

NABESNA RIVER NAVIGABILITY DETERMINATIONS

Name	Author	Year	Navigability Determination
Nabesna River	BLM	November 7, 1978	Report on Navigability of Nabesna River, Eastern Alaska. Recommended that the Nabesna River be declared navigable from its mouth to Northway. Historic information on navigability of Nabesna River.
	BLM	March 22, 1979	Navigable and Non-Navigable water Bodies in the Northway Area, Eastern Alaska. Reaffirming Navigability Recommendation dated March 16, 1979.
	BLM	March 28, 1980	Navigable and Nonnavigable Waters in the Northway Area, Eastern Alaska. Recommended that Nabesna River be determined navigable in selected Townships.

File _____

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO:

2650 (93)

TO : Chief, Division of Resources (930)
 Chief, Branch of Lands & Minerals

FROM : Historian

SUBJECT: Report on Navigability of Nabesna River, Eastern
 Alaska

Date: NOV 7 1978

I. Physical Characteristics - Nabesna River¹

About 86 miles long, the Nabesna River rises at the foot of Nabesna Glacier, and flows in a meandering braided channel for 75 miles to unite with the Chisana River and form the Tanana River. The river traverses a broad alluvial valley. Highly silted, with numerous gravel and sand bars throughout its length, the river is constricted to a single channel in only one reach, near river mile 27.

The river drains an area of 2,185 square miles. The river basin is about 100 miles long and 30 miles across its maximum width. From its headwaters at the foot of the glacier, the river descends from an altitude of 2,980 feet to 1,980 feet at Lick Creek at an average gradient of 23.2 feet per mile. From Lick Creek to the mouth, the river descends 280 feet at an average rate of 6.5 feet per mile.

Landform in the area above Lick Creek is extremely high and rugged. All of the tributary valleys are V-shaped and have steep gradients. The Nabesna River valley is U-shaped with steep walls. Below Lick Creek landform is characterized by both high, hilly terrain, and flat but sloping outwash plain, and featureless muskeg and bog flats. The eastern edge of the Mentasta Mountains runs parallel to the river to mile 25. The Black Hills run through a section of the river between mile 30 and mile 25. North of the Black Hills is an area of black spruce, muskeg, and bog lakes, through which the lower 20 miles of the river flows.

From the headwaters to Lick Creek, the river channel is highly braided. According to representatives of Grumman Ecosystems Corporation who inspected the river in July 1974, the main channel of flow in this reach is extremely difficult to detect. The channels are numerous and narrow; and the flow is extremely swift with standing waves prevalent. In areas of extreme braidedness, the depth appeared to be shallow, often only inches deep. Where channels came together, the depth was probably greater. Channel widths were highly variable. Single channel widths ranged from 20 feet to about 1,000 feet. The representatives did not measure the velocity in this reach, but estimated it to be at least five feet per second. No snags or blockages were observed in the channels.

From Lick Creek to the mouth, the river is characterized by swift, turbulent flows, relatively shallow stream gradient, and an abundance of stream volume. Although the river exhibits a braided character in this reach, the main channel of flow is more recognizable. The river began to exhibit a meandering character in its lower few miles, flowing through muskeg and bog lakes near Northway. According to the Grumman Ecosystems Corporation representatives, the flow appeared to be very swift, even near the mouth, as standing waves were present. In July 1974, the river stage was moderately high. There was some inundation of vegetated area, yet not all gravel bars were covered over. Water depth could not be measured due to the tremendous flow of water upon the weighted depth line. Channel widths ranged from 100 to 1,000 feet in the main channel of flow. Bank-to-bank widths in many cases exceeded one-half mile, and approached one mile. In July 1974, the representatives measured the velocity just below the mouth of Lick Creek at five feet per second in the main channel, and seven to eight feet per second in a side channel. No snags or blockages were observed in this reach, although log piles were seen on gravel bars.

The river is frozen six to seven months of the year. Maximum open water flows occur during July. Annual maximum flows may exceed by four times the annual average, while winter flows may only be 20 percent of the average.

Major tributaries of Nabesna River include: Bond Creek (mile 77), Jacksina Creek (mile 71.7), Jack Creek (mile 68), Platinum Creek (mile 64.8), Cooper Creek (mile 62.1), Stone Creek (mile 59.1), Lick Creek (mile 43), and Cheslina River (mile 25.8).

II. Chisana River - Physical Characteristics ²

Heading in Chisana Glacier, the Chisana River flows about 60 miles in a northeasterly direction and then turns to a northwesterly direction for 55 miles to join the Nabesna River and form Tanana River. In the upper 15 miles the river flows in a braided channel which has cut deep trenches in the glacial debris of the broad valley floor. Below Cross Creek, the river enters a canyon section cut through the Nutzotin Mountains for a distance of 14 miles before emerging onto the broad lake-studded valley floor of the upper Tanana River. Through the canyon section the river is confined to a width of about one-fourth of a mile. Heavily silted, the river is constricted to one channel below Mirror Creek.

About 120.5 miles long, the river drains an area of 3,420 square miles. The river basin is about 90 miles long and 50 miles wide across its maximum east-west extension. From the foot of Chisana Glacier, the river descends 1,625 feet to the mouth of Mirror Creek at an average gradient of 27.4 feet per mile. In the upper 5.5

miles, above Geohenda Creek the river descends 295 feet at a rate of 53.7 feet per mile. From Mirror Creek to the mouth, the river descends 195 feet at an average gradient of 3.2 feet per mile. The river discharges an average flow of 2,430 cubic feet per second.

Landform in the area above Mirror Creek is extremely rugged. Slopes are unvegetated and excessively steep. All of the stream valleys, with the exception of the Chisana, are V-shaped, and downward erosion is excessive. Below mile 85 the river enters the outwash plain, and the relief in the area is less pronounced with only an occasional hill breaking the horizon. The Black Hills cross the river near mile 65. Below Mirror Creek, the landform is characterized primarily by an extensive area of black spruce muskeg and bog lakes.

From the headwaters to Mirror Creek, the river is characterized by a high fall^{of}gate, extremely braided stream channel, and a swift current. According to representatives of Grumman Ecosystems Corporation, the channel of main flow is indistinguishable above the mouth of Cross Creek. Numerous glaciers discharge meltwater in this reach. From mile 105 to mile 95, just above Sheep Creek, the river is relatively well-defined, although several channels are present. From the mouth of Sheep Creek to Mirror Creek, the river becomes extremely braided and shallow so that a main channel again becomes indistinguishable. The flow is very swift throughout the entire reach, as standing waves were present in many locations. Unable to make depth measurements, representatives of Grumman Ecosystems Corporation estimated the depth of the river at about mile 102.5 to be about three feet. Shallower depths were observed throughout the upper reach. Main channel widths varied from 100 yards at mile 102.5 to less than 30 feet in areas of extreme channel braidedness. Bank-to-bank widths approached two miles just below Chisana while it narrowed to about one-fourth of a mile below Cross Creek. Bank-to-bank widths north of the mountains often exceeded one mile. In July 1974 river velocity measured at mile 102.5 was eight feet per second. River velocity was observed to be very swift throughout the entire upper reach.

Below Mirror Creek the river is characterized by a well-defined channel of flow. Immediately below the mouth of Mirror Creek, the stream gradient lessens and the braided character disappears. The stream gradient was 27.4 feet per mile above Mirror Creek, but only 3.2 feet per mile below Mirror Creek. Thirteen feet deep at the mouth, the river has a good depth throughout this reach. Channel width ranged from 200 feet near Mirror Creek to 600 feet at the mouth. Velocity measured near mouth of the river in July 1974 was about three feet per second. The river was then in a moderate stage.

The U.S. Geological Survey has maintained a gaging station on the river at Northway Junction since 1949. Maximum stage and discharge:

June 22, 1962, gage height was 11.7 feet and 10,000 cubic feet per second. On July 5, 1959, the gage height was 12.4 feet. Discharge was not recorded on that date.

Like the Nabesna River, the Chisana River is frozen six to seven months of the year.

Major tributaries of the Chisana River included Chathenda Creek (mile 113.4), Cross Creek (mile 105.9), Chavolda Creek (mile 105.5), Sheep Creek (92.2) Mirror Creek (mile 61.2), Scottie Creek (mile 54.2), Gardiner Creek (mile 33.8), and Stuver Creek (mile 23.8).

III. History - Mining

Both the Nabesna and Chisana Rivers have been exploited by white prospectors and miners since the early 1900's. Following the Klondike Gold Rush, Geological Survey and War Department investigations, the discovery of rich copper deposits near Chitina River, and the construction of the Valdez-Fairbanks trail, prospectors entered the upper Tanana River area by land in increasing numbers. In 1905, copper sulphides were discovered on Jacksina Creek, a tributary of Nabesna River. The Royal Development Company subsequently worked the prospect, and erected a 3-stamp mill at the site in 1906. According to a U.S. Geological Survey report, the mine was yielding, in 1908, \$12 a ton. ³

Later, in 1929, a company was organized to mine gold at the present site of Nabesna. The company placed a mill in operation at the site in 1931. Mining continued with some interruption until about 1947, when most of the ore bodies were exhausted. Gold valued at \$1.9 million had been produced at the mine. ⁴

On July 11, 1978, it was announced in the Fairbanks Daily News-Miner that the Nabesna mine townsite was for sale. Three miles of tunnels at the mine had yielded 70,000 ounces of gold and a like amount of silver. The mine reportedly closed in 1946. The Minerals Exploration Company purchased the place in 1966, and subsequently desired to sell the mine. ⁵

Mining on Chisana River began in 1913. In that year, several prospectors in Dawson, Canada, reported a rich find in the headwaters of Chisana River, and thereby caused a minor gold rush to the area during the fall and winter of 1913-14. Several thousand men rushed to the country, many of them inexperienced and most without the proper equipment and supplies. The winter proved hard to many of the prospectors, and large numbers subsequently left. A few of the prospectors who had staked the most valuable placer ground remained, and some were still mining the creeks in the late 1930's. In 1940, total production of placer gold from the Chisana district was estimated to be about \$970,000, most of the gold coming from Bonanza and Little Eldorado Creeks and the tributaries of Wilson Creek. ⁶

IV. History--Trading

Indians of the upper Tanana River first came into contact with white trade goods through the Copper River Indians. In the 1900's, however, the white traders penetrated the area via the Tanana River. In 1907 or 1909, a certain Captain Northway established a trading post near the mouth of Nabesna River and possibly on the Tetlin River. In 1913, it was reported that Northway traveled by boat each summer to his trading post near the mouth of the Nabesna River, where he traded with the Indians and worked on his copper properties in the Nabesna River valley.

Trading posts were maintained in the upper Tanana River area during the 1910's and 1920's. A certain W. H. Newton (or Merritt) operated a trading post at the mouth of the Nabesna River, and at Tanacross, while a Herman Kessler maintained a trading post near the mouth of Gardiner Creek, a tributary of Chisana River.

In the 1930's two rival traders, Ted Lowell and Milo (or John) Hadjukovich, operated stores at Tanacross, Tetlin, and at the mouth of Nabesna River. Goods were brought in during the summer in power-driven shallow-draft scows, and distributed to the three posts. In the winter the traders drove dogteams to their various stores where the Indians would meet them, and on occasion they went to the more distant Indian camps. During the spring, they journeyed from camp to camp via boat with outboard motors.

According to R. L. Jennings of the Alaska Native Service in a report prepared in the late 1940's, there were two stores located at Northway: the Northway Native Store and the store operated by Herman Kessler. ¹⁰

V. History - Communities

Since the early 1900's a number of Indian camps were located along the Nabesna River. In February 1908 a U.S. Geological Survey party established a base camp at "Sargent's Cabin" near the mouth of Camp Creek. The party reported the existence of an Indian village at the mouth of Cooper Creek. ¹¹ According to Robert McKennan, who visited the area in 1929, a band of upper Chisana - Nabesna Indians had a winter camp near the mouth of Cooper Creek. An earlier village was located on the Nabesna River two miles upstream, also on the east bank of the river. The original village was on the west bank of the river, at the mouth of Platinum Creek. ¹²

Nabesna, a mining town, is located near Jacksina Creek. The town was probably founded in the late 1920's when mining of lode gold near White Mountain began. The town is presently abandoned. A hunting lodge is near the town. ¹³

Northway, a former Army Air Corps station, was founded in 1942 with the construction of an aviation field and facilities for 13 officers and 140 enlisted men. ¹⁴

Nabesna Village, located about six miles above the mouth of Nabesna River, on the west bank, is probably one of the oldest Indian villages on the river. The village may have been called "Khiltats" in 1907. ¹⁵ Early trading posts of Northway, Newton, and others may have been located in the village.

Northway Indian Village, located near the Northway station, was probably established in the early 1940's. ¹⁶

Charlieskin Village and Kathakne are located near Fish Lake in the lower reach of the Nabesna River. The U.S. Geological Survey reported the local names in 1954 and 1955, respectively. ¹⁷

Following a survey of Nabesna River by helicopter in July 1974, representatives of Grumman Ecosystems Corporation reported the existence of hunting and mining settlements near the headwaters of the river. Several cabins and lodges were located on the Slana-Nabesna Road along Jack Creek. No cabins or camps were observed on the river below the mouth of Jack Creek. At the head of the river, a copper mining community had begun to develop within the past year. A rich supply of copper ore was discovered in the vicinity of Orange Hill (mile 83). Improvements in the lower reaches of Nabesna River were confined to the last 10 miles of the river, where Northway, Nabesna Village, and Northway Indian Village are located. The eastern boundary of the Tetliq Indian Reservation follows Nabesna River from mile 25 to mile 15. ¹⁸

On Chisana River, settlements have been located on Chathenda Creek, Gardiner Creek, and Cross Creek. Chisana, a mining community, is located in the headwaters of the river, near Chathenda Creek. The town was established about 1913 as a result of placer mining operations in the area. ¹⁹ In the 1910's a trading post was established on Gardiner Creek. Herman Kessler, who operated the post, traded primarily with the Scottie Creek Indians, who were, according to Robert McKenna, totally nomadic, having no permanent villages. This band ranged from Gardiner Creek on Chisana River to Snag River to hunt. ²⁰ In the late 1900's, a U.S. Geological Survey party reported the existence of an Indian community on Cross Creek, opposite the mouth of Notch Creek, where a few families had their winter houses. ²¹

In July 1974, representatives of Grumman Ecosystems Corporation surveyed the entire river by helicopter. With the exception of Chisana and developments along the Alaska Highway, ²² no cabins or campsites were observed on the Chisana River.

VI. History - River Transportation

Regular transportation of the Nabesna River has been limited to the lower reaches. Since the late 1900's traders at Nabesna Village supplied their posts by boat via the Tanana River route. In the early 1940's, with the construction of an aviation field at Northway, small river boats of 45-ton capacity ascended Tanana River from Big Delta to the Nabesna River, and then up²³ the Nabesna River approximately seven miles to the Northway garrison.

There is little evidence of boat travel on the Nabesna River above Northway. In the 1940's, a U.S. Geological Survey party reported that the prospects on Orange Hill were accessible from Nabesna by boat or horse. The party recommended care in selecting the route across the rapidly shifting channels and stated that crossings should be made at low water.²⁴ According to Mr. Lou Jurs, and Dr. Ken Brakken of the Alaska State Office, Bureau of Land Management, hunters frequently use the river between Nabesna and Northway in rubber rafts and boats while on sheep hunting expeditions. During their survey of the Nabesna River in July 1974, representatives of Grumman Ecosystems Corporation, did not observe boats on the river above Northway.²⁵

The Chisana River, on the other hand, has a long history of river boat traffic. A trading post on Gardiner Creek was supplied by boat during the 1910's. During the Chisana Gold Rush of 1913, a large number of people ascended the river as far as Chathenda Creek in poling boats. According to a U.S. Geological Survey report: "On the circulation of the report that rich placer discoveries had been made in the Chisana basin, a considerable number of men made their way up Tanana and Chisana rivers by launches and small boats. Under favorable conditions launches may be taken up these rivers as far as the north front of the Nutzotin Mountains, and boats were lined or poled all the way up to the mouth of Chathenda Creek. The route from Fairbanks, the base of supplies, is, however, long and difficult and, although possible, will never be an economical route for bringing in supplies. In the fall of 1914, many persons availed themselves of this water route, and built boats in which they rowed downstream to Fairbanks."²⁶

On August 23, 1960, an Indian allotment was granted to Walter Northway of Northway. The allotment is located on Chisana River (62°55'18"N, 141°36'32"). A field examination revealed long use of the site. The allotment was accessible only by river boat, light float airplane, and dog sled.²⁷

Surveying the Chisana River in July 1974 by helicopter, representatives of Grumman Ecosystems Corporation did not observe boats on the river.²⁸

VII. History - Land Transportation

The Nabesna River is presently reached by two primary land routes. The Slana-Nabesna Road extends from Slana on the Glenn Highway to the Nabesna Mine near the headwaters of Nabesna River. The Northway Junction-Northway Indian Village Road extends from Northway Junction on the Alaska Highway (Alcan) to Northway Indian Village near the mouth of Nabesna River.

