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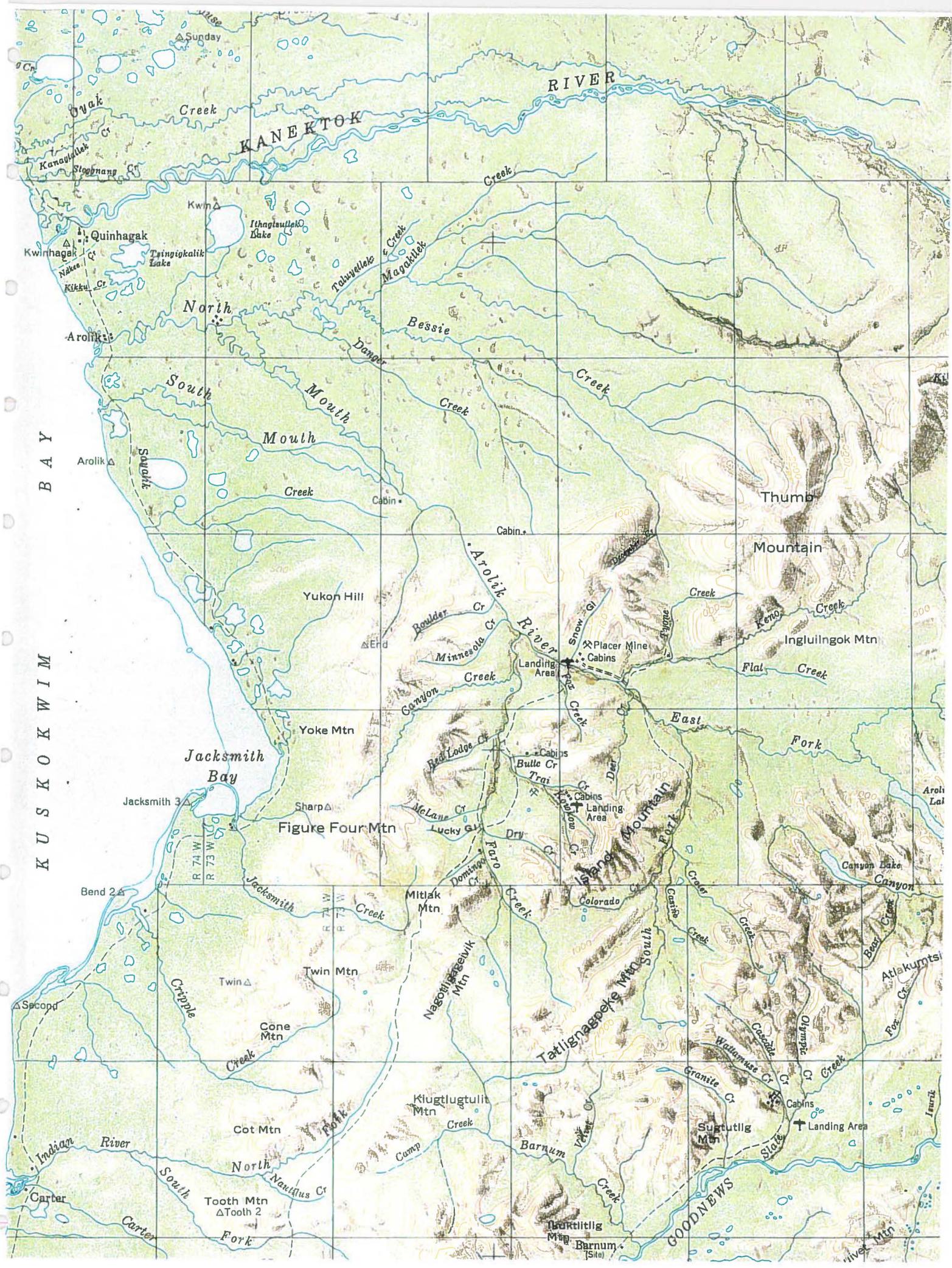
AROLIK RIVER NAVIGABILITY REPORT



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

January 2000





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Warren Keogh

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SUMMARY

This navigability research report is a comprehensive examination of the Arolik River. The report is a review of existing information about the physical character, land status, navigability status, and historical use of the river. The report focuses on navigability considerations without making recommendations or determinations of navigability.

The clear water Arolik River, laying between the larger adjacent Kanektok and Goodnews river basins, heads in the Ahklun Mountains and Arolik Lake and discharges into Kuskokwim Bay near the Native village of Quinhagak. In the upper reaches, the relatively steep gradient main stem river and its tributaries bisect mountains and hills. In its lower 25 miles, the braided river crosses a wet tundra coastal plain and diverges at river mile (RM) 21 into two channels, the North Mouth and South Mouth. Several descriptive accounts of physical characteristics exist but no significant hydrologic data are recorded for the river. The Service initiated a hydrologic study of the Arolik River by installing three gaging stations in 1998. Reported impediments and obstructions to travel along the river include shallow water, swift water, narrow channels, and exposed rocks and boulders. The Arolik River and tributaries provide habitat for five species of salmon and several resident species, most notably rainbow trout.

The lower 33.8 miles of the 35.6 mile-long main stem Arolik River is within the external boundaries of Togiak NWR. Arolik Lake, most of the East Fork Arolik River and Keno Creek, and much of Bessie Creek are within the Togiak Wilderness. Most of the Faro Creek and South Fork Arolik River are off-Refuge. Within Togiak NWR, nearly all lands adjacent to Arolik River proper have been conveyed to the Quinhagak village corporation (Qanirtuuq, Inc.), Calista Corporation, or recipients of Native allotments. Nineteen individual allotment parcels are located along the river from the river's mouths to the confluence of Faro Creek and the Arolik River at RM 28.2. Within Togiak Wilderness, there are no selected or conveyed lands surrounding East Fork Arolik River and Arolik Lake.

The State of Alaska considers the Arolik River to be navigable. The State notified the Department of the Interior of its intent to file quiet title action for the submerged lands of the Arolik River in 1996. The Bureau of Land Management (BLM) twice made Arolik River navigability determinations for conveyance purposes only. In 1979 the BLM determined the river nonnavigable. Using different navigability criteria in 1988, the BLM determined the river navigable through two extremely short river segments at approximate RM 18 and RM 28.8. The U.S. Army Corps of Engineers, the U.S. Coast Guard, and the Fish and Wildlife Service have made no formal navigability determinations.

There is little documented evidence of pre-statehood boat use on the Arolik River. However, since time of contact in recorded history, Yup'ik Eskimos have occupied Quinhagak and one or more abandoned habitation sites along the Arolik River. Subsistence use of shallow draft skinboats (kayaks and open skin boats called Angyakataks) on the Arolik by Yup'ik people to harvest wild resources can be inferred by indirect evidence. Historical use of boats associated with reindeer herding in the Arolik River basin during the 1920s and 1930s may have occurred. During gold exploration and mining activities in the upper Arolik River basin between 1900 and

1940, documents suggest limited wooden boat activity. In 1918 the USGS geologist George Harrington reported Arolik basin miners used poling boats to supply themselves from Quinhagak. In 1931 government mining engineer Irving Reed referred to the transportation of "light supplies" to miners via the "old method of outboard motorboat or poling boat." Reed ascended the Arolik River a short distance in July 1931 in an "outboard motorboat" with an Eskimo guide but continued on foot due to low water conditions. Reed also photographed a small wooden boat at a miner's camp at approximate RM 30.

Post-statehood boat use on the Arolik River has centered around subsistence, sportfishing, and government fish surveys. The pattern of use resembles that of the adjacent Kanektok River but at a markedly smaller scale. At time of break-up when water levels are high, some Quinhagak villagers make one-way downstream float trips in aluminum boats following spring squirrel camp hunting and trapping activities. Such boats are hauled overland to upstream "squirrel camps" during winter or spring. Subsistence fishing, hunting, and berry picking occur along the North Mouth and further upstream, but the extent, intensity, and nature of boat use is poorly documented.

Limited guided and non-guided recreational sportfishing has occurred from Arolik Lake to the mouth of the Arolik River since the 1980s. Two guided fishing companies, *Gone Fishing* and *Kanektok River Safaris*, operated in the 1980s and 1990s respectively. Both companies used flat-bottomed aluminum skiffs powered by 40-horsepower outboard jets. *Gone Fishing* clients accessed a base camp near the Bessie Creek confluence via floatplane and were transported as far upstream as RM 30.5. *Kanektok River Safaris* transports clients in jetboats from Quinhagak and the mouth of the Arolik River to Arolik Gap at approximate RM 25. Non-guided recreational fishers typically fly to Arolik Lake and float and line their very small inflatable boats, such as one-person inflatables or 12-foot long rafts, downstream. They travel via the East Fork Arolik River to the North Mouth Arolik River near the Bessie Creek confluence where they may be picked up by a floatplane or a boat from Quinhagak. In 1998, two Refuge-permitted air taxi operators reported transporting 6 parties totaling 21 clients to Arolik Lake, accounting for an estimated 172 use days on the Arolik River between the lake outlet (RM 46.6) and the mouth.

Big game hunting guide Chris Goll began operating on the Arolik River in about 1980 and has guided regularly, but not annually, since that time. He initially accessed the area via a small airstrip at Snow Gulch (RM 30.5) but now accesses the river from Arolik Lake as do sport fishers. Traveling one-way only, he walks and floats a 12-foot inflatable boat down the East Fork to the main stem river. Following hunting activities, he continues to the mouth of the North Mouth in his boat with small outboard kicker and exits the Arolik via his Beaver de Havilland on floats.

State and federal biologists have conducted several fish investigations by traveling from Arolik Lake to the mouth of Arolik River. They used 9-16 foot long inflatable boats to descend the river.

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I. INTRODUCTION

This report is one in a series of navigability research reports by the Services's Region 7, Water Resources Branch staff. The reports are in response to several State of Alaska Attorney Generals notices of intent to file quiet title actions on submerged lands in Alaska in the 1990s (Cole 1992, 1993; Botelho 1996, 1997). 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. The submerged lands claimed include those of the Arolik River. The claim is based on the equal footing doctrine, the Submerged Lands Act of May 22, 1953, and the Alaska Statehood Act. The 1996 notice of intent to quiet title (Botelho 1996) identifies the submerged lands at issue here simply as those of the "Arolik River" and does not precisely define the extent of the claim.

This comprehensive but not exhaustive report examines the navigability of the larger Arolik River watershed streams and Arolik Lake. The primary emphasis is on the main stream channel of the Arolik River system, that is, the 21 mile-long North Mouth Arolik River and the 24.6 mile-long main stem Arolik River. Other branches and tributaries of the main channel, such as the East Fork (Arolik Lake outlet) and the South Mouth of the Arolik River, are also reviewed. The report includes 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 Arolik 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. Navigability files regarding the Arolik River complement this written report and are located in the Water Resources Branch Office.

II. RIVER BASIN CHARACTERISTICS

A. Environment

1. Location

The Arolik River is situated in southwest Alaska, more or less midway between the communities of Bethel and Dillingham (Figure 1). Place name variations include Arolic Creek, Arolic River, Aalalik River, Kwiyadik Creek, and others (Orth 1967:87). According to Orth's *Dictionary of Alaska Place Names*, the term *Aalalik*, meaning "ashes", refers to the ashes of the burned and abandoned village of Arolik that was located near the river's mouth. According to the *Yup'ik Eskimo Dictionary* (Jacobson 1984:80), the term *araq* is defined as "ash," and the term *aralleq* is defined as "site of a fire."

Arolik River heads at the confluence of the East and South Forks, and flows northwesterly for 35.6 miles before discharging into Kuskokwim Bay 4 miles southeast of the village of Quinhagak (Orth 1967). Upstream, the East Fork and South Fork of this clear water stream extend approximately 15 miles further into the Ahklun Mountains. The Arolik River system lays between the proximal Kanektok River drainage to the north and the more topographically separate Goodnews River drainage to the south (USGS 1979). The lower 33.5 miles of the main stem river lies within the external boundaries of Togiak NWR. Some tributaries of the Arolik River, such as portions of Bessie Creek and East Fork Arolik River, extend into the Togiak Wilderness (Figure 2.) Other portions of the river, such as South Fork Arolik River and Faro Creek, are partially or wholly outside the Refuge's external boundaries. Three large and significant tributaries in the Arolik River drainage are Bessie Creek, Keno Creek and Faro Creek.

It should be noted that while the entire main channel of this river is generally referred to as the Arolik River, only a 14.6 mile-long, middle segment of the river between RM 21 and RM 35.6 is simply named the "Arolik River" according to U.S. Geological Survey (USGS) topographic maps (USGS 1979). Upstream of the main stem, the East Fork and South Fork of the Arolik River converge at RM 35.6. Downstream of the main stem Arolik River, the North Mouth and South Mouth distributaries diverge at RM 21. The North Mouth carries approximately two-thirds of the river's volume for 21 miles before emptying into Kuskokwim Bay. The smaller South Mouth carries the remaining third of river water 17 miles to the bay (Alt 1978).

In this report, most but not all river mile distances between mouth of North Mouth Arolik River and outlet of Arolik Lake are computer generated in ArcInfo. River miles (RMs) were determined by the Service's Region 7 Division of Realty cartographic staff after scanning, digitizing, and georeferencing USGS topographic maps. River miles not determined by computer, e.g., the Service's Arolik River gaging station, were estimated by interpolation after plotting coordinates on a topographic map. Tributaries join the channel of the Arolik River (mouth to Arolik Lake outlet) at the following river miles (RMs), rounded to the nearest tenth of a mile. Some named streams shown on USGS maps that discharge into Arolik River tributaries are listed below but without RMs indicated due to their small size. Other small named tributaries of historical or geographical significance are also listed.

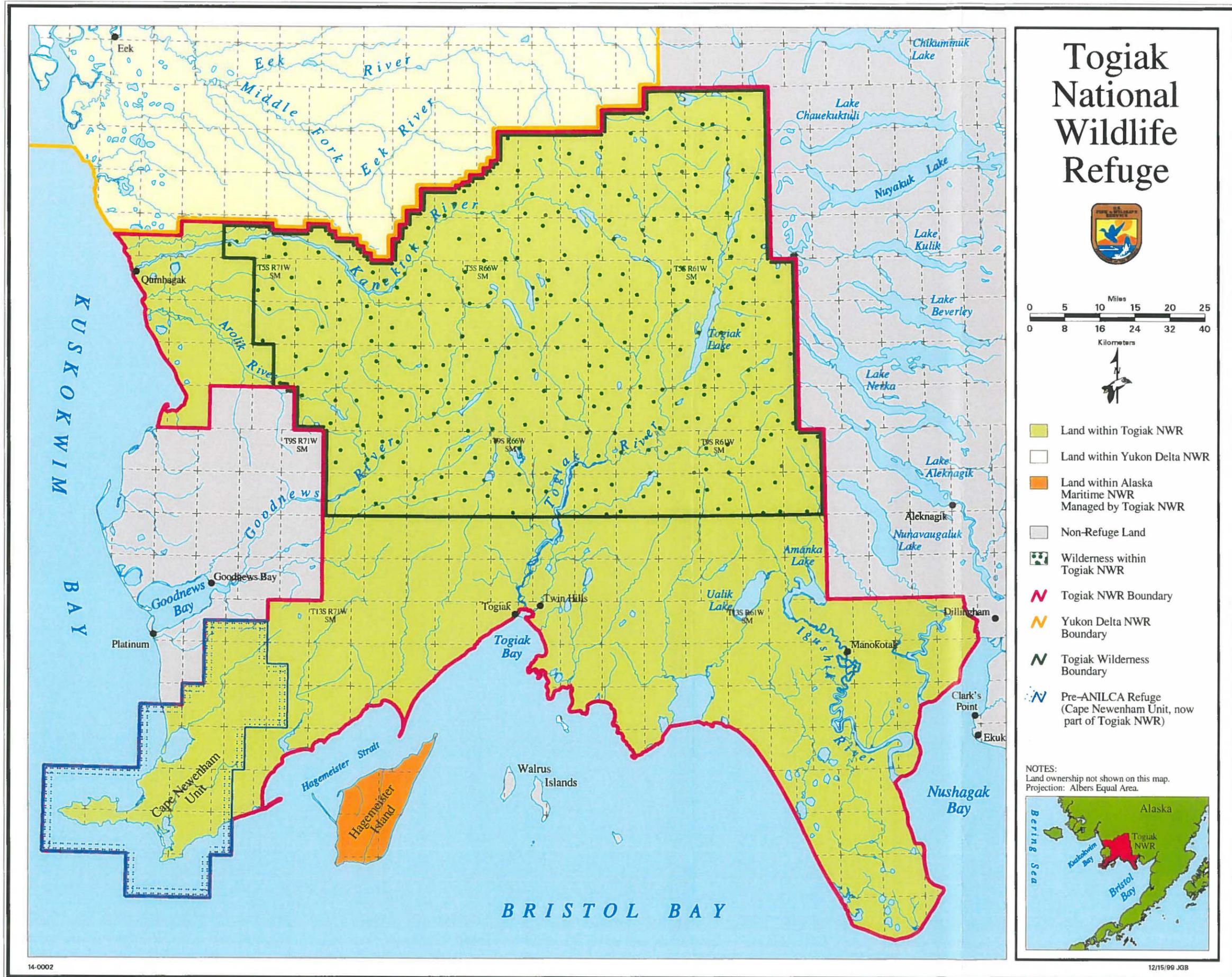


Figure 1. Togiak National Wildlife Refuge

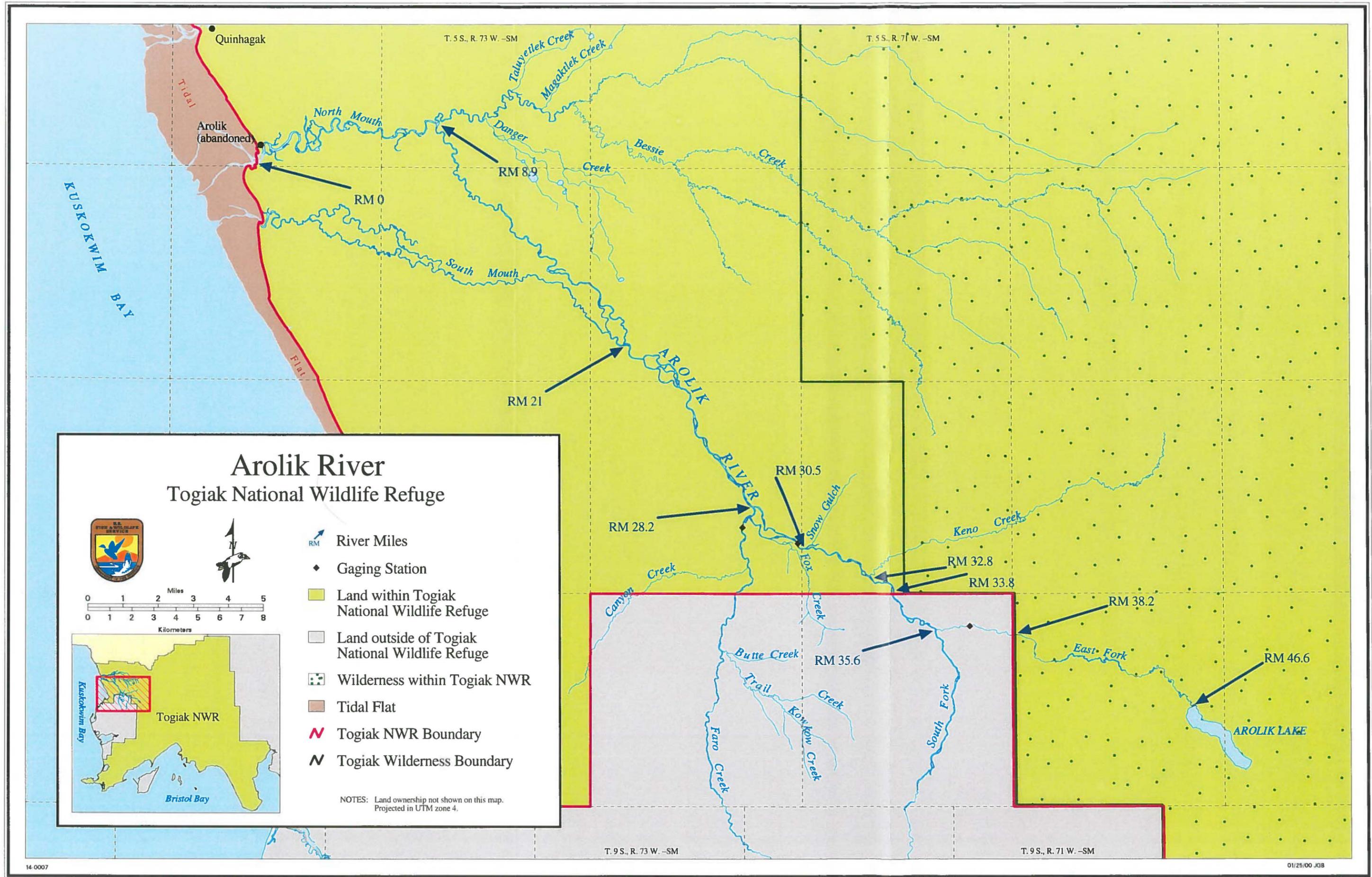


Figure 2. Arolik River

Table 1. Arolik River locations by River Mile (RM).

River Mile (RM)	River places and tributary streams
0	Mouth of North Mouth Arolik River at Kuskokwim Bay
8.9	Bessie Creek Danger Creek Taluyetlek Creek Magaklek Creek
21.0	North Mouth and South Mouth distributary bifurcation
26.0	Arolik Gap
28.2	Faro Creek Canyon Creek Trail Creek Butte Creek Kowkow Creek
30.5	Snow Gulch
29.5	FWS gaging station (Arolik River)
32.8	Keno Creek Tyone Creek Flat Creek
33.8	Togiak NWR boundary (Arolik River)
35.6	Confluence of East Fork and South Fork
36.5	FWS gaging station (East Fork)
38.2	Togiak NWR/Wilderness boundary (East Fork)
46.6	Arolik Lake outlet

The following USGS topographic maps depict the Arolik River drainage. The 1:63,360 scale maps, all within the 1:250,000 scale *Goodnews Bay, Alaska* map area (USGS 1979), were drawn photogrammetrically from aerial photographs taken in 1952-1957 and 1972-1973.

Table 2. Current USGS topographic maps covering Arolik River basin.

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

2. Physiography

The Arolik River drains a 573 square mile (1,483 square kilometer) area of coastal plains and Ahklun mountains (USGS 1979; Lisac and MacDonald 1995). The two forks of the Arolik River, South Fork and East Fork, drain the mountainous upper reaches of the river system. The South Fork is the larger of the two and heads at Tatlignagpeke Mountain and adjacent mountains 49 river miles upstream from the mouth of Arolik River's North Mouth. The East Fork heads at Arolik Lake, a 2.3 mile long mountain lake 46.7 miles upstream from the mouth of the North Mouth. At RM 21 the Arolik River splits into two distributaries. The North Mouth Arolik River is the larger channel and flows northwestly for 21 miles, discharging into the Kuskokwim Bay estuary about 5 miles south of Quinhagak. The smaller South Mouth of the Arolik River flows 18.1 miles to the coast, discharging into the bay 2 miles south of the North Mouth.

The physiography of the Arolik River drainage can be segregated simply into two regions, coastal plain and mountainous basin (Figure 3). Elevations range from sea level to nearly 3,000 feet. The lower 25 river miles of the river and the relatively large Bessie Creek system lay across a coastal plain of flat wet tundra (USGS 1979; Wahrhaftig 1965; Gallant et al. 1995). Where Arolik River emerges from the mountains to the coastal plain there is a marked break in the topography of the mountains near RM 26 called Arolik Gap (USGS 1979; Holzheimer 1926:3). Upstream of RM 25, groupings of formerly glaciated, rugged mountains and foothills are separated by broad, flat, predominantly dry, tundra lowlands. Dwarf scrub communities typify mountain vegetation and tall scrub are common in the valleys and along streams

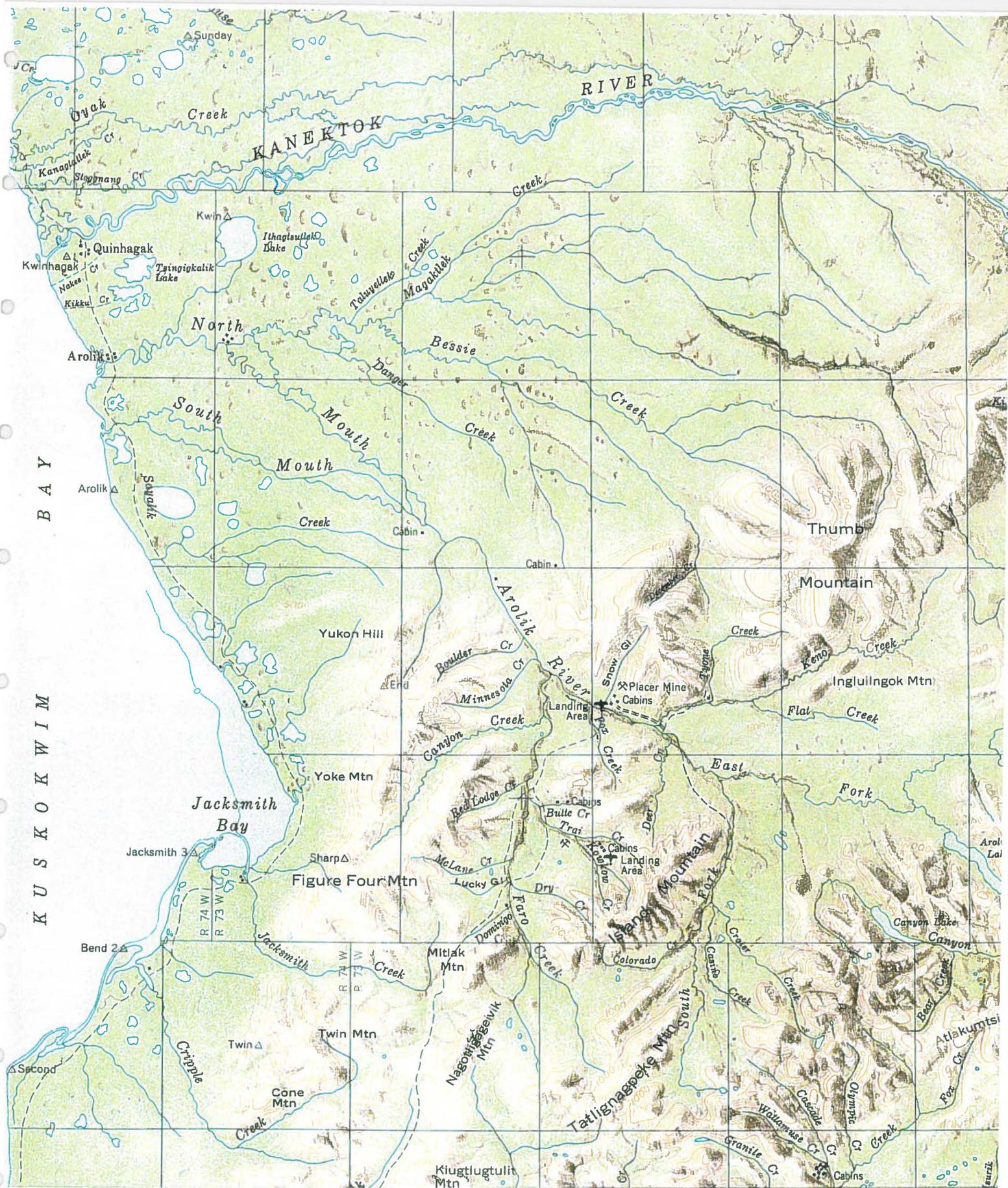


Figure 3. Shaded relief of Arolik River area.
 Section of outdated reconnaissance map *Goodnews, Alaska* (scale 1:250,000).
 (Source: USGS 1951)

(USGS 1979; Wahrhaftig 1965; Gallant et al. 1995.) Stream drainage patterns are radial or dendritic. The 483 acre Arolik Lake, elevation 468 feet, is the sole glacial lake of significant size in the drainage basin (USGS 1979; Alt 1978.) Several small, mountain ponds discharge into steep gradient, tributary streams.

3. Climate

Climatologic data for Quinhagak and the Arolik 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 Arolik River basin lies in a transitional climate zone. The maritime climate of Kuskokwim Bay and the continental climate of interior Alaska influence the Arolik 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 Arolik River vicinity 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 a high of 82°F to a low of -34°F (U.S. Army COE 1990:7).

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 is higher in the mountains (USFWS 1986:43). Mean annual precipitation in the vicinity of the Arolik River is approximately 20 to 30 inches according to a USGS climate chart (Jones and Fahl 1994). No climate data are available for Quinhagak near the mouth of the Arolik River. 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. com. 1997). Most snowfall occurs during the period from November to March.

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.

4. Fish and Wildlife

The Arolik River and its tributaries support salmon and numerous fresh water species. Spawning populations of chinook, chum, coho, pink and sockeye migrate into the Arolik River. Rainbow trout, Arctic char, Dolly Varden, lake trout, round whitefish, Bering cisco, Arctic grayling, rainbow smelt, pond smelt, burbot, and Alaska blackfish are resident or anadromous species occurring in the Arolik River and Arolik Lake (USFWS 1990:18).

In 1990, the Service (USFWS 1990:132) reported brown bear density to be low in the Arolik River basin. During salmon runs, bears congregate along the river and tributaries giving the impression of a higher density than actually exists. Moose density was also reported to be low. The Service reported an absence of caribou in the Arolik River basin in 1990, but caribou began re-colonizing the drainage basin in 1994 or 1995. Historical anecdotes and other writings suggest the Arolik River basin was a reindeer herding area in the 1920s and 1930s (Reed 1931a, 1931b; Calista Professional Services 1984; Henkelman and Vitt 1985). Furbearers of the basin include red fox, beaver, porcupine, otter, mink, weasel, arctic hare, and arctic ground squirrel. Rock and willow ptarmigan are found throughout the area (USFWS 1990:132). Riparian nesting habitat is present for raptors, breeding waterfowl, land birds, and shorebirds.

5. Communities

No inhabited communities exist in the Arolik River basin. The Yup'ik village of Quinhagak (Appendix A) at the mouth of the Kanektok River is the nearest inhabited village to the Arolik River. It is situated on the Kuskokwim Bay coast four miles north of the mouth of the Arolik River. Further removed from the Arolik River basin is the coastal village of Goodnews Bay (Appendix B). This small village is about 50 miles south of Quinhagak near the mouth of the Goodnews River and separated from the Arolik River basin by a chain of mountains.

The coastal Yup'ik village of Arolik, now abandoned, was situated at the mouth of the North Mouth Arolik River. Maps indicate a Yup'ik habitation site existed at the confluence of Bessie Creek and the North Mouth Arolik River. Maps also indicate two small clusters of dwellings associated with historical mining activity existed in the Arolik River basin. One was located at the confluence of Snow Gulch and the Arolik River; the other at Kowkow Creek in the Faro Creek drainage.

a. Quinhagak

This Yup'ik 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, and five miles from the mouth of Arolik River (Appendix A). Quinhagak, or *Kuinerraq*, is a long established Yup'ik community whose name translates as "new river" or "new river channel" (Jacobsen 1984:211; Pleasant 1986). 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). By 1931, the date of the Quinhagak photograph on the following page (Figure 4), the population had risen to about 230 people (Wolfe et al. 1984:113). Many of the adults residing in Quinhagak were born and raised in other communities, especially the villages previously located at Jacksmith Bay and along the Arolik, Kuskokwak, and Apokak rivers (Wolfe et al. 1984:115). Quinhagak has been a focus of the area's population since the establishment of a Moravian mission school in the early 1880s. Mandatory public school attendance in the 1950s forced many families living in dispersed settlements along the coast and rivers to relocate. Quinhagak growth has been the result of many small, dispersed settlements consolidating to one place.

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). (See also Appendix A)

"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 Aviation, 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 others providing past air service to Quinhagak include the scheduled or chartered air carriers Hermen's Mark Air Express, Manokotak Air, Bush Air, Hageland Aviation Services, and Fox Air (Darbyshire & Associates 1991).

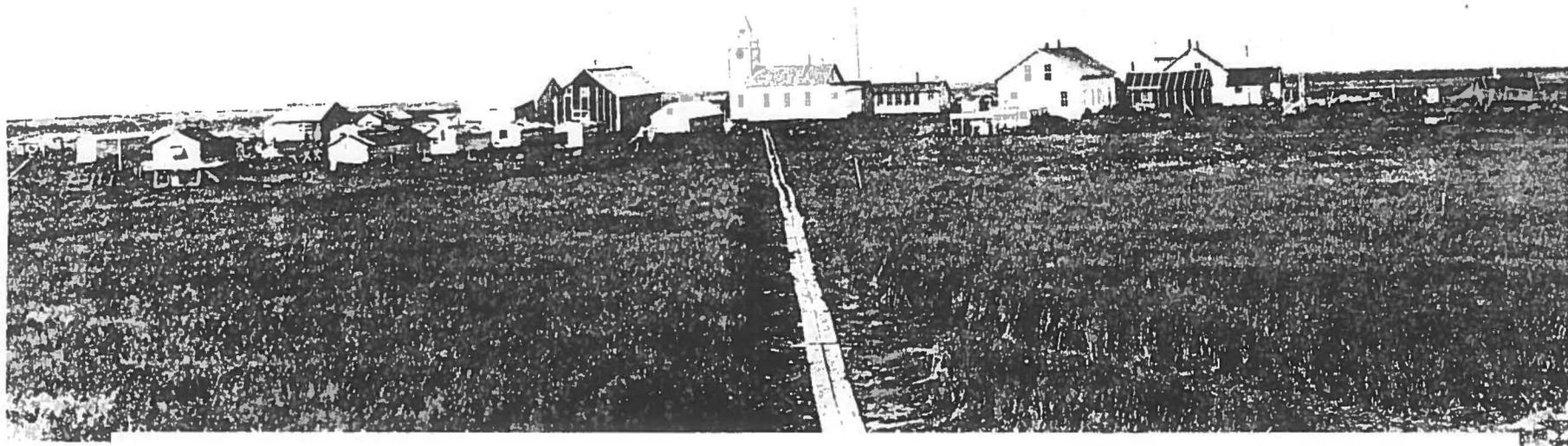


Figure 4. "Native village of Quinhak" at mouth of Kanektok River.
Photographed by Irving Reed in 1931.
(Source: Reed 1931a)

b. Arolik

Arolik is an uninhabited village site at the mouth of the North Mouth Arolik River (Figures 5 and 6). According to Jacobson (1984:80), as stated above, the term *aralleq* means “site of a fire.” Sketchy data from a variety of sources suggest this was once a small, year-round Yup’ik settlement that ceased being so in the early 1920s. In 1919, USGS geologist George Harrington (1921:215) referenced a “small village at the north mouth of Arolic River.” Early federal government census work and later USGS cartography referencing this place provide limited information. Scarce Arolik village information from historical USGS maps and reports, as well as early Census Office reports, follows.

