FOG RIVER SYSTEM

Including Fog River, its West and South Channels, and the Slough/Lake System between Mischevik Slough and Fog River HUC 30502, Zone 3, Kuskokwim River Region

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 materials located in 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. For other completed Navigable Waters Research Reports in this series, see: http://www.dnr.state.ak.us/mlw/nav/naar/. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.

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Attachments (in PDF Format)

Attachment 1. Patrick C. Beckley, BLM Realty Specialist, Memorandum on ETF Navigable Water Determinations on Tuluksak Land Selections, December 17, 1975, BLM file, F-14949-A.

Attachment 2.	Curtis V. McVee, BLM State Director, Memorandum on Final
	Easements for the Village of Tuluksak, June 9, 1981, BLM files,
A 44 I 4 - 2	F-14949-A, F-14949-EE.
Attachment 3.	Sandra C. Thomas, Acting BLM Chief, Branch of ANCSA Adjudication,
	Decision to Interim Convey, March 3, 1982, BLM files, AA-12890, F-14949-A, F-14949-A2.
Attachment 4	Robert D. Arnold, Assistant to the BLM State Director for Conveyance
Attachment 4.	Management, Interim Conveyance No. 542 to Tulkisarmute
	Incorporated, and Interim Conveyance No. 543 to Calista Corporation,
	August 27, 1982, BLM files, F-14949-A.
Attachment 5.	Ann Johnson, Chief of BLM's Branch of Calista Adjudication, Decision
	on Lands Found Proper for Selection, June 23, 1987, BLM files,
	AA-12890.
Attachment 6.	Ann Johnson, Chief of BLM's Branch of Calista Adjudication, Tentative
	Approval of State Selection, August 5, 1987, BLM files, AA-12890.
Attachment 7.	Wayne A. Boden, BLM Deputy State Director for Conveyance
	Management, Memorandum on Navigable Waters for Waters in Group
A the alarm and Q	Survey No. 268 (Window 1836), May 8, 1989, BLM files, F-14949.
Attachment 8.	Letter from C. Michael Brown, BLM Navigability Specialist, to Michael Rearden, Manager of the Yukon Delta National Wildlife Refuge,
	December 13, 1995, BLM files, 2628 (930).
Attachment 9.	Gust C. Panos, Chief of BLM's Branch of Mapping Sciences,
	Memorandum on Navigability Review for Waters in Window 2700,
	November 7, 1997, BLM files, F-17100.
Attachment 10.	Gust C. Panos, Chief of BLM's Branch of Mapping Sciences,
	Memorandum on Navigability Determination for Waters in Native
	Allotment or ANCSA Sec. 14(h)(1) applications for Survey Window
	2732 (Akiak), July 26, 2000, BLM files, F-14824.
Attachment 11.	Denny Benson, Easement Coordinator, BLM Branch of Land Transfer
	Services, Easement Notice for Tulkisarmute Incorporated, Calista
Attachmont 12	Corporation, August 31, 2005, BLM files, F-14949-EE. Denny Benson, Easement Coordinator, BLM Branch of Land Transfer
Attachment 12.	Services, Notice of Proposed Easement Recommendations for
	Tulkisarmute Incorporated, September 26, 2005, BLM files,
	F-14949-EE.
Attachment 13.	Denny Benson, Easement Coordinator, BLM Branch of Adjudication II,
	Final Easement Recommendations and Patent Easement
	Review for Lands to be Patented to Tulkisarmute Incorporated on
	behalf of the Native Village of Tuluksak, December 29, 2005, BLM
	files, F-14949-EE.
Attachment 14.	Dominica VanKoten, BLM Chief of Navigability, Memorandum on
	Navigable Waters within the Tuluksak Village Project Area, August
Attachmont 15	15, 2006, BLM files, F-14949-A. Ramona Chinn, Acting State Director, Decision on Lands Proper for
Attachment 15.	Village Selection Approved for Conveyance, June 18, 2008, BLM files,
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- Attachment 16. Dina Torres, Land Transfer Resolution Specialist, BLM Resolution Branch, Final Easement Memorandum for Lands to be Conveyed to Calista Corporation, July 10, 2009, BLM files, AA-9346 (2653).
- Attachment 17. Ramona Chinn, Acting BLM State Director, Decision on Lands Proper for Regional Selections Approved for Conveyance, August 5, 2009, BLM files, AA-9526 (2653).
- Attachment 18. Master Title Plats (MTPs): T. 12 N., R. 65 W, and T. 11 N., R. 65 W., SM; U.S. Survey No. 10255, officially filed on October 20, 1992, and U.S. Survey No. 10228, officially filed, October 20, 1992, and field notes, August 5, 1991 to September 4, 1991.
- Attachment 19. MTP: T. 11 N., R. 64 W., SM; and U.S. Survey No. 10252, officially Filed, October 20, 1992.
- Attachment 20. MTPs: T. 10 N., Rs. 63-64 W.; T. 9 N., Rs. 59-63 W.; T. 8 N., Rs. 61-62 W.; and T. 10 N., R. 59 W., SM.
- Attachment 21. U.S. Survey No. 12110, officially filed, January 5, 2001 and U.S Survey No. 12108, officially filed January 5, 2001.
- Attachment 22. U.S. Survey No. 10728, officially filed, March 24, 2009.

Fog River System (including Fog River, its West and South Channels, and the Slough/Lake System between Mischevik Slough and Fog River) HUC-30502, Zone 3, Kuskokwim River Region II-B Interim Summary Report

I. Name and Location of Waterway

Fog River is located in Zone 3 of HUC-30502 (Figure 1) and is a tributary of the Tuluksak River. The Fog River originates in the Kilbuck Mountains and flows predominately northwest for approximately 80 milesⁱ until joining the Tuluksak River. The mouth of Fog River is seven miles east of Tuluksak village and 21 miles northeast of Akiak village.ⁱⁱ

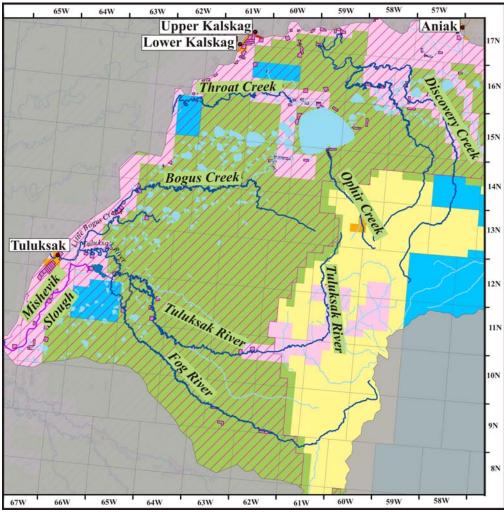


Figure 1. Map showing the location of Fog river in Zone 3 of HUC-30502.

ⁱ The river miles used in this report are based on Geographic Information Systems (GIS) calculations using the National Hydrography Data Set derived from United States Geological Survey (USGS) quadrangle maps. ⁱⁱ Air mile measurements were taken using Spatial Data Management System (SDMS) of the BLM-Alaska. Fog River System, HUC 30502, Zone 3 Page 1

The nearest regional hub is Bethel, which is 41 miles southwest of the mouth of Fog River. The name Fog River appeared in 1914 on a field sheet written by Alfred G. Maddren of the United States Geological Survey (USGS). An alternative spelling, Fogg River, appeared in a 1912 manuscript map by H. W. Reeth.¹

The Fog River System comprises 13 townships: Township (T.), Range (R.) and Section (Sec.), Seward Meridian (SM):