The Slana-Nabesna route has long been the primary route to the headwaters of Nabesna River. Originally a pack trail, the route was used on a regular basis by prospectors and miners beginning in the 1900's when lode gold deposits near Jacksina Creek were developed. Visiting the area in 1908, a U.S. Geological Survey party described the route as follows: "Travellers bound for the river usually follow a trail that leaves the Government military trail from Valdez to Eagle near the mouth of Slana River. This trail ascends the Copper River to Batzulnetas, whence it continues southeastward to the heads of Jack and Platinum Creeks, either of which leads directly to Nabesna River, although Platinum Creek offers the better route for summer travel." Supplies were brought from Valdez. "The cost of freight is probably not less than 35¢ per pound under favorable conditions and may be considerable higher. Grass for horses is available in favorable localities in the latter part of May or early in June,³⁰ and later in the season is abundant on the head of the river."

During the Chisana Gold Rush of 1913, some prospectors followed the Slana-Nabesna route in order to reach the diggings on Chisana River. Upon reaching the Nabesna River, the prospectors crossed the river to Cooper Pass, through which they traveled to arrive at the headwaters of Notch Creek, a tributary of Chisana River. Notch Creek was then followed to Chisana River. Due to its length, the route was not popular during the gold stampede.³¹ In the late 1920's, the Alaska Road Commission made substantial improvements to the route as the Nabesna Mining Corporation began large-scale mining operations at Nabesna. By the late 1930's or early 1940's the route was passable for trucks.

The Northway Junction-Northway Indian Village Road was constructed during the 1940's as a feeder to the Alaska Highway. The road provided access to the aviation field at Northway.

There are three major trail routes in the Nabesna River valley, all of which appear on modern U.S. Geological Survey maps. One trail, identified as a winter trail on U.S. Geological Survey maps, extends from Nabesna Village to the foot of the Mentasta Mountains; it is located on the west side of Nabesna River. Several cabins are incrementally spaced on the trail. Another trail extends southerly

from Northway to the area of Jatahmund Lake. Finally, a winter trail extends from Nabesna River to Chisana River, following³² the base of the mountains in the upper reaches of the rivers.

Except in its lower reaches, where the Northway Junction-Nabesna Indian Village Road crosses the river at river mile 4.0, the Chisana River valley is inaccessible by road. There are, however, several trails in its upper reaches. A winter trail extends from Chisana River to the headwaters of Beaver Creek, following the base of the mountains. Another trail extends up the west limit of the river from the northern edge of the mountains; it is a continuation of the winter trail linking the Nabesna River and the Chisana River. Finally, there is the Cooper Pass trail, which was used by some³³ prospectors in the 1910's to reach the placer ground at Chisana.

VIII. History - Air Transportation

Three aviation fields are located in the Chisana River and Nabesna River area. One aviation field is located at Chisana; it was constructed by the Alaska Road Commission in the late 1920's or early 1930's. Another aviation field is located near Orange Hill (in the headwaters of Nabesna River), the site of recent copper-mining operations. The final aviation field, located at Northway was originally 350 x 5,300 feet. Two years later the Civil Aeronautics Administration extended the field to 7,500 feet and paved³⁴ the runway. The field was suitable for freight transport airplanes.

In the early 1940's a natural aviation field near Nabesna mine was used by pioneer aviator Bob Reeve to transport equipment from Nabesna to Northway. The field was located on a river bar. Reeve was contracted by Morrison-Knudsen Company, which had a contract with the Civil Aeronautics Administration to improve the Northway field, to transport equipment by airplane to Northway. The equipment was transported from Valdez to Nabesna, then loaded on wagons and hauled by cat tractors over five miles of muskeg to Reeve's river bar landing field. In a five-month period, Reeve transported³⁵ 1,100 tons of equipment by airplane from the river bar to Northway.

Floatplanes have reportedly landed on the Nabesna River near Northway and on the Chisana River near Gardiner Creek. One airplane made a forced landing in Jacksina Canyon in 1933; it was subsequently hauled³⁶ about 20 miles to a point near the Nabesna mine by a four-horse team.

IX. Conclusion

The history of the Nabesna River valley may be distinguished by four phases. In the first phase, a period which may extend from prehistoric times to the 1930's, the Nabesna Indians traveled up the valley each

- or late fall

winter to cabins near the mouths of Platinum, Cross, and Camp Creeks. In the spring the Indians returned to their camps near the mouth of the Nabesna River to hunt, trap, and fish. In the second phase, a period existing from the mid-1900's to modern times, the headwaters of the Nabesna River was the scene of commercial mining activities. The third phase began with the establishment of a trading post near the mouth of Nabesna River in the late 1900's. With the development of permanent trading posts near the mouth of the river, the Nabesna Indians' camps lost their seasonal character, becoming instead permanent villages. The final phase began with the construction of the Alaska Highway and the Northway aviation field in the early 1940's. Additional communities were established near the mouth of the river and linked by modern land and air transportation facilities.

There is little evidence in the historic record that the Nabesna River was used for the purpose of travel, trade, and commerce. Although Indians have long traveled up the river from the Tanana River to cabins on Platinum, Cross, and Camp Creeks, they made such journeys during the winter. Commercial mining operations near Jacksina Creek, in the headwaters of Nabesna River, have long been served by the Slana-Nabesna Road, originally a pack trail. Trading posts and Indian camps near the mouth of Nabesna River were supplied by boat. During the construction of the Northway aviation field, equipment, material, and supplies were taken to the site by airplane and by boat. Evidence of travel on the Nabesna River south of Northway consists only of hunters descending the river in rubber rafts and flat-bottomed boats with jet units.

Given the historical evidence, it is improbable that the Nabesna River from Northway to the foot of Nabesna Glacier is susceptible to navigation. Due to the fact that the Nabesna River was accessible by land, there was little cause to use the river as a transportation route. Mines near Jacksina Creek were reached via the Slana-Nabesna route. A winter trail follows the course of the river from Nabesna Indian village. When the Northway aviation field was improved in the early 1940's, materials were taken to Nabesna by land from Slana, and then shipped by air to the aviation field.

Historical use of the Chisana River as a transportation route supports the view that the Nabesna River is not susceptible to navigation. During the Chisana Gold Rush of 1913, prospectors reached the placer diggings by land and by water. Some followed the Slana-Nabesna route; and some ascended Chisana River as far as Chathenda Creek by poling boat. There is no evidence that the Nabesna River was used as a route to the Chisana placer diggings. Due to the existence of a land route to Nabesna, and the existence of a water route to Chisana, it is clear that there was no cause to use the Nabesna River as a transportation route.

Therefore, it is recommended that the Nabesna River be declared navigable from its mouth to Northway. It is further recommended that the Nabesna River from Northway to the foot of Nabesna Glacier be declared non-navigable.

Charles M. Brown

FOOTNOTES

¹The description of Nabesna River is taken from Grumman Ecosystems Corporation, Report on Navigability of Streams Tributary to the Tanana River, Alaska. Prepared for U.S. Army Engineer District, Alaska, Vol. IV (April 1975), p. 4-469 ff.

²The description of Chisana River is taken from Grumman Ecosystems Corporation, Report on Navigability of Streams Tributary to the Tanana River, Alaska. Prepared for U.S. Army Engineer District Alaska, Vol. IV (April 1975), p. 4-489 ff.

³F. H. Moffit and A. Knoff, Mineral Resources of the Nabesna-White River District. U.S. Geological Survey Bulletin 379-D (Washington, 1909, pp. 176-177.

⁴A. E. Nelson, et al., Reconnaissance for Radioactive Deposits in Eastern Alaska, 1952. U.S. Geological Survey Circular 348 (Washington, 1954), p. 4; F. H. Moffit, Mining in the Northern Copper River Region, Alaska. U.S. Geological Survey Bulletin 943-B (Washington, 1944), pp. 454-6.

⁵Fairbanks Daily News-Miner, July 11, 1978, p. 6.

⁶F. H. Moffit, Geology of the Eastern Part of the Alaska Range and Adjacent Area. U.S. Geological Survey Bulletin 989-D (Washington, 1954), p. 197.

⁷Ramon B. Vitt, "Hunting Practices of the Upper Tanana Athapaskans" (unpublished thesis, 1971), p. 33; Fairbanks Daily Times, July 3, 1913, p. 3.

⁸Ibid., pp. 37, 39; Robert A. McKennan, The Upper Tanana Indians (New Haven, 1959), p. 27.

⁹McKennan, op. cit., p. 27.

¹⁰Northway, File No. 431, FRC Box No. 1610, RG 75, Records of Bureau of Indian Affairs, Federal Records Center, Seattle, Washington.

¹¹F. H. Moffit, et al., Mineral Resources of the Nabesna-White River District, Alaska, with a Section on the Quaternary. U.S. Geological Survey Bulletin 417 (Washington, 1910), p. 15.

¹²Vitt, op. cit., pp. 40-41.

- ¹³Grumman Ecosystems Corporation, op. cit., p. 4-473.
- ¹⁴James D. Bush, Jr., "Narrative Report of Alaska Construction, 1941-1944" (unpublished manuscript, n. d.), pp. 110-111.
- ¹⁵Donald J. Orth, Dictionary of Alaska Place Names. U.S. Geological Survey Professional Paper 567 (Washington, 1971), p. 668.
- ¹⁶Ibid., p. 703
- ¹⁷Ibid., pp. 201, 501
- ¹⁸Grumman Ecosystems Corporation, op. cit., pp. 4-473, 4-479, 4-480.
- ¹⁹F. H. Moffit, Geology of the Eastern Part of the Alaska Range and Adjacent Area, p. 197.
- ²⁰Vitt, op. cit., p. 40.
- ²¹F. H. Moffit, et al., Mineral Resources of the Nabesna-White River Area, p. 15; M. F. Guedon, People of Tetlin, Why are You Singing? (National Museums of Canada, 1974), p. 15.
- ²²Grumman Ecosystems Corporation, op. cit., p. 4-489.
- ²³Bush, Jr., op. cit., pp. 110-111.
- ²⁴A. E. Nelson, et al., op. cit., p. 4.
- ²⁵Grumman Ecosystems Corporation, op. cit., p. 4-494.
- ²⁶Stephen R. Capps, The Chisana-White River District, Alaska. U.S. Geological Survey Bulletin 630 (Washington, 1916), p. 27.
- ²⁷W. Northway, Indian Allotment, File No. 024788, FRC Box No. 94282, RG 49, Records of the Bureau of Land Management, Federal Records Center, Seattle, Washington.
- ²⁸Grumman Ecosystems Corporation, op. cit., p. 4-489 ff.
- ²⁹See U.S., Geological Survey, Map of Nabesna Quadrangle, 1965. Scale 1: 250,000.
- ³⁰F. H. Moffit, et al., Mineral Resources of the Nabesna-White River Area, pp. 12, 13, 14.
- ³¹Stephen R. Capps, op. cit., pp. 25-26.

³²Grumman Ecosystems Corporation. op. cit., p. 4-480.

³³See U.S., Geological Survey, Map of Nabesna Quadrangle, 1965.

³⁴Ibid.; Bush, Jr., op. cit., p. 111.

³⁵Beth Day, Glacier Pilot; The Story of Bob Reeves and the Flyers Who Pushed Back Alaska's Air Frontiers (N.Y., 1957), p. 210.

³⁶Ibid., p. 93.

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTIN REPLY REFER TO:
2650 (930)

To : State Director, Alaska Date: MAR 20 1979

FROM : Chief, Division of Resources

SUBJECT : Navigable and Non-Navigable Water Bodies in the Northway Area,
Eastern, Alaska

Attached is a staff report on the physical characteristics and historical uses of the upper Tanana River, the Nabesna River, the Chisana River, and creeks and lakes affected by Northway Natives, Inc. village selection applications F-14912A and B under the Alaska Native Claims Settlement Act. On the basis of this report, we recommend that the upper Tanana River (Tanacross to head), the Nabesna River (mouth to Northway), and the Chisana River (mouth to Scottie Creek) be determined navigable on the basis of susceptibility. With the exception of the Nabesna River, these recommendations reaffirm previous determination of navigability made by the Department of the Interior. Previously, it was determined that the Nabesna River was navigable to Nabesna Village.

We have found no evidence of commercial boat traffic on the Nabesna River above Northway, the Chisana River above Scottie Creek, or the lakes and creeks in the Northway area. Moreover, we have found no evidence which would indicate that commercial boat traffic on these various water bodies is possible.

Your concurrence with these recommendations is requested.

I Concur,



Clair M. Whitlock
Acting State Director

^{acting}


Enclosure

missing bibliography

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO:

2650 (932)

TO : Chief, Division of Resources (930) *3/16/79*
 Chief, Branch of Lands & Minerals (932) *Date: 3/16/79*

FROM : Historian *C. M. Brown 3/16/79*

SUBJECT: Navigable and Non-Navigable Water Bodies in the Northway Area, Eastern Alaska

This report describes the physical characteristics and historical uses of the upper Tanana River (Tanacross to Chisana River), Nabesna River, Chisana River, and certain creeks and lakes in the vicinity of Northway, Alaska. A number of these water bodies have been identified by the State of Alaska in its Water Body Delineation Maps submitted to the Bureau of Land Management (BLM) by letter dated April 16, 1973, to be navigable for the purpose of travel, trade, and commerce. (1) We have found no evidence to support a determination that the water bodies in question were navigable in fact when Alaska became a State. However, we have found irrefragable evidence to support a determination that the upper Tanana River, the Nabesna River to Northway, and the Chisana River to Scottie Creek, were susceptible to navigation at the time that Alaska became a State. We have discovered no information to support the view that the various creeks and lakes near Northway are or were susceptible to navigation for the purpose of travel, trade, and commerce.

I. PHYSICAL CHARACTERISTICS

A. Nabesna River (2)

About 86 miles long, the Nabesna River rises at the foot of Nabesna Glacier, and flows in a meandering braided channel for 75 miles through a broad alluvial valley to unite with the Chisana River and form the Tanana River. Highly silted, with numerous gravel and sand bars throughout its length, the river is constricted to a single channel in only one reach, near river mile 27.

The river drains an area of 2,185 square miles. The river basin is about 100 miles long and 30 miles across its maximum width. From its headwaters at the foot of the glacier to Lick Creek, the river descends from an altitude of 2,980 feet to 1,980 feet at an average gradient of 23.2 feet per mile. From Lick Creek to the mouth, the river descends 280 feet at an average rate of 6.5 feet per mile. (3)

Above Lick Creek, the Nabesna River flows through an area dominated by the extremely high and rugged Wrangell Mountains and Mentasta Mountains. Below Lick Creek, the river flows through the high Black Hills before entering a flat but sloping outwash plain of muskeg and bog flats. The eastern edge of the Mentasta Mountains runs parallel to the river to mile 25. The Black Hills run through a section of the river between mile 30 and mile 25.