The *Dictionary of Alaska Place Names* (Orth 1967:87) lists variant names that include Agaliagamute, Aguliagamut, Aguliagamute, Aguliak, Aguligamute, and Arolic. A comparison of several federal government maps and documents (Petroff 1884; Porter 1893; Orth 1967) suggest the accuracy of some of these place names and associated demographic data are suspect. Some researchers state Petroff’s 1880 and 1890 census work, which includes that of the Kuskokwim Bay area, must be viewed with caution (Black 1981; Pratt 1997). Ivan Petroff’s census map (1884) of 1880 shows a place name *Agaligamute* in the vicinity of Arolik and lists a population of “120 Eskimos.” The place name *Arolic* is shown on a 1913 U.S. Coast and Geodetic Survey map (Orth 1967:87). The 1921 *Reconnaissance Map of the Lower Kuskokwim Region, Alaska* (USGS 1921) depicts “Arolic” with three dwellings at the mouth of the river (Figure 7). Reporting on his geological fieldwork in the Arolik River basin during September 1926, the USGS mining engineer Frank Holzheimer (1926) refers to “Quinhag” [sic] as the nearest “settlement” and does not mention Arolik. On Holzheimer’s 1926 hand drawn map of the Arolik River basin (Figure 19), he does, however, depict a “Buried Village-(Stoneage)” [sic] at the mouth of the “North Fork Arolic River.” Later USGS topographic maps (Figure 3) show four dwellings at the river’s mouth and the coastal trail running through the center of the clustered structures. A more recent USGS map at scale 1:63,360 (USGS 1954d) depicts five dwellings at the site, but Arolik is indicated as “abandoned.” Walter Noden (pers. com. 1999), son of Arolik resident Annie Anuska and Goodnews River area miner William Noden, stated he was born in Arolik in 1919, and has been referred to by others as the last person born at Arolik (Samuelson, pers. com. 1998).

c. Unnamed village

A habitation site at the confluence of Bessie Creek and the North Mouth Arolik River (RM 8.9) existed at one time. The 1921 *Reconnaissance Map of the Lower Kuskokwim Region* (USGS 1921) shows a “Native Village” at this location (Figure 7). While traveling up river in 1931, the Alaska Territorial Mining Department’s Irving Reed (1931a:2) may have referred to this site when noting “an old native village” approximately 10 miles downstream of the “so-called Arolic River canyon.” A 1951 USGS map (Figure 3) depicts a cluster of four dwellings at this location, but two more recently published USGS topographic maps, a 1954 map (USGS 1954d) (scale 1:63,360) and a 1979 map (scale 1:250,000), show no dwellings. In correspondence to Togiak NWR staff, a former sport fishing guide who spent several seasons on



Figure 5. Mouth and tidal flat of Arolik River (North Mouth).
View to southwest and Kuskokwim Bay.
(Photograph by Warren Keogh, USFWS, August 1, 1998)



Figure 6. Mouth of Arolik River (North Mouth) at RM 0.
View to southeast and upstream.
(Photograph by Warren Keogh, USFWS, August 1, 1998)

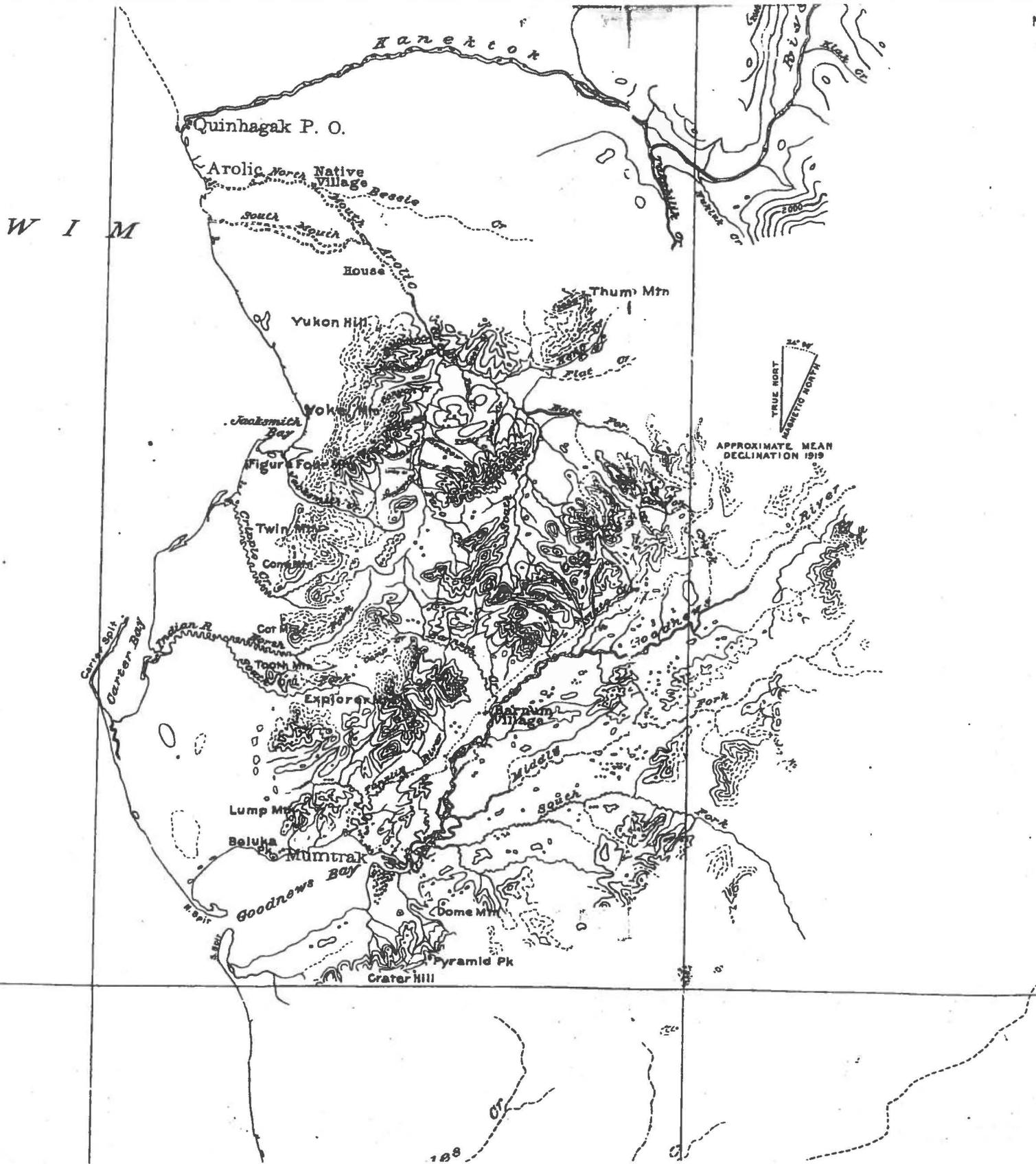


Figure 7. Early USGS reconnaissance map of Arolik River area. Section of "Reconnaissance map of lower Kuskokwim region, Alaska" [scale: 1:500,000]. Topography by R.A. Sargent in 1919. (Source: USGS 1921)

the Arolik River as a sport fishing guide (Cummings n.d.) noted “ruins” from a former “village” located on the north bank of Bessie Creek.

d. Mining camps

A small mining camp existed for a short period of time at **Kowkow Creek** (Figure 3). Mining work and the first production of gold at Kowkow Creek was made in 1913 (Harrington 1921). Kowkow Creek continued as a placer gold mining site in the 1920s and 1930s (Holzheimer 1936; Reed 1931a; Roehm 1939). Alaska Territorial Department of Mines Engineer J.C. Roehm (1939:7) reported 20 men working for “Kow Kow Creek Mining Company” in the summer of 1939, whose heavy sluicing equipment included a large mechanical drill and a dragline. The 1951 USGS reconnaissance topographic map, *Goodnews, Alaska* (scale 1:250,000), shows a cluster of cabins and a landing strip off-Refuge at Kowkow Creek, a very small stream in the Faro Creek drainage basin (Figure 3). A 1954 USGS topographic map (USGS 1954b), *Goodnews B-7, Alaska* (scale 1:63,360), shows six “Cabins” at this site of historical mining activity where three trails meet in Section 24, Township 8 South, Range 72 West, Seward Meridian.

Placer gold mining activities occurred at **Snow Gulch** and near vicinity in the 1920s and 1930s (Holzheimer 1936; Reed 1931a; Roehm 1939). Alaska Territorial Department of Mines Engineer Roehm (1939:8) reported 20 men working for “Goodnews Bay Mining Company” in the summer of 1939, sluicing with a dragline, hydraulic, and bulldozer operation. The following year, Snow Gulch was the second most active mining site in the Goodnews mining district (Smith 1942:54). The 1951 USGS reconnaissance topographic map, *Goodnews, Alaska* (Figure 3), shows a cluster of cabins and a landing strip near the confluence of Snow Gulch and the Arolik River (near RM 30.5). A 1954 USGS topographic map (USGS 1954c), *Goodnews C-7, Alaska*, shows four dwellings at this site that is labeled “Mining Camp (Abandoned).” Hundreds of 55-gallon barrels litter the landscape in this area. Many are concentrated in one area on the south side of the Arolik River opposite Snow Gulch.

It appears mining activity at Kowkow Creek and Snow Gulch ceased for the most part sometime during the early 1940s, perhaps at the onset of World War II. The USGS writers Koschmann and Berghdahl (1968:15) reported the mining district that included the Arolik River basin was dormant from 1947 through 1959. The USGS 1979 topographic map *Goodnews Bay* (scale 1:250,000) show “ruins” in the vicinity of Kowkow Creek and no structures at Snow Gulch.

6. Trails and roads

Historical or current maps of the USGS, the Alaska Road Commission, and early mining reports show two trails and one short “unimproved dirt” road in the Arolik River basin (Figure 3). One trail is the USGS mapped “winter trail” that follows the coastline between the villages of Quinhagak and Goodnews Bay, crossing the Arolik River at its mouths (USGS 1954d). The other is the USGS mapped “Native trail” between the north shore of Goodnews Bay and the Arolik River by way of the Faro Creek basin (USGS 1954b; 1954c). Branches of the mapped

trail extends into the Keno Creek basin and the upper South Fork. An approximate 2.5 mile long segment of the trail from Snow Gulch to Keno Creek is shown on a historical map as an unimproved dirt road (Figure 3). Two access roads related to mining activity were proposed in the 1920s and 1930s but not constructed. In the summer of 1998, a one-mile long gravel road then under construction headed southerly across tundra from Quinhagak toward the mouth of the Arolik River.

The State of Alaska considers two historical Arolik River basin trails to be RS 2477 rights-of-way (Alaska Department of Natural Resources 1995) (Appendix C). One is the "Quinhagak-Goodnews Bay" trail (RST #173), which is the former dogsled mail trail between Goodnews Bay and the village of Quinhagak. The other is the "Goodnews-Arolik River" trail (RST #326), a historical mining route from Goodnews Bay to the Arolik River at RM 30.5 via the Faro Creek valley.

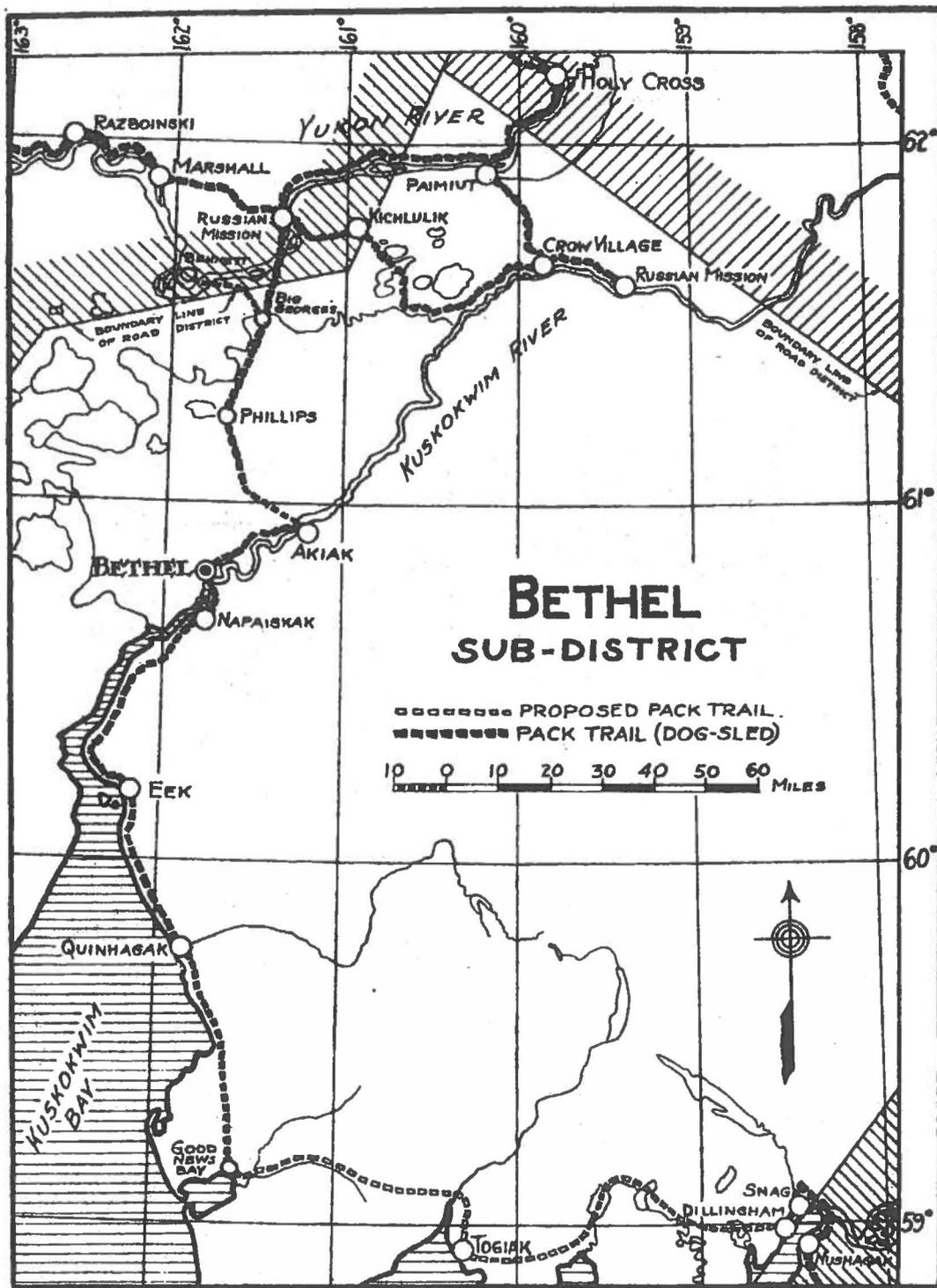
a. Quinhagak - Goodnews Bay trail

This historical trail connecting Quinhagak and Goodnews Bay follows the Kuskokwim Bay coastline for much of its length, crossing the Arolik River at its mouths. The Alaska Road Commission established the trail for the purpose of transporting mail (Figures 8 and 9). This 60 mile long winter mail, dogsled trail was one section of the much longer through route between the winter mail terminuses at Kanatak and Bethel (Figure 9). The Quinhagak-Goodnews Bay trail, designated as Alaska Road Commission trail 92F, was constructed during 1923 and 1924 by H.M. Hansen for the Alaska Road Commission at a cost of \$2,300.00. Hansen also constructed two shelter cabins along the trail for an additional \$1,200.00, but neither are within the Arolik River basin. The trail work consisted of erecting tripods 8 feet high at intervals of 200 feet, erecting beacons with directing arms 12 feet high at lake edges, sloping stream and lake banks at points of crossing, and cutting a 12-foot wide swath through brush (Steese 1923; Alaska Road Commission 1924).

The BLM historian Mike Brown (1985a:761) summarized trail improvements following initial construction:

"Little additional work was performed on the trail until the 1930s, when the number of people using the trail increased as a result of renewed mining activities in the Goodnews district. After going over the trail in the winter of 1929-30, Carl F. Lottsfeldt wrote, 'this trail will soon need considerable tripoding as the present marking is beginning to rot away, at the present four or five tripods to the mile should be replaced.' In 1933, Edward St. Clair of Goodnews Bay reported that tidewater had washed away some of the tripods. The Carter Bay shelter cabin had tilted to such an extent that it could no longer be used.

"Owing to limited funds, the Road Commission was unable to have any work done on the trail until the winter of 1934-35. At that time, H.M. Hansen staked the trail with pipes."



E.R.P. 5437-7

Figure 8. Extent of Alaska Road Commission trails in Bethel Sub-district, 1924.
 (Source: Alaska Road Commission 1924)

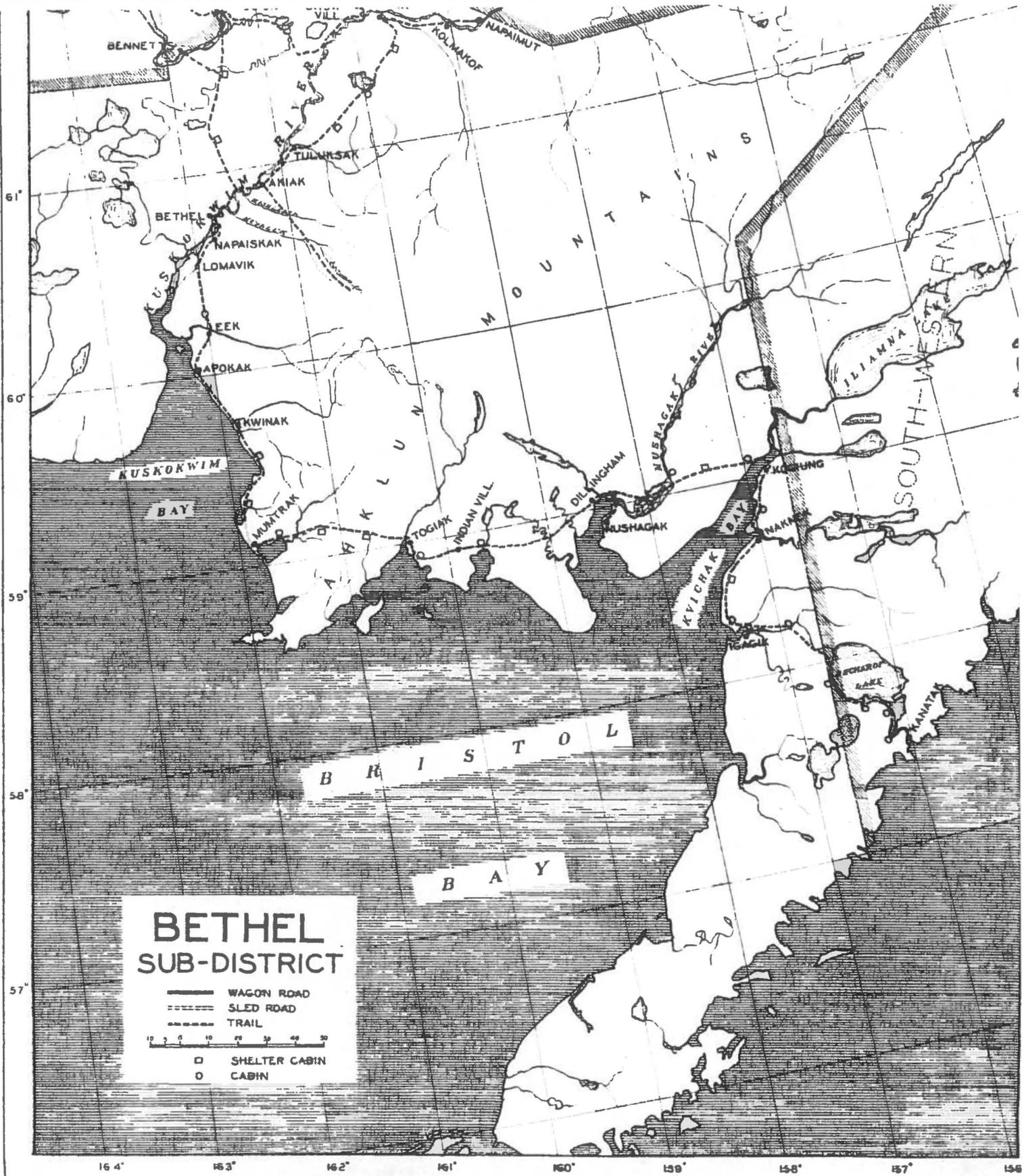


Figure 9. Extent of Alaska Road Commission trails in Bethel Sub-district, 1925.
 (Source: Alaska Road Commission 1925)

It appears no further costs were associated with the trail after 1935 other than minor trail or cabin maintenance costs in 1937 and 1938 (Showalter 1994). A review of Alaska Road Commission construction and maintenance costs reported in annual reports for the period 1939 through 1954 show there were no expenditures for trail 92F. The trail, intended as a winter mail route, apparently was never suitable for anything other than use by dog sled in winter.

The Alaska Department of Natural Resources *RS 2477 Project* original case files for this trail are located in Fairbanks, Alaska. The files, reviewed by this writer, contain photocopies of some trail pertinent documents, maps, and file memoranda. The State of Alaska identifies this trail as "RST 173 Quinhagak-Goodnews Bay Trail" (Appendix C).

b. Goodnews - Arolik River trail

The Goodnews - Arolik trail, more accurately described as a trail system, was a route used by miners to access the upper Arolik River basin from the Goodnews Bay area. The trail passed by the three most intensely mined places in the Arolik River basin; Kowkow Creek, Butte Creek, and Snow Gulch. Though the 1921 USGS topographic *Reconnaissance Map of the Lower Kuskokwim* (Figure 7) does not show the trail, the proximity of mining areas to Goodnews Bay and the topography of the area suggest the route had been used by prospectors, miners, and others before 1921. The 1951 USGS "Alaska Reconnaissance Topographic Series" *Goodnews, Alaska* (Figure 3) and subsequent maps show the trail beginning at the north side of Goodnews Bay, heading northerly around the west side of Kigsugtag Mountain, crossing the headwaters of Indian River, continuing into the Faro Creek basin, and meeting the Arolik River in the vicinity of Snow Gulch at RM 30.5. The State of Alaska identifies part of this trail as "RST 326 Goodnews - Arolik River Trail" (Appendix C). There is a trail easement along one portion of the existing trail in the Faro Creek basin (Figure 10).

A trail, with a 2.5 mile long segment indicated as an unimproved road on the 1951 map, continues upstream along the Arolik River to the Keno Creek confluence where it branches. One branch follows Keno Creek upstream for a few miles and the other heads to the upper South Fork Arolik River, where it ends. More recently published USGS maps (1954b, 1954c) at scale 1:63,360 show other short, interconnecting trails that are part of the trail system. In 1939, the Alaska Road Commission (Brown 1985a:763) considered this trail route and another, from the Goodnews River tributary Barnum Creek, for a road construction project to the Arolik basin. It is undetermined whether the \$5,000.00 authorized for road construction was used for that purpose.

c. Arolik River road

The USGS mining engineer Fran Holzheimer (1926) proposed a road be constructed to the Arolik River's gold bearing "dredging grounds" and suggested possible routes. He mapped a preferred route from a boat landing at the North Mouth Arolik River to Kowkow Creek via the South Mouth, the main stem Arolik, and Faro Creek (Figure 11). The history of the proposed Arolik River road, which was never constructed, is summarized below (Brown 1985a:762-763):

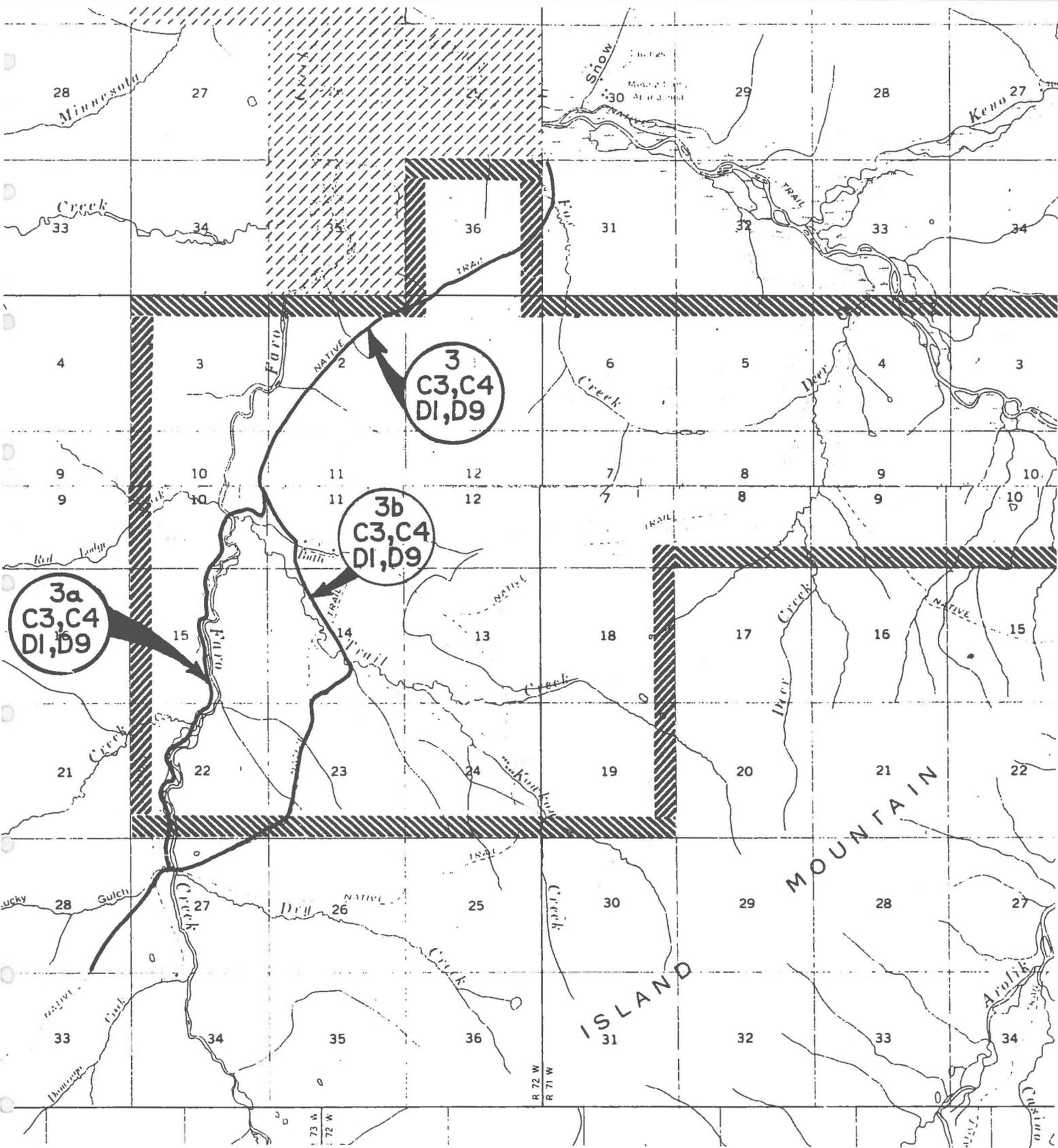


Figure 10. Faro Creek trail easements.

Limited easement twenty-five feet in width along existing trail across Calista Corporation lands. Trails 3a and 3b restricted to winter and summer use respectively. (Source: BLM case file easement maps and Interim Conveyance No. 1660 1996)

"When, in the summer of 1926, Frank Holzheimer of the USGS traveled to the lower Kuskokwim area, he met James G. Steese, president of the Alaska Road Commission who asked him for any suggestions he might have regarding the need for roads in the area. Following an investigation of mining developments on the upper Arolic River in September 1926, Holzheimer informed the Road Commission that local miners may soon request its assistance in the construction of a road from Quinhagk to the upper Arolic River. According to Holzheimer, a company to be known as the Arolic Dredging Company had been prospecting in the area with a view to installing one or two dredges to work Kowkow, Butte, Trail and Faro creeks as well as Arolic River. If the tests proved favorable, the company may want to have a road, about twenty-five miles in length, constructed from the mouth of the north fork [North Mouth] of the Arolic River to the proposed dredge camp on Kowkow Creek, following the left limit of the south fork [South Mouth] across Boulder, Minnesota, and Trail creeks. From the mouth of the north fork [North Mouth] to Arolic Gap, a point just south of the native house north of Boulder Creek, the road would traverse a 'rolling tundra area, underlain by gravel bars' with slight grades. From Arolic Gap to Kowkow Creek, it would be necessary to strip moss and construct about five small bridges about ten feet in length on the average. Faro Creek, about twenty feet wide, would require a longer bridge.

"The adoption of this route, wrote Holzheimer, would allow for an extension of the road someday to Goodnews Bay by following Faro Creek to its head, and thence across Faro Creek and the head of Cripple Creek to Barnum Creek, and thence to Indian River, Beluga Peak, and Goodnews Bay. Another possible route that should be investigated extended from Jacksmith Bay along the foothills to the head of Cripple Creek, and thence to Faro Creek. A third possible route was the south fork [South Mouth] of Arolic River. The miners had given thought to diverting the waters of the south fork into the north fork, and then utilize the gravel streambed of the south fork as a road. Owing to the crooked course of the river, Holzheimer believed this plan to be impracticable. The south fork would, however, be a good source of gravel for road construction, he wrote."

Though the Arolik River road was never constructed, and perhaps never was seriously considered by the Alaska Road Commission, a road may be constructed to the North Mouth Arolik River from Quinhagak by the "Native Village of Kwinhagak" (village council). In August of 1998, this writer observed a heavy duty gravel road being constructed south from the village, across tundra, toward the North Mouth. Togiak NWR Manager Aaron Archibeque (pers. com. 2000) noted the Bureau of Indian Affairs funded road was constructed to a point just short of the Arolik River. Apparently, the road does not extend to the river by design so as to legally and physically limit easy public access to the river.

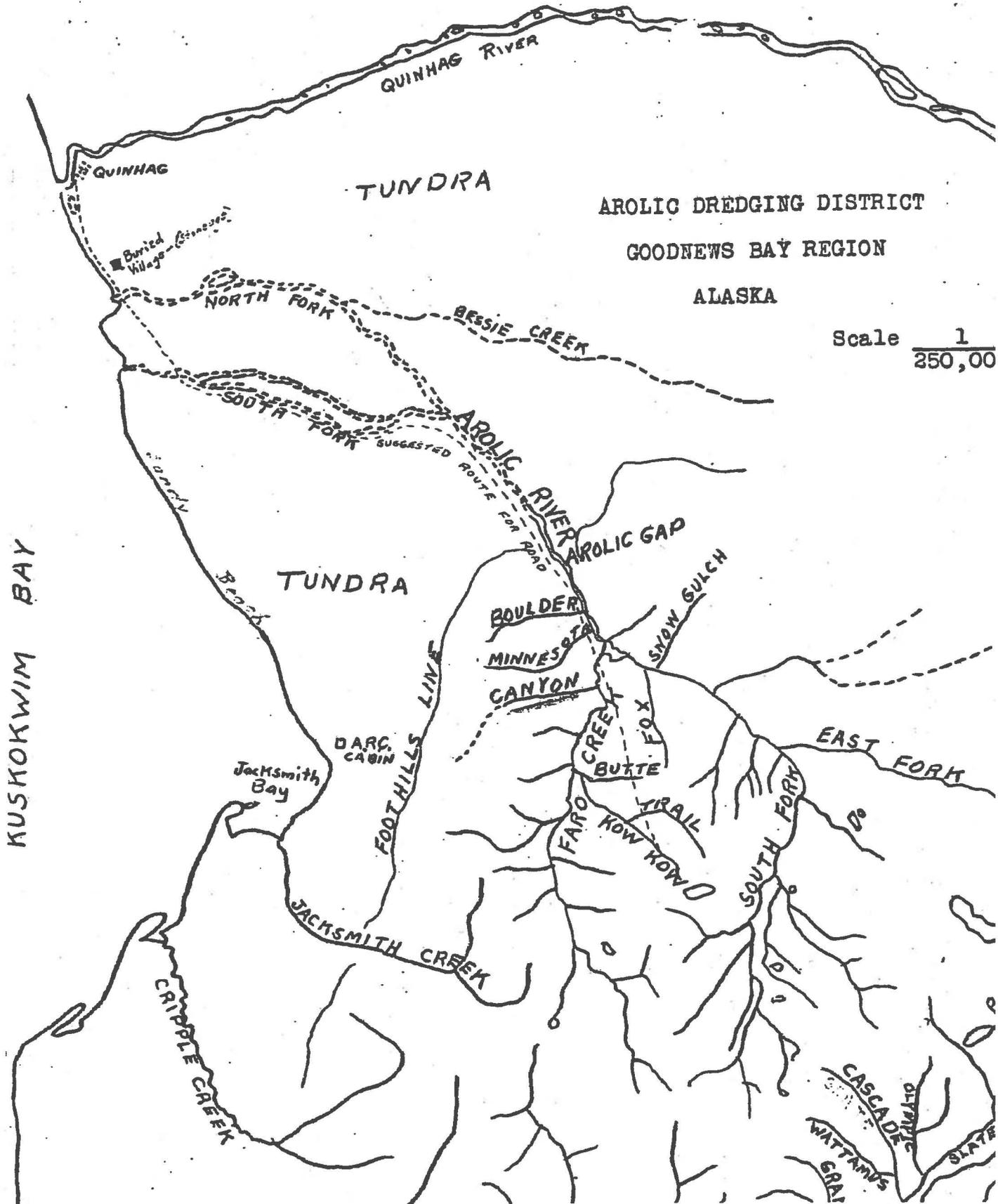


Figure 11. "Arolic Dredging District"
 Proposed road route from Quinagak to Kowkow Creek suggested in 1926 by
 USGS mining engineer F.W. Holzheimer.
 (Source: Holzheimer 1926)

B. Arolik River

The information presently available about the physical character of water bodies in the Arolik River drainage is limited and primarily descriptive. Quantitative hydrologic data are almost nonexistent. A State agency report, *Inventory and Cataloging of Sport Fish and Sport Fish Waters of Western Alaska* (Alt 1978), offers the most substantive and comprehensive observations of the river's physical characteristics. The Service and other federal agencies, such as the BLM, have reported general or limited observations of the river's physical character.

Review of historical records shows neither the USGS nor the USFWS has conducted an in-depth hydrologic assessment or installed a stream gage in the Arolik River drainage basin prior to the summer of 1998. The Water Resources Branch, USFWS, installed stream gages at three sites in the Arolik River drainage in July 1998. These sites (Figure 2) are located on the main stem Arolik River at approximate RM 29.5, on Faro Creek (RM 36.5) about one mile upstream from its mouth, and on East Fork Arolik River about one mile upstream of its confluence with South Fork Arolik River. The gages become operational in 1999 and will be maintained and monitored through the water year 2004.

The 1954 topographic quadrangles Goodnews C-8 and C-7 (scale: 1:63,360), that are based on 1950s aerial photographs, show the Arolik River, including the North Mouth and South Mouth, as a double-lined, meandering, braided, low gradient stream (USGS 1954c; 1954d). Upstream of RM 35.6 where the forks of the Arolik meet, the East Fork is shown as a mostly single-lined stream and the larger South Fork is mostly double-lined. Fall to sea level from Arolik Lake is 468', approximately 10 feet per mile. The mouths of the Arolik River are difficult to approach from marine waters because of the extensive mud flats bordering the shores (NOAA 1983) (Figure 5). The main flood season for the Arolik River may mirror that of nearby Kanektok River that occurs during spring breakup, usually in May (R&M Consultants 1979:7). Annual periods of break-up and freeze-up are undetermined for the Arolik River, but may be similar to those of the nearby Kanektok River. There, estimated break-up occurs in April or May and freeze-up in October or November (Keogh 1998:14).

Several people have noted shallow water and large rocks as significant impediments to upstream and downstream travel. A BLM navigability report (Arndorfer 1988:3), citing comments by sport fishing guide William Lyle, referred to the "canyon just below the lake" as an impediment to navigation, and noted in general that "rocks and shallow spots" impede travel. In one recorded instance, shallow water prevented boat travel upstream of an undetermined point in the vicinity of RM 10 (Reed 1931a). The ADF&G biologist Alt (1978:47) noted shallow water impeded boat travel except for the lower few miles of the river. Shallow water has required several people to drag or walk small inflatable rafts or boats down upper reaches of the Arolik River, especially the East Fork (Alt 1978; DiPrete 1988; Lisac and MacDonald 1995:30; Goll, pers. com. 1999) (Appendix I - Wilderness Access).

Service field crews sampled rainbow trout in the Arolik River between Arolik Lake and the mouth of North Mouth Arolik River from 1991 to 1994. Service fisheries biologists (Lisac and MacDonald 1995:3) summarized the physical character of the Arolik River in their report.

“The river has a gravel bottom and moderate velocity (3-6 km/hr) throughout most of its course. The river channel is frequently braided with the main stem width varying between 6 and 61m (20-200 ft). Channel water depth is variable averaging approximately 36 cm (14 in). The lower 16.1 km (10 mi) of the North Mouth is under tidal influence with a mud and fine gravel bottom.”

Following a July 1976 river fishery reconnaissance float trip of the Arolik River by an ADF&G field crew, biologist Kenneth Alt (1978:47) generally described the stream in a technical report.

“The river has a gravel bottom for most of its course; has a moderate current; and because of its shallow depth, navigation with a propeller driven boat is difficult during most of the summer except for the lower few miles.”

For the purposes of his 1976 reconnaissance, Alt (1978) divided the river, from the mouth of the North Mouth to Arolik Lake, into four sections. Alt’s description by river section contains the most complete physical characterization of the primary channel of the Arolik River. Subsequent Service investigators, fishery biologists Lisac and MacDonald (1995), continued to use Alt’s river segmentation in their studies. For continuity and ease of reporting, a similar segmentation scheme is used in this report.

1. North Mouth Arolik River (RM 0 to RM 21)

a. Lower section (RM 0 to approximate RM 7)

The ADF&G biologist Alt (1978:47) described this segment of the river as 200' wide and having a slow current, a mud and fine gravel bottom, and bankside vegetation of tall grass (Figure 6). A BLM navigability report (Arndorfer 1988:3) generally describes the North Mouth as a meandering, slightly braided stream less than three chains (198') wide.

The ADF&G biologist Alt (1978) reported this entire reach of the river as being under tidal influence. A sport fishing guide, a Quinhagak resident, the BLM, and an ADF&G pilot offered differing estimates of tidal influence. Guide David Cummings (n.d.) indicated the upstream limit of tidal action on an aerial photograph, which appears to be at approximate RM 3. Quinhagak resident and former Village Land Representative for Qanirtuuq, Inc, Peter Williams (1975) indicated in correspondence to the BLM that tide effected Arolik River waters 1.5 and 2 miles upstream of the mouth. In a BLM navigability determination (Arndorfer 1988), the extent of tidal influence on the North Mouth is described as “approximately two to two and one-half miles.” In 1986 Dan Huttunen of the ADF&G said he landed a float plane in the lower two miles of the North Mouth, estimated tidal influence to about two miles upstream from the mouth, and estimated water depth on the North Mouth above tidal influence to be 2 feet (Rukke 1986:1).

Two individuals noted shallow water as impeding travel on the lower section of the North Mouth Arolik River. Jonie Snellgrove, an ADF&G summer technician, said there were some shallow spots downstream of the Bessie Creek confluence that required her to “walk her boat” through

“shallow spots” (Rukke 1986:4). Sport fishing guide Bill Lyle (pers. com. 1999) commented that there is a “very shallow” area on the North Mouth, just upstream of the mouth.

b. Upper section (approximate RM 7 to RM 21.0)

The ADF&G biologist Alt (1978:49) described the physical character of this segment of the North Mouth as follows:

“The current averages 2 mph and the bottom composition is 20% sand and silt, 60% fine gravel and 20% medium gravel. The streambed meanders considerably and the pool to riffle ratio is 2:3. Submerged willow roots, braided channels and overhanging willows, in addition to the favorable pool to riffle ratio, provide excellent habitat for rainbow trout. . . . The stream in this section has a thick band of willows along the shore and, because of the active channel has few earth banks. The water was clear during the float trip [July 14-18, 1976] and temperature was 10.5° C 50° F.”

The BLM also noted “no obstructions or impediments are evident in the channel” in aerial photographs. Several sources made subjective estimates of the North Mouth upstream of Bessie Creek. The ADF&G seasonal employee Jonie Snellgrove estimated water depth at one to two feet upstream of Bessie Creek (Rukke 1986:4). Former sport fishing guide Bill Lyle described the Arolik River, from Bessie Creek to the mountains, as a clearwater river with a channel one to three feet deep (DiPrete 1988:3). Chuck Wade of Bethel floated the Arolik River in July of 1985 and described the North Mouth as at least eight feet deep, too deep to touch bottom with an oar, and too deep to wade across (Rukke 1986:5).

c. Bessie Creek

The 24 mile long Bessie Creek (RM 8.9) drains a relatively large area of coastal plain south of the Kanektok River and discharges into the North Mouth Arolik River at RM 8.9. Bureau of Land Management navigability reports (Arndorfer 1988:3; Rukke 1966:2) describe Bessie Creek as larger than other tributaries of the North Mouth and as emptying iron-colored water into the river. Topographic maps show Bessie Creek and tributary streams to be low-gradient, single-channel, meandering streams that traverse the flat coastal plain (Figure 3). The ADF&G biologist Alt (1978:49) referred to this stream as being “small” sized and having a slow current. It has been referred to as “extremely dangerous during the winter because the waters do not completely freeze” (Gallagher 1977:3). The Moravian missionary Drebert (1959:134) described Bessie Creek as a small, one foot deep, willow-lined stream, and as an arduous stream to cross by dogsled in springtime due to perpendicular banks with melted “snow bridges” with 12 foot diameter “holes.” Numerous small streams discharge into Bessie Creek, including three named streams of its lower reach. They are Danger, Talutetlek, and Magaklek creeks.

