Kanektok River System

Final
INTERIM SUMMARY REPORT

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PREFACE

The research and writing of this study is funded by the U.S. Department of the Interior, Bureau of Land Management (BLM) through the Navigability Assistance Agreement (Cooperative Agreement # LO9AC15466). The State of Alaska (State) and the BLM established an assistance agreement in 2004 to facilitate the preparation of navigability reports that could be used for a variety of purposes, including the process for determining who owns title to the land under inland water bodies. Under the Statehood Compact, land under navigable waterways is reserved to the State. Navigability is based on historic use of water bodies for travel, trade and commerce up to the time of Statehood (1959), or recent use of the water bodies that demonstrates susceptibility to travel, trade and commerce in 1959.

The Navigability Assistance Agreement began as a pilot project focused on researching the history of use of water bodies in the Kuskokwim River region. The scope of work for the Assistance Agreement calls for identifying potentially navigable water bodies where the United States is an upland landowner or may otherwise have a potential interest in the submerged lands; gathering information from BLM records and a 1985 regional history of the Kuskokwim River region; writing narrative histories of each water body summarizing land status, land conveyance decisions, past navigability determinations, physical character of the water body, and a history of use on the water body. These reports are prepared in stages. The first stage (Phase I-A) consists of land status. An interim summary report (Phase II-B) is generally limited to information in the files of the U.S. Department of Interior and a regional history of the Kuskokwim River region written by C. Michael Brown in 1985. A final summary report (Phase IV) incorporates expanded research in the files of other state and federal agency files, the holdings of various libraries and archives in Alaska, and interviews with people who have knowledge of use of the water body.

The present report represents work at the Phase II-B level. The research and writing of this report was conducted by State employees working under the guidance of an Assistance Agreement Management Team composed of representatives of BLM and the State. The management team sets priorities, reviews the reports on water bodies at various stages, and decides at what point enough research, analyses and writing has been completed on each specific water body. The management team directed the authors of these reports to refrain from drawing conclusions about the water body's navigability or susceptibility to navigability. Rather, the management team directed the authors to provide an overview at the end of the report summarizing the types of evidence of historic and contemporary use and highlighting those areas (such as portions of the water body) where gaps in knowledge remain and additional research might be warranted.

Documents that are key to understanding agency decision making or the point of view of an interested party are indicated as Attachment 1, Attachment 2, etc., which appear after the corresponding endnotes. These documents are listed in the Table of Attachments and can be viewed in their entirety in a separate PDF file that supplements this report.

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Attachments (in PDF format)

Attachment 1. Cliff Ells, BLM Realty Specialist, Memorandum on Summary of Quinhagak Village Easement Proposals Meeting on September 12, 1975, November 15, 1976, BLM files, F-14885-EE.

Attachment 2. Stanley H. Bronczyk, BLM Realty Specialist, Memorandum on Easement Task Force Meeting on Quinhagak, February 1, 1977, BLM files, F-14885-EE

Attachment 3. Letter from Peter Williams of Qanirtuuq, Inc., to Jan R. Miller, BLM Project Leader, May 27, 1975, F-14885-A.

Attachment 4. Curtis V. McVee, BLM State Director, Notice of Proposed Easement Recommendations for the Village of Quinhagak, March 24, 1977, FF-14885-EE.

Attachment 5. Curtis V. McVee, BLM State Director, Memorandum on Final Easements for the Village of Quinhagak, March 24, 1978, BLM files, F-14885-EE.

Attachment 6. Letter from the Board of Directors of Qanirtuuq, Inc. to Curtis V. McVee, BLM State Director, November 7, 1975, BLM files, F-14885-EE.

Attachment 7. Letter from Russell J. Gallagher of Gallagher, Cranston and Snow to the Joint Federal State Land Use Planning Commission, May 16, 1977, BLM files, F-14885-EE.

Attachment 8. Robert Hiller, Jr., BLM Branch of Adjudication, Memorandum of Trip Report of River Usage and Easement Inspections of River of the Kuskokwim Bay Area, July 25, 1978, BLM files, F-14885-EE.

Attachment 9. Curtis V. McVee, BLM State Director, Memorandum on Final Easements for the Village of Quinhagak, October 25, 1979, BLM files, F-14885-EE.

Attachment 10. Sue A. Wolf, BLM Chief of Branch of Adjudication, Decision to Interim Convey land to the Village of Quinhagak, November 26, 1979, BLM files, F-14885-EE.

Attachment 11. Robert D. Arnold, Interim Conveyances No. 342 and No. 343, June 25, 1980, BLM files, F-14885-A.

Attachment 12. Ann Johnson, BLM Chief of Branch of Adjudication, Interim Conveyance No. 978 and No. 979, December 18, 1984, BLM files, F-14885-A.

Attachment 13. Robert W. Arndorfer, BLM Deputy Director for Conveyance Management, memorandum on Navigable Waters in Group Survey 171 (Window 1562), March 29, 1988, BLM files, F-14885 (75.4).

Attachment 14. Wayne A. Boden, BLM Deputy State Director for Conveyance Management, memorandum on Navigable Waters on or along Small Tracts in Quinhagak (Window 1562), February 21, 1989, BLM files, F-14885-EE.

Attachment 15. Robert Lloyd, BLM Assistant District Manager, Lands Division, Memorandum on Final Easement Review and Patent Easement Memorandum for Selected Lands and Lands Conveyed by Interim Conveyance Nos. 342 and 978, to Qanirtuuq Incorporated, July 7, 1994, BLM files, F-14855-EE.

Attachment 16. Heather Coats, BLM Land Law Examiner, Notice of Intent to Issue Patent, April 6, 1995, BLM files, F-14885-EE.

Attachment 17. Master Title Plats and U.S. Rectangular Surveys.

Attachment 18. U.S. Surveys.

Attachment 19. Katherine Flippen, BLM Acting Chief, Branch of Southwest Adjudication, Patent No. 50-95-284 and No. 50-95-285, June 20, 1995, and Corrected Patent No. 50-2006-0296, June 16, 2006, BLM files, F-14885-A.

Attachment 20. K.J. Mushovic, BLM Easements Coordinator, Final Easement Review and Patent Easement Memorandum for Lands to be Patented to Qanirtuuq, Inc. on behalf of the Village of Quinhagak and to the Calista Corporation, March 30, 2006, p. 6, BLM files, F-14885-EE.

Attachment 21. Ramona Chinn, BLM Acting State Director, Corrected Patent issued to Qanirtuuq, Inc., Patent No. 50-2006-0296, June 16, 2006, and Corrected Patent issued to Calista Corporation, Patent No. 50-2006-0297, June 16, 2009.

Attachment 22. Dominica VanKoten, BLM Chief, Navigability Section, Memorandum on Navigable Waters within ANCSA Selected and Interim Conveyed Lands in the Quinhagak Village Project Area, May 18, 2006, BLM files, F-14885-EE.

Attachment 23. Laura J. Lagstrom, BLM Navigable Waters Specialist, Navigability Report: Kwethluk River in T. 1 N., Rs. 62 & 63 W., SM and T. 1 S., Rs. 62 & 63 W., SM., June 17, 1998, p. 3, attached to William C. Johnston, Memorandum on 19 Additional Native Allotments in Survey Window 2700, June 17, 1998, BLM files, Bethel-NA-FY'98 and 9600 (924).

Attachment 24. J.C. Roehm, *Preliminary report of Winchester group of claims, Good-news Bay district, Lower Kuskokwim, Alaska,* PE-101-01, Alaska Territorial Department of Mines, Juneau, 1937.

Attachment 25. Letter from Ed Swanson of Knik Kanoers & Kayakers to Dick Thompson, BLM, September 18, 1975, BLM filesF-14885-EE.

Attachment 26. Gordon W. Watson, USF&WS Alaska Area Director, Memorandum on Identification of Easements – Village Selections, to BLM District Manager, Anchorage Regional Office, June 17, 1975, BLM files, F-14885-EE.

Attachment 27. David C. Rukke, BLM Realty Specialist, memorandum on Interviews for Group Survey No. 171, Quinhagak Village (Window 1562), December 19, 1986, BLM files, F-14885-EE (75.4).

Attachment 28. Letter from Edwin W. Seiler of Enchanted Lake Lodge to the BLM Anchorage District Office, May 29, 1976, BLM files, F-14885-EE.

Kanektok River System

(Including an Unnamed Tributary of the Kanektok River and Pegati and Kagati Lakes)

HUC-30502, Zone 1, Kuskokwim River Region

Phase II-B Interim Report

I. Introduction

The Kanektok River is located in Southwest Alaska, about 90 miles[i] southeast of Bethel with its mouth near the Native village of Quinhagak. The headwaters of the river are in Kagati and Pegati Lakes, two attached lakes located in Townships (Tps.) 3-4 South (S.), Range (R.) 63 West (W.), Seward Meridian (SM), within the northeast corner of the Togiak National Wildlife Refuge (NWR). The 91-mile river[ii] drains these lakes and flows westerly across the northern edge of the Togiak NWR (Figure 1) and empties into Kuskokwim Bay in Section (Sec.) 18, T. 5 S., R. 74 W., SM.[1]

According to the *Dictionary of Alaska Place Names,* the lower and upper portions of the Kanektok River used to have separate names. The upper portion was called Kanektok, a Yup'ik word meaning "snow" or "snowy," referring to snow on the mountains near the river's source.[2] The lower stretch was called "Quinahak," a variation of the name of the village at the river's mouth. In the early 1900s, U. S. Geological Survey (USGS) geologist G.L. Harrington reported that the name Quinhagak means "new formed river," referring to "the constantly changing channel of the stream on which the village is located."[3] Harrington also wrote that the name Kanektok means "a long way from the post."[4]

The name Kagati Lake, the source for the Kanektok River, comes from the Yup'ik word for "source," according to records from the 1898 USGS expedition by J.E. Spurr and W.S. Post.[5] Kagati Lake and its western arm, Pegati Lake, are situated in a glacial valley between the Eek and the Ahklun Mountains. Both lakes empty into the Kanektok River from the northern end of Pegati Lake. The name Pegati is a Yup'ik place name that was also first reported in 1898. Its meaning is not currently known. In the past, both lakes were often viewed as one large lake called Kagati, Kanektok or Quinhagak Lake. The lakes are fed by at least three tributaries. The primary tributaries are Atmugiak and Aukamunuk creeks that flow into the eastern shore of Kagati Lake.[6]

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[i] All air mile distances in this report are based on measurements from: http://sdms.ak.blm.gov/isdms/imf.jsp?site=sdms.

[ii] Different sources estimate the length of the river at 85 to 94 miles. The overall length of the Kanektok River and the river mile markers used in this report are based on Geographic Information System (GIS) calculations using the National Hydrography Data Set which was derived from U.S. Geological Survey quadrangle maps. The river mile marker system used in this report may be different than river mile markers found in BLM/ANILCA documents, which may be based on air miles between points rather than distances along the river bed of the main channel.

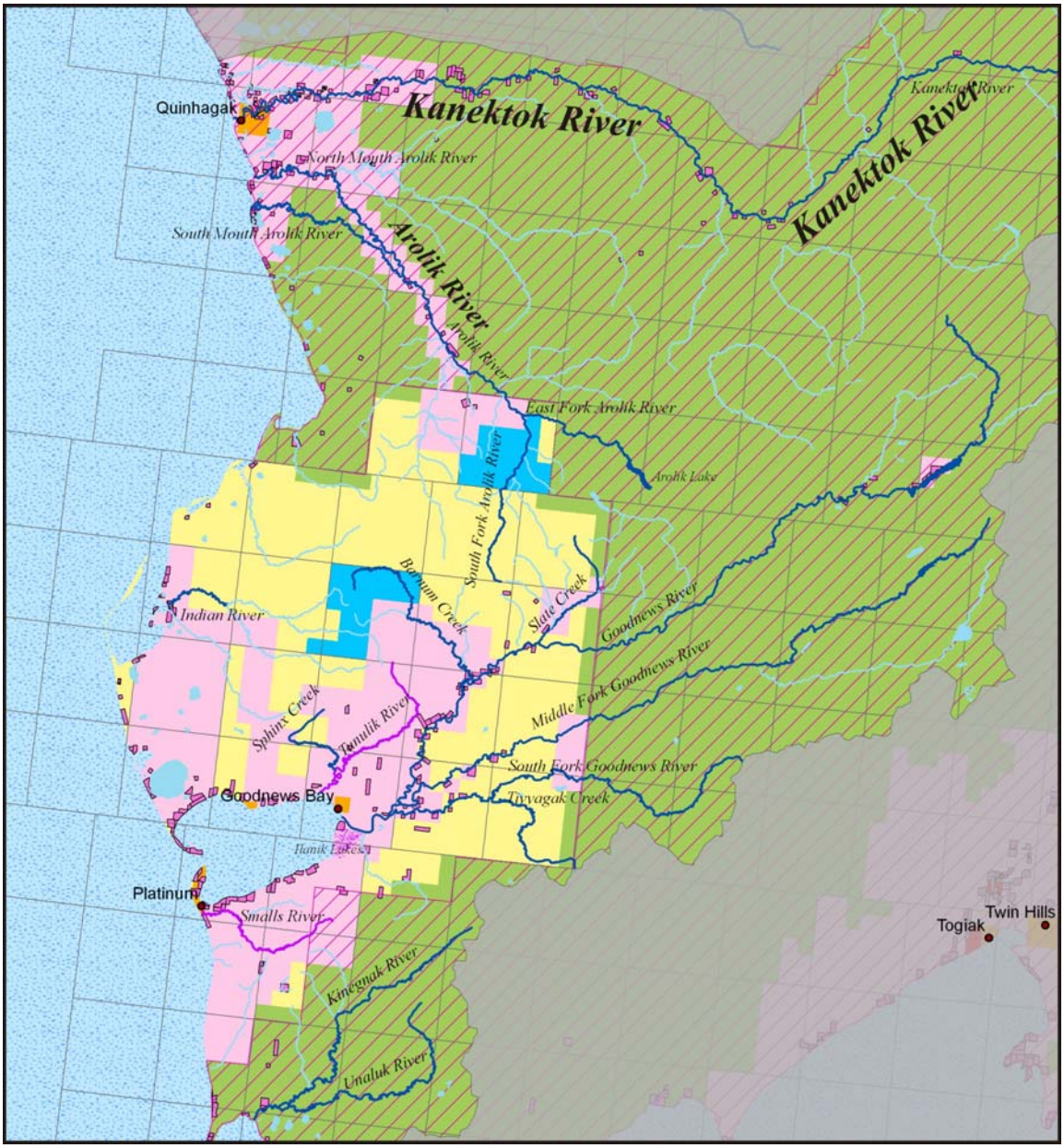

Figure 1. Map of Zone 1, HUC-30502, show the location of the Kanektok River System.

From Kagati and Pegati Lakes, the Kanektok River flows through the Eek and Ahklun mountains, collecting water from several tributaries. Other major rivers in the area are the Eek River, whose headwaters begin approximately ten miles north of Kagati and Pegati Lakes, and the Arolik River, which parallels the lower portion of the Kanektok River. No waterways connect the Kanektok to these rivers, but short portages between them may be possible.

The only overland access to the Kanektok River is the Bethel-Goodnews Trail (RST-173), which extends along the coast and connects the communities along the southern coast of

Kuskokwim Bay. The trail is an historic mail run, traditionally connecting the Moravian churches and village trading stations by winter dog team.[7] The trail crosses the Kanektok River in Section (Sec.) 8, Township (T.) 5 South (S.), Range (R.) 74 West (W.), Seward Meridian (SM).

The Kanektok River System crosses the following 16 townships.

Township, Range, Meridian, Section: Kanektok River

T. 5 S., R. 74 W., SM, Sec. 18
T. 5 S., R. 74 W., SM, Sec. 7
T. 5 S., R. 74 W., SM, Sec. 17
T. 5 S., R. 74 W., SM, Sec. 8
T. 5 S., R. 74 W., SM, Sec. 9
T. 5 S., R. 74 W., SM, Sec. 4
T. 5 S., R. 74 W., SM, Sec. 10
T. 5 S., R. 74 W., SM, Sec. 3
T. 5 S., R. 74 W., SM, Sec. 2
T. 4 S., R. 73 W., SM, Sec. 33
T. 4 S., R. 73 W., SM, Sec. 34
T. 4 S., R. 73 W., SM, Sec. 35
T. 4 S., R. 73 W., SM, Sec. 36
T. 5 S., R. 73 W., SM, Sec. 6
T. 4 S., R. 72 W., SM, Sec. 31
T. 4 S., R. 72 W., SM, Sec. 32
T. 4 S., R. 72 W., SM, Sec. 33
T. 4 S., R. 72 W., SM, Sec. 28
T. 4 S., R. 72 W., SM, Sec. 27
T. 4 S., R. 72 W., SM, Sec. 26
T. 4 S., R. 72 W., SM, Sec. 25
T. 4 S., R. 72 W., SM, Sec. 24
T. 4 S., R. 71 W., SM, Sec. 19
T. 4 S., R. 71 W., SM, Sec. 30
T. 4 S., R. 71 W., SM, Sec. 29
T. 4 S., R. 71 W., SM, Sec. 28
T. 4 S., R. 71 W., SM, Sec. 27
T. 4 S., R. 71 W., SM, Sec. 22
T. 4 S., R. 71 W., SM, Sec. 23
T. 4 S., R. 71 W., SM, Sec. 24
T. 4 S., R. 70 W., SM, Sec. 19
T. 4 S., R. 70 W., SM, Sec. 18
T. 4 S., R. 70 W., SM, Sec. 17
T. 4 S., R. 70 W., SM, Sec. 20
T. 4 S., R. 70 W., SM, Sec. 16
T. 4 S., R. 70 W., SM, Sec. 21
T. 4 S., R. 70 W., SM, Sec. 22
T. 4 S., R. 70 W., SM, Sec. 23
T. 4 S., R. 70 W., SM, Sec. 24
T. 4 S., R. 69 W., SM, Sec. 19
T. 4 S., R. 69 W., SM, Sec. 30
T. 4 S., R. 69 W., SM, Sec. 29
T. 4 S., R. 69 W., SM, Sec. 28
T. 4 S., R. 69 W., SM, Sec. 33
T. 4 S., R. 69 W., SM, Sec. 34
T. 4 S., R. 69 W., SM, Sec. 35
T. 5 S., R. 69 W., SM, Sec. 6
T. 5 S., R. 69 W., SM, Sec. 5
T. 5 S., R. 69 W., SM, Sec. 8
T. 5 S., R. 69 W., SM, Sec. 17
T. 5 S., R. 69 W., SM, Sec. 16
T. 5 S., R. 69 W., SM, Sec. 15
T. 5 S., R. 69 W., SM, Sec. 22
T. 5 S., R. 69 W., SM, Sec. 23
T. 5 S., R. 69 W., SM, Sec. 27
T. 5 S., R. 69 W., SM, Sec. 26
T. 5 S., R. 69 W., SM, Sec. 25
T. 5 S., R. 68 W., SM, Sec. 30
T. 5 S., R. 68 W., SM, Sec. 29
T. 5 S., R. 68 W., SM, Sec. 20
T. 5 S., R. 68 W., SM, Sec. 21
T. 5 S., R. 68 W., SM, Sec. 16
T. 5 S., R. 68 W., SM, Sec. 15
T. 5 S., R. 68 W., SM, Sec. 10
T. 5 S., R. 68 W., SM, Sec. 11
T. 5 S., R. 68 W., SM, Sec. 2
T. 5 S., R. 68 W., SM, Sec. 1
T. 4 S., R. 67 W., SM, Sec. 34
T. 4 S., R. 67 W., SM, Sec. 35
T. 4 S., R. 67 W., SM, Sec. 26
T. 4 S., R. 67 W., SM, Sec. 25
T. 4 S., R. 67 W., SM, Sec. 24
T. 4 S., R. 67 W., SM, Sec. 13
T. 4 S., R. 67 W., SM, Sec. 12
T. 4 S., R. 66 W., SM, Sec. 7
T. 4 S., R. 66 W., SM, Sec. 6
T. 4 S., R. 66 W., SM, Sec. 5
T. 4 S., R. 66 W., SM, Sec. 4
T. 3 S., R. 66 W., SM, Sec. 33
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T. 3 S., R. 65 W., SM, Sec. 25
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T. 3 S., R. 64 W., SM, Sec. 21
T. 3 S., R. 64 W., SM, Sec. 22
T. 3 S., R. 64 W., SM, Sec. 23
T. 3 S., R. 64 W., SM, Sec. 26
T. 3 S., R. 64 W., SM, Sec. 24
T. 3 S., R. 64 W., SM, Sec. 25
T. 3 S., R. 63 W., SM, Sec. 19
T. 3 S., R. 63 W., SM, Sec. 30
T. 3 S., R. 63 W., SM, Sec. 29
T. 3 S., R. 63 W., SM, Sec. 28
T. 3 S., R. 63 W., SM, Sec. 33

Unnamed Tributary	Pegati Lake	Kagati Lake
T. 4 S., R. 70 W., SM, Sec. 22	T. 3 S., R. 63 W., SM, Sec. 27	T. 3 S., R. 63 W., SM, Sec. 26
T. 4 S., R. 70 W., SM, Sec. 23	T. 3 S., R. 63 W., SM, Sec. 28	T. 3 S., R. 63 W., SM, Sec. 27
T. 4 S., R. 70 W., SM, Sec. 26	T. 3 S., R. 63 W., SM, Sec. 33	T. 3 S., R. 63 W., SM, Sec. 34
T. 4 S., R. 70 W., SM, Sec. 27	T. 3 S., R. 63 W., SM, Sec. 34	T. 3 S., R. 63 W., SM, Sec. 35
	T. 4 S., R. 63 W., SM, Sec. 2	T. 3 S., R. 63 W., SM, Sec. 36
	T. 4 S., R. 63 W., SM, Sec. 3	T. 4 S., R. 63 W., SM, Sec. 1
	T. 4 S., R. 63 W., SM, Sec. 4	T. 4 S., R. 63 W., SM, Sec. 2
	T. 4 S., R. 63 W., SM, Sec. 10	
	T. 4 S., R. 63 W., SM, Sec. 11	

II. Land Status

The entire Kanektok River is within the boundaries of the Togiak NWR. These lands were originally withdrawn by the Secretary of the Interior under Sections 17(d)(1) and 17(d)(2) of the Alaska Native Claims Settlement Act (ANCSA) in 1971. The Togiak NWR was officially created in 1980 under the Alaska National Interest Lands Conservation Act (ANILCA). Title to refuge lands is held by the United States and the Togiak NWR is managed by the U.S. Fish and Wildlife Service (USF&WS).

Starting at Pegati and Kagati Lakes, the river crosses federal, Togiak NWR lands for approximately 70 miles. Near Quinhagak, the Kanektok enters Native owned lands, which BLM interim conveyed to the Qanirtuuq, Inc., for the village of Quinhagak, in Interim Conveyance (IC) Nos. 342 and 978, and the subsurface rights to Calista Regional Corporation in IC Nos. 343 and 979. The river flows through these Native lands for about 17 miles to its mouth. Native lands in three townships (T. 4 S., R. 72 W., T. 4 S., R. 73 W., and T. 5 S., R. 73 W., SM) have been patented (Patent No. 50-95-0284, No. 50-05-0285, updated by Patent No. 50-2006-0296 and No. 50-2006-0297), leaving only one township with lands yet to be patented (T. 5 S., R. 74 W., SM).

Throughout its course, the Kanektok River passes roughly 90 Native allotments, many of which abut the river. The highest concentration of allotments is at the mouth of the river near Quinhagak, although allotments occur along the upstream reaches of the river all the way up to Kagati and Pegati Lakes. There are three allotments along the shoreline of Kagati Lake[8] and two allotments along the Unnamed Tributary in Secs. 26-27, T. 4 S., R. 70 W., SM.[9] The Native allotments along the Kanektok River are shown in Figures 2-4.

