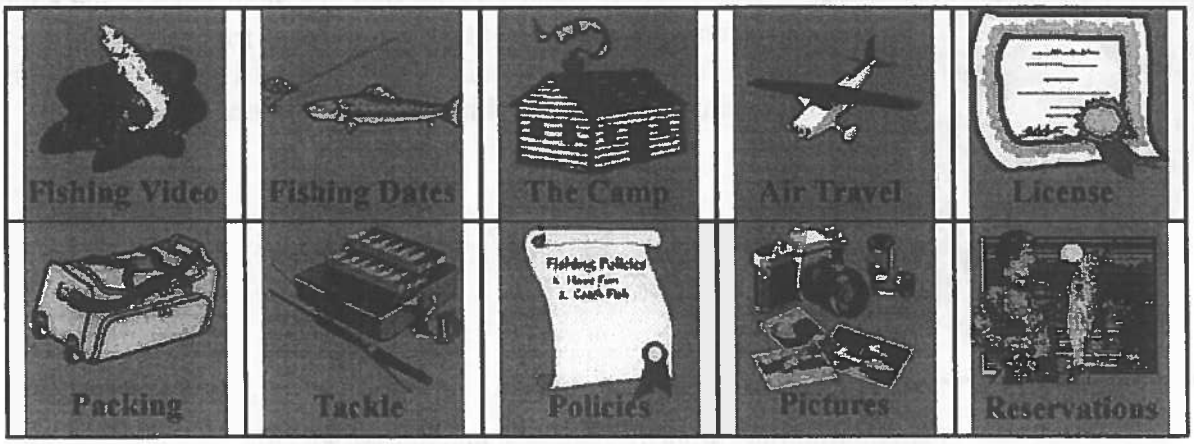
Catch of the Day

➢You will catch Chinook "KING" salmon that range anywhere from 8 lb jacks to the 60 lb "SLABS." The majority of these kings will be in the 20-30 pound bracket. My clients have caught and released up to 60 fish in a day. **THAT'S A LOT OF ACTION IN ANYBODY'S BOOK!**



➢The Kanektok River is world-renowned for its Rainbow "LEOPARD" trout. These rainbows can range anywhere from 3 to 10 lbs. Here's a picture of the 1997 camp record. This "HOG" measured 26" long, had a girth of 15" and weighed in at 7.95 pounds!

Important Information

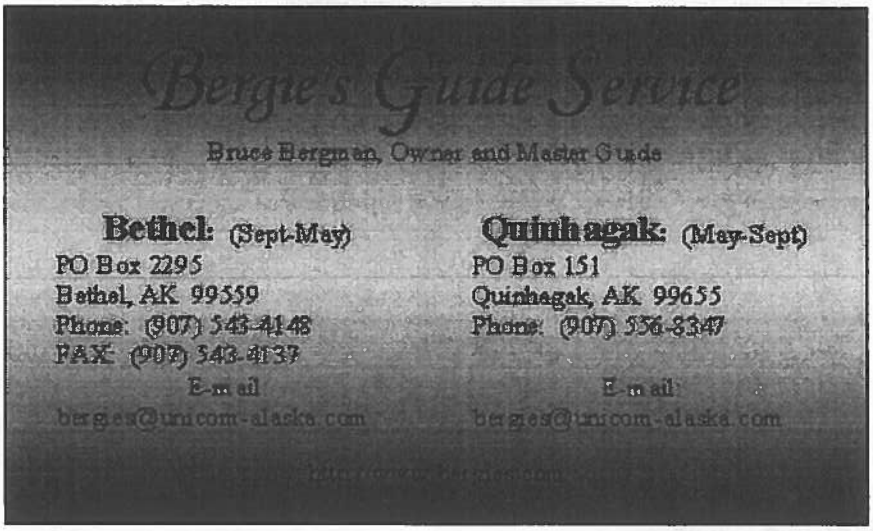


YOU WILL NEVER FORGET YOUR EXPERIENCE WITH

BERGIE'S GUIDE SERVICE.

Come have some fun with us on the Kanektok. To get a brochure:

E-mail: bergies@unicom-alaska.com



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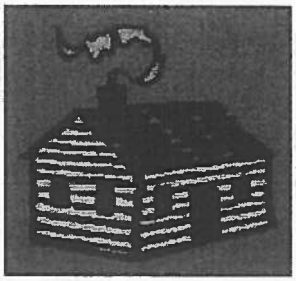
The Camp



Weather

➢Alaska's motto is "The Land of the Midnight Sun" for good reason. Summer days have 18 or more hours of sunlight. Because Bergie's is on the Bering Sea, the climate is maritime, meaning that the winds are lightly breezy and it is prone to rain in short bursts. Daily temperatures can range from the 40's to the 70's due to the moderation of the Bering Sea. Generally, it is warm and sunny, but prone to quick, short-lived changes.