2. South Mouth Arolik River

The South Mouth and the North Mouth Arolik River diverge from the main stem river at RM 21. The 18.1 mile long South Mouth is 2.9 miles shorter than the North Mouth. Alt (1978:49) reported the South Mouth of the Arolik “takes approximately 30% of the water volume” from the main stem Arolik. The BLM (Arndorfer 1988:5) described the South Mouth as a wide, meandering river with negligible gradient, estimating the extent of tidal influence at a point approximately 2 miles upstream from its mouth. The following photo-interpretation of the South Mouth is found in the 1988 BLM navigability determination cited above:

“Two NASA photographs (CIR 60, roll 3112, frames 547-549, August 1982) show a meandering, primarily single-channel stream (significantly smaller than the North Mouth) with a clear channel over its entire length. Aside from the large aforementioned slough, there are several smaller interconnected sloughs. Above Sec. 17 [approximately 10 miles upstream of the mouth] the river becomes wider and more braided. In fact, a number of old channels are visible, indicating a delta-like pattern of dry channels. All of the river’s tributaries are dry in the photographs.”

While conducting aerial fishery surveys, Service biologist Mark Lisac (pers. com. 2000) many times observed the absence of water on reaches of the South Mouth during “low water periods.” He described water in the channel(s) as “discontinuous or subterranean.” Several sources uniformly described the South Mouth Arolik River as extremely shallow (Rukke 1986; DiPrete 1988). Quinhagak resident Frank Matthew reportedly described this distributary as perhaps two to three inches deep from the mouth to the main stem Arolik River (DiPrete 1988:2). Sport fishing guide William Lyle reportedly said there was hardly any water in this water body (DiPrete 1988:3). The ADF&G biologist Keith Schultz described the South Mouth as “too shallow” for boating activity (Rukke 1986:4). In 1919, USGS geologist Harrington (1919) waded the mouth of the South Mouth Arolik River at low tide.

3. Arolik River [main stem] (RM 21.0 to RM 35.6)

This segment of the river is a 15.6 mile long reach from the North and South Mouth divergence to the East and South Fork confluence (Figures 2, 12, and 13). This river segment has an approximate fall of 215 feet, a gradient of 14.6 feet per mile. Alt (1978:49-50) wrote the following description of this section of the Arolik.

“This section is characterized by a relatively straight channel, swift current, willow band along shore, clear water and a clean gravel bottom. The upper reaches of this section are swift and have a large gravel and rock bottom. There were few pools in the upper part of Section III [RM 21.0 to RM 35.6]

“The average width of the stream 3 miles below the junction of the East and South Fork was 120' and average depth was 14". Velocity was 5.62 fps and flow was 720 cfs. Velocity is considerably slower in the lower end of this section. The



Figure 12. Arolik River, undetermined location.
(Togiak NWR file photograph dated August 1991)



Figure 13. View across Arolik River at RM 29.5, site of USFWS gaging station.
(Photograph by John Trawicki, USFWS, July 27, 1998)

pool to riffle ratio is 3:7. Bottom composition is 10% sand, 30% fine gravel, 50% medium gravel, 10% coarse gravel in the lower end of Section III; but 10% sand, 10% fine gravel, 20% medium gravel, 40% coarse gravel and 20% rock and rubble in the upper part of Section III. This bottom provides spawning habitat for king and chum salmon throughout the entire section. Water temperature in this section ranged from 11° C (51°F) to 13° C (55°F) and water chemistry data were: hardness 17 ppm, alkalinity 25 ppm and pH 7.5. . . .

In July 1931, the Territory of Alaska Mining Department's Irving Reed (1931a:24) gave a limited description of physical characteristics of the Arolik River. Regarding the main stem Arolik River, he wrote:

"At a minimum stage of water the Arolic River above the mouth of Faro Creek (upper Arolic River) is about 100 feet wide and 1 or 1 ½ feet deep on the riffles. The valley of Arolic River is entrenched in the outwash material of the Arolic River basin. About 2 ½ miles below the mouth of Faro Creek on the lower Arolic River, in the so-called canyon of the Arolic, the valley is confined between rock walls cut by glacial action. The grade of the valley is steeper than that of Goodnews River being from aneroid readings on the lower Arolic River about 0.4 per cent. The grade of the valley of the upper Arolic River is, from aneroid readings, about 0.7 per cent. There are many rocks up to 1 ½ feet in diameter lying on some of the bars along the river. However, as a rule, the gravel is coarse, angular wash with no large boulders."

The USFWS installed a stream gage on the main stem Arolik River (Figure 2) in July 1998. No data are reported as of May 1999.

a. Faro Creek

The 14 mile long Faro Creek (RM 28.2) is depicted as a double-lined stream on its lower 10 miles on USGS topographic maps (scale 1:63,360) (1954b, 1954c). The ADF&G biologist Alt (1978:50) described Faro Creek as a large tributary of this section of the river, but had little comment regarding the stream other than to say it "was similar to Keno Creek except slightly larger with larger gravel." In 1931 Irving Reed (1931a:22) described Faro Creek as the largest left bank tributary of the Arolik River and having a grade of less than one percent. In 1926, the USGS's Frank Holzheimer noted the stream was about twenty feet wide at an unspecified point near its mouth (Figure 11) where a road bridge could be constructed (Brown 1985a:762). The USFWS installed a stream gage on lower Faro Creek in July 1998 (Figures 14 and 15). No data are reported as of May 1999.

Tributaries of Faro Creek include Canyon Creek and those streams intensively mined during the early twentieth century; Butte Creek, Trail Creek, and Kowkow Creek. In 1926, Holzheimer (1926:5) reported a scarcity of water effecting mining activity at Butte Creek, ". . . shoveling in operations have been idle a large part of the present season due to a shortage of water."



Figure 14. Faro Creek, vicinity of USFWS gaging station.
(Photograph by John Trawicki, USFWS, July 27, 1998)



Figure 15. Faro Creek, site of USFWS gaging station.
(Photograph by John Trawicki, USFWS, July 27, 1998)

b. Snow Gulch

This small, three mile long tributary discharges into the Arolik River mid-way between Faro Creek and Keno Creek at approximate RM 30.5. Irving Reed (1931a:24) reported that three gold placer miners quit their mining efforts in 1931 after two seasons of work due to a "lack of water." He also noted Snow Gulch valley "has a grade of about 2 ½ per cent."

c. Keno Creek

The 12 mile long Keno Creek (RM 32.8) is shown as a single-lined stream on USGS topographic maps (scale 1:63,360) (1954c) for its entire length and braided for two miles above its mouth. The ADF&G biologist Alt (1978:50) described Keno Creek as a large tributary of this section of the river. He reported, "Keno Creek is clear, about 20' wide and 4" deep with a velocity of approximately 3 fps and a bottom composed of fine and medium gravel." Tyone Creek and Flat Creek are two small named tributaries of Keno Creek.

4. South Fork Arolik River

The 12 mile long South Fork Arolik River joins East Fork Arolik River to form the main stem Arolik River at RM 35.6. On USGS topographic maps (scale 1:63,360) (USGS 1954b; 1954c) the South Fork is shown as a double lined stream on the lower 5 miles. The ADF&G biologist Alt (1978:50) surveyed the South Fork on foot in the lower half mile. He described it as "quite swift" with a velocity of 4 fps. He reported the stream as being 60'-80' wide and having bottom composed mostly of coarse gravel and rock in the lower reaches. Water depth is unreported by Alt. Numerous small streams of the surrounding mountainous basin discharge into the South Fork Arolik River, including the named tributaries Garnet, Midas, Crater, Casino, and Colorado creeks.

5. East Fork Arolik River (RM 35.6 to RM 46.6)

The 11.0 mile long East Fork (USGS 1954a, 1954c) is the shallow, low flow outlet stream for Arolik Lake (Figures 16 and 17). The gradient for the East Fork Arolik River segment is approximately 15.3 feet per mile. At the lake outlet, Alt (1978:50) recorded a July 1976, flow of 19 cfs. Alt considered this segment to be 19 miles long and described it as follows:

"The lower 13 miles of the section had swiftly flowing water (more than 5 fps) and a bottom composed mainly of large rocks and rubble. The channel was relatively straight, 20'-30' wide, and lined with willows. . . ."

"The upper 6 miles of Section IV contain very slow moving water in braided meandering channels with overhanging willows. Numerous spring areas contribute to the total flow in the upper section, as the outlet of Arolik Lake was only 19 cfs. The bottom composition is 40% silt and sand, 50% fine gravel and 10% medium gravel. The bottom is covered with a thick mat of algae, and often"



Figure 16. East Fork Arolik River, at USFWS gaging station.
(Photograph by John Trawicki, USFWS, July 25, 1998)



Figure 17. Floatplane on Arolik Lake.
(Togiak NWR file photograph dated 1994)

the water was so shallow that a raft could not be floated through it. The channel was often less than 20' wide."

An August 28, 1988, discharge measurement was taken at the Arolik Lake outlet by the USFWS (MacDonald 1996:23). The discharge field notes (Appendix D) show stream measurements were taken at a site "15 yards from the lake." Reported width is 37.7 feet, depth varies from 0.4 to 0.8 feet, velocity ranges from 0.57 to 1.43 fps, and discharge is 21.8 cfs. The 1988 measured stream discharge of 21.8 cfs compares closely to Alt's 1976 discharge measurement of 19 cfs. The USFWS installed a stream gage on the lower East Fork in July 1998 (Figures 2 and 11). No data are reported as of May 1999.

A sport fishing guide (Appendix I) walked down the East Fork on August 26, 1997, and described his descent of the stream as an eight mile walk to the confluence of South Fork. He wrote:

"The river threads it's way through the high grass banks, it is quite small here maybe twenty feet wide and very shallow just a few inches deep and in some spots we have to drag our boats [one-person inflatable boats with small oars] over the rocks in one inch deep water. . . . There is abundant fresh bear sign everywhere. As we continue down this small stream with its double back turns and high grass banks, you quickly become aware of the potential for trouble."

Brown bear hunting guide Chris Goll (pers. com. 1999) characterized travel downstream from Arolik Lake with a small inflatable boat as "walking" rather than "floating" in usual low water conditions. Goll has used the Arolik River regularly, but not annually, as a hunting area since 1980 or earlier.

6. Arolik Lake

The clear, deepwater Arolik Lake, elevation 468 feet, is the source of the East Fork Arolik River (USGS 1979). The 2.3 mile long, 0.4 mile wide lake has a surface area of 482 acres (MacDonald 1996:21). The glacially formed lake is oriented southeast to northwest and has six very small, unnamed inlet streams, all less than 2 miles long. The lake outlet is located at the northernmost point of the Lake. Arolik Lake (Figures 17 and 18) is 179 feet deep at its maximum depth and more than half of the lake is deeper than 100 feet. Steep sloped mountains tightly surround the lake whose shoreline has an abundance of fine gravel and alpine tundra vegetation with some willows (Alt 1978; MacDonald 1996). This clearwater lake has an observed Secchi disk value of 30 feet and 29.5 feet (Alt 1978; USFWS 1990). Paleoclimate research scientists associated with the "Ahklun Mountains Project" anticipate sounding the lake in the summer of 1999 for purposes of generating a detailed bathymetric map (Kaufman, pers. com. 1999).

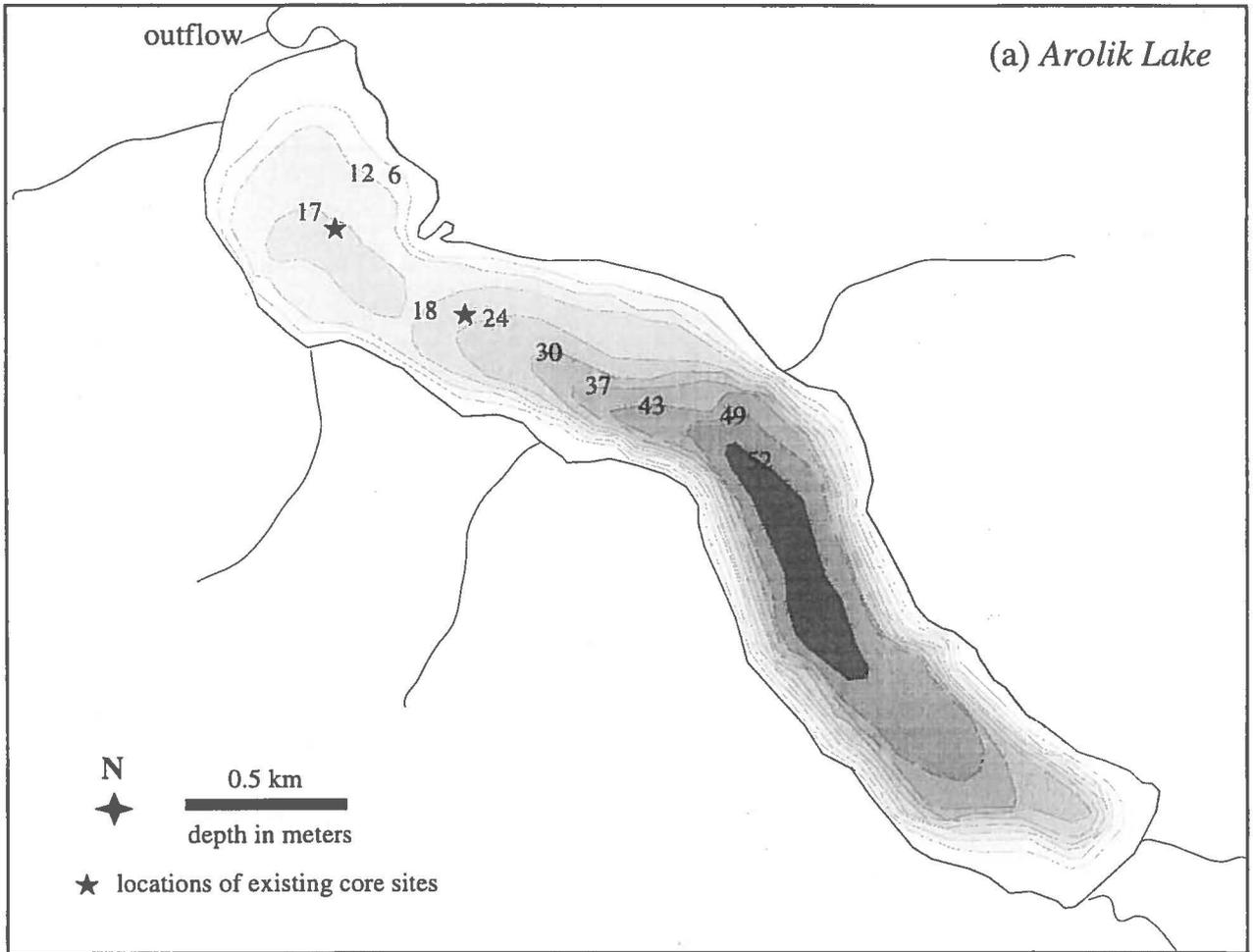


Figure 18. Arolik Lake bathymetry [map photocopy].
(Source: Axford et al., 1998; see also MacDonald 1996)

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 and relinquished, land selections are rejected, or lands are acquired. Proposed acquisitions may cause additional changes in the land status. The boundaries of the Togiak NWR encompass approximately 4,711,875 acres (4,901,072 acres when including the marine area of the Cape Newenham Unit) (Brewer, pers.com. 1999). Just over one-half of the Refuge (2,372,343 acres) is designated wilderness. Figure 1 shows lands within and around the Togiak NWR boundary and identifies the Togiak Wilderness.

Though the large majority of lands within Togiak NWR are Federal lands, as of June 1999, a significant portion of lands within the Refuge (approximately 791,542 acres) have been conveyed or selected. About 487,545 acres have been conveyed to Alaska Native corporations under ANCSA. Another 260,650 acres have been selected by Alaska Native corporations. About 40,364 acres have been conveyed under the Native Allotment Act and another 5,563 acres have been selected. The State of Alaska has selected 78 acres, but none have been conveyed. Other private party conveyances account for approximately 1,836 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 19 (following page) illustrates generalized land status of the Arolik 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.

The following land status assessment was made in March 1999. The assessment was based primarily on a review of current BLM MTPs 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 were used as well.

B. Togiak NWR

The lower 33.8 miles of the Arolik River, including the North Mouth and South Mouth distributaries, are within the external boundaries of the Togiak NWR, established under ANILCA. All lands along this 33.8 mile reach of the Arolik River are Native lands that have been selected by or conveyed to Native individuals or corporations. (See Native Lands section below.) Upstream of the Refuge boundary at RM 33.8, the Arolik River passes through off-Refuge lands conveyed to Calista Corporation (IC 1660) for approximately one mile to the vicinity of the confluence of the river's East Fork and South Fork in T. 8 S., R. 71 W., S.M.

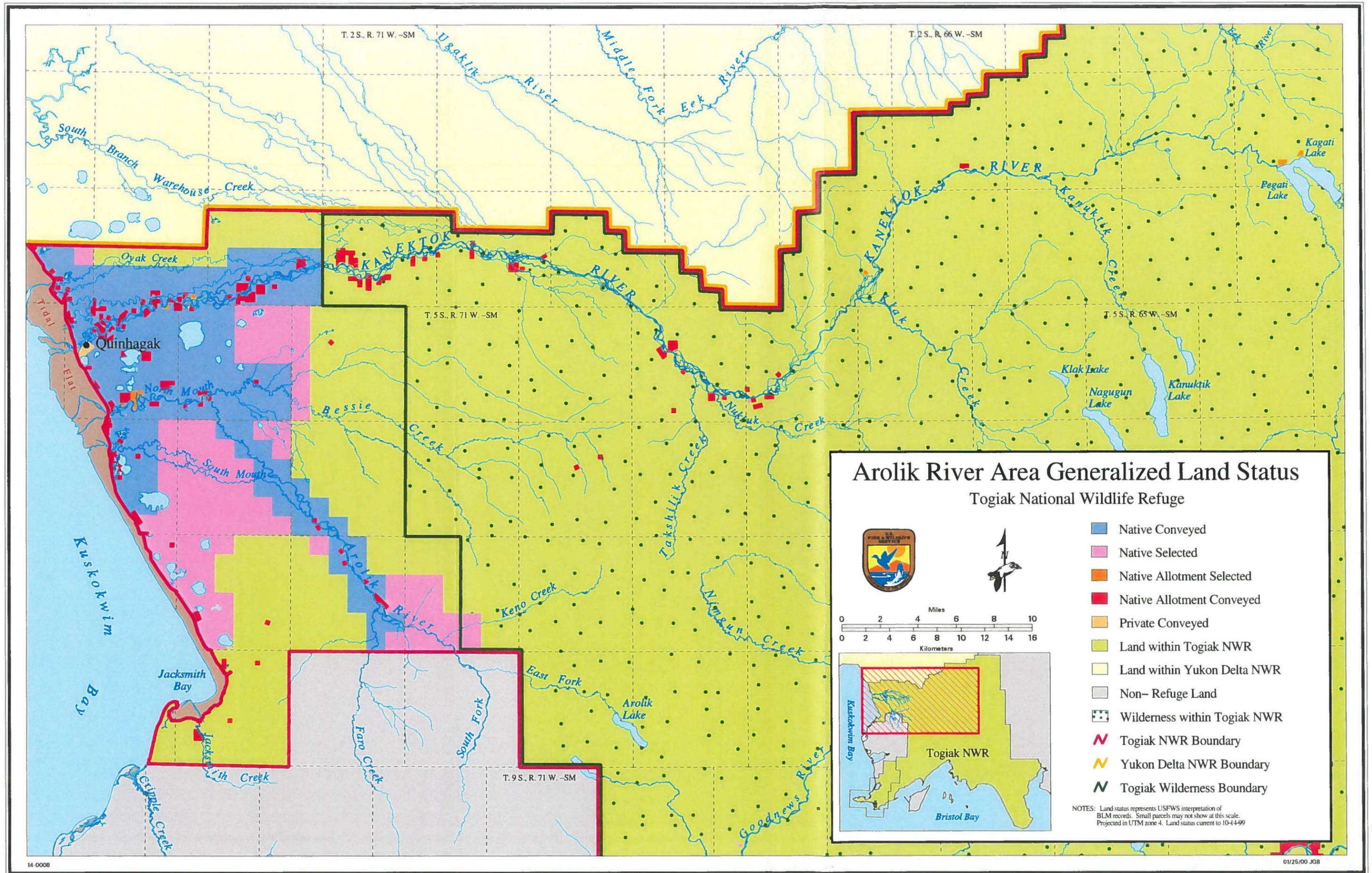


Figure 19. Arolik River Area Land Status

Most of the East Fork Arolik River and the large majority of its drainage basin are within the external boundaries of Togiak NWR and Togiak Wilderness. Upstream of the Refuge and Wilderness boundary at RM 38.2 (Figures 2 and 19), the East Fork and Arolik Lake lay within T. 8 S., R. 70 W., S.M. and T. 8 S., R. 69 W., S.M., two townships of unselected lands. There are no inholdings or selections within the boundaries of these two townships.

Most of Keno Creek and much of upper Bessie Creek drainages are also located within the Togiak Wilderness area. No inholdings are located in that portion of the Arolik River drainage system within the Togiak Wilderness with the exception of two remote Native Allotments near very small, unnamed tributaries of Bessie Creek in T. 6 S., R. 70 W., S.M.

C. Native Lands

1. Village and regional lands

Under ANCSA, Native village corporations are entitled to select lands from within 25 townships adjacent to and including their core village township. Quinhagak, located at the mouth of the Kanektok River, is the village nearest the Arolik River. All lands adjacent to the Arolik River from RM 0 through RM 33.8, an area entirely within the external boundaries of Togiak NWR, have been conveyed to or selected by the Quinhagak village corporation (Qanirtuuq, Incorporated) and/or the regional corporation (Calista, Corporation). The Quinhagak village corporation and the regional corporation hold patented title to the large majority of these lands (Patent Numbers 50-95-0284 and 50-95-0285, June 20, 1995). The MTPs show the remaining unpatented lands along this 33.8 mile reach of the Arolik River, excepting Native Allotments, have been interim conveyed or selected by the corporations (Interim Conveyances 342 and 343; village selections F14885-A and F-14885-A2; and regional in lieu selection AA8099-1).

Along the Arolik River, upstream of the Togiak NWR boundary at RM 33.8, a 14(h)(8) Calista regional selection (AA70153) includes an area from the Refuge boundary to a point very near the confluence of the East and South Forks of the Arolik River at RM 35.6. Upstream of RM 35.6 along the East Fork and the South Fork, there are no Native selections or conveyances.

In addition to the above described corporate Native lands along the Arolik River, village or regional land selections or conveyances also exist long the lowermost reaches of several Arolik River tributaries that are within the Refuge but outside the Wilderness area. Those tributaries within corporate Native selections or conveyances include such larger streams as lower Bessie Creek, lower Keno Creek, and lower Faro Creek.

In the Faro Creek drainage basin upstream and outside of Refuge boundaries, 14(h)(8) selected lands in two townships have been conveyed to Calista Corporation (IC 1660). This area includes lower Faro Creek and its tributaries of historical mining significance; Butte Creek, Trail Creek, and Kowkow Creek.

2. Native Allotments

Under terms of the Native Allotment Act of 1906 and ANCSA, individual Natives may be entitled to land parcels not to exceed 160 acres. Allotments are conveyed by the BLM. Individual allotment information and location can be determined by referencing MTPs. Nineteen individual allotment parcels, applied for or conveyed, are located along the river from the river's mouths to the confluence of Faro Creek and the Arolik River at RM 28.2. All nineteen of these Native allotment parcels have been surveyed. A small number of additional certificated Native allotments are scattered elsewhere along tributaries of the Arolik River drainage system, e.g., Magaktek Creek and an unnamed tributary of Bessie Creek. No Native allotments exist along the Arolik River upstream of RM 28.2 to the Arolik Lake outlet at RM 46.6.

Only two Native allotments within the entire Arolik River drainage basin are located outside the boundaries of the Refuge. They are in the upper Fox Creek drainage basin, just south of the Refuge boundary in Sec. 6, T. 8 S., R. 71 W., S.M. and Sec. 1, T. 8 S., R. 72 W., S.M.

D. State Lands

No Togiak NWR lands within the Arolik River basin have been selected by or conveyed to the State of Alaska. A large area of land within the Arolik basin but outside the boundaries of the Refuge has been selected by the State. The drainage basin of the South Fork Arolik River is almost entirely off-Refuge and consists almost entirely of State selected lands (AA 76435 and AA 76437). The drainage basin of upper Faro Creek and its tributaries, beginning at Section 27, T. 8 S., R. 72 W., S.M., is entirely off-Refuge and entirely State selected (AA 76323, AA 76435, AA 76436, and AA 76498).

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 not 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 (Table 1) twice made Arolik River navigability decisions for purposes of conveyance (McVee 1979; Arndorfer 1988). In 1979, the BLM (McVee 1979) did not consider most of the Arolik River to be navigable except for tidally influenced lower reaches of the North and South Mouth distributaries. Lands affected and subsequently conveyed by the 1979 BLM navigability decision, by both interim conveyance (IC 342) and patent (50-95-0284), have included the bed of the Arolik River. In 1988, using a more liberal “one-person kayak” navigability criteria, the BLM (Arndorfer 1988) determined two extremely short segments of the river to be navigable through ANCSA village selections. These two segments are at approximate RM 13 (North Mouth) and approximate RM 28.8 of the main stem Arolik River a short distance upstream of the Faro Creek confluence. In that 1988 determination, the BLM also found an approximate 14 mile reach of the middle South Mouth to be nonnavigable through ANCSA village selections.

The State of Alaska considers the Arolik River to be navigable. In response to the 1979 BLM decision of Interim Conveyance, the State informed Quinhagak’s village corporation and the BLM that certain submerged lands were believed navigable by the State (Mathews 1979). In 1996, DNR Commissioner John Shively (1996) reiterated the State’s view of ownership of Arolik River submerged lands. Shortly thereafter, the State Attorney General (Botelho 1996) notified the Department of the Interior of its intent to file property quiet title action on submerged lands of the Arolik River. A detailed explanation of Arolik River navigability related actions and statements by the United States and the State of Alaska is chronicled below.

A. United States

The BLM (McVee 1979; Arndorfer 1988) has made Arolik River navigability determinations while other Federal agencies, such as the U.S. Army Corps of Engineers (1995), the U.S. Coast Guard (1998, 1999), and the USFWS have not. The BLM navigability determinations extend upstream from the mouths of the river to RM 32.8 (Table 3). BLM determinations are forthcoming for waters upstream of RM 32.8, including the uppermost reach of the Arolik River, the lower East Fork, and the lower South Fork (IC 1660). In addition to BLM navigability determinations, Federal personnel from various agencies have made navigability related statements in formal and informal memoranda (Mattice 1990; Fisher 1990; Janis 1990; Brown 1994). The following is a chronologically ordered summation of federal navigability determinations, communications, and comments. The information was located in agency files of the BLM and the USFWS.

In November 1976, a BLM "Easement Navigability Task Force" met to consider navigability of waters within village of Quinhagak land selections made in 1974 (Bronczyk 1977). The selections included much of the Arolik River. Though the Kanektok River was determined to be navigable "by reason of its susceptibility to travel, trade, or commerce", the Arolik River was not. Referencing water bodies other than the Kanektok, the BLM determined, "No other river was considered to be navigable except as to the portion of each river which is subject to tidal influence."

In October 1979, BLM easement staff met to "conform" the final easement recommendations and consider major waterway and navigability recommendations for lands selected by the village of Quinhagak (McVee 1979). Regarding the Arolik River, the BLM again decided it was non-navigable and listed only the Kanektok River as navigable within village selected lands (Appendix E). Further, the BLM decided the Arolik River was not a major waterway and thereby rejected two proposed one acre site easements, the first at approximate RM 9 (near Bessie Creek) and the second at approximate RM 21 (where the North and South Mouth Arolik River diverge). Another proposed stream side easement along the Arolik River was not recommended. The proposed easement, that was recreational in nature, was described as "twenty-five (25) feet in width upland of and parallel to the ordinary high water mark on all banks and an easement on the entire bed of the Arolik River; including the North Mouth Arolik River through the selection area."

In November 1979, the BLM's interim conveyance decision document for Quinhagak selections, like preceding decisions, determined the Kanektok River to be the only navigable inland water body of described lands (Wolf 1979). This included the Arolik River area. The decision document also comments on Quinhagak's original 1974 selection application and lands beneath nonnavigable waters. The document (Wolf 1979:3-4), where it regards the application, reads:

Table 3. Chronological summary of BLM navigability determinations and other BLM documents regarding navigability of Arolik River.

Date	Navigability	Source
November 16, 1976	Not navigable except tidally influenced waters	Bronczyk 1977
October 26, 1979*	Not navigable except tidally influenced waters; not a major waterway	McVee 1979
November 15, 1979	Not navigable	Wolf 1979
June 25, 1980	Submerged lands conveyed to Quinhagak	IC 342
July 25, 1985	Not navigable except tidally influenced waters	Brown 1985b
March 29, 1988*	Navigable in Sec24,T7S,R72W; North Mouth navigable in Sec9,T6S,R73W South Mouth not navigable in 8 sections	Arndorfer 1988
February 21, 1989	North Mouth navigable in Sec9,T6S,R73W	Boden 1989
March 16, 1990	Arolik River and North Mouth probably navigable	Brown 1990
March 27, 1990	Arolik River and North Mouth probably navigable	Johnson 1990
February 16, 1994	Arolik River not navigable except 2 short segments	Brown 1994
July 7, 1994	North Mouth Arolik River in Sec9,T6S,R73W is a major waterway	Lloyd 1994
June 25, 1995	Patent excludes previously conveyed submerged lands beneath nonnavigable waters (IC 342)	Patent No. 50-95-0284

*Navigability determination

"Qanirtuug, Inc. [Quinhagak village corporation] in its November 13, 1974 application excluded several bodies of water. Because certain of those water bodies have been determined to be nonnavigable, they are considered to be public lands withdrawn under Sec. 11(a)(1) and available for selection by the village pursuant to Sec. 12(a) of the Alaska Native Claims Settlement Act. Section 12(a) and 43 CFR 2651.4 (b) and (c) provide that a village corporation must, to the extent necessary to obtain its entitlement, select all available lands within the township or townships within which the village is located, and that additional lands selected shall be compact and in whole sections. The regulations also provide that the area selected will not be considered to be reasonably compact if it excludes other lands available for selection within its exterior boundaries. For these reasons, the water bodies which were improperly excluded in the November 13, 1974, application are considered selected by Qanirtung, Inc."

On June 25, 1980, the BLM interim conveyed (IC'd) the surface estate of village selected lands (F-14885-A) to Quinhagak village corporation (IC 342). This conveyance includes submerged lands of the Arolik River.

In 1985, BLM Navigability Section Chief Michael Brown (1985b) responded to a public inquiry regarding the navigability status of the Arolik River. To the question, "Is the lower part of the Arolik River considered navigable and how far up is it considered navigable?", Brown answered:

"The entire Arolik River was determined to be nonnavigable on October 25, 1979. This would not include any portion of the river which is tidally influenced since by law all tidal waters are navigable. The line of mean high tide is determined by the BLM Cadastral Survey. The line of mean high tide in the vicinity of the Arolik River has not been determined to date."

In December 1986, BLM Realty Specialist David Rukke (1986) conducted telephone interviews regarding the navigability of the Arolik River for additional land selections (Appendix F). Telephone interviewees included Quinhagak or Platinum village Natives who use the river for subsistence purposes, a commercial sport fishing guide, two State government employees with limited river experience, and two recreationalists from Bethel. The following excerpt from the five page memorandum is one such account by an Arolik River traveler with more river experience than most others interviewed.

"Julius Henry (979-8510) is a current resident of Platinum that had grown up in Quinhagak Village. He was very familiar with the Arolik River. He also travels by boat on the water bodies of the Goodnews Bay area. Each fall, Ron Hyde Jr. (of Alaska River Safari's) usually accompanied him for trapping, hunting, or fishing. Over the years the North Mouth Arolik River has cost him three lower units on his outboard (propeller). It would be extremely difficult to take BLM's eighteen foot boat and load up this river. On the spring high water Henry said that he had been about ½ way to the mountain in T. 7 S., R. 72 W., Seward Meridian in his sixteen-foot John boat (propeller). BLM's boat and load would

be lucky to make it beyond the first fork about five miles upstream (Bessie Creek) [RM 8.9] during the remaining open water stages of summer. Even this distance would be difficult with BLM's boat. It is just too shallow. He had even tried walking his boat up through the shallow areas with extreme difficulty. At a cost of three lower units he considered the Arolik unreasonable for BLM's smallest commercial boat. The South Mouth Arolik was even shallower and not boatable."

In 1987, the BLM Navigability Section Chief Mike Brown (1987) wrote a memorandum to the BLM Chief for the Branch of Calista Adjudication regarding the status of navigability determinations for pending survey projects. He reported, that for Quinhagak (Window 1562), the Navigability Section had not yet made navigability determinations.

In January 1988, navigability interviews were conducted again by BLM Natural Resource Specialist Susan DiPrete (1988) for further investigation of navigability of the North Mouth, South Mouth, and main stem Arolik River (Appendix F). Her three page memorandum includes comments by one Quinhagak villager with a Native Allotment on the Arolik River, two State of Alaska ADF&G biologists, one commercial hunting guide, and one commercial sport fishing guide.

Following Rukke's and DiPrete's investigation, the BLM (Arndorfer 1988) made navigability determinations in March 1988 for portions of the Arolik River, North Mouth Arolik River, and South Mouth Arolik River (Appendix E). Using the general navigability criteria of "crafts larger than a one-person kayak," the BLM determined the South Mouth non-navigable where it passed through eight sections of land in T. 6 S., R. 73 W., and T. 6 S., R. 74 W., S.M. The BLM determined the North Mouth Arolik River to be navigable in a very short segment in Sec. 9, T. 6 S., R. 73 W., S.M. (approximate RM 13). The Arolik River was also determined to be navigable in a very short segment in Sec. 24, T. 7 S., R. 72 W., S.M. (approximate RM 28.8).

In 1989, a BLM memorandum (Boden 1989) regarding small tracts identified navigable waters in numerous townships around Quinhagak. The memorandum attachment includes a table of townships listing navigable waters in each township, if any. The "North Mouth Arolik River in Sec. 9" within T. 6 S., R. 73 W., S.M. (approximate RM 13) is the only identified navigable water body of the Arolik River basin listed in the table.

In December 1989, Ann Johnson (1989), BLM Branch Chief of Calista Adjudication, informed Qanirtuuq, Inc., by letter of its intent to survey and issue patent for earlier IC'd lands. The letter also explains changes to navigable waters since the time earlier navigability determinations were made to the village corporation conveyed lands. It notes a new navigability criteria since February 1987, as a result of the Gulkana River decision (then under appeal); the adopted standard being "that if a canoe capable of hauling people or some cargo can travel on the stream, then the stream is navigable." The BLM gives the village corporation the option of using the "old navigability criteria" used in the interim conveyance, or, updating the navigability determination to reflect the new navigability criteria for the patent.

In February 1990, a law firm representing Qanirtuuq, Inc. (Foote Hyatt 1990), responded to the above correspondence requesting an acreage estimate of lands to be gained by the village corporation if navigability was redetermined. In March, the Branch of Calista Adjudication's Charlotte Pickering requested such information from the BLM Navigability Section. Mike Brown (1990) responded by estimating which water bodies previously determined nonnavigable, would now be found navigable. He wrote:

"Based on the information now on file, I am certain that we would determine the Arolik River and its North Mouth navigable. These streams are navigable in Tps. 6 and 7 S., R. 72 W., Tps. 5 and 6 S., R. 73 W., and T. 5 S., R. 74 W., SM. There may be other navigable streams (e.g., Bessie Creek), but I do not know that for certain at this time."

Following Brown's memo, Johnson (1990a) answered the law firm's request for acreage estimates based on modified navigability determinations. Johnson wrote:

"Based on the information now on file, we would administratively determine the Arolik River and its North Mouth navigable. These rivers are navigable in Tps. 6 and 7 S., R. 72 W., Tps. 5 and 6 S., R. 73 W., and T. 5 S., R. 74 W., Seward Meridian (Master Title Plats enclosed). An estimate of approximately 3,480 acres of submerged lands would not be charged to the village corporation in the lands described above. There may be other navigable streams (e.g., Bessie Creek), but we do not know for certain at this time."

The BLM then wrote to Qanirtuuq Incorporated and Calista Corporation further explaining the BLM navigability redetermination policy and the requirement that both the regional and village corporations must agree to redeterminations if they are to occur (Johnson 1990b, 1990c). Ultimately, Calista declined new navigability determinations on previously conveyed lands within the Calista region and, therefore, the BLM made no redetermination of navigability of the Arolik River within previously conveyed lands (Niemeyer 1990). In a letter to Quinhagak village corporation, the BLM's Lead Land Law Examiner for the Branch of Adjudication, Charlotte Pickering (1990), wrote, ". . . BLM will not segregate the beds of navigable waters that may have been inadvertently conveyed to the corporation at the time of interim conveyance."

In three 1990 memoranda, the USFWS (Janis 1990; Fisher 1990; Mattice 1990) considered the issue of regulating and managing navigable waters prior to the final adopted *Togiak Refuge Public Use Management Plan* (Togiak PUMP) of 1991. A May 1990 memorandum (Janis 1990:3-4) authored by USFWS Deputy Chief of Realty for Alaska, Bill Mattice, regarded the draft *Togiak PUMP* and addressed jurisdiction of lands and waters within Refuge boundaries. The memorandum states numerous specific rivers and lakes are navigable. Regarding the Arolik River, the memorandum reads:

"In the Arolik River System Unit the Plan states that Arolik Lake and the upper 20 miles of Arolik River 'are on refuge lands.' Yet the plan provides for issuing a special use permit for guided float trips. 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.

"In Units 13A and 13B, most of these lakes are navigable. The beds and waters, and the natural resources therein, are owned and controlled by the State."

Three months later, Togiak NWR Manager Dave Fisher (1990) wrote a memorandum regarding federal regulation of navigable waters and the draft Togiak NWR PUMP. The memorandum makes no specific reference to the Arolik River or its tributaries. It notes the draft *Togiak PUMP* "proposes continued refuge regulation of sport fish guiding on waters which have or may likely be determined to be navigable." It concludes by stating the Refuge plans to implement some management authority on State of Alaska lands and waters.