Approximately 70 miles of the Kanektok River, including Kagati and Pegati Lakes and the Unnamed Tributary of the Kanektok River in Secs. 26-27, T. 4 S., R. 70 W., SM, are located on Togiak NWR lands. This land remains in federal ownership. The BLM has not transferred ownership to any of the Kanektok River system's submerged lands.

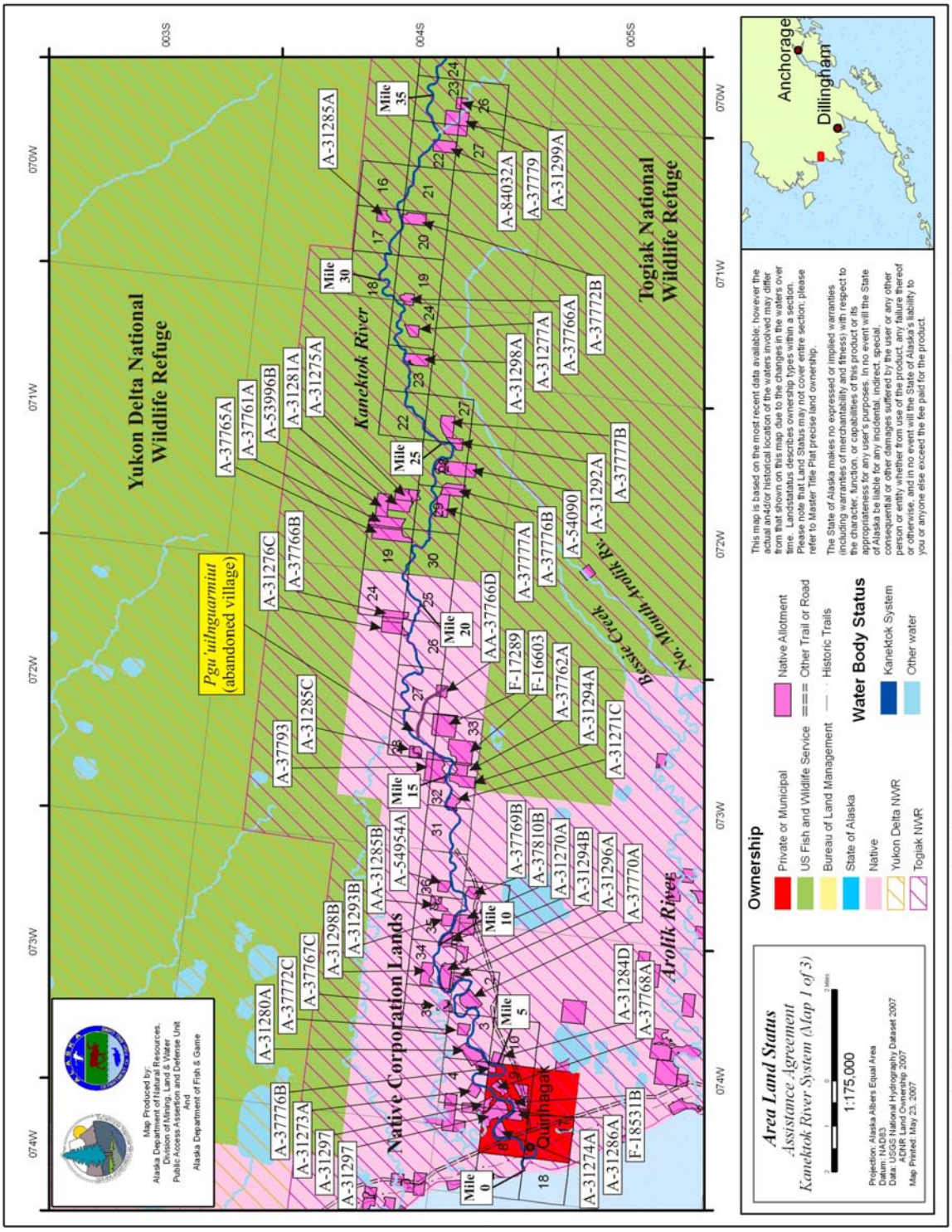

Figure 2. The lower portion of the Kanektok River, showing tributaries, land status and the location of Native Allotments.

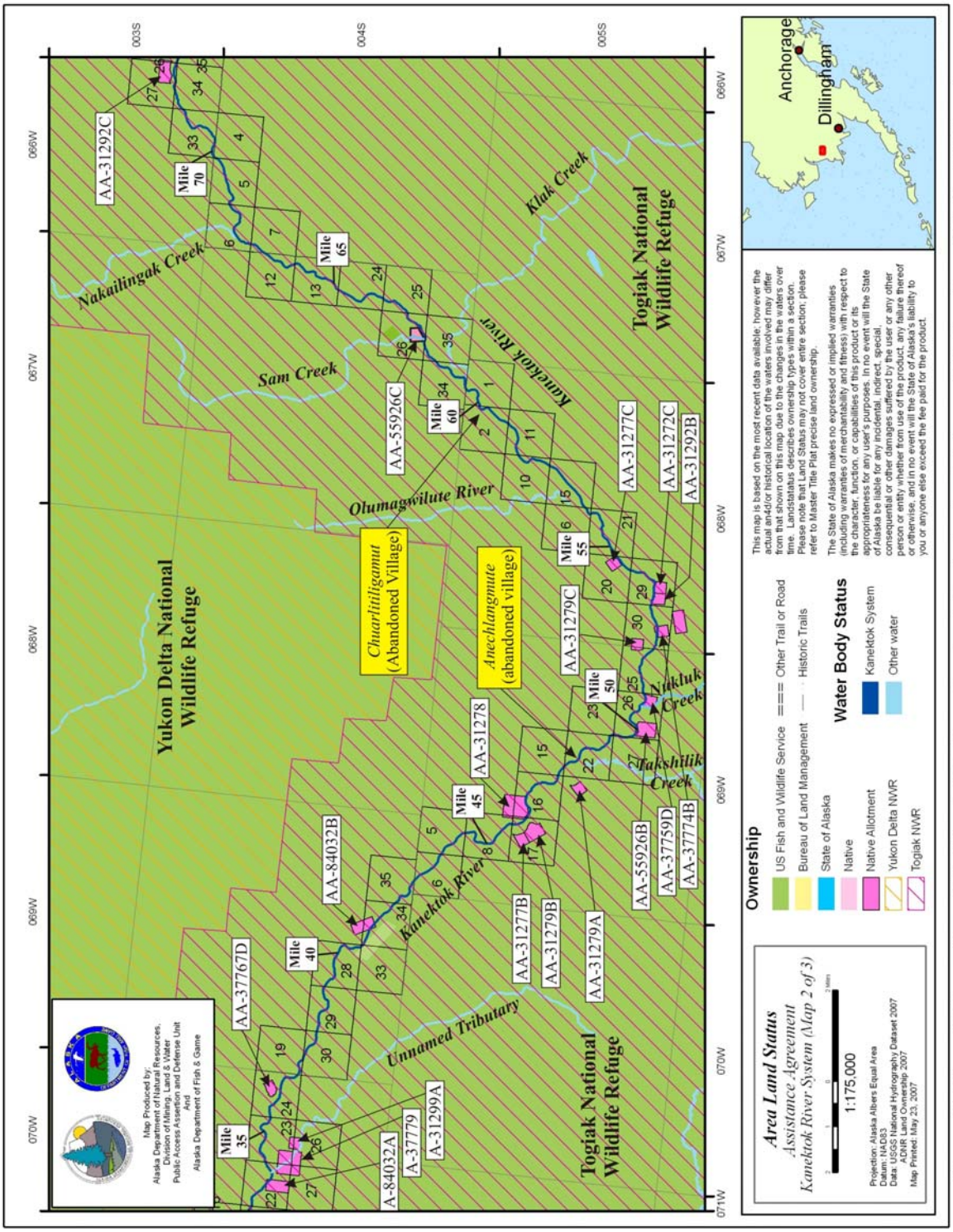

Figure 3. The middle portion of the Kanektok River, showing tributaries, land status and the location of Native Allotments.

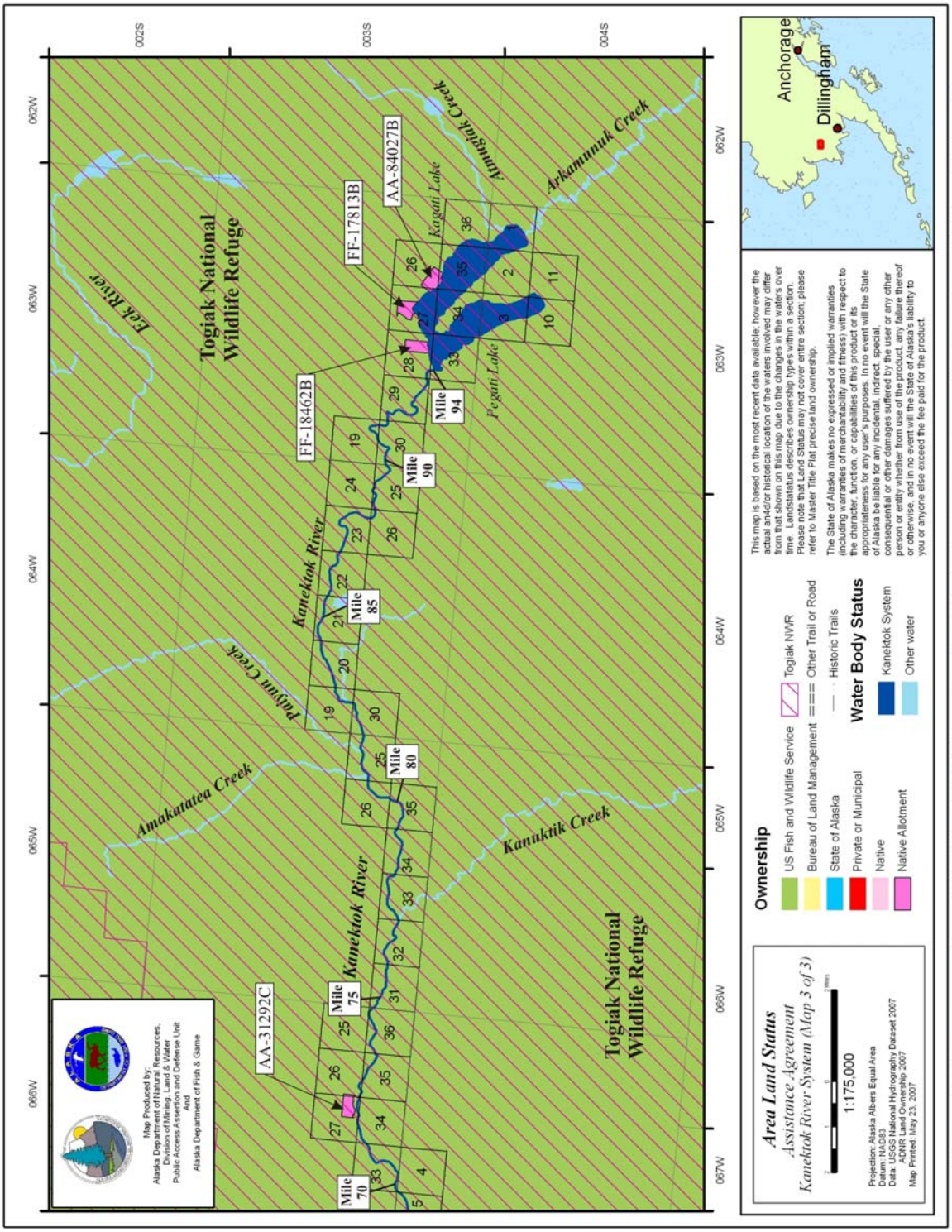

Figure 4. The upper portion of the Kanektok River, showing tributaries, land status and the location of Native Allotments.

III. Navigability Determinations

The BLM began actively seeking information on navigable waters in the Kanektok River System in the 1970s in response to land selections by the State under the Statehood Act and Native village and regional corporation selections made under ANCSA. Qanirtuuq, Inc., the village corporation for Quinhagak, selected lands along the lower Kanektok River. The BLM considered the river to be navigable from the early stages of the conveyance process.

On November 15, 1976, Cliff Ells, a BLM Realty Specialist, put together a list of proposed easements for the Quinhagak selected lands. The State's Division of Lands proposed Easement No. 12, to designate the Kanektok River navigable for purposes of public ingress and egress. The State proposal would designate the river navigable through the Quinhagak village selection, which extended from the mouth of the river (river mile 0) upstream through T. 4 S., R. 72 W., SM (river mile 21). The BLM memorandum summarizing the proposed easements noted that "the village corporation does not support these general easements [referring to No. 12] for they have had little public use."[10] (Attachment 1)

A BLM Easement Task Force memorandum written by Realty Specialist Stanley H. Bronczyk on February 1, 1977, determined the Kanektok River navigable through the selection area "by reason of its susceptibility to travel, trade and commerce." The Easement Task Force recommended a "25' streamside easement along both banks of the Kanektok River" as the river "is considered to have highly significant present recreational use and has been nominated as a wild and scenic river."[11] (Attachment 2)

The BLM Easement Task Force made no mention of tidal influence on the Kanektok, and no documents have been found in BLM files to indicate that the agency considered the Kanektok River tidal. In a letter to the BLM in 1975, Peter Williams of Qanirtuuq, Inc. wrote that the river, in his opinion, was too shallow for trade and commerce, and it could only be used at high tide and with small skiffs. He estimated the river to be tidal for two miles and he enclosed a map showing the river to be tidal one mile and a half from its mouth.[12] (Attachment 3) The map, however, was not found in BLM files.

On March 24, 1977, BLM State Director Curtis V. McVee published a Notice of Proposed Easement Recommendations for the Quinhagak selection area. The notice stated that the Kanektok River was navigable "by reason of its susceptibility to travel, trade, or commerce" and included the recommendation for a 25-foot streamside easement along both banks of the Kanektok River based on "highly significant present recreational use" and nomination of the river as a wild and scenic river.[13] (Attachment 4)

A year later, on March 24, 1978, BLM State Director McVee issued a Final Easements Memorandum that recommended easements along the Kanektok River, including a 25-foot streamside easement (12 C1, D1, L) "on all banks of the navigable Kanektok River throughout the selection area." The BLM also recommended a trail easement paralleling the south shore of the Kanektok River through the Quinhagak selection (3 C3, D1), a campsite easement on the right bank of the river in Sec. 34, T. 4 S., R. 73 W., SM (7, D9),

an easement for a campsite and trail on the river in Sec. 32, T. 4 S., R. 72 W., SM (20 D1 and 20a D1), and a couple of easements to facilitate access to the river from the Quinhagak airport (10a C4 and 10 D1). The basis for these easements was heavy recreational and local use of the Kanektok River.[14] (Attachment 5)

The Board of Directors of Qanirtuuq Inc. (representing Quinhagak) sent the BLM State Director a letter on November 1975 strongly opposing all easements on village selected lands, implying that the Kanektok received very little use. On the subject of streamside, trail and public campsites along the Kanektok River, the letter stated that there were no dock or tie up facilities for boats or planes, there was "very little use by sportsmen," and "We do not except [expect] increase[d] use."[15] (Attachment 6)

In a letter to the Joint Federal State land Use Planning Commission dated May 16, 1977, Russell J. Gallagher, an attorney representing the village corporation, wrote regarding the proposed 25-foot streamside easement along the Eek River, that the river "is isolated from all but the immediate native population in the area" and that BLM's contention that the river has significant recreational use by the public "is ridiculous." The attorney argued that "to provide access to the river banks to all comers would be, in the minds of the native community, taking away what they thought they had gained in the Land Claims Act." With respect to the proposed streamside easement along the Kanektok River, the attorney concluded that "it is simply ludicrous to provide for the trophy hunter, when the same grounds are used for the subsistence needs of the local native community."[16] (Attachment 7)

Several BLM officials visited the Kanektok River during the summer of 1978 to do a first-hand evaluation of the proposed easements.[17] (Attachment 8) During the following year, the BLM adopted new easement regulations that disallowed streamside easements based on recreational use on ANSCA selections. Village corporation representatives continued to oppose easements along the Kanektok River, stating that the river was used only recreationally and infrequently. On October 25, 1979, after the new easement regulations were released, BLM State Director McVee issued a new Final Easements Memorandum that dropped the 25-foot wide streamside easement along the Kanektok. In the memorandum, the agency reaffirmed that "the Kanektok River was determined navigable" through the selection area "by reason of its susceptibility to travel, trade or commerce." The agency characterized the Kanektok a "major waterway," adding that:

> This river provides the primary intervillage surface transport route between the nearby villages. It is used by 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.[18] (Attachment 9)

Sue A. Wolfe, BLM's Chief of the Branch of Adjudication, issued a Decision to Interim Convey (DIC) on November 26, 1979, detailing the lands approved for conveyance in the Quinhagak selection area. Wolfe determined the Kanektok River "navigable" throughout the lands to be conveyed, from the mouth of the river (river mile 0) up stream through T. 4 S., R. 72 W., SM (river mile 21). The document specifically excluded the Kanektok

River from conveyance within each section of each township where the river is located.[19] (Attachment 10) Maps attached to the DIC document marked the Kanektok River navigable (using an "N" on the maps) through the village selection area.

The BLM issued IC Nos. 342 and 343 on June 25, 1980, transferring ownership of the lands approved in the November 26, 1979 DIC. IC No. 342 conveyed the surface estate to 108,622 acres of land to Qanirtuuq, Inc., and IC No. 343 conveyed the subsurface estate to Calista Regional Corporation. Maps attached to the DIC document marked the Kanektok River navigable through the village selection area.[20] (Attachment 11)

On December 18, 1984, the BLM issued IC No. 978, conveying ownership of a single section (Sec. 28 of T. 4 N., R. 72 W., SM) to Qanirtuuq, Inc. The BLM conveyed the subsurface estate to that land to Calista Corporation in IC No. 979. Section 28 had not been included in IC Nos. 342 and 343. Interim Conveyance Nos. 978 and 979 specifically excluded the Kanektok River by name from Sec. 28 where the river is located.[21] (Attachment 12) No map was found attached to these two ICs in the village selection file.

In a navigability memorandum issued on March 29, 1988, Robert W. Andorfer, the BLM Deputy Director for Conveyance Management, noted that BLM had already determined the Kanektok River as navigable, excluded it from interim conveyances, and decided that the Kanektok River should be excluded from conveyance on future survey plats from its mouth through T. 4 S., R. 72 W., SM, the eastern boundary of the Quinhagak selection area. Andorfer's memorandum stated that "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."[22] (Attachment 13) His memorandum did not consider upstream portions of the Kanektok River that are within the Togiak National Wildlife Refuge.

On February 21, 1989, Wayne A. Boden, the BLM Deputy State Director for Conveyance Management, issue a navigability memorandum covering navigable waters on or along small tracts within a survey area (Window 1562) that addressed parts of the river on Togiak NWR lands. The memorandum confirmed that the Kanektok had been excluded from all conveyances from river mile 0 to river mile 21. The agency determined the river as "navigable in or along small tracts located on the river to and through T. 3 S., R. 66 W., SM." This extended the navigability from its mouth upstream to river mile 74.5. The agency utilized the standard that water bodies were navigable "if, at the time of Statehood, they are navigable for crafts larger than a one-person kayak." The new determination was also based on historical, physical, and Native allotment field inspection information:

> The Kanektok has a long history as a highway of travel. As early as 1898, a USGS expedition ascended the river to Kagati Lake in canoes. (Brown, pp. 86 and 87.) In 1973, the BLM conducted a study on the Kanektok River for possible inclusion in the Wild and Scenic River System. The BLM study team noted that the river is navigable to Kagati Lake [river mile 94] during early summer and after heavy rains by small motorized riverboat; and by canoe or raft at all times. The river supports a commercial, sports and subsistence fishery (AEIDC,

> p. 1463). In July 1983, June 1984, and June 1987, Carl Neufelder, while inspecting Native allotments, observed relatively heavy boating activity from Quinhagak, at the river's mouth, to well above the report area.[23] (Attachment 14)

Deputy Director Boden's 1989 memorandum determined the Kanektok River navigable along or through 24 Native allotments between river mile 22 and river mile 74.5. Three additional Native allotments are located upstream of river mile 74.5, along the shores of Kagati and Pegati Lakes. The determination did not take these into account because they were outside the survey area. The 1989 memorandum also determined an unnamed left bank tributary feeding into the Kanektok River at river mile 34 to be navigable from the tributary's mouth up stream through Native allotments AA-037779 and AA-31299-A, the later located in Sec. 26, T. 4 S., R. 70 W., SM.

After surveying the conveyed lands in the 1990s, the BLM prepared to patent the lands to Quinhagak. Prior to issuing a patent, Robert Lloyd, Assistant District Manager, BLM Lands Division, issued a Final Easement Memorandum dated July 7, 1994. Lloyd reiterated that the Kanektok River was a major waterway and should be excluded from conveyance. He reserved a 25-foot wide trail easement along the southern shore of the river extending east for winter access to public lands. He also reserved a site easement adjacent to the river in Sec. 34, T. 4 S., R. 73 W., SM for summer use.[24] (Attachment 15)

The BLM issued a draft patent for these village lands on April 6, 1995. The draft patent stated that navigability determinations were "unchanged" from the determinations made in IC Nos. 342 and 978. The document also stated that "the lateral extent of navigability or tidal influence was identified at the time of survey."[25] (Attachment 16) The Master Title Plats (MTPs) (Attachment 17) and the survey plats for these lands (Attachment 18) show the Kanektok River as meandered and segregated from its mouth at river mile 0 upstream to river mile 79.5. The BLM issued Patent Nos. 50-95-284 and 50-95-285 for these lands on June 20, 1995.[26] (Attachment 19) The patents covered the conveyed lands along the first 21 miles of the Kanektok River, with the exception of T. 5 S., R. 74 W., Sec. 4, T. 6 S., R. 73 W., and Sec. 28, T. 5 S., R. 73 W., SM, which required further adjudication.

K.J. Mushovic, BLM's Easements Coordinator, issued a Final Easement Review and Patent Easement Memorandum for lands to be patented to Qanirtuuq, Inc. on March 30, 2006. The memorandum reaffirmed a 25-foot wide trail easement generally paralleling the south side of the Kanektok River from Quinhagak east to public lands.[27] (Attachment 20) The patents were corrected by Patent No. 50-2006-296 and No. 50-2006-297, issued on June 16, 2006, which excluded one Native allotment (AA-31271-B) from Native corporation lands.[28] (Attachment 21)

On May 18, 2006, Dominica VanKoten, the Chief of BLM's Navigability Section, issued a Navigable Waters Memorandum that reconfirmed that the Kanektok River had been determined navigable in T. 5 S., R. 74 W., SM (river mile 0 to river mile 5), a township that had been conveyed in IC No. 342, but not yet patented.[29] (Attachment 22) This township is scheduled to be patented in the near future.

Several USF&WS publications refer to the portion of the Kanektok River within the Togiak NWR (above river mile 21) as "non-navigable waters," creating the impression that the portions of the river within the boundaries of the refuge have been determined non-navigable. On May 3, 1991**,** the Acting Refuge Manager signed a decision formally adopting the Refuge Public Use Management Plan affecting "public lands and the lands beneath non-navigable waters within the exterior boundaries of the Togiak National Wildlife Refuge."[30] In a study of rainbow trout on the river conducted in 2000 and published in 2008, a USF&WS publication stated: "In 1992, the Federal Subsistence Board recognized rainbow trout as a valid subsistence species in the non-navigable waters of the Kanektok River within the Refuge."[31] However, BLM has determined only those portions of the river within the Refuge where Native allotments or ANSCA 14 (h)(1) historic sites occur as navigable or non-navigable. BLM has not made any determinations regarding navigability or non-navigability on the remainder of the river within the refuge.