From the headwaters to Lick Creek, the river channel is highly braided. According to representatives of Grumman Ecosystems Corporation who inspected the river by helicopter in July 1974, the main channel of flow in this reach is extremely difficult to detect. The channels are numerous and narrow; and the flow is extremely swift with standing waves prevalent. In areas of extreme braidedness, the depth appeared to be shallow, often only inches deep. Where channels came together, the depth was probably greater. Channel widths are highly variable in this stretch of the river. Single channel widths range from 20 feet to about 1,000 feet. Representatives of the Grumman Ecosystems Corporation did not measure the velocity in this reach, but estimated it to be at least five feet per second. No snags or blockages were observed in the channels.

From Lick Creek to the mouth, the river is characterized by swift, turbulent flows, a relatively shallow stream gradient, and an abundance of flow volume. Although the river exhibits a braided character in this reach, the main channel of flow is more recognizable. The river begins to exhibit a meandering character in its lower few miles, flowing through a poorly drained area of muskeg and bog lakes near Northway. According to the Grumman Ecosystems Corporation representatives, the flow appeared to be very swift, even near the mouth, as standing waves were present. In July 1974, the representatives observed some inundation of vegetated area, yet not all gravel bars were covered over. Channel widths ranged from 100 to 1,000 feet in the main channel of flow. Bank-to-bank widths in many cases exceeded 0.5 mile, and approached one mile. In July 1974, the representatives measured the velocity just below the mouth of Lick Creek at five feet per second in the main channel, and seven to eight feet per second in a side channel. They could not, however, measure the water depth, due to the tremendous flow of water upon the weighted depth line. No snags or blockages were observed in this reach, although log piles were seen on gravel bars.

The river is frozen six to seven months of the year. Maximum open water flows occur during July. Annual maximum flows may exceed by four times the annual average, while winter flows may only be 20 percent of the average.

Unlike the Nabesna River valley, which is U-shaped, tributary valleys are V-shaped with steep gradients. Major tributaries of Nabesna River include: Bond Creek (mile 77), Jacksina Creek (mile 71.7), Jack Creek (mile 68), Platinum Creek (mile 64.8), Cooper Creek (mile 62.1), Stone Creek (mile 59.1), Lick Creek (mile 43), and Cheslina River (mile 25.8).

B. Chisana River (4)

Heading in Chisana Glacier, the Chisana River flows about 60 miles in a northeasterly direction, thence in a northwesterly direction for 55 miles to join the Nabesna River and form Tanana River. In the upper 15 miles, the river flows in a braided channel which has cut deep trenches in the glacial debris of the broad valley floor. Below Cross Creek, the river enters a canyon section in the Nutzotin Mountains for a distance of 14 miles before emerging onto the broad alluvial valley floor of the upper Tanana River. In the canyon section, the river is confined to a width of about 0.25 mile. Heavily laden with silt, the river is confined to one channel throughout its lower course beginning at a point below Mirror Creek.

About 120.5 miles long, the river drains an area of 3,420 square miles. The river basin is about 90 miles long and 50 miles wide across its maximum east-west extension. From the foot of Chisana Glacier to the mouth of Mirror Creek, the river descends 1,625 feet at an average gradient of 27.4 feet per mile. In the upper 5.5 miles, above Geohenda Creek, the river descends 295 feet at a rate of 53.7 feet per mile. In the canyon section, the river gradient is 50 feet per mile. (5) From Mirror Creek to the mouth, the river descends 195 feet at an average gradient of 3.2 feet per mile. The river discharges an average flow of 2,430 cubic feet per second. (6)

Landform in the area above Mirror Creek is extremely rugged. Slopes are unvegetated and excessively steep. Below mile 85, the river enters the outwash plain. The Black Hills cross the river near mile 65. Below Mirror Creek, the landform is characterized primarily by an extensive area of black spruce, muskeg and bog lakes.

From the headwaters to Mirror Creek, the river is characterized by a high fall rate, an extremely braided stream channel, and a very swift current. According to representatives of Grumman Ecosystems Corporation, the channel of main flow is indistinguishable above the mouth of Cross Creek. Numerous glaciers discharge meltwater in this reach. From mile 105 to mile 95, just above Sheep Creek, the river is relatively well-defined, although several channels are present. From the mouth of Sheep Creek to Mirror Creek, the river is extremely braided and shallow so that a main channel again is indistinguishable. The flow is very swift throughout the

entire reach, as standing waves were seen in many locations. Unable to make depth measurements, representatives of Grumman Ecosystems Corporation estimated the depth of the river near mile 102.5 to be about three feet. Shallower depths were observed throughout the upper reach.

Main channel widths in this stretch of the river varies from 100 yards at mile 102.5 to less than 30 feet in areas of extreme channel braidedness. Bank-to-bank widths approach two miles just below Chisana while it narrows to about 0.25 mile below Cross Creek. Bank-to-bank widths north of the mountains often exceed one mile. In July 1974, river velocity measured at mile 102.5 was eight feet per second. River velocity was observed to be very swift throughout the entire upper reach.

Below Mirror Creek the river is characterized by a well-defined channel of flow. Immediately below the mouth of Mirror Creek, the stream gradient lessens and the braided character disappears. While the stream gradient varies from 27.4 feet per mile to more than 50 feet per mile above Mirror Creek, it is only 3.2 feet per mile below Mirror Creek. Thirteen feet deep at the mouth, the river has a good depth throughout this reach. Channel widths range from 200 feet near Mirror Creek to 600 feet at the mouth. Velocity measured near the mouth of the river in July 1974, was about three feet per second. The river was then in a moderate stage.

Like the Nabesna River, the Chisana River is frozen six to seven months of the year. Flows also vary according to the seasons.

Flowing through V-shaped valleys, major tributaries of the Chisana River include: Chathenda Creek (mile 113.4), Cross Creek (mile 105.9), Chavolda Creek (mile 105.5), Sheep Creek (mile 92.2), Mirror Creek (mile 61.2), Scottie Creek (mile 54.2), Gardiner Creek (mile 33.8), and Stuver Creek (mile 23.8).

C. Streams and Lakes in the Nabesna and Chisana Rivers Floodplains

Detailed descriptions of every lake and creek in the broad floodplains of the Nabesna and Chisana rivers are not available. Notwithstanding the lack of detailed information about the numerous lakes in the area, it is possible to make generalizations about the water bodies. The investigations of Robert E. Wallace in 1945 concerning the relationship of permafrost with the development of cave-in lakes, combined with those of the BLM in 1975 concerning the navigability of certain water bodies in the vicinity of Northway, yield sufficient information for a broad characterization of the majority of lakes and streams in the subject area.

Working in cooperation with the U.S. Geological Survey and the U.S. Army in an effort to relate the development of cave-in lakes with permafrost conditions, Robert E. Wallace conducted field surveys during October and November 1945 in a 15-mile radius of the confluence of the Nabesna and Chisana rivers. According to Wallace, cave-in lakes (also known as thermokarst, kettle lakes, and kettle-hole lakes) result from the thawing of permafrost. Formation of these lakes begins at a point and, with geologic time, proceeds outward to form circular borders. Wallace described cave-in lakes in the vicinity of Northway as follows:

The cave-in lakes investigated are very shallow and have relatively flat bottoms, most being less than a maximum of 5-10 feet below the surface of the floodplains. The borders of the lakes are typically precipitous, dropping off steeply from the general level of the floodplain to the bottom of the lakes. The vegetal cover left unsupported by caving droops over the precipitous bank and, where the drop is not too great, forms a continuous mat over the cave-in banks and the adjacent bottom of the lake. Where the mat is not flexible or if the drop is too great, large cracks form parallel to the borders of the lake. In extreme cases large land slumps occur. (7)

As a result of his field work and analysis of aerial reconnaissance photographs, Wallace recognized a sequential progression in the development of cave-in lakes in the Northway area. In terms of geologic time, cave-in lakes are "old" near the lower parts of the Nabesna and Chisana river valleys, becoming "younger" as one moves up the river valleys, and finally almost disappearing above a point about nine miles from the mouth of the Nabesna River. (8) Wallace described four stages in this sequence:

The youthful stage is characterized by circular lakes a few hundred feet in diameter. In the early mature stage the lakes have joined to form aggregates of lakes having 'scalloped' shoreline patterns. The late mature stage is reached when an integrated drainage has formed between and through groups of lakes. The old age is typified by the predominance of natural levees that have formed along the drainage channels cutting the lakes, thus dividing the lakes into sections. In the old age stage the channels have the appearance of avoiding the lakes. (9)

During August 1975, Jerry W. McGee, a Forestry Technician with the Fortymile Resource Area of the BLM, examined a number of lakes and streams in the Northway area, and collected information about the water bodies from residents of Northway Village. McGee's reports on the physical characteristics of specific lakes and creeks in the Northway area are worthwhile summarizing

1. Deadman Lake. The lake is about 7,000 feet in length, and about 2,500 feet in width. It is four to 10 feet deep, with a few deeper holes. The outlet channel is very small: two to 10 feet wide and one to four feet deep. The lake is surrounded by rolling hills of spruce and aspen; and the banks are solid where adjacent to the hills. Marsh borders the lake in some places. The lake is stable in depth, and has very little outflow. McGee did not observe evidence of flooding, although he noted high water marks six inches above the water level.
2. Dog Lake. McGee stated that there was no permanent water access to the lake.
3. Eliza Lake. This lake has an area much less than indicated on modern U.S. Geological Survey topographical maps. It has a water depth of two to five feet. The banks are gradual and marshy. There are standing dead trees in some places near the lake. McGee noted evidence of high water marks two to three feet above the water level.
4. Fish Lake. Located near Northway, this clear-water lake has an average depth of three to five feet, with some shallower portions. Banks are mostly gradual with marshy areas on the shores. There are some slight banks and firm shores (especially in Sections 32 and 34). The lake is surrounded by marsh and low country. There are aquatic plants in about one-third of the lake. McGee did not find strong evidence of much flooding, but he did observe water marks in places as much as two feet above the water level. He also noted very small pockets of commercial-size timber near this lake.
5. Moose Creek. Flowing into Chisana River about three miles above its mouth, this creek is 50 to 75 feet wide and three to five feet deep up to its outflow of the unnamed lake in T. 14 N., R. 19 E., Sections 21 and 28, C.R.M. A channel connects the unnamed lake to the creek. From this point upstream the creek is narrower (30 to 50 feet) and shallower (two to four feet). The creek trends to the east and after passing the east end of the Northway airstrip, continues to the south. In the lower part, the banks are one to three feet higher than the water, and are generally solid. The channel is straight, and flows two to three miles per hour. Water depths range from four to five feet in high water stages; and two to three feet in low water stages.
6. Skate Lake. Located near Northway Village, this lake is about 2,500 feet in length, and 2,000 feet in width. It has a water depth of three to 10 feet. There are aquatic plants in the lake. The banks are generally gradual and solid; some banks are five feet high.

7. Tontethaimund Lake. This lake occupies a smaller area than indicated on modern U.S. Geological Survey topographical maps. Water depths range from two to four feet. The shoreline is very marshy with solid banks in a few places only. There is a large amount of aquatic vegetation. Flood marks indicate that water levels can be as much as two feet above the normal level. According to McGee, the lake has probably receded; it appears to be growing in from the shorelines.
8. Unnamed Lake and Channel System (Sec. 21 and 28, T. 14 N., R. 19 E., C.R.M.). Water depths in the main channel range from three to five feet; and in most of the lake, one to three feet. Large areas of the lake are shallow and marshy. The banks are marshy and gradual. McGee observed tree stumps in several places surrounded by water.
9. Unnamed Lake (Sec. 3 and 4, T. 13 N., R. 20 E., C.R.M.). Water depths in this lake range from three to five feet. The banks are marshy. Grass extends five to 40 feet in and around the lake. Higher ground surrounds most of the lake. There is no evidence of major flooding.
10. Unnamed Lake (Sec. 23, 24, 25, 26, T. 14 N., R. 18 E., C.R.M.). Water depths in this lake range from four to six feet. The south end of the lake consists of semi-solid marsh mats. About 75 percent of the shoreline consists of solid banks, surrounded by high ground. There is no evidence of major flooding.
11. Unnamed Lake (Sec. 33 and 34, T. 14 N., R. 20 E., C.R.M.). Water depths in the lake range from five to seven feet. The banks are low to gradual, while marsh extends 15 to 20 feet around the lake. There is no evidence of major flooding.
12. Unnamed Lake (Sec. 29 and 30, T. 14 N., R. 20 E., C.R.M.). This lake occupies an area much smaller than indicated on modern U.S. Geological Survey topographical maps. Water depths in the lake range from two to four feet. Most of the banks are gradual and marshy, and soft ground extends 50 to 200 feet from the banks into the water. The lake is apparently flooded by Chisana River. Much of the surrounding area show flood marks. There are many tree stumps in the lake.
13. Yarger Lake. With a surface area of about 480 acres, this lake has a water depth of four to 10 feet with some deeper spots likely. The outlet channel is very small. Outflow into Chisana River occurs only at times of high water. Firm banks and high ground occupy about half of the lake perimeter, with marsh in the remaining distance. There are tree stumps in some places around the lake. There is no evidence of major flooding.

In summary, the lakes and creeks in the Northway area are small and shallow. Most of the lakes are surrounded by marsh; and in some cases marsh extends into the lakes. Some of the larger lakes, such as Deadman Lake and Yarger Lake, have solid banks, and the surrounding terrain is hilly. The majority of the lakes are landlocked. Those that are not have shallow and narrow outlets with high banks. Lake and creek depths vary according to the seasons. Most of the lakes, being landlocked, are frozen from seven to eight months of the year.

II. HISTORIC USES

A. Mining

The history of mining in the upper Copper and Tanana rivers properly begins with the famous Klondike Gold Rush of 1897-98. Thousands of people rushed to Valdez in 1897 and 1898, many hoping to find an "all-American" route to the distant Klondike strike in Canada, others expecting to find gold "strewn along the river valleys of Alaska like pebbles on the shore of the ocean." Many prospectors discovered gold on the tributaries of the Copper River; but it was their discovery of copper near the head of Chitina River, a tributary of the Copper River, that led to the development of a mining industry in the Copper River valley.

Morgan-Guggenheim capitalists subsequently entered the Copper River district to develop the copper mines at Kennecott, and in the years 1906 to 1911 constructed the Copper River & Northwestern Railway, a 196-mile line extending from the ice-free port of Cordova to McCarthy. In the meantime, the War Department, responding to demands for an all-American transportation and communication system in Alaska, constructed a trail and telegraph line from Valdez to Eagle on the Yukon River. Following the Fairbanks gold rush of 1903, the Alaska Road Commission, an agency of the War Department created by Act of Congress in 1905 to construct roads and trails in Alaska, began construction of a wagon road from Valdez to Fairbanks. Passable for wagons in the mid-1910's and for automobiles in the mid-1920's, the road is now called the Richardson Highway.

The discovery of gold and copper in the Copper River valley; the construction of the Copper River & Northwestern Railway, Richardson Road and the Chitina-Copper Center Road connecting the railroad and the military road; and the willingness of big business to invest in promising mines; all had the effect of stimulating prospecting activities in the region. Most attention was devoted to the Chitina River valley, since it was accessible by the railroad; but some prospectors heeded the reports of the U. S. Geological Survey of favorable mineral indications on the north face of the Wrangell Mountains. During the 1890's and the 1900's, a number of Geological Survey parties explored the upper Tanana River area as part of an effort to map the Copper

River valley and Wrangell Mountains, and to locate potentially valuable minerals and other natural resources as well as possible transportation routes. The work of Dr. C. W. Hayes and Lt. Frederick Schwatka in 1891, Alfred H. Brooks and William Peters in 1898 and 1899, Oscar Rohn in 1899, D. C. Witherspoon and F. C. Schrader in 1902, and finally F. H. Moffit in 1908, resulted in geological and geographical reports and maps which proved invaluable to prospectors and miners in search of mineral wealth.