In response to Fisher's memorandum and other comments by refuge management in the USFWS Regional Office, Deputy Realty Chief Mattice (1990:1) applied his interpretation of the Gulkana River court decision to Togiak NWR rivers as described in the draft management plan. Without referring to specific water bodies, 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 February 1994, BLM Navigability Section Chief Michael Brown (1994) responded to a telephone request from Togiak NWR Deputy Manager Donna Powell regarding the navigability of the Arolik River. Brown succinctly related the Arolik's navigability history and contradictory determinations. He also said the most recent determination, which found two short segments of the Arolik River to be navigable, would likely remain unchanged. He wrote:

"You will note that in 1980 we found the [Arolik] river nonnavigable and conveyed title to much of the riverbed to the Native corporations. Since that date, because of changes in our determination criteria resulting from court decisions, we found short segments of the river navigable; that is, segments under federal jurisdiction which are selected under the Alaska Native Claims Settlement Act.

"In 1988, we were using determination standards more liberal than those we now use. But after reading the evidence presented in the report, I doubt that we would change our position that these short segments are navigable. The riverbed in these sections would likely be excluded in any future conveyances to the Native corporations."

In 1994, the BLM's final easement review and patent easement memorandum for Quinhagak village selected lands (ICs 342 and 978) (Lloyd 1994) identified the North Mouth Arolik River in Sec. 9, T. 6 S., R. 73 W. SM, "was determined to be major and should be excluded from conveyance.

In September 1994, the U.S. 9th Circuit Court of Appeals, reversed a 1993 district court denial of a motion for a preliminary injunction brought under ANILCA challenging State regulations that prohibit subsistence rainbow trout fishing and federal regulations that exclude Alaska's navigable waters from the regulation of "public lands" (*Native Village of Quinhagak v. U.S.*, 35 F.3d 388 (9th Cir. 1994)). The water bodies of the litigation were the Kanektok, Arolik, and Goodnews rivers. Though the navigable waters of the Arolik and other two rivers are referenced in the decision and are a pivotal issue to the outcome, they were not described. That is to say, the extent of navigability for each river is not stated. However, footnote 4 of the decision makes a statement regarding title navigability as it relates to the significance of fisheries:

"Although navigability determinations have not yet been made on most of Alaska's waterways, it is likely that few waterways of significance to fisheries will be classified as nonnavigable due to the expansive definition of navigable. See, e.g., Alaska v. Ahtna, Inc. 891 F.2d 1401, 1402-05 (9th Cir. 1989) (holding that river with depths of 1 to 3 feet and usable by inflatable rafts and small motorboats was navigable), cert. denied, 495 U.S. 919, 110 S.Ct. 1949, 109 L.Ed.2d 312 (1990). See Appellants' ER 119 (Federal Board 12/18/91 meeting) (Though little is known about the navigability of waters, "[i]t is most likely that a substantial portion of the present use does occur in navigable waters which are under State jurisdiction."). As argued by the Villages, the nonnavigable waters, being inaccessible by boat and located far from any of the Villages, cannot alone satisfy subsistence fishing needs."

In 1995 the BLM (Coats 1995) sent a Notice of Intent to Issue Patent to the Quinhagak village corporation for most of ICs 342 and 978 (approximately 103,000 acres), and to the Calista Corporation for ICs 343 and 979. The navigability language of this notice follows:

"The above-mentioned corporations [Qanirtuuq, Inc. and Calista Corporation] are hereby notified of the intent to issue a patent which will describe and charge against the village entitlement only 'uplands', and will exclude submerged lands, up to the ordinary high water mark, beneath all nonnavigable river 3 chains wide (198 feet) and wider, and beneath nonnavigable lakes 50 acres and larger which are meanderable according to the 1973 Bureau of Land Management Manual of Surveying Instructions, as modified by Departmental regulation 43 CFR 2650.1.

The navigability determinations for the lands described in the enclosed draft patents remains unchanged from the time the ICs were issued; the lateral extent of navigability or tidal influence was identified at the time of survey."

In June 1995, the BLM issued patent 50-95-0284 to the Quinhagak village corporation for the surface estate to the above referenced IC. Unlike the 1980 IC, the 1995 patent excludes the previously conveyed submerged lands beneath nonnavigable waters. Patent 50-95-0285 was issued to Calista Corporation for the subsurface estate.

B. State of Alaska

In 1975, the **Department of Natural Resources (DNR)**, Alaska Division of Lands sent maps depicting State recommended easements in Quinhagak village land selections (Smith 1975). The selected lands included lands of the Arolik River basin. This correspondence further references State "Water Delineation Plats" that were filed with the BLM in 1973. Those maps identified "waters that meet present state criteria as being major waterways used for water transportation or as recreational lakes, rivers, or streams." The "Water Delineation Plats" may be the same or similar to the "Water Delineation Maps" cited below that show the North Mouth and South Mouth Arolik River.

In 1976, **ADF&G** biologist Kenneth Alt (1978:47) conducted fisheries related research on the Arolik River. He likely was one of the few State employees with experience on the river, if not the only one, to make early comments alluding to the river's practical navigability. After traveling by small inflatable raft the entire length of the Arolik River, beginning at Arolik Lake and ending at the mouth of the North Mouth Arolik River, he commented on navigation. He reported, ". . . because of its [Arolik River's] shallow depth, navigation with a propeller driven boat is difficult during most of the summer except for the lower few miles."

In 1977 **DNR** correspondence regarding proposed easements in Quinhagak village selected lands, Division of Lands Projects Officer Dean Nation (1977) wrote to the Joint Federal/State Land Use Planning Commission referencing an Arolik River easement site. Apparently, his correspondence was in response to 1977 easement recommendations by the BLM's "Easement Navigability Task Force" (Bronczyk 1977). Among other comments, the correspondence stated, "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 **DNR**, Division of Lands (Mathews 1979), responded to the BLM's final decision for easements and navigability (Wolf 1979) which approved conveyance of Quinhagak village selections. On December 10, 1979, Amos Mathews notified Qanirtuug, Inc. (Quinhagak village), Calista Corporation, and the BLM, of the State's ownership of lands under navigable waters within the village selections. An undated map referenced in this Division of Lands correspondence as "Water Delineation Map, Exhibit A, Sheet 3" was located in BLM easement file EE-14885, but unattached to any correspondence. The map shows the Arolik River as navigable from both mouths upstream to the north-south township line between Ranges 73W and 72W. The State may have considered the Arolik River navigable further upstream at the time, but the navigability map extended only to the township line.

In 1986 and 1988, BLM navigability specialists Rukke and DiPrete interviewed **ADF&G** staff who opined on the navigability of the Arolik River. According to DiPrete (1988), **ADF&G** management biologist Mac Minard "firmly believes that the lower eight or nine miles of the North Mouth Arolik River are navigable by standard nineteen-foot boats with jet units." Minard had spent much time flying over the river but had no boat experience on the Arolik. According to Rukke (1986), **ADF&G** biologist Keith Schultz, who had boat experience on the tidally influenced North Mouth Arolik River, said the Arolik River "would be an extremely tough call

for navigability.” Specialist Rukke (1986) also interviewed ADF&G summer technician Jonie Snellgrove, who was assigned to Quinhagak. Snellgrove had boating experience on the lower section of the North Mouth Arolik River from the mouth upstream to Bessie Creek. She “doubted that the BLM’s eighteen-foot boat with a thousand pounds could even be taken this four or five miles to the Bessy Creek fork [sic]”, though jet boats could travel that far and further upstream.

In 1990, the Office of the Governor, **Division of Governmental Coordination** (Grogan 1990), on behalf of State resource agencies, submitted written comments on the draft *Togiak PUMP*. Comments did not include Arolik River-specific statements, but water columns and beds of navigable water bodies within the Refuge are addressed generally or technically (Grogan 1990:6, Attachment B):

“The plan [Togiak PUMP] does not acknowledge state management authority over navigable waters and the watercolumns within the wilderness boundary. It only includes state guidelines for the lower rivers. These same guidelines need to be included or referenced in all units, not just on the lower rivers.

“. . . page 11, Shorelands, Tidelands, Submerged Lands, and Watercolumns [sic]. It is requested that FWS clarify the rationale and/or authorities regarding issuance of special use permits for commercial operations on navigable water where the Service owns the adjacent uplands on only one side of the water body.”

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 final *Togiak 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 Arolik River is one river planning unit identified and profiled in the *Togiak PUMP* (USFWS 1991:132-135).

The Alaska **Department of Natural Resources** wrote Chapter 3 of the 1991 *Togiak 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 to use navigable waters for navigation, commerce, recreation, and related purposes is not substantially impaired.”

In 1996, one month prior to filing the quiet title action notice that included the Arolik River (referenced below), DNR Commissioner John Shively (1996) responded to an inquiry from Thomas M. Hawkins III, of Bethel, Alaska. His correspondence regards submerged lands generally and the Arolik River specifically. Shively cited the *Submerged Lands Act of 1953*, the *Alaska Statehood Act of 1958*, federal case law (*The Daniel Ball*), the *Constitution of the State of Alaska*, Alaska Statutes, and Alaska case law to support his view. The following excerpt refers to the Arolik River:

"The State of Alaska owns 'submerged lands' which are under waters navigable in fact and law. The Kanektok River was found navigable by BLM and excluded from conveyance, under the authority of the Alaska Native Claims Settlement Act, to Qanirtuuq, Inc. The federal government conveyance did not exclude the Arolik River. Subsequent to the conveyance the BLM found the Arolik River navigable in Sec. 24, T. 7S., R. 72W., SM on March 29, 1988. We believe the conveyance was in error and the State of Alaska received title to both rivers upon its admission to the union. A letter dated July 23, 1987 is attached. This letter has also been provided to the law firm of Harding, Rhodes, Norman, Mahoney, and Edwards which represents Qanirtuuq, Inc. The Arolik and Kanektok River have not been found navigable by the federal courts, which is the institution that usually makes the final determination of navigability."

In 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 Arolik River's submerged lands (Bothelo 1996). This 1996 notice, with nine listed rivers, includes four larger nearby rivers within the Togiak and Yukon Delta NWRs. They are the Kanektok, Kisaralik, Goodnews, and Togiak rivers. Unlike the smaller Arolik River, the other four rivers also were listed on an earlier State of Alaska notification of intent to file quiet title property action (Cole 1992). [Note: As of the date of this report (January 2000) the State has not filed suit to quiet title on any of these five rivers, so the federal court has not taken the matter up.]

V. HISTORICAL USE

A. Pre-Statehood Use

1. Subsistence

Prehistoric human activity within the Arolik River basin appears not to have been examined scientifically. However, limited archaeological investigations have occurred in the larger and adjacent Kanektok and Goodnews river basins (Ackerman 1979; 1980; Dumond 1984, 1987; Shaw 1979). The type of stone tool technology (projectile points and scrapers), habitation sites (house pits), and stone cairns aligned as caribou drive fences suggest human activity in the area at least 4,000 years before present, and perhaps as long as 10,000 years ago. In a 1994 the 9th Circuit Court of Appeals decision (*Native Village of Quinhagak v. U.S.*, 35 F.3d 388 (9th Cir. 1994)), the court established in case law the village of Quinhagak's presence for "over 2,500 years" and regarded it as a "subsistence fishing village" that harvested fish from the Arolik and Kanektok rivers.

At time of contact, the area in the vicinity of the Arolik River was occupied by Central Alaska Yup'ik-speaking Eskimos, the Kusquqvamiut, the people of the Kuskokwim (VanStone 1984a:225). Early European explorers, American missionaries, and ethnographers have documented subsistence activities and boats of Yup'ik people from Quinhagak and other villages of the lower Kuskokwim River area. Skin boat use related to some subsistence activities on the Arolik River may be inferred but is undocumented (Coffing, pers. com. 1999; Porter 1893; Oswalt 1963a, 1963b; 1990; VanStone 1984a, 1984b; Wolfe et al. 1984; Fienup-Riorden 1988;). 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 documented European to have sailed into Kuskokwim Bay and make contact with indigenous people (Oswalt 1979). 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 (Oswalt 1990:4-6).

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 Quinhagak people, 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, 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. He apparently left no account describing boat travel on the Arolik or Kanektok rivers. 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 [qayak] 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 qayak 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 qayak. 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."

Subsistence economies of the lower Kuskokwim region during the post contact era were described by Wendell Oswalt (1963a), who based much of his writing on recorded observations of Moravian missionaries present in the region from the 1880s forward. Oswalt described "old" and "new" subsistence activities of the region in general, often referencing boat use for hunting, fishing, and gathering during the seasonal round. He recognized that localized variations of subsistence activities did exist, but felt patterns of use were uniform within the region. Families left Kuskokwim River or coastal villages as winter snows began to melt and headed for spring camps (Oswalt 1963a:118). A twelve foot dog sled carried a cumbersome, open skin boat some fifteen feet or more in length to the family camp. The boat contained all equipment necessary to maintain the family away from the village, including such things as food, clothing, tool kits, food preparation materials, hunting weapons, fishing equipment, and kayaks or canoes. Following arrival at spring camp and initial subsistence activities, small boats were used on streams, sloughs, and lakes at break-up. When spring camp activities concluded, the large skin-boats were repaired and loaded with harvested food and furs, dogs, people, and equipment. Families then floated down waterways to their permanent villages. Descriptions of spring camp activities and boat use by others support Oswalt's characterization (Coffing 1988; 1991; Guy, pers. com. 1998; Andrew, pers. com. 1998; Wolfe et al. 1984).

Oswalt (1963a:126) further described Yup'ik boat use related to early fall hunting activities in headwater areas of central Kuskokwim River drainages. Men and older boys traveled by canoe in groups of two or three to headwater streams of Kuskokwim River tributaries for the purpose of hunting beaver, muskrat, squirrels, marmots, brown and black bear, and especially caribou.

"After hunting for a month or more, the men assembled their catch near a stream, and those who had traveled together began to build a boat for their return trip. The canoes that they had used to take them to the hunting grounds were cached to be picked up during the winter or else they were abandoned, depending upon the distance the men were from their home village. The frame for the new boat was constructed of spruce or alder and covered with the skins of freshly killed caribou or bear. The size of the boat built depended upon the success of the hunters. Some of these boats were as much as eight feet broad at the beam and twenty feet in length. The meat and furs were piled into the craft, and the men negotiated the swift streams with ease since these boats could be maneuvered without difficulty and would bounce off rocks rather than break up. The men expected to reach home just before the river froze. If they were stranded away from their village by an early freeze on the main river, they camped until the river ice was thick enough to bear their weight."

The ADF&G Subsistence Resource Specialist Mike Coffing (1988:12-13) refers to the traditional skin boat used by residents along the lower Kuskokwim River as the "angyaqatak." The "angyaqatak" described below is a riverine boat while the very similar "angyak" described by

Fienup-Riordan (1988) 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, and, undoubtedly, the type of boat referenced by Oswalt above. This type of boat use has been reported on the Kanektok River by Quinhagak people and others (Guy, pers. com. 1998; Andrew, pers. com 1998). Coffing (1988:12-13) reported post-statehood 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 (Coffing 1991; Wolfe et al. 1984). Based on personal observations, 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.”

The USGS explorer Spurr (1900, 1950) 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 1950).

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.

Some federal, post-statehood land conveyance documents indicate subsistence activities predating statehood occurred at and around Native Allotment sites along the Arolik River. The BLM MTPs show several Native Allotments (nearly all certificated) situated along a 28 mile reach of the Arolik, beginning at the river’s mouth. The greatest concentration of allotments occurs on the lower river (North Mouth downstream of Bessie Creek). A review of BLM case files for five of the six Native Allotments furthest upstream on the main stem river, between RM 22 and RM 28, indicate pre-statehood subsistence activities occurred. Access to these small parcels by Native Allotment applicants was reported by BLM field examiners simply as “probably by riverboat”, by “snow trail”, by “boat”, or by “snow machine.” Two parcels, one at approximate RM 24.5 and the other at approximate RM 22, may have been accessed by “boat.”

In a BLM Native Allotment Field Report (Case No. AA-37772-A, James Williams applicant) BLM field investigator Meg Jensen (1986) simply reported the small parcel at approximate RM 24.5 was accessed by “boat.” The deceased applicant’s history of land use, as reported by his brother Moses Williams, began in 1950. Reported subsistence activities were “trapping parka squirrels, trout fishing by net, picking berries, hunting brown bear in season all since Aug, 1950.”

Similarly, BLM Native Allotment Field Report for Case No. AA-37774-C [Frank Matthew, Sr., applicant] reports the small parcel at approximate RM 22 was accessed by “boat” (Conquergood 1986). Occupancy or use of this site by the applicant began in 1950. Reported subsistence activities were ‘fishing, trapping, and hunting in the spring, summer, and fall.’ Further commenting on historical use, the report notes, “The applicant camped here overnight when he and his father trapped by dogsled.” A 1988 BLM navigability memorandum (DiPrete 1988:1) noted that Matthew typically accessed his allotment by dogsled or snowmachine in the winter, rather than by boat. He reportedly hauled an aluminum boat along and descended the river in the boat at break-up following subsistence activities. (See Chapter 5, post-statehood subsistence use.)

2. Trapping

Yup'ik people of the Kuskokwim Bay area that includes the villages of Quinhagak, Goodnews, and formerly Arolik have a history of commercial trade in furs that began in about 1824 with Russian traders (Wolfe et al. 1984:168-170). Areawide, most trapping during the nineteenth century era of the Russian American Company, and through the Alaska Commercial Company era, was accomplished while hunting and harvesting other resources for domestic consumption. Furs initially were traded for commodities such as cloth, wool blankets, metal tools, and personal adornments. As a general matter, trapping flourished initially, declined after the establishment of the commercial fishing industry in the 1880s, but remained productive until the 1930s. The fur market fluctuated after World War II and later declined.

In 1931, the Territorial Department of Mines employee Irving Reed (1931a:4) described the population of the "Goodnews-Arolic gold fields", an area including the Arolik River basin. He anecdotally reported "a few natives from Kwinhak [Quinhagak] trapping in the winter" as some of the very few humans in the area.

3. Reindeer herding

Reindeer herding in Alaska began on the Seward Peninsula in 1892 and spread to southwestern Alaska within a decade. The industry was initiated to improve and change the Native economy (Wolfe et al. 1984:175). Reindeer herding 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. Though there are examples of skinboat use associated with reindeer herding in river basins of the Kuskokwim River drainage area, no documentary evidence of such boat use was found for the Arolik River.

The Arolik River basin was within the historic reindeer range of southwestern Alaska (Calista Professional Services 1984:6). The first reindeer, two herds of 800 animals each from Bethel, temporarily arrived in the vicinity of Quinhagak in 1906 (Henkelman and Vitt 1985:544). Three years later a herd numbering 600 animals was established in the Quinhagak village area (Henkelman and Vitt 1985; Darbyshire & Associates 1991). The Quinhagak herd grew to 1,221 animals by 1914 (Henkelman and Vitt 1985). In 1919, Harrington (1921:214) noted several hundred reindeer were owned by the Moravian Mission in Quinhagak. 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 beginning in the late 1920s by the Kuskokwim Reindeer Company (Alaska Department of Community and Regional Affairs 1997).

Reindeer herding in the Arolik basin has been mentioned anecdotally. In 1931 for instance, the Territorial Department of Mines engineer Irving Reed (1931a:4) reported an "occasional reindeer herder from Mumtrak [Goodnews]" as some of the very few humans in the "Goodnews-Arolic

gold fields.” Reed (1931a:7) also noted that Native owned reindeer roamed all over the region, were a source of fresh meat for miners, and were used previously in teams to transport winter supplies to miners. He did not report any use of skin boats.

Some Quinhagak villagers such as Charlie Pleasant and Adolph Foster worked as hired herders (Pleasant 1986; Foster 1986; Foster and Britton 1986). Foster had six years of experience as a reindeer herder and indicated the reindeer 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 (Seim and Hansen 1997:93-94) and skin boat use occurred on the Kwethluk River (Coffing 1984:12-13), neither Pleasant or Foster mentioned boats in reference to reindeer herding on the Arolik River. [Note: Reindeer herding activities in the Kisaralik River basin, addressed in detail by Seim and Hansen (1998:82-94), may parallel those of the Arolik River basin. Herding related activities in the Kisaralik River basin included occasional river descents in skinboats.]

4. Government exploration

Before statehood, mineral resources drew a few federal and territorial agency investigators to the upper Arolik River basin and the Goodnews Bay area. Geologists, mining engineers, and topographers explored and mapped the Arolik River area, the first of such activities apparently occurring in 1919 by the USGS (Harrington 1919). Of the government investigators mentioned below, Irving Reed (1931a) is the only one who documented boat travel on the Arolik River. He unsuccessfully attempted to ascend the river to mining areas, but did travel an estimated 10 miles upstream from the river’s mouth in an “outboard motorboat.” Other government scientists and engineers that preceded and followed Reed accessed the area on foot from the vicinity of Goodnews Bay.

In 1919, a four man USGS party conducted geologic and topographic fieldwork in the “Goodnews Bay Region”, an area that included the Faro Creek drainage of the Arolic River (Harrington 1921:207). Though they brought a “30-foot poling boat and a 20-foot dory, together with a 2-horsepower gasoline engine of the detachable hang-over type” with them from Seattle, they did not report using either on the Arolik River. According to Harrington’s original field notebook (1919), they worked in the Arolik River basin for one week after accessing the area by walking overland from Wattamuse Creek, a Goodnews River tributary. A short time after the completion of his geologic survey work, Harrington followed the coastline on foot to Quinhagak where he was later picked up by a boat and continued up the Kuskokwim.

Like Harrington seven years before, USGS mining engineer Holzheimer (1926) investigated the gold mining activities in the “Arolic River District”, primarily in the gold-bearing tributaries of the Faro Creek drainage. Holzheimer walked to the mining area by following a beach route from Quinhagak to Jacksmith Bay.

Government mining engineer Irving Reed (1931a) assessed mining activity in the Arolik River region during the summer of 1931. His 30-page *Report on the Placer Deposits of the*

Goodnews-Arolic Gold Field is a very detailed account of placer activity on the Arolik River and several tributaries, including Keno Creek, Faro Creek, Snow Gulch, Deer Creek, Trail Creek, Butte Creek, and Kowkow Creek. Reed's unsuccessful July 5th attempt (1931a:2) to access the upper Arolik River by boat follows. His description suggests the upstream limit his boat travel on the Arolik River was in the vicinity of RM 10.

"The writer [Reed] left Kwinhak [Quinhagak] in an outboard motorboat with an Eskimo guide on July 5. On account of extremely low water, the boat had to be left a short distance above the old native village on the Arolic River and food and bedding backpacked nine miles to the relief cabin just below the, so-called, Arolic River canyon. On July 6, food was backpacked to the cabin on Butte Creek. From there, Butte, Kowkow, Fox, Deer, Snow, and lower Keno Creeks, and the Arolic River, were examined. . . . Every assistance possible was rendered by the white inhabitants and miners at Muntrak and Kwinhak and on the creeks. . . ."

5. Mining

The Goodnews Bay gold-producing district includes the area drained by the Goodnews and Arolik rivers. Following initial gold discovery about 1900, early small scale placer mining activity was centered at Butte Creek (Faro Creek drainage) and waxed and waned with limited production. Small scale pick and shovel operations gave way to larger scale efforts in the 1930s. Intense mining activity with heavy equipment occurred in the late 1930s and early 1940s at Snow Gulch and Kowkow Creek. From 1947 through 1959 the mining district was dormant (Koschmann and Berghdahl 1968:15). There is some evidence of limited boat use on the Arolik River related to prospecting and mining before 1931 (Harrington 1921; Reed 1931a).

Prospectors looking for gold passed through the Kuskokwim River region as early as 1889 (Cobb 1974:19). The USGS explorer Spurr (1950:88-89) recorded early evidence of attempted prospecting activity in the lower Kuskokwim region. He reported 14 prospectors intending to explore the Kuskokwim Bay and Kuskokwim River drowned in the bay mid-summer of 1898. They were the only prospectors in the Kuskokwim region that summer.

Reporting on mineral resources of the lower Kuskokwim River before 1914, USGS geologist A.G. Maddren (1915:299) outlined the history of gold placer activity in the region. He commented that the lower Kuskokwim region was neglected by prospectors before 1900, when gold excitement centered on the Klondike and along the Yukon River tributaries. Attention was not directed to the lower Kuskokwim region until 1900 during the height of the Nome boom. During the summer of 1900 a small number of men moved from Nome to the vicinity of the mouth of the Kuskokwim where they prospected for several years. Placer gold was discovered at several localities in the vicinity of Goodnews Bay and small scale mining occurred on Butte Creek in the Arolik River basin. During the period 1900-1903, Moravian missionary records note the "influx of gold-seekers" passing through Quinhagak "en route to the mountains", though means of travel is not described (Henkelman and Vitt 1985:426). In one 1903 instance, Quinhagak missionaries recorded moving into an abandoned miner's cabin at the village.

Between 1900 and 1915 discoveries of placer gold were reported from time to time in the Arolik River region. Only a few miners worked the area until 1910 when prospectors from the Innoko River area made gold discoveries on Arolik River tributaries and nearby Eek River (Brown 1985a:125). Moravian missionaries (Schwalbe 1951; Drebert 1959) in the lower Kuskokwim region made anecdotal comments regarding miners. Between 1909 and 1911, Schwalbe (1951:110) noted, "The few miners passing through the village [Quinhagak] frequently paid for their purchases in gold dust." In 1911, missionaries reported several miners waited for delivery of supplies in Quinhagak (Henkelman and Vitt 1985:440). It was reported in 1912 (Henkelman and Vitt 1985:441) that a Mr. James and his wife "were trying the lot of miners, but during the winter, ran a road-house in Quinhagak." Citing newspaper accounts from 1906 and 1911, BLM Historian Brown (1985a:125-126) described mining activity without reference to route or means of access to Arolik River headwaters.

"One man named Banks from San Francisco staked twenty-one claims at the head of Arolik River. The ore he sent out for testing assayed \$8 a ton. Another named Gabrielson reportedly found dirt on Butte Creek that paid \$35 a day. Discovery claim on the creek was sold for \$20,000 in 1911 to five men, who are said to have removed gold worth \$2,050 in twelve days. Four claims on Butte Creek produced \$12,000 in 1911."

The USGS Geologist Maddren (1914, 1915:357-358) appraised mining activity in the area through 1914. Though he did not describe modes of transportation into the Arolik River basin during this era, he did sketch the magnitude of mining activity in some detail. Maddren (1914, 1915:292) did not inspect Arolik River mining activity in person, rather, he accepted an oral assessment of the region by unidentified sources. He wrote:

"Prospects of gold appear to be generally distributed on most of the tributaries of the Aalalik [Arolik] River, within the mountains, 10 to 20 miles back from the coast, and also on some of the short streams that drain the seaward slopes of the mountains into Goodnews Bay, south of the headwaters of Aalalik River, and into Kuskokwim Bay, to the west. Productive mining has been done upon two streams in the district up to the present time [1914]. These are Butte and Kowkow creeks.

"Butte Creek is a small tributary to Faro Creek, a large branch of Aalalik River, about 30 miles southeast from the settlement of Quinhagak. Open-cut pick-and-shovel mining has been done on Butte Creek for about ten years, and is reported that gold of a value between \$50,000 and \$60,000 has been produced from three or four claims during this period. In 1914 a scraping plant with a gasoline engine for power was installed on claim No. 1 below Discovery for the purpose of mining the deposits more effectively. The gravels on Butte Creek are about 5 feet in depth. Most of the mining has been done on Discovery claim and claims Nos. 1 and 2 below Discovery. These claims, of about 20 acres each, include nearly all the placers in this creek.

"Kowkow Creek is about 5 miles south from Butte Creek. The gravels on this stream are about 6 feet in depth. One man mined on Discovery claim for about half the season of 1914.

"The production of gold from Butte and Kowkow creeks in 1914 was about \$4000.

"Some hand-drill prospecting was done on Faro and Trail creeks in the summer of 1914 with the object of testing the more extensive gravel deposits on the larger streams of the Aalalik basin for dredging. It is reported that the gravels were found to range from 6 to 12 feet in depth, and that the prospects of gold obtained for a dozen or more holes was far less than those which are obtained on Butte and Kowkow creeks, where the average tenor of the gravels is about 30 cents to the square foot."

Missionaries also reported that, following a gold strike in the Goodnews Bay mining District, many white men passed through Quinhagak during the winter and spring of 1917-1918 (Henkelman and Vitt 1985:537). Reference is made to travel on foot or by dog team, but not to boat travel. In a later undetermined year prior to statehood, Moravian missionary Drebert (1959:133) traveled by dogsled to reindeer herders in the mountains at an unspecified location, apparently in the Kanektok or Arolik river basins, and hauled 800 pounds of freight for "some white men who were going to prospect for gold."

Following Maddren's 1914 assessment of mining activity in the Arolik basin, USGS geologist George Harrington (1921:207) again reported activity during 1919 in the "Goodnews Bay region", an area that included the Arolik River basin. Harrington (1921:221) reported a few men produced gold yearly from Butte Creek and estimated the 1919 total gold production for the Arolik basin was \$100,000. He further noted, "Practically every white man in the region has had at some time during the last three years [1917-1919] an interest in one or more claims in the Arolic basin."

Harrington's fieldwork, done in conjunction with the fieldwork of USGS topographer R.A. Sargent, began in early July at Security Cove and ended August 18 at Quinhagak. He described the Goodnews Bay region as "one of the most inaccessible in Alaska for a small expedition" and noted Bethel as the primary staging area for the region. Supplies from Bethel were transported by launch to Quinhagak (mouth of Kanektok River) or Mumtrak (Goodnews Bay village). Harrington (1921:211) reported supplies for Arolik River basin miners and prospectors were "brought from Kwinak [Quinhagak] either by poling boat in the summer or by dog sled in the winter and early in the spring." Harrington further described freight rates for general merchandise transported from Bethel to Goodnews Bay to Wattamus Creek (Goodnews River tributary) but does not cite freighting costs from Bethel to Quinhagak to Arolik River tributaries. The "poling boat" referenced by Harrington may have been similar to those described by the ethnohistorian Oswalt (1990:96) for the lower Kuskokwim region at Napaskiak, around the time of early mineral exploration. Oswalt wrote:

“When white prospectors arrived, they made poling boats and scows, small plank boats useful for hauling comparatively light loads. Their poling boats were narrow, about thirty-three feet in length, pointed at each end, and had a flat bottom. An alternative type was a flat-bottomed scow, square at both ends, and seventeen feet long, with a seven-foot beam and slightly flaring sides.”

A USGS mining engineer, Frank W. Holzheimer (1926), spent five days investigating mining activities in the Arolik River basin during September 1926. He reported his findings in a brief draft report, *Prospecting proposed dredging ground, Arolic River District, Goodnews Bay Region, Alaska*, and assessed proposed dredging operations by the “Arolic Dredging Company” and road access to the upper Arolik River. Holzheimer accessed the area from Quinhagak on foot, traveling via the beach and Jacksmith Bay. Though his report has much to do with accessibility to the upriver mining area, there is no reference to boat activity on the Arolik River. Holzheimer mapped one suggested road route that begins at Quinhagak, follows the Arolik River to the Faro Creek confluence, and continues to the head of Kowkow Creek (Figure 11). He mentioned a second possible overland route (unmapped) that begins south of Jacksmith Bay, continues via tundra, foothills, Cripple Creek, Faro Creek headwaters, and terminates at the head of Kowkow Creek.

Three years after Holzheimer’s visit to the Arolik River mining area, Wimmeler (1929:257-258) reported “a number of miners prospected and did a little mining in 1926 and later, on the Arolic River and its tributaries.” Further prospecting and mining continued at a very small scale, apparently until 1928, when prospectors were attracted to the new platinum bearing area south of Goodnews Bay.

Government mining engineer Irving Reed (1931a) investigated mining activity in the Arolik River region during the summer of 1931 (Figures 20 and 21). His 30-page *Report on the Placer Deposits of the Goodnews-Arolic Gold Field* is a very detailed account of placer activity on the Arolik River and several tributaries, including Keno Creek, Faro Creek, Snow Gulch, Deer Creek, Trail Creek, Butte Creek, and Kowkow Creek. Commenting on economics and transportation in the Arolik River basin, Reed (1931a:4-6) noted that, with the exception of one man prospecting on Kowkow Creek, all miners had left for the platinum workings south of Goodnews Bay. Reed (1931a:2) made several travel-related observations for this period of mining activity in the area, including a comment about his own unsuccessful boat ascent of the Arolik River. He wrote:

“The writer left Kwinhak [Quinhagak] in an outboard motorboat with an Eskimo guide on July 5. On account of extremely low water, the boat had to be left a short distance above the old native village on the Arolik River and food and bedding backpacked nine miles to the relief cabin just below the, so-called, Arolic River canyon. On July 6, food was backpacked to the cabin on Butte Creek. From there, Butte, Kowkow, Fox, Deer, Snow, and lower Keno Creeks, and the lower Arolic River were examined. A return was made to Kwinak on July 8. Both trips were necessarily cut short in order to make connections with the Moravian

Mission motorship 'Moravian', which furnishes the only means of transportation between Mumtrak [Goodnews], Kwinhak, and Bethel."

Reed reported the limit of upriver boat travel in high and low water conditions, and observed that most freight was transported in winter via dogsled or reindeer team rather than boat. He referred to poling boat and motor boat transport of light freight as the "old method." His report does contain one photograph of a small overturned boat at an Arolik River miner's camp in the vicinity of RM 30 (Figure 21). Reed suggested alternative overland cat trail routes into the upper Arolik area and advised damming the South Mouth Arolik River to facilitate the limited boat travel on the lower Arolik River.

"From Kwinhak, a small outboard motorboat may be taken along the coast and up the north mouth of the Arolik River as far as the mouth of Bessie Creek [RM 8.9] in the lowest stage of water. In high water it is possible to take a boat up the Arolik to the mouth of Faro Creek [RM 28.2]."

"At the time of mining activity in the area, most of the supplies were freighted by way of Mumtrak or Kwinhak in the winter by dogteam or reindeer team. Such other accessory supplies as were needed during the summer were taken in by poling boat up the Arolik or Goodnews River. At present [1931] the few miners and prospectors take all their freight in by dogteam in the winter."

"In case of future, large-scale operations in the area, freight would have to be lightered ashore at Mumtrak from ocean-going boats lying just inside the North Spit at Goodnews Bay. . . . For the Arolik River the tractor trail would leave the Goodnews River at the mouth of Barnum Creek and extend over the low divide between Barnum Creek and the head of Faro Creek. It also might be possible to lighter freight ashore about 1 mile south of the south mouth of the Arolik River, and pick a summer tractor trail to the mouth of Faro Creek. Light supplies and perishables could be taken in the summer up the Goodnews and Arolik Rivers by the old method of outboard motorboat or poling boat. Navigation on the Arolik River could be insured for small boats at all times during the summer months by damming off the south mouth, a very easily accomplished undertaking."

Subsequent mining reports (Stewart 1933; Roehm 1937a, 1937b, 1938a, 1938b, 1939; Smith 1942) describing activity in the Arolik River drainage for the period 1933 to 1940 make no mention of boat use. The presence of bull dozers and other heavy equipment in the Snow Gulch and Kowkow Creek areas in the late 1930s and early 1940s suggest overland transportation originating in Goodnews Bay, displaced whatever limited Arolik River boat travel might have occurred before 1931. Much of the equipment and many of the gold placer claims were owned by platinum mining interests at Goodnews Bay. The likely route of overland access was one considered by the Alaska Road Commission (Brown 1985a:763) and subsequently shown on USGS *Goodnews* and *Goodnews Bay* maps (scale 1:250,000) (USGS 1951, 1979). This trail is designated by the State of Alaska as RS2477 trail "RST 326 - Goodnews-Arolik

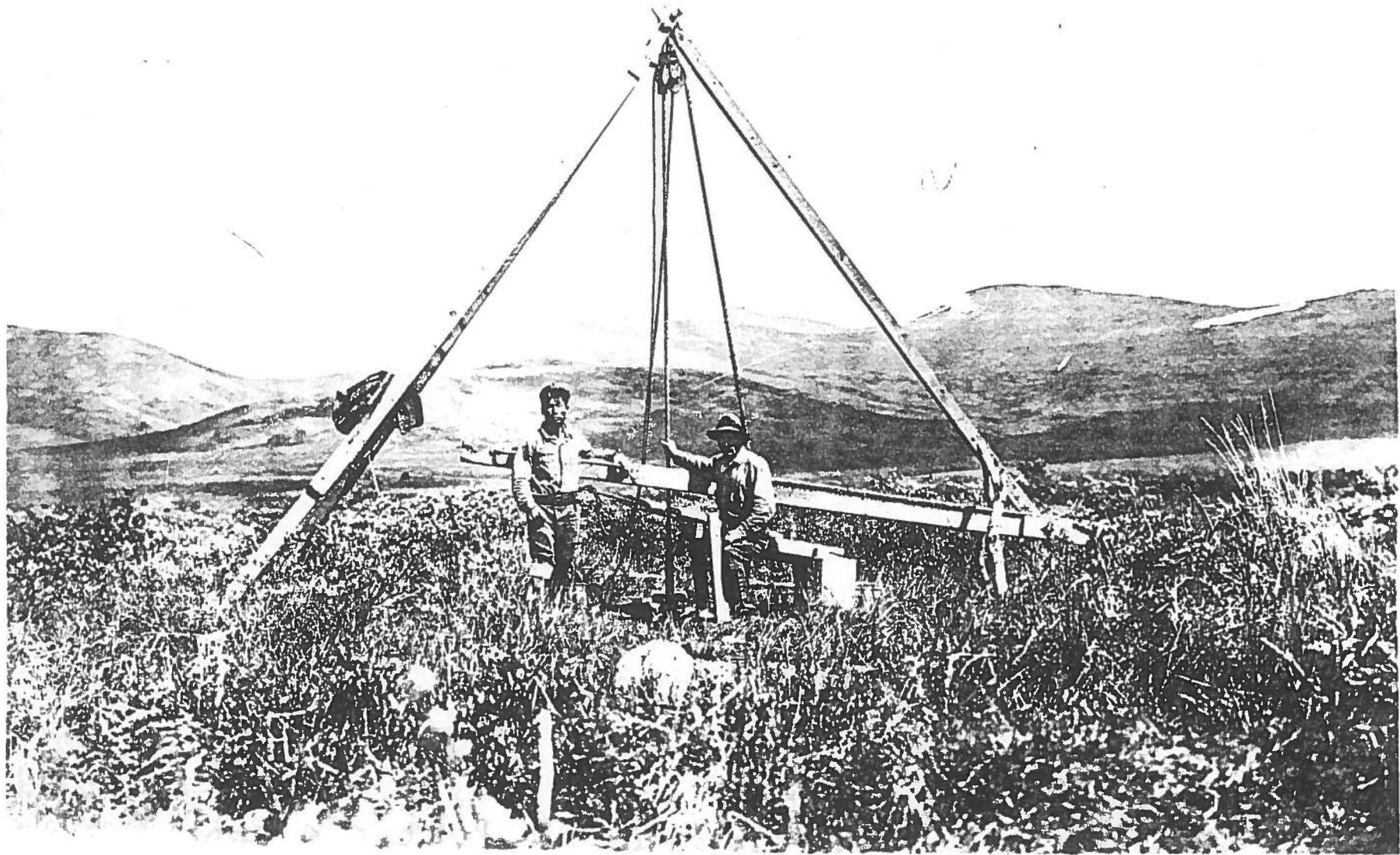


Figure 20. "Drilling on Arolic River near mouth of Faro Creek."
1931 exploratory drilling at approximate RM 28.2
(Source: Reed 1931a)



Figure 21. "Smith's camp on Arolic River near mouth of Fox Creek."
1931 gold exploration camp at approximate RM 30 with small, overturned wooden
boat at river edge. (Source: Reed 1931a)

River Trail" (See Appendix F), part of which is the previously described trail easement through Calista Corporation lands in the lower Faro Creek basin.