Summary of Navigability Determinations: Navigability determinations for the Kanektok River are summarized below in Table 1 and shown in Figures 5-7. Starting in 1975, the BLM has consistently held that the Kanektok River is navigable due to travel, trade and commerce through lands selected and conveyed to Qanirtuuq, Inc. (river mile 0 to river mile 21). A 1989 BLM memorandum, citing the criterion of a craft larger than a one-person kayak, determined the Kanektok River navigable on and along 24 small tracts (Native allotments) extending up river from river mile 22 upstream to river mile 74.5. The BLM also determined an unnamed tributary that enters the Kanektok River at river mile 34 navigable from its mouth upstream through two Native allotments. No navigability determinations have been made for Kagati and Pegati Lakes. The MTPs show the Kanektok River as meandered and segregated from its mouth at river mile 0 upstream to river mile 79.5. Kagati and Pegati Lakes have also been meandered and segregated on the MTPs. While there are references in various documents to tidal influence, the BLM has not made a determination on the extent of tidal influence of the Kanektok River.

Table 1. Summary of Navigability Determinations on Kanektok River.

Dates	River Section	Type Decision and Substance	Navigability Criteria
2/1/75 Attachment 2	Lower	BLM Easement Task Force: determined the Kanektok River navigable through Qanirtuuq, Inc. selection area (river mile 0 to river mile 21)	Travel, Trade, and Commerce
3/24/77 Attachment 4	Lower	Notice of Proposed Easement Recommendations: The BLM reaffirmed Kanektok River navigable and recommended a 25-foot wide easement on both sides of river up to river mile 21.	Travel, Trade, and Commerce
3/24/78 Attachment 5	Lower	Final Easements Memo: The BLM reaffirmed Kanektok River navigable and recommended a 25-foot wide easement on both sides of the river through the selection area.	Travel, Trade and Commerce
10/25/79 Attachment 9	Lower	Final Easements Memo: BLM reaffirmed Kanektok River navigable but dropped the 25-foot wide easement on both sides of the river through the selection area.	Travel, Trade and Commerce
11/26/79 Attachment 10	Lower	DIC: BLM determined Kanektok River navigable through the Qanirtuuq, Inc. selection area.	Not Stated
6/25/80 Attachment 11	Lower	IC No. 342 and No. 343 transfers selected lands to Qanirtuuq, Inc. Attached maps show Kanektok River navigable through the selection area.	Not Stated
12/18/84 Attachment 12	Lower	IC Nos. 978 and 979 transfers Sec. 28, T. 4. S., R. 72 W., SM to Qanirtuuq, Inc. and specifically excludes in the narrative the submerged lands under Kanektok River	Not Stated
3/28/88 Attachment 13	Lower	Navigability Memorandum: reaffirms Kanektok River is navigable from river mile 0 (mouth) to river mile 21.	Craft larger than a one-person kayak.
2/ 21/89 Attachment 14	Middle	Navigable Waters Memo: Kanektok River determined navigable on and along 24 small tracts (Native allotments) within part of Togiak NWR to and through T. 3 S., R. 66 W., SM (river mile 74.5). Unnamed left bank tributary entering Kanektok River at Mile 34 determined navigable through two Native allotments.	Craft larger than a one-person Kayak.
7/7/94 Attachment 15	Lower	Final Easements Memo: BLM determined Kanektok river a major waterway that should be excluded from conveyance. Trail easement 25-foot wide reserved on the south bank of Kanektok River from mouth (river mile 0) through village lands to public lands (river mile 21).	Not Addressed
4/6/95 Attachment 16	Lower	Draft Patent: Navigability determinations from IC Nos. 342 and 978 unchanged. "Lateral extent of navigability or tidal influence was identified at the time of survey."	Not Stated
6/20/95 Attachment 19	Lower	Patents No. 50-95-284 and No. 50-95-285 issued to Qanirtuuq, Inc. and Calista Corporation for lands from river mile 0 to river mile 21.	Not Stated
6/16/2006 Attachment 21	Lower	Patents No. 50-2006-296 and No. 50-2006-297 issued to Qanirtuuq, Inc. and Calista Corporation for lands in Sec. 28, T. 5 S., R. 73 W., SM.	Not Stated
5/18/2006 Attachment 22	Lower	Navigability Waters Memo: Kanektok River determined navigable within T. 5 S., R. 74 W., SM, a township not previously conveyed.	Used or susceptible to use for travel, trade and commerce

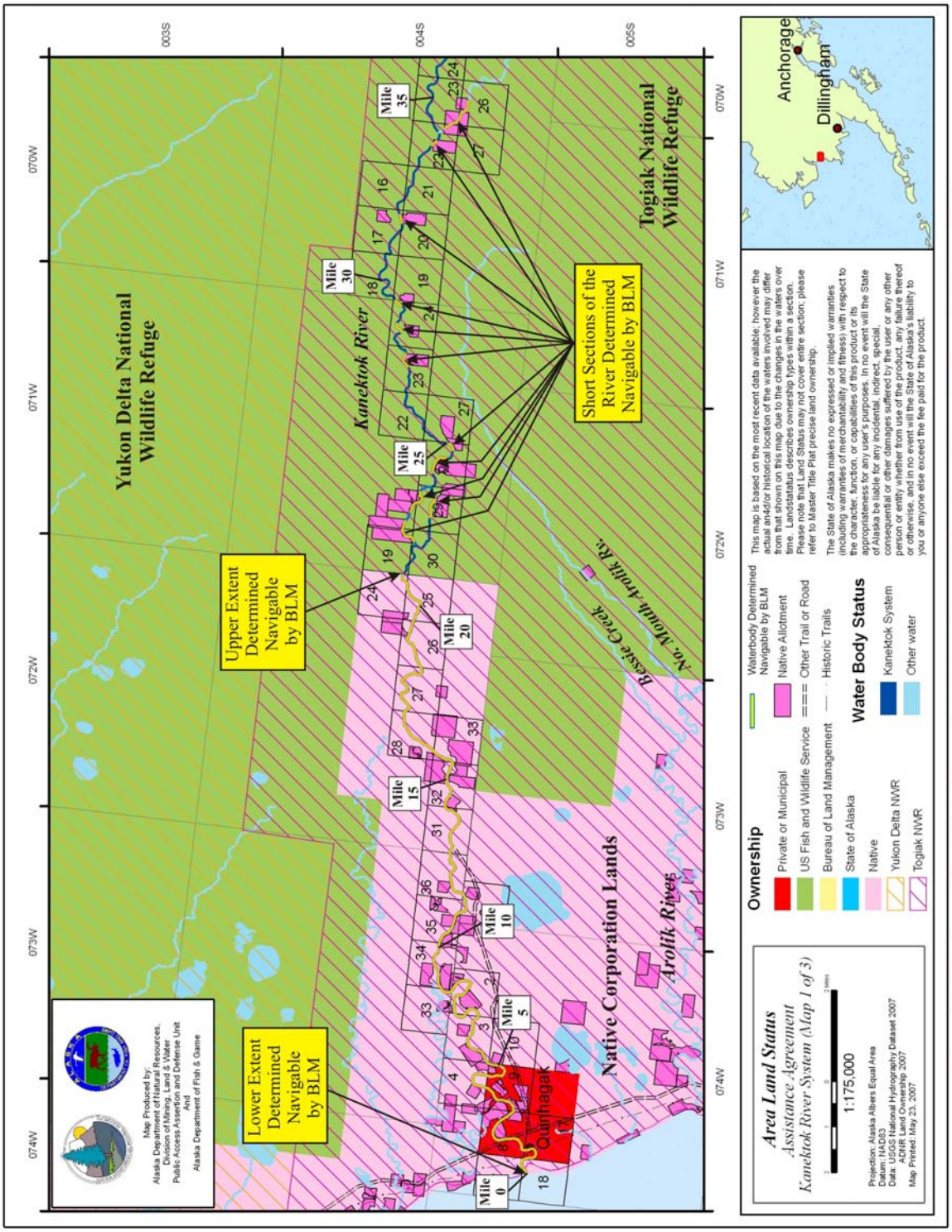

Figure 5. The lower Kanektok River, showing portions of the river determined navigable by BLM.

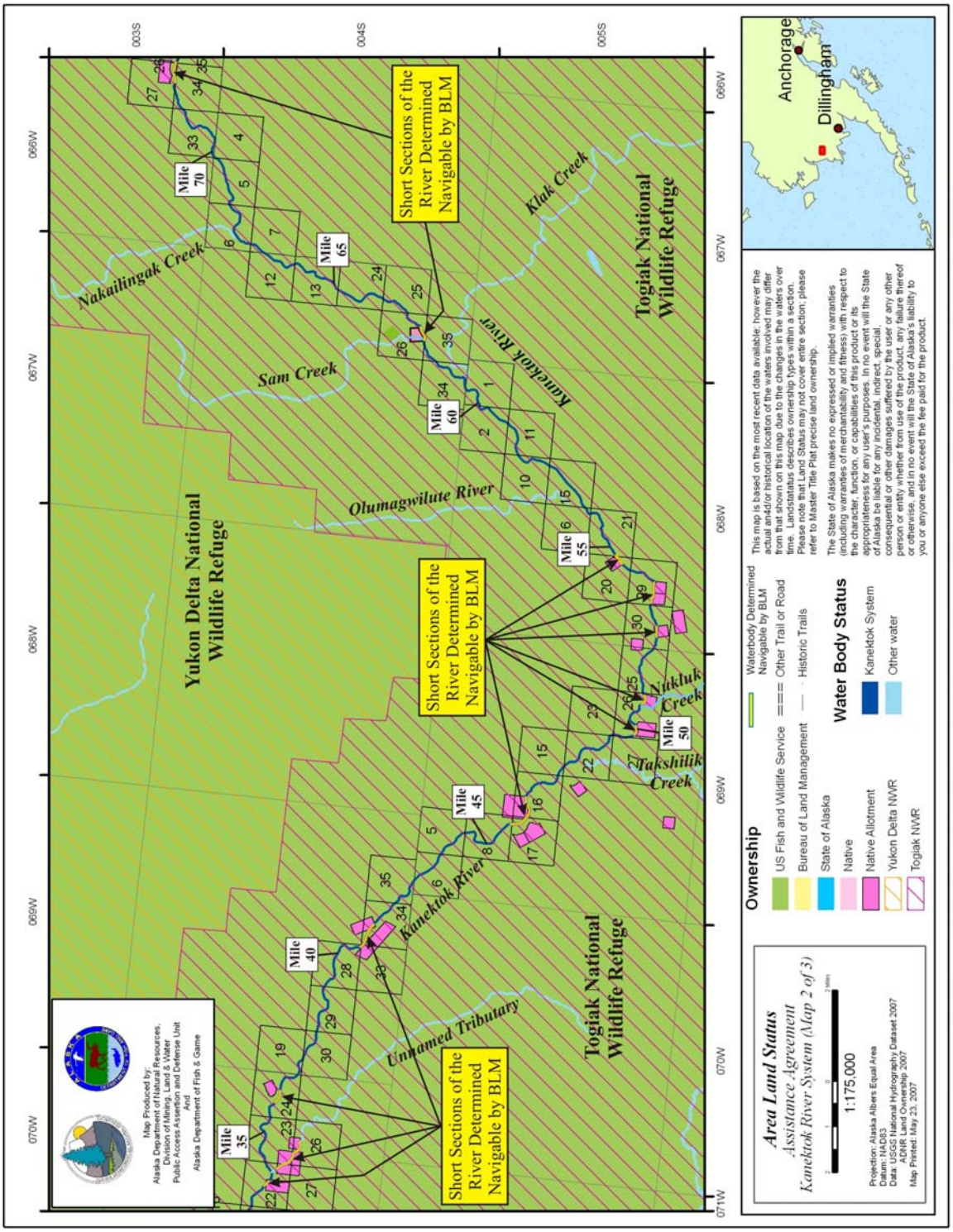

Figure 6. The middle Kanektok River, showing portions of the river determined navigable by BLM.

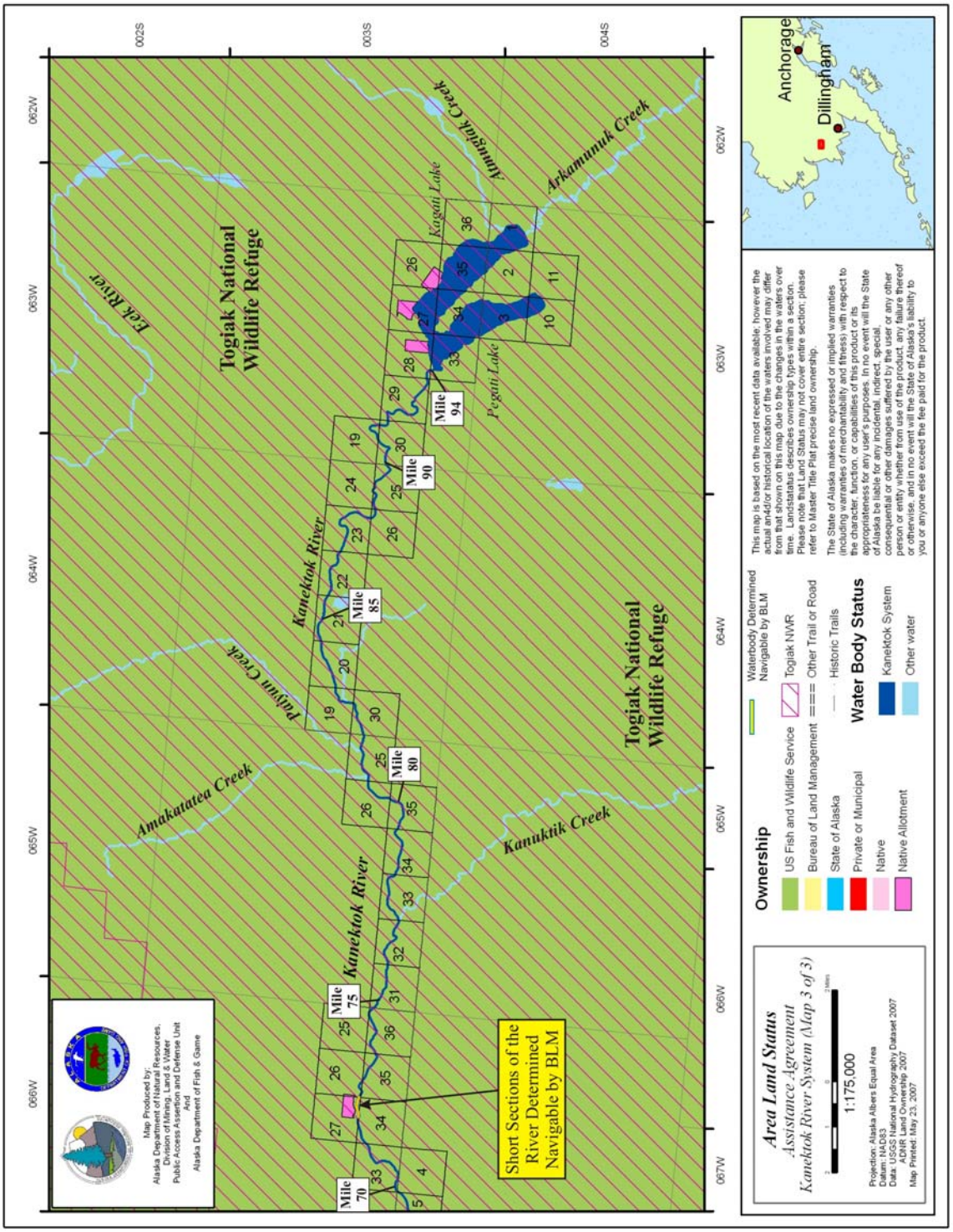

Figure 7. The upper Kanektok River, showing portions of the river determined navigable by BLM.

IV. Physical Character of Waterway

The headwaters of the Kanektok River originate in the Eek and Ahklun mountains (2,000-3,000 feet elevation) and the river flows west for a distance of 94 miles. The Kanektok River System, including the lakes in the headwaters and an unnamed left bank tributary that enters the river at river mile 34, accounts for about 100 miles of waterway. The river begins at the outlet of Kagati and Pegati lakes and meanders through the mountains in a westerly direction to Kuskokwim Bay. The Kanektok River has a gentle gradient averaging 10.6 feet per mile with no whitewater.[32] The swift, clear waters fall rapidly down sand and gravel courses.[33] About halfway along its course, the river breaks out into a broad floodplain. The river changes to a gradual, slow, meandering course and becomes more braided. The river drains an area estimated at 910 square miles and has an average current of three to four miles per hour over an elevation drop of roughly 1,000 feet.[34] The riverbed for almost the entire length of the river is composed primarily of gravel, with a higher ratio of silt to gravel as the river approaches Kuskokwim Bay. The surrounding vegetation alters with the changing terrain. Cottonwood and alder trees with thick stands of willow line the shores of the river for most of its course.[35]

The source for the Kanektok River, Kagati and Pegati Lakes (Figure 8), is located at an elevation of 1,079 feet.[36] Each lake is approximately four miles long. A study of the lakes in 1975 reported that the depth of Kagati Lake measured 169 feet, although elsewhere it was estimated to be 27 feet.[37] The lakes collect waters within a glacially carved basin in the Ahklun Mountains. Two creeks, Atmugiak and Aukamunuk, empty into Kagati Lake at its southeastern end. Both lakes drain into the Kanektok River at the northeastern shore of Pegati Lake. The flow of water from the lakes into the river was estimated in 1983 to be 500 cubic feet per second (cfs).[38]

The upper portion of the Kanektok is swift, with many shallow channels. The river begins with a shallow section that continues about five miles downstream from the lake outlet. In low water, rafters may have to line or drag their boats through this area.[39] The portion of the river between Kagati Lake (river mile 94) and Kanuktik Creek (river mile 77) is a single channel between 100 and 125 feet wide that runs up to 3.5 feet deep, and flows through mountainous terrain. Between Kanuktik Creek and Klak Creek (river mile 62.5) the river becomes increasingly braided, except where it passes through a few canyons. Water flow in this section of the river averages 200-470 cfs. From Klak Creek down to Nukluk Creek (river mile 51), the river emerges from the mountains (Figure 9) and the terrain changes to flat tundra. The influence of tributaries on water flow in this part of the river is generally less substantial.[40] During a high-water period in 1975, a discharge measurement taken above Nukluk Creek was 1,882 cfs.[41] In 1983, the water flow in this area was much slower and Nukluk Creek was congested with beaver dams.[42]

Figure 8. Kagati Lake (left) and Pegati Lake (right), 2008. The view is looking southeast. The outlet into and the Kanektok River is at left. Photo by Thomas Arline: *http://www.bing.com/images/search?q=Pegati=Lake&cbir*.

Figure 9. Looking up the Kanektok River in the vicinity of river mile 52. U.S. Bureau of Recreation photo, reproduced from Michael Strahan, *Float Hunting Alaska's Wild Rivers*, p. 357.

From Nukluk Creek to river mile 12, the Kanektok River is heavily braided with unstable, eroding stream banks, deep pools formed by undercut banks, occasional fallen cottonwoods forming sweepers and other hazards to navigation.[43] This part of the river is reported to be the best rainbow trout habitat along the river.[44] The Kanektok River changes from swift water in the mountains to a gradual slow meandering course in the lowlands with a poorly defined channel in many locations (Figure 10). Taiga forest vegetation, including black spruce, birch, aspen, cottonwood and alders lines the banks of the river.[45]

Figure 10. The middle portion of the Kanektok River, summer 2009. Photo by Cameron Miller, courtesy of Alaska West and Deneki Outdoors, *http://deneki.com/2009/the-kanektok-river-9-reasons-to-love-it/*.

The landscape from Nukluk Creek to the terminus of the Kanektok River is characterized as low-lying coastal plain.[46] The river is slow-moving and meandering, and it is mainly lined with cottonwoods and willow trees. Frequent changes to the river's main channel occur on this part of the river (Figure 11). From river mile 12 to Quinhagak, the Kanektok River consists of a single channel around 200 feet wide with a depth of around 2.5 feet and a current of two to four miles per hour. This portion of the river is characterized by heavy silting and a greenish hue.[47] A 1978 BLM report described the lower portion of the river before it reaches the Kuskokwim Bay as "beautiful, clear and deep from its mouth on the bay upstream for about 10+ miles." Above that point, the report characterized the river as shallow water.[48] **(**Attachment 8**)** The lower three miles of the river feature sloughs in the process of forming oxbow lakes. The mouth of the river is braided (Figure 12).

Figure 11. Oxbow lakes and sloughs on the lower Kanektok River. Photo by Rick Knecht, University of Aberdeen, Department of Archaeology, *http://www.abdn.ac.uk/archaeology/researh/northpacific/*.

Figure 12. The mouth of the Kanektok River. Quinhagak Village is in the background. Photo courtesy of Native Village of Kwinhagak and City of Quinhagak, http://www.northernmanagement.us/quinhagak.asp.

The main tributaries that feed the Kanektok River are Paiyun, Amakatatee, Kanuktik, Klak, Nukluk, and Takshilik creeks, most of which head in alpine lakes of the same name.[49] These tributaries collect water from the mountains surrounding the Kanektok River in its upper 44 miles. Below Takshilik Creek, where the Kanektok emerges from the mountains, alder, spruce, birch, aspen, cottonwood and alder line the banks of the river. The tributaries that feed the lower portion of the river drain wet tundra areas. The largest of the lower tributaries is an unnamed left bank tributary that is 9-10 miles long, flows in a northwesterly direction and enters the Kanektok River at river mile 34. It is a clear water stream flowing in one channel between well-defined banks of willow and alder. The last two miles of this tributary are 66-132 feet wide and about a foot deep. A gravel bar that occupies about half of the channel is at the mouth of the stream. There is a deep channel along the bank and the stream bottom is visible.[50] (Attachment 14)

Various sources have reported that the Kanektok River is tidally influenced, but the extent of tidal influence is not clear. G.L. Harrington of the USGS visited the river in 1919 and reported it to be partially tidally influenced.[51] In 1975, a representative from Qanirtuuq, Inc. estimated the lower river to be tidal for two miles, and enclosed a map (that was not found) showing it to be tidal 1.5 miles from its mouth.[52] (Attachment 3) Two BLM representatives visited the Kanektok River in July 1978 and got stuck on the mud flats while entering the mouth of the river by boat during low tide. They ascended the river to Quinhagak during high tide the next day. Two days later, they descended the river and waited on the mud flats for high tide to travel out into Kuskokwim Bay.[53] (Attachment 8)

The Kanektok River is within the transitional climate zone, which is between the maritime and continental climatic zones. This transition zone in the Yukon-Kuskokwim Delta area extends 100 to 150 miles inland.[54] The nearest weather-gathering station to Quinhagak is at Platinum near Goodnews Bay. The average annual precipitation at the Platinum weather station is 22 inches of rain and 43 inches of snow.[55] Freeze-up on the Kanektok River occurs between late October and late November, depending on upon annual temperatures. Because of its swift current, portions of the upper river remain clear of ice throughout the year. Break-up generally occurs from late-March to mid-April except near the mouth, which clears from late-April to mid-May.[56]

The USF&WS operated a stream-flow gage (Station No. 594640161050600), at river mile 40 on the Kanektok River, six miles below Takshilik Creek near Quinhagak. The USF&WS provided preliminary annual summary data for the period May 14, 1999 to October 16, 2009 and a graph of the average daily values for the period of record and each individual water year. The data showed that peak flow for spring breakup occurs near June 1 of each year with an average peak flow of 6,160 to 6,170 cubic feet per second (cfs). A mid-summer period of lower flows occurs in late July to early August with average flows of 1,570 cfs. A second peak occurs with the rains in the fall, normally in September/October with an average peak of 3,000-3,500 cfs.[57]

Impediments to boating the Kanektok River during low water include sweepers, gravel bars and shallow areas. The water is so transparent above the mud at the mouth of the river that

it is difficult to distinguish where tidal flats end and ocean begins. Deep troughs snake elusively into Kuskokwim Bay toward the main channel formed by the discharge of the Kuskokwim River. It is common for visiting boats and barges to miss bends in the channel and run aground until the next high tide. Locals intimately know this torturous area of mud, water and extreme tidal flux. The Kanektok River is relatively difficult to navigate by skiff upstream beyond river mile 30. Its swift currents, ever-changing gravel bars, numerous braids and twisting channels overhung with sweepers--particularly in the middle third of the river--require constant maneuvering and skillful boatsmanship. River hunting and floating guide Michael Strahan warns rafters to expect shallow water, numerous sweepers, strainers, submerged timbers and some logjams throughout the upper and middle stretches of the Kanektok River. [58]

With two exceptions, the river appears to be in its natural and ordinary condition from the time of statehood. Erosion from the Kanektok River, stemming from north winds and high tides, has undermined the gravel foundation along the banks of the village of Quinhagak. The community began relocating away from the river banks in 1969-1970 and continued moving away from the river through the mid-1980s until the village has become stretched out across lands between two goosenecks of the Kanektok River.[59] In the 1990s, BLM surveyors noticed that accretion had occurred along the south bank at the mouth of the river in Section 14, T. 5 S., R. 74 W., SM. A gradual accumulation of land had occurred since the land was surveyed in 1908 (U.S. Survey 876). The BLM surveyed the buildup in 1994 and issued a Supplemental Plat on November 10, 1998.[60] (Attachment 17) No reports have been found that this buildup has hindered boat access up the mouth of the river.