Prospectors and miners first entered the headwaters area of the Nabesna and Chisana rivers shortly after the Klondike Gold Rush. In 1899, Brooks and Peter met two prospectors, E. J. Cooper and H. A. Hammond, on the White River. Both prospectors had reached the area by traveling overland from the upper Copper River. In 1905, a group of prospectors led by Henry Bratnober, a mining engineer who had spent several years in the White and Copper river country, entered the area by way of the Tanana and Nabesna rivers, and discovered copper on Jacksina Creek, a tributary of Nabesna River. The Royal Development Company subsequently worked the prospect, and erected a 3-stamp mill at the site in 1906. According to a U.S. Geological Survey report, the mine was yielding \$12 a ton in 1908. Without adequate transportation facilities, the Bratnober interests were unable to develop the prospect to any major extent, and thus suspended mining operations. The mine was not abandoned, however; Bratnober's associates performed assessment work on the claims, and continued to prospect the country. Several of the men would, in 1913, participate in the discovery of gold on Chisana River. (11)

With the improvement of the Richardson Road for motor traffic in the mid-1920's, and the construction of the Nabesna Road in 1929-33, the upper Nabesna River valley became more accessible; and mining, more feasible from an economic standpoint. In 1929, Carl F. Whitham, who had first entered the area with Bratnober in 1905, organized the Nabesna Mining Corporation to mine gold at the present site of Nabesna. The company placed a mill in operation at the site in 1931. Mining continued with some interruptions until about 1947, when most of the ore bodies were exhausted. Gold valued at \$1.9 million had been taken from the mine. The Minerals Exploration Company purchased the abandoned mine in 1966, and is now reportedly attempting to sell the place. (12)

Large-scale mining on Chisana River began in 1913. In that year, several prospectors in Dawson, Canada, reported a rich find in the headwaters of Chisana River, and thereby caused a minor gold rush to the area during the fall and winter of 1913-14. Several thousand men rushed to the country, many of them inexperienced and most without the proper equipment and

supplies. Most reached the diggings by way of White River, the McCarthy-Chisana trails, and the Gulkana-Chisana trail; but many also reached the new strike by way of the Tanana, Nabesna, and Chisana rivers. The winter proved hard to many of the prospectors, and large numbers subsequently left. A few of the prospectors who had staked the most valuable placer ground remained, and some were still mining the creeks in the late 1930's. In 1940, total production of placer gold from the Chisana district was estimated to be about \$970,000, most of the gold coming from Bonanza and Little Eldorado Creeks and the tributaries of Wilson Creek. (13)

In more recent times, mineral discoveries have been made at the head of Nabesna River and on McArthur Creek, a tributary of Ladue River. In 1974, the Grumman Ecosystems Corporation noted the development of a copper-mining community near Orange Hill, at the foot of Nabesna Glacier. (14) In the summer of 1975, more than 100 gold-mining claims were staked on McArthur Creek. It is not known at present whether the claims are being developed. (15)

B. Trading

Indians of the upper Tanana River first came into contact with white trade goods through the Copper River Indians. Shortly after the Fairbanks gold rush of 1903, white traders penetrated the area via the Tanana River. In 1907 or 1909, Captain James A. Northway established a trading post near the mouth of Nabesna River and possibly on the Tetlin River. In 1913, it was reported that Northway traveled each summer to his trading post near the mouth of Nabesna River, where he traded with the Indians. At the time of the report, Northway had just left Fairbanks on the launch Tetlin, intending to visit his copper prospects in the upper Nabesna River valley, and the famous Kennecott mine on Chitina River. (16) Northway remained in the upper Tanana area until his death in 1923. In 1922, he was operating the small steamboat Little Delta on the upper Tanana River. He was found dead on the steamboat in 1923. (17)

The trade with the upper Tanana Indians must have been profitable in view of the fact that rival traders operated in the area from the 1910's to the 1940's. In 1912, William H. Newton, who established his primary trading post on Healy River in 1907, opened stores at Tanacross and at the mouth of Nabesna River; he sold his Nabesna River store to a John Strelie in 1914 and removed to Healy River. (18) Newton may have remained in the upper Tanana trading business until about 1920, when John Hajdukovich entered the field with stores at Healy River, Tetlin, Last Tetlin, and Nabesna River.

During the 1920's and 1930's, Hajdukovich's rival in the upper Tanana trade was Herman Kessler, who opened a store on the Nabesna River in 1920. Kessler traded primarily with Nabesna Village, which in 1920 had a population of 33 Natives. (19)

According to anthropologist Robert McKennan, who visited the area in the winter of 1929-30, Kessler also had a post near the mouth of Gardiner Creek on Chisana River, where he dealt mostly with the Scottie Creek band. This band, totally nomadic, also traded at Canadian stores on Snag Creek and Wellesley Lake. (20)

When Hajdukovich abandoned his trading posts cannot be determined with precision. It is likely that he quit the business in the late 1930's. In the mid-1920's, he constructed a trail from Tanacross to Tetlin Lake. During the 1930's, he acted as a guide for tourists and hunters on the upper Tanana River, where he had a hunting lodge on Little Gerstle River. He was last reported in 1946, then he was involved the construction of an aviation field at Tetlin. (21)

Kessler continued in the trading business until forced to declare bankruptcy in 1948, perhaps as a result of excessive competition. At that time he was competing with five other traders. Also, the Northway Native Store, owned by local residents, had been in operation for at least five years. On occasion, itinerant traders John Schwegler of Fairbanks and Charles Goldstein of Juneau also traded with the Indians of Northway Village. (22)

Most trading was conducted during the winter. During the summer, the traders would make their annual trips down the Tanana River to Fairbanks in order to purchase trading goods. McKennan described the traders' annual peregrinations as follows: "Goods were brought in during the summer in power-driven scows and distributed to these three posts [Tanacross, Tetlin, and Nabesna River]. In the winter the traders drove by dog team to their various stores where the Indians came in to meet them, and on occasion they drove to the more distant Indian camps. During the spring when the Indians were muskrat hunting, the traders journeyed from camp to camp via outboard motors." (23)

Interviewed by a BLM official 1975, Ted Lowell, who worked for John Hajdukovich from 1929 to 1936, stated that their primary trading post was near the mouth of Healy River; they operated additional stores at Tetlin, Last Tetlin, and near Gardiner Creek, on the Chisana River. Each summer Hajdukovich and Lowell made six to 12 trips in freight boats to the upper Tanana River villages. The two men ascended the Healy River in boats to trade with Indians on Healy Lake. At Tanacross, they traded with Natives who had descended Fish Creek in canoes. The traders also ascended Tetlin River to Tetlin; crossed Tetlin Lake to gain access to Last Tetlin; ascended Nabesna River to Nabesna Village; and proceeded up the Chisana River as far as Scottie Creek. (24)

Trade commodities in the upper Tanana River area consisted almost entirely of fur. Reflecting upon the impact of the white man upon the Native economy during the years 1920 to 1949, Herman Kessler stated that the Indians mainly trapped fox, mink, muskrat, beaver, martin, and a few lynx. Beavers were not plentiful until the late 1940's, and were in any case closed to trapping until 1948. Martens were also trapped, but prior to 1946 the season was periodically closed. In early years, fox pelts were important, but had declined in value to the extent that the Indians made little effort to trap them. Muskrat pelts were the primary trade item. Kessler stated that in 1938, he and Hajdukovich handled 28,000 muskrat skins. In 1948, Kessler alone handled about 6,000 muskrat skins. (25)

In 1945, R.L. Jennings of the Alaska Native Service at Northway included the fur of black bear, beaver, coyote, fox, lynx, martin, mink, muskrat, otter, weasel, wolf, and wolverine, as well as boat and sled construction, tanning, and garden products, as sources of income to the local Natives. The furs were disposed of in the following manner: local non-native establishment, 30 percent; local native establishment, 30 percent; shipped outside, 25 percent; itinerant buyer, five percent; other villages, non-native establishment, five percent; and not sold, five percent. About 75 percent of all finished craft products were sold to personnel at Northway. Fish was never a trade commodity. All fish caught by the Indians were used strictly for subsistence purposes. (26)

During the 1920's and 1930's, the Indians obtained such goods as canvas tents, sheet-iron stoves, cloth clothing, rifles, blankets, and tea from the traders. According to McKennan, "The difficulties of transportation favored small, expensive articles such as clothing, beads, or the like rather than bulky items such as flour; thus it was much more profitable to handle expensive luxuries such as portable phonographs or ladies rayon bloomers than the bulkier and cheaper goods ordinarily regarded as necessities of life." (27) Tea was a much desired item. McKennan recorded one trader's statement that he had traded 3,000 pounds of tea in one year, the bulk of it going to the upper Tanana Indians. (28) Following the construction of the Alaska Highway and the Northway aviation field in the early 1940's, the Indians were able to acquire the bulkier items. (29)

C. Hunting, Fishing, and Trapping

The headwaters area of the White, Chisana, and Nabesna rivers has long been known for its excellent hunting opportunities. Since the 1910's, big game hunters have often commented upon the large number of sheep of trophy class in the mountains. During the Chisana gold rush, many people survived the winter of 1913-14 by taking caribou, sheep, moose, and ptarmigan. (30)

Since the 1930's, one guide named Lou Anderton has made a livelihood at Chisana by taking hunting and fishing parties to favorite locales on pack animals. (31) In the early 1960's, hunters often hired Floyd Miller, the proprietor of Northway Airport Lodge, to fly them to Chisana. Others have taken the Nabesna Road to Nabesna Mine, where they traveled to hunting grounds by boat, pack animal, or on foot. (32)

Since the construction of the Alaska Highway and the Northway field in the early 1940's; the lower Nabesna and Chisana rivers have been exploited by a number of non-Native hunters, trappers, and fishermen. Most hunting and fishing by non-Natives probably occurs on lakes and streams near the Alaska Highway and the Northway Junction Road. Non-Native trappers are known to have worked the same lakes and creeks which local Natives have traditionally trapped. In the years 1945 to 1949, for example, white trappers operated on Ladue River, Scottie Creek, Gardiner Creek, Bitters Creek, Beaver Creek, Moose Creek, and Deadman Lake; and in some instances established homesteads in the area. (33)

The increasing non-Native population in the Northway area undoubtedly had an effect in the reduction of area used by upper Tanana Indians for subsistence activities. Until the 1910's the subsistence area included the entire drainage of the Nabesna and Chisana rivers. As the rivers became easily accessible to non-Natives in airplanes and automobiles, and as modern non-Native communities were established on Nabesna River, the Indians in the headwaters of the Nabesna and Chisana rivers moved down to Nabesna Village or Northway Village. In 1951, according to one report, the last of the Indians moved their village downstream to Nabesna Village or Northway Village. (34) In 1945, R. L. Jennings of the Alaska Native Service described the area being used by the people of Northway Village in carrying out their normal activities, that is hunting, fishing and trapping, as follows: "The area begins at the west bound[a]ry of Tetlin reservation and runs west to the top of the Nuwatson (sic) range, 40 mi., then along this range southeast to the international bound[a]ry, 75 mi., north along the boundary to LaDue Creek, 35 mi., then along the LaDue Creek to where it leaves Tetlin reservation, 35 mi., and along Tetlin reservation to west bound[a]ry, 25 mi.: approximately 2500 sq. mi. This includes all enclosed lakes, streams, land and Nabesna, Chisana, and Tanana Rivers included in this area." (35) This description of the subsistence area of the Northway Natives remains accurate to the present day.

The reduction in the area of Native subsistence activities corresponded in time with a general breakdown in the traditional life-style of the Natives. The upper Tanana Indians, in pursuit of food, annually participated in a migratory cycle governed in

part by the migrations of fish and game. As McKennan noted in 1929-30, this cycle can best be described by Chief Sam of Last Tetlin:

In the old days the people seldom stayed in the village. Always they were on the trail, hunting and camping. In July whitefish were dried and cached at the Fish Camp. Then the people went moose hunting, caching the meat. In the winter they visited the caches and then when the caribou came they killed caribou. After the moose season the people went up to the head of the Nabesna to secure sheepskins for winter. Then they would return to the village; make their clothes, and then take the winter hunting trails to Ladue Creek, the Chisana basin, and the White River. In the spring when the leaves were coming out they returned to the village. They would take birch bark and sew it together to make new tents and then wait for the caribou to come back again. (36)

McKennan observed that Chief Sam's description of the Native migrations was accurate for the most part for the years 1929 and 1930. The establishment of trading posts on the Nabesna River resulted, however, in the Indians devoting the winter season to trapping as well as hunting, and the spring season to muskrat shooting in the lakes. Taking these changes into account, McKennan summarized the Native seasonal life as follows: "Fishing at well-known sites in July; moose hunting in the summer; sheep hunting in the fall; then the early winter migration of caribou; then more moose hunting and quite possibly hunger, alleviated somewhat in the late spring by ducks and muskrats; and then again the welcome appearance of the caribou in late May." (37)

Today, McKennan's account appears to be valid for only a portion of the Native population of Northway Village. Beginning in the 1940's, some Natives found employment with the Alaska Road Commission, the Civil Aeronautics Administration, and succeeding agencies. On occasion, they are employed by the BLM to help fight forest fires. (38)

The floodplains of the Chisana and Nabesna rivers remain the traditional hunting, fishing, and trapping grounds of individual Natives of Northway Village. The various lakes and creeks are accessible by land, air, water, or some combination thereof. Perhaps Walter Northway, a centenarian of Northway Village, was not exaggerating when he said, "There are hardly any lakes around here that the people of Northway have not used" (39); but there is little written evidence to confirm the statement. According to BLM records, the following lakes and creeks have been used for fishing, trapping, and hunting purposes. We have taken the liberty to note other uses as well.

1. Damundtali Lake. In 1975, it was reported that some hunting and recreation activities occur on this lake. The lake is accessible from the Alaska Highway by means of a trail, which was constructed in the mid-1970's. Only three persons were using the trail in the mid-1970's. (40)
2. Deadman Lake. Access to this lake is gained by way of the State-maintained Deadman Lake Campground, which is linked to the Alaska Highway by a spur road. Local natives reported that the lake was not used as part of a travel route, but was and is used for muskrat hunting and some fishing. McGee, who inspected the lake by canoe, reported that the lake is used mainly for the purpose of recreation --- motor boating, fishing, water fowl hunting, and swimming. There is also significant float plane use on the lake. (41) In the late 1940's, three men used an airplane to trap this lake. (42)
3. Dog Lake. McGee reported that there was no permanent access to the lake---boats would have to be packed in to the lake. He indicated that use of the lake included muskrat trapping and hunting. (43) According to the Alaska Division of Fish and Game, there has been public recreational (fishing) use of the lake, which has a surface area greater than one square mile and is located within five air miles of Northway Airport. Access to the lake is by float plane. Opposing the State's recommendation for easements for a float plane tie-up and campsite on the lake, Northway Natives, Inc., reported that the lake was used exclusively by Natives for subsistence trapping and fishing. There are campsites on several Native allotments near the lake where people leave their traps and equipment year-round. Reportedly, the Natives "have always kept people out of this area." (44)
4. Eliza Lake. This lake was inspected by McGee in August 1975 on foot. He stated that the lake was inaccessible by vehicle, and that he did not observe developments along the lake. (45) In 1975, the Alaska Division of Lands and the U.S. Bureau of Mines proposed a trail easement from the Alaska Highway to the lake. The proposal was rejected on the grounds that no evidence supporting the claim had been found, and that there was no significant use of the lake for public purposes. It was said that local sportsmen groups did not feel the easement was necessary, nor did the local State and Fish and Game biologist know of any present use of the lake. The trail extends through a Native allotment. (46)
5. Fish Lake (T. 14 N., R. 19 E., C.R.M.). Located near Northway Village, this lake flows into Moose Creek; it has long been used by upper Tanana River Indians during the summer for the purpose of fishing. According to McKennan, a semi-permanent village called "Fish Camp" or "the old village"

was located on a clear-water stream at the lake. From May to July, the Indians would congregate at the fish camp to catch whitefish migrating from the lake to the Tanana River. (47) In 1945, R.L. Jennings may have referred to the camp as the "Old Village," which consisted of tents and two cabins. He noted too that airplanes with pontoons "can land on lake across river from village ½ mile or on river in front of village." (48)