Most gold mining activity in the area ceased with the onset of World War II. From 1947 through 1959 the mining district was dormant (Koschmann and Berghdahl 1968:15).

B. Post-Statehood Use

1. Subsistence

Subsistence activities occurring in the Arolik River drainage include fishing, hunting, trapping, and berry picking. Traditional subsistence areas are concentrated on the North Mouth Arolik River, the segment of the river having two former small village sites. Little data are available however that document the magnitude of subsistence activities. When referring to subsistence activities by Quinhagak people, commentators emphasize the Kanektok River rather than the Arolik River, undoubtedly due to a higher level of use because of its nearer proximity, greater size, greater abundance of resources, and ease of accessibility. Several anecdotal comments describe or allude to Arolik River subsistence use, often by boat (Lyle, pers. com. 1999; Cummings n.d.; Rukke 1986; DiPrete 1988). As a general matter, the socioeconomic significance of subsistence activity "is very important" to residents of Quinhagak, where "the majority of houses literally depend on such activities for survival" (Impact Assessment, Inc. 1984:327). The Figure 22 (following two pages) indicates the seasonal round of subsistence harvest activities by Quinhagak residents in 1983. The community has also been portrayed 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 1991, the Service summarized subsistence use of the "Arolik River System - Unit 10" in the *Togiak PUMP* (USFWS 1991:134). The following excerpt from the report comprehensively covers "Unit 10", an area that includes the entire Arolik River basin as well as the coastal region lying to the west that extends from Jacksmith Bay north to the mouth of the Arolik River.

"Residents of Quinhagak and other communities use the Arolik River for subsistence purposes. Use is probably much less than that of the Kanektok River to the north. Data on levels of actual subsistence use is scarce. Access is limited because of exposure to Kuskokwim Bay and seasonal low water conditions in the river. Access during the winter months is by snowmobile. The number of allotments located along the river and coast suggests a history of use which undoubtedly continues to today.

"While subsistence use is primarily by Quinhagak residents, people from as far away as Togiak may visit the area for subsistence activities, especially marine mammal harvest and vegetation gathering (Wright et al. 1985). Spring and fall waterfowl hunting occurs, especially at Jacksmith Bay (Wolfe et al. 1984). In April and May, some Quinhagak families may go to spring squirrel camps in the

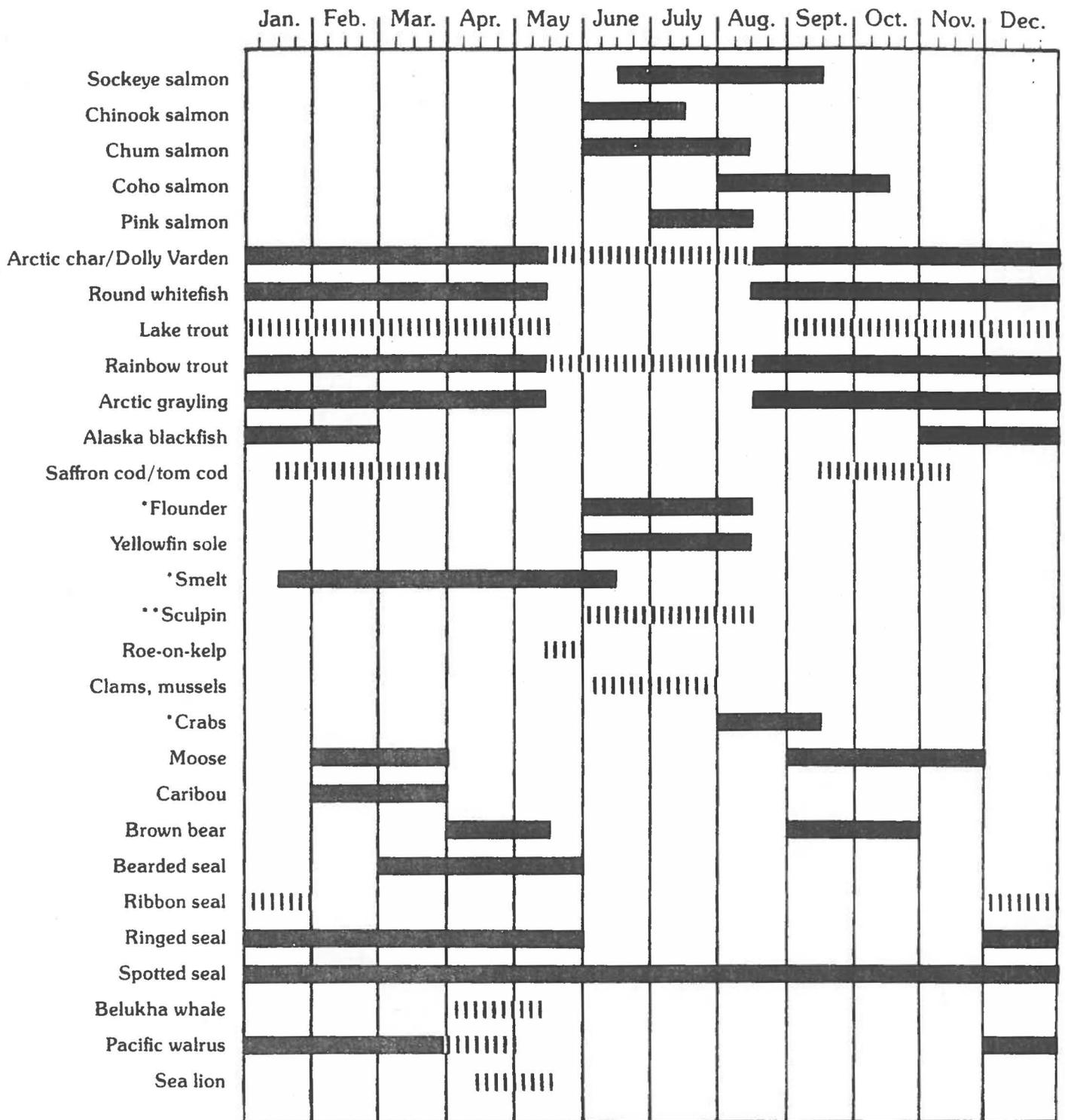


Figure 22. Annual round of subsistence harvest activities by residents of Quinhagak, 1983. Solid line indicates usual time of harvest. Broken line indicates occasional harvest effort. [photocopy of graph] (Source: Alaska Department of Fish and Game 1986) (continued).

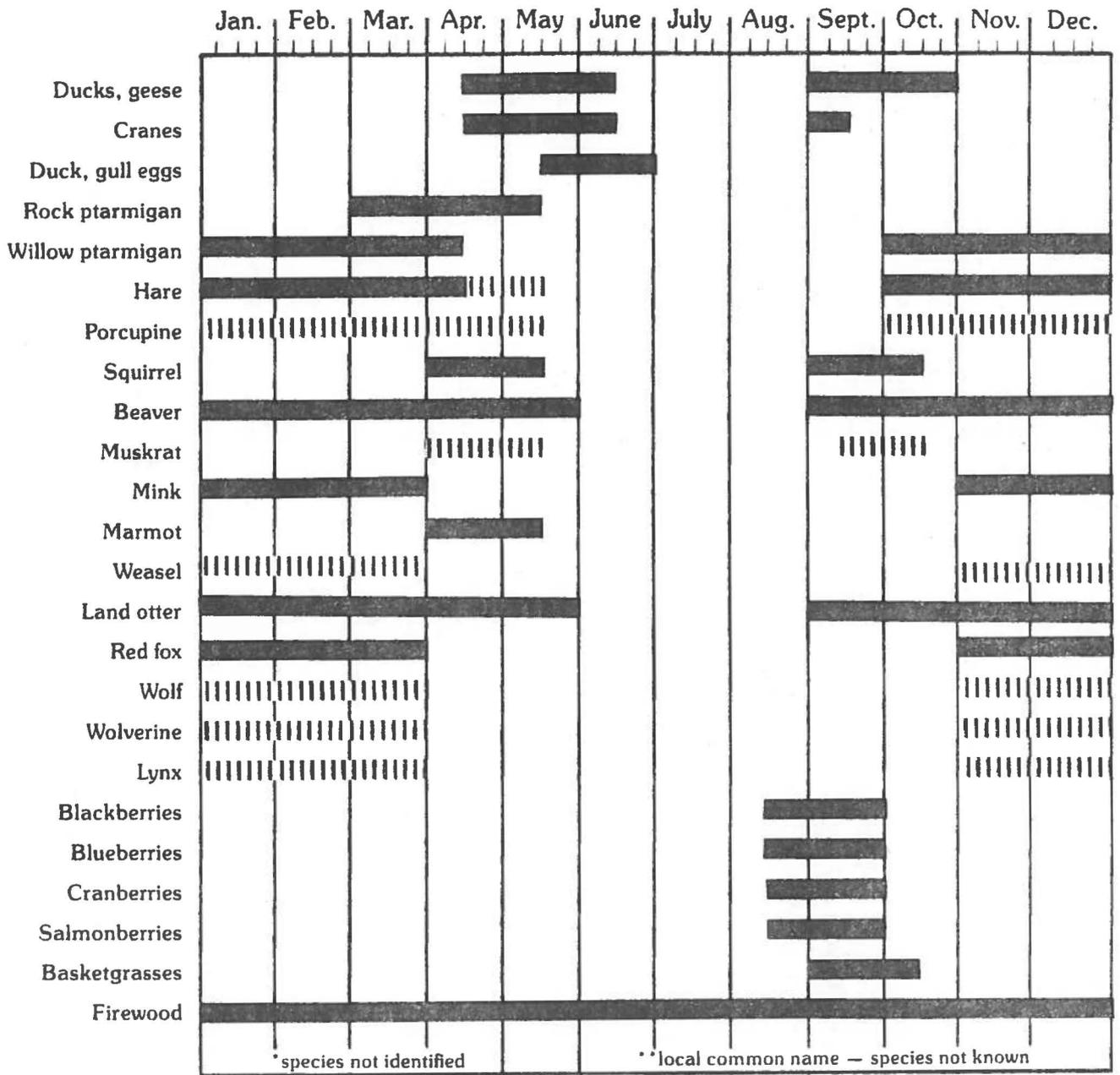


Figure 22 (continued).

mountains above the Arolik and Jacksmith rivers. During winter, jigging through the ice for char, rainbow trout, round whitefish, and grayling is a major activity. There are no estimates for the numbers of fish harvested on the Arolik. Wolfe et al. (1984) says that while jigging extends from the mountains to the coast, the most frequently used areas are along the Kanektok and Arolik rivers within about 5 to 10 miles of Quinhagak. Trapping probably occurs throughout the unit and there is some hunting for moose in the Arolik Mountains."

The most authoritative study on local subsistence economies around the Arolik River area is a 1984 technical paper prepared for ADF&G and DOI. *Subsistence-based Economies in Coastal Communities of Southwest Alaska*, the lengthy work of Robert J. Wolfe, et al. (1984), describes and analyzes fishing, hunting, trapping, gathering, and remunerative employment in four traditional Yup'ik communities - Quinhagak, Goodnews Bay, Togiak, and New Stuyahok. The patterns of subsistence activity for Quinhagak residents of the 1980s generally mirrors that of pre-statehood subsistence activities described above. The lengthy description of the Quinhagak seasonal round by Wolfe et al., (1984:315-326) however, specifically mentions the Arolik River in three instances only. In the first instance, Wolfe reports eight families travel to spring squirrel camps in the mountain valleys above the Kanektok, Arolik, and Jacksmith rivers. Families return to Quinhagak by snowmachine or by boat. Second, following freeze-up, villagers jig for fish throughout the winter frequenting the lower Arolik River, vaguely described as "within about 5 to 10 miles of town." Third, an inland hunting period occurs in February and March when caribou hunting parties of about six or eight hunters travel long distances by snowmachine to mountain valleys at the headwaters of the several rivers, including the Arolik River.

The following 1988 account of one-way, subsistence related boat travel is excerpted from a BLM navigability memorandum (DiPrete 1988:1-2). Interviewee Frank Mathew, resident of Quinhagak, has a Native Allotment at approximate RM 21.5, one of the few allotments along the main stem river. Mathew's pattern of use parallels subsistence seasonal round activities described in the pre-statehood subsistence section above, but modern mechanized modes of transportation are substituted for traditional technologies.

"It took several calls to finally locate Quinhagak resident Frank Mathew, who has a Native allotment along the Arolik River in Sec. 32, T. 6 S., R. 72 W., SM., [approximate RM 22] but no telephone. (I reached him at the Frank Ford residence 556-8427.) A lifelong resident of the village, Matthew explained that he (and other Quinhagak residents like Moses Mark with Native allotments along the river) typically follows the river by dog sled or snowmobile in winter to reach squirrel-hunting grounds just east of his Native allotment. He hauls a boat up in winter for the trip downstream in late April or early May (when the snow gets soft), like his father did before him. Then, while the water is still high, he loads companions, gear, and his sled or snowmobile into a sixteen-foot Lund boat (a lightweight, aluminum, maneuverable boat with an eighteen-horsepower outboard motor), and either motors or rows downstream, taking the North Mouth as it is the only main channel. (At other times, Matthew heads up Warehouse Creek [not in Arolik River basin] to go muskrat hunting in the many lakes.) The

boat, which draws just two or three inches of water, has no trouble descending the river during high water. Matthew noted that the swift, rocky stream requires one to be a good navigator even then, when it is approximately two to three feet deep. He has attempted the river at other times of the year, but found it dammed up below the confluence of the North and South forks [North and South mouths?]. He found the river extremely swift above his allotment.

"When I asked if jet boats could use the river, Matthew was unsure as there are only a few such crafts in the village. While they are too expensive for most villagers to operate, many sport fishermen use jet boats, especially on the larger rivers like the Kanektok. According to Matthew, canoes are not used on the river because they cannot transport the gear required to set up and maintain a squirrel camp. Matthew believes big boulders and shallow water even limit the use of rafts during summer.

"Matthew said the South Mouth Arolik River is really shallow--perhaps two to three inches in some places--all the way to the main stream. He considers it unsuitable even for Lund boats, except possibly during spring. Matthew considers the North Mouth Arolik River suitable for such crafts following heavy rains (which normally occur over a two-week period in August and September), when the river remains high for two to three days. According to Matthew it is shallow and overgrown in places below the confluence of Bessie Creek [RM 8.9] (where Sam Carter and Charlie Pleasant had camps) during summer."

Indicators of cultural and economic significance of subsistence to Quinhagak villagers is evidenced by their on-going use of the Arolik River and responses to proposed easements related to land conveyances along the river, a Wild and Scenic River proposal of the Kanektok River, and restrictive subsistence fishing related regulations regarding the Arolik and Kanektok rivers (Williams 1975; Ells 1976; Mark 1982; National Park Service 1984; Wolfe 1983; Gallagher 1977; Egelko 1994; Hulen 1995; Keogh 1998; *Native Village of Quinhagak v. U.S.*, 35 F.3d 388 (9th Cir. 1994)) (Appendices G and H). Local residents have been protective of Arolik River natural resources and assertive of their rights to harvest fish from it. For example, in 1977, village corporations from Quinhagak, Eek, Goodnews Bay, and Platinum reviewed proposed BLM easement recommendations (Gallagher 1977). Concerning the Arolik River, the Quinhagak community was quoted as saying:

"The [Arolik] river primarily has a subsistence purpose for all species of fish, wild fowl, and animals. We do not want any kind of recreation activity because it will deplete our only source of subsistence. The fish use it as a spawning area."

In another example, as a result of litigation, the 9th circuit court overturned the State's ban on subsistence rainbow trout fishing on the Arolik River and two other rivers (Egelko 1994; Hulen 1995). The village challenged State regulations that prohibited such subsistence fishing and Federal regulations that excluded Alaska's navigable waters from the regulation of "public lands" (*Native Village of Quinhagak v. U.S.*, 35 F.3d 388 (9th Cir. 1994)). In a related 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 of another stream.

2. Sport fishing (guided and non-guided)

Use of the Arolik River by recreational sport fishers, both guided or non-guided, is a relatively recent activity that began after statehood. Though the stream has an abundance and variety of fish species desired by sport fishers, particularly trophy rainbow trout, several factors have contributed to make its use recent and light. Diminutive physical characteristics of the river (especially shallow water), problematic conditions for boat travel, lack of easy access and exit, riparian uplands in Native ownership that restricts land use, limited notoriety compared to adjacent intensely used rivers, and governmental constraints on commercial guiding activity, have affected historical use of the Arolik River by sport fishers. Compared to sport fishers' intense use of the Kanektok and Goodnews river, Arolik River use is extremely light.

Pre-1983

Early attempts by the FWS to estimate or quantify sport fishing use in the Togiak NWR resulted in no reported data for the Arolik River (Fisher 1984a, 1984b). However, the history and intensity level of use by sport fishers on the Arolik River to some extent mirrors activity on larger adjacent river systems (Kanektok and Goodnews rivers), though at a significantly smaller scale. On the Kanektok and Goodnews rivers, little sport fishing activity occurred before the 1970s, light activity occurred during the 1970s, but heavy use by guided and unguided sport fishers occurred in the 1980s and continues to the present (Lisac 1989; Whittaker 1995, 1996; Keogh 1998). In a 1976-1977 inventory of southwestern Alaska waters that included the Arolik River, the ADF&G Biologist Kenneth Alt (1978:2) characterized sport fishing activity in southwestern Alaska generally as light, but with increasing pressure. Following Alt's (1978:50) survey of Arolik Lake, he stated there was "little evidence of past sport fishing utilization." He further indicated that most of the limited use came from local Bethel and Dillingham residents. Alt made no reference to historical sport fishing activity on the river.

1983-1993

In 1989, Togiak NWR biologist Mark Lisac reported "public use on the Arolik River is primarily a guided motorboat activity which is staged out of base camps located on the lower Kanektok River" (Lisac 1989:5). Since 1983, following the establishment of Togiak NWR, sport fish guides have been required to report their activities within Refuge boundaries. Initial public use data for the Arolik River were reported by the Refuge in 1986. A review of Refuge Special Use Permit files showed commercial sport fish guides reported an "average of 158 client use days on the Arolik River" during the years 1986 to 1991 (Lisac and MacDonald 1995:1). [Note: One "use day" equals one person per day, or portion of a day, on a water body.] The greatest reported use occurred in 1988 with 324 client use days. Other than the years 1986 to 1991, no commercial sport fish guide use was reported for the period 1983 to 1994. During the 1980s however, unreported guiding activities occurred on the river.

Commercial sport fish guide Bill Lyle, owner and operator of "Gone Fishing", guided clients on the Arolik River for "about five years" in the 1980s, beginning about 1983 (Rukke 1986; DiPrete 1988; Lyle, pers. com. 1999). He operated from about mid-June through mid-August, never hosting more than six clients at one time from a camp on the Arolik in the vicinity of RM 9.0, about 100 yards upstream of the Bessie Creek confluence. Lyle reported using flat-bottomed, aluminum, 18-foot long *Lowe Line* river boats on the river. His boats were powered by single 40 horsepower Yamaha jet outboards. On those occasions when he attempted to ascend the Arolik as far as the "mine and runway" at Snow Gulch (RM 30.5), he was always able to do so. When ascending the river he said there were never more than three people in the boat; the guide and two clients. In addition to his two-way jet boat travel on the river, he also descended the river from Arolik Lake on three or four occasions. He accomplished these trips without difficulty in 14-foot long inflatable boats. He did note however that rafts of float trips originating at Arolik Lake may have to be drug up to three miles through the shallow areas (Rukke 1986).

Lyle also commented on other segments and tributaries of the Arolik River (DiPrete 1988). Regarding the South Mouth, Lyle said it was hardly used due to low water conditions, fish scarcity, and "really no good reason for people to follow its course." On one occasion he did boat a short distance down the upper South Mouth, but suggested that attempted jet boat travel on the South Mouth would result in more walking than boating. Regarding Bessie Creek, Lyle described it a small "iron-fed" stream of orange color that is "too small for boats." His comments regarding the North Mouth were recorded by BLM navigability interviewers Rukke (1986) and DiPrete (1988).

"Bill said that the North Mouth Arolik River is at most two to three feet deep. Bill knows the channel, but said that if he were to deviate from it his sixteen-foot jet boat would run aground. The local boats (propeller) can only go about a quarter of a mile without the tide on the North or South Mouth Arolik River. A high tide would extend this distance for a total of approximately one mile. He believed that this was the limit for BLM's smallest craft and load. A load of this size would require a forty-horsepower motor. A motor of this size would simply tear up propellers on the beds of this shallow river." (Rukke 1986:2)

"Lyle said the main stem Arolik is basically two different types of river. The lower three to five miles (where Bessie Creek and the Arolik meet) is iron-colored and navigable for big prop boats. From Bessie Creek to the mountains, the Arolik is a clearwater river with a channel one to three feet deep. Fifteen- to twenty-foot holes mark the river in places. Besides running much of the river in powerboats, Lyle has also rafted the river from Arolik Lake to tidewater during summer. He said there are bigger rocks in the channel where it flows through the mountains, and shallow reaches where he has had to drag the raft." (DiPrete 1988:3)

Lyle's clients typically were transported to the lower North Mouth Arolik River by float plane. Stan Herman, of Bethel's "Herman Air," transported Lyle's clients in a single-engine aircraft capable of carrying 12 passengers, though Lyle stated he never hosted more than 6 clients at a

time on the river. They usually stayed for a one week period. Lyle (pers. com. 1999) was not aware of any other commercial sport fish operators that used the Arolik River during that time, though he did on one occasion guide clients of Chris Goll, Rainbow River Lodge. Lyle stated he gave up his guided sport fishing operation on the Arolik partly due to a disagreement with a Quinhagak village board member who wanted no sport fishing people on the river during the time of berry gathering. He further said his former partner was later approached by villagers about re-establishing a guided sport fishing operation on the Arolik. According to Dave Fisher (pers. com. 1999), other sport fishing guides who operated on the Kanektok River during the 1980s may have had some Arolik River experience or knowledge of river use. They include Dave Duncan, Bus Bergman, John Garry, and Bob Mendiger.

David Cummings (n.d.), a fishing guide employed by Bill Lyle of "Gone Fishing", has four years experience guiding sport fishers on the Arolik River with jet boats in the 1980s. He guided on the Arolik from the river's mouth (RM 0) to "the mine [RM 30.5] and slightly above." In correspondence to Togiak NWR staff, he mostly discussed the Arolik River fishery but also described his boat use of the river and observations of subsistence related activities. The following is excerpted verbatim from Cummings' correspondence:

"5) Prop upper limits vary with time of year & water levels. The natives would come up above Bessie [Creek] to hunt early in June. But not too often. When the berries are in they come into the lower end, below Bessie. I'm sure you could tilt a short shaft and go but you're a long way from no where to risk it.

"6) Jets: mouth to mine. about 60-70 miles max. We had limits on green guides going much above the Fork [RM 21?]. Only me & 1 owner would run to mine. Again, the substrate gets larger as you approached the hills and the chance of knocking out the lower unit really increases. With experience - mouth to mine.

"7) Points of interest: Reds (sockeye) would make redds and congregate @ pink stretch and upper pink/green slash to mouth of Farro Crk [sic] [RM 28.2]. That was about their upper limit. Kings and Chum would go up Bessie. The ruins down on the lower (north bank) big sweeping pool @ mouth. There was a village there @ one time. Also there were some of those residents fish or hunting camps up stream near the fork [RM 21?] on the north bank very visible from the river.

"8) Use areas: Lower river in general. More of them have jets and are ranging further up to scout moose, caribou or bear, and birds. It worries me that they kill so many trout there. I have been told by some younger Native guys that they would go up and catch as many trout as possible in order to kill them so the white man wouldn't come to fish there. I have seen them netting the hell out of the Kings & silvers down in tide water."

In addition to guiding activity on the Arolik River, unguided sport fishing occurred. In 1986 the BLM (Rukke 1986) recorded one such instance. Chuck Wade of Bethel and a party of six others floated from Arolik Lake to mouth of the North Mouth in three rafts over a six day period. Wade

described ample water depths for floating though he noted a number of shallow braids "during the first three hours of floating." On another occasion he went aground in shallow water in an unsuccessful attempt to ascend the South Mouth Arolik River in a 26-foot boat and a 12-foot *Zodiac*, both with outboard props.

The 1991 *Togiak National Wildlife Refuge Public Use Management Plan and Environmental Assessment* (USFWS 1991) addresses resource uses and proposed management of the Arolik River system. The *Togiak PUMP* disallows guided sport fishing opportunities on refuge lands within the Arolik River unit. It does allow recreational sport fishing but limits time and place of camping sites. The *Togiak PUMP* (USFWS 1991:134-135) reads:

"Sport fishing pressure on the Arolik River is low; estimated at 350 guided motorboat use days and 25 non-guided use days (in 1988). One sport fish guide [Bill Lyle] used to operate a temporary motorboat camp on the lower river on Qanirtuug Incorporated lands. The camp is no longer in operation according to a letter received from the corporation in response to the draft plan. Float boating opportunities are limited due to low water conditions for the upper 15 miles of the river. . . .

"Access to the Arolik River for float boat trips is from Arolik Lake which is on refuge lands. The upper 20 miles of the river are also on refuge lands. Fly-in trips to Arolik Lake are covered in Unit 13 (see pages 154 to 158). The draft plan proposed that one sport fishing guide would be awarded a permit for 50 use days to conduct float trip operations on the upper portion of the Arolik River where the refuge is the upland owner. After public review and analysis of the extremely limited fisheries data available, it has been decided not to offer any sport fish guiding permits on refuge lands within Unit 10 [Arolik River system] until more is known of the fishery resource and what, if any, additional fishing pressure it could accommodate. Also, there are concerns about the potential for trespass on private lands as there are no refuge lands available for a take out place for guided float trips."

1993-1998

Three examples follow that illustrate sport fishing activity on the Arolik River since 1993. The first lists recreational float parties identified in FWS documents, particularly year end river ranger reports, and summarizes one float trip account. The second characterizes the activity of Kanektok River Safaris, Inc. (KRSI), the only apparent commercial sport fishing guide and outfitter service that operates on the Arolik. The third profiles the Arolik River from the perspective of two experienced Alaska sport fishermen and authors who describe the stream in a published Alaska sport fishing guide.

Several year-end expediter reports by Togiak NWR staff reflect the limited use of the Arolik River by unguided sport fishers. Expediters have been employed seasonally during the 1990s in the busy summer months to support coordination of Refuge logistics. One duty required of the

expediter has been to brief and orient public visitors to the Refuge that fly from Dillingham to Refuge water bodies for recreational float trips. Visitors briefed by the expediter may be guided or non-guided floaters, mostly destined for Kanektok, Togiak, or Goodnews river systems. Contacted visitors and their destinations are listed in some year end expediter reports. Six year-end expediter reports (final or draft reports) between 1992 and 1998 list six instances of fly-in parties destined for Arolik Lake for the years 1994, 1997, and 1998 (Tucker 1992; Stormes 1993; Clayton 1994; Smith 1995; Pierce 1997; Woodley 1998). The lack of visitor contact data in three reports may be attributable to reporting inconsistencies rather than an absence of visitors. All reported parties were transported by the air taxi operator Freshwater Adventures. The reported parties were:

1. Ron and Fred Cliff, party of two from California, for a seven day trip, mid-July, 1994;
2. Jack Beals, party of four from Vail, Colorado, for a ten day trip, early October, 1994;
3. Tom Anthony, party of three from Dauns, Texas, for an 11 day trip in late June, 1997;
4. Rob Donnelley, party of four from Twin Falls, Idaho, for a 12 day trip in early July, 1997.
5. Wayne Drum, party of five from Anchorage, Alaska, for a 7 day trip in mid-June, 1998, using one raft.
6. James Garrity, one person only from Anchorage, Alaska, for a 5 day trip in late June, 1998.

In addition to the parties listed above, another reference is made to six unnamed and unguided Arolik River trip parties in 1996 (Wiley and Rosenthal 1997:appendix). Also, the 1997 expediter's report (Pierce 1997) notes that two additional parties transported to Arolik Lake were not contacted. One of the two unreported parties of 1997 may be the following sport fishing trip described on an Internet website.

A 1997, eight-day, Arolik River fishing trip is described by commercial sport fishing guide Dale Coryell on his "Wilderness Access" Internet web page (Appendix I). On August 26, a party of undetermined size flew to Arolik Lake via amphibious aircraft. They then set up their "mini-rafts" with six foot-long leashes and began a "walk down river to the confluence with the south fork." The East Fork Arolik River was described as "very shallow just a few inches deep." In places, the mini-rafts had to be dragged "over the rocks in one inch deep water." In 1997, "Wilderness Access" was accepting bookings for two Arolik River float trips in August and September of 1998. [Note: Service law enforcement staff and Togiak Refuge staff have been made aware of this possible illegal sport fish guiding activity.]

In the most recent report, permitted air taxi operators Bay Air and Freshwater Adventures reported several parties transported to Arolik Lake in 1998 in addition to those listed by the Refuge expediter (Woodley 1998). In their year-end report, Freshwater Adventures reported that an unguided party of seven was transported to Arolik [Lake] on August 26, 1998, for an eight day trip for purposes of photography. Bay Air listed three unguided parties transported to "Arolik" in 1998:

1. Eric Gabras-Vam, address undetermined, party of three, for a nine day fishing trip on June 22;
2. John Easton, Dillingham, Alaska, party of two, for an 11 day fishing trip on August 7;
3. John Carlin, address undetermined, party of three, for a nine day fishing trip on August 29.

During the 1998 season, the air taxi operators Bay Air and Freshwater Adventures reported transporting six parties, totaling 21 clients, to Arolik Lake. Assuming they immediately traveled down river and spent 8 days, the 21 recreationalists accounted for 168 use days on the river.

Kanektok River Safaris, Inc. (KRSI), is a river recreation business emphasizing float fishing trips that is owned and operated by Qanirtuuq, Inc., the Quinhagak village corporation. Their address and phone numbers are P.O. Box 09, Quinhagak, Alaska 99655; telephone 907-556-8814; FAX 907-556-8814. Apparently, the business has operated since 1994. In 1997, the USFWS river rangers monitoring Kanektok River summer activities, reported that KRSI was more active on the Arolik River than on the Kanektok River (Stanley and Hill 1997:7). The rangers reported KRSI had 61 Arolik River clients for year. They also reported KRSI had four guides, including Willard Church and Albert Hunter, and used four 18-foot *Lowe* flat bottom skiffs powered by 40 horsepower *Suzuki* jet units. When this writer queried Church and Hunter in August 1998 at Quinhagak about the nature of KRSI's Arolik River activities, they politely declined to give out information about river use. The following description of KRSI activities on the Arolik River suggests "Arolik Gap", in the vicinity of RM 25, may be the upstream extent of KRSI boating activity. The excerpt comes from a traveler's guide (Halliday 1998:89) oriented around the Native tourism industry and describes the nature of KRSI and its Arolik River activities.

"The Arolik River float begins 35 miles upstream in the narrows of the Arolik Gap [approximate RM 25]. Rafters and gear are taken upriver by tribal members driving 18-foot jet boats, then dropped off with raft, camping gear, and food for the five- to seven-day float downstream. Fly-fishing for trophy rainbow trout is usually the main activity of visitors making this float trip. There's no white water, and the shallows of the river make for great wading and fly-fishing. En route upstream, guides point out great fishing holes and camping spots while sharing with you, at their discretion, some of the local lore of the area. You can float downstream on your own or ask for a Yup'ik Eskimo guide to accompany you."

A 1997 sport fishing guide for Alaska, *Alaska Fishing - The complete guide to hundreds of prime fishing spots on rivers, lakes, and the coast* (Limeres and Pedersen 1997), profiles the Arolik River. The Arolik River is characterized as having abundant fish, being much less used than the Kanektok and Goodnews rivers, and having guide and boat service available at Quinhagak. The KRSI and Freshwater Adventures are recommended for guided fishing and air taxi service. The following lengthy excerpt (Limeres and Pedersen 1997:237) describes Arolik River from a sport fishing perspective and contains various statements regarding impediments to boat travel (shallow water), boat and airplane access points, and commercial sport fishing activities:

“The Arolik receives just a fraction of the attention lavished on the more glamorous streams surrounding it, the Kanektok and Goodnews. Shorter than its neighbors, the Arolik flows north and west for about 45 miles from headwaters above the Goodnews, with two main forks and numerous smaller tributaries. It braids heavily and splits into separate mouths before emptying into the Kuskokwim Bay about five miles south of the village of Quinhagak.

“With abundant rainbows, char, grayling, and salmon, fishing on the Arolik is every bit as good as that on the Kanektok or Goodnews; in fact, the trout fishing is even better because the river doesn’t get hit as hard as the other two. Arolik Lake is noted for having some of the better lake trout fishing in the region. The catch is that the Arolik is not a cake walk river float like the others. The upper river is rocky and shallow in spots, especially below the lake, and during low water times, floating may be difficult, if not impossible. You can float early in the season and take your chances, using a lightly equipped raft, inflatable canoe, or kayak. Or you can try to put in by wheelplane at an old mining strip on Snow Gulch, about 10 miles below the junction of the East and South Forks and skip those shallow stretches altogether. (Most of the better fishing is below there anyway.) [Note: Airstrip is unusable.]

“Ending your float trip on the Arolik won’t be easy either. It would be ideal to have someone from Quinhagak run up in a skiff and meet you in the lower river, as the tidal influence makes rafting down in the mouth tricky and dangerous, not to mention trying a floatplane pickup there. The native village corporation, Qanirtuuq, Inc., owns land along the lower river and is developing a rather exclusive sport fish operation there, with tent camps and guided and unguided fishing from jet boats. Give them a call at (907) 555-8211 (ask for Joshua Cleveland) to make arrangements for a boat pickup or a short stay at their tent camp. They have regular week-long guided fishing packages, too, if you’re not keen on rafting the river.”

Sport fishing information has become increasingly available on the Internet, including Arolik River-specific information. Remarkably, correspondence, photographs, cost of air transportation to Arolik Lake, and even navigability comments regarding the Arolik River can be located at various web sites (Appendix E). Examples of a sportfishing organization, an air charter company, and a guided sportfishing company follow:

<http://www.akflyfishers.org>

Alaska Flyfishers

<http://www.fresh-h2o.com>

Freshwater Adventures, Inc.

<http://www.successmarketplace.com/shops/wildernessaccess/travel.html>

Wilderness Access Adventures and Equipment

3. Sport hunting (guided)

Chris Goll is a big game hunting guide who began operating on the Arolik River in about 1980 (DiPrete 1988:2). In 1988, BLM navigability specialist DiPrete reported his boat related activities on the river. The following BLM memorandum excerpt addresses his river use for the period 1980-1987.

"Goll has been on the river more than half-dozen times in floatplanes, rafts, and power boats, taking both the North and South mouths at times. He has landed a floatplane on the lower five miles or so of the North Mouth, and on Arolik Lake and then floated the river from the lake outlet to tidewater during late fall while guiding bear hunts. He said the river will generally float a raft at that time of year when it is at its lowest, though it usually requires walking along much of the headwater portion. He does not consider this a problem however. Goll has also been well beyond the confluence of the North and South forks in a fifteen-foot boat with a jet unit while fishing during summer. He said the river is certainly navigable by, and even practical for such boats, rafts, and canoes, during ordinary high water.

"According to Goll, the river changes substantially from its upper to its lower reaches. In late fall, there are stretches where it is only inches deep, barely deep enough to float a raft. At other times of the year, it can be deep enough for fifteen-foot powerboats which can draw several feet of water. Goll stated that he has observed a number of villagers with similar boats on the river during moose hunting season. In fact he has seen as many as ten of these skiffs with outboard propeller motors on the lower fifteen miles of river at one time."

In a brief 1999 follow-up telephone conversation, Goll (pers. com. 1999) recalled his earlier BLM discussion of the Arolik River and vouched for its accuracy. He further explained, that he has had exclusive big game guiding privileges in the Arolik River area, under both the previous State ADF&G management system and the existing USFWS system that authorizes him as a commercial operator with a Special Use Permit. He has regularly hunted the Arolik River area for approximately 20 years, but not on an annual basis. In recent years he has hunted the Arolik River every other year, alternating activity here with an exclusive National Park Service hunting area at Katmai.

In the "early days" Goll accessed the river by landing at a small airstrip along the Arolik River in the vicinity of Snow Gulch (RM 30.5). He typically accesses the river via Arolik Lake where he lands a floatplane. (Goll owns both a Beaver on floats and a Super Cub on floats, and does not use chartered air taxis.) From Arolik Lake, Goll uses 12-foot long Avon inflatable boats to travel downstream. He characterized such travel as "walking" rather than "floating" in usual low water conditions. Ease of floating improves from the vicinity of Snow Gulch downstream, and he sometimes uses a small kicker on the lower reach of the river. He stated he does not ascend the river in jetboats or other motorized watercraft. Goll parties typically exit the area via his Beaver

floatplane from the Arolik River estuary unless rough ocean water conditions exist. In a few instances he has landed his Super Cub on the lower North Mouth Arolik River.

4. Government agency travel

Over a five day period in July, 1976, an ADF&G stream survey team of two or three biologists floated the Arolik River from Arolik Lake to the mouth of the river at the North Mouth (Alt 1978:47). They floated the river in a 12-foot rubber raft with a 4 hp motor (Alt 1978: 8). They described the six miles of the East Fork downstream of Arolik River (RM 46.6-35.6) as very narrow with low flow and "often the water was so shallow that a raft could not be floated through" (Alt 1978:50).