V. Evidence of Use

Early Native Use of the Kanektok River through the 1930s

Human occupation of the Kuskokwim area goes back 11,000 years to nomadic hunters of Pleistocene animals. These hunters were supplanted about 1,900 B.C., when Eskimos from the north moved into the lower Kuskokwim drainage, bringing with them the so-called Arctic Small Tool tradition.[61] Permanent occupation of the interior Kuskokwim Delta with chronological continuity began about AD 600.[62] Their descendents, the *Kusquqvagmiut* (also known as Yup'ik Eskimos or mainland southwest Alaskan Eskimos), have inhabited the Kuskokwim River and its tributaries down to the present as far inland as the village of Aniak. By 1880, their population was estimated at 3,100.[63] The Central Yup'ik Eskimos inhabited the southwest coast, and the *Caninermiut* subgroup occupied the eastern side of Kuskokwim Bay, including the Quinhagak area. The Central Yup'ik established permanent villages that formed a base from which they wandered in an annual round of subsistence activities. Their lifestyle centered on fishing for salmon and freshwater fish, hunting sea mammals, land mammals, and waterfowl, and gathering berries.[64]

In 1978, archaeologist Robert Ackerman conducted an archaeological survey extending up Goodnews River to Goodnews Lake and north through the Ahklun Mountains to the

foothills between the Eek and Kwethluk rivers. The survey area included Kagati and Pegati Lakes, where he found 63 prehistoric site clusters with 142 separate loci in the vicinity of two lakes and extending up Atmugiak Creek. The sites consisted of scatters of stone artifacts such as flakes, biface fragments and projectile points, and the remains of a fence designed to corral and harvest caribou. Twelve sites are located along ridges overlooking a portion of Kanektok River extending about ten miles downstream from the outlet at Pegati Lake.[65] Ackerman returned to the area in 1979 and found eleven additional prehistoric sites in the upper Atmugiak Creek valley. The abundance of archaeological sites on the upper Kanektok River and around Pegati and Kagati Lakes indicates several thousand years of human use of the area for hunting caribou, fishing and gathering plants. The clustering of sites around Kagati, Pegati and other lakes in the Ahklun Mountains, indicates that prehistoric hunters camped around interior lakes at the crossing points of several valleys and the river valleys served as corridors for the passage of both caribou and people. This pattern began several thousand years ago and continued into the historic period. Ackerman surveyed only the upper-most portion of the Kanektok River, but noted that Kagati and Pegati Lakes are approachable from five major river valleys, making it possible that the Kanektok River was a prehistoric route from the Kuskokwim River flats to the Kagati Lake area.[66] In 1989, a BLM official, drawing on reports of early explorers, concluded that the Kanektok River may have been a segment in a Native travel route to the Bristol Bay region during the nineteenth century.[67] (Attachment 14)

The *Kusquqvagmiut* have lived a traditional subsistence lifestyle that spans many centuries. Subsistence is a form of production and consumption in which hunting, fishing and collecting plants are the primary sources of food and other necessities of life. Traditional Native subsistence practices of harvesting, distributing and consuming resources include important social and religious components. One of the most important is the distribution and exchange of subsistence products within families, between families and bands, and with Native groups outside their territory. Each Native culture in Alaska has its own set of customs and values governing the transfer of subsistence goods, falling into categories such as ceremonial, sharing, partnership, trade and commercial exchange. The values which promote ceremonial feasting and distribution of subsistence resource goods have persisted in all Alaska groups.[68] In Kuskokwim Bay communities, social organizational forms, such as cooperation between households and the development of distribution and exchange networks for subsistence products, resulted in highly productive households supporting less productive households. Egalitarianism in consumption has thereby been maintained, which conforms to the egalitarian organization of production.[69]

By 1824, Russian fur traders had established trade with the people of the Kuskokwim River and surrounding area. Native trappers traded furs for manufactured goods such as clothing, wool blankets, knives, flint, spears, needles, pots, cups, mirrors, copper rings and other items of personal adornment. Contact with Russians produced patterns which were not part of the indigenous subsistence system: commercial trade, credit/debt relations, and some experience with money as a medium of exchange. After the departure of the Russians in 1867, the Alaska Commercial Company monopolized the fur trade in Alaska, severely restricted credit to the Natives, and conducted a flourishing business in furs at the

Kuskokwim River trading posts. Trapping activity remained highly productive into the 1930s. The fur market after World War II fluctuated extensively and suffered marked declines in demand and price for most fur species in southwest Alaska. The Yup'ik-speakers of the Kuskokwim Bay area have a long history of commercial trade, credit/debt relations and money transactions with representatives of an external economic system. Most of the trapping was done while hunting and harvesting resources for domestic consumption.[70]

In the nineteenth and early twentieth centuries, Native settlements existed at various points along the Kanektok River. Quinhagak village, the only surviving Native settlement along the river, was located at river mile 2 near the mouth of the Kanektok River. *Pgu'uilnguar-miut*, a small village consisting of three house pits located at river mile 16.5, served as a hunting and overnight camp for travelers along the river. The USGS geologists in 1898 reported Eskimo villages or camps at *Anechlangamute* near river mile 48 and *Chuarlitiligamut* near river mile 59.[71] During Ackerman's archaeological survey in the Ahklun Mountains in 1978 (Figure 4), he found two historic camp sites near Kagati Lake. One site consisted of a house pit and three rectangular pits dating from the nineteenth century or earlier. The other site consisted of tie-down stakes and stones, cut wood, a blazo can, a coffee can, and other artifacts dating from the early twentieth century. Prior to the 1920s, a few residents of Kwethluk were living in settlements and camps along the upper Kanektok River. Since 1920, residents of Kwethluk have used areas for salmon fishing along the Kanektok River and lakes located near the headwaters of the Kanektok. They used spears to catch salmon in the clear water tributary streams of the Kanektok River.[72]

Quinhagak is an old village whose origin predates historic contact. Historically, the village has been one of the largest communities along Kuskokwim Bay. Quinhagak's name (*Kuineraq*, meaning "making of a new river") stems from the changing landscape. Long ago, according to Quinhagak elders, the mouth of the Kanektok River used to enter Kuskokwim Bay several miles to the north. The river's shifting meanderings cut off this outlet and formed a new channel farther south, along which the community of Quinhagak was established, named for the birth of the emerging watercourse.[73]

The population of Quinhagak grew over the last century from the migration of people to the village from settlements along the Kanektok and Arolik rivers and elsewhere. Quinhagak became a focus for the area's population in the late 1800s when the Moravian church established a school there. The Moravian Church established a mission there in 1894, and, beginning in 1903, a succession of missionary families served in the village for many years with the assistance of Native Helpers. The missionaries provided schooling, medical care, and spiritual ministry. They also operated a small store. Those services made the village attractive to people from the Kanektok and Arolik river drainages and other nearby areas.[74] George L. Harrington, a USGS geologist, depicted Quinhagak village on a map (Figure 13) that he made after a trip to the area in the summer of 1919.[75]

The 1880 census recorded 83 people living in six houses and one *qasgiq* (a community house which served as the men's residence) at Quinhagak. The nearest village was Arolic

(called *Aguliagamute* by census taker Ivan Petroff) on the Arolik River that had a population of 120.[76] By 1890, the population of Quinhagak had grown to 109 and the number of people at Arolic village had fallen to 94. Quinhagak continued to grow, reaching a population of 201 in 1900. Arolic village ceased to be listed in the census as a distinct community and its people likely moved to Quinhagak. Major epidemics swept through the area, repeatedly devastating local communities. Quinhagak's population fell to 111 in 1910. Between 1920 and 1960, the village's population fluctuated between a low of 193 and a high of 230, before surging to 340 in 1970 [77] and 427 people living in 97 households during 1982.[78]

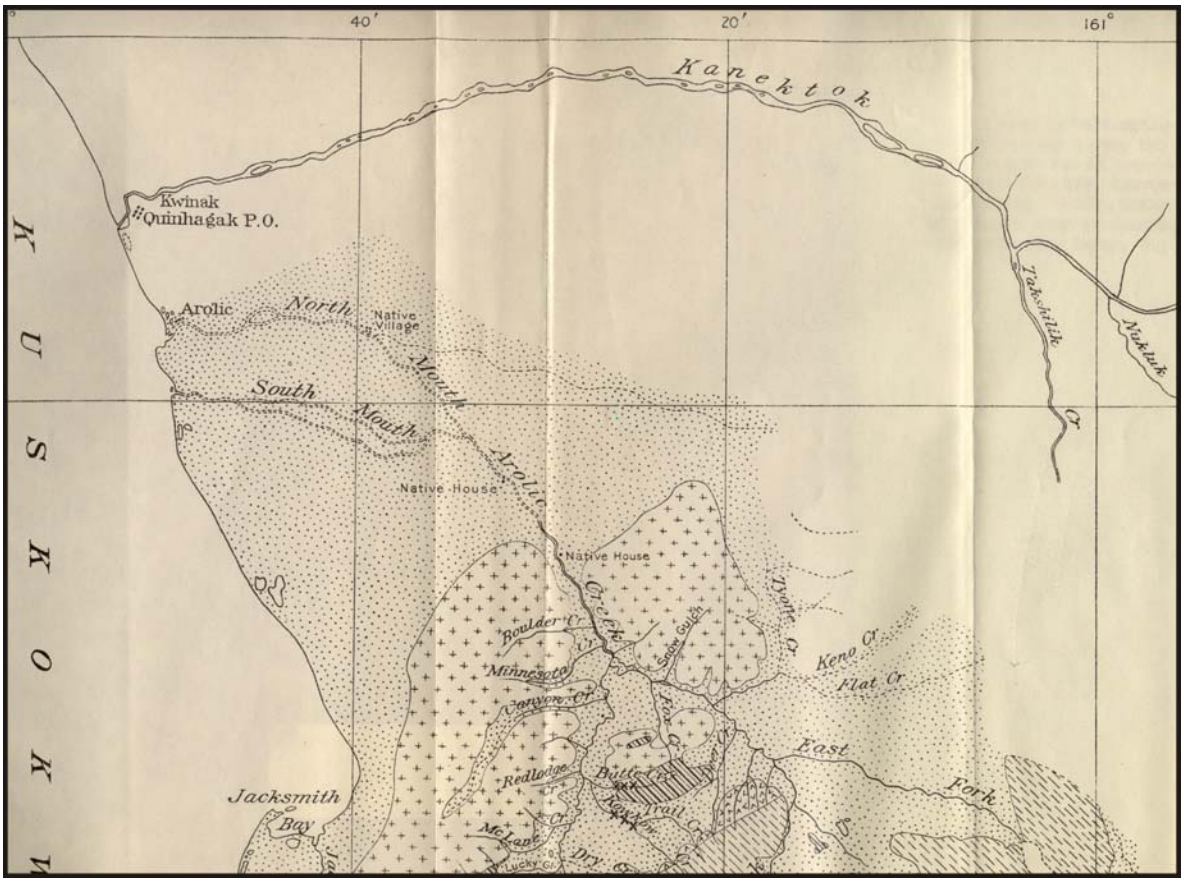

Figure 13. USGS map from 1919 showing the Kanektok River and Quinhagak (Kwinak) village. Arolic village (now abandoned) is shown along the north mouth of the Arolik River. Map reproduced from Harrington, *Mineral Resources of the Goodnews Bay Region*, p. 214a.

Over the course of a century, the number of villages in the area fell from 12 (with a total population of 878) to four villages with a combined population of 863. While Quinhagak's population has grown five fold, the contemporary population along southern Kuskokwim Bay is about the same as it was in 1880. Many of the adults residing in Quinhagak in the 1980s were born and raised in other area communities, especially villages previously located at Jacksmith Bay and along the Arolik, Kuskokwak and Apokak rivers. With the

vigorous enforcement of mandatory public school attendance for school-aged children in the 1950s, most families still residing in the smaller, dispersed settlements along the coast relocated to Quinhagak, Eek, Goodnews Bay or Platinum. Quinhagak's growth has been due primarily to consolidation of small, spatially dispersed settlements.[79]

The *Kusquqvagmiut*, including the people from Quinhagak and Arolic villages, traveled by watercraft to access, harvest, and transport subsistence resources to their village sites, and to distribute the harvested resources. As contact with Russian fur traders and American missionaries, traders and miners increased in the nineteenth and twentieth centuries, the Native subsistence system of distribution and exchange gradually changed. While the *Kusquqvagmiut* continued their hunting, fishing, and gathering efforts, their involvement in the fur trade brought about significant changes.[80] Contact with American traders increased the interaction between subsistence production and commercial exchange, including the sharing and trading of commercial and subsistence goods.[81]

The *Kusquqvagmiut* used canoes to travel up rivers in the Kuskokwim Region to fish for salmon, hunt and gather berries. Rivers within the area, such as the Kanektok River, enhanced the mobility of travelers and provided extensive access deep into the adjacent countryside.[82] Although the historic villages located along the south side of Kuskokwim Bay were located on the coast, their residents oriented their subsistence activities more toward the rivers and inland areas than toward the sea. This inland orientation was stronger in the past, when more up-river settlements existed. In the past, hunters from Quinhagak ascended the Kanektok River to hunt caribou in the Ahklun Mountains.[83]

The experience of Quinhagak elder Paul Jones was typical of individuals who lived in villages and camps on outlying rivers and streams during the late nineteenth and early twentieth centuries and later moved to Quinhagak. He spent his early childhood "in spring, summer, and winter camps mainly on the Kanektok and Arolik rivers with his parents." He moved with his parents to Quinhagak when he was older and he continued to engage in subsistence activities in the Kanektok and Arolik drainages, other Kuskokwim river drainages and on Kuskokwim Bay.[84]

Several Quinhagak elders interviewed in 2002 and 2004 stated that between 1916 and 1929, they moved among seasonal camps up and down the Kanektok River "following resource abundance." In winter, they traveled by dog team. In summer, they used kayaks and oar boats, which they poled upriver, or small boats with sails. Outboard motors were few. In spring, people moved to muskrat trapping camps. After returning to the village, they moved to fish camps to harvest salmon. Quinhagak people dispersed to seasonal camps along the Kanektok drainage, and some families traveled toward the mountains to trap parka squirrels and other fur bearers. Other families remained at their spring camps during the summer for salmon fishing, and others returned to Quinhagak. Elders drifted down the river in boats or kayaks, pushing with a pole or oar. King salmon arrived first in the rivers, followed by sockeye and chum salmon, and silver and pink salmon in August. In late summer and early fall, some people went upriver by boat to hunt migratory birds, bears, or an occasional moose, pick berries or to put up fish for the winter. A few families

remained upriver through the winter and they harvested fish through the ice. The subsistence activities of Quinhagak residents followed "an ebb and flow of targeted resources depending on the season, but fish were pursued year round."[85] Residents harvested large numbers of fish for consumption by people and dogs, and for sharing. Some were traded.

In addition to harvesting resources for subsistence, the people of southwest Alaska engaged in trapping and fishing for the purpose of trade. Before the existence of a cash economy, according to one study, "furs and occasionally fish were… used as a form of currency for basic trade items such as tea, coffee, sugar, flour, rifles, ammunition, pots and pans, some clothing, and occasionally milk."[86] According to another study of subsistence in villages along the south Kuskokwim Bay shore, "Trapping activity…remained highly productive into the 1930s." Some of the fur trade was international in scope. Parka squirrels and marmots were major trade items historically. They were traded from the Kuskokwim area north to the Yukon River for caribou and domestic reindeer skins from Siberia via Bering Strait and Norton Sound traders.[87] Few Native people harvested or processed fish for the canneries and there was little in the way of wage work available to Natives prior to World War II. As one anthropologist noted, Natives "were kept out of the processing sector by discrimination on the part of cannery operators."[88]

Some *Kusquqvagmiut* used skin boats on the Kanektok River to return from the mountains after spring squirrel and caribou hunts. Prehistoric hunting camps, lookouts and ancient stone fences used to guide the caribou to areas where they could be harvested are scattered throughout the Kagati and Pegati Lakes area in the headwaters of the Kanektok River.[89] The core caribou hunting areas of Quinhagak hunters have been and continue to be at the headwaters of the Kanektok River. Spring hunting camp in the mountains at the headwaters of the Kanektok, Tuluksak, and Kwethluk rivers was an important part of the seasonal round for generations of Quinhagak, Tuluksak, Kwethluk and Akiak Natives.[90] Before white men and motor boats, the Eskimos took their families by dogsled or on foot to the headwaters of these rivers in the early spring. After spending weeks there catching parka squirrels and hunting caribou, Quinhagak area villagers constructed wooden framed skin boats. After breakup, they floated down the river in the skin boats, transporting meat, skins, sleds, dogs, tools and their families from their spring hunting sites on the upper Kanektok River to their summer village sites near Kuskokwim Bay.[91] (Attachment 23)

While hunting in the mountains, the Natives tried to harvest enough caribou to make a boat with their skins. The broad raft-like skin boats, called *angyaqatak* (from *angyaq*, 'open skin boat,' plus *qatak*, 'about to be'), were well suited for shallow, fast-moving streams. These shallow-draft skin boats were built to return home and they were disassembled at the end of the trip.[92] The *angyaqatiit* (Figure 14) were almost as wide as they were long, and often carried a family group. Their broad beam promoted safe travel in the fast-moving waters of shallow mountain streams. The boat was almost round and did not easily capsize in rapids. The vessel was made so it would not easily get crosswise with the current and fill with water. The wide beam enabled the boat to carry a heavy load. The raft-like hull shape gave it equal stability in all orientations. In rapids and turbulent currents, the *angyaqatiit*

was more stable than a kayak, but harder to steer, as the added stability meant that it resisted changing positions. Two people, one in the front and one in the back, used wide paddles to guide the boat away from rocks or logjams as they floated down stream.[93]

Figure 14. *Angyaqatak*, skin boat built in 2007 on the upper Kwethluk River and exhibited at the Anchorage Museum of History and Art for the Yupik Science Exhibit. Photo from *http://www.yupikscience.org/4rivrsspring/4-1.html*.

Some Natives built *angyaqatiit* at their camps high in the mountains, while others packed their spring harvest out of the high country and past the places where the current was impassable below their hunting camps. The boat frames were made from cottonwood, alder and willow. Wood, which was often scarce in the mountains, had to be collected and split to make the pieces useful. When wood was scarce, some men took apart their flat-bottomed sleds and used the slats for boat ribs. The men cut logs into one-inch-thick planks for the sides and bottom of the frame. The keel was made from a long, straight piece of wood running the length of the bottom. Sections of trunks or tree roots with a natural curve were used for the bow and stern pieces. The boat frame was then lashed together with rawhide line or, more recently, cord. When the frame was complete, men covered it with bear, moose or caribou skins that had been soaked in water and sewn together with waterproof stitches, then folded over the gunwales and lashed to the frame. The fur side of the skin rested against the frame to protect the skin from chafing against rough spots in the wood. This helped with buoyancy, as waterlogged fur would weigh down the boat. After the boat frame was covered, the men heated caribou fat or tallow and used the rendered oil to paint the seams, making them watertight. If the seams were not

painted, they would work loose, and the boat would fill with water.[94] Quinhagak resident Mildred Charles' father accessed the parcel that later become her Native allotment (FF-17813-B) on Kagati Lake in 1956 using a skin boat.[95] It is unclear if her father built the skin boat at the lake or took the skin boat up the Kanektok River to reach the lake.

Non-Native Use of the Kanektok River Prior to Statehood

The early non-Native history of the Kanektok River is examined in the *Alaska's Kuskokwim River Region: A History* (1985), BLM's regional report written by C. Michael Brown. Much of Brown's narrative is summarized below.

The first recorded journey of traveling by boat up the Kanektok to its headwaters was the 1898 USGS expedition led by Josiah Edward Spurr, a geologist well known for exploring the Yukon region. Spurr's 1898 expedition sought to discover a route into Interior Alaska that would bypass the need for travel through Canada. Spurr began his expedition by surveying a route from Cook Inlet up the Yentna River to the Kuskokwim River. He reached Bethel in the summer of 1898. In August, Spurr decided to explore the Kuskokwim region further by traveling up the Kanektok River, then overland across the Ahklun Mountains to Nushagak in Bristol Bay. Spurr's party departed Bethel and sailed to Kuskokwim Bay with Moravian missionary John Kilbuck in Kilbuck's small sloop. While Kilbuck remained at Quinhagak, the government surveyors began their ascent of the Kanektok River on August 26th. Their goal was to paddle to the headwaters of the Kanektok, portage across a low divide in the Ahklun Mountains southeast to Tikchik Lake and thence proceed to Nushagak. This route was known by local Yup'ik people, as Spurr wrote in his diary: "The Native guides say, as near as I can understand their Eskimo, that it will take a very long time to get to Nushagak this way."[96] Kuskokwim Bay was notorious for unexpected squalls that made boat travel along the coast dangerous. Earlier that summer, a boatload of prospectors, a missionary family, and a Native man drowned on Kuskokwim Bay in foul weather, so there was some appeal to taking an alternative, inland route to Bristol Bay. During their journey up the Kanektok River, Spurr also learned of a portage route to Togiak using Klak Creek and a portage route to Eek using a right tributary of the Kanektok opposite Klak Creek.[97]

Spurr's party included Spurr, USGS topographer William Schuyler Post, Oscar Rohn, and George Hartman, a Native guide from Bethel named Andrew, and two Native guides from Quinhagak, named Paviak and Uia. The USGS party travelled in a lightweight 18-foot cedar canoe while the Native guides travelled in their own kayaks. Spurr and Post mapped the route and named several geographic features along the way using names provided by their guides. From August 26 to September 8, the party made a difficult ascent of the river, encountering persistent rain and strong river currents. The crew often had to line the boats by wading upstream and pulling them. Through the journey the crew encountered other hardships. Unable to find wood to build fires, their clothes and gear stayed wet throughout most of the trip. Their guide, Andrew, became sick along the journey and turned back. Nevertheless, they were able to ascend this fast-flowing river without any recorded mishaps in 13 days.

Reaching the headwaters of the Kanektok, Spurr called Kagati Lake "a beautiful little sheet of water, walled by magnificent jagged mountains, splendid with the covering of snow which had fallen the night before."[98] His crew made camp near Aukamunuk Creek and searched from there for a land portage across the mountains. Following a shallow creek and hauling their gear overland, Spurr's party travelled for five days across this portage route. Knowing they were dangerously low on provisions, and anticipating twenty more days of portaging to reach Nushagak, they changed their plan. They took a shorter route down the Togiak River and reached village of Togiak on September 19.