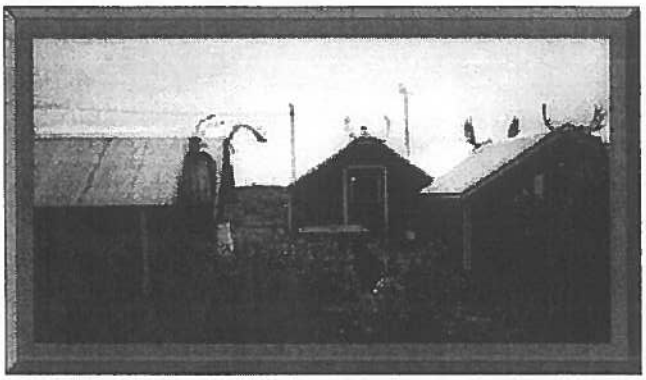
About Quinhagak

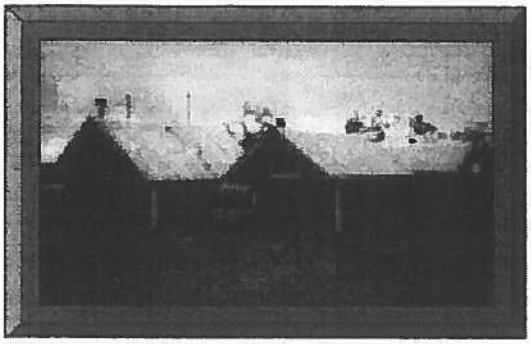
➢The village of Quinhagak (pronounced QUIN-HAWK) has a population of 550 residents, who are Yup'ik (YOU-PICK) Eskimo. The main source of economic activity is fishing and native arts and crafts. There are 3 stores, but plan on paying very high prices for a small selection by "big city" standards.

The Camp

➢Bergie's is located on the Kanektok River, which is one of the finest fishing rivers in North America. The camp is located 1 ½ miles upriver of where the Kanektok drains into the Bering Sea. Since the most desirable Kings come fresh from the ocean, Bergie's is in the perfect spot. The river is clear, cold, and pure- as is the air. The river features natural gravel bars and averages 2 to 10 feet deep - perfect for spin or fly tackle. The source of the river is Kagati Lake, which is located in the Togiak National Wildlife Refuge. Quinhagak's airport is just minutes away.

➢The camp consists of 4 cabins. All of the cabins come equipped with electricity, oil heat, real beds with mattresses, sheets, blankets, and 2 pillows per bed. The FISH-ON cabin accommodates 4 people very comfortably and has a small refrigerator in it.





➢The CARIBOU-ROOM accommodates 2 people. It has all of the same comforts as the FISH-ON cabin, minus the refrigerator.

➢The COOK'S CABIN is equipped with all of the modern conveniences found in any modern kitchen. Wait 'till you see what's cooking!

There are no tents at Bergie's !!!

➢After a hard day of successful fishing, there's nothing like a gourmet meal to make the day complete. Bergie's cook will treat you, and feed you, like a king. Leave the diet plan at home, as your going to get quite a workout reeling in all those fish. Naturally, Bergie's cook will prepare dietary foods if that is your request.

➢Nothing tastes better than a fresh King salmon right out of the river. For that reason, Bergie has a gas barbecue for those fresh fish feasts. There is also a freezer available for freezing your "one day's" take home catch in airline-approved containers. When you get back home, leave grilling steaks to your friends-- a grilled 30 pound filleted slab of salmon will make you the Salmon Meister!

➢Bergie's has its own well with an unlimited supply of water. Running water is available all over the camp, from the cutting table to the shower. As for the shower, it is a real treat in itself, with 45 pounds of water pressure and all the hot water you want. It will make you feel like a new person every time you take one.

The camp holds a maximum of 6 anglers at any one time. At Bergie's, every angler is assured of the

!!! PERSONALIZED TRIP OF A LIFETIME !!!