Fog River

T. 10 N., R. 59 W., SEC. 28 T. 10 N., R. 59 W., SEC. 33 T. 10 N., R. 59 W., SEC. 34 T. 9 N., R. 59 W., SEC. 03 T. 9 N., R. 59 W., SEC. 04 T. 9 N., R. 59 W., SEC. 05 T. 9 N., R. 59 W., SEC. 08	T. 8 N., R. 61 W., SEC. 06 T. 8 N., R. 62 W., SEC. 01 T. 9 N., R. 61 W., SEC. 34 T. 9 N., R. 61 W., SEC. 33 T. 9 N., R. 61 W., SEC. 32 T. 9 N., R. 61 W., SEC. 31 T. 9 N. R. 61 W., SEC. 30	T. 10 N., R. 63 W., SEC. 33 T. 10 N., R. 63 W., SEC. 32 T. 10 N., R. 63 W., SEC. 29 T. 10 N., R. 63 W., SEC. 29 T. 10 N., R. 63 W., SEC. 30 T. 10 N., R. 63 W., SEC. 19 T. 10 N., R. 64 W., SEC. 24 T. 10 N. R. 64 W. SEC. 13
T. 9 N., R. 59 W., SEC. 08 T. 9 N., R. 59 W., SEC. 07 T. 9 N., R. 60 W., SEC. 12 T. 9 N., R. 60 W., SEC. 13 T. 9 N., R. 60 W., SEC. 13 T. 9 N., R. 60 W., SEC. 24 T. 9 N., R. 60 W., SEC. 25 T. 9 N., R. 60 W., SEC. 26 T. 9 N., R. 60 W., SEC. 27 T. 9 N., R. 60 W., SEC. 34 T. 9 N., R. 60 W., SEC. 33 T. 8 N., R. 61 W., SEC. 02 T. 8 N., R. 61 W., SEC. 03 T. 8 N., R. 61 W., SEC. 10	T. 9 N., R. 61 W., SEC. 30 T. 9 N., R. 62 W., SEC. 25 T. 9 N., R. 62 W., SEC. 26 T. 9 N., R. 62 W., SEC. 26 T. 9 N., R. 62 W., SEC. 27 T. 9 N., R. 62 W., SEC. 28 T. 9 N., R. 62 W., SEC. 21 T. 9 N., R. 62 W., SEC. 20 T. 9 N., R. 62 W., SEC. 19 T. 9 N., R. 62 W., SEC. 19 T. 9 N., R. 63 W., SEC. 13 T. 9 N., R. 63 W., SEC. 14 T. 9 N., R. 63 W., SEC. 11 T. 9 N., R. 63 W., SEC. 10	T. 10 N., R. 64 W., SEC. 13 T. 10 N., R. 64 W., SEC. 14 T. 10 N., R. 64 W., SEC. 15 T. 10 N., R. 64 W., SEC. 15 T. 10 N., R. 64 W., SEC. 10 T. 10 N., R. 64 W., SEC. 09 T. 10 N., R. 64 W., SEC. 09 T. 10 N., R. 64 W., SEC. 04 T. 10 N., R. 64 W., SEC. 05 T. 11 N., R. 64 W., SEC. 31 T. 11 N., R. 64 W., SEC. 30 T. 11 N., R. 64 W., SEC. 29 T. 11 N., R. 64 W., SEC. 19
T. 8 N., R. 61 W., SEC. 09 T. 8 N., R. 61 W., SEC. 04 T. 8 N., R. 61 W., SEC. 05	T. 9 N., R. 63 W., SEC. 03 T. 9 N., R. 63 W., SEC. 04 T. 9 N., R. 63 W., SEC. 05	T. 11 N., R. 64 W., SEC. 20 T. 11 N., R. 64 W., SEC. 17 T. 11 N., R. 64 W., SEC. 08

South Channel of Fog River (Anabranch)

T. 9 N., R. 62 W., SEC. 28	T. 9 N., R. 63 W., SEC. 15	T. 10 N., R. 64 W., SEC. 36
T. 9 N., R. 62 W., SEC. 29	T. 9 N., R. 63 W., SEC. 16	T. 10 N., R. 64 W., SEC. 25
T. 9 N., R. 62 W., SEC. 30	T. 9 N., R. 63 W., SEC. 09	T. 10 N., R. 64 W., SEC. 26
T. 9 N., R. 62 W., SEC. 19	T. 9 N., R. 63 W., SEC. 08	T. 10 N., R. 64 W., SEC. 23
T. 9 N., R. 63 W., SEC. 24	T. 9 N., R. 63 W., SEC. 05	T. 10 N., R. 64 W., SEC. 22
T. 9 N., R. 63 W., SEC. 23	T. 9 N., R. 63 W., SEC. 06	T. 10 N., R. 64 W., SEC. 15
T. 9 N., R. 63 W., SEC. 22	T. 10 N., R. 63 W., SEC. 31	T. 10 N., R. 64 W., SEC. 16

West Channel of Fog River (Anabranch)

T. 11 N., R. 64 W., SEC. 30T. 11 N., R. 65 W., SEC. 13T. 11 N., R. 65 W., SEC. 02T. 11 N., R. 64 W., SEC. 19T. 11 N., R. 65 W., SEC. 14T. 11 N., R. 65 W., SEC. 01T. 11 N., R. 64 W., SEC. 18T. 11 N., R. 65 W., SEC. 11T. 12 N., R. 65 W., SEC. 36

Slough/Lake System between Mischevik Slough and Fog River

T. 11 N., R. 65 W., SEC. 02 T. 12 N., R. 65 W., SEC. 34 T. 12 N., R. 65 W., SEC. 32 T. 11 N., R. 65 W., SEC. 03 T. 12 N., R. 65 W., SEC. 33

II. Land Status

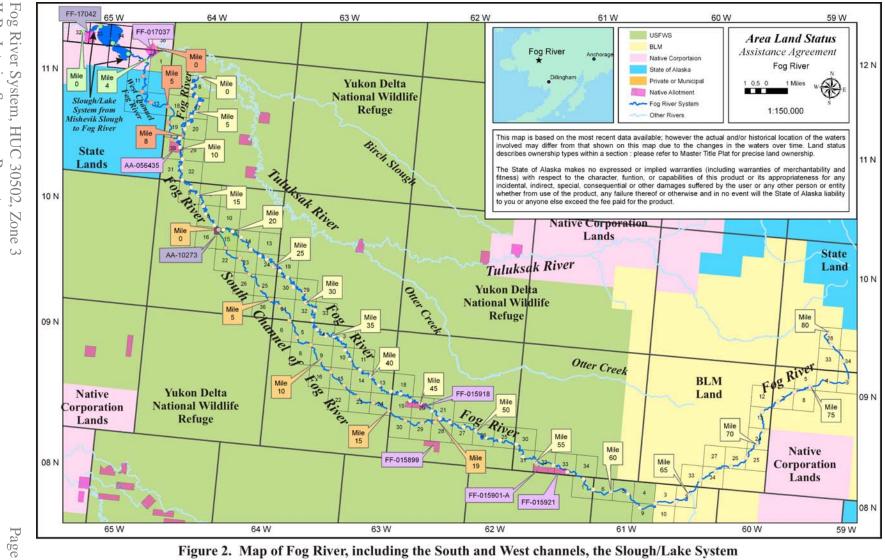
The Fog River and connecting slough and lake system is bounded by federal, state, Native village corporation, Native regional corporation and Native allotment lands (Figure 2).

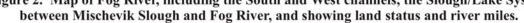
Beginning at its headwaters, the Fog River traverses BLM lands for about a quarter of the overall length of the river. For most of its length, the river and its West and South Channels flow through portions of the Yukon Delta National Wildlife Refuge (NWR). The refuge was withdrawn from unreserved public lands managed by the BLM in 1972 (Public Land Order 5184, March 9, 1972) and transferred to the federal refuge system under the Alaska National Interest Lands Conservation Act (ANILCA, PL 96-487) of 1980. Title to the refuge lands is held by the United States and the U.S. Fish and Wildlife Service (USF&WS) is the manager of these lands.

The West Channel of the Fog River crosses Native village lands for a distance of about threequarters of a mile near its mouth. The BLM conveyed the surface estate to Tulkisarmute Incorporated, the village corporation for Tuluksak, in Interim Conveyance (IC) No. 542 on August 27, 1982. Tulkisarmute Incorporated was issued patent no. 50-2012-0229 for these lands on September 13, 2012. The BLM conveyed the subsurface estate to Calista (regional) Corporation in IC No. 543 on the August 27, 1982. Calista Corporation was issued patent no. 50-2012-0230 for the subsurface estate on September 13, 2012.

The South Channel flows through an ANCSA Sec. 14 (h)(1) historic site located in Secs. 15-16, T. 10 N., R. 64 W., SM. The BLM surveyed the historic site as Lots 1-2, U.S. Survey No. 10728, and patented the two parcels to Calista Corporation (Patent No. 50-2009-0367) on September 17, 2009.

The West Channel of the Fog River crosses State selected lands in its lower reaches for a distance of approximately three miles. The State filed a selection application (AA-12890) on these lands on April 1, 1977, and received Tentative Approval (TA) on August 5, 1987. These lands have not yet been patented.





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There are six Native allotments along the Fog River, all of which have been certificated. Four of the allotments are located along the main channel of the Fog River: AA-56435,ⁱⁱⁱ FF-15918,^{iv} FF-15901-A,^v and FF-15921.^{vi} These four allotments are located within the Yukon Delta NWR. The fifth Native allotment, FF-17037,^{vii} is located at the mouth of the West Channel, and is bounded by Yukon Delta NWR, Native village and Native regional corporation lands. The sixth Native allotment, FF-17042,^{viii} is located at the mouth of the Slough/Lake System between Mischevik Slough and the West Channel of the Fog River and is bounded by Native village lands.

III. BLM Navigability Determinations

The BLM began actively seeking information on navigable waters in the Tuluksak River drainage area, including Fog River, in the 1970s in preparation for land conveyances under ANCSA. Tulkisarmute Incorporated selected lands along the West Channel of Fog River in the 1970s. The village corporation selection included land at the mouth of the West Channel and extending upstream (south) to river mile 1.5 (Figure 2). The earliest BLM determination on navigable waters in the Tulkisarmute Incorporated selection area occurred as a result of an Easement Task Force meeting held on November 13, 1975. In a memorandum dated December 17, 1975, Realty Specialist Patrick C. Beckley wrote that the task force determined the Kuskokwim River and the Tuluksak River navigable within the selection area, using the criteria of "navigable by reason of Travel, Trade and commerce." The task force determined Mishevik Slough subject to tidal influence, but did not address Fog River in terms of navigability or tidal influence.² (Attachment 1)

In a June 9, 1981 memorandum on Final Easements for the Village of Tuluksak, BLM State Director Curtis V. McVee determined as navigable the Kuskokwim and Tuluksak rivers and Mischevik Slough within the selection area "due to present and historic uses in connection with travel in trade and commerce." The BLM memorandum also determined navigable a "slough and lake system from where it flows from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., downstream to its confluence with Mishevik Slough in Sec. 32, T. 12 N., R. 65 W., Seward Meridian." This slough and lake system included the West Channel of Fog River starting in Sec. 36, T. 12 N., R. 65 W., extending upstream through Secs. 1 and 2, T. 11 N., R. 65 W., and east through the lakes and sloughs in Sec. 3, T. 11 N., R. 65 W., and Secs. 34, 33 and 32, T. 12 N., R. 65 W., SM to Mischevik Slough.³ (Attachment 2) The West Channel of the Fog River actually flows north into the Tuluksak River, not south as described in the BLM memorandum for Tuluksak village easements.