During the period 1991 through 1994, USFWS biologists made several rainbow trout surveys on the Arolik River (Lisac and MacDonald 1995). The purpose of these surveys was to establish baseline data for a stream that had "limited sport fishing effort" and a presumed low impacted trout population. For these surveys, Arolik River was usually accessed from Arolik Lake via float plane or amphibious aircraft. Inflatable river rafts 9 to 13 feet long were used to descend the river, typically over a six day period. River descents occurred during August 1991, June 1992, July 1992 (descent beginning in the lower main stem), June 1993, July 1993 (lower North Mouth only), June 1994, July 1994, and August 1994.

VI. ENDNOTE

Navigability related information for the Arolik River and tributaries 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 Arolik River is not exhaustive. Some data are forthcoming, especially hydrologic data currently being collected by the Water Resources Branch, USFWS. 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, if needed.

1. Interview the owners of the two Native Allotments furthest upstream on the Arolik River (vicinity of Faro Creek) for detailed history of boat access to the parcels. They are Quinhagak residents John Sharp (50-91-0475) and Moses Mark (50-91-0412), who was previously interviewed in 1988.
2. Contact Quinhagak Native elders for information about the nature and extent of commercial trapping, skin boat use, and wooden boat use that may have occurred on the Arolik River before or after statehood.
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.
4. Further interview Togiak NWR biologists Mark Lisac and Rob MacDonald for firsthand descriptions of Arolik River travel and physical characteristics.
5. For a more detailed assessment of physical characteristics, have BLM photo-interpreters of the Anchorage office make factual, river-mile specific analyses, particularly on the East Fork Arolik River and the upper reaches of the Arolik River.
6. Make a thorough USFWS hydrologic reconnaissance of the river by boat from Arolik Lake outlet to Kuskokwim Bay, which would significantly improve our understanding of the Arolik River's physical character, particularly the upper reaches.
7. Research archives of the University of Alaska and Stanford University for pre-statehood trading and trapping records of the Alaska Commercial Company and the Northern Commercial Company. Also, review USFWS and ADF&G, Division of Game historical fur harvest data as a means to estimate, if possible, extent of trapping in the Arolik River basin. (See Oswalt 1967.)
8. Contact Kanektok River sportfishing guides who may have had some incidental boating experience on the Arolik River, e.g., Bob Mendinger, Dave Duncan, Bus Bergman, and John Garry.

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APPENDICES

- Appendix A Quinhagak community profile
- Appendix B Goodnews Bay community profile
- Appendix C RS 2477 trail casefile summaries
 - RST 173 Quinhagak - Goodnews Bay Trail
 - RST 326 Goodnews - Arolik River Trail
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- Appendix E BLM navigability determinations of 1979 and 1988
- Appendix F BLM navigability interviews of 1986 and 1988
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 - “Kusko villages win injunction to catch trout”
 - “Villagers get rights to subsistence fish”
- Appendix I Arolik River - miscellaneous Internet information

Appendix A

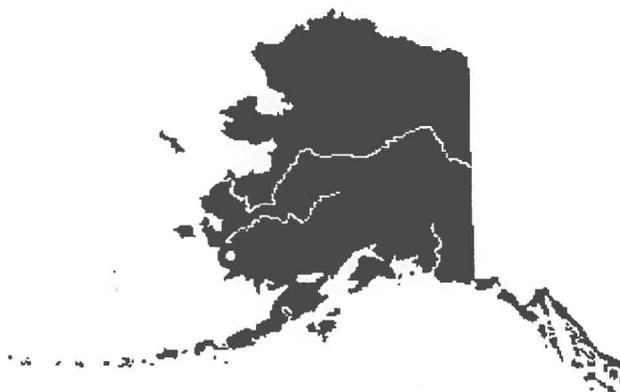
Quinhagak community profile

Community information summary from the Alaska Department of Community and Regional Affairs (DCRA), (http://www.comregaf.state.ak.us/CF_CIS.cfm May 27, 1999).

[Note: community information in greater detail can be obtained at the above cited web site.]

Alaska Department of
Community and
Regional Affairs

Community
Information
Summary



Quinhagak

Current Population:612 (certified December, 1998, by DCRA)
Incorporation Type:2nd Class City
Borough Located In:Unorganized
Taxes:Sales: 3%; Property: None

Location and Climate

Quinhagak is on the Kanektok River on the east shore of Kuskokwim Bay, less than a mile from the Bering Sea coast. It lie 71 miles southwest of Bethel. It lies at approximately 59° 45' N Latitude, 161° 54' W Longitude (Sec. 17, T005S, R074W, Seward Meridian). The area encompasses 5 sq. miles of land and 0 sq. miles of water. Quinhagak is located in a marine climate. Precipitation averages 22 inches, with 43 inches of snowfall annually. Summer temperatures average 41 to 57, winter temperatures average 6 to 24. Extremes have been measured from 82 to -34.

[Detailed map of
Quinhagak
region](#)

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History, Culture and Demographics

The Yup'ik name is Kuinerraq, meaning "new river channel." Quinhagak is a long-established village whose origin has been dated to 1,000 A.D. It was the first village on the lower Kuskokwim to have sustained contact with whites. Gavril Sarichev reported the village on a map in 1826. After the purchase of Alaska in 1867, the Alaska Commercial Co. sent annual supply ships to Quinhagak with goods for Kuskokwim River trading posts. Supplies were lightered to shore from the ship, and stored in a building on Warehouse Creek. A Moravian Mission was built in 1893. There were many non-Natives in the village at that time; most waiting for boats to go upriver. 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. In 1928, the first electric plant opened; the first mail plane arrived in 1934.

93.8% of the population are Alaska Natives. A federally recognized tribe is located in the community. The community is primarily Yup'ik Eskimos who fish commercially and are active in subsistence food gathering. The sale, importation or possession of alcohol is banned in the village.

During the April 1990 U.S. Census, there were 136 total housing units, and 9 of these were vacant. 128 jobs were estimated to be in the community. The official unemployment rate at that time was 5.9%. 60.6% of all adults were not in the work force. The median household income was \$17,500, and 37.2% of residents were living below the poverty level.

Facilities, Utilities, Schools and Health Care

Water is derived from a well near the Kenektok River. The water treatment plant, storage tank, and waterline were relocated in 1997, as part of a new flush haul system for the community. 30 homes are now served by the new system, with water delivery and tank haul. 95 households still haul water and use honeybuckets. The City provides a honeybucket hauling service for disposal in the sewage lagoon. The school and teachers housing purchase water from the City for their system. An old BIA building is undergoing major renovations as a new washeteria and health clinic.

Electricity is provided by AVEC.

There is one school located in the community, attended by 164 students.

Local hospitals or health clinics include Quinhagak Health Clinic. Auxilliary health care is provided by Quinhagak EMS Quick Response Team (556-8448).

Economy and Transportation

Most of the employment is with the school, government services or commercial fishing. Trapping, basket weaving, skin sewing and ivory carving also provide income. Subsistence remains an important part of the livelihood; seal and salmon are staples of the diet. 90 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 groundfish quota for small communities like Quinhagak.

Quinhagak relies heavily on air transportation for passenger mail and cargo service. A State-owned 2,600' gravel airstrip is available. Plans are underway to relocate the airport. Float planes land on the Kenektok River. A harbor and dock were recently completed. Barges delivery heavy cargo at least twice a year. Boats, ATVs, snow machines, and some vehicles are used for local transportation.

Organizations with Local Offices:

City - City of Quinhagak, P.O. Box 90, Quinhagak, AK 99655, Phone 907-556-8202, Fax 907-556-8166, e-mail: , Web:

Village Corporation - Qanirtuuq, Incorporated, P.O. Box 69, Quinhagak, AK 99655, Phone 907-556-8712, Fax 907-556-8814, e-mail: , Web:

Village Council - Native Village of Kwinhagak, P.O. Box 149, Quinhagak, AK 99655, Phone 907-556-8165, Fax 907-556-8166, e-mail: nvkkwn@aol.com, Web:

Regional Organizations:

Regional Native Corporation - Calista Corporation, 601 W. 5th Avenue #200, Anchorage, AK 99501, Phone 907-279-5516, Fax 907-272-5060

School District - Lower Kuskokwim Schools, Box 305, Bethel, AK 99559-0305, Phone 907-543-4800, Fax 907-543-4904

Regional Development - Lower Kuskokwim Ec. Dev. Coun., P.O. Box 2021, Bethel, AK 99559, Phone 907-543-5967, Fax 907-543-4171

Housing Authority - AVCP Reg. Housing Authority, P.O. Box 767, Bethel, AK 99559, Phone 907-543-3121, Fax 907-543-3933

Regional Health Corporation - Yukon-Kuskokwim Health Corp., P.O. Box 528, Bethel, AK

99559, Phone 907-543-6300, Fax 907-543-6006

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Department of Community & Regional Affairs
Research & Analysis Section
Phone: 907-465-4750 Fax: (907) 465-5085
e-mail: Michael Cushing MCushing@ComRegAf.state.ak.us

Appendix B

Goodnews Bay community profile

Community information summary from the Alaska Department of Community and Regional Affairs (DCRA), (http://www.comregaf.state.ak.us/CF_CIS.cfm May 27, 1999).

[Note: community information in greater detail can be obtained at the above cited web site.]

Alaska Department of
Community and
Regional Affairs

Community
Information
Summary



Goodnews Bay

Current Population:256 (certified December, 1998, by DCRA)
Incorporation Type:2nd Class City
Borough Located In:Unorganized
Taxes:Sales: None; Property: None

Location and Climate

The community is located on the north shore of Goodnews Bay at the mouth of Goodnews River. It is 116 air miles south of Bethel, 110 miles northwest of Dillingham and 400 miles west of Anchorage. It lies at approximately 59° 07' N Latitude, 161° 35' W Longitude (Sec. 21, T012S, R073W, Seward Meridian). The area encompasses 3 sq. miles of land and 2 sq. miles of water. Goodnews Bay is located in a transitional climatic zone, exhibiting characteristics of both a marine and continental climate. Average precipitation is 22 inches, with 43 inches of snowfall. Summer temperatures range from 41 to 57; winter temperatures are 6 to 24.

[Detailed map of
Goodnews Bay
region](#)

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www.expediamaps.com

History, Culture and Demographics

Yup'ik Eskimos called this village "Mumtraq," which was moved to its present location due to constant flooding and storms at the old site. Shortly thereafter, in the 1930s, a government school and post office were built. A high school was built in 1979.

95.9% of the population are Alaska Natives. A federally recognized tribe is located in the community. Goodnews is a traditional Eskimo village practicing a subsistence, trapping and fishing lifestyle. The sale, importation or possession of alcohol is banned in the village.

During the April 1990 U.S. Census, there were 72 total housing units, and 6 of these were vacant. 66 jobs were estimated to be in the community. The official unemployment rate at that time was 3.1%. 56.6% of all adults were not in the work force. The median household income was \$13,523, and 41.8% of residents were living below the poverty level.

Facilities, Utilities, Schools and Health Care

Currently, treated well water is hauled from the new watering point. Honeybuckets are hauled by the City. Most homes are currently not plumbed. A piped water and sewer system, with plumbing for 72

homes, is under construction. The school has requested funds for new water treatment, and to be connected to the City sewage lagoon.

Electricity is provided by AVEC.

There is one school located in the community, attended by 85 students.

Local hospitals or health clinics include Goodnews Bay Health Clinic.

Economy and Transportation

The city, school, local businesses and commercial fishing provide the majority of the income, supplemented by subsistence activities. 43 residents hold commercial fishing permits, for salmon and herring roe fisheries. The 1992 Community Development Quota (CDQ) program has increased the pollock groundfish quota for small communities like Goodnews. From 40 to 50% of residents engage in trapping. Subsistence upon salmon, seal, walrus, birds, berries, moose and bear is an integral part of the lifestyle.

A State-owned 2,850' gravel airstrip is available for chartered or private planes year-round. There are no docking facilities, although locals use boats and skiffs extensively during the summer months. Snowmachines are the primary means of travel during the winter. Barges deliver fuel and other supplies during the summer months.

Organizations with Local Offices:

City - City of Goodnews Bay, P.O. Box 70, Goodnews Bay, AK 99589, Phone 907-967-8614, Fax 907-967-8124, e-mail: , Web:

Village Corporation - Kuitsarak, Incorporated, P.O. Box 10, Goodnews Bay, AK 99589, Phone 907-967-8428, Fax 907-967-8226, e-mail: , Web:

Village Council - Native Village of Goodnews Bay, P.O. Box 50, Goodnews Bay, AK 99589, Phone 907-967-8929, Fax 907-967-8330, e-mail: , Web:

Regional Organizations:

Regional Native Corporation - Calista Corporation, 601 W. 5th Avenue #200, Anchorage, AK 99501, Phone 907-279-5516, Fax 907-272-5060

School District - Lower Kuskokwim Schools, Box 305, Bethel, AK 99559-0305, Phone 907-543-4800, Fax 907-543-4904

Regional Development - Lower Kuskokwim Ec. Dev. Coun., P.O. Box 2021, Bethel, AK 99559, Phone 907-543-5967, Fax 907-543-4171

Housing Authority - AVCP Reg. Housing Authority, P.O. Box 767, Bethel, AK 99559, Phone 907-543-3121, Fax 907-543-3933

Regional Health Corporation - Bristol Bay Area Health Corp., P.O. Box 130, Dillingham, AK 99576, Phone 907-842-5201, Fax 907-842-9354

**Planning to travel to Alaska
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Department of Community & Regional Affairs
Research & Analysis Section
Phone: 907-465-4750 Fax: (907) 465-5085
e-mail: Michael Cushing MCushing@ComRegAf.state.ak.us

Appendix C

RS 2477 trail casefile summaries (from Alaska DOT files in Fairbanks)

RST 173 Quinhagak - Goodnews Bay Trail casefile summary, 1994

RST 326 Goodnews - Arolik River Trail casefile summary, 1994

Casefile Summary
RST #173
Quinhagak - Goodnews Bay Trail

QC Simpson
7-5-94

Trail Location

From the city of Quinhagak on the Kanektok River, the trail travels in a southerly direction, paralleling Kuskokwim Bay. At Goodnews Bay, the trail turns east, travels along the north side of the Bay and terminates at the city of Goodnews. The trail is shown as a winter trail on United States Geological Survey (USGS) 1:63,360 maps, Goodnews A-7, A-8, B-8, C-8, Kuskokwim Bay A-1, B-1. The length of the trail is approximately 60 miles.

Historic Documentation

The Quinhagak - Goodnews Bay Trail is a historic winter mail trail which connected these two communities. The trail is shown in the 1973 Department of Transportation and Public Facilities Trails Inventory on map 53 (Goodnews Quadrangle) as trail #1. ARC route 92F

Documentation of construction and use includes -

1923; Add text

on 1923
ARC
map

Alaska Road Commission (ARC) Annual Reports:

1929
1947
-1944
1940

- 1) 1924; \$2,417.77 was spent on permanent staking of the trail and shelter cabins were built; \$ 758.45 Territorial Add text
- 2) 1928; \$78.64 was spent on maintenance and improvements and \$30.00 was spent on two stoves for the shelter cabins;
- 3) 1930; \$12.00 was spent on maintenance and improvements;
- 4) 1931; \$274.00 was spent on maintenance and improvements;
- 5) 1932; \$80.86 was spent on maintenance and improvements;
- 6) 1934; \$1,819.46 was spent on maintenance and improvements;
- 7) 1935; \$3,128.87 was spent on maintenance and improvements;
- 8) 1937; \$77.02 was spent on maintenance and improvements;
- 9) 1938; \$3.31 was spent on maintenance and improvements;
- 10) 1954; \$9,213.53 was total cost to date on construction, maintenance and improvements.

Postal Records:

October 2, 1912 letter from the Second Assistant Postmaster General to the Governor of Alaska mentions a petition from the people of Dillingham for the establishment of mail service during winter months on the route from Quinhagak to Goodnews Bay and beyond.

Add
MAP
to file

1951 1:250,000 USGS map, Goodnews quadrangle shows the Quinhagak - Goodnews Trail

Correspondence:

- 2-4-24 Evile Forrest to J.W. Felder
- 3-19-23 Steese President to Forrest
- 5-5-23 Telegram
- 4-26-23 Telegram
- 3-7-23 bid RST 173: 1/3
Steeze to Honora
- 3-6-23 Steese to Felder + Cole
- 12-1-22 ?

12-6-22

Proposal for
improving trail

Surface estate owners, as shown on Bureau of Land Management and Alaska Division of Land records, are listed as follows:

- 1) Togiak National Wildlife Refuge, U.S. Fish and Wildlife Service
- 2) Qanirtuuq, Inc.
- 3) Kuitsarak, Inc.
- 4) Arviq, Inc.
- 5) 50-91-0432, Native Allotment, Parcel occupancy 8/1/50
- 6) 50-92-0242, Native Allotment, Parcel occupancy 8/1/65
- 7) 50-91-0545, Native Allotment, Parcel occupancy 8/1/50
- 8) 50-92-0303, Native Allotment, Parcel occ. unknown, Application filed 12/5/79
- 9) 50-91-0171, Native Allotment, Parcel occupancy 8/1/45
- 10) 50-91-0292, Native Allotment, Parcel occupancy 5/1/40
- 11) 50-91-0461, Native Allotment, Parcel occupancy 1/1/29
- 12) F18208, Certified Native Allotment, Parcel occupancy 6/1/33
- 13) 50-92-0364, Native Allotment, Parcel occupancy 1/19/48
- 14) AA53859, Certified Native Allotment, Parcel occupancy 1/1/41
- 15) 50-92-0410, Native Allotment, Parcel occupancy Nov. 1919
- 16) 50-92-0492, Native Allotment, Parcel occupancy 12/10/46
- 17) 50-93-0164, Native Allotment, Parcel occupancy June 1928
- 18) 50-92-0735, Native Allotment, Parcel occupancy May 1935
- 19) 50-92-0628, Native Allotment, Parcel occupancy 6/24/57
- 20) 50-92-0663, Native Allotment, Parcel occupancy May 1945
- 21) 50-92-0547, Native Allotment, Parcel occupancy 9/2/47
- 22) 50-92-0545, Native Allotment, Parcel occupancy July 1949
- 23) 50-92-0433, Native Allotment, Parcel occupancy 8/15/49
- 24) 50-92-0627, Native Allotment, Parcel occupancy 3/25/54
- 25) 1124445, Scrip, Application filed 7/29/39
- 26) 50-92-0545, Native Allotment, Parcel occupancy July 1949
- 27) 50-92-0532, Native Allotment, Parcel occupancy 2/26/35

Surface estate interests, as shown on Bureau of Land Management and Alaska Division of Land records, are listed as follows:

- 1) Moravian Mission
- 2) State of Alaska
- 3) Calista Corp.
- 4) 50-91-0210, Native Allotment adjacent to trail, Parcel occupancy 8/1/60
- 5) 50-91-0387, Native Allotment adjacent to trail, Parcel occupancy 4/1/50
- 6) 50-91-0228, Native Allotment adjacent to trail, Parcel occupancy 8/1/45
- 7) AA37803, Native Allotment Application, Parcel occupancy 11/5/60
- 8) AA55932, Native Allotment Application, Parcel occupancy 8/1/41
- 9) F18205, Native Allotment Application, Parcel occupancy May 1959
- 10) F13779, Native Allotment Application, Parcel occupancy 6/23/38

Acceptance of Grant

The earliest reservation along the subject route was for 50-92-0410, Native Allotment, with a parcel occupancy of November, 1919. The grant of the RS 2477 right-of-way for the Quinhagak - Goodnews Trail was accepted by construction and use, subject to valid, existing rights, when the land was not reserved for public purposes.

Diane Showalter 2/11/94
Diane Showalter, Natural Resource Officer Date

JRS 2/18/94

Casefile Summary
RST #326
Goodnews - Arolik River Trail

Trail Location

In the southwest portion of Alaska, the trail begins at the north side of Goodnews Bay where it intersects with RST 173, Quinhagak - Goodnews Bay, and travels in a northerly direction, around the west side of Kigsugtag Mountain. The trail crosses the headwaters of the Indian River, travelling inland following the valleys to Faro Creek, below Island Mountain. The trail terminates where it meets the Arolik River at Snow Gulch. The trail is shown on United States Geological Survey (USGS) 1:63,360 maps, Goodnews Bay A-8, B-7, B-8, C-7. The length of the trail is approximately 32 miles.

Historic Documentation

The Goodnews - Arolik River Trail is a historic trail which was used as a connecting route from the ocean side, inland, to the mining operations on the Arolik River. Mining started in the Arolic Basin in 1900 and continued for several decades. The trail is shown in the 1973 Department of Transportation and Public Facilities Trails Inventory on map 53 (Goodnews Quadrangle) as trail #2 and 4.

Documentation of construction and use includes -

U.S.G.S. Bulletins:

1919, Bulletin #714; "Placer gold was discovered at several localities in the vicinity of Goodnews Bay...From 1901 and 1902 there appears to have been some mining done on the Arolic, but with the failure to find bonanzas the majority of the stampeders left this field, and it was not until 1906 that there was another influx...Practically every white man in the region has had at some time during the last three years an interest in one or more claims in the Arolic basin..."

Publications:

Mining in Alaska's Past, Alaska Historical Society, 1980; "Many headed south to the Goodnews Bay Region. Reports of discoveries of gold placers in various places in the district followed, particularly along the Aalalik (Arolic) River and its tributaries, approximately ten to twenty miles from tidewater."

1951 1:250,000 USGS map, Goodnews quadrangle shows the Goodnews - Arolik River Trail

Surface estate owners, as shown on Bureau of Land Management and Alaska Division of Land records, are listed as follows:

- 1) Kuitsarak Inc.
- 2) Qanirtuuq Inc.
- 3) Togiak National Wildlife Refuge, U.S. Fish and Wildlife Service
- 4) 50-92-0627, Native Allotment, Parcel occupancy 8/25/54

Surface estate interests, as shown on Bureau of Land Management and Alaska Division of Land records, are listed as follows:

- 1) State of Alaska
- 2) Calista Corp.

Acceptance of Grant

The earliest reservation along the subject route was the Notice of Application for Withdrawal (PLO 4582), dated 14 December 1968, which effectively segregated all public lands in Alaska from appropriation. The grant of the RS 2477 right-of-way for the Goodnews - Arolik River Trail was accepted by construction and use, subject to valid, existing rights, when the land was not reserved for public purposes.

Diane Showalter

Diane Showalter, Natural Resource Officer

3/11/94

Date

JPE 4/21/94

Appendix D

East Fork discharge measurement field notes 1988

USFWS field notes are from a single discharge measurement taken on the East Fork Arolik River 15 yards downstream of lake outlet on August 28, 1988. The notes also include a discharge measurement for a lake inlet stream on the east side of Arolik Lake. These data are reflected in MacDonald's (1996:23) Togiak NWR lake survey report.

Appendix E

BLM navigability determinations for Arolik River

The two BLM navigability determinations (McVee 1979; Arndorfer 1988) for the Arolik River were made prior to conveyance of lands to the Quinhagak village corporation [Qanirtuuq, Inc.] and the regional corporation [Calista Corporation]. Navigability criteria differed between the 1979 and 1988 determinations.

~~F-14885-EE (75 4~~
F-14885-A (2651)
(018)

OCT 25 1979

Anchorage District Office
RECEIVED

Memorandum

To: Chief, Division of ANCSA Operations
(960)

From: SD

OCT 26 1979
Bureau of Land Management
Anchorage, Alaska

Subject: ~~Final Easements~~ for the Village of ~~Quinhagak~~

The easement staff met on February 15, 1979, to conform the final easement recommendations and consider major waterway and navigability recommendations for lands selected by the village of Quinhagak. Of those recommendations, my decision is as follows:

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.

No other water bodies within the selection area were considered to be major.

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.

ALLOWABLE USES:

All easements are subject to applicable Federal, State, or municipal corporation regulation. The following is a listing of uses allowed for each type of easement identified. Uses which are not specifically listed are prohibited.

25 Foot Trail - The uses allowed on a twenty-five (25) foot wide trail easement are: travel by foot, dogsled, animals, snowmobiles, two and three-wheel vehicles, and small all-terrain vehicles (less than 3,000 lbs Gross Vehicle Weight (GVW)).

One Acre Site - The uses allowed for a site easement are: vehicle parking (e.g., aircraft, boats, ATV's, snowmobiles, cars, trucks), temporary camping, and loading or unloading. Temporary camping, loading or unloading shall be limited to 24 hours.

EASEMENTS TO BE RESERVED:

- a. (EIN 1 D1, D9, C3) An easement for an existing access trail twenty-five (25) feet in width from Quinhagak in Sec. 17, T. 5 S., R. 74 W., Seward Meridian, northwesterly to Eek. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

This trail is used as an intervillage travel route along the coast. It was historically used as a mail route. An easement is needed to provide a continuous trail system and for access to public lands. This is strictly a winter trail and should not interfere with the waterfowl habitat in the area.

- b. (EIN 2 C5) An easement for a proposed access trail twenty-five (25) feet in width from trail EIN 1 D1, D9, C3 in Sec. 6, T. 5 S., R. 74 W., Seward Meridian, northeasterly to public lands. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

A large block of public lands north of the village is separated from the village and existing trail systems by selected lands. An easement is necessary to provide access to these public lands. This will be primarily a winter trail.

- c. (EIN 3 D1, C3) An easement for an existing and proposed access trail twenty-five (25) feet in width from Quinhagak in Sec. 17, T. 5 S., R. 74 W.,

Seward Meridian, easterly generally paralleling the south side of the Kanektok River to public lands. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

This is an existing, well used trail, ending with a short, proposed trail to public lands in Sec. 3, T. 5 S., R. 73 W. This trail will traverse approximately eight miles of village lands. An easement is needed to provide access to public lands east of the selection area.

- d. (EIN 4 D1, D9, C3) An easement for an existing access trail twenty-five (25) feet in width from Quinhagak in Sec. 17, T. 5 S., R. 74 W., Seward Meridian, southeasterly generally paralleling the coast to Platinum. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

This is a continuation of the old mail trail. Travel is limited primarily to the winter months. An easement is necessary to provide for inter-village travel and access to public lands south of the selected land.

- e. (EIN 7 D9) A one (1) acre site easement upland of the ordinary high water mark in Sec. 34, T. 4 S., R. 73 W., Seward Meridian, on the right bank of the Kanektok River. The uses allowed are those listed above for a one (1) acre site. The season of use will be limited to summer.

Discussion:

This site is needed to facilitate summer access along the Kanektok River. The Kanektok River is both a major waterway and a navigable river, providing a transportation avenue in the summer, throughout the selected area and public lands. The site will also serve as a trailhead for trail EIN 7a C4 which provides access to public lands north of the river.

- f. (EIN 7a C4) An easement for a proposed access trail twenty-five (25) feet in width from site EIN 7 D9 in Sec. 34, T. 4 S., R. 73 W., Seward Meridian,

northerly to public land. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use is limited to summer.

Discussion:

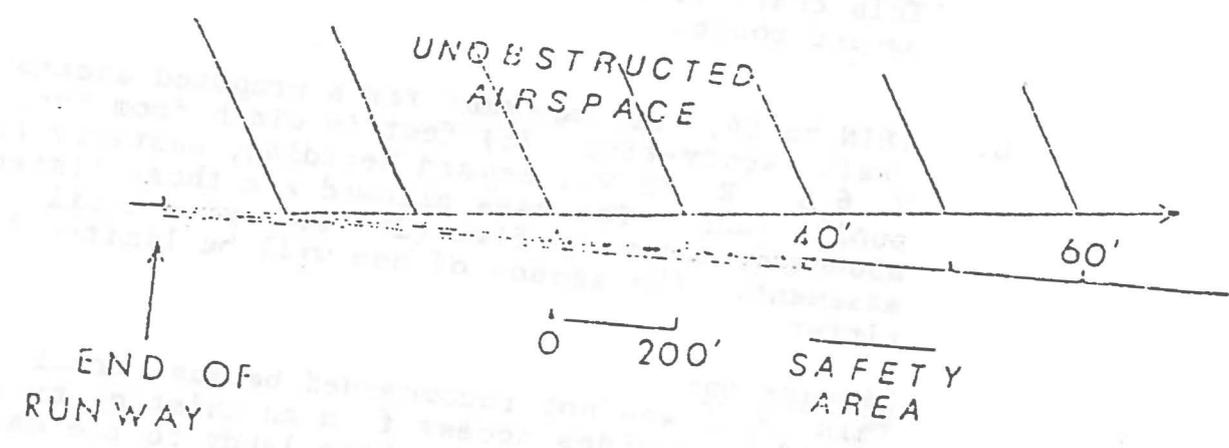
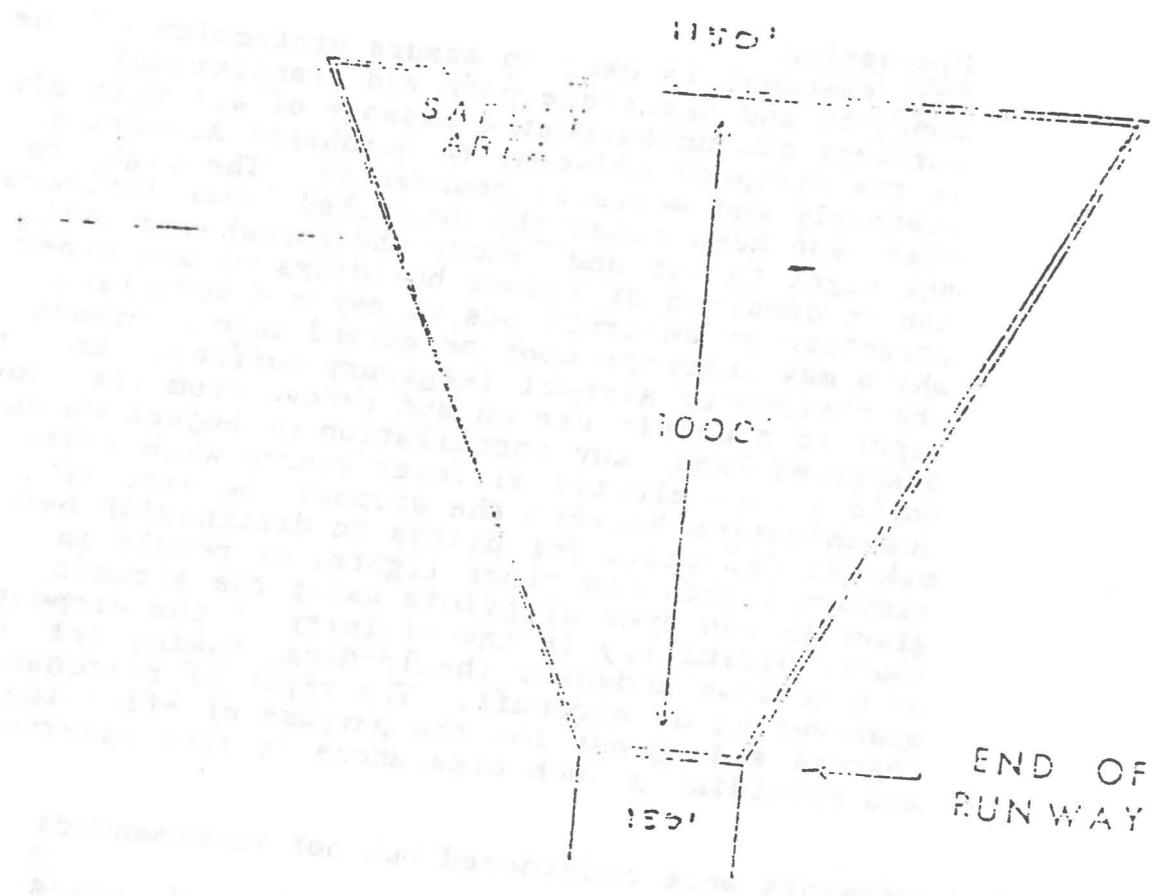
This trail will provide access to public lands that have been separated from the river and existing summer access routes by village selected lands. The trail will connect with site EIN 7 D9 on the river and will provide access north from this point.

- g. (EIN 18 E) An easement for a proposed access trail from public lands in Sec. 15, T. 6 S., R. 73 W., Seward Meridian, easterly to public lands. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

This trail provides access to areas of public land now divided by Native selected land.

- h. (EIN 22 C5) An easement to establish a clear area adjacent to Quinhagak Airport for the safe operation of aircraft landings and take-offs. This area is to include the land and the space over the land, commencing with the west end of the runway at Quinhagak Airport, in Sec. 9, T. 5 S., R. 74 W., Seward Meridian, and extending forward from the runway, one thousand (1000) feet. The width of the easement will vary from one hundred and fifty (150) feet at the end of the runway, to one thousand one hundred and fifty (1150) feet, at the opposite end. The easement uses reserved include the right to clear and keep clear the above described land from any and all obstructions infringing upon or extending into the Airport Imaginary Surfaces as set forth in Part 77 of the Federal Aviation Regulations, as amended.



Discussion:

This easement is used to assure protection of the approach and departure path and transitional surfaces and unobstructed passage of all aircraft in the airspace adjacent to Quinhagak Airport's southerly and westerly boundaries. The right to clear and keep clear the described lands includes the right to cut and remove underbrush and soil, and to demolish or remove buildings or any other structure or obstructions of every description which may infringe upon or extend into or above the designated Airport Imaginary Surfaces, and the right to prohibit use on and remove from the above described land, any installation or object which would create electrical interference with radio communication between the airport and aircraft, or make it difficult for pilots to distinguish between airport lights and other lights, or result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport or otherwise endanger the landing, taking off, or maneuvering of aircraft. The right of reasonable ingress and egress for the purpose of effecting and maintaining such clearances is also reserved.

The following easements were considered but not recommended:

- a. (EIN 5 D9) An easement for a proposed access trail twenty-five (25) feet in width from the north mouth of the Arolik River to trail EIN 5a C4 and to public land.

Discussion:

This trail is not necessary because of an alternate access route.

- b. (EIN 5a C4) An easement for a proposed access trail twenty-five (25) feet in width from Sec. 15, T. 6 S., R. 73 W., Seward Meridian, easterly to public land. The uses allowed are those listed above for a twenty-five (25) foot wide trail easement. The season of use will be limited to winter.

Discussion:

This trail was not recommended because trail EIN 18 E provides access from an existing trail system to the isolated public lands to the east.

- c. (EIN 8 D1, D9) Standard coastline easement.

Discussion:

This easement does not meet the requirements of the new regulations.

- d. (EIN 9 C5) A site easement upland of the ordinary high water mark in Sec. 29, T. 6 S., R. 72 W., Seward Meridian, on the right bank of the Arolik River. The site is one (1) acre in size with an additional twenty-five (25) foot wide easement on the bed of the river along the entire waterfront of the site.

Discussion:

This site was not recommended because sites can only be reserved at periodic points on major waterways. The [REDACTED] was not determined to be a major waterway.

- e. (EIN 9a C5) An easement for a proposed access trail twenty-five (25) feet in width from site EIN 9 C5 on the Arolik River in Sec. 29, T. 6 S., R. 72 W., Seward Meridian, northerly and southerly to public lands.

Discussion:

This trail is not necessary because of alternate access and site EIN 9 C5 was not recommended.

- f. (EIN 10 D1) An easement sixty (60) feet in width for an existing road from the airport in Sec. 9, T. 5 S., R. 74 W., Seward Meridian, northerly to site EIN 10a C4 and the Kanektok River. The uses allowed are those listed above for a sixty (60) foot wide road easement.

Discussion:

This easement is within an exclusion of the lands to be conveyed. An application for a Native allotment covers this area. No action on this easement is required until conveyance of this land takes place.

- g. (EIN 10a C4) A one (1) acre site easement upland of the ordinary high water mark in Sec. 9, T. 5 S., R. 74 W., Seward Meridian, on the left bank of the Kanektok River. The uses allowed are those listed above for a one (1) acre site.

Discussion:

This easement is within an exclusion of the lands to be conveyed. An application for a Native allotment covers this area. No action on this easement is required until conveyance of this land takes place.

- h. (EIN 12 C1, D1, L) A streamside easement twenty-five (25) feet in width upland of and parallel to the ordinary high water mark on all banks of the navigable Kanektok River throughout the selection area.

Discussion:

It does not meet the requirements of the new easement regulations. This easement is recreational in nature.

- i. (EIN 14 C5, D1) A streamside easement twenty-five (25) feet in width upland of and parallel to the ordinary high water mark on all banks and an easement on the entire bed of the [REDACTED]; including the North Mouth Arolik River through the selection area.

Discussion:

The new regulations make no provision for this type of easement. The easement is recreational in nature.

- j. (EIN 15 C5, D1) A streamside easement twenty-five (25) feet in width upland of and parallel to the ordinary high water mark on all banks and an easement on the entire bed of the South Mouth Arolik River through the selection area.

Discussion:

It does not meet the requirements of the new easement regulations. This easement is recreational in nature.

- k. (EIN 16 C) Standard transportation easement.

Discussion:

The new regulations make no provision for this type of easement.

- l. (EIN 17 C) Standard survey easement.

Discussion:

The new regulations make no provision for this type of easement.

- m. (EIN 19 D1) A site easement upland of the ordinary high water mark in Sec. 29, T. 5 S., R. 73 W., Seward Meridian, on the North Mouth Arolik River at its confluence with Bessie Creek. The site is one (1) acre in size with an additional twenty-five (25) foot wide easement on the bed of the river along the entire waterfront of the site.

Discussion:

This site was not recommended because sites can only be reserved at periodic points on major waterways. [REDACTED] to [REDACTED]

- n. (EIN 20 D1) A one (1) acre site easement upland of the ordinary high water mark in Sec. 32, T. 4 S., R. 72 W., Seward Meridian, on the left bank of the Kanektok River.

Discussion:

This site easement is not recommended because of the close proximity of public land to the east.

- o. (EIN 20a D1) An easement for a proposed access trail twenty-five (25) feet in width from site EIN 20 D1 on the Kanektok River southerly to public lands.

Discussion:

This access trail was not recommended because alternate access was available from nearby public lands and site EIN 20 D1 was not recommended.

- p. (EIN 21 C5) An easement sixty (60) feet in width for an existing road from the airport in Sec. 9, T. 5 S., R. 74 W., Seward Meridian, southwesterly to the village.

Discussion:

A right-of-way, F-19207, exists over this road. Since a valid public access corridor exists, no easement is necessary.