Throughout their journey up the Kanektok River, Spurr noted the presence of abundant salmon and several small villages or fish camps, which appeared abandoned only for the season. According to Spurr, the whole mountain range at the headwaters of the Kanektok River was the winter and spring hunting ground for adventurous Natives on the lower Kuskokwim River. He called it a "a fairly good game country," the Eskimos hunting caribou and bear in the mountains and waterfowl along the river."[99] During Spurr's expedition up the Kanektok River, his guides were initially reluctant to take the route up the river and across the mountains.[100] This may have meant that the portage routes involving the Kanektok were not frequently used, or that the Native guides were concerned about undertaking a portage late in the open season. Spurr's guides were intimately familiar with navigating the river, Kagati Lake and the overland the portages. The success of the Spurr expedition in reaching Togiak suggests that these inland routes were well known to the Quinhagak people and had been successfully completed before. As a BLM official noted nearly a century later, there is considerable evidence that during the nineteenth century, the Kanektok River "may have been a segment in a Native travel route [from Kuskokwim Bay] to the Bristol Bay region."[101] (Attachment 14)

After Spurr's expedition and mapping of the Kanektok River, prospectors began exploring the area in the early 1900s. Prospectors from the Innoko River area made gold discoveries on tributaries of the Arolik and Eek rivers in 1910.[102] This led prospectors to scour the Kanektok River drainage, which lies between the Arolik and Eek rivers. Just prior to 1912, participants in the Arolik River rush staked a set of placer claims at the head of Atmugiak Creek which flows south and west into Kagati Lake. The claims, called the Winchester group, consisted of seven placer claims containing two "realgar-stibnite-quartz" veins. The claims were abandoned and re-staked several times. Four Native men from Quinhagak and Akiak held the claims in 1937.[103] (Attachment 24) Other prospectors discovered a mineral prospect three miles east of Mount Oratia and north of Kagati Lake in 1927. The deposit, which consists of quartz, cinnabar, stibnite, realgar and orpiment, was explored by an adit and traced to the surface for several hundred feet.[104] A third mineral deposit consisting of placer gold was discovered three miles up Sam Creek, a west tributary to the Kanektok River. The date and identity of the discoverer is unknown as no claim was filed. A small sluice box and a small area of surface diggings were abandoned before 1950.[105]

In the 1920s and 1930s, Quinhagak, at the mouth of the Kanektok River, was the settlement along the coast nearest to the placer mines on the upper Arolik River and the mineral deposits near Kagati Lake. In discussing potential supply routes for heavy equipment to

the mines on the upper Arolik River, a mining engineer noted in 1926 that Quinhagak "is accessible to small boats only at high tide."[106] A geologist for the Territorial Department of Mines visited the Winchester group of claims near Kagati Lake in 1937. "To reach the location of this group necessitates either the use of airplane or river boat," the geologist noted. Under favorable weather conditions a float plane could land at Kagati Lake or at a landing site built on the Eek River, then overland 10-12 miles on foot. "The river boat route is up the Kanektok River from the village of Quinhagak a distance of nearly 100 miles by river." During his visit to the claims in 1937, the geologist met "several families of Eskimos… camped on the northwest end of Kagati or Quinhagak Lake on and near the head of the Kanektok River."[107] (Attachment 24) Due to the high cost and limited availability of float planes in rural Alaska in the 1930s, most miners and Native people at fish camp accessed the lake by ascending the Kanektok River by boat from Quinhagak.

In 1956, two miners from Bethel, Noah Jackson and John Long, staked 12 cinnabar claims about six miles northeast of Kagati Lake. Owned by the Bethel Exploration Company in 1957, the claims were subsequently taken over under an option agreement by the Sunshine Mining Company. Under the management of Pat DeWilliams and John Magura, this company used a bulldozer to develop the claims. According to a geologist from the USGS, who visited the property in 1957 with a representative of the U.S. Bureau of Mines, the prospect was accessible by floatplane landing on Kagati Lake or, in good weather, a small lake about a mile from the prospect. Most floatplanes landed on Kagati Lake, for a tractor road extended eight miles from the lake to the prospects. The prospects were also accessible by winter tractor trails from Bethel.[108]

Native Use of the Kanektok River Prior to Statehood

The people of Quinhagak continued to harvest resources along the Kanektok River after 1930. They traveled up river in kayaks and oar boats, which they poled upriver, to seasonal camps where they engaged in fishing, hunting, trapping, and berry picking. Those subsistence activities changed gradually during the twentieth century in response to changing conditions and technology. Between 1930 and 1954, subsistence was to be the predominant lifestyle, although a wider variety of economic opportunities became available to the people of Quinhagak. Some people harvested salmon for the canneries or worked in the canneries. Others herded reindeer, but the herds disappeared from the area by the 1940s. Cannery wages enabled people to purchase rifles, ammunition and outboard motors. People used boats powered by outboard motors to travel from Quinhagak to their seasonal camps upriver. Native people continued to trade or sell dried salmon and furs.[109]

Although Native people participated in the fur trade, they did not work for wages until outside labor became scarce during World War II, which opened opportunities for Native people to work in the canneries. After the war, processing crews were composed of all Natives. Gradually, in the years just before statehood, Natives also became involved in harvesting fish for the canneries. Quinhagak families continued to travel to spring hunting camps, taking their children out of school to move upriver to squirrel camps. In the mid-

and late-1950s, the school in Quinhagak tightened its attendance policies which had the effect of discouraged families from going to spring squirrel camp. After World War II, the market for furs fluctuated and prices declined. Fewer Natives engaged in trapping for commercial sale in southwest Alaska.[110] This may have reduced the number of people traveling to spring camps and the number of Native people who floated downriver from spring camps after break-up.

Between 1955 and 1979, disposable income from commercial fishing allowed Natives to purchase aluminum boats, outboard motors and snowmachines. Kayaks, oar boats, and sail boats also continued to be used throughout this period. Snowmachines were introduced as early as 1955, but they did not begin to replace dog teams until the late 1960s and early 1970s. The use of snowmachines reduced the need to harvest large numbers of fish for use as dog-team "fuel," but increased the need for cash with which to purchase fuel for snowmachines.[111]

Use of the Kanektok River Documented in Native Allotment Files

Native allotment files contain references to boat use on the Kanektok River since the early 1940s and extending up to 1959, as well as use of the river during the years after Alaska became a state. The BLM adjudicated Native allotment applications under the Native Allotment Act of 1906. Most of the Native allotment applications filed on the Kanektok River were filed in 1971, prompting the BLM to begin collecting information to adjudicate allotment applications filed by local Natives who had fished, hunted and picked berries along the Kanektok River. The Natives had used power boats for decades to access favorite spots for hunting, trapping, fishing and berry picking along the river. These favorite spots developed into exclusive use areas. The federal government recognized many of these allotments and transferred title to the sites to the applicants. Twenty-two residents of Quinhagak and one resident of Eek filed Native allotment applications for 32 parcels along the Kanektok River or tributaries within the Togiak NWR between river mile 22 and river mile 70. Three Bethel residents filed Native allotment applications for three parcels on the north shore of Kagati Lake. Native allotment files for most of these parcels contain references to boat use on the river.

Charles Evans of Quinhagak applied for a Native allotment (AA-37765) split into two parcels on September 27, 1971. Parcel A consists of 120 acres and is located in Sec. 19, T. 4 S., R. 71 W., SM, at river mile 22 of the Kanektok River. Evans claimed use of the parcels for subsistence purposes beginning in 1950. He used Parcel A from August through October for hunting, fishing and berry picking, and from November through July for trapping, hunting and fishing.[112] The BLM field report for Parcel A indicates that Evans accessed the parcel "by boat."[113]

Joseph Hunter of Quinhagak applied for a Native allotment (AA-37761) split into two parcels on September 27, 1971. Parcel A consists of 120 acres and is located in Secs. 19-20, T. 4 S., R. 71 W., SM, at river mile 22 of the Kanektok River. Mr. Hunter claimed use

of the parcels for subsistence purposes beginning in 1950. He used Parcel A from August through October for fishing, hunting and berry picking, from November through December for trapping and from December through July for fishing.[114] The BLM field report for Parcel A indicates that Evans accessed the parcel "probably by riverboat."[115]

Adolph Foster of Quinhagak applied for a Native allotment (AA-31281) split into two parcels on September 27, 1971. Parcel A consists of 80 acres and is located in Sec. 20, T. 4 S., R. 71 W., SM, at river mile 23 of the Kanektok River (Figure 15). Foster claimed use of the parcels for subsistence purposes beginning in 1940. He used Parcel A from May through July for trapping and fishing, and from August through October for fishing and hunting.[116] The BLM field report for Parcel A indicates that Evans accessed the parcel "by boat."[117]

Figure 15. The Kanektok River at river mile 23, July 9, 1984. Native allotment AA-31281-A is located at lower right around the red circle. Photo by Carl Neufelder, Native allotment Field Report, BLM files, AA-31281.

Dan O. Kuku of Quinhagak applied for a Native allotment (AA-31275) split into three parcels on September 27, 1971. Parcel A consists of 80 acres and is located in Secs. 20 and 29, T. 4 S., R. 71 W., SM, at river mile 23 of the Kanektok River. Kuku claimed use of the parcels for subsistence purposes beginning in 1950. He used Parcel A from August

through October for fishing, hunting and berry picking, from November through December for trapping, and from December through June for fishing and hunting.[118] The BLM field report for Parcel A indicates that Kuku accessed the parcel "probably by riverboat."[119]

Martha Mark of Quinhagak applied for a Native allotment (AA-37776) split into two parcels on September 29, 1971. Parcel B consists of 80 acres and is located in Secs. 28 and 29, T. 4 S., R. 71 W., SM, at river mile 23.5 of the Kanektok River. Mark claimed use of the parcels for seasonal subsistence purposes beginning in 1950. She used Parcel B from August through October for fishing, hunting and berry picking.[120] The BLM field report for Parcel B indicates that Ms. Mark accessed the parcel by "boat."[121]

David Hunter of Quinhagak applied for a 160-acre Native allotment (AA-54090) on August 23, 1983. The parcel is located in Secs. 28 and 32, T. 4 S., R. 71 W., SM, at river mile 24.5 of the Kanektok River. Hunter claimed use of the parcel for subsistence purposes beginning in 1954. He used the parcel from August through January for hunting and fishing.[122] The BLM field report for the parcel indicates that Hunter accessed the parcel by "boat, trail."[123]

John Bigjohn of Quinhagak applied for a Native allotment (AA-37777) split into two parcels on September 19, 1971. Parcel A consists of 80 acres and is located in Sec. 29, T. 4 S., R. 71 W., SM, at river mile 23 of the Kanektok River. Parcel B consists of 80 acres and is located in Sec. 27, T. 4 S., R. 71 W., SM, at river mile 25 of the Kanektok River. Bigjohn claimed use of the parcels for subsistence purposes beginning in 1966. He used the parcels from August through October for fishing and hunting, from November through December for trapping, and from August to June for fishing.[124] The BLM field reports for these two parcels indicate that access by the applicant was "probably by riverboat."[125]

Paul W. Jones of Quinhagak applied for a Native allotment (AA-31292) split into three parcels on September 29, 1971. All three parcels are located on the Kanektok River. Parcel A consists of 40 acres and is located in Secs. 27-28, T. 4 S., R. 71 W., SM, near river mile 25 of the Kanektok River. Parcel B consists of 40 acres located in Sec. 29, T. 5 S., R. 68 W., SM, near river mile 53 of the Kanektok River. Parcel C consists of 80 acres and is located in Sec. 27, T. 3 S., R. 66 W., SM, near river mile 72 of the Kanektok River. Jones began using the three parcels in 1940 for subsistence purposes.[126] He used Parcel A each year from August through October for fishing and berry picking. An old sod house is located about ½-mile west of Kanektok River. Jones accessed the parcel by boat during the open season when the river was not frozen.[127] He used Parcel B every year from August through October to hunt big game and pick berries. He accessed the parcel by boat during the open season then walked overland to hunt.[128] Jones lived on Parcel C when he was little and has returned each year from August to October to hunt bear and moose and to catch fish. He accessed the parcel by boat during the open season when the river was not frozen.[129]

Henry Mark (deceased) of Quinhagak applied for a Native allotment (AA-31298) split into two 80 acre parcels on September 29, 1971. Parcel A is in Sec. 23, T. 4 S., R. 71 W., SM,

on the Kanektok River at river mile 28. Parcel B is in Sec. 34, T. 4 S., R. 74 W., SM, at river mile 8 of the Kanektok River. Mark used these parcels from 1964 to the time of his death in 1984 for seasonal subsistence purposes. He used both parcels from August through October each year for fishing, hunting, trapping and berry picking.[130] According to the BLM Field Report, he accessed the parcels by boat during the open season when the river was not frozen.[131]

Nick Mark of Quinhagak applied for a Native allotment (AA-31277) split into four parcels on September 27, 1971. Three of the parcels are located along the Kanektok River. Parcel A is in Sec. 24, T. 4 S., R. 71 W., SM, on a left bank slough of the Kanektok River at river mile 28.5. Parcel B is in Sec. 17, T. 5 S., R. 69 W., SM, at Mile 46**,** and Parcel C is in Secs. 20-21, T. 5 S., R. 68 W., SM, at river mile 54. Mark began using these parcels in 1940 for seasonal subsistence purposes. He used all three parcels from August through October each year for hunting and fishing, from November through December for trapping, and from January through June for fishing hunting and trapping.[132] He accessed the parcels by boat during the open season when the river was not frozen and by dog sled and snowmachine in the winter.[133]

Moses Kuku of Quinhagak applied for a Native allotment (AA-37766) split into four parcels on September 28, 1971. All four parcels were located along the Kanektok River. He later amended combined Parcels B and C into a single parcel (Parcel B). Parcel A consists of 40 acres located in Sec. 19, T. 4 S., R. 71 W., SM, on the Kanektok River at river mile 29. Parcel B consists of 80 acres located in Sec. 24, T. 4 S., R. 72 W., SM, at river mile 19 of the Kanektok River. Parcel D consists of 40 acres located in Sec. 27 and 34, T. 4 S., R. 72 W., SM on a small stream off of river mile 16 of the Kanektok River. Kuku began using these parcels in 1950 for seasonal subsistence purposes. He used Parcels A and B from August through October each year for hunting and fishing, and Parcel B served as his fish camp. He used Parcel D from August through October each year for fishing, hunting and berry picking.[134] He accessed Parcels A and B by boat and Parcel D by boat in summer and fall, and by dog sled and snowmachine in the winter.[135]

Three friends of Moses Williams (deceased) of Quinhagak applied for a Native allotment (AA-31285) for Williams on September 28, 1971. The allotment was split into four parcels, three of which are located along the Kanektok River. Parcel A consists of 40 acres and is located in Sec. 17, T. 4 S., R. 70 W., SM, at river mile 31.5 of the Kanektok River. Parcel B consists of 40 acres and is located in Sec. 35, T. 4 S., R. 73 W., SM, on a slough on the right bank of the Kanektok River at river mile 6. Parcel C consists of 40 acres and is located in Secs. 28-29, T. 4 S., R. 72 W., SM, on a slough on the right bank of the Kanektok River at river mile 16. The application claimed Williams used the parcels for subsistence purposes from 1950 until the late 1970s when he died. He used the parcels from August through October and November through June for fishing, hunting, berry picking and trapping.[136] The BLM field reports for these three parcels indicate that access by the applicant was by "boat in summer and snowmachine in winter."[137]

Two friends of James Williams (deceased) of Quinhagak applied for a Native allotment (AA-37772) for Williams on September 29, 1971. The allotment was split into three parcels, two of which are located along the Kanektok River. Parcel B consists of 80 acres and is located in Sec. 20, T. 4 S., R. 70 W., SM, at river mile 32 of the Kanektok River. Parcel C consists of 40 acres and is located in Sec. 3, T. 5 S., R. 74 W., SM, at river mile 6 of the Kanektok River. The application claimed Williams used the parcels for subsistence purposes from 1950 until 1976 when he died. He used the parcels from August through October and November through June for fishing, hunting, trapping and berry picking.[138] The BLM field reports for these two parcels indicate that access by the applicant was by "boat and snowmachine."[139]

John Jones of Quinhagak applied for an Alaska Native Veterans allotment (AA-84032) split into two parcels on September 29, 1971. Parcel A consisted of 80 acres and was located in Sec. 22, T. 4 S., R. 70 W., SM, near river mile 34 of the Kanektok River. Parcel B consists of 80 acres and is located in Secs. 27 and 34, T. 4 S., R. 69 W., SM, at river mile 41 of the Kanektok River. Jones claimed use of the parcels for subsistence purposes from the 1950s until he entered the U.S. Army in January 1971.[140] He used them every year for harvesting wood and hunting big game. There is no indication on the application of how Jones accessed the two parcels. The BLM denied the application for both parcels because his application was postmarked the day after the filing deadline.

Wassilie Andrew of Quinhagak applied for a Native allotment (AA-37779) on September 19, 1971. The 160-acre parcel is located in Secs. 22-23 and 26-27, T. 4 S., R. 70 W., SM, and it straddles an unnamed left bank tributary near river mile 34 of the Kanektok River. Andrew began using the parcel in 1950 for subsistence purposes. He used the parcel from August through October each year for hunting and fishing, from November through December for trapping, and from January through June for fishing hunting and trapping.[141] He accessed the parcel by boat in the summer and snowmachine in winter.[142]

Carl Cleveland (deceased) of Quinhagak applied for a Native allotment (AA-31299) split into three parcels on September 27, 1971. Parcel A consists of 40 acres and is located in Secs. 23-26, T. 4 S., R. 70 W., SM, on an unnamed left bank tributary near river mile 34 of the Kanektok River. Cleveland began using the parcel in 1960 for subsistence purposes and continued using it until he died in 1987. He used the parcel from August through October each year for hunting and berry picking, and year-round for fishing.[143] Cleveland was not present during the BLM field inspection, but his wife, who accompanied the BLM reality specialist, stated that her husband accessed the parcel in the winter by dog sled or snowmachine.[144] There is no information in the file on how he accessed the parcel during the rest of the year when the river was not frozen.

Andy Sharp of Quinhagak applied for a Native allotment (AA-37767) split into four parcels on September 29, 1971. Two of the Parcels are located along the Kanektok River. Parcel D consists of 40 acres and is located in Sec. 24, T. 4 S., R. 70 W., SM, at river mile 36 of the Kanektok River. Parcel C consists of 40 acres and is located in Sec. 23, T. 4 S., R. 73 W., SM, near river mile 7.5 of the Kanektok River. Sharp began using the parcels

along the Kanektok River in 1945 for subsistence purposes.[145] He used them every year from August through October for fishing, hunting and berry picking, and from November through June for hunting, trapping and fishing. Sharp accessed the two parcels by riverboat during the open season when the river was not frozen.[146]

Dan Mark of Quinhagak applied for a 160-acre Native allotment (AA-31278) on September 28, 1971. The parcel is located in Secs. 9 and 16, T. 5 S., R. 69 W., SM, at river mile 46.5 of the Kanektok River. Mark began using the parcel in 1945 for subsistence purposes. He used the parcel from August to October for hunting and fishing, from November through January for trapping, and from January through June for fishing and hunting.[147] He accessed the parcel by boat in the open season. [148]

John W. Mark of Quinhagak applied for a Native allotment (AA-31279) split into three parcels on September 27, 1971. Parcel B consists of 80 acres and is located in Sec. 17, T. 5 S., R. 69 W., SM, at river mile 46.5 of the Kanektok River. Parcel A consists of 40 acres and is located in Sec. 21, T. 5 S., R. 69 W., SM, on the left side of Kanektok River at river mile 48. Parcel C consists of 40 acres and is located in Sec. 25, T. 5 S., R. 69 W., and Sec. 30, T. 5 S., R. 68 W., SM, at river mile 52 of the Kanektok River (Figure 16). Mr. Mark began using the parcel in 1950 for subsistence purposes. He used the parcels from August through September for hunting and fishing, from October through November for fishing and hunting, and from November through December for trapping.[149] He accessed all three parcels by boat in the open season.[150]

Figure 16. View of the Kanektok River at river mile 52 with Native allotment AA-31279-C at lower right, July 7, 1984. The view is looking west. Photo by Meg Jensen, BLM file AA-31279.

John Moore of Eek applied for a Native allotment (AA-55926) split into three parcels on January 14, 1985. Parcel B is an 80-acre parcel located in Sec. 26, T. 5 S., R. 69 W., SM near river mile 50 of the Kanektok River. Parcel C is a 40-acre parcel located in Sec. 26, T. 4 S., R. 67 W., SM, at river mile 62 of the Kanektok River. Moore began using the parcels in 1960s for subsistence purposes. He used the parcels in August and September for trout and salmon fishing, in November for trapping mink, and in April for trapping squirrel.[151] He accessed the parcel by boat in the open season.[152]

Abraham Cleveland of Quinhagak applied for a Native allotment (AA-37759) split into four parcels on September 27, 1971. Parcel D consists of 40 acres and is located in Sec. 26, T. 5 S., R. 69 W., SM, near river mile 51 on the left bank of the Kanektok River. Cleveland began using Parcel D in 1950 for subsistence purposes.[153] Jones used this parcel every year from August through October for fishing and hunting bear and moose, from November through December for trapping mink and beaver, and from January through July for fishing, hunting and berry picking. He accessed the parcel by boat during the open season when the river was not frozen and by snowmachine during the winter.[154]

Frank Matthew, Sr. of Quinhagak applied for a Native allotment (AA-37774) split into four parcels on September 28, 1971. Parcel B is located in Sec. 30, T. 5 S., R. 68 W., SM, straddling river mile 52.5 of the Kanektok River. Matthew began using Parcel B in 1950 for seasonal subsistence purposes. He used the parcel from August through October each year for hunting, fishing and berry picking, from November through January for trapping, and from February through June for squirrel hunting and fishing.[155] Improvements at the site included tent frames on both sides of the river. Matthew accessed the parcel by boat during the open season when the river was not frozen.[156]

Sam Cleveland of Quinhagak applied for a Native allotment (AA-31272) split into three parcels on January 14, 1985. Parcel C is a 40-acre parcel located in Sec. 29, T. 5 S., R. 68 W., SM near river mile 53.5 of the Kanektok River. Cleveland began using the parcel in 1965 for subsistence purposes. He used the parcel from August through October each year for hunting.[157] He accessed the parcel by boat. [158]

Mildred V. Hopstad of Bethel applied for a Native allotment (FF-18462) split into two parcels on November 6, 1971. Parcel B consists of 80 acres and is located in Sec. 28, T. 3 S., R. 63 W., SM, on the northwest shore of Kagati Lake. Mrs. Hopstad began using Parcel B in 1960 for seasonal subsistence purposes. She has used the parcel from June through December each year for berry picking, fishing and hunting.[159] During an inspection of the site on September 23, 1975, Mrs. Hopstad's husband, Olaf Hopstad, stated that he and his wife occasionally flew to Kagati Lake by floatplane to fish for trout. The BLM reality specialist concluded that the applicant's use of the parcel was limited to occasional visits for recreation and sport fishing.[160]

Mildred R. Charles of Bethel applied for a Native allotment (FF-17813) split into two parcels on December 2, 1970. Parcel B consists of 80 acres and is located in Sec. 27, T. 3 S., R. 63 W., SM, on the north shore of Kagati Lake. Mrs. Charles began using

Parcel B in 1956 for seasonal subsistence purposes with her father. She has used the parcel from May through September each year for berry picking and from November through April for trapping rabbits.[161] During an inspection of the site on June 8, 1985, Charles stated that she accessed the parcel by float plane in the summer and used the site to pick berries and hunt. She told the BLM reality specialist that her father, who also had some mining claims near by, used a skin boat at the site when she was a small girl. The BLM reality specialist found old tent poles and stakes at the site.[162]

Jack L. Hopstad of Bethel applied for an Alaska Native Veteran allotment (AA-84027) split into two parcels on January 30, 2002. Parcel B consists of 80 acres and is located in Secs. 26, 27, 34 and 35, T. 3 S., R. 63 W., SM, on the north shore of Kagati Lake. Hopstad began using Parcel B in 1962 for fishing and big game hunting until 1971 when he entered the U.S. Army. He resumed using the parcel after December 1992, when he was discharged from the military. Jones claimed use of this parcel every year, except while in the military, from June 15 to September 15. He accessed the parcel by float plane, landing on Kagati Lake.[163] Hopstad said he used the parcel for fishing, berry picking and hunting.[164] The BLM denied his application for the Native allotment on the grounds that it could not verify his claim of military service.[165]

In summary, the Native allotment holders of 29 of the 32 parcels on the Kanektok River upstream of river mile 22 accessed their parcels by boat in the open season. Eight of the 29 parcels were also used in the winter and were accessed by dog sled or snowmachine. One of the 32 parcels on the river was only used in the winter, and the allottee accessed it by dog sled and snowmachine. An application for two of the 32 parcels was rejected by the BLM and not certificated because the application was not filed in a timely manner. The applicant did not indicate what time of year he used the two parcels or how he accessed them, and the BLM did not conduct a field visit of the parcels. The applicants for the three Native allotment parcels on Kagati Lake resided in Bethel and accessed their parcels by float plane. One of the three allotment applicants, Mildred Clark, noted that her father had accessed the lake by skin boat in 1956.