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FAMILIES

GUYS

Bergies Photo Album

GALS

KIDS

CHECK IT OUT

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Prime Time Fishing Dates and Runs

These dates are based on fishing data kept from

1990 through 1997

➢The cycles of nature are fairly predictable. Run strengths are based on water temperature, Smolt escapement, and general river conditions. The strength of the run and the dates change yearly as these conditions change. Below are the normal run dates by species. These dates are based on a normal fishing week starting on Saturday and ending on Friday (1998 calendar).

	June			July					August				
	6-12	13-19	20-26	27-3	4-10	11-17	18-24	25-31	1-7	8-14	15-21	22-28	29-4
King Salmon	●	●	●	○	◆	◆							
Chum Salmon			●	●	●	○	◆						
Red Salmon				●	●	●	○	◆					
Silver Salmon									○	●	●	●	○
Pink Salmon*				●	●	●	○	◆					
Arctic Char			●	●	○	◆							
Rainbow Trout[1]	●	●	●	●	●	●	●	●	●	●	●	●	●
Dolly Varden Trout[1]	●	●	●	●	●	●	●	●	●	●	●	●	●
Grayling[1]	●	●	●	●	●	●	●	●	●	●	●	●	●

*Pink Salmon run only in even years. That makes this year a "Humpie" year

[1]Rainbow Trout, Dolly Varden Trout, and Grayling live in the river all year long.

● Strong Run ○ Run Diminishing ◆ Spawning

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Arranging Transportation

Schedule jet service from Anchorage to Bethel:

Alaska Airlines: 1-800-426-0333

Yute Airlines: 1-800-359-9883

Reeve Aleutian Airlines: 1-800-544-2248

Scheduled commercial carriers and charters to Quinhagak:

Alaska Airlines	1-907-543-3905
Kusko Aviation	1-907-543-3279
Yute Airlines	1-907-543-3003
Artic Circle Air	1-907-543-3906
Hagland Aviation	1-907-543-3800
Craig Air	1-907-543-2575
YK Aviation	1-907-543-5550
Grant Aviation	1-907-543-2000
Pen Air	1-907-543-5355

Baggage Consideration:

You are allowed 2 bags weighing 70 pounds each on all commercial jet flights to Bethel. On the flight to Quinhagak, you are allowed **40 pounds total weight**. Please pack as light possible. Overweight luggage is very expensive. Pack accordingly. It is better to pack your belongings in duffel bags that can be locked. Suitcases are hard to pack in bush planes. If you have any questions, call me and I will fill you in.

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River Expeditions of Alaska

River Descriptions and Rates

Morgan & Tammy Evans
P.O. Box 236 Sterling, Alaska 99672
1-800-262-4407 riversak@ptialaska.net

Alagnak River/ $2190. 6 to 7 days
Depart from King Salmon, Alaska

One of Alaska's premier Trout Rivers and is within the state's Wild Trout Area. 74 miles of water to where the Alagnak connects to the Kvichak River. There are some lodges along the way but it is classified as remote and wildlife such as Brown bear, Moose, Wolves and other smaller game and eagles are abundant. Main fish populations include Rainbow Trout, King Salmon, Grayling, Silver, Chum and a lot of Red Salmon. The specie of salmon caught will vary depending on what month we go. Recommended times are July through September. In July there are millions of Sockeye in the river. The King run peaks late July/ early August and Silvers(Coho) from mid-August through September. The Trout of course are well fed and that's part of the reason the Alagnak is part of Alaska's Trophy Trout Region.

Kanektok River/ $2590. 8 days
Depart from Dillingham, Alaska

Expedition starts at Kagati Lake in the Ahklun Mountains. A very scenic ride with lots of photo opportunities as we travel through the mountain country out onto the coastal plain. 80-plus miles of clear mountain water to the trip's end at Quinahak. There is some motorized traffic late July, early August that I would rather avoid. The fish size and diversity of species make the Kanektok an excellent fishing destination. Wildlife in the area include Brown bear, Moose and other small game. This river supports healthy populations of Rainbow, Grayling, Arctic Char as well as King, Silver, Red, Humpie and Chum Salmon. Recommended dates for travel would be June, late August and September.