On March 3, 1982, Sandra C. Thomas, the Acting Chief of the BLM Branch of ANCSA Adjudication, issued a Decision to Interim Convey (DIC) for the Tulkisarmute Village selection area that determined the lake and slough system described in the June 9, 1981 memorandum as

^{vii} Certificate of Allotment No. 50-93-0355.

ⁱⁱⁱ Certificate of Allotment No. 50-93-0360.

^{iv} Certificate of Allotment No. 50-2001-0403.

^v Certificate of Allotment No. 50-2001-0369.

^{vi} Certificate of Allotment No. 50-2001-0388.

viii Certificate of Allotment No. 50-93-0543.

Fog River System, HUC 30502, Zone 3

navigable along with part of the Fog River in Sec. 2, T. 11 N., R. 65 W., SM. The BLM determined these water bodies navigable "because they have been or could be used in connection with travel, trade and commerce" and excluded them from a pending conveyance of lands to Tuluksak village. The maps attached to the DIC show the portion of the West Channel of Fog River in the SE corner of Sec. 2 as non-navigable.⁴ (Attachment 3)

Robert D. Arnold, the Assistant to the BLM State Director for Conveyance Management, issued IC No. 542 on August 27, 1982 to Tulkisarmute Village conveying the surface estate of selected lands and IC No. 543 to Calista Regional Corporation conveying the subsurface estate. The BLM conveyed Secs. 2-3, T. 11 N., R. 65 W., and Secs. 32-34, T. 12 N., R. 65 W., SM to Tulkisarmute Village. The maps attached to the ICs excluded only the parts of the West Channel of Fog River and the sloughs and lakes to the west that were associated with the slough and lake system.⁵ (Attachment 4) The downstream portion of the West Channel of the Fog River in Sec. 1 of T. 11 N., R. 65 W., SM was not conveyed in IC Nos. 542 and 543. Those two sections remain part of Tulkisarmute Village ANCSA selection application (F-14949-A and F-14949-A2).

While the BLM was adjudicating Native corporation land selections, the State on April 1, 1977 selected all available lands in T. 11 N., R. 65 W, SM (AA-12890), including lands crossed by the lower reaches of West Channel and a portion of the slough/lake system between Mischevik Slough and the West Channel of Fog River. The West Channel flows for approximately three miles across the State selection (Figure 2). On March 3, 1982, the BLM rejected the State selection application within Secs. 1-8, T. 11 N., R. 65 W., SM, because those lands had been selected by Tulkisarmute Incorporated.⁶ (Attachment 3) On June 23, 1987, Ann Johnson, Chief of the BLM Branch of Calista Adjudication, issued a Decision on "Land Found Proper for Selection to the State." The lands approved for selection by the State included Secs. 9-36, in T. 11 N., R. 65 W., SM. The BLM Decision stated:

The chargeable acreage within this selection will not include lands beneath water bodies which meet the criteria for meanderability set forth in the "Establishment of Policy" as defined on page 54483 of the December 5, 1983 Federal Register.

The Decision also stated that "a Navigability determination will be made prior to issuance of patent."⁷ (Attachment 5)

The BLM issued Tentative Approval (TA) to the State on August 5, 1987 for 15,996.70 acres of land in Secs. 9-36, T. 11 N., R. 65 W., SM, with the exception of 23 Native allotment parcels. In the TA, the BLM excepted and reserved "to the United States a right-of-way thereon for ditches or canals constructed by the authority of the United States under the Act of August 30, 1890 (26 Stat. 391, 43 U.S.C. 945)" across the lands TAd to the State. The document made no mention of navigable waters.⁸ (Attachment 6)

On May 8, 1989, Wayne A. Boden, the Deputy BLM State Director for Conveyance Management, issued a memorandum on Navigable Waters in Group Survey No. 268 (Window 1836) that addressed navigable waters on Native village corporation, State and Native allotment

lands in the lower Fog River area. Table 2 attached to the BLM memorandum listed navigable rivers, streams and sloughs less than 198 feet wide in the survey group, including the "Lake influent and downstream segment of Fog River in Sec. 2, T. 11 N., R. 65 W., SM. (IC 542)" and the "Lake effluent entering Mishevik Slough in Sec. 32, T. 12 N., R. 65 W., SM. (IC 542)." Table 3 listed navigable waters on land selections identified through aerial photo interpretation, including "Fog River in Secs. 1, 11 and 14 to tributary in the E¹/₂W¹/₂ of Sec. 13, T. 11 N., R. 65 W., SM, and Sec. 36, T. 12 N., R. 65 W., SM (Flight 7, roll 1, frame 36, 1987)." Table 4 listed navigable waters on or along Native allotments and historic sites in Survey Window 1836, including the "Right fork of Fog River along Native allotment AA-56435, and its left-bank tributary in allotment, in Sec. 30, T. 11 N., R. 64 W., SM. (Flight 6, roll 1, frame 33, 1987)." Table 5 listed navigable rivers, streams and sloughs less than 198 feet wide in Survey Window 1836, including the "Right fork of Fog River (mouth in Sec. 5) along Native allotment AA-56435 in Sec. 30" in T. 11 N., R. 64 W., SM and the "Left-bank tributary of right fork of Fog River in Native allotment AA-56435." Table 5 also listed as navigable the "Lake influent in Sec. 2" and "Fog River in Secs. 1, 11, and 14 to tributary in E¹/₂W¹/₂ of Sec. 13" in T. 11 N. R. 65 W., and "Fog River in Sec. 36" and "Lake effluent entering Mischevik Slough in Sec. 32" in T. 12 N., R. 65, W., SM.⁹ (Attachment 7)

In summary, the BLM memorandum of May 8, 1989 determined the West Channel of Fog River navigable from its mouth at the Tuluksak River upstream through Native allotment F-17037 (river mile 0.25-0.75), through the Tulkisarmute Incorporated selection (river mile 0 to river mile 1.5), and through the State selection (river mile 1.5 to river mile 5). The BLM determined navigable the Slough/Lake System from Mishevik Slough (river mile 0) upstream to (river mile 4) where it meets the West Channel of Fog River, including along Native allotment F-17042 (river mile 0 to river mile 0.5). In addition, the BLM determined the main channel of Fog River navigable where it abuts Native allotment AA-056435 (in Sec. 30, T. 11 N., R. 64 W., SM) at river mile 9.5 to river mile 10.5. The BLM based its navigability determinations on aerial photo interpretation, interviews with local residents and the BLM's criteria at the time that "nontidal water bodies [are] navigable if, at the time of Statehood, they were navigable for crafts larger than a one-person kayak."¹⁰

In a letter to Mike Rearden, the manager of the Yukon Delta NWR, dated December 13, 1995, C. Michael Brown, a Navigable Waters Specialist, explained recent changes in the BLM's navigability criteria. A list attached to the letter reiterated the BLM's May 8, 1989 navigability determinations on the West Channel of Fog River area and the Slough/Lake System linking Mischevik Slough and Tuluksak River.¹¹ (Attachment 8)

The BLM addressed navigable waters within other Native allotments in the Fog River area in the late 1990s. On November 7, 1997, Gust C. Panos, the Chief of the BLM's Branch of Mapping Services, determined that there were no navigable waters in T. 9 N., R. 61 W., SM, where Native allotments FF-15901-A (river mile 55) and FF-15921 (river mile 56) are located. The criteria cited for navigability in these determinations was "nontidal water bodies navigable if, at the time of statehood, they were suitable for travel, trade and commerce," and "watercraft customary at statehood included boats with a load capacity of about 1,000 pounds."¹² (Attachment 9)

Panos issued a memorandum on Navigability Determinations for Waters in Native Allotment or ANCSA Sec. 14 (h)(1) applications for Survey Window 2732 on July 26, 2000, in which he found no navigable waters on Native allotments in T. 9 N., R. 61 W., (F-15901-A and F-15921) and T. 9 N., R. 62 W., SM (F-15918).¹³ (Attachment 10) Panos used the same navigability criteria used in his November 7, 1997 memorandum and cited that memorandum to determine that there were no navigable waters in T. 9 N., R. 62 W., SM.

Denny Benson, the Easement Coordinator of the BLM's Branch of Land Transfer Services, issued Notices of Proposed Easements on August 31, 2005¹⁴ and September 26, 2005,¹⁵ advising the branch's intention to convey various lands in the future to Tulkisarmute Incorporated and Calista Corporation, including Sec. 1, T. 11 N., R. 65 W., and Sec. 36, T. 12 N., R. 65 W., SM. The Notices identified "major waterways," but did not include the West Channel of Fog River. (Attachments 11 and 12) Benson issued a memorandum on Final Easement Recommendations and Patent Easement Review for Lands to be Patented to Tulkisarmute Incorporated on December 29, 2005, which included lands in Sec. 1, T. 11 N., R. 65.W., and Sec. 36, T. 12 N., R. 65 W., SM, which were scheduled to be conveyed in the near future. The BLM memorandum identified "major waterways," but did not list the West Channel of Fog River among them.¹⁶ (Attachment 13) The two Notices of August 31 and September 26 and the Final Easement memorandum of December 29, 2005, did not address navigable waters.