Native Travel on the Kanektok River Documented in BLM ANCSA Files and State Subsistence Studies

Native allotment files provide information about use of and access to specific parcels of land along the Kanektok River within the boundaries of the Togiak NWR, but the files provide little information about the types of watercraft that local Natives use to travel on the river or how far up the river they travel. Subsistence studies conducted by the Alaska Department of Fish and Game (ADF&G) shed additional light on the types of water craft used and other areas along the Kanektok River accessed by Natives for subsistence purposes.

Although Quinhagak is located on the coast, its residents have oriented their subsistence activities more toward the rivers and inland areas than toward the sea. Quinhagak people

use the Kanektok River, as well as the Arolik, in their resource harvesting efforts. In 1984, anthropologist Robert J. Wolfe wrote of Quinhagak: "Inland hunting and fishing up the rivers are central features of the economy."[166] This inland orientation was probably stronger in the past, according to Wolfe, when more up-river settlements existed. Informants from Goodnews Bay indicate that, in the past, hunters from Quinhagak ascended the Kanektok River to hunt caribou in the Ahklun Mountains.[167]

The seasonal rounds of Quinhagak residents illustrate the importance of the Kanektok River. Spring squirrel camp occurs from the end of April to the end of May. About eight families from Quinhagak traveled up the Kanektok, Arolik and Jacksmith rivers to their camps in the mountains. Parka squirrels and marmots were major trade items historically, traded from the Kuskokwim area north to the Yukon River for caribou and domestic reindeer skins from Siberia via Bering Strait and Norton Sound traders. Other spring hunting camp activities include trapping for wolverine and marmot and hunting for ptarmigan. The families return by snowmachine when there is still snow on the ground or they are retrieved by a relative with a boat. The number of spring camps has diminished since the 1950s primarily because of the school system. Parents took their children out of school for spring hunting camp, but after a tightening of school attendance policy in the 1950s, parents ceased doing this. [168]

From late May through July, Quinhagak residents use gill nets to harvest king, chum, red, and pink salmon migrating from Kuskokwim Bay up the Kanektok River. Part of the harvest is sold commercially and part of it is kept for subsistence. Later in the summer during August and September, Coho salmon, char, grayling, round whitefish and rainbow trout are harvested in large quantities from the Kanektok River. Most families make day trips up the Kanektok River from Quinhagak to catch these fish. About seven to ten families move to camps along the lower portion of the Kanektok River to harvest the Coho and char runs. At least 22 contemporary camps exist within the lower 15 miles of the river, of which six were occupied in 1983. Later summer and early fall are also times for villagers to travel upriver to pick berries along the middle portion of the river (Figure 17). From September through October, groups of about three to six hunters go by skiffs on hunting trips up the Kanektok and Eek rivers in search of moose, brown bear, squirrel and beaver. Hunting trips last several days to several weeks. Hunters operate from traditional camps and tend to be mobile. Moose are not abundant in the Kanektok River drainage or mountains.[169]

The Kanektok River is a very important source of subsistence fish to people living nearby. Subsistence use of the river for fishing, hunting and trapping has been important to the support of rural households throughout its history. The Kanektok River supported over 400 subsistence users in 1990.[170] The ADF&G estimated in 2006 and 2007 that the annual subsistence fish harvests on the river between 1996 and 2006 averaged 3,293 Chinook salmon, 1,486 Coho salmon, 1,451 Sockeye salmon, and 1,144 Chum salmon. Based on ADF&G's overall subsistence data for this region, the agency concluded that salmon from the Kanektok River "make an important contribution to the annual subsistence harvest of residents from Quinhagak, Goodnews Bay, Eek and Platinum."[171]

Figure 17. A Quinhagak Village elder in an aluminum skiff on the bank of the river in 2008. She is waiting to go up the Kanektok River to pick berries. Photo by Amy Breen, *http://icestries.exploratiorium.edu/dispatches/wp-content/uploads/2008/07/031_ebot-boat*.

Skiffs, such as the one shown in Figure 17, are the most widely used watercraft in Quinhagak, and they are the major subsistence transportation in the summer and used in commercial fishing. In the early 1980s, locally-owned airplanes were not used for subsistence by Quinhagak residents.[172] Aluminum skiffs replaced the larger wooden skiffs in the 1970s and 1980s.[173] Most Quinhagak fishermen utilize aluminum or plywood skiffs, about 16 to 20 feet in length, with small outboard engines in the 35 to 75 horsepower range. The semi-V hull aluminum Lund is the preferred make, about 16 to 18 feet in length, with load capacities of about 1,500 to 2,000 pounds. The flat bottomed wooden skiffs vary in size. Some are narrow and long, about 3-1/2 to 4-1/2 feet wide and 18 to 21 feet long, resembling the skiffs used along the Kuskokwim River. Others are larger, between 4 to 9 feet wide and 18 to 24 feet long. These larger crafts are powered by outboards ranging between 70 and 140 horsepower. The shallow draft boats perform well in the mud flats and shoals at the mouth of the Kanektok and Arolik rivers where fishing is conducted. At Quinhagak, a person's boat typically does double duty as both subsistence and commercial fishing craft. The aluminum Lund skiff is a versatile craft for salmon fishing, freshwater fishing up the Kanektok River, and sea mammal hunting in open water and off the sea ice.

The aluminum skiff is also relatively inexpensive. Quinhagak fishermen operate primarily 16 to 20 foot open aluminum skiffs with a few larger vessels.[174] In the 1980s, the Qanirtuuq Inc. store regularly purchased boats and motors on order for residents and sold them for a small down payment and very liberal monthly payments with no interest on the loans. For example, in June 1983, 14 aluminum boats were unloaded from the barge and stacked by the Qanirtuuq store. These boats were used for commercial fishing.[175]

Barge service has occurred on the lower few miles of the Kanektok River for many years, but some Quinhagak residents in the 1970s did not consider the river suitable for commerce because of water levels at low tide. On June 28, 1975, Peter Williams, a representative of Qanirtuuq, Inc., wrote the BLM that the Kanektok River "is too shallow for any Trade & Commerce. The only way we travel thru the river," he wrote,

> is by small skiffs, also, the only way to enter the Kanektok River is when the tide is high, even small skiffs cannot enter the river at low water. The annual barge which brings in freight and fuel comes in into the river only at high tide. Therefore I would consider the Kanektok River to be non-navigable."[176] (Attachment 3)

Figure 18. A barge and tug stranded at low tide on the Kanektok River below Quinhagak Village, 2009. Photo courtesy of the U.S. Coast Guard.

Barges have been the common method of transporting large, bulky, or heavy items up the two lower miles of the Kanektok River to Quinhagak (Figure 18). Large quantities of merchandise, including food and fuel, are delivered to the village by barge. Sorenson Lighterage of Dillingham made commercial barge deliveries of fuel to Quinhagak in the early 1980s. The BIA ship "North Star III" also brought freight to the village every spring.

The village corporation of Quinhagak purchased its own barge to reduce freight costs.[177] In 1989, a BLM official wrote that the Kanektok River has a "long history as a highway of travel." Subsistence activity, probably more than any other, the official wrote, accounted for most of the boat use over the history of the river. On visits to the area, he noticed abundant boat activity on the river by local Native people, even upstream from all Native allotments on the river.[178] (Attachment 14) According to one source in 1984, the river is infrequently traveled by boat to its source at Kagati Lake during the summer.[179]

Government Studies and Use of the Kanektok River since 1959

State and federal agencies have studied the Kanektok River, and their reports provide information about use of the water body. The ADF&G is one of four government agencies that have traveled the Kanektok River since statehood.

A vital element of ADF&G's management of the commercial fishery at the mouth of the Kanektok River since just after statehood has been the monitoring of spawning and escapement trends. A commercial fishery occurred sporadically in Kuskokwim Bay from 1913 until 1959, mostly targeting Chinook, Sockeye and Coho salmon. In 1960, the ADF&G opened a commercial fishery at the mouth of the Kanektok River and has operated it as part of Commercial Fisheries District W-4. The ADF&G established a fish counting tower near the village of Quinhagak in 1960. Fish counting at that location was discontinued shortly thereafter reportedly due to "poor visibility into the water column and difficulties in species identification." The ADF&G moved the fish tower to a new location at the outlet of Kagati Lake, but its use at that location was discontinued in 1962.[180]

The ADF&G's Operational Plan for 1963 included a survey of the Kanektok River from Kagati and Pegati Lakes to Quinhagak. Under the plan, a biologist was to fly to the lakes and travel downstream in a 16-foot aluminum, flat-bottomed skiff with an 18-horsepower motor "mounted on a 'jackass' motor lift." The trip was scheduled to start on July 17, 1963,[181] but it is not known if the trip was undertaken. A member of the Knik Kanoers & Kayakers reported that ADF&G biologist Ray Baxter boated this river sometime prior to 1975.[182] (Attachment 25) If the ADF&G did conduct the 1963 survey, Baxter may have been the biologist who undertook the survey.

The ADF&G conducted a preliminary float trip on the Kanektok River in mid-July 1973, but little information is available on that trip. A team of biologists from the ADF&G surveyed the Kanektok River by raft in late-July 1975. They floated the river from Kagati Lake to the mouth of the river over a period of four days while studying the river's resources.[183] The crew sampled rainbow trout on the river and captured 30 fish.[184] The agency established a hydroacoustic sonar site on the Kanektok River in 1982. The use of sonar continued through the 1987, but budget and technical limitations prompted the agency to discontinue use of this technology. Three ADF&G employees rafted the Kanektok River in 1983 to sample fish. They landed at Kagati Lake in a float plane and used a Zodiac raft to float the length of the river. In 1996, the ADF&G together with the

USF&WS set up a fish counting tower 15 miles upstream from the mouth of the Kanektok River. The tower did not meet monitoring needs over the long run. In 2000, ADF&G installed an underwater weir within the first 10 miles of the river. In 2001 the weir was relocated 20 miles upstream from the original 1960 weir site at river Mile 42.[185] The new weir and has been used every year since. A boat gate is located in the center of the weir to allow boat operators to pass independently of the weir crew. Boats with jet drives were the "most common" craft crossing the weir, and they could pass over the panels by reducing speed. The ADF&G crew has to submerge the boat passage panels so rafts can pass downstream and drift over the weir. Boats with propeller-driven engines were uncommon in 2007 and required a towrope when passing upstream.[186] Commercial harvests throughout the history of the fishery have averaged 15,895 Chinook, 25,533 Sockeye, 32,672 Chum, and 35,861 Coho salmon annually.[187]

Beginning in the 1970s, several federal agencies studied the recreational potential of the Kanektok River. The U.S. Bureau of Outdoor Recreation (BOR) sent a team to float the river in 1973 to evaluate it for possible inclusion in the National Wild and Scenic Rivers System. The survey team was made up of Noel Granzow from the BOR, Lou Waller from the BLM, Jerry Hout from the U.S. Bureau of Sports Fisheries and Wildlife, and Bill Gasaway of ADF&G. The four-man crew and two canoes were flown to Kagati and Pegati Lakes in August of 1973. They started their decent of the river on August 4th, and travelled seven miles in 3½ hours. This part of the river, Noel Granzow reported, was "quite shallow in the upper reach and we spent much of the morning dragging the canoes over rocks and gravel bars." They were able to make 12 miles over the course of the first day. After passing Paiyun Creek they resumed paddling from inside their canoes. This part of the river was swift and they encountered several sweepers along the banks. At this point in their journey, it began to rain.[188]

The rain persisted through the next few days and the group found that "the number of sweepers increased as we continued downstream and, by Mile 58, they were found on the banks of the river and in every bend. This is not a river for novice canoeists as much maneuvering is required."[189] Near the mouth of Nakailingak Creek, one of the canoes was unable to avoid the sweepers and its passengers were forced to jump overboard. The swiftness of the river where tributaries were present was noted after this incident. The next day about 13 to 20 miles south of Klak Creek the crew had a serious accident striking first an underwater sandbar, which swung the canoe around backwards, and then colliding with a series of sweepers, under which Noel Granzow was pinned with only his head and arm above the water. The other canoe was able to line through the hazardous stretch and return to rescue Granzow. Although uninjured, Granzow lost his field notes, maps and the use of his camera and radio.

Reluctantly continuing their journey, the men found that the rain "had raised the water level significantly, so much so that the river had left its banks and was flowing in many channels through the woods."[190] The men had to portage their boats and gear around to a place downstream where the main channel was more visible. Another incident soon followed, in which one of the canoes, while attempting to avoid sweepers, was caught by the current and

turned around backwards. The two men in the canoe were able to pull into an eddy and swing the stern in and out of danger. As the other canoe attempted to cross the same section of water, the river swept over the sides and swamped the canoe.[191] Although unhurt, the men were unable to locate the main channel and had to pitch camp. On August 8, the rain let up and after continued difficulty locating the main channel, the group reached a Native fish camp, where they learned that they were only 12 miles from Quinhagak. Four hours later, the men reached Quinhagak. In his report Granzow concluded that "the river is not suited to novice canoeists." He noted that the river can be run, "but it should not be attempted by one canoe as there are literally hundreds of sweepers waiting to clutch a canoe and hold it fast." He also advised that prospective travelers should be prepared to line and even portage often.[192]

After the trip, the BOR decided to not recommend the Kanektok for the National Wild and Scenic Rivers program, primarily because of opposition to the nomination by local Native people.[193] Quinhagak villagers relied on the river for subsistence resources and did not want the river to become more crowded. While the BOR noted that river conditions were not suited to the novice boater, its report did not question the navigability of the river.[194]

Shortly after completion of the Wild and Scenic Rivers study, the U.S. Heritage Conservation and Recreation Service published a brochure called "Alaska Float Trips-Southwest Region." The brochure listed canoes, rafts and kayaks as appropriate water craft for floating the Kanektok. It projected that float trips beginning at Kagati Lake would take four to five days to descend the river. These could be landed at the lake by float plane. The agency classified the first 25 miles from Kagati Lake as Whitewater I, the next 30 miles as Whitewater I-II, and a further 30 miles as calm or "flat water." Addressing the sweepers, rapid current and frequent bends encountered by the BOR's survey team, the brochure stated that the "course requires frequent maneuvering."[195] Although the Kanektok River was not included in the Wild and Scenic Rivers System, the study report and float trip brochure spread the notion that the river could be navigated downstream and increased the number of recreational floaters on the river in subsequent years.

The BLM also sent employees to travel on the Kanektok and survey its resources. On June 16, 1977, Clayton M. White and Douglas A. Boyce flew in a Cessna 185 to an unnamed lake in Sec. 21, T. 3 S., R. 64 W., SM. The two men conducted raptor research for the BLM and followed a route along the right-bank of the Kanektok River, at the eastern edge of the Eek Mountains. A short portage from the lake in Sec. 21 of T. 3 S., R. 64 W., SM brought the men to the Kanektok River about five river miles downstream from Kagati Lake. From here they floated in an assembled raft down to Paiyun Creek and pitched camp. After exploring this creek the next day, they paddled to Nakailingak Creek, another right-bank tributary of the Kanektok River, about 13 river miles downstream from the mouth of Paiyun Creek. On the following day, the two men paddled down the Kanektok River about a mile to a place where they portaged to a lake in Sec. 20, T. 5 S., R. 68 W., SM. By pre-arrangement they were flown out from this lake, which they named Otter Lake, on June 20, 1977. White and Boyce described the conditions along the roughly 33-mile stretch of the Kanektok that they boated as "poor." Elaborating, they stated: "Water was high and the islands, adjacent river

bars, and banks were flooded to depths of 2-4 feet. The gradient drop over the 33 miles traveled was about 20 feet per mile. The combined conditions made boat work difficult."[196] The high-water level along this stretch was due to discharge from nearby tributaries.

The USF&WS and the BLM studied the Kanektok River in the 1970s to prepare easement proposals to provide access across lands selected by Qanirtuuq, Inc. In 1975, the Alaska Area Director of the USF&WS, Gordon W. Watson, recommended a boat landing or pullout site along the Kanektok River about halfway between its mouth and the proposed Togiak NWR. The proposed easement was for camping to facilitate travel up and down the river. The camping easement on the river was necessary, he wrote, as the Kanektok River:

> has been used in the past and is used presently for boat travel both ascending and descending, by residents of Quinhagak, Goodnews and Platinum, and has been used by other Natives and visitors for access to the headwaters of the Kanektok River primarily for subsistence hunting and fishing.[197] (Attachment 26)

Two BLM employees Cliff Ells and Robert Hiller made an ascent of the lower Kanektok River in July 1978, using a flat-bottomed riverboat to inspect proposed easements in the area. They got stuck on the mud flats while trying to enter the mouth of the river during low tide. They ascended the river to Quinhagak during high tide the next day, then traveled upriver for a distance of about 10 miles where they encountered shallow water and went no further. They camped for the night, descended the river the following morning and waited on the mud flats for high tide to travel out into Kuskokwim Bay. In the resulting field report, Hiller described the river as "beautiful, clear and deep from its mouth on the bay upstream for about 10+ miles."[198] **(**Attachment 8**)** He said very little else about the river, other than it was nominated for the Wild and Scenic Rivers System.

On October 25, 1979, the BLM issued a Final Easements Memorandum addressing the Kanektok River in the Quinhagak selection area. The memorandum stated:

> This river provides the primary intervillage surface transport route between the nearby villages. It is used by 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.[199] (Attachment 9)

During the mid-1980s and 1990s, the USF&WS increased its presence on the Kanektok and other rivers in the Togiak NWR to inventory fisheries resources and undertake public use management programs. Staff from the USF&WS sampled rainbow trout from July 11 to September 10, 1985 during four raft trips on the Kanektok.[200] A USF&WS biologist and an ADF&G biologist spent a week in August 1985 at a guided fishing camp within the Wilderness Area tagging rainbow trout taken using hook and line. In 1986 and 1987, USF&WS biologists established a base camp at river kilometer 32 (river mile 20) and used outboard jet motor boats to access sampling areas and conduct surveys of anglers. One float trip was conducted each year to sample rainbow trout from the entire river.[201] Staff from the USF&WS used outboard jet motor boats to travel throughout the study area from

May 22 to September 2, 1986, from June 10 to September 7, 1987, and from June 20 to September 13, 1993. During the 1993 trips, several USF&WS technicians sampled rainbow trout with hook and line using single hook artificial lures in a study similar to one conducted in 1985-1987.[202] They also collected samples of fish caught by sport fishermen or from spawned out salmon carcasses found along the Kanektok River from 1992 through 1996. Refuge river rangers collected Chinook salmon samples from the Kanektok River between August 8 and 16, 1994,[203] between July 28 and August 15, 1995,[204] and between August 1 and 20, 1996.[205] Rangers and biologists from the USF&WS conducted sampling of fish species from July 23-29, 1997, spending 42 angler days catching rainbow trout and Arctic grayling.[206] The size and type of watercraft used to collect these samples were not indicated in the published reports, but are available in field reports at the Togiak NWR headquarters. The USF&WS biologists spent the last two weeks of July 2000 on the Kanektok River, sampling rainbow trout. The sampling took place on the lower 32 kilometers (20 miles) of the refuge, the same area studied during 1985-1987 and 1993, but no mention of the type of water craft used was made in the project's final report for 2000.[207]

In summary, use of the river by ADF&G, BLM, BOR, and USF&WS personnel in the past three decades provides extensive documentation of government use of the river, including numerous float trips and trips using propeller and jet powered outboard watercraft. In 1987, a USF&WS study of fishery resources of the Kanektok River concluded that the lower 19 miles of the river "are navigable by propeller driven boats in years of normal runoff. Jet equipped boats can travel the entire river length in higher flow years."[208]

Commercial and Sport Fishing in Motorized Boats on the Kanektok River

Commercial fishing has been an important element of boat use on the lower Kanektok River in the 1960s and 1970s. After the State established a commercial fishery on the lower Kanektok River in 1960, the next recorded commercial salmon catch for the Quinhagak district was only 4,186 fish. The late development of a commercial salmon fishery at the mouth of the Kanektok River was linked to relatively small runs, poor transportation access and a lack of buying and processing infrastructure.[209] Commercial, subsistence and sport fishing grew rapidly on the river in the 1960s and 1970s, requiring the use of boats on the river. The subsistence and commercial fisheries focused mainly on salmon. The five-year averages for commercial salmon harvests on the Kanektok River from 1968 to 1972, as reported by ADF&G, are shown in Table 3. The chum salmon catch was highest, and in 1968 an estimated one million pinks spawned in the Kanektok River. The red salmon escapement into the lakes of the Kanektok system was approximately 10,000 fish during 1976 and 1977.[210]

Table 2. Five-year Averages of Commercial Fish Harvests, Kanektok River.

Type of Fish	1968-1972
King salmon	18,000 *
Silver salmon	11,360
Pink salmon	18,777
Chum salmon	30,342
Red salmon	4,293

* Number is for 1972 only.

The Kanektok River also drew boat users throughout the river for excellent sport fishing for king, chum, pink and red salmon from late June to mid-July and excellent silver salmon sport fishing in August. Lake trout fishing was good in the lakes in the upper Kanektok River system. Grayling up to 22 inches and Arctic char were plentiful throughout the river and lakes. The ADF&G considered Kagati Lake an important sport fishing lake mainly because of its close proximity to Bethel.[211]

Sport fishing was an important consideration when the BLM considered public use easements across village selected lands along the Kanektok River in the mid-1970s. The BLM reported as early as 1976 that people landed float planes on the lower reaches of the Kanektok River where they sport fished for salmon and trout.[212] Residents of Quinhagak opposed easements on or across their lands in 1975 in meetings with BLM and a petition sent to the BLM. The residents claimed that the Kanektok River received very little use by sportsmen and that it was dangerous to land airplanes on the river as it was extremely crooked.[213] However, a BLM Easement Task Force noted on February 1, 1977, that the Kanektok River "is considered to have highly significant present recreational use and has been nominated as a wild and scenic river."[214] (Attachment 2) An attorney for Qanirtuuq, Inc. argued that the existence of easements on village lands would encourage recreational use of the river, pollute the river and conflict with subsistence activities.[215] (Attachment 7) The BLM proposed a 25-foot easement along both banks of the "navigable river" on March 24, 1978, adding that "this river has received recreational use by sports-fishermen, boating enthusiasts, and others. Commercial fishing lodges in the area attest to the use of the river."[216] (Attachment 5) The BLM dropped the stream-side and camp site easements in 1979 after new regulations were issued prohibiting recreational easements.