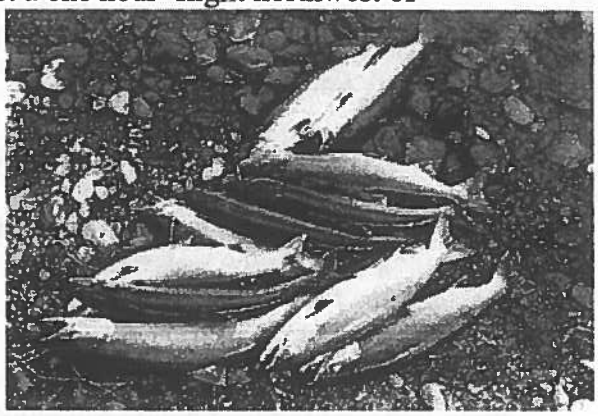
Tikchik River/ $2290. 6 days
Depart from Dillingham, Alaska

Located within Alaska's beautiful 1.7 million acre Wood-Tikchik State Park, The Tikchik River flows out of the northern-most lake in the Wood River Lakes System, Nishlik Lake, and drains into Tikchik Lake some 60 miles downriver. Dolly Varden, Rainbow and Grayling fishing is very good. Silver(coho) and Reds (sockeye) are in the

river also. Caribou, Brown bear and Moose are the common large game as well as the usual beavers, otter and ducks, etc. This mountain park area is very scenic and offers wonderful photo opportunities. June through August with August probably the best time.

Lake Creek/ $1990. 6 to 7 days * *Personal Favorite**
Depart from Anchorage, Alaska

Another extremely beautiful float and this one just a one hour flight northwest of Anchorage. It is 54 miles of fairly swift, clear mountain water with one canyon to navigate. It originates at Chelatna Lake in the foothills of the Alaska Range right under Mt. McKinley and Mt. Foraker! I spent the summer of '91 guiding for the Riversong Lodge at Lake Creek and this is one of my Favorites. Six days allows plenty of time for leisurely fishing and camping. Trout fishing is superb and from June through September there's lots of lively salmon in the creek as well as grayling and dolly varden. If you choose Lake Creek don't forget to bring a lot of film and a good camera. Wildlife residing in the area include black and brown bear, moose, eagles, otters and beavers. The Kings show up at Lake Creek in late May and 1996 is projected by Fish & Game to be a record year. All five species of Salmon navigate up this river from late May to September.



For more information, send e-mail to:

Morgan and Tammy Evans *(Owners)*

...or call 1-800-262-4407

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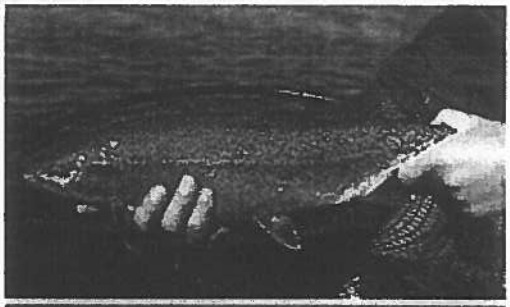
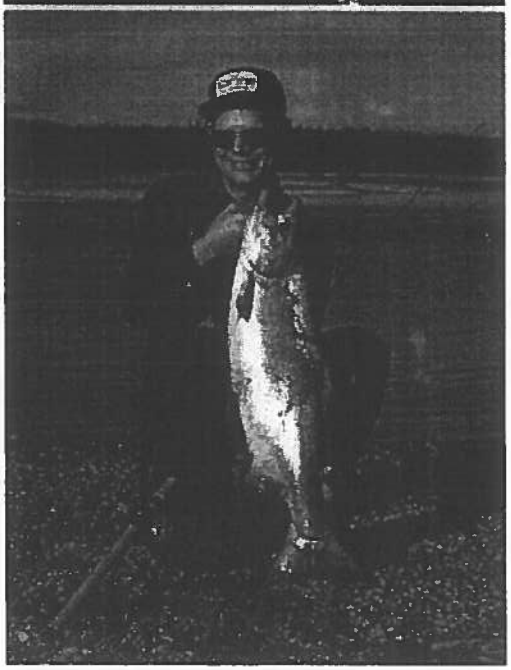
World Class Sportfishing - Float Trips

Bristol Bay has an annual Red Salmon run in excess of 20 million fish. The Salmon swim up hundreds of streams and rivers, supporting a very diversified and rich ecosystem. Because of this rich ecosystem, the sport fishing is some of the best in the world. With our float equipped DeHavilland Beaver, we can transport you to these prime sport fishing locations.





We are your direct access to the Wood-Tikchik State Park. This park is the largest in the entire United States. It is home to the Wood River Lakes and the Tikchik River. These lakes and rivers have some of the most spectacular scenery and diversified fishing you will find anywhere in the world. The Agulupak and Agulowak Rivers, which are part of the Wood River Lakes System, have the highest densities of Rainbow Trout of anywhere in the state.