On August 15, 2006, Dominica VanKoten, the BLM's Chief of the Navigability Section, issued a memorandum identifying navigable waters for pending ANCSA-selected and ICd lands, State TAd lands and Native allotment applications within the Tuluksak Village Project area. VanKoten screened State TAd lands in Secs. 9-36, T. 11 N., R. 65 W., SM for navigable waters utilizing Master Title Plats (MTPs), USGS topographic maps, aerial photos, interview reports and previous navigability determinations. The May 8, 1989 navigability determination using the one-man kayak criterion had found the West Channel of Fog River navigable within the TAd lands, but she concluded:

upon further review of the records and using current criteria, we determine the subject waterway non-navigable, as the portion of waterway remaining in federal ownership is too short and not situated in such a way as to be part of a water transportation system.¹⁷ (Attachment 14)

In the Appendix attached to the August 15, 2006 memorandum, the BLM identified the "unnamed slough and lake system flowing from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., to its confluence with Mischevik Slough in Sec. 32, T. 12 N., R. 65 W., Seward Meridian" as determined navigable, dating from the BLM's June 9, 1981 Final Easements Memorandum. This referred to the slough and lake system extending between the Tuluksak River and Mishevik Slough, which uses the West Channel of Fog River.¹⁸

On June 18, 2008, Acting State BLM Director Ramona Chinn approved lands for patent in T. 12 N., R. 65 W., SM, including "Sec. 36, lots 1 to 8, inclusive, lot 11, lots 13-19, inclusive, NW1/4." The Decision determined navigable the "Unnamed slough and lake system flowing from Tuluksak River in Sec. 36, to its confluence with the Mishevik Slough in Sec. 32, T. 12 N.,

R. 65 W., SM." The Decision did not identify the criteria used for determining navigability. It also did not address navigability on other portions of Fog Creek System, as they were outside of the areas proposed for patent and conveyance.¹⁹ (Attachment 15)

The BLM addressed navigable waters during 2009 for a 4-acre ANCSA Sec. 14 (h)(1) historical site (AA-10273) at mile 0 of the South Channel of Fog Creek. In a Final Easement Memorandum for Lands to be Conveyed to Calista Corporation dated July 10, 2009, Robert L. Lloyd, the BLM Chief of Land Transfer Adjudication I, determined that there were no easements and no "major waterways" within the parcel.²⁰ (Attachment 16) On August 5, 2009, Acting BLM State Director Ramona Chinn issued a DIC to Calista Corporation. In the Decision, the BLM determined that the parcel (AA-10273) did not "include any submerged lands which passed to the State of Alaska under the Equal Footing Doctrine, U.S. Const. art. IV, & 3, and Sec. 6 (m) of the Alaska Statehood Act of July 7, 1958, 72 Stat. 339."²¹ (Attachment 17)

<u>Summary</u>: Navigability determinations for the Fog River System are summarized in Table 1 and shown in Figure 3 on page 13. Since 1981, the BLM determined navigable the slough and lake system from Tuluksak River in Sec. 36, T. 12 N., R. 65 W., to its confluence with the Mischevik Slough in Sec. 32, T. 12 N., R. 65 W., SM, using various navigability criteria at different times. The slough and lake system is meandered and segregated on BLM's Master Title Plats (MTPs) and U.S. Survey 10228.²² (Attachment 18)

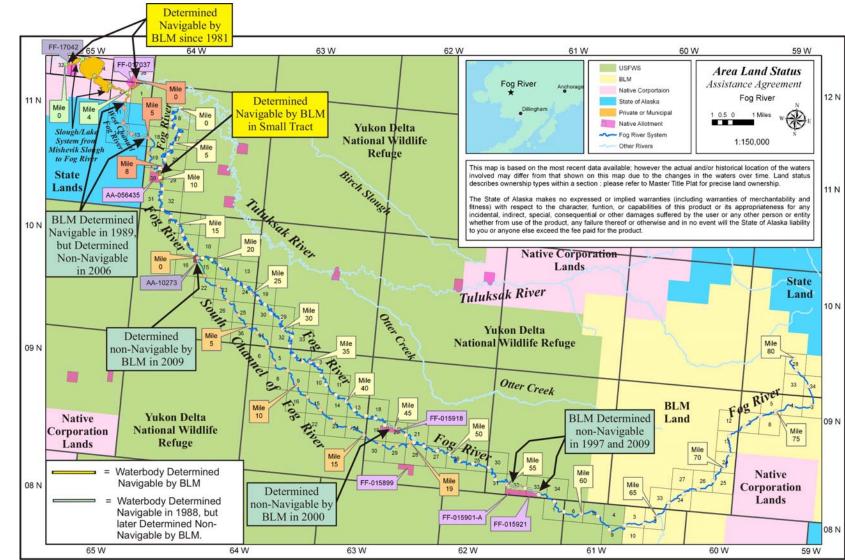
In 1989, the BLM determined the portion of the West Channel that crosses State TA lands in T. 11 N., R. 65 W., SM, navigable using the one-man kayak criteria. In 2006, the BLM determined the West Channel non-navigable where it crosses State TA lands (river mile 2.5 to river mile 5.0) on the grounds that "the portion of the waterway remaining in federal ownership is too short and not situated in such a way as to be part of a water transportation system." Fog River is not shown on and is not meandered and segregated on the MTPs within Secs. 11, 13 and 14, T. 11 N., R. 65 W., SM. (Attachment 18) The State TAd lands along the West Channel have not yet been patented.

Two Native allotments (FF-17042 and FF-17037) abut or are crossed by the Slough and Lake System between the Tuluksak River and Mischevik Slough that the BLM has determined navigable since 1989. The slough and lake system is meandered and segregated as it passes through U.S. Survey No. 10228 (FF-17037), but not through U.S. Survey No. 10225 (FF-17042). (Attachment 18) The main channel of Fog River has been determined navigable along the east bank of Native allotment AA-56435, and the river has been meandered and segregated on the U.S. Survey No. 10252.²³ (Attachment 19) The other three Native allotments (FF-15918, FF-15901-A and FF-15921) abut or cross waters the BLM determined non-navigable in 1997 and 2000. Fog River is not shown on the MTPs for the remaining townships²⁴ (Attachment 20) and the river is not meandered and segregated on U.S. Survey No. 12108, Lot 1 (FF-15921) and Lot 2 (FF-15901-A).²⁵ (Attachment 21) In 2009, the BLM determined the South Channel of Fog River and an unnamed tributary non-navigable where they flow through and next to ANCSA Sec. 14 (h)(1) historic site (AA-10273) located at river mile 0. The South Channel and unnamed tributary are meandered and segregated through the historic site on U.S. Survey No. 10728.²⁶ (Attachment 22)

Table 1: Summary of Navigability Determinations for Fog River System.			
Date	River Section	Type Decision and Substance	Criteria
6/09/81 (Attach- ment 2)	-West Channel & Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough	Easements Memorandum: Determined as navigable "a slough and lake system from where it flows from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., downstream to its confluence with Mishevik Slough in Sec. 32, T. 12 N., R. 65 W., SM."	"Due to present and historic uses in connection with travel in trade and commerce."
3/03/82 (Attach- ment 3)	-West Channel & Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough	DIC: Determined as navigable "a slough and lake system from where it flows from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., downstream to its confluence with Mishevik Slough in Sec. 32, T. 12 N., R. 65 W., SM."	"Because they have been or could be used in connection with travel, trade and commerce."
8/27/82 (Attach- ment 4) 5/08/89	-West Channel & Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough -West Channel	IC Nos. 542 & 543: Attached maps show slough and lake system from where it flows from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., downstream to its confluence with Mishevik Slough in Sec. 32, T. 12 N., R. 65 W., SM as navigable. - Navigable Waters Memorandum: Determ-	"Because they have been or could be used in connection with travel, trade and commerce."
(Attach- ment 7)	& Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough;	ined navigable "Lake influent and down- stream segment of Fog River in Sec. 2, T. 11 N., R. 65 W., SM (IC 542)" and "Lake effluent entering Mischevik Slough in Sec. 32, T. 12 N., R. 65 W., SM. (IC 542)."	a one-person kayak."
	-West Channel	-Fog River determined navigable in Secs. 1, 11 and 14 to tributary in E ¹ / ₂ W ¹ / ₂ of Sec. 13, T. 11 N., R. 65 W., and Sec. 36, T. 12 N., R. 65 W., SM.	"Craft larger than a one-person kayak."
	-Main Channel of Fog River	-Right fork of Fog River along Native allotment AA-56435 and its left-bank tributary in Sec. 30, T. 11 N., R. 64 W., SM.	"Craft larger than a one-person kayak."
12/13/95 (Attach- ment 8)	Main and West Channels, and Lake/ Slough System betwe- en Tuluksak River and Mis- chevik Slough	Letter to USF&WS: Reiterated the BLM's May 8, 1989 determinations on the main channel of Fog River, the West Channel and the Slough/Lake System between the Tuluksak River and Mischevik Slough.	Reiteration of above criteria from May 8, 1989 Navigable Waters Memorandum.