Up until the mid-1970s, only a few nonlocal fishermen visited what is now known as the Togiak NWR. The Togiak River was the most popular river in the area. Most nonlocal fishermen were Alaskan residents who flew privately owned airplanes into the area and fished a day or two. In the mid-1970s, recreational fishing use in the area began to increase. About six to nine guides, mostly from lodges in the Wood-Tikchik area, took parties to the Kanektok, Goodnews and Togiak rivers. Unguided nonlocal parties flew to the Kanektok River for a few days of fishing. In the mid-1970s, guided fly-in and motorboat parties used the Kanektok for the first time.[217]

In the early 1980s, sport fishing increased on the Kanektok, Goodnews and Togiak rivers, due primarily to an increase in the number of guides operating in the area and the expansion of existing guide operations. The establishment of the Togiak NWR also increased sport fishing interest in the rivers. The number of fishing guides using the refuge increased almost four fold in three years, from about five in 1981 to 19 in 1984. Guides also increased the number of people in each party from about three to five people prior to 1980 to five to eight people in 1984. The guides also established camps for their clients on all three rivers. The Kanektok River surpassed the Togiak River in terms of the number of

visitors during the 1980s. The number of fly-in groups on the Kanektok River increased by an estimated three fold between 1980 and 1983, and the average trip duration for guided motorboat groups increased substantially. Unguided use also increased significantly. Large numbers of unguided fly-in groups, primarily from Bethel, fished the lower Kanektok River near Quinhagak in the early 1980s, staying for a day or two.[218]

Use continued to increase on the Kanektok, Goodnews and Togiak rivers in 1984. A total of 19 principal sport fishing/river guides and 48 assistant guides operated on the refuge. Twelve of the principal guides used the Kanektok River, and they operated five guide camps on the river. Use levels for all groups increased on the Kanektok River.[219] For the purposes of estimating sport fishing use, the refuge divided visitors into four categories. Motorboat visitors consisted of those who stayed at a base camp on the river and fished out of motorboats or those that owned, rented or borrowed a motorboat and traveled from the village upstream to fish. Fly/motorboat visitors were guided users who flew to an area or guide camp on a daily basis and were provided with motorboat access to the actual fishing hole for up to three days. Fly visitors were those users who flew to a lake or river and fished from where the plane landed for one to two days.[220] The fourth category, float visitors, is the subject of the next section of this report.

Unguided fly-in use was the largest single user of the Kanektok River. An estimated 700 unguided fly-in groups visited the river in 1984. Most were residents of Bethel fishing the lower Kanektok. The number of guided and unguided motorboats using the river doubled, going from nine boats operating daily in 1983 to 18 in 1984. Most of the motor boats were guided.[221] The abundance of salmon, arctic char, whitefish, grayling and rainbow trout attracted sport fishers and guides in significant numbers. By the mid-1980s, the Kanektok River was widely recognized as a remarkably productive system.[222]

The dramatic increase in the number of sport fishers on the Kanektok River during the early 1980s created conflicts with subsistence users and prompted local residents and some sport fishing guides to express concern over the rainbow trout population.[223] Quinhagak villagers prior to the 1970s had observed traditional use areas along the river. Outsiders entering the area were regulated through kinship mechanisms. After sport fishers began competing for resources with subsistence users in the 1970s, the sport fishers, who were primarily non-Natives from outside the area, did not know about the old system. Quinhagak residents expressed concern about the increasing number of strangers along the lower portion of the river. The village began issuing day use permits to sport fishers in 1982. The village also worked with the newly established Togiak NWR to try to place limits on commercial guiding permits issued by the refuge to control the level of recreational use along the upper middle and upper portions of the river. The Quinhagak traditional and city councils strongly opposed inclusion of the Kanektok River in the federal wild and scenic river system because the designation would have publicized the river and increased the number of recreational users.[224]

In the mid-1980s, conflict between subsistence users and recreational fishermen reached a flash point. The combined population of the five villages using the Kanektok, Togiak and

Goodnews rivers in 1985 was 1,359 people. In 1986, commercial guides reported 2,544 recreation visitors and 11,439 recreational use days[iii] on the Kanektok, Togiak and Goodnews rivers. That is almost twice as many visitors using the rivers as the local population.[225] Fishing regulations favored sport fishing, which remained open when subsistence and commercial fishing were closed. During the summer of 1987, state regulators closed commercial and subsistence salmon fishing, but not sport fishing, on the lower Kanektok River during a low point in the fish runs. A flotilla of small riverboats from the village of Quinhagak traveled up the Kanektok River to visit sport fishing camps and asked the sport fishers to stop fishing. By and large, the sport fishers refused. The Alaska State Troopers were called, and the confrontations made the front page of the *Anchorage Daily News*. Heated debates occurred in local village council offices, and in August the tribal government at Quinhagak closed Native corporation lands along the lower Kanektok River to sports anglers. This had little effect as anglers fished from boats and gravel bars beneath the high-water mark, areas considered public waters and land under state and federal laws.[226]

In December 1985, the residents of Quinhagak, Goodnews Bay and Togiak petitioned the State Board of Fisheries, a citizen board appointed by the governor to regulate Alaska's fisheries, to close the lower portions of the Kanektok and other local rivers used by subsistence fishers to recreational fishing, but leave the upper portions of the rivers open to sport fishing. Another proposal submitted by local villagers was to ban the practice of catch-and-release, which elders found bizarre. In Yup'ik culture, fish is a staple food. The "number one rule" of elders was 'bring home the food you catch.' Elders were aghast at the outsiders' practice of catching food and immediately throwing it away--returning it to the water. Sometimes, fish are damaged or die as a result of catch and release. The Yup'ik Natives of southwest Alaska were familiar enough with the Euro-American sport fishing ethic to understand this activity as a form of recreation for non-Native visitors. The local villagers' phrase "playing with fish" expressed that understanding in part. The Yup'ik verb describing the activities of non-Native anglers, *naanguar*, refers to anglers playing with fish as if they were toys, for the fun of it. This evoked strong social and moral condemnation from villagers, as they viewed it as an improper way to treat fish and food. The Natives believed that fish bones should be buried, not cast into the water. Viewed from this perspective, the catch-and-release practice becomes a blatant form of waste, for the unused fish are put back into the water. Some of the fish become sick and distorted, others sunk to the bottom in death, the bones exuding the telltale essence of human misconduct for all fish being to see. The Natives' proposal to ban catch-and- release was strenuously opposed by sport fish guides and biologists at ADF&G, and the proposal was rejected the Board of Fisheries. In the following years, the state board has expanded catch-and-release requirements to more stocks and rivers.[227]

Another example of a conflict between a local subsistence user and a recreational fishing guide began in 1982, when Alaska Sports West Company built a guiding camp on a Native allotment parcel on the right bank of the Kanektok River at river mile 54. By 1984, the

[iii] A "use day" is a day spent by a visitor on the river.

camp included one frame building and nine tent frames, which served as living quarters for the fishing guides and their clients. The Native allotment applicant claimed use of the parcel since 1941 in the summers for camping, picking berries, fishing for grayling and trout, and each fall for moose hunting. He objected to the commercial guiding complex on his allotment.[228] Photos taken during a BLM field visit to the allotment parcel in 1984 showed the camp structures and a 16-foot boat with an outboard motor (Figure 19) belonging to the company.[229] The BLM later approved the Native allotment and the guiding outfit withdrew from the parcel.[230]

Figure 19. A portion of the Alaska Sports West camp on Native allotment AA-31277-C at river mile 54 of the Kanektok River, 1984. A canoe or kayak and a river boat with outboard motor are visible at the edge of the river. Photo by Clifford Ells, BLM file AA-31277.

As sport fishing increased in the early 1980s, the Togiak NWR gathered statistics on use of selected rivers, including the Kanektok. For 1981, the refuge estimated public use on its rivers at 450 visitors and 2,000 use days. By 1984, public use had increased to nearly 3,000 visitors and over 11,000 use days. The USF&WS issued special use permits in 1981 to five guides known to be operating on the refuge. The number of commercial guiding permits issued grew to 18 permits in 1983. In response to concerns of overuse on the Kanektok River, the Togiak NWR imposed a moratorium in the spring of 1984 that restricted commercial sport fishing permits to those guides who had operated in the refuge on or before 1984. A total of 22 permits were issued for the Kanektok River that year, but only those guides that could substantiate use prior to 1984 would be issued permits in the

future.[231] Permits also restricted the number of clients to 1984 levels.[232] The refuge also brought air taxi operators under the permit system that year, issuing permits to nine air taxi operators. No limits were imposed on the number of trips or parties they could transport, but they were required to submit a trip report for each party transported to the refuge.[233]

The Togiak NWR released a *Draft Comprehensive Conservation Plan, Wilderness Review and Environmental Impact Statement* on May 1985. The draft addressed overharvest of salmon and other fisheries by subsistence, commercial and sport fishermen, conflicts between user groups, overuse of rivers such as the Kanektok, and outlined a plan for the next 15 to 20 years. Objectives included: allowing motor boat and other surface transportation for traditional subsistence use; managing guided sport fishing and river use to maintain a high quality of wilderness experience; requiring commercial guides and air taxi operators using the refuge to have special use permits; and completing management plans for the two most heavily used water-ways, the Kanektok and Goodnews rivers. The document noted that the number of motor boats using the Kanektok River within the refuge more than doubled between 1983 and 1984 and three guide camps were located along the river. The draft plan set forth a number of alternatives for managing the refuge. The agency selected Alternative C, which called for creating specific management plans for the Kanektok, Goodnews and Togiak rivers--the three most heavily used rivers in the refuge. Under Alternative C, commercial recreational guides would be regulated by permits. Until issues could be addressed through the planning process, the agency decided to "maintain sport fishing/river guide operations at about 1984 levels" along the Kanektok River within the refuge. Alternative C prohibited the use of air boats and air cushioned boats and noted that it may be necessary in the future to manage unguided groups on the three rivers.[234]

After the release of the draft Comprehensive Plan, Togiak NWR personnel surveyed sports anglers on the Kanektok River in 1986 and 1987 and conducted public use surveys at Kagati Lake. Special Use Permits issued by the refuge required commercial guides to report catch, harvest and effort statistics. The published results of the data collected in these surveys and permits did not indicate the number or types of boats used on the river, but they did provide angler profiles, estimates of river use days by motor boats and rafts and daily fly-in use on Kagati Lake. Refuge reports estimated that 7,692 rainbow trout were caught and released while 30 were harvested on the Kanektok River in 1986. A total of 6,245 rainbow trout were caught and released, while 105 were harvested in 1987. During the two year survey, guided anglers represented 77 percent and unguided anglers 23 percent of the estimated total recreational fishing effort. Guided motor boat anglers caught 5.0 rainbow trout per angler day during 1986 and 2.9 rainbow trout per angler day in 1987, second only to guided float anglers. The number of angler days of use for the lower Kanektok River was 1,566 in 1986, while angler use days within the refuge portion of the water body (river mile 21 to river mile 94) was estimated at 1,753 in 1986 and 1,653 in 1987. Guided motor boat anglers accounted for an estimated 40 percent and 47 percent of total effort for 1986 and 1987, respectively. Guided motor boat anglers caught 49 percent of the rainbow trout in 1986 and 6 percent in 1987.[235]

As sport fishing increased on the Togiak NWR in the mid-1980s, the refuge prepared a fisheries management plan to document use and guide management decisions. Guided use accounted for between 74 percent and 83 percent of total effort on the refuge in the years 1984 through 1987. The Kanektok River accounted for 42 percent (4,903 use days) of the 1988 refuge public use (10,950 use days).[236] The agency counted 969 people and over 7,000 use days of recreational fishing in 1986 on the Kanektok River. By 1987, the river had experienced an eleven fold increase since 1981 in the number of users and corresponding use days. Numerous articles had appeared in various fishing magazines lauding the sport fishing on the river. The popularity of the river was based on an excellent mixed stock fishery, a variety of guided fishing trips and relatively easy logistics for a non-guided wilderness float fishing trip. As use increased on the Kanektok River, competition between user groups also increased, including subsistence versus sport fishers, guided versus unguided sport fishers, and motor boat versus float and fly-in operations. Commercial operators included fixed camp and float trip sport fishing guides and a limited amount of daily fly-in fishing. Guided and non-guided use during the six year period averaged 76 percent and 24 percent respectively of the use days. Twelve guides were permitted on the refuge in 1987 for the wilderness portion of the system.[237] The Kanektok River became popular among sport fishermen[238] and developed a reputation as an "excellent sport fishing river,"[239] but local residents and ADF&G employees who boated the Kanektok River noted the crowded condition of the river, particularly in comparison to the amount of use on the Arolik River.[240] (Attachment 27)

Total use days on the Kanektok River rose from 4,698 in 1984 to 5,900 in 1986 and fell to 4,579 in 1988 (Table 3). The number of visitors to the river declined from 1,023 in 1984 to 731 in 1988. Motorboat use accounted for 34.4 percent of use in 1988, river rafting 62.6 percent, and fly-in groups 3 percent. Guided use days on the Kanektok River declined slightly from 1984 to 1985, peaked in 1986 at 4,272 use days, and declined again from 1986 to 1988. The number of guided visitors ranged from 531 in 1984 to 571 in 1988. Guided effort accounted for between 72 percent (1986) and 84 percent (1987) of the total use days on the Kanektok River. Guided motorboat use was higher than float use for all except the 1987 and 1988 seasons. In 1988, the proportions of guided use included float use at 51.6 percent, motorboat use at 45.2 percent and fly-in use at 3.2 percent. Unguided use fluctuated from 1984 (1,069 use days) to a peak in 1986 (1,628 use days), declined by more than half in 1987 to 763 use days, then increased in 1988 to 1,245 use days. The number of unguided visitors decreased from 468 in 1984 to 173 in 1988. Estimates of unguided fly-in and motorboat traffic declined sharply from 378 in 1984 to 50 people in 1987. Float use was the dominant access activity for unguided visitors, accounting for 94.8 percent of the unguided use days in 1988.[241]

Table 3. Number of Use Days by Year on the Kanektok River

Year/Type	1984	1985	1986	1987	1988
Guided	3,629	3,493	4,272	3,934	3,334
Unguided	1,069	1,056	1,628	763	1,245

Total	4,698	4,559	5,900	4,697	4,579

Source: Lisac, *Estimated Public Use within Togiak NWR, 1984-1988* (1989), p. 21.

The moratorium initiated during the mid-1980s limited guided sport fishing on the Kanektok River, but unguided sport fishing continued to increase. The Togiak NWR adopted a *Refuge Fishery Management Plan* in 1990. The plan documented a steep decline in subsistence fishing from 1981 to 1986 on the Kanektok River, a relatively stable commercial fishery on the river and an eleven-fold increase in the number of sport fishers and use days on the river. The number of people and use days grew from 88 people and 616 use days in 1981 to 969 people and 7,043 use days in 1986. Guided and non-guided use during the six year period averaged 76 and 24 percent of all use, respectively, with 12 sport fishing guides permitted to operate throughout the refuge. The Fishery Management Plan documented conflicts between user groups, the need to gather human use and harvest information, and the need to conduct research on the impact of jet and propeller driven boats on incubating salmonid eggs in the Kanektok and Goodnews rivers.[242]

The Togiak NWR began work on a public use management plan in January 1987 and issued a draft of the plan for public review in April 1990. The agency's final *Public Use Management Plan*, issued in March 1991, focused on the allocation of fishing opportunities between subsistence, non-guided and guided users on rivers within the refuge boundary, and establishment of a system for selecting sport fishing guides. This document found that public use was concentrated on the three largest rivers--the Kanektok, Goodnews and Togiak. The planners considered (and rejected) a proposal to make the Kanektok River a float-only river, which would have eliminated recreational motorboat use and motorboat base camps on the refuge portion of the river. The planners also examined the distribution of use between guided and non-guided visitors, and decided to count all visitors such as guides and fly-in sport fishers, rather than just non-guided visitors and clients of guides.[243]

The *Public Use Management Plan* indicated that public use on the refuge's rivers had stabilized somewhat since 1984. The Togiak NWR issued permits to 17 sport fish guides during 1990. Guided use accounted for between 74 and 83 percent of the total recreational use between 1984 and 1990. Most of the sport fishing use, both guided and non-guided, was by float boat (49 percent in the refuge in 1988). The plan document stated that the Kanektok River "is floatable over its entire length. While the whole river can be negotiated by motorboats in high water conditions, it is considered difficult to navigate by motorboat beyond about 30 miles from Quinhagak."[244] "During periods of moderate to high water levels jet equipped motorboat access is possible from the river mouth to about 65 miles upstream," according to the document. "Propeller driven motorboat access is considerably less distance upstream." Increasing use of jet boats "has probably expanded the motorboat use area further up river."[245] Over the years, the Kanektok River received an average of 700 visitors who spent 4,700 use days annually. Float trips lasting eight to ten days represented a majority of the use. Recreation use peaked on the Kanektok River in 1986, and decreased in the following five years. The *Plan* revised the refuge's earlier figures for use in 1987, estimating 5,700 guided use days (3,000 float boat and 2,700 motorboat). Non-guided use was estimated at 715 float boat and 53 motorboat/fly-in use days for the same year. In 1989, guides, clients and non-guided visitors spent approximately 5,000 use

days on the Kanektok River. During that same year, 1,608 guided float and 1,016 unguided float visitors used Kagati Lake and the Kanektok River. [246]

According to the 1991 *Plan*, sport fishing pressure steadily increased between 1986 and 1991 on the lower Kanektok River, where as many as nine guides operated. Two guide camps (Figures 20 and 21) were located on Quinhagak village corporation lands during 1987 and a third camp was located on a gravel bar on the Kanektok River. The refuge estimated recreational use on the lower river during 1987 at 2,350 guided use days, 750 float use days and 1,600 motorboat use days. Non-guided use on the lower river in 1987 was estimated at 185 use days with float boats and 50 motorboat/fly-in use days. These figures did not include use by Quinhagak residents. The upper Kanektok River received moderate sport fish use. Up to 12 guides operated on this portion of the river, most of them operating float boat services which accounted for the majority of use within the refuge area. The refuge estimated recreational use in 1987 at 3,350 guides use days, of which 1,100 were by motor boat. Non-guided use on the upper river in 1987 was estimated at 530 float boat use days and 3 motorboat use days. One big game guide used the area on a sporadic basis. The refuge operated a seasonal field camp at Kagati Lake for contacting refuge visitors, providing information and monitoring public use. Most visitors to Kagati Lake were there to float the Kanektok River, while others were fly-in day anglers. [247]

Figure 20. Aerial view of the Alaska West sport fishing camp at river mile 6 on the lower Kanektok River. The camp is on land leased from Natives. Photo courtesy of Alaska West, a division of Deneki Outdoors.

Figure 21. An outboard motorboat approaching Alaska West's commercial sport fishing camp at river mile 6 on the lower Kanektok River. Photo courtesy of Alaska West, a division of Deneki Outdoors.

The USF&WS plan proposed a number of new alternatives and chose Alternative B as its preferred alternative when it formally adopted the Refuge Public Use Management Plan on May 3, 1991.[248] Alternative B sought to protect subsistence opportunities and quality recreational experiences on the Kanektok River while distributing visitors through the summer season. It also set a long term goal of 50 percent guided use and 50 percent unguided use for sport fishing. The plan sought to reduce the number of people on the Kanektok River at any one time from a high of over 80 to no more than 64, and to more evenly distribute them along the river than the situation that existed as of 1990. Guides holding special use permits in 1990 continued to operate in 1991, but the agency adopted a new process through a competitive prospectus to select a limited number of guides to operate on the river (Figure 22). A maximum of two temporary camps for motor-boat based guiding operations were to be allowed on the middle section of the Kanektok River within the refuge, authorizing no more than 16 people at one time and a maximum of six boats between the two base camps. The plan was for a maximum of six guided motorboats on the river at one time and a maximum of 12 guided float boats (three parties) at any one time. Float boat guides were authorized a maximum of one start every other day, with the maximum size of a guided float party set at 12 people using a maximum of four boats. No limits were placed on the numbers of non-guided visitors, but the plan stipulated that if non-guided use approached or exceeded the level of guided use, the refuge would consider regulating non-guided use. Two river rangers were placed on the upper Kanektok River beginning in the summer of 1991 to patrol in a small power boat to contact all visitors,

provide information, and collect use and resources data. The plan also restricted permits for fly-in day use on Kagati Lake, limiting a permit holder to a party of six people at one time and no more than one visit per week.[249]

Figure 22. Three outboard motorboats on the Kanektok River returning clients to Quinhagak from a commercial sport fishing camp on the upper river. Photo courtesy of Dave Duncan & Sons, Limited, *http://kanektok.com/VT-Upper-base camp-kanektok-river/VT.htm*.

The USF&WS implemented the Refuge *Public Use Management Plan* on the Kanektok River in 1994.[250] Sport fishing pressure continued on the Kanektok River, at a substantially higher rate than on the nearby Arolik River. Special Use Permit files indicated that guides reported an average of 5,000 angler use days on the Kanektok River each year from 1986 to 1991.[251] The Kanektok, according to ADF&G biologist John Chythlook, was the largest rainbow trout fishery in Kuskokwim Bay and the lower Kuskokwim River area, and the rainbow trout stocks of the Kanektok were considered "world class" and famous for high catch rates.[252]

In 1996, the Togiak NWR hired a contractor to help the refuge review its Public Use Management Plan. After reviewing data from past and current use, the contractor concluded that "conflict between floaters and motorboats is probably the most important and difficult issue" on rivers in the refuge. The conflict, he added, "is most acute on the Kanektok River because use levels there are higher." The second greatest problem was

associated with crowding and overuse, which was "most acute on the Kanektok River." The contractor also found that conflict between recreation users and local users was relevant on the Kanektok River, as well as anecdotal evidence that the rainbow fishery on the Kanektok may be in decline from overuse. The contractor raised the possibility of placing limits on the number of unguided users or a mandatory registration program for unguided users on the Kanektok River.[253] The study recommended that the refuge continue conservative management of the fisheries population and that public use not be increased above current levels.[254]

The growing popularity of boat use on the Kanektok River was reflected in changing sport fishing regulations. In 1969, the fishing season was open year-round with a daily bag limit of 15 fish (including rainbow trout), of which not more than three could exceed 20 inches in length. In 1985, the rainbow trout bag limit was reduced to two per day, with no size limit. In 1990, single-hook artificial lures were required upstream of the Togiak NWR boundary and sport fishing was prohibited within 300 feet of legally set subsistence gillnets. In 1998, the entire river was restricted to unbaited, artificial lures the entire year. Catch and release was implemented for the period June 8 through October 31. A daily bag limit of two rainbow trout, with only one 20 inches or longer, was implemented from November 1 through June 7.[255]

An ADF&G crew conducted a coho salmon survey on the Kanektok River from August 5 through 25, 1998, and a Chinook salmon survey from June 18 through July 20, 1999. The crew spent part of its day traveling throughout the fishery via motorboat interviewing and counting anglers. Of the 702 interviews collected during the lower Kanektok coho salmon survey during 1998, 56 percent were guided and 41 percent were unguided. The percentage of guided anglers in the 1999 survey was 48 percent, less than the 62 percent in 1991, but more than the 32 percent in 1994.[256] The fishing effort on the river reached 7,000 to 9,000 angler use days annually in the mid-1990s, but declined to below 6,000 angler days in 2005. Angler effort in all sport fisheries of the Kanektok River experienced a rapid increase from 1,500 angler use days in 1983 to over 12,000 angler use days in 1988. Since 1988, the use days have fluctuated from 3,000 to 9,000, reflecting the availability of guiding services. From 1995-2004, angler use days declined slightly, averaging approximately 7,600 angler days in the Kanektok.[257] During 2004 and 2005, three seasonal sport fish guiding operations were located on the Kanektok River and numerous guided and non-guided anglers floated the river from its headwaters to the village of Quinhagak.[258]

Recreational and Commercial Rafting on the Kanektok River

Recreational and commercial rafting makes up a significant portion of boating use on the Kanektok River. Float visitors, which also include people who use canoes and kayaks, generally spend between six and ten days per trip.[259] Rafters float the river for a variety of purposes, including guided fly-fishing, wildlife photography, and wilderness camping. Rafting in remote areas such as the Kanektok River basin involves guides, outfitters, and fly-in and pick-up services. Most float trips on the Kanektok River begin with a drop-off

flight to Kagati Lake, where the equipment and rafters are unloaded and the rafts are setup for the trip down river (Figure 23). Each raft transports two or more people and the equipment and supplies required for a trip of several days to a week or more on the river. After the 90-mile-long trip, most rafters take out at Quinhagak and arrange for someone to drive them and their gear several miles from the river to the Quinhagak airport. The ADF&G website describes the Kanektok River as a "popular float trip of intermediate duration for the experienced or novice rafter." The ADF&G recommends a raft with a rowing frame, and advises rafters that the combination of swift current and abundant sweepers on the upper portion of the river "requires frequent maneuvering."[260] Michael Strahan, a professional hunting and river floating guide, describes the Kanektok River as "a popular float-fishing river during the summer months" and "a beautiful river for experienced float hunters who know how to deal with sweepers and strainers."[261]

Figure 23. Rafts at Dave Duncan and Sons' camp on Kagati Lake, summer 2008. Photo courtesy of http://alaskafloattrip.com/2008-flat/slides/P8020111.htm.