In 1975, McGee traveled about the lake in a canoe. He observed several houses on the north side of the lake near the road, and a float plane docked on the north end of the lake. He stated that the lake permits access for various people, including duck hunters and fishermen in summer months and fur trappers in the winter. Observing large amounts of aquatic plants on the bottom of the lake in most areas, he believed that the lake offered good fishing opportunities. He also stated that some very small pockets of commercial-size timber were accessible by this lake. (49)

Also in 1975, the Alaska Division of Fish and Game proposed a boat ramp easement at the lake. The ramp would provide access to the lake and other shallow lakes in the vicinity. The lake is a primary duck hunting lake in the Tok area. According to a local biologist of the Alaska Division of Fish and Game, the lake is shallow, and provides duck hunting opportunities whereas other lakes in the vicinity are deeper and do not produce puddle duck hunting. Commenting on the proposed easement, Northway Natives, Inc., stated that the proposed site was a "dump" and that hunting activities on the lake endangered the lives of local residents around the lake. Furthermore, the lake was too shallow and weedy for boat and motor traffic, and thus was not considered navigable. In past years, the corporation claimed, boat traffic damaged subsistence fishing structures. (50)

6. Hillside Lake. This lake is not accessible by boat. According to one informant, "I have traveled the Chisana River by motor boat from the Chisana River bridge to Hillside Lake numerous times since I was 3-years old." (51)

7. Mark Creek. According to McGee, who did not visit this creek in 1975, Mark Creek was and is used to hunt muskrats; and may be used for fishing. In high water, the creek has also been used as a travel route by people in canoes and small boats, but not to any major extent. (52) In 1975, a local trapper proposed a campsite easement on the east bank of the creek (NE¼, Sec. 22, T. 14 N., R. 19 E., C.R.M.). Northway Natives, Inc., responded that Mark Creek was not a significant creek or waterway, that it was used only by local Natives. (53)

8. Moose Creek. Following a canoe trip up Moose Creek in 1975, McGee reported that motor boats are currently used up the creek to a point near Northway Airport where the creek crosses the Northway road. Citing Kenneth Albert as his source of information, McGee reported that the creek in Sections 21, 16 and 9, T. 14 N., R. 19 E., C.R.M. can be used at any time of open water. Upstream from that point, the creek is usable by motor boat only during high water. At any other time, the creek is too shallow for motor boats above this point. Jetboats, canoes, and motor boats have been used on the creek. (54) According to Kenneth P. Albert and "several unidentified local natives," the creek was a travel route to Chisana River before the Alaska Highway was constructed. It also served as an alternative route to Chisana River when the Nabesna River was blocked by ice jams or when the river was too high or too low. The lower part of the creek (from Fish Camp to the Chisana River) was and is used for fishing and for trapping muskrats, although to a lesser extent since the Northway Junction Road was built. Canoes can be used on the creek at any time. In more recent times, the creek has also been used for recreational purposes. (55)

The mouth of Moose Creek is the site of winter and spring fishing for burbot and pike. There is also some fishing for grayling after the spring breakup. A trail extends from the Chisana River bridge to the mouth of Moose Creek along the west side of the river. Another trail extends from some point on Moose Creek to Birch Lake; it has been used by one person only for trapping purposes since the mid-1960's. (56)

9. Pullin Lake. In the early 1940's, this lake was used for recreation purposes (swimming), and perhaps as a source of water by military personnel at Northway. Access to the trail was by means of a trail. In later years, the lake was used as a garbage dump. The trail extends through a Native allotment. There is no significant public use of the lake at present. (57)

10. Raspberry Lake. In 1975, a trapper proposed a trail easement from the Alaska Highway to this lake, where muskrat hunting occurs. Both the Native Corporation and the State of Alaska did not consider the lake navigable. The BLM, noting that the lake was less than one acre in area, did not find evidence of significant public use of the lake. (58)

11. Skate Lake. Located adjacent to Northway Village, this lake is used by people in canoes, motor boats, and float planes. According to one informant at Northway Village, "... many float planes land on Skate Lake. Gas from Airport is driven down to them or the pilots walk to Airport to get gas and then ride back to their plane." (59)

12. Steve Lake. This lake is accessible from Chisana River, apparently by land as one individual recommended a trail easement from the river to the lake in 1975. The lake has been used for muskrat hunting for many years. There are several camps located around the lake. (60)

13. Tenmile Lake. According to McGee, the lake is inaccessible except by foot or by way of Chisana River. Muskrat hunting, fishing, and netting of fish occurs in or near the lake. Walter Northway's home is located to the north of the lake. His allotment is accessible by trail from the Alaska Highway, northwest of Tenmile Creek. (61)

14. Thadlthamund Lake. In 1975, a trapper proposed a trail easement to this lake, which has a surface area of less than one square mile. The BLM noted that public use of the trail or the lake was not significant. Trapping may occur on or near the lake. (62)

15. Tontethaimund Lake. McGee made a reconnaissance survey of the south and east sides of this lake in 1975, having gained access to the lake by land after taking a canoe up Moose Creek to a nearby pond. He stated that the lake was inaccessible by boat without portaging --- apparently from Moose Creek. He observed several abandoned Native houses near the lake as well as a cemetery about 100 yards from the south side of the lake (in Section 20). Citing Kenneth Albert of Northway Village as his source of information, McGee stated that the lake has been used by people in canoes, boats, and float planes (since the 1930's). Muskrat hunting and fishing occurs on the lake. (63)

16. Tsilchin Lake, Tlocogn Lake, Fish Camp Lake, Louie Lake. Trapping apparently occurs on or near these lakes. In 1975, two individuals proposed a series of trapline trails from Riverside Lodge on the Alaska Highway to Tsilchin Lake, Tlocogn Lake, Fish Camp Lake, then west to Louie Lake and Tetlin Village or northwest down the Kalutna River to the Tanana River. (64)

17. Unnamed Lake (Sec. 3 and 4, T. 13 N., R. 20 E., C.R.M.). According to McGee, who reached the lake by land, this lake is locally referred to as "Horshoe Lake." Located about 0.5 mile from the Alaska Highway, the lake is inaccessible by boat or vehicle. McGee referred to Kenneth Albert as his source of information that the lake is used for muskrat hunting. (65) In 1975, the Alaska Division of Fish and Game and a certain Dave James proposed a trail easement from the Alaska Highway to the north end of the lake, as well as a shore easement for boat launching purposes. According to BLM records, Northway Natives, Inc., did not know of any use of the trail except as a private trapline. A local State Division of Fish and Game biologist, in a telephone conversation, could not identify any significant use on this lake and others along the Alaska Highway in this area. (66)

18. Unnamed Lake and Channel System (Sec. 21 and 28, T. 14 N., R. 19 E., C.R.M.). Flowing into Moose Creek, this lake becomes a series of channels in marsh in low water. A bridge on the Northway Junction Road crosses the outlet of the lake where it flows into Moose Creek. According to McGee, the lake is shallow, but usable by canoe or motor boat "most of the time." Several fish camps are located around and between this lake and Fish Lake. These camps are known as Charlieskin Village and Kathakne. Fishing with nets, muskrat trapping and hunting occurs on the lake and channels. There is a fish trap in the lake outlet. McGee inspected the lake and channel system by canoe. (67)

19. Unnamed Lake (Sec. 23, 24, 25, 26, T. 14 N., R. 18 E., C.R.M.). According to statements by Natives of Northway, this lake is used by them in small boats and canoes for hunting muskrats. (68)

Walking to the south end of the lake in 1975, McGee noted that canoes and small boats were used on the lake, and that the Natives used the lake to hunt muskrats. The Northway (Native) cemetery is on a hill overlooking the lake. (69)

20. Unnamed Lake (Sec. 14, 15, 22, 23, 24, 26, T. 14 N., R. 19 E., C.R.M.). According to McGee, this lake is referred to as "Sucker Lake" by local Natives. The Natives annually use the lake for muskrat hunting and fishing. There is a fish camp on the lake. (70)

In 1975, a trapper proposed a trail easement through Sections 15 and 16, T. 14 N., R. 19 E., C.R.M. from the Northway Junction Road to unnamed lakes in Section 15. The trail provided access to a lake in Section 15 and to the sloughs and lakes to the east. The BLM decided that the proposal was unwarranted, in view of the fact that access to the lakes and sloughs was available via Chisana River and slough and stream systems, and that it was unlikely that any of the lakes were navigable. Northway Natives, Inc., opposed the easement with the comment that none of the lakes were considered to be navigable. (71)

21. Unnamed Lake (Sec. 5, T. 13 N., R. 20 E., C.R.M.). McGee reported that the Native name of this lake is "Fish Lake." Citing Kenneth Albert of Northway Village as his source of information, McGee wrote that the lake is used for muskrat hunting. (72) In 1975, it was reported that a trail extended from the Alaska Highway (NE $\frac{1}{2}$, Sec. 3, T. 13 N., R. 20 E., C.R.M.) southwesterly to a trapping area in Dog Lake vicinity. The trail was used by one trapper only. This trapper may have trapped this lake since his trail passes near the lake. (73)

22. Unnamed Lake (Sec. 33 and 34, T. 14 N., R. 20 E., C.R.M.). Located about 0.25 mile from the Alaska Highway, this lake is

accessible by land. Muskrat hunting reportedly occurs on the lake. McGee visited the lake in 1975, and found no improvements along the lake. (74) Also in 1975, the Alaska Division of Lands proposed an easement from the Alaska Highway to the lake in order to provide access to public waters. However, no significant recreational values about the lake were known. Local sportsmen did not identify it as a recreational water body. (75)

23. Unnamed Lake (Sec. 29 and 30, T. 14 N., R. 20 E., C.R.M.). Visiting the lake in 1975, McGee did not find improvements along the lake. He noted that the shallowness of the lake as well as tree stumps in the lake would prove to be obstructions to navigation. (76)

24. Yarger Lake. Historically, this lake has been used for subsistence fishing and muskrat trapping. Accessible by land from the Alaska Highway and a State wayside and campground, the lake is heavily used by tourists and other people for light motor boating, canoeing, fishing, and swimming. One resident of Tok reportedly has trapped muskrats and hunted ducks on the lake for several years. There is also significant float plane use on the lake. (77)

D. Communities

Because the upper Tanana Indians were primarily engaged in subsistence activities, and thus required to make seasonal journeys to favorite hunting, trapping, and fishing camps, the Indian communities in the Nabesna and Chisana river valleys were occupied only intermittently. When McKennan visited the area in 1929-30, he mentioned villages at Cross Creek, Last Tetlin, Tetlin, and Nabesna. He emphasized the point that none were occupied continually throughout the year: "Tetling (sic), the most permanent of the group, was not occupied in the aggregate more than four months out of the twelve, while Cross Creek Village was entirely deserted some years, as it was in 1929." (78) Fifteen years later, R.L. Jennings would also note the seasonal occupation of the villages, describing Northway Village as a place of 17 homes which were occupied only seven months of the year. In the meantime, the people were at trapping, fishing, and hunting camps. (79)

White communities in the upper Tanana area include Reliance City, Gasoline City, Chisana, Nabesna, and Northway. At the present time, only Northway warrants the designation of community, the other non-Native towns having long since been abandoned.

A description of each settlement in the Nabesna and Chisana river valleys follows:

In February 1908 a U.S. Geological Survey party reported the location of "Sargent's Cabin" on Camp Creek and an Indian village at the mouth of Cooper Creek. (80) The cabin was the home of D. C. Sargent, who represented Henry Bratnober in a number of mining claims in the Nabesna River valley. According to McKennan, a band of 16 Indians, including men, women and children, had a winter camp near the mouth of Cooper Creek. An earlier village was located on the Nabesna River two miles upstream, also on the east bank of the river. The original village was on the west bank of the river, at the mouth of Platinum Creek. (81)

Nabesna, a mining town, is located near Jacksina Creek. The town was founded in the late 1920's when mining of lode gold near White Mountain began. The town is presently abandoned. Near Orange Hill, a copper-mining community was reportedly founded in the early 1970's. (82)

Northway, a former Army Air Corps station, was founded in 1942 with the construction of an aviation field and facilities for 13 officers and 140 enlisted men. (83) After World War II, the Civil Aeronautics Administration maintained the station. Now maintained by the Federal Aviation Agency, the station is an important air base in eastern Alaska.

Nabesna Village, located about six miles above the mouth of Nabesna River, on the west bank, is probably one of the oldest Indian villages on the river. The village may have been called "Khiltats" in 1907. Early trading posts of Northway, Newton, Hajdukovich, Kessler, and others may have been located near the village. In 1945, the population of the village consisted of 96 Indians and one non-Native. (84) The village may have been moved to Northway Village in 1947, perhaps due to Nabesna River floods. (85)

Charlieskin Village and Kathakne, locally referred to as "Fish Camp," are located near Fish Lake in the lower reach of the Nabesna River. The U.S. Geological Survey reported the local names in 1954 and 1955, respectively. (86) In 1930, McKennan reported the existence of the summer camp as "Fish Camp," or as it was referred to locally, "the old village"; he believed that the settlement was older than the village which had developed near the two trading posts near the mouth of the river, but observed too that it had "every appearance of being relatively recent." (87) Each year, from May to July, Indians occupied the camp to catch whitefish and other fish which migrated from the lakes into the main river. (88)

Reliance City was located on the Tanana River, a few miles below the mouth of Nabesna River. The town was founded in

1913 when the steamboat Reliance, unable to proceed up the Nabesna or Chisana rivers, landed passengers and freight there. The town was virtually abandoned by October 1914, when only two people remained at the place. (89)

Following a survey of Nabesna River by helicopter in July 1974, representatives of Grumman Ecosystems Corporation reported the existence of hunting and mining settlements near the headwaters of the river. Several cabins and lodges were located on the Nabesna Road along Jack Creek. No cabins or camps were observed on the river below the mouth of Jack Creek. Improvements in the lower reaches of Nabesna River were confined to the last 10 miles of the river, where Northway, Nabesna Village, and Northway Indian Village are located. (90)

On Chisana River, settlements have been located on Chathenda Creek, Gardiner Creek, Cross Creek, and near Scottie Creek. Chisana, a mining community, is located in the headwaters of the river, near Chathenda Creek. The town was established in 1913 during the Chisana gold rush. At the height of the rush, the population of the town was about 300. Perhaps less than half that number remained in the town during the winter of 1913-14. In 1964, the place had a summer population of about five. (91)

In the 1920 s, a trading post was established on Gardiner Creek. Herman Kessler, who operated the post, traded primarily with the Scottie Creek Indians.

Located about six miles below Scottie Creek, Gasoline City was founded in 1913 as stampeders ascended the Chisana River to the new strike at Chisana. In October 1913, the town had a population of about 150. (92) The place was probably abandoned shortly after the Chisana gold rush.

A U.S. Geological Survey party in 1908 and McKennan in 1930 reported the existence of an Indian community on Cross Creek, opposite the mouth of Notch Creek, where a few families had their winter houses. The winter village was inhabited by the same Indian band that had a winter village on the upper Nabesna River. The village was moved to Nabesna Village or Northway Village in 1951. (93)

In July 1974, representatives of Grumman Ecosystems Corporation surveyed the entire river by helicopter. With the exception of Chisana and developments along the Alaska Highway, no cabins or campsites were observed on the Chisana River. (94)

E. Water Transportation

Regular freight boat traffic on the Nabesna River has been limited to the lower reaches. From the late 1900's to the 1940's, traders supplied their posts near Nabesna Village by boat. In the early 1940's, with the construction of an aviation field at Northway, small river boats of 45-ton capacity ascended Tanana River from Big Delta to the Nabesna River, and then up the Nabesna River approximately seven miles to the Northway garrison. (95)

There is no history of regular freight boat traffic on the Nabesna River above Northway. Moreover, there is no evidence that freight boat traffic on this stretch of the river is even possible. In 1905 and again in 1913, miners tested the river as a steamboat route to prospects in the headwaters, and each time met with failure.