 Table 1: Summary of Navigability Determinations for Fog River System.

11/07/97 (Attach- ment 9)	Main Channel of Fog River	Navigable Waters Memorandum: No navi- gable waters in T. 9 N., R. 61 W., SM, where Native allotments FF-15902-A (river mile 55) and FF-15921 (river mile 56) are located.	Suitable for travel, trade, and commerce at the time of statehood. Additionally: Customary watercraft with a load capacity of about 1,000 pounds.
7/26/00 (Attach- ment 10)	Main Channel of Fog River	Navigable Waters Memorandum: No navi- gable waters in T. 9 N., R. 61 W., SM, where Native allotments FF-15902-A (river mile 55) and FF-15921 (river mile 56) are located.	Suitable for travel, trade, and commerce at the time of statehood. Additionally: Customary watercraft with a load capacity of about 1,000 lbs.
8/15/06 (Attach- ment 14)	-West Channel, & Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough	 Navigable Waters Memorandum: Determined navigable "unnamed slough and lake system flowing from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W. to its confluence with Mischevik Slough in Sec. 32, T. 12 N., R. 65 W., Seward Meridian" as determined navigable dating from BLM's June 9, 1981 Final Easements Memorandum. 	-Daniel Ball, 77, U.S. (10 Wall.) 557 (1870), with- out stating the specific criteria.
	-West Channel	- West Channel non-navigable through State TAd lands in Secs. 11, 13 and 14, T. 11 N., R. 65 W., SM.	-Portion in federal ownership is "too short and not situated in such a way as to be part of a water trans- portation system."
6/18/08 (Attach- ment 15)	West Channel, & Lake/Slough System betwe- en Tuluksak River and Mis- chevik Slough	DIC: Determined navigable "unnamed slough and lake system flowing from the Tuluksak River in Sec. 36, T. 12 N., R. 65 W. to its confluence with Mischevik Slough in Sec. 32, T. 12 N., R. 65 W., SM."	Not addressed.
8/05/09 (Attach- ment 17)	South Channel	DIC: South Channel determined non- navigable through ANCSA Sec. 14 (h)(1) historical site AA-10273 (river mile 0).	Not addressed.





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Figure 3. Map showing portions of the Fog River System determined navigable and non-navigable by the BLM.

IV. Physical Character of Waterway

Fog River

Fog River is located between the Tuluksak and Kisaralik rivers, and all three rivers drain the northwest side of the Kilbuck Mountains. Fog River is a tributary of the Tuluksak River and much of its course flows parallel to and just south of the Tuluksak River. The Fog River flows in a northwesterly direction for about 80 miles and empties into the Tuluksak River seven miles from the village of Tuluksak. Near its confluence with the Tuluksak River, the Fog River has two prominent channels – a western and an eastern channel – with the eastern channel appearing to be the dominant waterway. In its midsection, it also has two prominent channels – a southern and a northern channel – with the northern channel appearing to be the dominant waterway.

The Fog River drains an area of approximately 280 square miles.²⁷ The river drains a large area of tundra, adding to the brown color in the lower sections of the Tuluksak River.²⁸ From its headwaters, the upper section of Fog River flows through the Kilbuck Mountains, for approximately 22 miles to the 500 foot elevation where the river enters the lowlands in Sec. 1, T. 8 N., R. 62 W., SM (Figure 4 and Figure 5). A flow measurement of 116 CFS was obtained during a hydrologic study of the Tuluksak River watershed by the BLM in the early 1980s on the upper Fog River within NE1/4 SE1/4 Sec. 26, T. 9 N., R 62 W., SM.²⁹ The uplands surrounding the upper section of Fog River are level ground with vegetation consisting of spruce, birch, cottonwood, and dense willow and alder. The soil along the banks of the river is silt.³⁰ (Figure 6)



Figure 4. View of upper section of Fog River at river mile 57. Looking across Native allotment F-15921. The circle is a BLM marker on the allotment parcel. BLM photo by Rhett S. Wise, September 24, 1974.



Figure 5. View of Fog River, looking from Native allotment F-15901. BLM photo by Kenneth P. Laske, September 17, 1974.



Figure 6. View of Fog River at river mile 45, showing typical upland vegetation along upper section. Photograph of Native allotment F-15918, looking east. The circle is a BLM marker on the allotment parcel. BLM photo by Rhett S. Wise, September 24, 1974.

The Fog River meanders with oxbow lakes for an additional 12 miles to Sec. 21, T. 9 N., R. 62 W., SM, to its middle section where the river forms two channels: the South Channel that runs parallel to the North Channel. The North Channel is the main channel. The channels

separate in Sec. 21, T. 9 N., R. 62 W., SM. Both channels are meandering but the North Channel appears to have many more oxbow lakes. The North Channel is approximately 29 miles in length while the South Channel is approximately 23 miles in length. These two channels rejoin in Sec. 15, T. 10 N., R. 64 W., SM. The average annual streamflow for the entire river, reported by Harza Engineers in 1982, was 250 cfs.³¹

The Fog River continues to meander an additional 11 miles (Figure 7 and Figure 8) until it splits into an East Channel (main channel) and a West Channel, in Sec. 19, T. 11 N., R. 64 W., SM. The East Channel meanders until reaching the Tuluksak River in Sec. 5, T. 11 N., R. 64 W., SM, while the West Channel meanders in and out of lakes and sloughs and joins with the Tuluksak River in Sec. 36, T. 12 N., R. 65 W., SM (Figure 9). The uplands along the lower section are level tundra with numerous swamps predominately vegetated by native grass, berry plants, willow and alder brush, with scattered spruce and birch trees. The topsoil is of silt and sand with permafrost around 12 to 14 inches below the surface.³²



Figure 7. View of lower section of Fog River (foreground) at river mile 10. View is west-southwest over Native allotment AA-56435, represented by arrow (right). BLM photo by Sylvia Hale, June 28, 1987.



Figure 8. View of lower section of Fog River, looking south over Native allotment AA-56435 (corner marker in circle) at right. BLM photo taken by Sylvia Hale, June 28, 1987.



Figure 9. View of the confluence of the western channel of Fog River (diagonal from upper left) and the Tuluksak River (bottom) at the Native allotment camp site of Mollie Paneok (F-17037). The view is looking west. BLM photo taken by Gerald T. McWilliams, July 17, 1975.

Slough/Lake System between Mischevik Slough and Fog River

The slough/lake system between Mischevik Slough and Fog River intersects the West Channel of the Fog River via a stream in Sec. 2, T. 11 N., R. 65 W., SM. The stream is approximately 0.5 miles long and flows into the first of three connected lakes that lead northwest to Mischevik Slough. The lakes are within Secs. 27, 28, 33, and 34, T. 12 N., R. 65 W., and Secs. 2, 3, and 4, T. 11 N., R. 65 W., SM. The lakes have an approximate combined area of 1.3 square miles. The slough/lake system connects with Mischevik Slough in Sec. 32, T. 11 N., R. 65 W., SM.

The uplands surrounding the slough/lake system are similar to those along the West Channel of the Fog River, having level tundra with numerous swamps predominately vegetated by native grass, berry plants, willow and alder brush, with scattered spruce and birch trees.³³

The Fog River appears to be in its natural and ordinary condition since the time of statehood.

V. Evidence of use of Fog River

Early Native Use of Fog River

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.³⁴ Permanent occupation of the interior Kuskokwim Delta with chronological continuity began about AD 600.³⁵ The *Kusquqvagmiut*, who descended from the Eskimos and are 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 3,100.³⁶

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 Alaska Native subsistence practices involve harvesting, distributing and consuming resources. These activities include important social and religious components, one of the most important of which 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 cultural values that promote ceremonial feasting and distribution of subsistence resource goods have persisted in all Alaska Native groups.³⁷

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 to sustain themselves through their hunting, fishing, and gathering efforts, their involvement in the fur trade brought about significant changes.³⁸ Contact with American traders increased the interaction between

subsistence production and commercial exchange, including the sharing and trading of commercial and subsistence goods.³⁹

The *Kusquqvagmiut* used water craft to travel between village sites, harvest and transport subsistence gear and resources to and from their village and camp sites, and to distribute resources to other groups.⁴⁰ They used canoes to travel up the tributaries of the Kuskokwim River to fish for salmon, hunt and gather berries. Tributaries of the Kuskokwim, including Fog River, within the Tuluksak River drainage, enhanced the mobility of travelers and provided extensive access deep into the adjacent countryside.⁴¹

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 to sustain themselves through their hunting, fishing, and gathering efforts, their involvement in the fur trade brought about significant changes.⁴² Contact with American traders increased the interaction between subsistence production and commercial exchange, including the sharing and trading of commercial and subsistence goods.⁴³

During the 1920s, people who were living upriver on the land were drawn to the permanent village of Tuluksak after missionaries and the government built churches and schools. People who moved from the interior to Tuluksak continued to travel by water to traditional hunting and fishing areas and seasonal camps associated with them.⁴⁴ Many of these traditional areas were along the Fog River and adjacent areas of the Tuluksak River drainage. In addition to residents of Tuluksak, residents from other villages along the Kuskokwim traveled up the Fog River drainage to engage in seasonal subsistence activities.