Non-Natives have floated the Kanektok River since the early 1960s. Ed Seiler, a resident of King Salmon and the owner of the Enchanted Lake Lodge, began conducting fishing and sightseeing float trips down the Kanektok River in 1964. He took five people per trip in rubber rafts and canoes. The trips started at Kagati Lake and the participants floated downstream to Quinhagak. Seiler noted that the scenic area and excellent fishing

opportunities on the river attracted a considerable number of tourists, fishermen and photographers. Other floaters who used the river in the late 1960s and early 1970s included a commercial guiding operation owned by Tikchik Narrows Lodge, Bethel residents and a Dr. Sedgewick.[262] (Attachment 28) In 1972, the Alaska Wilderness Council, which represented recreational floaters such as canoers, kayakers and rafters, recommended the Kanektok River for designation as a federal wild and scenic river. Three years later, an organization of recreational floaters called Knik Kanoers & Kayakers included the Kanektok River in a list of water bodies the group sent to the BLM as an important recreational water body for which easements across native land selections would be necessary.[263] (Attachment 25) Two or three guiding operations took float parties down the Goodnews and Kanektok Rivers during the early 1970s. The number of guided float trips increased slightly in the mid-1970s.[264] During 1976, according to one report, eight parties from Anchorage were scheduled to float the Kanektok River.[265] In March 1978, BLM staff noted that "The Bureau of Outdoor Recreation indicated a significant use of the river by regional residents traveling upriver by river boat and by recreationists traveling downriver by raft or kayak. This river is currently proposed as a National Wild and Scenic River above the selection area."[266] (Attachment 5)

In the early 1980s, Paul Holland, operating as Alaska River & Ski Tours, Inc., began offering guided raft trips on the Kanektok River.[267] These trips were for 10 days/9 nights, starting at Kagati Lake with pick up at Quinhagak.[268] Bus Bergman began operating on the river as B&B Fishing Adventures in 1980 and Ouzel Expeditions also offered commercial rafts on the Kanektok River in the early 1980s.[269] From 1980 through 1983, the number of guided float groups on the Kanektok River increased three fold. The number of unguided float parties also tripled during this time.[270] From 1983 to 1984, the number of guided float trips increased by 32 percent.[271] Six commercial float guides operating on the Kanektok River in 1984, included Dave Duncan & Sons, Bus Bergman, Mike Edwards, Mike Trotter, Chuck Wirschem, and Doyle Williams. The six commercial outfits conducted 35 trips that carried 194 paying clients and 100 guides.[272]

The USF&WS conducted a public use study of rafters on the Kanektok River in the summer of 1984. Two volunteers using an inflatable rubber raft equipped with an outboard motor contacted every raft party arriving at Kagati Lake. The survey data showed that 384 people in 56 different parties floated the river between June and September of 1984. Most of the groups used river rafts ranging in size from 12 to 18 feet in length, complete with rowing frames and oars (Figure 24). One group used a Klepper (folding kayak), another group used a raft with an 8-horsepower outboard motor, and two groups used hand paddles to control their rafts. A total of 62.5 percent of the floater groups (35 parties carrying 294 floaters) were on commercially guided tours, while 37.5 percent of the floater groups (21 parties carrying 90 people) traveled in private or unguided float parties. The average size of a commercially guided party on the river during 1984 was 8.5 people, while the average size of a private or unguided river float party was 4.3 people. The survey report estimated the total number of use days on the lake and Kanektok River between June 21 and September 15 at 3,361.5 days, or approximately 40 people on the drainage per day. This did not include use from the three sport fishing camps on the river within the refuge

wilderness boundaries or use by people traveling up river into the refuge area from below its boundaries. The bulk of use days (3,119 use days or 92.8 percent of the total recorded use on the Kanektok River system) was river float activity. Concerned by the prospect of overuse of the river's fish resources, the author of the survey report recommended that the number of float trips on the river (guided and unguided) be held at the 1984 level. The report proposed establishing a permit system for individual floats of the river by both guided and unguided parties.[273]

Figure 24. A typical commercial raft with rowing platform on the Kanektok River, 2006. Photo courtesy of http://alaskafloattrip.com/2006-float/slides/Erics%20pics%20076.html.

Another measure of the huge increase in float activity by recreational fishermen floating the Kanektok River in the mid-1980s was indicated by the significant number of fish caught by float fishermen. The USF&WS required all guides to have Refuge Special Use Permits and to report guided float angler effort and catch statistics. Unguided float angler effort was estimated by multiplying the number of people reported by refuge personnel stationed at Kagati Lake by a three day expansion factor (based on USF&WS float trip records) to estimate the time spent within the study area. Of the estimated 7,692 rainbow trout caught and released in the upper Kanektok River and 30 harvested in 1986, and the

estimated 6,245 rainbow trout caught and released and 105 harvested in 1987, guided float anglers showed the highest fishing success rate both years (5.6 and 5.5 rainbow trout per angler use day). The catch rate for unguided float anglers was 2.2 and 2.4 rainbow trout per angler use day. Guided float anglers caught 36 percent and 53 percent, and unguided float anglers caught 15 percent and 11 percent of the total estimated catch of Rainbow trout for 1986 and 1987, respectively (Table 4). Guided float anglers represented 31 percent of the overall sport fishing effort in 1986 and 36 percent of the effort in 1987. Unguided float anglers comprised 29 percent in 1986 and 17 percent in 1987, respectively (Table 5).[274]

Table 4. Estimated Rainbow Trout Caught and Released and Harvested, Kanektok River.

Year	Guided Float Anglers	Unguided Float Anglers	Guided Motor Boat Anglers
1986	36 %	15 %	49 %
1987	53 %	11%	36 %

Table 5. Estimated Angler Use Days, Kanektok River.

Year	Guided Float Anglers	Unguided Float Anglers	Guided Motor Boat Anglers
1986	31 %	29 %	40 %
1987	36 %	17%	47 %

Up to 12 commercial guides operated in the Togiak NWR on the upper Kanektok River in 1987. Most of them operated float boat services, which accounted for the majority of use within the refuge portion of the river (Figure 25). In 1987, recreational use was estimated at 3,350 guided use days--2,250 use days in float boats and 1,100 use days in motor boat. Non-guided use on the upper river in 1987 was estimated at 530 float boat use days. [275] Total use days on the Kanektok River rose to 5,900 in 1986, but fell to 4,579 in 1988. River rafting accounted for 62.6 percent (3,067 use days) of the total use on the Kanektok River in 1988. As noted previously, float use was the dominant access activity for unguided visitors, accounting for 94.8 percent of the unguided use days in 1988. [276]

Commercial float guides on the Kanektok River in the last two decades have included the Rainbow River Lodge in Togiak, Alaska West Sport Fishing, Pa Pa Bear Adventures, Dave Duncan and Sons (Figure 26), Bus Bergman, Mike Edwards, Mike Trotter, Chuck Wirschem, and Doyle Williams.[277] Michael Strahan offers guided float trips in September for hunters, while Pa Pa Bear Adventures of Bethel also offers drop off and pickup services to non-guided recreational rafters.

Figure 25. Commercial guides and clients in two rafts on the Kanektok River. Photo courtesy of Appalachian Angler Guide Service, Boone, North Carolina, http://www.appalachianangler.com/alaska.html.

Figure 26. Commercial rafts belonging to Dave Duncan and Sons on the Kanektok River, summer 2007. Photo courtesy of http://alaskafloatrip.com/2007-flat/slides/Thorp07%20023html.

In 1989, the BLM listed commercial guiding on the Kanektok River as one of the reasons for determining the river navigable in or along small tracts located on the river to and through T. 3 S., R. 66 W., SM. The river "is a popular recreational boating stream," the Deputy State Director of Conveyance Management wrote. "Commercial guides offer float trips down the river from Kagati Lake."[278] (Attachment 14) As part of the Togiak NWR's management of resources on the Kanektok River, the refuge began gathering statistics in the mid-1980s and 1990s on non-guided float trips on the river. The refuge recorded at least 27 non-guided float trips on the river in 1985, at least 26 non-guided float trips in 1990, a minimum of 50 non-guided float trips in 1995 and 57 non-guided float trips in 1996. In the years following 1996, the refuge has been reviewing its options to manage non-guided river floating because of the increase in use, impacts on resources and public concerns.[279]

VI. Summary

Since 1975, the BLM has consistently determined the Kanektok River navigable due to travel, trade and commerce from its mouth (river mile 0) upstream through lands selected and conveyed to Qanirtuuq, Inc. (river mile 21). A 1989 BLM memorandum, citing the criterion of a craft larger than a one-person kayak, determined the Kanektok River navigable on and along 24 small tracts (Native allotments) extending up river from river mile 22 to river mile 74.5 (Figures 5-7). The BLM also determined an unnamed tributary that enters the Kanektok River at river mile 34 navigable from its mouth upstream through two Native allotments. The federal agency has made no navigability determinations for Kagati and Pegati lakes. The BLM surveyors meandered and segregated the Kanektok River from river mile 0 (its mouth) upstream to river mile 79.5. They also meandered and segregated Kagati and Pegati Lakes on the MTPs. While there are references in various BLM documents to tidal influence, the agency has not made a determination on the extent of tidal influence on the Kanektok River.

In terms of physical characteristics, the Kanektok River has a gentle gradient with no whitewater. The water body has an average current of three to four miles per hour over an elevation change of roughly 1,000 feet. The uppermost portion of the river between Kagati Lake (river mile 94) and Kanuktik Creek (river mile 77) is a single channel between 100 and 125 feet wide that runs up to 3.5 feet deep as it flows through mountainous terrain. The swift, clear waters fall rapidly down sand and gravel courses. Between Kanuktik Creek and Klak Creek (river mile 62.5), the river becomes increasingly braided. From Klak Creek down to Nukluk Creek (river mile 51), the river emerges from the mountains and the terrain changes to a flat, tundra covered floodplain. The river changes to a gradual, slow, meandering course and becomes heavily braided with unstable, eroding stream banks, deep pools formed by undercut banks, lined occasionally with fallen cottonwoods that can form sweepers and other hazards to navigation. The lower 12 miles of river consist of a single channel around 200 feet wide with a depth of around 2.5 feet and a current of two to four miles per hour. Various sources have reported that the lower Kanektok River is tidally influenced, but the extent of tidal influence is unclear.

Impediments to boating the Kanektok River during low water include sweepers, gravel bars and shallow areas. The river is relatively difficult to navigate by skiff from river mile 30 upstream. Its swift currents, ever-changing gravel bars, numerous braids and twisting channels overhung with sweepers require constant maneuvering and skillful boatmanship. The river appears to be in its natural and ordinary condition from the time of statehood, except for erosion along the banks of the river in the vicinity of Quinhagak and accretion along the south bank at the mouth of the river. Neither change has hindered boat access up the lower river.

The Kanektok River has a long history of use. Three types of use occurred on the river during the historic period prior to statehood. In the first type of use, the Native people of Quinhagak used shallow-draft canoes and kayaks to paddle and pole up the river during spring, summer and fall to harvest fish, game and berries and to trap parka squirrels and other fur bearing animals. They used canoes and skin boats to transport themselves and their harvested resources back to their village. Quinhagak residents used some of the harvested resources for their own sustenance and distributed the rest for ceremonial, sharing, partnership, trade and commercial exchange. Some Quinhagak Natives traveled on foot or by dog sled up into the mountains to hunt in April and May each year. Just before breakup, they built skin boats covered with caribou, moose or bear hides. They used these skin boats from at least the 1800s up through 1956 to float down the Kanektok River to return to their village after the late winter hunt. After the 1920s, outboard motors were introduced and residents gradually shifted from paddling and poling canoes and kayaks to using skiffs with outboard motors to travel on the river in the 1950s. Native allotment files document one resident of Bethel and 17 residents of Quinhagak who traveled seasonally by boat on the Kanektok River between river mile 21 and river mile 94 in the years between 1940 and 1959 conducting subsistence activities. Other Natives used boats to access allotments located between the mouth of the river and river mile 21.

The second type of historic use consisted of government explorers, who ascended the Kanektok River in poling boats. In 1898, Josiah Edward Spurr and his party, which included Native guides, used boats to paddle and pole their way up the river from Kuskokwim Bay to Kagati Lake and its headwaters. From there, they portaged over the mountains and down the Togiak River to Bristol Bay.

The third type of historic use consisted of prospectors and miners in the 1910s and 1920s, who used poling boats to carry mining equipment, supplies and men up the Kanektok River where they discovered lode and placer gold claims in the headwaters above Kagati Lake and placer ground on Sam Creek, a west tributary to the Kanektok River. The river still provided miners a form of access to their claims as late as 1937, but overland supply by sled in the winter and air transport by airplane in the summer had become the predominate means of supplying the prospectors.

Since statehood (1959), four different types of groups have taken boats up and down the Kanektok River or used rafts and kayaks to float down the river. The first type of post-

statehood use is seasonal travel by local Natives to conduct subsistence activities. Local users navigate the Kanektok River from its mouth to the headwaters each summer in smaller power boats. They travel on the river in shallow-draft skiffs with outboard motors to fish, hunt, pick berries and trap along the river. Files from Native allotment parcels along the Kanektok River document 20 residents of Quinhagak and one resident of Eek traveling between river mile 21 and river mile 94 in the 1960s, 1970s and 1980s, conducting subsistence activities. Other Natives used boats to access allotments located between the mouth of the river and river mile 21. Local Natives used 16 to 20-foot long skiffs with 35 to 75-horsepower outboard motors. Aluminum skiffs with outboard motors replaced wooden skiffs in the 1970s and 1980s, and these craft are capable of carrying loads of 1,500-2,000 pounds.

The second type of post-statehood use of the Kanektok River consists of commercial barge and commercial fishing boats. Barges have been common in transporting large, bulky or heavy items up the lower two miles of the Kanektok River to Quinhagak. Commercial fishermen based in Quinhagak have traveled from the village downstream to fishing grounds in Kuskokwim Bay since the ADF&G first opened a commercial fishery on the lower Kanektok River and in Kuskokwim Bay in 1960.

The third type of post-statehood use of the river consists of federal and state government sponsored float and power boat trips to study the river. Employees of the ADF&G have traveled the river in skiffs, jet boats and rafts since the 1960s to inventory the fish resources between the Kuskokwim Bay and Kagati Lake. Employees of federal agencies, including the BOR in the 1970s, the BLM in the 1980s, and the USF&WS in the 1980s, 1990s and 2000s, have traveled on the river in rafts, skiffs with outboard motors, and jet boats. They used boats on the river to evaluate it for possible inclusion in the national Wild and Scenic River System, consider easement proposals, conduct inventories of fish resources, and to monitor human activities such as subsistence and recreational fishing, boating, and recreational floating.

The fourth type of post-statehood use of the Kanektok River consists of guided and non-guided recreational sport fishing and sightseeing using power boats and rafts. The Kanektok River is a well known and popular sport fishing river. Commercial guides have offered commercial raft trips on the river since the early 1960s, and both guided and unguided recreational sport fishing using motorboats has occurred on the river since the 1970s. The number of commercial fishing guide permits on the Kanektok River increased from five in 1981 to 12 in 1984, employing 48 assistant guides. Some guides operate motorboats from guide camps along the river, while others accompany float visitors rafting from Kagati Lake to Quinhagak. The USF&WS counted 969 people and over 7,000 use days of recreational fishing on the Kanektok River in 1986. Over the years since then, according to the Togiak NWR, the Kanektok River received an average of 700 visitors who spent 4,700 use days annually. Of the 731 visitors to the river in 1988, motor boats accounted for 34.4 percent of use, river rafting accounted for 62.6 percent, and fly-in use accounted for 3 percent. Float trips lasting eight to ten days represent the majority of use on the Kanektok River. In 1984, 35 commercially guided parties carrying 297 floaters used

the river, while 21 unguided parties carrying 90 people floated the river. In 1989, 1,608 guided float visitors and 1,016 unguided float visitors used Kagati Lake and the Kanektok River. The increase in sport fishing and recreational use of the river prompted the Togiak NWR to limit the number of commercial guides operating on the river in 1984. Since then, the number of non-guided float trips has grown substantially, from 27 non-guided float trips in 1985 to 57 non-guided float trips in 1996. In recent years, the refuge has been reviewing its options to manage non-guided river floating because of increases in use, impacts on resources and public concerns.

According to the Togiak NWR 1991 *Public Use Management Plan*, the Kanektok River "is floatable over its entire length." The Plan states that "the whole river can be negotiated by motor boats in high water conditions," but the river "is considered difficult to navigate by motorboat beyond about 30 miles from Quinhagak." During periods of "moderate to high water levels, jet equipped motorboat access is possible from the river mouth to about 65 miles upstream," while "propeller driven motorboat access is considerably less distance upstream."

Endnotes

[1] Measurement of river taken from Jason A. Pawluk and Patrick W. Jones, *Kanektok River Salmon Monitoring and Assessment, 2006*, Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage, Alaska, June, 2007, p.1.

[2] Donald Orth, *Dictionary of Alaska Place Names*, Geological Survey Professional Paper 567, United States Geological Survey, Washington, DC: US Government Printing Office, 1967, p. 493.

[3] Ibid., p. 788; see also G.L. Harrington, "Mineral Resources of the Goodnews Bay Region," in A.H. Brooks, editor, Mineral Resources of Alaska, Report on Progress of Investigations in 1919, USGS Bulletin 714, Government Printing Office, Washington, D.C, 1921, pp. 207-228.

[4] Orth, *Dictionary of Alaska Place Names*, p. 493.

[5] Ibid., p. 483.

[6] Kenneth Alt, *Inventory and Cataloging of Sport Fish and Sport Fish Waters of Western Alaska*, Anchorage, Alaska: Alaska Department of Fish and Game, Sport Fish Division, 1977, p. 43.

[7] Robert J. Wolfe, Joseph J. Gross, Steven J. Langdon, John M. Wright, George K. Sherrod, Linda J. Ellanna, Valery Sumida, and Peter J. Usher, *Subsistence-Based Economies in Coastal Communities of Southwest Alaska*, Technical Paper Number 89, Juneau, Alaska: ADF&G, Division of Subsistence, February, 1984, p. 83. The Alaska Road Commission designated this trail as Route 92. Board of Road Commissions for Alaska, *Annual Report of the Alaska Road Commission, Fiscal Year 1927, Report upon the Construction and Maintenance of Military and Post Roads, Bridges, and Trails; and of other roads, Tramways, Ferries, Bridges, Trails, and related works in the Territory of Alaska*. Twenty-third Annual Report, 1927, Part II, Operations, Juneau, Alaska, 1927, pp. 40-41.

[8] The three allotments along Kagati and Pegati Lakes are FF-018462-B (Certificate No. 50-2000-0066), FF-017813-B (Certificate No. 50-2000-0231) and AA-084027-B (not certificated).

[9] Native Allotment AA-037779 (Certificate No. 50-91-0221) straddles this tributary. The stream also passes through Allotment AA-031299-A (Certificate No. 50-91-0606).

[10] Clifford Ells, BLM Realty Specialist, McGrath Resource Area, Summary of Quinhagak Village Easement Proposals Meeting on September 12, 1975, November 15, 1976, BLM files, F-14885-EE.

[11] Stanley K. Bronczyk, BLM Realty Specialist, Memorandum on Easement Task Force Meeting, February 1, 1977, BLM files, F-14885-EE.

[12] Letter from Peter Williams of Qanirtuuk, Inc. to Jan R. Miller at BLM, May 27, 1975, BLM files, F-14885-EE.
[13] Curtis McVee, BLM State Director, Notice of Proposed Easement Recommendations for the Village of Quinhagak, March 24, 1977, BLM files, FF-14885-EE.
[14] Curtis McVee, BLM State Director, Memorandum on Final Easements for the Village of Quinhagak, March 24, 1978, BLM files, FF-14885-EE.
[15] Letter from Qanirtuuq, Inc. to Curtis McVee, BLM, November 7, 1975, BLM files, F-14885-EE.
[16] Letter from Russell J. Gallagher, of the legal firm of Gallagher Cranston & Snow, to Joint Federal State Land Use Planning Commission, May 16, 1977, pp. 2-4, BLM files, F-14885-EE.
[17] Robert E. Hiller, Jr., BLM Branch of Adjudication, Memorandum on Trip Report of River Usage and Easement Inspections of River of the Kuskokwim Bay Area, July 25, 1978, BLM files, FF-14885-EE.
[18] Curtis McVee, BLM State Director, Memorandum on Final Easements for the Village of Quinhagak, October 25, 1979, BLM file, FF-14885-EE.
[19] Sue A. Wolf, BLM State Director of ANCSA Conveyances, Decision, November 26, 1979, BLM files, F-14885-EE.
[20] Robert D. Arnold, Assistant to the BLM State Director for ANCSA Conveyance, Interim Conveyance Nos. 342 and 343, June 25, 1980, BLM files, F-14885-A.
[21] Ann Johnson, BLM State Director for ANCSA Conveyance, Interim Conveyance Nos. 978 and 979, December 18, 1984, BLM files, F-14885-A.
[22] Robert W. Andorfer, BLM Deputy Director for Conveyance Management, memorandum on Navigable Waters in Group Survey 171 (Window 1562), March 29, 1988, BLM files, F-14885-EE.
[23] Wayne A. Boden, BLM Deputy State Directory for Conveyance Management, memorandum on Navigable Waters on or along Small Tracts in Quinhagak (Window 1562), February 21, 1989, BLM files, F-14885-EE.
[24] Robert Lloyd, BLM Assistance District Manager, Lands Division, Memorandum on Final Easement Review and Patent Easement Memorandum for Selected Lands and Lands Conveyed by Interim Conveyance Nos. 342 and 978, to Qanirtuuq Incorporated, July 7, 1994, BLM files, F-14885-EE.
[25] Heather Coats, BLM Land Law Examiner, Notice of Intent to Issue Patent, April 6, 1995, BLM files, F-14885-EE.
[26] Corrected Patent No. 50-2006-0296 contains the original Patent No. 50-95-0284; Ramona Chinn, Acting State BLM Director, Corrected Patent No. 50-2006-0296, June 16, 2006, BLM files, F-14885-A.
[27] K.J. Mushovic, BLM Easements Coordinator, Final Easement Review and patent Easement Memorandum for Lands to be Patented to Qanirtuuq, Inc. on behalf of the village of Quinhagak and to the Calista Corporation, March 30, 2006, p. 6, BLM files, F-14885-EE.
[28] Ramona Chinn, BLM Acting State Director, Corrected Patent No. 50-2006-0296, June 16, 2006, BLM files, F-14885-A.
[29] Dominica VanKoten, BLM Chief, Navigability Section, Memorandum on Navigable Waters within ANCSA-Selected and Interim-Conveyed Lands in the Quinhagak Village Project Area, May 18, 2006, BLM files, F-14885-EE.
[30] Aaron Archibeque, "Decision Notice and Finding of No Significant Impact, Togiak National Wildlife Refuge Public Use Management Plan Environmental Assessment," May 3, 1991, pp. 1, 37-41.
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