The first attempt to ascend the upper Tanana River and the Nabesna River in a steamboat occurred in the fall of 1905. Having prospected the headwaters of the White and Copper rivers with some success in past years, Henry Bratnober, a mining engineer, decided to investigate the Tanana River as a practicable route to the north Wrangell Mountains, and in 1905 had the steamboat Ella built at Whitehorse, Canada, especially for the trip. (96) Accompanied by Carl F. Whitham, D. C. "Bud" Sargent, George C. Wilson, and other prospectors on the Ella, Bratnober ascended the Tanana River to the Nabesna River, and then ascended the Nabesna River for a distance of 10 to 15 miles. The prospectors then disembarked, and waited for winter when they would be able to transport their outfits over the river ice to Camp Creek. (97)

The Bratnober party subsequently prospected on the Nabesna and Chisana rivers, and discovered copper near the head of the Nabesna River which they developed to a limited extent in 1906, 1907, and 1908. There is no evidence, however, that Bratnober or his associates attempted to ascend the upper Tanana River or the Nabesna River again. According to George C. Wilson, prospectors representing Bratnober reached the Nabesna River claims by following the Gulkana-Chisana trail, a branch of the Valdez-Eagle Trail. (98)

The success of the Bratnober party in locating copper on the Nabesna River attracted other prospectors to the area. Most entered the country by way of the White River, the McCarthy-Chisana trails, or the branch trail of the Valdez-Eagle Trail. Only a few took the Tanana River-Nabesna River route. Those who did take the river, chose not to take it again when the opportunity presented itself. One prospector named Walter Fisher had such an opportunity. In 1905, Fisher portaged from the Fortymile River to Tanacross on the Tanana River. At Tanacross, a major stop on the Valdez-Fairbanks Trail, he obtained a poling boat and ascended the Tanana

River to the Nabesna River. Whether Fisher ascended the Nabesna River in the poling boat or simply took the Nabesna River trail is not known. In any case, he spent the summer of 1905 prospecting in the headwaters of the Nabesna and Chisana rivers. In 1907, Fisher returned to the upper Tanana River area, but this time took a different route. He ascended the Tanana River on the steamboat White Seal to Tanacross, and then took the Valdez-Fairbanks Trail to Mentasta. From Mentasta, he followed the branch trail to the headwaters of the Nabesna River. (99)

Following the ascent of the Bratnober party on the Ella in 1905, the upper Tanana river witnessed little boat traffic. During the late 1900's and early 1910's James Northway made about five trips upriver on the Toggin, carrying each time more than six tons of freight to isolated trading posts on Healy River and Nabesna River. (100) Few prospectors were willing to ascend the swift Tanana River before the Chisana gold rush. As one newspaper observed:

Every year a few prospectors have been taking out grubstakes, by sniping along the rim rock. The great expense of getting outfits in the country made extensive prospecting or the sinking of holes to bedrock any distance prohibitive....to pole up such a swift river as the Tanana from Fairbanks has been a task too difficult and expensive to attract many prospectors. (101)

The Chisana gold rush of 1913 would, however, change that situation radically. An hitherto isolated and little known area would be swarming with prospectors.

The Chisana rush sparked the first serious attempt to establish boat traffic on the upper Tanana River. Alerted to the possibility that the Chisana district might prove rich, several transportation companies and many individuals set out from Fairbanks to the new strike in sternwheel and sidewheel steamboats, gasoline launches, and poling boats. Perhaps as many as 300 people left Fairbanks for Chisana in July, August, and September 1913. Some ascended the river in their poling boats and launches; and some took passage on the commercial carriers of the Northern Navigation Company and the American-Yukon Navigation Company. In that case, the prospectors paid a \$100 fare and agreed to cut wood for the steamboats. Freight rates were \$250 to \$350 per ton with a limit of 1,000 pounds per man. (102) In return, the companies promised to transport the prospectors and their outfits upriver as far as possible.

Of the 21 boats, excluding poling boats, that are known to have left Fairbanks for Chisana in the summer and fall of 1913, only four --- the Reliance, the Tetlin, the Marathon, and the Mabel --- reached the confluence of the Nabesna and Chisana rivers. Four and perhaps six steamboats, namely the Tana, the Samson, the S & S, the Martha Clow, and possibly the Zodiak, and the Shushana, proceeded upriver above Tanacross before forced into winter quarters. (103) The remainder wintered at lower river points or returned to Fairbanks. Once it was learned that the Chisana district was not as rich or extensive as first supposed, the steamboats on the upper Tanana River returned to Fairbanks in the spring and summer of 1914.

Leaving Fairbanks on August 6, 1913, and arriving at the mouth of the Nabesna River on August 16, the Northern Navigation Company's Reliance, reputed to be "the best shallow water boat in Alaska," (104) was one of the few steamboats to reach the headwaters of the Tanana River from Fairbanks during the gold rush. Considering the mouths of the Chisana and Nabesna rivers as unnavigable for steamboats, the officers of the Reliance discharged 56 passengers at the mouth of the Nabesna River. The majority of the passengers chose to ascend the Chisana River in poling boats. But about 20 passengers, anxious to reach the diggings before all claims were taken up, decided to take a trail from the Nabesna River to the Chisana River. Tetlin Indians had advised these stampeders that they could go up the Nabesna River and across to the Chisana River on foot in three days, while it would take five days to pole a boat up the Chisana River. Those who took the overland route followed the Nabesna River for about seven miles, crossed over to the Chisana River by way of the Black Hills, and then followed the Chisana River to Chisana. (105)

The officers of the Reliance had indicated that it was impossible for steamboats to enter the mouth of the Nabesna River, and that even poling boats would have a difficult time. Prospectors in poling boats and one steamboat did, however, ascend the Nabesna River in 1913. Leaving Fairbanks on July 29 with a party of 18, Captain Northway reached the Nabesna River with the launch Tetlin in early August. Advised by men returning from Chisana that it would be impossible for the Tetlin to proceed up the Chisana River, Northway decided to try the Nabesna River. The Tetlin ascended the river for a distance of 25 to 35 miles before running onto a gravel bar. The crew subsequently abandoned the steamboat for the winter, while several passengers traveled overland to the Chisana diggings. (106) Northway himself prospected awhile on Stuver Creek, and then went to Chisana. In early October 1913, he took the winter trail to McCarthy and the railroad to Cordova, where he announced his intention to go to Seattle and purchase machinery for winter mining at Chisana. (107) Several prospectors, who descended

the Nabesna river in small boats, reported the Tetlin "hopelessly high and dry" on a gravel bar, but in good condition. (108)

Although there are recorded instances of prospectors leaving the Chisana district in small boats on the Nabesna River in 1913, the record does not indicate whether these prospectors actually ascended the river in the boats or, as was commonly done in other gold rushes in Alaska, constructed the boats at the head of the river and then lined or floated the boats down the river. There is, however, one documented case of three passengers of the Reliance who ascended the Nabesna River in a poling boat. Frank Lawson, Jack Biglow, and J. C. Wood ascended the river "with great difficulty" as far as Sargent's cabin on Camp Creek. Landing the boat, the three men began to pack over the divide to the Chisana River. But before reaching the diggings, they met another party from the Reliance who told them of poor conditions at Chisana. The Lawson party thus returned to Fairbanks. (109)

The cases of the Ella, the Tetlin, and several poling boats represents the extent of freight boat traffic on the Nabesna River above Northway in the period 1898-1913. With the development of land transportation facilities in the headwaters of the river after 1913, use of the Nabesna River as a travel route became unnecessary. Today, traffic on the river consists of hunters, trappers, and fishermen in canoes, small boats, and rubber rafts.

According to Jerry W. McGee of the BLM, who visited Northway in 1975, the Nabesna River is used by Natives in connection with subsistence activities. Historically, the Natives have hunted and fished on the river "clear to the accessible headwaters," and supplied small villages and fish camps by boats on the river. At the present time, he observed, the river is used for the purpose of subsistence (fishing and muskrat trapping) and recreation. (110) Native traffic on the Nabesna River appears to be limited to that stretch of the river below the Black Hills. In June 1975, Robert L. Jenks of Doyon, Ltd., provided the BLM with eight statements made by residents of Northway Village concerning their use of certain water bodies. (111) Collected by Northway Natives, Inc., these statements include relevant information with respect to Nabesna River. In their own words:

I have...been, by motor boat, up the Nabesna River for hunting many times....I can remember, before the Alaska Highway was built, a store owner at Northway, Herman Kessler, hauled his supplies from Fairbanks to Northway by inboard motor boat. (112)

I have traveled by 12' boat and 10 HP motor up the Nabesna River in the falls of 1973 and 1974 to hunt. I have ascended approximately 21 air miles above Northway Village. I made two trips each year all at least as far as the Black Hills. One trip we met a 16' boat above the Black Hills. I plan to continue these activities while at Northway. (113)

I have been traveling up Nabesna River by motor boat for the last 28 years, about 35 miles (river miles) up. (114)

I have traveled down Nabesna River from Northway Village and up the Chisana River.... (115)

I for myself & other elders that still live here in Northway, have used the Nabesna River for many years. It was our way of getting to and from places: Tetlin, Tanacross and also to Nabesna Village. To get to Tetlin, Tanacross or Delta Area, we have to go down Nabesna River to get to Chisana River. (116)

Unlike the Nabesna River, the Chisana River has a long history of freight boat traffic. A trading post near Gardiner Creek was supplied by boats during the 1920's and 1930's. During the Chisana gold rush of 1913, a large number of people ascended the river as far as Chathenda Creek in poling boats. According to Stephen R. Capps of the U.S. Geological Survey:

On the circulation of the report that rich placer discoveries had been made in the Chisana basin, a considerable number of men made their way up Tanana and Chisana rivers by launches and small boats. Under favorable conditions launches may be taken up these rivers as far as the north front of the Nutzotin Mountains, and boats were lined or poled all the way up to the mouth of Chathenda Creek. The route from Fairbanks, the base of supplies, is, however, long and difficult and, although possible, will never be an economical route for bringing in supplies. In the fall of 1914, many persons availed themselves of this water route, and built boats in which they rowed downstream to Fairbanks. (117)

One launch, the Marathon, was frequently used to transport passengers and their outfits from Reliance City to Gasoline City in the fall of 1913. As the gold rush waned, the owners returned the launch to Chena in October 1913. A steamboat, the Mabel, reportedly wintered on the Chisana River about 60 miles from its mouth; it too returned to Fairbanks, in May 1914. (118)

In recent times, the Chisana River is heavily used by Natives of Northway Village. In 1975, many residents of Northway

Village reported their use of the Chisana River in boats.
Their statements are as follows:

I was born on the Chisana River near the mouth of Gardner (sic) Creek when my family and other people from Northway were hunting. Since then I have traveled the Chisana River many times a year by motor boat, going all the way to the mouth of Scotty (sic) Creek. (119)

I have...traveled up the Chisana River, about 90 river miles up, starting at Northway Village. Every year most of my life we go up Chisana River by motor boat, many times past mouth of Mirror Creek. (120)

I have traveled down Nabesna River from Northway Village and up the Chisana River to our house at 10-Mile, a house at Stuver Creek, to a camp and house at the mouth of Gardner (sic) Creek, every year for over 50 years by motor boat.... The only way we could get supplies to our camps was by river boat in the early 1900's.... We hunt moose every year up the Chisana River all the way to Gardner (sic) Creek. We still use the Chisana River to transport supplies & food to our various houses and camps.... I am 72 years old. I have traveled the Chisana River with my husband and family. (121)

Every year I have traveled up the Chisana River, all my life. My family has lived at 10-Mile camp year around when I was young. The river was the only way to get food and supplies up there.... I still travel the Chisana River. I have a 40 acre Native allotment near 10-Mile camp. The river is still the only way we get supplies up there. (122)

I have traveled up the Chisana River by motor boat many times a year, all my life. With my folks when I was small. For fishing and hunting. I have been up further than the mouth of Scotty (sic) Creek.... I have helped other people haul supplies up to camps and cabins along the river. (123)

I have traveled the Chisana River by motor boat from the Chisana River bridge to Hillside Lake numerous times since I was 3 years old. I am now 26 years old.... My family has a house at 10-Mile which is used at various seasons of the year.... We carried supplies and food by river boat on the Chisana River to the house at 10-Mile numerous times. (124)

I have traveled up Chisana River by river boat all my life, first with my folks and later by myself and with my

family, for hunting, hauling supplies to our camps and our house at 10-Mile. We also go up river to stay at our fish camp. We go up much further than the mouth of Scotty (sic) Creek. (125)

F. Land Transportation

The upper Tanana River is presently served by two primary roads: the Glenn Highway and the Alaska Highway. The Nabesna Road extends from Slana on the Glenn Highway to the Nabesna Mine near the headwaters of Nabesna River. The Northway Junction Road extends from Northway Junction on the Alaska Highway to Northway Village near the mouth of Nabesna River.

Before the construction of the Alaska Highway and the Glenn Highway in the 1940's, the upper Tanana River area was generally reached by miners by way of three routes: the White River route, the McCarthy route, and the Gulkana route. All three had been traversed and mapped by the Geological Survey in the 1890's and 1900's. In 1891, Dr. C. W. Hayes and Lt. Frederick Schwatka entered the area by way of the Yukon and White rivers, and left by way of Scolai Pass and the Chitina River. In 1898, Alfred H. Brooks and William Peters also entered the area via the White River route, but then descended the Chisana and Tanana rivers to Tanacross on the Valdez-Eagle Trail. In the following year, Brooks and Peters returned to the area, again taking the White River route but leaving by way of Nabesna River and the Tanana River. In the same year, Oscar Rohn reached the area by way of Chitina River and Nizina Glacier; he then crossed the heads of Chisana and Nabesna rivers to the upper Copper River. Finally, in 1908, F. H. Moffit entered the area from the headwaters of the Copper River, and left by way of Scolai Pass and Chitina River.

During the 1900's and 1910's, the White River was the customary route for prospectors and miners bound for the heads of the White and Chisana rivers. Many prospectors from Dawson and Whitehorse ascended the White River as far as the Donjek River, and then followed one of several trails to the mining section. If freight was to be taken into the section, the miners generally took the government-constructed wagon road from Whitehorse to Lake Kluane, where several trails led into the mining section. The Geological Survey believed this route to be the most practicable if freight was to be taken into the mining section: "The trail from White Horse is probably the easiest and best way of reaching either the White or the Nabesna with stock in summer if ease of traveling is considered." (126) According to one 1912 report, between 80 and 90 tons of freight were transported annually on the White River route at an average cost of 25 cents to 35 cents per pound. (127) In the winter of 1912-13 the Scolai Mining Company transported three tons of copper to the smelter

since 1913, under the direction of the Alaska Road Commission in 1929. (146) Another aviation field is located near Orange Hill, near the site of recent copper-mining operations in the headwaters of Nabesna River. The third aviation field, located at Northway, was originally 350-by-5,300 feet. Two years later the Civil Aeronautics Administration extended the field to 7,500 feet and paved the runway. The field was suitable for cargo transport airplanes. (147) At the present time, the airport is used for all airplane traffic in the area. (148)

In 1929-30, the Alaska Road Commission supervised Gus Johnson in the construction of an aviation field near the Nabesna Mine. This field was used by pioneer aviator Bob Reeve in the early 1940's to transport equipment from Nabesna Mine to Northway. Reeve was contracted by Morrison-Knudsen Company, which had a contract with the Civil Aeronautics Administration to improve the Northway field, to transport equipment by airplane to Northway. The equipment was transported from Valdez to Nabesna, then loaded on wagons and hauled by cat tractors over five miles of muskeg to Reeve's river bar landing field. In a five-month period, Reeve transported 300 people and 1,100 tons of equipment by airplane from the river bar to Northway. (149)

Small aircraft with pontoons have reportedly landed on the Nabesna River near Northway and on the Chisana River near Gardiner Creek. One airplane made a forced landing in Jacksina Canyon in 1933; it was subsequently hauled about 20 miles to a point near the Nabesna Mine by a four-horse team. (150) Small airplanes are known to have landed on Gasoline Lake, Dog Lake, Deadman Lake, Fish Lake (near Northway), Skate Lake, Tontethaimund Lake, and Yarger Lake.