The Kilbuck Mountains, where the headwaters of the Fog River is located, contain numerous prehistoric hunting camps which the *Kusquqvagmiut* used to hunt moose, caribou, bears, small game, and other animals.⁴⁵ Traditionally, some *Kusquqvagmiut* families would travel to these hunting areas during the winter and, as daylight increased, men traveled throughout the mountains harvesting furbearers and hunting caribou, moose, and brown bear. Once the warmer temperatures of spring arrived and waters became open for navigation, families made their way to the headwaters of rivers. There they would build skin-covered wooden boats, called *angyaqatet*, that would be used to float the families, their harvest, and their supplies down the river to their spring camp.⁴⁶

The *Kusquqvagmiut* moved seasonally between villages and seasonal camps. Over time many villages and campsites were abandoned due to regional pandemics or as Natives moved to villages where missionary schools had been established by the Bureau of Indian Affairs (BIA).⁴⁷ These locations continued to be used as seasonal hunting camps and became the locations claimed as Native allotments or historic and cemetery sites under ANCSA Sec. 14 (h)(1).

On November 6, 1975 Calista Corporation submitted an application for a historic site along the Fog River where the southern channel rejoins the main, northern channel. The BIA report for the site states that the stream joining the Fog River at the site and the Fog River itself both have the Yup'ik name of *Cavirrutnaq Qelutall'er*, though the report states that the stream is not part of

the Fog River and has its source in tundra lakes. The site, which is named *Cavirrutnartuli*, was reported by Tuluksak elder Joe DeMantle to be an old village site for spring, fall, and winter use.⁴⁸ DeMantle reported that the site was used before his time by people trapping beaver, otter and mink in the area. The Yup'ik name for the site comes from a word which refers to whitefish, suggesting whitefish were an important resource for the residents at the site. DeMantle also reported that the river had a lot of grayling near the site. Cultural features found at the site during a BIA field investigation, were both recent and historic. The historic remains were of "very old Native house pits" and dated to the late 1800s.⁴⁹

Use of the Fog River Documented in Native Allotment Files

The BLM began collecting information in the 1970s to adjudicate Native allotment applications filed by local Natives who had a tradition of subsistence harvests on land in their area. The Natives accessed favorite spots along the river by boat for hunting, trapping, fishing and berry picking. These favorite spots, through customary use, developed into exclusive use areas. The federal government approved many of these areas as allotments and transferred title to the land to the applicants. There are five Native allotments located along the Fog River, and one Native allotment located at the western end of the lake and slough system connecting the Tuluksak River, and the West Channel of the Fog River, to the Mishevik Slough. For the location of these Native allotments, see Figure 2 on page 5 and Figure 3 on page 13. Information in BLM allotment files provide the earliest documented evidence of use of the river.

Lydia Peters applied for Native allotment F-17042 at river mile 0.5 on November 28, 1971. In the 1930s, Lydia Peters and her family began picking berries every year on the parcel of land that abuts the western extent of the lake and slough system that connects the Tuluksak River and the West Channel of the Fog River with the Mishevik Slough. In 1960, Peters began using the parcel, located in Secs. 32 and 33, T. 12 N. R. 65 W., SM, for subsistence hunting and fishing and continued to do so into the 1970s. She and her family had also used the land for berry picking since the 1930s.⁵⁰ Documents within the Native allotment file do not indicate how Peters accessed the parcel. The parcel was officially surveyed and filed as U.S. Survey No. 10255 on October 20, 1992. It was certificated as No. 50-93-0543 on September 16, 1993.

Mollie Japheth applied for Native allotment F-17037 at river mile 4.0 on November 28, 1971. Japheth began using the parcel near the mouth of Fog River for subsistence hunting and fishing, during the summer and fall, in 1958.⁵¹ The parcel is located at the junction of the West Channel of Fog River and the Tuluksak River and straddles portions of Secs. 35 and 36, T. 12 N., R. 65 W., SM, and Secs. 1 and 2, T. 11 N., R. 65 W., SM.⁵² On July 17, 1975, Garold McWilliams, a BLM Realty Specialist, visited the parcel with Nick Alexie, a coordinator for Tuluksak familiar with Japheth's use of the land. McWilliams and Alexie accessed the parcel by helicopter. McWilliams did not state how Japheth accessed the parcel. The parcel was officially surveyed and filed as U.S. Survey No. 10228 on October 20. 1992. It was certificated as No. 50-93-0355 on July 28, 1993.

Noah Andrew applied for Native allotment A-56435, located at river mile 10.0, on October 31, 1984. Andrew began using the parcel for seasonal hunting, berry-picking, and fishing in 1950.

The parcel is located along the lower portion of Fog River in Sec. 30, T. 11 N., R. 64 W., SM. Andrew continued using the parcel, located on the west side of the river, well into the 1970s⁵³ and he accessed the parcel in the summer by riverboat and canoe.⁵⁴ The parcel was officially surveyed and filed as U.S. Survey No. 10252 on October 20, 1992. It was certificated as No. 50-93-0360 on July 28, 1993.

Peter E. Williams applied for Native allotment F-15918, located at river mile 45.0, on September 23, 1971. Williams began trapping every year in 1960 on the parcel along the middle portion of the Fog River. The land is located on the south side of the river in Secs. 19 and 20, T. 9 N., R. 63 W., SM, but it is not clear if Williams accessed it in the summer by boat.⁵⁵ Rhett S. Wise, a BLM Realty Specialist, visited the parcel with Williams' brother, Waska A. Williams, on September 24, 1974. Wise and Williams accessed the parcel by helicopter. Wise did not state how Williams customarily accessed the parcel.⁵⁶ The parcel was officially surveyed and filed as U.S. Survey No. 12110 on January 5, 2001. It was certificated as No. 50-2001-0403 on August 2, 2001.

Frank DeMantle applied for Native allotment F-15901 on September 24, 1971. Parcel A of DeMantle's allotment is 120 acres and is located at river mile 55.0 in Sec. 32, T. 9 N., R. 61 W., SM. Starting in 1940 and continuing into the 1970s, DeMantle used the parcel for annual seasonal subsistence use, including trapping and fishing during winter, spring, and fall months.⁵⁷ Kenneth P. Raske, a BLM Land Law Examiner, visited the parcel with DeMantle on September 17, 1974. Raske did not state how DeMantle customarily accessed the parcel.⁵⁸ The parcel was officially surveyed and filed as U.S. Survey No. 12108 on January 5, 2001. It was certificated as No. 50-2001-0369 on June 29, 2001.

Waska A. Williams applied for Native allotment F-15921, located at river mile 56.0, on September 21, 1971. Williams began seasonal subsistence use, including hunting and trapping, along the middle portion of the Fog River in 1960. Williams used the land year round.⁵⁹ Williams' allotment parcel is located in Secs. 32 and 33, T. 9 N. R. 61 W., SM, near the Kilbuk Mountains.⁶⁰ Rhett S. Wise, a BLM Realty Specialist, visited the parcel with Williams on September 24, 1974. Wise and Williams accessed the parcel by helicopter. Wise did not state how Williams customarily accessed the parcel.⁶¹ The parcel was officially surveyed and filed as U.S. Survey No. 12108 on January 5, 2001. It was certificated as No. 50-2001-0388 on July 16, 2001.

Native Travel on Fog River Documented in State Subsistence Studies

Subsistence studies reports have documented use of the Fog River drainage for a wide variety of subsistence resources by Tuluksak residents as well as residents of other communities along the Kuskokwim River.⁶² Of the six Native allotments along the Fog River drainage and western end of the lake/slough drainage between Fog River and Mishevik Slough, three are owned by residents of Tuluksak and three are owned by residents of Akiak. Though many other village residents leave their village area to travel to the Tuluksak and Fog River drainages for subsistence activities, Tuluksak residents' subsistence activities were almost all within the Tuluksak and Fog River drainages near their village.