In addition, we access the Togiak National Wildlife Refuge. This refuge is the home of numerous birds and marine mammals and boasts the famous Goodnews, Togiak and Kanektok Rivers, three of the most popular fishing rivers in southwest Alaska. Visitors from around the world come to fish and float these rivers which offer premier Rainbow, Silver, and King Salmon fishing.

The Nushagak and Mulchatna Rivers also offer world class fishing opportunities for Rainbow Trout, King and Silver Salmon. We have detailed fact sheets for all of these rivers and more. They describe the optimal fishing times for various species of fish, as well as other interesting information.

We offer drop-off float trip packages, with and without raft rental, for different numbers of days. The following price list is for float packages which start and end in Dillingham and includes air transportation cost and raft rental for 7 days.

Price List

Wood River Lake Float	$1500.00
Tikchik River Float	$1900.00
Kanektok River Float	$1900.00
Goodnews River Float	$1700.00
Togiak River Float	$1900.00
Nushagak River Float	$1800.00
Stuyahok River Float	$2000.00

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Tom & Janet Schlagel, Owners
P.O. Box 714
Dillingham, Alaska 99576
Phone:(907) 842-2570
Fax:(907) 842-2470

E-Mail

Tours and Travel | Fishing Guide | Hunting Guide | Home Page

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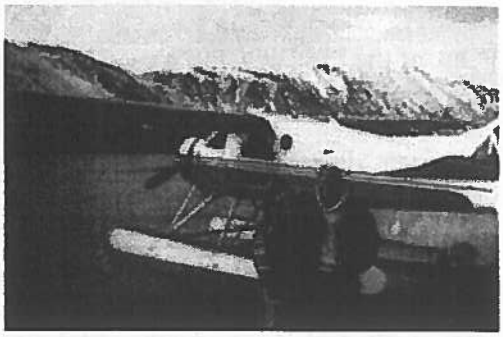
Tikchik Airventures



Tikchik Airventures provides air charter service in Southwest Alaska for kayakers, rafters, canoeists, hikers and fishing enthusiasts to the remote wilderness of Wood Tikchik State Park, Togiak National Wildlife Refuge, and the Nushagak and Mulchatna Rivers. Comprising 15,000 square miles, as large as the states of Massachusetts, Connecticut and Rhode Island combined, this is a diverse and spectacular land of pristine lakes, rivers, mountains, open tundra, spruce forest and coastal cliffs.

Southwest Alaska offers some of the finest sports fishing, wildlife viewing and scenic beauty in the world. Boasting the world's largest sockeye salmon run, Southwest Alaska's rivers and lakes are inhabited by all five species of salmon, rainbow trout, grayling, northern pike, and lake trout. Abundant populations of brown bear, moose, caribou, wolf, walrus and a wide variety of migratory birds all make their home here. One of the best ways to experience this wilderness area is to float one of its major waterways: the Goodnews, Kanektok, Togiak, Tikchik, Nuyakuk, and Mulchatna Rivers, as well as the Wood River and Tikchik Lake systems.

Rick and Denise Grant, owner operators of Tikchik Airventures, have over 20 years combined years of experience in Southwest Alaska. Rick has been flying the remote wilderness areas of Southwest Alaska since 1980, all of which has been bush type flying - landing with floats on lakes and rivers and with tundra tires on gravels bars and beaches. He pilot/guided fishermen for 10 years for sports fishing lodges in the area and has operated Tikchik Airventures since 1990. Rick and Denise live their winters in the remote wilderness on Tikchik Lake providing them with a vast and unique knowledge and appreciation of this wondrous area. Operating a De Havilland Beaver, Cessna 185 and a Super Cub on floats, wheels, and skis, they have the experience and versatility to satisfy a wide variety of needs. Rick and Denise offer the personalized service combined with intensive knowledge, commitment and professionalism to ensure that your trip is all you could hope for. Tikchik Airventures can fly you from Dillingham into the wilderness adventure of a lifetime!

Float Trips

Fishing

Hiking

Wood Tikchik State Park

Togiak National Wildlife Refuge

Nushagak and Mulchatna Rivers

About Tikchik Airventures

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Float Trips

One of the best ways to experience the wilderness of Southwest Alaska is a float trip down one of the many rivers and lakes. There are countless small rivers, tributaries and lakes in the area,

however, the primary trips in the Togiak National Wildlife Refuge are the Goodnews, Kanektok and Togiak Rivers; the primary trips in Wood Tikchik State Park are the Wood River Lakes system, and the Tikchik Lakes system including the Tikchik and Nuyakuk Rivers. To the east of Wood Tikchik are the Nushagak and Mulchatna Rivers.