/s/ Curtis V. McVee

018/DTideman
 963/BFaithful/mjl/9-5-79/5766
 mj/9-6-79
 mj/9-17-79
 mj/9-18-79
 mj/13/N
 mj/10-22-79

PREVIOUSLY

Done

J.O.

Baird Inlet-CS-FY'88-#1
Bethel-CS-FY'88-#1
✓ Goodnews Bay-CS-FY'88-#1
Kuskokwim Bay-CS-FY'88-#1
F-14885 (75.4)
(961)

MAR 29 1988

Memorandum

To: Deputy State Director for Cadastral Survey (923)

From: Deputy State Director for Conveyance Management (960)

Subject: Navigable Waters in Group Survey 171 (Window 1562)

This memorandum identifies navigable waters below a certain size on lands in group survey 171 (Quinhagak) selected (but not conveyed) under the Alaska Native Claims Settlement Act (ANCSA) or the Statehood Act and not reserved or withdrawn at the time Alaska joined the Union. It also identifies navigable waters excluded from conveyances under these acts. The BLM has issued navigability determinations for most selected and conveyed lands in the thirty-six townships in the report area. Table 1 lists the townships and navigable waters which must be excluded on the survey plats. Streams 198 feet or more in width are not listed because, regardless of their navigability status, they will be segregated on the survey plats. The same is true for lakes fifty acres or more, and for tidal water bodies like Warehouse Creek and its North and South branches in T. 3 S., Rs. 74-75 W., SM.

The BLM's navigability determinations are based on criteria described in the memorandum dated March 16, 1976, from the Associate Solicitor, Division of Energy and Resources, to the Director, Bureau of Land Management, subject "Title to submerged lands for purposes of administering ANCSA": the Alaska Native Claims Appeal Board's (ANCAB) decision (RLS 76-2) of December 14, 1979, on the navigability of the Nation and Kandik rivers; the Regional Solicitor's February 25, 1980, interpretation of the ANCAB decision; and dicta in the United States District Court's decision (A80-359) of April 16, 1987, on the navigability of the Gulkana River. In general, the BLM considers nontidal water bodies navigable if, at the time Alaska became a state, they were navigable for crafts larger than a one-person kayak.

Information about the land status, history, and physical character of water bodies in the report area comes primarily from the USGS Goodnews Bay, Kuskokwim Bay, Baird Inlet, and Bethel quadrangles, thirteen NASA aerial photographs (CIR 60, roll 3112, frames 540-543, 547-549, and 573-576, August 1982, and roll 3397, frames 8090 and 8091, August 1984), and BLM's orthophotos, Master Title Plats (MTPs), Alaska Automated Lands and Minerals Record System (AALMRS), ANCSA easement files, C. Michael Brown's "Alaska's Kuskokwim River Region: A History" (BLM, 1983), and prior navigability reports. In addition, Susan DiPrete and David Rukke of the Navigability Section obtained use information by interviewing the following people.

<u>Name</u>	<u>Date(s)</u>	<u>Phone Number and Background</u>
Joshua Cleveland	12/9/86	556-8211, Chairman, Board of Directors, Qanirtuug, Inc.
Mike Coffing	1/14/88	842-5227, ADF&G Bethel
Chris Goll	1/19/88	243-7894, Rainbow River Lodge
Julius Henry	12/10/86	979-8510, resident Platinum
Dan Huttunen	12/9/86	543-3100, ADF&G Bethel
William Lyle	1/20/88	376-6414, sportfishing guide
Frank Matthew	1/13/88	no phone, resident Quinhagak
Eric "Mac" Minard	1/15/88	842-5227, ADF&G Dillingham
Alexie Pleasant	12/9/86	556-8211, Qanirtuug Corp. Manager
Keith Schultz	12/11/86	543-3494, resident Bethel
Jonie Snellgrove	12/11/86	842-5642, ADF&G Dillingham
Chuck Wade	12/11/86	543-4500, resident Bethel

For a full account of the interviews, see Susan DiPrete to F-14885, January 27, 1988, and David C. Rukke to File F-14885, December 19, 1986.

Arolik River

Formed by the confluence of the East and South forks, the Arolik River flows northwesterly fourteen miles before splitting into two distributaries, the North Mouth and South Mouth, both of which empty into Kuskokwim Bay below Quinhagak. It is shown on the Goodnews B-7 and C-6 to C-8 quadrangles as primarily a double-lined, meandering, slightly braided and gently flowing river. An abandoned mining camp is shown just outside the report area in Sec. 30, T. 7 S., R. 71 W., SM, where several trails also come together. A cabin is shown along the river in Sec. 4, T. 7 S., R. 72 W., SM. Aerial photographs show it as a relatively wide, unobstructed river in the report area.

The river is three chains or wider only in T. 7 S., R. 72 W., SM. The main stem Arolik is in two townships (Tps. 6-7 S., R. 72 W., SM) in the report area. Most of the bed is interim-conveyed (ICs 343 and 342, June 25, 1980.) One ANCSA-selected stretch in Sec. 24, T. 7 S., R. 72 W., SM, is being considered at this time.

Three individuals with experience on the upper river consider it suitable for boats, rafts and canoes throughout the report area. In fact, all three believe it is suitable for such crafts to Arolik Lake at the head of the East Fork. Sportfishing guide William Lyle has floated the river from the lake to tidewater. He has also taken clients as far as the mountains at the eastern edge of T. 7 S., R. 72 W., SM. in eighteen-foot, jet-equipped boats for the past five summers. Lyle described the mainstream Arolik as having a clearwater channel one to three feet deep and deeper in pools. Aside from the canyon just below the lake, rocks and shallow spots are the only impediments to navigation, and even they do not pose much of a problem. Guide Chris Goll, who has floated from the lake to tidewater during late fall while guiding bear hunts, said the river will generally float a raft at that time of year when it is at its lowest. Based upon his experience well beyond the confluence of the North and South forks in a fifteen-foot boat with a jet unit while fishing during summer, Goll said the river is clearly suitable for comparable boats, rafts, and canoes during ordinary high water. Bethel resident Chuck Wade, who accompanied a six-person party in three rafts from the lake during the summer of 1986, considers the river suitable for such crafts during ordinary high water. Others with limited or no experience on the river had mixed feelings about the river's capacity for boats and canoes.

I determine the Arolik River navigable in ANCSA-selected Sec. 24, T. 7 S., R. 72 W., SM. Our analysis of the maps, photographs, and the testimony of three individuals with experience on the upper river all indicate that it is suitable for canoe navigation in this stretch and beyond during ordinary high water. To the best of our knowledge, this river is in its natural and ordinary condition.

North Mouth Arolik River

Leaving the Arolik River in Sec. 30, T. 6 S., R. 72 W., SM, the North Mouth flows northwesterly and then westerly about eighteen miles over a broad, flat coastal plain to the bay. It is shown on the USGS Goodnews C-8 quadrangle (1954) as a double-lined, meandering, slightly braided stream with a gradient approaching five feet per mile. In a NASA photograph of August 1982 (CIR 60, roll 3112, frame 547), the river exhibits a gently meandering, clear, slightly braided channel similar to that of the mainstream Arolik over its entire course. It is between twenty-five and fifty feet wide (less than three chains) where it crosses ANCSA-selected lands in Sec. 9, T. 6 S., R. 73 W., SM, and appears to have a sufficient volume of water for boats. Tidal influence extends approximately two to two and one-half miles. The river's most notable tributary, Bessie Creek, meets the North Mouth at about rivermile eight in Sec. 29, T. 5 S., R. 73 W., SM, where it empties iron-colored water into the latter. The remaining tributaries are considerably smaller. No obstructions or impediments are evident in the channel in the photograph.

The North Mouth Arolik River, less than three chains wide in most of its length, is in four townships in the report area. Nearly all of the riverbed was conveyed (ICs 342 and 343) in 1980. As a result, only one short ANCSA-selected stretch in Sec. 9, T. 6 S., R. 73 W., SM, is being considered at this time. The BLM declared the remainder of stream nonnavigable in connection with conveyances to Calista Corporation and Qanirtuug, Incorporated, in 1979.

In the course of investigating navigable waters on selected lands in the survey group in 1986, the BLM interviewed eight individuals, most of whom considered the river unsuitable for eighteen-foot boats with propeller motors and thousand-pound loads, the agency's standard at the time. However, four informants with limited experience on the river believed it was suitable for rafts or jet boats during periods of normal to high water. In fact, after floating the river in the summer of 1986, Bethel resident Chuck Wade believed he could take his fully-loaded eighteen-foot boat up the Arolik. On their descent from Arolik Lake, Wade and his party of six (in three rafts) encountered a commercial sportfishing party in a sixteen-foot jet boat at the mountains in T. 7 S., R. 72 W., SM. ADF&G technician Jonie Snellgrove, who has traveled the lower five miles in a twelve-foot motorboat, said the river is suitable for jet boats beyond Bessie Creek because guide William Lyle used a sixteen-foot jet boat to his camp above Bessie Creek. Quinhagak resident Joshua Cleveland believed that a wooden eighteen-foot boat with a propeller could be taken to the mountains during the spring floods. Cleveland noted that local residents rely on jet boats to ascend the North Fork or rafts to float from the lake.

The majority of individuals who provided information in 1988 consider the river suitable for raft or canoe navigation during periods of ordinary high to high water. Having traveled much of the Arolik in both a raft and a fifteen-foot boat with a jet unit during fall and summer, respectively, hunting guide Chris Goll was probably the most optimistic about the river, which he considers suitable for similar crafts and canoes during summer. According to Goll, the river will generally float a raft from the lake during its lowest point in fall, when shallow stretches are common along the upper reaches of the mainstream. Sportfishing guide William Lyle said that he routinely takes clients in eighteen-foot, jet-equipped riverboats as far as the mountains in T. 7 S., R. 72 W., SM, during June, July, and August. Like Goll, Lyle has also rafted from the lake to tidewater. From Bessie Creek to the mountains, he said the river has a clear one- to three-foot channel with fifteen- to twenty-foot holes in places. After wintering at squirrel hunting grounds east of his Native allotment in Sec. 32, T. 6 S., R. 72 W., SM, Frank Matthew descends the river in late April or early May in the sixteen-foot Lund boat he hauls overland each winter. Matthew easily motors or rows downriver during the high water season when the channel is two to three feet deep and rocks are his only concern. Based upon his aerial observations, area management biologist Mac Minard believes the lower eight or nine miles are suitable for standard nineteen-foot boats with jet units. He considers the remainder of the river suitable for rafts and canoes.

I determine the North Mouth Arolik River navigable in selected Sec. 9, T. 6 S., R. 73 W., SM. Our analysis of USGS maps, aerial photographs, and the testimony of individuals familiar with the river leads us to believe that this stretch of river is suitable for raft and canoe navigation during ordinary high water each summer. To the best of our knowledge, the river is in its natural and ordinary condition as it was at the time of statehood. Guides Chris Goll and William Lyle have clearly demonstrated the river's capacity for small craft navigation by their recent float trips.

South Mouth Arolik River

From the main channel of the Arolik River in Sec. 30, T. 6 S., R. 72 W., SM, the South Mouth meanders northwesterly approximately sixteen miles to empty into the bay two miles below the North Mouth. The wide, meandering river is shown on the USGS Goodnews C-7 and C-8 quadrangles (1954) as double-lined through the group survey area. Its gradient is negligible. Unlike the North Mouth, it lacks any significant tributaries. A long, meandering, twenty-five- to fifty-foot-wide slough appears to leave the river in the southeast quarter of Sec. 17, T. 6 S., R. 73 W., SM, and rejoin it along the eastern boundary of Sec. 10, T. 6 S., R. 74 W., SM, the approximate extent of tidal influence. Two NASA photographs (CIR 60, roll 3112, frames 547-548, August 1982) show a meandering, primarily single-channel stream (significantly smaller than the North Mouth) with a clear channel over its entire length. Aside from the large aforementioned slough, there are several smaller interconnected sloughs. Above Sec. 17, the river becomes wider and more braided. In fact, a number of old channels are visible, indicating a delta-like pattern of dry channels. All of the river's tributaries are dry in the photographs.

The South Mouth Arolik River is in three townships in the report area. Roughly the first five miles of riverbed was conveyed to Calista Corporation and Qanirtuug, Incorporated. An eight-mile portion of the river, approximately between rivermiles five and thirteen, still traverses ANCSA-selected lands in T. 6 S., R. 73 W., SM.

In 1986, the BLM interviewed eight individuals, none of whom considered the river suitable for fully-laden riverboats with propeller motors. In fact they generally agreed that the stream was too shallow for smaller boats (prop and jet) common in the area, except perhaps a mile or so on a high tide. Joshua Cleveland of Qanirtuug, Incorporated, believed jet boats and rafts could negotiate it at flood stage. Chuck Wade once traveled twenty or thirty minutes upriver until the tide receded and his twenty-six-foot boat powered by twin seventy-horsepower outboard motors went aground. He proceeded a short distance upstream in a twelve-foot Zodiac raft with a fifteen-horsepower motor until that, too, went aground.

The majority of individuals who provided information in 1988 believe the South Mouth is also unsuitable for canoe navigation during ordinary high water. Only Chris Goll stated that he has been able to use the South Mouth on occasion. Frank Matthew said that normally it is extremely shallow, perhaps two to three inches in places, all the way to the main stem Arolik. He considers it unsuitable even for his shallow-draft Lund boat, except perhaps during spring high water. William Lyle said there is hardly any water in the slough-like water body. He believes jet boats would likely run aground at the lower end of the stream.

I determine the South Mouth Arolik River nonnavigable in selected Secs. 7, 16-18, and 20-22, T. 6 S., R. 73 W., and Sec. 12, T. 6 S., R. 74 W., SM. Our analysis of the USGS maps, aerial photographs, and the testimony of those familiar with the water body both in 1986 and 1988 lead us to believe that this stretch of river is not practical for boats, rafts, and canoes during

ordinary high water. At best the lower portion of the river is probably conducive to use by such crafts during high-tide. -To the best of our knowledge, the river is in its natural and ordinary condition.

Other Water Bodies

Only the Kanektok River was excluded from the interim conveyances as navigable. All other rivers and streams less than 198 feet wide and lakes less than 50 acres in size on (unreserved) lands selected under ANCSA are nonnavigable. They are either tidally influenced, too small or too steep for boats, or do not connect to any navigable water body.

Robert W. Anderton

Enclosure:
Table

cc: State Interest Determinations
Division of Land and Water Management
Alaska Department of Natural Resources
Box 7-005
Anchorage, Alaska 99510

State of Alaska
Department of Natural Resources
Land Title Section
3601 C Street
Anchorage, Alaska 99503

Calista Corporation
516 Denali Street
Anchorage, Alaska 99501

Qanirtuug, Incorporated
Quinhagak, Alaska 99655

Chief, Planning and Development (920B)

Chief, Branch of Field Surveys (921)

Chief, Branch of Cartography (922)

Chief, Branch of Photogrammetry (924)

Table 1

Navigable Rivers and Streams Less Than
198 Feet Wide and Lakes Less Than 50 Acres in Size in
Survey Window 1562 to be Excluded On Survey Plats, by Township

Seward MeridianTownships

T. 5 S., R. 68 W.	None.
Tps. 1-5 S., R. 69 W.	None.
Tps. 1-7 S., R. 70 W.	None.
Tps. 1-8 S., R. 71 W.	None.
Tps. 1-3 S., R. 72 W.	None.
T. 4 S., R. 72 W.	Kanektok River (October 25, 1979).
Tps. 5-6 S., R. 72 W.	None.
T. 7 S., R. 72 W.	Arolik River in Sec 24.
T. 8 S., R. 72 W.	None.
Tps. 1-3 S., R. 73 W.	None.
Tps. 4-5 S., R. 73 W.	Kanektok River (October 25, 1979).
T. 6 S., R. 73 W.	North Mouth Arolik River in Sec. 9.
Tps. 7-8 S., R. 73 W.	None.

Tps. 1-4 S., R. 74 W.

None.

T. 5 S., R. 74 W.

Kanektok River (October 25, 1979).

Tps. 6-7 S., R. 74 W.

None.

Tps. 1-3 S., R. 75 W.

None.

T. 5 S., R. 75 W.

None.

961*SDiPrete*evl:3/25/88*1304t

Appendix F

BLM navigability interview memoranda for Arolik River

Two BLM navigability specialists (Rukke 1986; DiPrete 1988) conducted telephone interviews regarding use of the Arolik River and reported their results in memoranda in 1986 and 1988. These interviews preceded the second Arolik River BLM navigability determination of 1988 (Arndorfer 1988) (Appendix E).

Baird Inlet-GS-FY'87-#1
Bethel-GS-FY'87-#1
Goodnews Bay-GS-FY'87-#2
Kuskokwim Bay-GS-FY'87-#2
(961)

Memorandum

To: File F-14885-EE (75.4)

From: Realty Specialist

Subject: Interviews for Group Survey No. 171, Quinhagak
Village (Window 1562)

DEC 19 1986

December 9, 1986

Dan Huttunen (543-2433) is with the ADF+G in Bethel, Ak. He was familiar with the North Mouth Arolik River from flying over it and landing a float plane in the lowest two miles. Since the North Mouth Arolik River is so flat, he believed the tide to extend two miles. Beyond this distance, most of the boats traveling up this river had jet units. It was nothing like the Kanektok River which was deep and navigated by propellered craft. However, Huttunen had noticed twenty-six to twenty-eight-foot boats in the North Mouth Arolik for the first two miles. He estimated the river depth at only two feet, beyond the tidal influence. He was not sure if an eighteen-foot Lund with a twenty-five to thirty-five horsepower propellered motor could be taken beyond the two miles or the tidal influence. The North Mouth had a lot of water compared to the South Mouth Arolik. He said that the South Mouth was just a little stream and fairly shallow. Ship Creek at the Glenn Highway bridge in Anchorage would be similar in width to the South Mouth, it might even be a little smaller. He had never landed his plane on the South Mouth and did not believe it would be possible. The resident boaters did not use the South Mouth as it is too shallow. Dan recommended that I contact Bill Lyle of the Anchorage Native Hospital. Bill runs a commercial sport fishing operation on the Arolik River and would be very familiar with it. Alexie Pleasant (556-8211) is familiar with the Arolik River. He is also the Quinhagak village corporation's president.

Bill Lyle (279-6661) is with the Native Hospital in Anchorage. However, he spends his summers running a commercial sport fishing operation. He was very familiar with the Arolik River, since this was the location of his operation. During the months of June, July and sometimes up until mid-August depending on the water depth, Bill's runs his operation. He uses sixteen-foot jet boats to take his sport fishing clients up to his camp, located one hundred yards upstream of Bessie Creek on the North Mouth Arolik River. This last season, there was an unusual high water in which he was able to travel upstream to the mountains in T. 7 S., R. 72 W., Seward Meridian. But he said that his normal limit was not nearly this far. He believed that neither fork of the Arolik River is navigable to BLM's smallest commercial boat and load while powered by a propeller. He said that the Kanektok River had ten times the water as the Arolik, and there was no doubt about its being navigable, but not the Arolik. The South Mouth Arolik is seldom navigated by resident (propeller) boats. He said that he hardly sees anyone boating the North Mouth Arolik River either. Rafts float down the Arolik River and North Mouth from Arolik Lake, but they may have to be drug up to three miles through the shallow areas. He said that the fishery on the Arolik was special in that it required clear water and the release of rainbow and greyling. The color of Bessie Creek was that of coffee, because of its iron ore in the water. The true clear watered Arolik River did not start until upstream from Bessie Creek. Bill said that the North Mouth Arolik River is at most two to three feet deep. Bill knows the channel, but said that if he were to deviate from it his sixteen-foot jet boat would run aground. The local boats (propeller) can only go about a quarter of a mile without the tide on either the North or South Mouth Arolik River. A high tide would extend this distance for a total of approximately one mile. He believed that this was the limit for BLM's smallest craft and load. A load of this size would require a forty-horsepower motor. A motor of this size would simply tear up propellers on the beds of this shallow river. The South Mouth Arolik River is even shallower with no known boat use.

Alexie Pleasant (556-8211) is the president of the Quinhagak Village Council. He said that he never takes his propellered boat up the Arolik River because it is not possible. The North Mouth Arolik River has some Native allotments, but the locals go up there by snowmachine in the winter only. He said that both mouths of the Arolik River are too shallow for BLM's boat (propeller) and load. I asked Pleasant if he knew of any other natives of Quinhagak that had boating experience on the river to include their comments. He referred me to Joshua Cleveland who is the chairman of the Quinhagak Village Council. According to his information, the North Mouth Arolik River is too shallow for BLM's boat and load (propeller) for a good part of the year. He

said it was possible to take BLM's boat and load to the mountains in T. 7 S., R. 72 W., Seward Meridian, when the river is at flood stage in the spring. Basically the North Mouth Arolik River is used more often than the South Mouth. However, both the North and South Mouths are very limited to (propellered) navigation because of their shallow depth. The locals either rely on jet boats to ascend the North Fork or else they drift down the Arolik River by raft from Arolik Lake. On the spring high water, local boaters take their propellered boats to their Native allotment claims to catch fish. They will also travel to their claims when the river is occasionally flooded in September or October. However its not a usual occurrence and is normally not possible for a propeller. After freeze-up the local's will access their claims by snow machine to fish. In summary, there are few times when BLM's boat (propeller) could predictably be taken up the North Mouth Arolik River, especially with a thousand pound load. The North and South Mouth Arolik River are simply too shallow.

December 10, 1986.

Julius Henry (979-8510) is a current resident of Platinum that had grown up in Quinhagak Village. He was very familiar with the Arolik River. He also travels by boat on the water bodies of the Goodnews Bay area. Each fall, Ron Hyde Jr. (of Alaska River Safari's) usually accompanies him for trapping, hunting, or fishing. Over the years the North Mouth Arolik River has cost him three lower units on his outboard (propeller). It would be extremely difficult to take BLM's eighteen foot boat and load up this river. On the spring high water Henry said that he had been about 1/2 way to the mountain in T. 7 S., R. 72 W., Seward Meridian in his sixteen-foot John boat (propeller). BLM's boat and load would be lucky to make it beyond the first fork about five miles upstream (Bessie Creek) during the remaining open water stages of summer. Even this distance would be difficult with BLM's boat. It is just too shallow. He had even tried walking his boat up through the shallow areas with extreme difficulty. At a cost of three lower units he considered the Arolik unreasonable for BLM's smallest commercial boat. The South Mouth Arolik River was even shallower and not boatable.

December 11, 1986.

Keith Schultz (543-2433) a biologist with the ADF+G, returned my call today. He said that he had taken a twelve- and a fifteen-foot boat with a outboard (propeller) on the North Mouth

Arolik River five miles at the most to fish. However, he remembered that he had not taken his boat beyond the tidal influence. Since they were fishing for salmon, he remembered stopping at some holes up to six feet deep. He said that the locals did not use this river. At least there was no crowded condition like the Kanektok River. He was not sure how far upstream BLM's boat and load could go. He had also flown over the area numerous times and had seen the turbid water downstream from Bessy Creek. The North Mouth of the Arolik River had the only boating activity. The South Mouth was turbid and too shallow. He said that the North Mouth Arolik River was known to fluctuate in its water level. When the snow pack is heavy he has seen this river stay high all summer. In a high year he felt that BLM's boat and load could be taken all the way to the mountains, but this was not a predictable occurrence. Keith knew of no boating activity on the South Mouth, it was turbid and too shallow. Keith recommended that I contact a technician named Jonie Snellgrove who is stationed in Quinhagak during the summer. She is also an elementary school teacher in Dillingham, and could be reached there. Jonie had boating experience on the Kanektok and Arolik Rivers. She had observed the crowded condition on the Kanektok River and told Bill Lyle that it was not crowded on the Arolik River. Keith said that this river would be an extremely tough call for navigability. He recommended that I contact Chuck Wade (543-4500) because he has floated the river. Bill Lyle would also be familiar with the Arolik River. He had operated on the river for the last two years.

At 11:35 am, I phoned Jonie Snellgrove (842-5642) at the Dillingham elementary school. She is a summer technician with the Alaksa Department of Fish and Game at Quinhagak. Jonie has taken her twelve-foot boat about five miles up the North Fork Arolik River by propeller. She said that there were some shallow spots that she had to walk her boat through to get this far. Beyond Bessy Creek the North Mouth Arolik River loses a substantial amount of water. Jonie believed that its depth was only one to two feet beyond Bessy Creek on the North Mouth of the Arolik. However, this depth was sufficient for some jet boats. She had seen Lyle use a sixteen-foot jet boat to reach his sport fishing camp above Bessy Creek. She doubted that BLM's eighteen-foot boat with a thousand pounds could even be taken this four to five miles to Bessy Creek fork. The South Mouth Bessy Creek was even shallower. The only boating activity that she knew of on the South Mouth Arolik River was in the fall. The Native hunters travel a short distance up this fork by boat in the fall on a tide. Beyond the tide the river is too shallow.

At 1:15 PM I phoned Chuck Wade (543-4500) in Bethel. Last summer Chuck had floated the Arolik River from Arolik Lake for the first time with six others. The party had three rafts and spent six days floating this river. He said that during the first three hours of floating, he remembered the river to have a number of shallow braids. He did not believe that BLM's boat and load could be taken this final distance. However he said that after leaving the mountains, they encountered "Gohn Fishing" the commercial outfitter. This commercial sport fishing party was using a sixteen-foot jet boat to reach the mountain in T. 7 S., R. 72 W., Seward Meridian. Chuck said that they had a conflict with this commercial sport fishing party. The party claimed to have an agreement with the Native corporation to manage the lands. They were not to let anyone else use the river. Chuck said that he had a eighteen-, twenty-four-, and twenty-six-foot boat in Bethel. He would think nothing of loading a thousand pounds into his eighteen-foot boat and taking it up the Arolik River. Last year the North Mouth Arolik River was at least eight feet deep downstream from the mountains in T. 7 S., R. 72 W., Seward Meridian. Although he hadn't measured the depth, he believed that it was too deep to touch bottom with an oar. After leaving the mountains, the river also seemed as wide as the Missouri River. This river was more than a trickle and too deep to wade across. The trip was made in July, but he wasn't sure if it had been a high water year or not. After a number of days floating the river, the party encountered several tents and the camp of "Gohn Fishing" which was just above the mouth of Bessie Creek. Chuck recommended that I also contact Don Dryvestein (543-3957) of Bethel who floated the river more than once. From their camp, the river slowed down and flattened out. After another four or five hours of floating from the camp, they reach the mouth of North Mouth Arolik River. He would describe the Arolik River as having a definite channel. Chuck did not believe that the South Mouth was navigable. On another occasion, he had taken a twenty-six-foot boat with twin seventy outboards (propeller) twenty to thirty minutes up the South Mouth Arolik River from the ocean. As the tide went out this boat went aground. They continued upstream in a rubber twelve-foot zodiak with a fifteen horsepower (propeller) motor. After a short distance, this boat hit ground. Chuck said that he wouldn't take an eighteen-foot boat with a thousand pounds up the South Mouth, it is too shallow.

dcr 0253d

/s/ David C. Rakke

PREVIOUSLY
Done
A.O.

Baird Inlet-CS-FY'88-#1
Bethel-CS-FY'88-#1
✓ Goodnews Bay-CS-FY'88-#1
Kuskokwim Bay-CS-FY'88-#1
(961)

JAN 27 1988

Memorandum

To: ✓ F-14885 (75.4)

From: Natural Resource Specialist (961)

Subject: Interviews for Group Survey 171 (Quinhagak)

January 13, 1988

After a review of the appropriate USGS maps, aerial photographs, MTPs, and prior interview and navigability reports. I determined there to be two water bodies requiring further investigation into their navigability status--North Mouth and South Mouth Arolik River. It took several calls to finally locate Quinhagak resident Frank Matthew, who has a Native allotment along the Arolik River in Sec. 32, T. 6 S., R. 72 W., SM, but no telephone. (I reached him at the Frankford residence 556-8427.) A lifelong resident of the village, Matthew explained that he (and other Quinhagak residents like Moses Mark with Native allotments along the river) typically follows the river by dog sled or snowmobile in winter to reach squirrel-hunting grounds just east of his Native allotment. He hauls a boat up in winter for the trip downstream in late April or early May (when the snow gets soft), like his father did before him. Then, while the water is still high, he loads companions, gear, and his sled or snowmobile into a sixteen-foot Lund boat (a lightweight, aluminum, maneuverable boat with an eighteen-horsepower outboard motor), and either motors or rows downstream, taking the North Mouth as it is the only main channel. (At other times, Matthew heads up Warehouse Creek to go muskrat hunting in the many lakes.) The boat, which draws just two to three inches of water, has no trouble descending the river during high water. Matthew noted that the swift, rocky stream requires one to be a good navigator even then, when it is approximately two to three feet deep. He has attempted the river at other times of the year, but found it dammed up below the confluence of the North and South forks. He found the river extremely swift above his allotment.

When I asked if jet boats could use the river, Matt' was unsure as there are only a few such crafts in the village. While they are too expensive for most villagers to operate, many sportfishermen use jet boats, especially on the larger rivers like the Kanektok. According to Matthew, canoes are not used on the river because they cannot transport the gear required to set up and maintain a squirrel camp. Matthew believes big boulders and shallow water even limit the use of rafts during summer.

Matthew said the South Mouth Arolik River is really shallow--perhaps two to three inches in some places--all the way to the main stream. He considers it unsuitable even for Lund boats, except possibly during spring. Matthew considers the North Mouth Arolik River suitable for such crafts following heavy rains (which normally occur over a two-week period in August and September), when the river remains high for two to three days. According to Matthew it is shallow and overgrown in places below the confluence of Bessie Creek (where Sam Carter and Charlie Pleasant had camps) during summer.

January 14, 1988

Today I phoned the Quinhagak Native store (556-9620) hoping to reach Moses Mark, who has no phone. I left a message with "Pauline" to have Mark call collect should he come into the store soon. Next I phoned the ADF&G office in Bethel (543-2433). Biologist Mike Coffing answered and explained that although he had flown over the Arolik River several times in connection with his subsistence work, he had never been on the river in a boat. He felt a number of other people would be more qualified to provide information about the river--Frank Fox and Jesse Foster of Quinhagak, Keith Schultz of the ADF&G in Bethel, and "Mac" Minard of the ADF&G in Dillingham.

January 15, 1988

This morning I reached Minard at his office in Dillingham (842-5227). As area management biologist, Minard has spent a lot of time flying over the Arolik River but, too, had not been on it in a boat. Based upon his observations, he firmly believes that the lower eight or nine miles of the North Mouth Arolik River are navigable by standard nineteen-foot boats with jet units. Beyond that point, the river becomes extremely rocky, suitable for rafts and canoes only. He suggested I contact hunting guide Chris Goll (243-7894), who has rafted downriver with clients, at his office in Anchorage, and W.R. "Bill" Lyle (376-6414), who has the only sportfishing guide camp on the Arolik River, in Wasilla for more information.

January 19, 1988

This morning I spoke with Chris Goll of Rainbow River Lodge in Anchorage (243-7894). As a hunting guide on the Arolik since about 1980, Goll has been on the river more than a half-dozen times in floatplanes, rafts, and power boats, taking both the North and South mouths at times. He has landed a floatplane on the lower five miles or so of the North Mouth, and on Arolik Lake and then floated the river from the lake outlet to tidewater during late fall while guiding bear hunts. He said the river will generally float a raft

at that time of ye when it is at its lowest, though it usually requires walking along much of the headwater portion. He does not consider this a problem, however. Goll has also been well beyond the confluence of the North and South forks in a fifteen-foot boat with a jet unit while fishing during summer. He said the river is certainly navigable by, and even practical for, such boats, rafts, and canoes, during ordinary high water.

According to Goll, the river changes substantially from its upper to its lower reaches. In late fall, there are stretches where it is only inches deep, barely deep enough to float a raft. At other times of the year, it can be deep enough for fifteen-foot powerboats which can draw several feet of water. Goll stated that he has observed a number of villagers with similar boats on the river during moose hunting season. In fact he has seen as many as ten of these skiffs with outboard propeller motors on the lower fifteen miles of river at one time. Goll suggested I contact sportfishing guide, W.R. Lyle, who has a lease with the local Native corporation to use the Arolik River commercially. Goll has apparently subcontracted some of his clients to Lyle in past years.

I left a message on Bill Lyle's answering machine (376-6414) this afternoon for him to contact me regarding the Arolik River.

January 20, 1988

William Lyle returned my call this morning. His concern with the subject of navigability, especially the impact of the Gulkana decision, was apparent early on in the conversation. For the past five years, Lyle has operated a sport fishing camp on Native lands along the North Mouth Arolik River near the confluence of Bessie Creek. He takes no more than six people a week for a total of about fifty during his normal operating season--June 20 to mid August--through corporation lands (to the mountains at the eastern edge of T. 7 S., R. 72 W., SM.) in eighteen-foot, flat-bottomed, jet-equipped boats. According to Lyle, jet units are not necessary on this portion of the river. In fact, local residents typically use prop boats while fishing and hunting along the river all summer, and even into October. He said no one uses the South Mouth, or south fork as he calls it, because there is hardly any water in the slough-like water body. He said if one tried to run the South Mouth in a jet boat, they would likely walk three-quarters of the way. Since there are very few fish in this stretch of river, there is really no good reason for people to follow its course.

Lyle said the mainstream Arolik is basically two different types of river. The lower three to five miles (where Bessie Creek and the Arolik meet) is iron-colored and navigable for big prop boats. From Bessie Creek to the mountains, the Arolik is a clearwater river with a channel one to three feet deep. Fifteen- to twenty-foot holes mark the river in places. Besides running much of the river in powerboats, Lyle has also rafted the river from Arolik Lake to tidewater during summer. He said there are bigger rocks in the channel where it flows through the mountains, and shallow reaches where he has had to drag the raft. He said the Arolik is a beautiful, gentle river. There is no whitewater, and no real swift water, except where the river passes through a shallow canyon just below the lake. Lyle suspects that the river has been used commercially in the past in connection with gold mining activities just east of Native lands.

/s/ Susan DiPrete

961*SDiPrete*at*01-27-88*1325t

Appendix G

Native Village of Quinhagak v. U.S., 35 F.3d 388 (9th Cir. 1994)

Ninth circuit court of appeals reversed a district court decision regarding the prohibition of subsistence rainbow trout fishing on the Arolik River and two others.








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U.S. 9th Circuit Court of Appeals

NATIVE VILLAGE OF QUINHAGAK v. U.S., 35 F.3d 388 (9th Cir. 1994)

35 F.3d 388

NATIVE VILLAGE OF QUINHAGAK; NATIVE VILLAGE OF GOODNEWS BAY; THE ASSOCIATION OF VILLAGE COUNCIL PRESIDENTS; LOUIE SMITH; ANNIE CLEVELAND, PLAINTIFFS-APPELLANTS, v. UNITED STATES OF AMERICA; MANUEL LUJAN, JR., IN HIS OFFICIAL CAPACITY AS SECRETARY OF THE UNITED STATES DEPT. OF THE INTERIOR; STATE OF ALASKA; CARL ROSIER, IN HIS OFFICIAL CAPACITY AS THE COMMISSIONER OF THE ALASKA DEPT. OF FISH & GAME, DEFENDANTS-APPELLEES.

No. 93-35496.

**United States Court of Appeals, Ninth Circuit.
 Argued and Submitted August 4, 1994.
 Decided September 1, 1994.**

John Starkey (argued) Ass'n of Village Council Presidents, Bethel, AK; Joseph D. Johnson (on the briefs) Alaska Legal Services Corp., Anchorage, AK, for the plaintiffs-appellants.

Elizabeth Ann Peterson, U.S. Dept. of Justice, Washington, DC, for the federal defendants-appellees; Joanne M. Grace, Asst. Atty. Gen., Anchorage, AK, for the state defendants-appellees.

Appeal from the United States District Court for the District of Alaska.

Before: PREGERSON, CANBY, and BOOCHEVER, Circuit Judges.

PREGERSON, Circuit Judge:

The Native Villages of Quinhagak and Goodnews Bay and others appeal the district court's denial of their motion for a preliminary injunction in their action brought under Title VIII of the Alaska National Interest Lands Conservation Act, 16 U.S.C. 3117(a), challenging state regulations that prohibit subsistence rainbow trout fishing and federal regulations that exclude Alaska's navigable

waters from the regulation of "public lands." We have jurisdiction under 28 U.S.C. 1292(a)(1). We reverse.

BACKGROUND

Appellants Quinhagak Village, Goodnews Bay Village, the Association of Village Council Presidents, and certain village residents (collectively the "Villages") have lived for over 2,500 years within the boundaries of the Togiak National Wildlife Refuge in Alaska. The Villages are subsistence fishing villages - their residents are rural Alaskans who make subsistence use of rainbow trout and other fish harvested from the Kanektok, Arolik, and Goodnews Rivers. The Villages fish the entire rivers, but depend primarily upon the navigable portions to meet their subsistence needs. Rainbow trout, in particular, are an important food source, especially in the winter, because they retain their fat content and are easy to locate and catch unlike other less dependable food sources.

When Congress enacted the Alaska National Interest Lands Conservation Act ("ANILCA") in 1980, 16 U.S.C. 3111-3126 (Title VIII - Subsistence Management and Use), it declared a policy of protecting the opportunity for rural Alaskans to continue a subsistence way of life. "[Fifty] percent of the food for three-quarters of the Native families in Alaska's small and medium villages is acquired through subsistence uses, and 40 percent of such families spend an average of 6 to 7 months of the year in subsistence activities." H.R.Rep. No. 1045, 95th Cong., 2d Sess., at 181 (1978). Congress has recognized that "Alaska is unique in that, in most cases, no practical alternative means are available to replace the . . . fish and wildlife which supply rural residents dependent on subsistence uses[.]" 16 U.S.C. 3111(2). Nevertheless, as Congress also has recognized, the subsistence way of life is under increasing attack.

[C]ontinuation of the opportunity for subsistence uses of resources . . . in Alaska is threatened by the increasing population of Alaska, with resultant pressure on subsistence resources, by sudden decline in the populations of some wildlife species which are crucial subsistence resources, by increased accessibility of remote areas containing subsistence resources, and by taking of fish and wildlife in a manner inconsistent with recognized principles of fish and wildlife management[.]

Id. 3111(3). Therefore, through ANILCA, Congress provided that the taking of fish and wildlife on public lands for nonwasteful subsistence uses takes priority over the taking of fish and wildlife for other purposes. Id. 3114.1 See id. 3113 (subsistence uses means the customary and traditional uses by rural Alaskans); id. 3112(1) ("The utilization of the public lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources of such lands. . .") (Emphasis added.)