In 1983, the Alaska Department of Fish and Game (ADF&G), Division of Subsistence, published a report on the use of wild resources within the Tuluksak River drainage by Tuluksak residents in the years 1980 to 1983. The study found that sixty-three percent of Tuluksak households utilized the Tuluksak River drainage, which includes Fog River, for some subsistence activities. Twenty-five percent of households harvested a full range of subsistence resources including moose, bear, and caribou hunting, hunting and trapping of small game animals, water fowl hunting, salmon (chum salmon in Fog River) and non-salmon fishing, berry picking, plant harvesting, and wood gathering.⁶³

In the years 1980-1983, all sample Tuluksak households reported participating in harvesting moose. Moose hunting areas were accessed by boat during the ice-free fall hunting season, in which the majority of moose hunting took place. Tuluksak residents hunted for moose along almost the entire length of the Fog River. Communities whose members also hunted for moose in the area included Akiak, Akiachak, Kwethluk, Bethel, Napaskiak, Napakiak, Tuntutuliak, and Kalskag.⁶⁴

Waterfowl hunting took place within the lower Fog River, extending approximately 30 miles up the river, with hunters traveling to sloughs and lakes adjacent of the river. Berry picking and fishing within the Fog River were also largely in the lower river. Harvest areas were accessed by boat during ice-free seasons. Fishing harvests were usually within established fish camps, where processing could accompany the harvest. Salmon set-net sites were situated within 10 miles of Tuluksak on the Kuskokwim and Tuluksak rivers, as well as along the Mishevik Slough. While no salmon set-net sites were reported by the 1980-1983 sample of Tuluksak residents on Fog River, a small percentage of Akiachak households have reported harvesting salmon there.⁶⁵

Harvesting of non-salmon species was extensive along the Fog River and Mishevik Slough, including the slough/lake system between them. Whitefish nets were set in May, June, August, September, and November. Blackfish traps were more widespread than those for any other species. Blackfish traps were also more concentrated in streams along the lower Fog River than along the Tuluksak River. These sites were accessed by boat during ice-free periods.⁶⁶

The Fog River was used by Tuluksak residents for all the same harvest activities that were found along the Tuluksak River. Trapping activities for Tuluksak residents were equally intense along the Fog River as along the Tuluksak River. Bear hunting only occurred near the headwaters of the Fog River. The remaining activities were less intense along the Fog River than they were along the Tuluksak River, but they were nearly equal in extent of area.⁶⁷

A study on subsistence harvest activities for the community of Akiachak for the years 1988-1997 found that the Kuskokwim River provided a travel corridor for residents of Akiachak to travel to other communities to engage in subsistence harvest activities. The Tuluksak River drainage, including the Fog River, was one of the places to which residents traveled.⁶⁸ Akiachak residents participated in fishing, hunting and trapping along the Fog River.

A small percentage of Akiachak households participated in the harvest of salmon on the Fog River. The harvest of non-salmon species, such as northern pike, Dolly Varden, and Arctic grayling, within the Fog River was more common.⁶⁹

Within the Tuluksak River drainage, including the Fog River, five percent of Akiachak residents reported hunting caribou, one percent black bear, and approximately four percent moose. To harvest moose, residents traveled up the Tuluksak River and Fog River by boat during the late summer and fall. When hunting by boat, hunters often take the butchered animal back to the hunting camp where pieces are hung to form a dry surface. The meat is kept cool and dry and then transported home by boat down river.⁷⁰ Furbearer hunting and trapping were concentrated within the Tuluksak River and Fog River drainages by some Akiachak residents.⁷¹

Government Studies and Use of the Tuluksak River Since 1959

On June 10, 1978, three BLM employees ascended the Tuluksak in a boat to the barge landing site, where they found the remains of a dock, fifty-five-gallon drums, machine parts, and a track. The three men then ascended Fog River to a point in Sec. 8, T. 11 N., R. 64 W., SM, where the stream was about twenty-five feet wide, before returning to Tuluksak Village.⁷²

When the BLM officials met with representatives of Tulkisarmute, Inc., and Calista Corporation on December 12, 1980 to discuss proposed easements and navigability determinations on village-selected lands, the Native representatives provided a great deal of information about use of waterways in the area for the purpose of travel. The representatives indicated a route of boat travel to the Tuluksak River that extended from the unnamed lake tributary at Mishevik Slough in Secs. 27, 28, 33, and 34, T. 12 N., R. 65 W., and Secs. 2 and 3, T. 11 N., R. 65 W., SM, to a branch of Fog River in Sec. 2, T. 11 N., R. 65 W., SM. Skiffs 16 to 24 feet in length were used on the waterway system. Upon receipt of this information, the BLM Division of Resources recommended that the branch of Fog River to and including the stream to the navigable unnamed lake be determined navigable. The waterway system was determined to be navigable on March 3, 1982.⁷³

V. Summary

Only a small portion of the lower reaches of the Fog River was selected under the Alaska Native Claims Settlement Act (ANCSA) and so few documents in the BLM's ANCSA files address this river. The Fog River has two channels in the lower portion of the river, the main or East Channel, and the smaller West Channel. The only portion of the East Channel of the Fog River determined navigable (Figure 3) was a portion of the river running along Native Allotment AA-56435, and its left bank tributary running through the allotment.

As depicted on MTPs and survey maps, the West Channel of the Fog River was meandered through a Native allotment located at its mouth, for a distance of approximately 0.5 miles. Apart from a small segment of the river in Sec. 2 of T. 11 N., R. 65 W., SM that appears to have been conveyed in IC Nos. 542 and 543, the West Channel of the Fog River has been determined

navigable from where it empties into the Tuluksak River to a point approximately 4 miles upstream.

The first 1.5 miles of the West Channel also serves as part of a lake and slough system that extends from the mouth of the West Channel of the Fog River to the Mishevik Slough. This lake and slough system between the Tuluksak River and the Mishevik Slough, which includes a portion of the Fog River, has been determined navigable.

The oldest evidence for use of the Fog River consists of Native house pits near river mile 19 dating to the late 1800s. Natives in the area of the Fog River engaged in an annual cycle of subsistence activities in which they traveled up and down the Fog River at various points during the year. Subsistence activities included hunting large game, hunting and trapping of fur-bearers, fishing, berry and plant harvesting, and waterfowl drives. Native residents used some of the resources for sustenance and distributed the rest for ceremonial, sharing, partnership activities, as well as trade and commercial exchange throughout the region. During open water seasons, Natives used canoes and skin boats to transport themselves, subsistence hunting gear, and their harvested resources along the Fog River. During the mid-1920s, Natives along the Kuskokwim River began to incorporate motorized boats and equipment from the commercial fishing industry. By the 1930s, Natives were adopting wooden planked boats with small outboard motors.

Of the six Native allotment parcels along the Fog River, the BLM files document access to only one. Access to this parcel was by canoe and riverboat. Applicant access to the other five parcels was not addressed in the BLM files, but four of these five parcels were accessed by applicants during open water seasons.

Prior to the 1920s, when Natives moved from the river drainage to reside in the village of Tuluksak, the Fog River was used for village to village travel, travel to and from seasonal subsistence camps, and distribution of resources to other Native groups. Since statehood (1959) subsistence activities along the Fog River, including travel to seasonal subsistence sites by boat, have continued among residents of Tuluksak as well as Natives living in villages along the Kuskokwim River.

State and Federal subsistence studies document continued subsistence use of the Fog River by residents of villages from throughout the Lower Kuskokwim River. Many Tuluksak residents exclusively utilize the Fog River and Tuluksak River drainages for subsistence activities through the year, with one-quarter of residents engaging in the full range of subsistence activities for all resource types within the drainages.

The Fog River is used extensively for moose hunting. Hunters traveled by boat for the entire length of the river to access hunting grounds. One subsistence report found that one-hundred percent of Tuluksak households reported hunting along the river. Residents from many communities along the Kuskokwim River also traveled by boat participate in the fall moose harvest.

Subsistence use of the river is most extensive in the lower river, with some activities extending the entire length of the river. Seasonal camps utilized for subsistence activities along the Fog

River are accessed by boat during ice-free seasons. The Fog River continues to be used for the full range of seasonal subsistence harvest activities, with heavy subsistence use for trapping, moose hunting, and the harvest of non-salmon species of fish.

Endnotes

⁴ Sandra C. Thomas, Acting BLM Chief, Branch of ANCSA Adjudication, Decision to Interim Convey, March 3, 1982, BLM files, AA-12890, F-14949-A, F-14949-A2.

⁵ Robert D. Arnold, Assistant to the BLM State Director for Conveyance Management, Interim Conveyance No. 542 to Tulkisarmute and No. 543 to Calista Corporation, August 27, 1982, BLM files,

F-14949-A.

⁶ Sandra C. Thomas, Acting BLM Chief, Branch of ANCSA Adjudication, Decision to Interim Convey, March 3, 1982, BLM files, AA-12890, F-14949-A, F-14949-A2.

⁷ Ann Johnson, Chief of the BLM Branch of Calista Adjudication, June 23, 1987, BLM files, AA-12890.

⁸ Ann Johnson, Chief of the BLM Branch of Calista Adjudication, Tentative Approval, August 5, 1987, BLM files, AA-12890.

 ⁹ Wayne A. Boden, BLM Deputy Director for Conveyance Management, Memorandum on Navigable Waters in Group Survey No. 268 (Window 1836), May 8, 1989, BLM files, F-14949.
 ¹⁰ Ibid.

¹¹ Letter from C. Michael Brown, BLM Navigability Specialist, to Michael B. Rearden, Manager of the Yukon Delta NWR, December 13, 1995, BLM files, 2628 (930).

¹² Gust C. Panos, Chief of the BLM's Branch of Mapping Services, memorandum on Navigability Determination for Waters in Native Allotment or ANCSA Sec. 14(h)(1) applications for Survey Window 2732 (Akiak), July 26, 2000, BLM files, F-14824-EE.

¹³ Gust C. Panos, Chief of the BLM's Branch of Mapping Services, memorandum on Navigability Review for Water in [Survey] Window 2700, November 7, 1997, BLM files, F-17100 (2561).

¹⁴ Denny Benson, Easement Coordinator, BLM Branch of Land Transfer Services, Notice of Proposed Easement Recommendations and Request for Easement Nominations on Land selected by Tulkisarmute Incorporated, August 31, 2005, BLM files, F-14949-A, F-14949-A2.

¹⁵ Ibid.

¹⁶ Denny Benson, Easement Coordinator, BLM Branch of Land Transfer Services, Final Easement

Recommendations and Patent Easement Review for Lands to be Patented to Tulkisarmute Incorporated, December 29, 2005, BLM files, F-14949-A, F-14949-A2, F-14949-EE.