Inflatable rafts, kayaks and canoes are used to float the rivers and lakes. Most trips begin at the headwaters of a river, at a pristine wilderness lake. Most of the rivers have little white water, but they do have sweepers (over hanging and submerged trees) that are hazardous if you do not stay alert and have the proper gear. Tikchik Airventures can provide you with rafts and canoes.

A float trip offers access to some of the finest fishing in North America. Home of the world's largest sockeye salmon run, the rivers also have major silver and king salmon runs. World class rainbow trout, arctic grayling, arctic char and lake trout are found in many rivers and lakes.

Float Trips

Fishing

Hiking

Wood Tikchik State Park

Togiak National Wildlife Refuge

Nushagak and Mulchatna Rivers

Angler ADVENTURES

Send Email

P.O.Box 872
Old Lyme, Connecticut 06371
1-800-628-1447
1-860-434-9624
Fax:1-860-434-8605

News & Current Space Availability

Your Gateway to the World's Top Fishing Destinations

Welcome to Angler Adventures' Web Site. For those of you who don't know us, Angler Adventures was founded in 1986. We are a full service travel agency run by a staff of fishing experts and travel experts. We take great care in recommending appropriate fishing destinations to our clients and we pride ourselves in getting you there comfortably, at a reasonable cost. We do not sell tackle, but we can tell you exactly what to bring and where to buy it.

Our office is equipped with a Sabre computer reservation system. We obtain the lowest airfares and best flight schedules to each destination we represent. We recommend and reserve hotels, lodges and guides.

We handle all arrangements. You make only one call. Unlike a lodge owner, we do not restrict ourselves to one location. We search a cross-section of lodges and outfitters to find the one that's right for you. Our goal is for you to become a repeat customer, and to do the best possible job each and every time.

Our reservation services cost nothing. You never pay more than the advertised rates. In

fact, we frequently save clients money by obtaining lower than industry standard air fares to areas we specialize in.

We represent over 120 lodges, outfitters and charter operators worldwide. Most of these, we've personally visited and of course fished! We'll advise you where to stay whether you're traveling with family or avid fishing friends. You can expect from us the ultimate in fishing/travel services; extensive pre-trip information; airline and ground transportation; advice based on personal experience; and reliable recommendations on "what to bring".

We hope you enjoy our site. Please be sure to stop by our News, Fishing Reports and Current Space Availability page for the most current information on what's happening in the world of angling. If you have any questions or would like to receive more detailed information on any of our destinations, please feel free to contact us by E-mail or fax. Or if you'd like to chat (we love to talk fishing!), please feel free to call us. We hope to hear from you soon.

Thanks for the visit, you're the Cyber Guest to visit.

Updated: 12/22/97

ALASKA

Alaska West Sportfishing

The best single river we've fished in Alaska is the Kanektok. The Kanektok has phenomenal runs of Pacific salmon, plus strikingly colorful "leopard' rainbows, sea run dolly varden, char and grayling. The river is small by Alaskan standards and wadeable. There is no better river to fly fish for kings (king salmon 20-50 pounds). Chum fishing is outrageous and silver salmon fishing will blow you away. One week the camp caught 1822, an average of 22 per rod per day and many of them were taken on dry flies! These salmon are dime bright having entered the river from the Bering Sea just 4 miles below the well situated tent camp operated by ***Alaska West Sportfishing***. If you've got time available, jump on this one.

Mission Lodge

Yes, we're excited about the Kanektok, with good reason. But if you want to sample fishing like the Kanektok without limiting yourself to one location, a fly-out lodge is the way to go. You can hop into a float plane every morning and fish a different river or catch a different species every day. Taking in the vast Alaskan wilderness by air is what this program is all about. Wildlife is an important part of the experience and sighting brown bears can be an everyday occurrence. Top on our list of fly-out lodges is ***Mission Lodge*** at Lake Aleknagik, which is the sister lodge to Alaska West.

Other excellent lodges we represent in Alaska include: ***Enchanted Lake Lodge***, ***Holman's No See Um Lodge***, ***Crystal Creek Lodge***, ***Wood River Lodge***, ***Katmai Lodge***, ***Tikchik Narrows lodge***, ***Good News River Lodge*** and ***Dave Duncan & Sons***.

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- Email us to request information on any of the above lodges

Angler ADVENTURES

Created: 11/6/97 Updated: 11/21/97