III. CONCLUSION

For nearly three decades after the Klondike Gold Rush of 1897-98, the upper Tanana River area was truly one of the most inaccessible areas in eastern Alaska. Beginning in the late 1890's, a few prospectors and traders reached the area by way of four principal routes: the White River route, the McCarthy route, the Tanana River route, and the Gulkana route. From the late 1900's to the late 1930's, the upper Tanana River was primarily used by traders from Fairbanks to supply stores on Tetlin River, and on the lower Nabesna and Chisana rivers. During the Chisana gold rush of 1913, several hundred prospectors ascended the Tanana River to its head in small steamboats, launches, and poling boats. The stampeders proved that the upper Tanana River, while navigable for shallow-draft boats, was not a practical route to the Nabesna and Chisana rivers. The Chisana mining camps were too distant from Fairbanks; the upper Tanana River too swift and treacherous; and the Chisana diggings neither rich nor extensive for the establishment of regular boat service on the upper Tanana

River. The transportation companies and the miners thus left the upper Tanana River to the fur traders.

Therein lies the significance of the Chisana gold rush of 1913. Finding the Tanana River impractical, miners on the northern slopes of the Wrangell Mountains were forced to rely upon the White River route, the McCarthy route, and the Gulkana route in gaining access to and in leaving the mining district. None of these routes were suitable for the development of mining in the headwaters of the Tanana River. All were nothing more than crude trails in the wilderness; all required traveling 100 miles or more from major towns to the site of the mining operations. The White River route was probably the most feasible of the three; but the collection of duties on the International Boundary made that route unpopular. The McCarthy-Chisana summer and winter trails were the shortest routes to the mining section; but travel on both trails was very dangerous. Aside from the problems of crossing turbulent glacier streams, travelers on the summer trail often found the Scolai Pass blocked by deep snow in the spring and early summer and the winter trail had to be rehabilitated each year as a result of glacier movement. These shortcomings would eventually lead to the improvement of the Gulkana trail.

The development of transportation facilities in the Copper River region favored the ultimate improvement of the Gulkana trail. The completion of the Copper River and Northwestern Railway in 1911 and the construction of the Chitina-Copper Center road permitted railway access to the ice-free port of Cordova. The improvement of the Richardson Road for wagon traffic in the 1910's and motor traffic in the 1920's resulted in lower freight transport rates. With the construction of aviation fields on the upper Nabesna and Chisana rivers in 1929-30, and the construction of the Nabesna Road in 1929-33, mining in the upper Tanana River area was given new life, as evidenced by the operations of the Nabesna Mining Corporation in the 1930's and 1940's.

Following the construction of the Nabesna Road, it was only a matter of time before the upper Tanana River would also be linked by road to southern ocean ports. World War II, however, hastened the day. With the construction of the Alaska Highway to Fairbanks, and the Glenn Highway to Anchorage, the upper Tanana River was at last made accessible to markets at Valdez, Anchorage, and Fairbanks. And the construction of the Northway aviation field brought the modern air age to the upper Tanana River area.

The history of mining and transportation in eastern Alaska explains why the upper Tanana River never became a major thoroughfare, but it does not fully explain why the Chisana River and not the Nabesna River witnessed freight boat traffic.

To find the answer, one must look to the physical characteristics of the two rivers. It would be improper to say that the two rivers have the same physical characteristics. The degree of similarity actually goes no farther than the fact that both rivers have their origins in glaciers; that both exhibit similar flow characteristics according to the seasons, and in summer months, according to daily weather conditions; and that both are braided in the mountain section. Otherwise the rivers are quite unique. The Nabesna River exhibits a braided character throughout its course above Northway; the Chisana River has a well-defined channel from its mouth to a point near Scottie Creek. Below the Nutzotin Mountains, the Nabesna River descends 43 miles at an average rate of 6.5 feet per mile; the Chisana River descends 61 miles at an average rate of 3.2 feet per mile. The Nabesna River has been described as "swift"; the Chisana River, as "sluggish."

Taking these considerations into account, it becomes clear why one river and not the other was used as a freight boat route. During the Chisana gold rush, a large number of stampeder ascended the Chisana River in poling boats as far as Scottie Creek, and some lined or poled boats to Chathenda Creek. At least one party took advantage of the rush to transport freight and passengers in the launch Marathon from the mouth of the river to a place near Scottie Creek. During the 1920's and 1930's, traders Hajdukovich and Kessler ascended the Chisana River in freight boats to Gardiner Creek and possibly to Scottie Creek. In more recent times, Natives have ascended the river in small boats as far as the foot of the Nutzotin Mountains.

In the case of the Nabesna River, the historical record reveals some freight boat traffic to trading posts near Nabesna Village from the 1900's to the 1930's, and to Northway during the early 1940's. For points beyond Northway, the historical record indicates several attempts to ascend the river in launches, at least one successful effort to ascend the river in a poling boat, and several prospectors leaving the mining section in boats. All in all, the record suggests that the river above Northway is suitable for small boat traffic only. In 1905, Henry Bratnober ascended the river in the steamboat Ella for a distance of 10 to 15 miles. In 1913, James Northway ascended the river in the launch Tetlin for a distance of 25 to 35 miles. Also in 1913, a party of prospectors ascended the river "with great difficulty" in a poling boat as far as Camp Creek. The Bratnober and Northway cases illustrate the unsuitability of the Nabesna River for small steamboat traffic. The 1913 case of a poling boat ascending the river suggests that the small freight boat traffic on this stretch of the river is possible, but not practical.

In view of the great many opportunities for the establishment of freight boat traffic on the Nabesna River, the absence of such evidence is particularly instructive. Before and after the Chisana gold rush, prospectors could have used the Nabesna River to obtain supplies from traders on the lower Nabesna River. In 1942, contractors building the Northway aviation field could have transported personnel and equipment to the construction site in boats. In every case, however, the opportunities were not realized. The fact that the builders of the Northway field used every established transportation route---the Tanana River, the Nabesna River trail, and the Nabesna Mine and Northway aviation fields---except the Nabesna River itself lends additional weight to the view that the river is not a practical route for the transportation of freight.

The unsuitability of the Nabesna River above Northway for freight boat traffic has some bearing on the question whether the Chisana River above Scottie Creek is also practical for freight boat traffic. For this stretch of the Chisana River has physical characteristics similar to the Nabesna River. We know that the upper Chisana River is swift and braided. We also know that prospectors ascended this stretch of the river in poling boats to Chathenda Creek during the Chisana gold rush. Given our knowledge of the physical characteristics of the upper Nabesna and Chisana rivers, and the difficulty of boat travel on the upper Nabesna River, we may conclude that boat travel on the upper Chisana River is possible but not practical. The possibility of freight boat traffic on the upper Chisana River, especially in the canyon section where the full force of the river is concentrated in a narrow channel and where the stream gradient is exceptionally high over a short distance, confounds the imagination.

The numerous lakes and creeks in the lower reaches of the Chisana and Nabesna rivers have been primarily used for the purpose of hunting, fishing, and trapping. Some of the large lakes near Northway Village and the Alaska Highway have also been used for recreation purposes. Small boats, on the order of canoes, have been used on most of the larger lakes; and small airplanes with pontoons have frequently landed on Fish Lake near Northway, Skate Lake, Yarger Lake, and Deadman Lake. Most of the lakes are accessible only by land.

We have found no evidence in the historical record of freight boat traffic on the numerous lakes and creeks. Moreover, we have found no evidence to suggest that freight boat traffic on these lakes and creeks is possible. All of the lakes and creeks are shallow and small; the lake shores generally consist of marsh; the surrounding country is either hilly or wetland; and most lakes are landlocked. With the exception of Moose Creek and possibly Mark Creek, none of the lakes and creeks

have been used as a travel route. While Moose Creek has been used as a route to Chisana River, its shallow depth, narrow channel, and close proximity to the Northway Junction Road precludes its use for freight boat traffic. The same considerations apply to Mark Creek.

IV. RECOMMENDATIONS

- A. It is recommended that the upper Tanana River, from Tanacross to the confluence of Nabesna and Chisana rivers, be determined navigable on the basis of susceptibility.
- B. It is recommended that the Nabesna River from its mouth to Northway be determined navigable on the basis of susceptibility. It is further recommended that the Nabesna River from Northway to Nabesna Glacier and all tributaries of the Nabesna River be determined non-navigable.
- C. It is recommended that the Chisana River from its mouth to Scottie Creek be determined navigable on the basis of susceptibility. It is further recommended that the Chisana River from Scottie Creek to its head and all tributaries of Chisana River be determined non-navigable.
- D. It is recommended that all lakes and creeks affected by Northway Natives, Inc., selection applications F-14912 A and B under the Alaska Native Claims Settlement Act be determined non-navigable.

FOOTNOTES

1. Charles F. Herbert to Curtis V. McVee, April 16, 1973. Mr. Herbert was then Commissioner of the State Department of Natural Resources. The Water Delineation Maps consist of about 275 protraction diagrams.
2. Unless indicated otherwise, the description of Nabesna River is taken from Grumman Ecosystems Corporation, Report on Navigability of Streams Tributary to the Tanana River, Alaska. Prepared for U.S. Army Engineer District, Alaska, Vol. IV (April 1975), p. 4-469 ff. The Corporation considered the river "boatable" and thus navigable as far as Lick Creek.
3. One source gives the slope of the river as follows: mile 0 to mile 27, 3 feet per mile; mile 27 to mile 61, 11.8 feet per mile; mile 61 to mile 75, 75.7 feet per mile. See. J. David Dorris, Surface Water Resources and Development. Anchorage: Joint Federal-State Land Use Planning Commission for Alaska, 1973.
4. Unless noted otherwise, the description of Chisana River is from Grumman Ecosystems Corporation, op. cit., p. 4-489 ff. The Corporation considered the river "boatable" as far as Mirror Creek.
5. U. S. Geological Survey, "Alaska Terrain Intelligence Revised Report. Strategic Engineering Study No. 27." Confidential Study Prepared for Intelligence Branch, Office of the Chief of Engineer, April 1943, Classified Alaska File 9-1-54 Surveys, Records of the Office of the Territories, 1907-51, Record Group 126, National Archives Building, Washington, D.C. The Geological Survey considered the Nabesna River to be non-navigable; it believed that the Chisana River may be navigable for steamboats as far as the "Great Bend," that is near Scottie Creek.
6. Dorris, op. cit., reports the slope of the river as follows: mile 0 to mile 63, 1.3 feet per mile; mile 63 to mile 117, 3.1 feet per mile.
7. Robert E. Wallace, "Cave-In Lakes in the Nabesna, Chisana, and Tanana River Valleys," The Journal of Geology, 56 (May 1948), p. 174.
8. Ibid., p. 178.
9. Ibid., p. 181.
10. McGee prepared "Navigability Field Reports" and "Navigability Investigation Reports" in August 1975 and September 1975, respectively, for each water body described in this report.

All reports are found in File Serial No. F-14912 A and B, Alaska Native Village Selection Applications, Fairbanks District Office, Bureau of Land Management, hereinafter referred to as ANCSA Files. Since each report is referenced by water body name and/or aliquot description, thus making it easy to locate a report on a specific water body, no attempt will be made here to cite each report.

11. F. H. Moffit and A. Knopf, Mineral Resources of the Nabesna - White River District. U.S. Geological Survey Bulletin 379-D (Washington, 1909), pp. 176-177. In 1913, Walter Fisher, a prospector who was in the Nabesna River country in 1905 and 1907, stated that Bratnober's associates worked on Wilson Creek during the season of 1905, and that they last worked on the Nabesna River claims in 1908, when James L. Galen performed assessment work on the claims. (Fairbanks Daily Times, September 6, 1913) Fisher appears to be incorrect. One representative of Bratnober, D.C. Sargent, and two others, remained on the upper Nabesna and Chisana Rivers as late as 1914 and probably later. Heavily interested in Cordova utilities, Bratnober died in California on September 14, 1914, not long after making a trip to Chisana over the McCarthy-Chisana winter trail. He left the district by way of the White River route. (Cordova Daily Alaskan, September 14, 1914, August 1, 1913).
12. F. H. Moffit, Mining in the Northern Copper River Region, Alaska. U.S. Geological Survey Bulletin 943-B (Washington, 1944), pp. 45-46; A.E. Nelson, et al., Reconnaissance for Radioactive Deposits in Eastern Alaska, 1952. U.S. Geological Survey Circular 348 (Washington, 1954), p. 4; Fairbanks Daily News-Miner, July 11, 1978.
13. The two most authoritative accounts of the Chisana gold rush are D.D. Cairnes, "Chisana Goldfields," Bulletin of the Canadian Mining Institute, 24 (February 1914), pp. 31-64, and Stephen R. Capps, The Chisana-White River District, Alaska. U.S. Geological Survey 630. Washington: GPO, 1916. F.H. Moffit's Mining in the Northern Copper River Region, Alaska, cited above, and Geology of the Eastern Part of the Alaskan Range and Adjacent Area. U.S. Geological Survey Bulletin 989-D. Washington: GPO, 1954, summarizes the history of mining on Chisana River and other rivers in the area.
14. Grumman Ecosystems Corporation, op. cit., p. 4-473.
15. "Staff Easement Report: Northway Natives, Inc. Selection F-14912-A and B and Amendments, Doyon Limited Selection F-19155-20," October 10, 1975 (hereinafter referred to as "Staff Easement Report"), ANCSA Files.
16. Fairbanks Daily Times, July 3, 1913, July 8, 1913.

17. Nenana News, October 3, 1922; Larry Demit, "Northway," Alaska Sportsman, 32 (January 1966), p. 23. The Little Delta (71 tons) was built at Fairbanks in 1908 and operated on the Iditarod River. William MacBride, Unpublished manuscript, n.d., in the writer's files.
18. Ramon B. Vitt, "Hunting Practices of the Upper Tanana Athapascans" (unpublished M.A. thesis, 1971), pp. 33, 37, 39; Robert A. McKennan, The Upper Tanana Indians (New Haven, 1959), p. 25; Fairbanks Daily Times, June 24, 1914. Strelac was a participant in the Chisana gold rush of 1913. He sold the steamboat S&S to Newton for the Nabesna River store. The steamboat was built at Iditarod in 1913 for the trip to Chisana. In July 1914, Newton sold the craft to Walter Fisher, Billy Perschinger and S. Van Bibber. The new owners used the small steamboat to transport freight from Fairbanks to St. Timothy Mission at Tanacross. See Fairbanks Daily Times, July 5, 1914, July 30, 1914.
19. Frank Chapados Report, October 24, 1949, File No. 920.2, Records of the Juneau Area Office, 1909-74, Records of the Bureau of Indian Affairs, Record Group 75, Federal Archives and Records Center, Seattle, WA. Chapados was an enforcement agent of the U.S. Fish and Wildlife Service at Fairbanks. He interviewed Kessler at the request of Assistant District Attorney Everett Hepp of Fairbanks. Evidently concerned about the Alaska Game Commission's new regulation prohibiting anyone from trapping in the upper Tanana area unless they had lived in the area for a period of one year, Hepp wanted Kessler's views on the effect that non-Natives had on the Native economy in the past. Kessler thought that the new regulation would prove beneficial; but he attributed the decline of the fur trapping industry to the Native's adoption of white man vices rather than to the activities of non-Native trappers. In a letter dated October 5, 1949, in the same file, Robert O. Werlien of Northway made the same observations. Werlien was employed by the Civil Aeronautics Administration and the Fish and Wildlife Service, at Northway. When he made the statement, he had been a resident of Northway for four years.
20. McKennan, op. cit., p. 26.
21. John Hajdukovich to Ike Taylor, March 29, 1924, File 13/99-1, and Frank Nash to Hawley W. Sterling, March 10, 1928, File 13/99-4, Inactive Records of the Old Alaska Road Commission and the Bureau of Public Roads for Alaska, 1920-58, Records of the Bureau of Public Roads, Record Group 30, Federal Archives and Records Center, Seattle, WA. In the letter to Taylor, Hajdukovich requested the Road Commission's assistance in improving an Indian trail from Tanacross to Tetlin Lake. Nash reported in 1928 that Hajdukovich had already improved the trail as far as Tok River. For information on Hajdukovich's

hunting lodge, see F.H. Moffit, Geology of the Gerstle River District, with a Report on the Black Rapids Glacier. U.S. Geological Survey Bulletin 926-B. Washington: GPO, 1942. Hajdukovich's work on the Tetlin aviation field is reported in the "Annual Report of Fairbanks District, Alaska Road Commission, November 1, 1945 - October 31, 1946," Records of the Bureau of Public Roads, RG 30, Federal Archives and Records Center, Seattle, WA.