¹⁷ Dominica VanKoten, BLM Chief of Navigability, Navigable Waters within the Tuluksak Village Project Area, August 15, 2006, BLM files, F-14949-A (2651).

¹⁹ Ramona Chinn, Acting State Director, Decision on Lands Proper for Village Selection Approved for Conveyance, June 18, 2008, BLM files, F-14949-EE.

²⁰ Robert L. Lloyd, BLM Chief of Land Transfer Adjudication I, Final Easement Memorandum for Lands to be Conveyed to Calista Corporation, July 10, 2009, BLM files, AA-10273.

²¹ Ramon Chinn, Acting BLM State Director, Decision on Lands Approved for Conveyance to Calista Corporation, August 5, 2009, BLM files, AA-10273.

²² Master Title Plats (MTPs): T. 12 N., R. 65 W. and T. 11 N., R. 65 W., SM; and U.S. Survey No. 10228,

officially filed on October 20, 1992, and U.S. Survey No. 10225, officially filed, on October 20, 1992.

²³ MTP: T. 11 N., R. 65 W., SM; and U.S. Survey No. 10252, officially filed, October 20, 1992.

²⁴ MTPs: T. 10 N., Rs. 63-64 W.; T. 9 N., Rs. 61-63 W.; T. 8 N., Rs. 61-62 W.; T. 9 N., Rs. 59-60 W.; and T. 10 N., R. 59 W., SM.

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¹ Donald J. Orth., *Dictionary of Alaska Place Names*, Geological Survey Professional Paper 506, United States Geological Survey, U.S. Government Printing Office, Washington, D.C., 1971, p. 344.

² Patrick C. Beckley, BLM Realty Specialist, Memorandum concerning navigable water determination on Tuluksak selection, December 17, 1975, BLM file, F-14949-A.

³ Curtis McVee, BLM State Director, Memorandum on Final Easements for the Village of Tuluksak, June 9, 1981, BLM files, F-14949-EE.

¹⁸ Ibid.

- ²⁵ U.S. Survey No. 12110, officially filed, January 5, 2001.
- ²⁶ U.S. Survey No. 10728, officially filed, March 24, 2009.

²⁷ Roger Clay, *A Compilation of Hydrological Data on the Kuskokwim Region*, Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, 1983, pp. 33 and 148.

²⁸ Kenneth T. Alt, *Inventory and Cataloging Western Alaska Waters*, July 1, 1976 - June 30, 1977, Vol. 18, Alaska Department of Fish and Game, Anchorage, 1977, p. 22.

- ²⁹ Clay, A Compilation of Hydrological Data on the Kuskokwim Region, pp 24 and 33.
- ³⁰ See notes from USS 12108, officially filed January 5, 2001.

³¹ Clay, A Compilation of Hydrological Data on the Kuskokwim Region, p. 148.

³² See notes for USS 10252, officially filed October 20, 1992.

³³ See notes for USS 10255, officially filed October 20, 1992.

³⁴ James W. Vanstone, "Mainland Southwest Alaska Eskimo," in *Handbook of North American Indians, Volume V, Arctic*, David Damas, editor, Smithsonian Institute, Washington, D.C., 1984, pp. 227-229.

³⁵ Robert D. Shaw, *Cultural Resources Survey Preceding Construction of a Water and Sewer System in Kwethluk*,

Alaska, a report done under contract to the Alaska Native Tribal Health Consortium, Anchorage, 2002, p. 10. ³⁶ Vanstone, "Mainland Southwest Alaska Eskimo," pp. 227-229.

³⁷ Steve Langdon and Rosita Worl, *Distribution and Exchange of Subsistence Resources in Alaska*. Alaska Department of Fish and Game Technical Paper Number 55, Arctic Environmental Information and Data Center, University of Alaska, Anchorage, 1981, pp. ii, 1.

³⁸ Vanstone "Mainland Southwest Alaska Eskimo," p. 299.

³⁹ Langdon and Worl, *Distribution and Exchange of Subsistence Resources in Alaska*. pp. 28 and 96.

⁴⁰ Vanstone "Mainland Southwest Alaska Eskimo," p. 299.

⁴¹ Wendell H. Oswalt, *Bashful No Longer, An Alaskan Eskimo Ethnohistory, 1778-1988*, University of Oklahoma Press, Norman, 1990, pp. 8-9.

⁴² Vanstone "Mainland Southwest Alaska Eskimo," p. 299.

⁴³ Langdon and Worl, *Distribution and Exchange of Subsistence Resources in Alaska*. pp. 28 and 96.

⁴⁴ Michael W. Coffing, *Kwethluk Subsistence: Contemporary Land Use Patterns, Wild Resource Harvest and Use, and the Subsistence Economy of a Lower Kuskokwim River Area Community*, Technical Paper No. 157, ADF&G, Division of Subsistence, Juneau, 1991, p. 35.

⁴⁵ Robert Ackerman, "Southwestern Alaska Archaeological Survey," *National Geographic Research Reports-1978 Projects*, Vol. 19, 67-94.

⁴⁶ Coffing, *Kwethluk Subsistence*, pp. 30-32.

⁴⁷ Oswalt, Bashful No Longer, pp. 8-9.

⁴⁸ BIA, "Report of Investigation for Cavirrutnartuli, Calista Corporation," BLM AA-10273, BIA ANCSA office, Anchorage, 1990.

⁴⁹ Ibid.

⁵⁰ Lydia Peter, Native Allotment Application and Evidence of Occupancy, filed on March 28, 1972; and Lydia Peter, Statement of Witness for Native Allotment Application, December 28, 1977, BLM files, FF-17042.

⁵¹ Mollie Japhet, Native Allotment Application and Evidence of Occupancy, filed on March 28, 1972, BLM files, FF-17037.

⁵² Ibid.

⁵³ Noah Andrew, Native Allotment Application and Evidence of Occupancy, filed on August 21, 1985, BLM files, AA-56435.

⁵⁴ Rhett S. Wise, Native Allotment Field Report, August 7, 1987, BLM files, AA-56435.

⁵⁵ Peter E. Williams, Native Allotment Application and Evidence of Occupancy, filed on March 16, 1972, BLM files, FF-15918.

⁵⁶ Rhett Wise, Native Allotment Field Report, May 2, 1975, BLM files, FF-15918

⁵⁷ Frank DeMantle, Native Allotment Application and Evidence of Occupancy, filed on March 16, 1972, BLM files, FF-15901.

⁵⁸ Kenneth P. Raske, Native Allotment Field Report, September 17, 1974, BLM files, FF-15901.

⁵⁹ Waska A. Williams, Native Allotment Application and Evidence of Occupancy, filed on March 16, 1972, BLM files, FF-15921.

⁶⁰ Ibid.

⁶⁹ Ibid., pp. 61, 73-74.

⁷⁰ Ibid., pp. 82-87, 97-99.

⁷¹ Ibid., p. 121.

⁷² William M. Peake, "Notes," June 13, 1978, BLM files, F-14888-EE; William M. Peake and Al Pack, "Site Inventory and Evaluation-Nyac Barge Landing Site," June 10, 1978, BLM files, F-14949-EE.

⁷³ Memorandum from Marty L. Karstetter to [Division of] Resources, December 30, 1980; Memorandum by Sherman F. Berg to Files, January 13, 1981, annotated map in file; Decision to Issue Conveyance for Lands to Tulkisarmute, Inc., March 3, 1982, BLM file F-14949-EE.

⁶¹ Rhett S. Wise, Native Allotment Field Report, July 2, 1975, BLM files, FF-15921.

⁶² Elizabeth Andrews and Raymond Peterson, Wild Resource Use of the Tuluksak River Drainage by Residents of Tuluksak, 1980-1983, Technical Paper No. 87, ADF&G, Division of Subsistence, 1983.

⁶³ Andrews, Wild Resource Use of the Tuluksak River Drainage by Residents of Tuluksak, 1980-1983, pp. 5-7.

Andrews, Wild Resource Use of the Tuluksak River Drainage by Residents of Tuluksak, 1980-1983,

pp. 27-28. ⁶⁵ Michael W. Coffing, Louis Brown, Gretchen Jennings, and Charles J. Utermohle, *The Subsistence Harvest and* Use of Wild Resources in Akiachak, Alaska, 1998, Technical Paper No. 258, ADF&G, Division of Subsistence, Juneau, 2001.

⁶⁶ Andrews, Wild Resource Use of the Tuluksak River Drainage by Residents of Tuluksak, 1980-1983, pp. 30-31; Randy J. Brown, Caroline Brown, Nicole M. Braem, William K Carter III, Nicole Legere, and Lisa Slayton, Whitefish and Whitefish Fisheries in the Yukon and Kuskokwim River Drainages in Alaska: a Status Review with Recommendations for Future Research Directed Towards Sustainable Management, U.S. Fish and Wildlife Service and ADF&G, Subsistence Division, Fisheries Resources Monitoring Program Draft Report, March 2011, pp. 166-168.

⁶⁷ Andrews, Wild Resource Use of the Tuluksak River Drainage by Residents of Tuluksak, 1980-1983, p. 32. ⁶⁸ Coffing, et al., *The Subsistence Harvest and Use of Wild Resources in Akiachak Alaska, 1998*, pp. 11-14.