Until the Alaska Supreme Court's decision in *McDowell v. State*, 785 P.2d 1 (Alaska 1989), Alaska implemented the requirements of ANILCA with its state subsistence law, 1986 Alaska Sess. Laws 52. As required by ANILCA, the Alaska statute granted a preference to rural Alaska residents, such as the Villages, to take fish and game for nonwasteful subsistence purposes. See 16 U.S.C. 3115(d) (appropriate state laws supersede federal regulation). The *McDowell* court invalidated Alaska's statute. *McDowell*, 785 P.2d at 6 (holding that rural preference violates the equal access provisions of the Alaska Constitution: subsistence hunting and fishing must be made available to all Alaskans). The unenforceability of the state subsistence law caused Alaska to fall out of compliance with ANILCA's rural preference requirement.

Alaska's noncompliance with ANILCA made the federal government responsible, beginning in 1990, for implementing ANILCA as to "public lands." See 16 U.S.C. 3115(d). First by temporary regulations, 55 Fed.Reg. 27,114 (June 19, 1990) (effective July 1, 1990), and, then by permanent regulations, 57 Fed.Reg. 22,940 (May 29, 1992) (effective July 1, 1992) (codified at 50 C.F.R. 100.3(b)), the Secretary of the Interior (the "Secretary") has taken the position that navigable waters within the state of Alaska are not public lands for purposes of ANILCA, and that therefore the Federal Subsistence Board (the "Federal Board") lacks subsistence management jurisdiction over

Alaska's navigable waters.

Until 1993, the Villages were subject to an absolute ban on taking rainbow trout for subsistence uses. Alaska Admin.Code tit. 5, 01.010(1) (prohibiting the subsistence harvest of rainbow trout); 57 Fed.Reg. 43,097 (Sept. 17, 1992) (prohibiting the taking of rainbow and steelhead trout except as provided elsewhere); see 58 Fed.Reg. 31,175 (June 1, 1993) (noting that prior federal regulations prohibited the subsistence taking of rainbow trout). Under these regulations, residents of the Villages could be prosecuted for subsistence rainbow trout fishing in the navigable waters of the Kanektok, Arolik, and Goodnews Rivers. Sport rainbow trout fishers are allowed in these rivers and all Alaska waters.

On January 21, 1993, the Villages filed an action for declaratory and injunctive relief in federal district court under 16 U.S.C. 3117(a),² alleging in part that their residents are entitled to a preference for the taking of rainbow trout for nonwasteful subsistence uses in the navigable waters of the Kuskokwim Bay drainage (including the Kanektok, Arolik, and Goodnews Rivers), and that the state has no subsistence management jurisdiction over these waters. The Villages specifically challenge the federal regulations that define public lands to exclude navigable waters. They contend that the ANILCA preference granted to rural residents for nonwasteful subsistence hunting and fishing on public lands, 16 U.S.C. 3114, should apply to Alaska's navigable waters in addition to the state's non-navigable waters. By refusing to authorize subsistence fishing in navigable waters, the federal regulations restrict subsistence uses, allegedly in violation of Title VIII of ANILCA.

On February 19, 1993, the Villages filed a motion for a preliminary injunction to restrain the state, during the pendency of the litigation, from enforcing the prohibition against harvesting rainbow trout for subsistence uses in the Kanektok, Arolik, and Goodnews Rivers, and to require the United States to provide a preference for subsistence fishing in these waters.

After the Villages filed their motion, but before the district court's decision, the Alaska Board of Fisheries (the "Alaska Board"), in late February 1993, repealed the 20-year ban on subsistence rainbow trout fishing in the Kuskokwim Bay drainage. In its place, the Alaska Board adopted regulations, effective May 15, 1993, that allow "incidental takings" of rainbow trout for subsistence purposes but still prohibit directed rainbow trout fisheries for subsistence purposes. Alaska Admin.Code tit. 5, 01.005 (as amended) (rainbow trout may be taken for subsistence purposes only in the manner authorized by other regulations); Alaska Admin.Code tit. 5, 01.260(e) (as amended) ("[r]ainbow trout taken incidentally, in other subsistence finfish net fisheries, and through the ice, are lawfully taken and may be retained for subsistence purposes"); Alaska Admin.Code tit. 5, 1.275 (time period when specified portions of the Kanektok, Arolik, and Goodnews Rivers are closed to subsistence taking of fish by gill nets). Under the new regulations, the Villages may keep the rainbow trout that they catch while fishing for char, whitefish, or grayling, for example, but they may not fish to catch rainbow trout.

In April 1993, the Federal Board determined that rainbow trout are customarily and traditionally taken for subsistence uses in the waters surrounding the Villages. See 58 Fed.Reg. 31,254 (June 1, 1993). By new regulations, the Federal Board legalized subsistence rainbow trout fishing in remote, non-navigable headwaters of the Villages' river systems. 58 Fed.Reg. 31,292, ____ .26(d)(4)(v) (June 1, 1993) (codified at 50 C.F.R. 100.26(d)(4)(v)) (authorizing the Villages' subsistence fishing year-round for rainbow trout in the non-navigable waters that are located on public lands and drain into Kuskokwim Bay, including the non-navigable portions of the Kanektok, Arolik, and Goodnews Rivers); 58 Fed.Reg. 31,254 (June 1, 1993) (specifying that the Villages may use gill nets (except between March 15 and June 15), rod and reel, or fish by jigging through the ice); 58 Fed.Reg. 31,175 (June 1, 1993) (effective between April 5, 1993 and June 30, 1993) (same).

The Federal Board did not assert jurisdiction to allow subsistence rainbow trout fishing in the navigable portions of these rivers, despite its finding that the Villages customarily and traditionally use these waters for subsistence rainbow trout fishing. Navigable waters remain available only for

incidental subsistence fishing pursuant to state regulation.

The district court denied the Villages' motion for a preliminary injunction. The Villages appeal.

ANALYSIS

I. Denial Of The Villages' Motion For A Preliminary Injunction

There are essentially two factors for a district court to consider before ruling on a motion for a preliminary injunction: "The likelihood of the plaintiff's success on the merits; and, the relative balance of potential hardships to the plaintiff, defendant, and public." *State v. Native Village of Venetie*, 856 F.2d 1384, 1389 (9th Cir. 1988). Plaintiffs, such as the Villages, are entitled to a preliminary injunction if they show either: "(1) a likelihood of success on the merits and the possibility of irreparable injury; or (2) the existence of serious questions going to the merits and the balance of hardships tipping [sharply] in [their] favor." *MAI Sys. Corp. v. Peak Computers, Inc.*, 991 F.2d 511, 516 (9th Cir. 1993) (required degree of irreparable harm increases as the probability of success decreases), cert. dismissed, ___ U.S. ___, 114 S.Ct. 671 (1994); *Native Village of Venetie*, 856 F.2d at 1389.

When the district court denied the Villages' motion, it explained that the Villages' complaint raises a "serious question," although it was "not in a position to conclude" that the Villages were likely to prevail on the merits. In addition, the court stated that the Villages had not proved either that they would suffer irreparable harm in the absence of a preliminary injunction or that the balance of hardships "tip[ped] sharply" in their favor. We agree with the court that the Villages' claim raises a serious question. But, the court abused its discretion when it determined that the balance of hardships did not tip sharply in the Villages' favor.

A. Existence of Serious Questions

The district court's ruling that the case presents serious questions was undoubtedly correct. Indeed, none of the parties has argued that the questions are not serious.

The major question is whether, for purposes of ANILCA, public lands include navigable waters. More accurately stated, the question is whether the Secretary's regulation interpreting ANILCA to exclude navigable waters from the definition of public lands is unreasonable. See 57 Fed.Reg. 22,941-42 (May 29, 1992) (effective July 1, 1992); *Chugach Alaska Corp. v. Lujan*, 915 F.2d 454, 457 (9th Cir. 1990) (court must defer to a federal agency's reasonable interpretation of a statute).

The statute defines public lands as lands, waters and interests therein, situated in Alaska, the title to which is in the United States. See 16 U.S.C. 3102.3 The Villages present a serious question whether the United States retains reserved water rights for the Togiak National Wildlife Refuge that constitute the necessary federal "interest" in the waters in dispute. See Pub.L. No. 96-487, Title III, 303(6)(B)(iii)-(iv), 94 Stat. 2392 (purposes of Togiak National Wildlife Refuge); S.Rep. No. 96-413, 96th Cong. 2nd Sess. 195, 1980 U.S.C.C.A.N. 5070, 5139 (legislative history); *Cappaert v. United States*, 426 U.S. 128, 139, 96 S.Ct. 2062, 2069-70, 48 L.Ed.2d 523 (1976) (government withdrawal of land for federal purpose includes implied reservation of water needed to accomplish that purpose); *United States v. New Mexico*, 438 U.S. 696, 702, 98 S.Ct. 3012, 3015, 57 L.Ed.2d 1052 (1978) (water rights implied only "where water is necessary to fulfill the very purposes for which a federal reservation was created").

The Villages also present a serious question whether the navigational servitude held by the United States on navigable waters constitutes the necessary federal "interest" in the waters in question. See *Amoco Prod. Co. v. Village of Gambell*, 480 U.S. 531, 549 n. 15, 107 S.Ct. 1396, 1406 n. 15, 94 L.Ed.2d 542 (1987); *Boone v. United States*, 944 F.2d 1489, 1494-95 & n. 9 (9th Cir. 1991) (discussing unique nature of navigational servitude); 43 U.S.C. 1635(l)(1) (Alaska's lands are subject

to federal easements). But see *City of Angoon v. Hodel*, 803 F.2d 1016, 1027 n. 6 (9th Cir. 1986) (commenting that navigational servitude is not public land within meaning of ANILCA).

Although we affirm this finding of the district court on the record, two later developments illustrate the correctness of the ruling. In a case being jointly managed with this one, the district court entered a decision finding in favor of an Alaska Native asserting a claim similar to that of the Villages here; the decision relied on the navigational servitude of the United States. *Katie John v. United States*, No. CV-90-0484 consolidated with No. CV-92-0264, 1994 WL 487830 (D.Alaska Mar. 30, 1994). That decision has been appealed to this circuit. At oral argument in the present case, the United States advised us that it had changed its position in *Katie John* and on appeal was conceding that its reserved water rights sufficed as an "interest" in the waters for purposes of ANILCA.

We express no opinion on the merits of either theory advanced by the Villages in this case, or on the merits of the *Katie John* decision or the government's position on appeal of that decision. It is clear, however, that the issues presented are serious questions, and we need say no more.

B. The Balance of Hardships

Because serious questions are presented, the Villages are entitled to a preliminary injunction if the balance of hardships tips sharply in their favor. *MAI Sys. Corp.*, 991 F.2d at 516. We conclude that they do.

The district court recognized that subsistence fishing is an important part of rural lifestyles and that the Villages' situation epitomizes the tragic collision of Native American and modern cultures in Alaska. Nonetheless, the court decided that the hardships attendant to the dispute do not tip in favor of the Villages because the actual harm involved is the collision of cultures, not the Villages' lack of access to a traditional food source. We disagree.

The United States and Alaska presented no evidence that the issuance of a preliminary injunction will injure them during the pendency of this litigation. Counsel for Alaska conceded at oral argument that directed rainbow trout fishing would have no immediate adverse effect on the fish population. And, counsel for the United States complained only of a regulatory burden from the expansion of federal ANILCA jurisdiction, even though a preliminary injunction might require only minor regulatory changes, if any.

Against the governments' failure of proof, the Villages presented strong evidence that injury is likely. Their evidence showed that navigable waters are critical for subsistence rainbow trout fishing. Most subsistence fishing (and most of the best fishing) is in the large navigable waterways rather than in the smaller non-navigable tributaries upstream and lakes where fisherman have access to less fish.⁴ And, rainbow trout is a critical source of fresh fat and protein, especially during the winter when equivalent substitute food sources are not available. The Villages' evidence showed that 95% of Quinhagak residents, for example, rely heavily on fish for survival, and that rainbow trout and char are the only fish which can be caught to provide fresh food when salmon are not available. (8/28/92 Subsistence Rainbow Trout Field Work Meeting). Moose and caribou are not available substitutes: moose hunting is closed in most of the Villages' customary hunting grounds, and each of the Villages is entitled to take only a limited number of caribou each year. 57 Fed.Reg. 43,088 (Sept. 17, 1992). See 16 U.S.C. 3111(2) ("Alaska is unique in that, in most cases, no practical alternative means are available to replace the . . . fish and wildlife which supply rural residents dependent on subsistence uses[.]").

The Villages also presented evidence that the federal and state regulations interfere with their way of life and cultural identity. They presented, for example, the affidavit of a Quinhagak resident, which included the following:

It may be hard for people who do not live our way to understand, but regulations like this one for rainbow trout attack the way we put food in our families' stomachs, and they also hurt our minds and

our spirits. Maybe it is like if I tell another person that it is now illegal for them to eat chicken or to earn a living, especially if it is a job they really enjoy. Quinhagak people are just like other people. They want to obey the law and feel good about doing those things which are important to their way of life. They also must feed their families and live within their culture and traditions.

(Affidavit of Frank Fox). They needed to prove nothing more in light of the clear congressional directive to protect the cultural aspects of subsistence living. 16 U.S.C. 3111(1) ("[T]he continuation of the opportunity for subsistence uses by rural residents of Alaska . . . is essential to Native physical, economic, traditional, and cultural existence. . . ."). See *United States v. Alexander*, 938 F.2d 942, 945 (9th Cir. 1991) ("Many Alaska natives who are not fully part of the modern economy rely on fishing for subsistence. If their right to fish is destroyed, so too is their traditional way of life.").⁵

Furthermore, we agree with the Villages that the 1993 regulatory changes did not eliminate, or even mitigate, the demonstrated harm to them from the repealed federal and state bans on subsistence rainbow trout fishing. Alaska allows only incidental takings by subsistence users.⁶ As pointed out by the Villages, the "incidental taking" limitation effectively amounts to a ban on subsistence rainbow trout fishing. Even though the Villages' access to rainbow trout is nominally greater than it has been, the actual situation is identical because the most effective way for the Villages to catch rainbow trout is by targeting them directly, rather than by taking the incidental catch from other fishing. See Affidavit of Jessie Foster (rainbow trout is a directed fishery; residents rarely catch rainbow trout during salmon fishing, i.e., by "incidental takings," because salmon fishing requires different gear).

If the Villages' interpretation of ANILCA is correct, the new state regulations reinforce the state of Alaska's denigration of the importance of subsistence fisheries. See *Kenaitze Indian Tribe v. Alaska*, 860 F.2d 312, 318 (9th Cir. 1988) (criticizing the state for "tak[ing] away what Congress has given" to rural Alaskans by interpreting ANILCA to "protect commercial and sport fishing interests"), cert. denied, 491 U.S. 905, 109 S.Ct. 3187, 105 L.Ed.2d 695 (1989). Arguably, by its narrow interpretation of public lands, the United States has allowed Alaska to continue a policy of promoting sport and commercial fishing at the expense of subsistence users, such as the Villages.

Based on this discussion, we disagree with the district court that the Villages failed to develop "any particularly strong public interest argument." All of the equities support the Villages' position. Congress repeatedly and explicitly expressed its interest in protecting all subsistence uses against unnecessary regulatory interference. No policy reasons support allowing the United States and Alaska to continue their potentially unlawful regulatory programs until trial.

We conclude, therefore, that the district court erred in determining that the Villages had not shown that the balance of hardships tip sharply in their favor. It was consequently an abuse of discretion for the district court to deny the preliminary injunction, and we reverse its decision.

II. Attorney's Fees

The Villages are entitled to recover all of their attorney's fees (including fees related to their request for a preliminary injunction) based on 16 U.S.C. 3117(a) ("[P]ersons . . . who are prevailing parties in an action filed pursuant to [3117(a)] shall be awarded their costs and attorney's fees.").

Because of the strong public interest in the effective implementation of the subsistence priority by both the State and the Federal government, local residents and other aggrieved persons and organizations who are prevailing parties in an action filed pursuant to section 807 [16 U.S.C. 3117] shall be awarded their full costs and reasonable attorney's fees. This provision is important to ensure that the residents of Native villages, many of which are among the poorest communities in the Nation, will be able to secure adequate representation.

126 Cong.Rec. S31109 (daily ed. Dec. 1, 1980).

REVERSED.**Footnotes**

[Footnote 1] The ANILCA priority attaches to nonwasteful subsistence uses, meaning that subsistence uses can be restricted in some circumstances:

Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:

- (1) customary and direct dependence upon the population as the mainstay of livelihood;
- (2) local residency; and
- (3) the availability of alternative resources.

16 U.S.C. 3114.

[Footnote 2] Persons "aggrieved by a failure of the State or the Federal Government to provide for the [3114] priority of subsistence uses . . . [may file an action in district court] to require such actions be taken as are necessary to provide for the priority. . . . The court may grant preliminary injunctive relief in any civil action if the granting of such relief is appropriate under the facts upon which the action is based." 16 U.S.C. 3117(a).

[Footnote 3] As used in ANILCA,

- (1) The term "land" means lands, waters, and interests therein.
- (2) The term "Federal land" means lands the title to which is in the United States after December 2, 1980.
- (3) The term "public lands" means land situated in Alaska which . . . are Federal lands. . . .

16 U.S.C. 3102(1)-(3).

[Footnote 4] Although navigability determinations have not yet been made on most of Alaska's waterways, it is likely that few waterways of significance to fisheries will be classified as non-navigable due to the expansive definition of navigable. See, e.g., *Alaska v. Ahtna, Inc.*, 891 F.2d 1401, 1402-05 (9th Cir. 1989) (holding that river with depths of 1 to 3 feet and usable by inflatable rafts and small motorboats was navigable), cert. denied, 495 U.S. 919, 110 S.Ct. 1949, 109 L.Ed.2d 312 (1990). See Appellants' ER 119 (Federal Board 12/18/91 meeting) (Though little is known about the navigability of waters, "[i]t is most likely that a substantial portion of the present use does occur in navigable waters which are under State jurisdiction."). As argued by the Villages, the non-navigable waters, being inaccessible by boat and located far from any of the Villages, cannot alone satisfy subsistence fishing needs.

[Footnote 5] The court focused on the absence of a showing by the Villages that people are going hungry, and by doing so, accorded insufficient weight to the Villages' evidence of harm to their culture and way of life. We agree with the Villages that, rather than focusing on whether anybody currently is starving, the court should have focused on the evidence of the threatened loss of an important subsistence food source and destruction of their culture and way of life.

[Footnote 6] The district court was influenced, in large part, by the recent regulatory changes. However, the court overstated the effect of the regulatory changes when it described them as allowing subsistence fisheries in both the non-navigable and navigable portions of the Kanektok,

Arolik, and Goodnews Rivers. In fact, the regulatory changes, while allowing subsistence rainbow trout fishing in non-navigable waters, allow only incidental takings of rainbow trout in navigable waters.

Nowhere does the statute authorize directed rainbow trout fisheries for subsistence purposes. See Appellants' ER 140 (The incidental taking provision "is in no way indicative of the board sanctioning a directed rainbow trout fishery for subsistence. And we realize that the populations there are stable, but yet they are not sufficient to warrant a directed subsistence fishery."). The Alaska Board does not have the information to do a customary and traditional use finding for rainbow trout, but is leaving open the possibility of future regulatory changes. *Id.*

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Appendix H

Newspaper articles

Two *Anchorage Daily News* articles regard a 9th circuit court decision concerning subsistence rainbow trout fishing on the Arolik River and two others.

“Kusko villages win injunction to catch trout” (Egelko 1994)

“Villagers get rights to subsistence trout” (Hulen 1995)

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Friday, September 02, 1994

Page: E3

Section: Metro

Edition: Final

KUSKO VILLAGES WIN INJUNCTION TO CATCH TROUT STATE'S RAINBOW BAN HURTS SUBSISTENCE, COURT DECIDES

By BOB EGELKO, The Associated Press
PHOTO BY HALL ANDERSON ASSOCIATED PRESS PHOTOS

SAN FRANCISCO-Natives of two remote Alaska villages can fish for rainbow trout to meet subsistence needs despite the state's objections, a federal appeals court ruled Thursday. The state's ban on subsistence fishing for rainbow trout in rivers that are part of the Kuskokwim Bay drainage interferes with the villagers' food supply and with their "way of life and cultural identity," the 9th U.S. Circuit Court of Appeals said.

The court said residents of Quinhagak and Goodnews Bay villages in southwest Alaska were entitled to an injunction allowing them to fish for trout while their suit was pending. The villages have existed for more than 2,500 years, living primarily from fish in the Kanektok, Arolik and Goodnews rivers.

Alaska law banned subsistence fishing for rainbow trout in the rivers until May 1993, when it was modified to let the villagers keep trout that they caught while fishing for other species. The law places no such restrictions on sport fishing.

Federal law gives Alaska natives a priority over others for subsistence hunting and fishing on public lands in the state. But federal regulations exclude navigable waterways from the definition of public lands. Most of the rainbow trout are found on navigable portions of the rivers, the court said.

"Arguably, by its narrow interpretation of public lands, the United States has allowed Alaska to continue a policy of promoting sport and commercial fishing at the expense of subsistence users," said Judge Harry Pregerson in the 3-0 ruling.

U.S. District Judge Russel Holland rejected the villagers' request for an injunction last year. He said they had failed to demonstrate that the denial of subsistence fishing caused serious hardships. The appeals court disagreed.

Rainbow trout is a "critical source of fresh fat and protein, especially during the winter," Pregerson said. He said the denial of subsistence fishing threatened the villagers' culture and traditional way of life, which federal law was designed to protect.

On the legal issue in the case, Pregerson said the villages had raised at least a serious question as to whether navigable waterways should be considered public lands. He also said the

state had conceded that subsistence fishing wouldn't deplete the stock of rainbow trout.

The ruling shows that federal law "covers cultural aspects of subsistence as well as the mere nutritional aspects," said John Sky Starkey, lawyer for the Association of Village Council Presidents.

"Life in the villages is built around hunting and fishing," said Joseph Johnson of Alaska Legal Services Corp. "It's important as a source of food but it's more than that. It's a way of living."

Assistant Attorney General Joanne Grace said the state believed its law was not causing hardship to the villagers. "Rainbow trout is a relatively minor part of the subsistence catch there," she said.
: Byron Skinna, back to camera, welcomes the Kuye'di Kuiu Kwaan Tribal Court judges to Thursday's hearing. Robbery victim Tim Whittlesey of Everett, Wash., in Klawock

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Thursday, March 23, 1995

Page: A1

Section: Nation

Edition: Final

VILLAGERS GET RIGHTS TO SUBSISTENCE TROUT LONG-FOUGHT RULING OPENS THREE RIVERS

By DAVID HULEN, Daily News reporter
ILLUSTRATED BY RON ENGSTROM

After years of friction between Yup'ik villagers and sport fishermen, a federal judge has cleared the way for local residents to net and hook an unlimited number of rainbow trout alongside fly fishermen on three remote rivers in southwest Alaska.

The order, by U.S. District Judge Russel Holland, opens the Kanektok, Goodnews and Arolik rivers to subsistence fishing to villagers from Quinhagak and Goodnews Bay for the first time since the 1970s.

Holland's order was a setback for the state and federal governments, which spent the past two years fighting the villages in court, and it angers at least some sportfishing advocates, who wince at the thought of villagers catching large numbers of the area's trophy rainbows, which attract anglers from around the world. The villagers have argued for years that state and federal wildlife-protection agencies unfairly denied them subsistence fishing and skewed management of the streams in favor of the region's growing sportfish industry. The Kanektok and Goodnews rivers have been used by thousands of guided fly-fishermen over the past decade, while subsistence fishing by villagers was banned.

State biologists said they don't expect the ruling to hurt fish stocks. While subsistence fishing for rainbows had been outlawed across Alaska since the 1970s, officials have turned a blind eye to subsistence-fishing by people in the villages. Biologists don't expect a big increase in the number of fish taken.

"These people have participated in this fishery for years and years and the mortality on these stocks . . . I'd call it background noise," said Mac Minard, a state biologist from Dillingham. "The stock has been healthy for a long time, it's sustained a healthy sport and subsistence harvest, and there's no reason to think that just because the judge dropped a gavel that it's going to change."

Rainbow trout were historically an important food source for people in the area, especially in the winter when other food was scarce, according to federal and state studies. Villagers jigged for them through holes in the ice and netted them in the rest of the year -- sometimes while catching salmon, sometimes targeting rainbows alone -- and also used rods and reels.

By the early 1980s, sportfishing guides discovered the Goodnews,

Kanektok and other far-flung streams.

As the number of anglers using the Kanektok grew through the 1980s, so did conflicts with Quinhagak residents. The anglers argued the rivers were public; the villagers saw them as intruders.

"To the guy stepping off the plane with a rod and reel, the best thing he can do is fight that fish and then bring it in and hold it in calm water and gently release it so it can fight again another day," said Minard, the biologist. "For the villagers, that's the ultimate disgrace and disrespect. It strikes right to the heart of peoples' values, and that conflict is still very much alive."

Elders from the villages described their disdain for catch-and-release fishing to state and federal researchers; one Fish and Game report on the subject, quoting a resident, is titled: "The Fish Are Not to be Played With."

Eventually, the villagers sued.

When he first heard the case last year, Judge Holland refused to open the subsistence fishery. While the ban could ultimately harm village culture, he wrote, no one was likely to go hungry.

But in September, a three-judge panel of the 9th U.S. Circuit Court of Appeals reversed Holland, saying the federal government had arguably "allowed Alaska to continue a policy of promoting sport and commercial fisheries at the expense of subsistence users."

The appeals court said the villagers' situation "epitomizes the tragic collision of Native American and modern cultures in Alaska .

"We agree with the villages that, rather than focusing on whether anybody currently is starving, the court should have focused on the evidence of the threatened loss of an important food source and destruction of their culture and way of life."

With the case back in Holland's court, the chief federal judge for Alaska issued a preliminary injunction last month allowing legal subsistence fishing by the two villages until the case is decided at trial. In the meantime, there are no limits on how many fish villagers may catch.

Sportfishing advocates expected the ruling, but didn't like it.

"The idea of gillnetting rainbow trout is ridiculous," said Russ Reddick, a former state biologist and sportfishing advocate. "The populations grow very slowly. We have lodges that get \$4,000 a week from people who want to chance to fish for them, to catch and release them. This (view) isn't anti-subsistence, but when there's a significant harvest of rainbows, the stocks go downhill."

In the villages, people have been catching rainbows through the ice most of the winter -- just as they've done for years.

"I did it a couple times this year," said Ham Cleveland Sr., a 61-year-old resident of Quinhagak. "Most people around here just eat fish and meat, you know, and when we get tired of eating meat and don't have any fish left from summer, we have to try to catch some fresh fish. These trouts, that's our year-round fish."

After peaking in the late 1980s, the number of sportfishermen using

the Kanektok has declined because of conflicts with locals and because lodges in the area prefer other streams, Minard said. Goodnews River use has increased steadily, while the Arolik hasn't seen much sport activity, mostly because of access problems.

The appeals court ruling could eventually make it easier for other rural residents to get subsistence rights to rainbow trout, and could also increase the legal importance of culture in subsistence cases.

"The big injustice that the appeals court saw is that we as a state were endorsing a catch-and-release sport fishery while basically making these (villagers') lifestyles illegal," said John Starkey, the Bethel-based lawyer who represented the villages. "It does something to someone's self-esteem and everything else when they're told their way of life is illegal."

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Appendix I

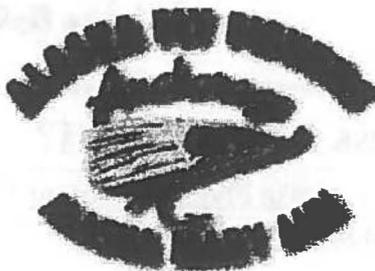
Arolik River - miscellaneous Internet information

Excerpts from three Internet web sites regard the Arolik River. The first excerpt comes from an Alaska sport fishing organization (Alaska Flyfishers), the second from a Dillingham air charter operator (Freshwater Adventures, Inc.), and the third from a guided sport fishing business. Their web addresses are:

<http://www.akflyfishers.org/>

http://www.fresh-h2o.com/home_page_only_index.html

<http://www.successmarketplace.com/shops/wildernessaccess/index.html>



- ▶ **About Alaska Flyfishers**
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Send comments or questions to webmaster@akflyfishers.org
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Re: Native Corp. Access Fees - Ripoff?

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Posted by Tom C. on January 07, 1998 at 15:43:20:

In Reply to: [Native Corp. Access Fees - Ripoff?](#) posted by David Thompson on January 07, 1998 at 12:54:39:

> Someone might be able to give you a more complete answer, but here's a short stab at it:
"The Alaska State Constitution provides for free access and common use of public and navigable waters by any citizen of the United States or resident of the State of Alaska. State ownership of the beds of navigable waters is an inherent attribute of state sovereignty protected by the United States Constitution."

The Key here is Navigability. To further your education on Navigability go to:

<http://www.dnr.state.ak.us/land/nav.htm>

This is one of the main problems with the Arolik, although by the State's definition you would think the Arolik is obviously navigable. But it is a relatively small stream. Another problem with access to the Arolik is that the Native coporation owns so much of the uplands. You can get in to the River on Public land but its hard to get out. I can't adequately inform you on what the repercussions are, the Tribal Rangers will probably write you a ticket, I doubt you'll get incarcerated or cut in strips and dried. I don't believe the Native Corp. can legally charge you to float the Arolik, it would be an interesting day in court, but how are you going to get off the river? You will have to pay someone to come pick you up in a boat because there's no plane access to the lower river. And assuming Navigability applies to the Arolik, you are limited to camping on the dry ground up to the high water mark, which there isn't very much of on the Arolik. So maybe its just as well to pay the fee and not worry about the repercussions if you don't. Wait a few years and there will be road from Quinhagak to the Arolik, but it will be owned and access controlled by the Native Corp. Wait a few more years and maybe sportfishing will be prohibited anywhere subsistence fishing takes place. In other words, if you have the time and money to do the Arolik, do it now.

Follow Ups:

- [Re: Native Corp. Access Fees - Ripoff?](#) **rob bancroft** 21:01:11 3/01/98 (0)

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Comments:	<input type="text"/>	

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Estimated Costs

Fresh Water Adventures is a on demand charter business. Our two types of Grumman aircraft have two different weight restrictions. Our Grumman Widgeon has a maximum pay load of 1,100 pounds and our Grumman Goose has a maximum pay load of 1,800 pounds. (Payload means the total weight your party, personal gear and camping supplies allowed in the aircraft.)

To help you better estimate your cost, we guarantee that once we have established the prices for the upcoming season, they will not change until the last flight of that season is completed. All posted prices to specified locations are also guaranteed. If we leave Dillingham with your party loaded and must turn around for any reason, the trip is not completed; therefore, we will continue our efforts to get you to your destination at no further cost to you.

What Fresh Water Adventures *cannot* guarantee is the weight your party will weigh, so we can only make an educated guess as to what aircraft or combination of aircraft your party will require.

Groups with their own personal rafts and camping gear normally weigh less than parties with rental equipment. The average per person weight (weighed as group) is 200 pounds per person.

If you choose to rent equipment, the rental office should be able to supply you with the accurate weight of the rafts and individual pieces of equipment rented.

It is best to overestimate your weight when estimating your costs so you will cover any unforeseen weights such as food and beverages. These can be very difficult to estimate unless you are eating and drinking only dry food products.

By estimating your total weight realistically, you may be pleasantly surprised when your group is weighed in Dillingham.

To help make the choice of river you choose, a choice that is based on which river suits you rather than which river is less expensive, we have priced these four most popular rivers the same.

- Kagati Lake (Kanektok River)
- Goodnews Lake (Goodnews River)
- Kukaktlim Lake (Kukaktlik/Middle Fork River)
- Arolik Lake (Arolik River)

The following is a rule of thumb that should give you a good idea what aircraft or combination of aircraft will be needed.

These prices are 1999 round trip (to Lake - out of village)

Plane	Cost	Cargo
One Widgeon #1100 max.	\$1350.00	Two, possibly three passengers and one raft
One Goose #1800 max.	\$1980.00	Four, possibly five passengers and two rafts

Two Widgeons #2200 max.	\$2700.00	Five, possibly six passengers and two rafts
One Widgeon and One Goose #2900 max.	\$3330.00	Six, possibly seven passengers and three rafts
Two Goose #3600 max.	\$3660.00	Seven, possibly eight passengers and three rafts
Two Widgeon and One Goose #4000 max.	\$4680.00	Eight, possibly nine passengers and three rafts
Two Goose and One Widgeon #4700 max.	\$5010.00	Nine, possibly ten passengers and four rafts.
Three Goose #5400 max.	\$5940.00	Ten, possibly eleven passengers and four rafts



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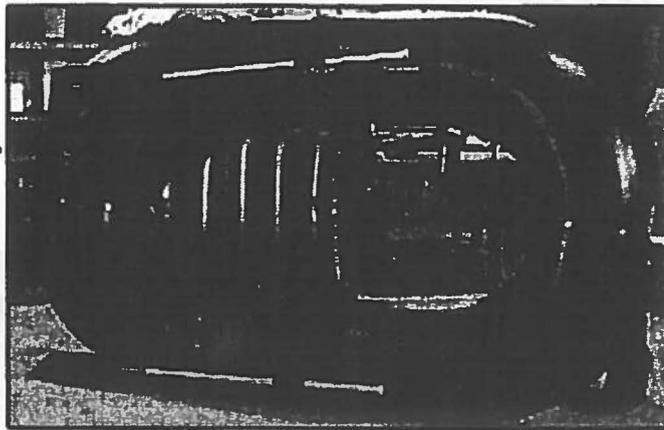
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DEPARTURES; JULY, AUGUST and SEPTEMBER.
FISHING; SUMMER STEELHEAD.
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"ALASKA DREAMS"

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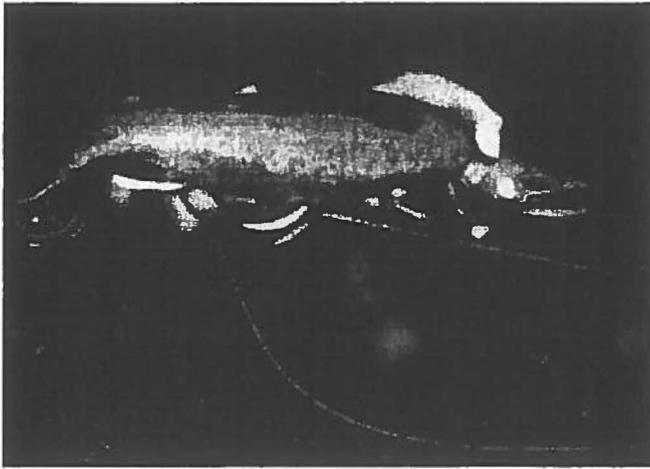
easily into the clear morning Seattle air. Three hours later we were in Anchorage AK. By 7:30 PM we were in Dillingham at a bed and breakfast for the night, The next morning we have a 2 hour FOG delay. The twin engine Grummond Widegon reached liftoff speed and within minutes the signs of civilization were disappearing. The mountains, rivers, lakes, and that wild feeling were once again where they belong, in the wilderness. There's the lake! Comes over the headphones as we turn 180 degrees and settled down on the water. With all our gear unloaded we watch what to me is one of life's most wonderful sight's and sounds watching as the plane takes off with the sound of those engine's rattling off the close in hills that make it sound like tremendous thunder, the trail of water flowing from the hull of the plane turns into a fog like trail of vapor, then it's gone! The plane and the sound. You get that feeling, the one that tells you "this is real" it is, 65 miles to the nearest village, and you look down the valley, it is small here but it opens up and the tundra rolls away through the hills and way out there the gray rain filled clouds meet the Bering Sea.

We set up our "mini rafts" and begin the 8 mile walk down river to the confluence with the south fork. The river threads it's way through the high grass banks, it is quite small here maybe twenty feet wide and very shallow just a few inches deep and in some spots we have to drag our boats over the rocks in one inch deep water. All in all, with the mini raft on a six foot leash it worked out very well indeed. We did stop at some of the bigger holes and catch some 18" to 20" Rainbows. The tail end of the Sockeye Salmon run was still on so we had the pleasure of watching these brilliant red fish. There is abundant fresh Bear sign everywhere. As we continue down this small stream with it's double back turns and high grass banks, you quickly become aware of the potential for trouble.

However we were well prepared. Believe it or not, we carry dog training police type whistles around our necks and every time you catch a fish you blow the whistle, or if you are not fishing blow it every fifteen minutes or so. Laugh if you will, we sure have not had any Bear trouble "YET" On this trip, we saw one Bear and he was leaving the Country.

We arrived at the confluence with the south fork about 7 P.M. With four hours of daylight still ahead, we setup camp, prepared and ate dinner. On these small river trips, we always take Meals ready to eat (MRE's). These freeze dried meals work very well, just add boiling water to the bag and wait 5 to 10 minutes and you have a gourmet meal right there in the wilderness. On our equipment list we recommend you bring two 5Wt travel rods and two 8Wt travel rods. Bring floating and 20' sink tip lines as we use a lot of streamers and other heavy files. We returned to our fishing for an hour or so, and in that time we hooked and





released four Silvers, three Arctic Char, 2 Dollies and four 20" to 22" Rainbow and all on 5Wt Rods. This was just a taste of what was to come. The next 8 days melted away in the constant double hookups and the sheer beauty of these magnificent fish and the surrounding wilderness. The small side creeks held tons of excitement and truck loads of fulfillment for all the fishing dreams we ever had. You know the one about a big fish on every cast? Well almost. We used several different types of flies on this trip including a mouse pattern,

that's the one that caught my first ever 3lb grayling, that's a memory I will not soon forget.

We also used a thing called a Pink Polliwog, subsurface or on top it just drives those Silvers crazy! Well it is after the trip now and I have all these withdrawals so I am planning the next "WALK ON THE WILD SIDE" Come join us in Alaska. Dale

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Wilderness Access was Founded By Dale Coryell in early 1990. Dale has fly fished since his teen age years and had found it to be a very rewarding outdoor activity. When the never ending request, "Hey Dale will you take me fishin" spawned the idea !! why not become a guide? And so, the business began. Soon they had drift boats and lots of float tubes, even a canoe. Then about two years later Dale was introduced to the "FISH-N-FLOAT" concept of wilderness river travel, via a small raft. He got involved and through a process of time and unforeseen circumstance, today, is manufacturing his own "mini raft" and other products. If for any reason you would like to talk to Dale please Email him at wildaccess@aol.com Or call 1-800-321-1129

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