22. Alaska Native Service, "Post-War Planning Survey - Northway," File No. 431, Records of the Juneau Area Office, 1909-74, RG 75, Federal Archives and Records Center, Seattle, WA.
23. McKennan, op. cit., p. 26.
24. Thomas D. Williams, "Note to Files," October 30, 1975, ANCSA Files. The freight boats were 30 feet in length, and could hold five tons. There is an unverified report that Lowell purchased Hajdukovich's stores at Tanacross, Tetlin and Nabesna in the late 1920's. (Fairbanks Daily News-Miner, June 11, 1930).
25. Frank Chapados Report, op. cit.
26. Alaska Native Service, op. cit.
27. McKennan, op. cit., pp. 26-27
28. Ibid., p. 38.
29. Frank Chapados Report, op. cit.
30. During the winter of 1913-14, mountain sheep and moose meat brought about 15 cents a pound at Chisana. All other food cost about 40 cents. Cordova Daily Alaskan, January 24, 1914.
31. George Johnson, "Chisana," Alaska Sportsman, 32 (May 1966), pp. 31-33. One of the first resident guides on the North Wrangell Mountains was James Brown, who built a new home near the Nabesna Mine in 1929. The Cordova Daily Times, October 26, 1929.
32. George Johnson, op. cit.; Mike Sopjack, "White River Adventure," Alaska Sportsman, 30 (October 1964), pp. 42-43, 49. The Alaska Sportsman includes several other articles written by hunters describing their adventures in the headwaters of the Nabesna River.
33. Statement of Robert O. Werlien, October 5, 1949; Percy D. Pringle to Area Director, January 19, 1950; Everett J. Wilde to Percy D. Pringle, February 10, 1950, Records of the Juneau Area Office, 1909-74, RG 75, Federal Archives and Records Center, Seattle, WA.

34. George Johnson, op. cit. Johnson's parents went to Chisana in 1956. His father worked on the Chisana aviation field.
35. Alaska Native Service, op. cit.
36. McKennan, op. cit., p. 46.
37. Ibid., p. 47.
38. Demit, op. cit., p. 23.
39. Statement of Walter Northway, May 5, 1975, ANCSA Files. On November 2, 1959, Walter Northway applied to the BLM for a Native allotment (62° 55'18"N, 141° 36'32"W) on Chisana River. In his application, he wrote that he had occupied the land every year since 1896 during the fishing (whitefish and pike) and trapping (muskrat and beaver) season from February 1 to June 30. See his "Alaska Native Allotment Application," November 2, 1959 and Robert J. Coffman's "Land Examination Report," August 19, 1960. File No. 024788, Unpatented, Closed, Lands, Minerals Use and Disposal Case Files of the Fairbanks District Office, 1907-56, Records of the Bureau of Land Management, Record Group 49, Federal Archives and Records Center, Seattle, WA. In his statement of May 5, 1975, Northway claimed that he used to transport supplies by river boat for local traders from Northway Village "to people living along the river all the way up to Scotty (sic) Creek."
40. "Staff Easement Report," ANCSA Files.
41. Jerry W. McGee, "Navigability Field Report [Deadman Lake]," August 6, 1975; "Navigability Investigation, Report on Deadman Lake," September 9, 1975; and "Staff Easement Report," ANCSA Files.
42. Statement of Robert O. Werlien, op. cit.
43. Jerry W. McGee, "Navigability Investigation Report on: Dog Lake, Skate Lake, Steve Lake, [and others]," ANCSA Files.
44. "Staff Easement Report," ANCSA Files.
45. Jerry W. McGee, "Navigability Investigation Report....," ANCSA Files.
46. "Staff Easement Report," ANCSA Files.
47. McKennan, op. cit., pp. 17, 18, 62.
48. Alaska Native Service, op. cit.
49. Jerry W. McGee, "Navigability Field Report [Fish Lake]," August 5, 1975, ANCSA Files.

50. "Staff Easement Report," ANCSA Files.
51. Statement of Quana M. Northway, April 16, 1975, ANCSA Files.
52. Jerry W. McGee, "Navigability Investigation Report on Mark Creek," September 9, 1975, ANCSA Files.
53. "Staff Easement Report," ANCSA Files.
54. Jerry W. McGee, "Navigability Field Report [Moose Creek], August 5, 1975, ANCSA Files.
55. Jerry W. McGee, "Navigability Investigation Report on Moose Creek," September 9, 1975, ANCSA Files.
56. "Staff Easement Report," ANCSA Files.
57. Ibid.
58. Ibid.
59. Statement of Roy F. Sam, May 7, 1975, ANCSA Files. See also "Navigability Investigation Report...", and Statement of Della May Northway, May 6, 1976, ANCSA Files.
60. "Staff Easement Report" and "Navigability Investigation Report...", ANCSA Files.
61. "Staff Easement Report" and "Navigability Investigation Report...", ANCSA Files.
62. "Staff Easement Report," ANCSA Files.
63. "Navigability Investigation Report...", ANCSA Files.
64. "Staff Easement Report," ANCSA Files.
65. "Navigability Investigation Report...", ANCSA Files.
66. "Staff Easement Report," ANCSA Files.
67. Jerry W. McGee, "Navigability Field Report," August 5, 1976 and "Navigability Investigation Report on Unnamed Lake and Channel...", ANCSA Files.
68. Statement of Della May Northway, May 6, 1975, and Statement of Walter Northway, May 5, 1975, ANCSA Files.
69. "Navigability Investigation Report...", ANCSA Files.
70. Ibid.
71. "Staff Easement Report," ANCSA Files.

72. "Navigability Investigation Report...", ANCSA Files.
73. "Staff Easement Report," ANCSA Files.
74. "Navigability Investigation Report...", ANCSA Files.
75. "Staff Easement Report," ANCSA Files.
76. "Navigability Investigation Report...", ANCSA Files.
77. Jerry W. McGee, "Navigability Field Report [Yarger Lake]," August 6, 1975, "Navigability Investigation Report on Yarger Lake, "September 9, 1975, "Staff Easement Report," ANCSA Files.
78. McKennan, op. cit., pp. 18-19.
79. Alaska Native Service, op. cit.
80. F.H. Moffit and A. Knopf, Mineral Resources of the Nabesna-White River District, Alaska...U.S. Geological Survey Bulletin 417 (Washington, 1910), p. 15.
81. McKennan, op. cit., pp. 17-18.
82. Grumman Ecosystems Corporation, op. cit., p. 4-473.
83. James D. Bush, Jr., "Narrative Report of Alaska Construction, 1941-1944" (unpublished manuscript, n.d.). Photostatic copy on file at Alaska Resources Library, Anchorage.
84. Donald J. Orth, Dictionary of Alaska Place Names. U.S. Geological Survey Professional Paper 567 (Washington, 1971), p. 668. Roger Steven Pitts, "The Changing Settlement Patterns and Housing Types of the Upper Tanana Indians (unpublished M.A. thesis, 1972), claims that the village was called "Kath Theel" in prehistoric times. (p. 62) In 1945, R. L. Jennings wrote that the Nabesna River flooded the village in 1943 and 1944, and was cutting the banks at the rate of eight feet per year. Located within 60 feet of the river, the village would have to be moved in a few years. It is not clear whether Jennings was referring to Northway Village or Nabesna Village; but because the the latter village was moved in 1947, it is probable that he was referring to Nabesna Village. Alaska Native Service, op. cit.
85. Alaska Native Service, op. cit.; "Staff Easement Report," ANCSA Files.
86. Orth, op. cit., pp. 201, 501.
87. McKennan, op. cit., pp. 18, 47.

88. Ibid., p. 62.
89. Fairbanks Daily Times, August 19, 1913, October 14, 1913.
90. Grumman Ecosystems Corporation, op. cit., pp. 4-473, 4-479, 4-480.
91. Cordova Daily Alaskan, November 24, 1913; George Johnson, op. cit.
92. Fairbanks Daily Times, October 8, 1913; October 14, 1913, Cordova Daily Alaskan, February 26, 1914. For a short while the town was called "Shucklinville," after Sam Shucklin, a merchant of Fairbanks, who transported supplies by dog team to Chisana and opened a store.
93. McKennan, op. cit., pp. 17-18; George Johnson, op. cit.
94. Grumman Ecosystems Corporation, op. cit., p. 4-489.
95. Bush, Jr., op. cit., pp. 110-111.
96. The Ella was launched at Whitehorse on May 20, 1905. The sternwheel steamboat was reportedly 120 feet long with a 26-foot beam, built light to navigate shallow streams. It was said at Dawson that the gasoline-powered craft had a draft of 11 inches. The boat did not carry cargo, except supplies, on its maiden voyage in 1905. Dawson Daily News, June 14, 1905, June 22, 1905, July 24, 1905. In 1906, the steamboat was reported at Chena, unloading 250 pounds of freight for the Tanana Trading Company, which operated on the Kantishna River. Fairbanks Daily Times, July 8, 1906.
97. Fairbanks Daily Times, September 6, 1913; Cordova Daily Alaskan, August 11, 1913. Walter Fisher, who was not on the Ella, said the steamboat went 15 miles up the Nabesna River. The Cordova newspaper reported that the Ella ascended the river a distance of 10 to 12 miles.
98. Cordova Daily Alaskan, August 4, 1913.
99. Fairbanks Daily Times, September 6, 1913.
100. Fairbanks Daily Times, July 29, 1913.
101. Cordova Daily Alaskan, July 7, 1913.
102. Cordova Daily Alaskan, December 17, 1913.
103. Terrance Cole, "The Chisana River" (unpublished manuscript, 1978). This study was prepared for the Arctic Environmental Information and Data Center and the BLM. Now a historian with the Alaska Division of Forest, Land and Water Management, Mr.

Cole provided the writer with a copy of the study as well as photostatic copies of the newspaper articles, upon which the study is largely based, in January, 1979.

104. Fairbanks Daily Times, July 26, 1913. Just prior to the Chisana rush, the Reliance was operated on the Fairbanks-Bettles run. Disappointed with the 1913 trip up the Tanana River, the Northern Navigation Company returned the steamboat to the Koyukuk River run. The company decided that the McCarthy route to Chisana had "superior advantages" over the Tanana River route. Cordova Daily Alaskan, October 16, 1913.
105. Fairbanks Daily Times, July 26, 1913, August 16, 1913, August 20, 1913, September 5, 1913, September 9, 1913, September 10, 1913.
106. Fairbanks Daily Times, July 29, 1913, July 30, 1913. According to the newspapers, the Tetlin was carrying six tons, and drawing 18 or 20 inches of water.
107. Cordova Daily Alaskan, October 13, 1913.
108. Fairbanks Daily Times, September 12, 1913, October 14, 1913.
109. Fairbanks Daily Times, September 9, 1913. Four prospectors in a small poling boat lost their outfits to the Nabesna River when the boat upset. Fairbanks Daily Times, September 12, 1913.
110. Jerry W. McGee, "Navigability Investigation Report on Nabesna River," September 9, 1975, ANCSA Files.
111. Robert L. Jenks to Curtis V. McVee, June 3, 1975, ANCSA Files. All but one statement - that of Kenneth P. Albert - bear signatures.
112. Statement of Kenneth P. Albert, May 5, 1975, ANCSA Files.
113. Statement of Albert L. Eggebrotten, February 6, 1975, ANCSA Files.
114. Statement of Roy F. Sam, May 7, 1975, ANCSA Files.
115. Statement of Lily Northway, April 16, 1975, ANCSA Files.
116. Statement of Walter Northway, May 5, 1975, ANCSA Files. Mr. Northway, who was 98 years old in 1975, said, "In 1913, a large steamboat came up Chisana River into Nabesna River hauling freight to gold mine in Nabesna. The name of the steamboat was called Tana. This time the boat came up the river, it unloaded passengers at the mouth of the Nabesna River to lighten the boat so it could travel easier on up the river. The passengers (about 100-150) built log boats and poled up the river to the gold mine at Nabesna. There was much activity on this river

during the gold rush." Mr. Northway has confused the Nabesna River with the Chisana River. There is no evidence that the Tana ascended the Nabesna River. As a matter of fact, the Tana never reached the Nabesna River. It was forced by river conditions to land its freight and 90 passengers at a point within nine miles of the confluence of the Nabesna and Chisana rivers. The boat was then put into winter quarters at the mouth of the Tetlin River where it remained until July 1914, when it returned to Fairbanks. See Fairbanks Daily Times, September 25, 1913, July 5, 1914, July 7, 1914.

117. Stephen R. Capps, The Chisana-White River District, p. 27.
118. Fairbanks Daily Times, October 8, 1913, October 14, 1913, May 14, 1914. The steamboat Shushana made two trips from Fairbanks to the Chisana River in 1913, and wintered near Nabesna River. One newspaper reported that the boat made an unsuccessful attempt to ascend the upper waters of Chisana River. Apparently the newspaper meant the Tanana River, inasmuch as the steamboat did not even reach the mouth of the Nabesna River on its first trip. Fairbanks Daily Times, September 12, 1913, October 8, 1913, May 20, 1914.
119. Statement of Kenneth P. Albert, May 5, 1979, ANCSA Files.
120. Statement of Roy F. Sam, May 7, 1975, ANCSA Files.
121. Statement of Lily Northway, April 16, 1975, ANCSA Files.
122. Statement of Della May Northway, May 6, 1975, ANCSA Files.
123. Statement of Stewart Albert, May 6, 1975, ANCSA Files.
124. Statement of Quana M. Northway, April 16, 1975, ANCSA Files.
125. Statement of Walter Northway, May 5, 1975, ANCSA Files.
126. Moffit and Knopf, op. cit., p. 12.
127. Cordova Daily Alaskan, December 13, 1912.
128. Cordova Daily Alaskan, March 14, 1913.
129. Cordova Daily Alaskan, August 28, 1913; Cairnes, op. cit., pp. 46-47.
130. Cairnes, op. cit., p. 49.
131. Ibid., p. 50.
132. Cordova Daily Alaskan, December 13, 1912.

Cole provided the writer with a copy of the study as well as photostatic copies of the newspaper articles, upon which the study is largely based, in January, 1979.

104. Fairbanks Daily Times, July 26, 1913. Just prior to the Chisana rush, the Reliance was operated on the Fairbanks-Bettles run. Disappointed with the 1913 trip up the Tanana River, the Northern Navigation Company returned the steamboat to the Koyukuk River run. The company decided that the McCarthy route to Chisana had "superior advantages" over the Tanana River route. Cordova Daily Alaskan, October 16, 1913.
105. Fairbanks Daily Times, July 26, 1913, August 16, 1913, August 20, 1913, September 5, 1913, September 9, 1913, September 10, 1913.
106. Fairbanks Daily Times, July 29, 1913, July 30, 1913. According to the newspapers, the Tetlin was carrying six tons, and drawing 18 or 20 inches of water.
107. Cordova Daily Alaskan, October 13, 1913.
108. Fairbanks Daily Times, September 12, 1913, October 14, 1913.
109. Fairbanks Daily Times, September 9, 1913. Four prospectors in a small poling boat lost their outfits to the Nabesna River when the boat upset. Fairbanks Daily Times, September 12, 1913.
110. Jerry W. McGee, "Navigability Investigation Report on Nabesna River," September 9, 1975, ANCSA Files.
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133. Cordova Daily Alaskan, May 18, 1914.
134. Cordova Daily Alaskan, December 3, 1913.
135. Cordova Daily Alaskan, February 10, 1914.
136. U.S., Board of Road Commissioners for Alaska, Report... (Washington, 1926), p. 31; N.L. Wimmeler, Placer-Mining Methods and Costs in Alaska. U.S. Bureau of Mines Bulletin 259 (Washington, 1927), p. 24.
137. F. H. Moffit, et al., Mineral Resources of the Nabesna-White River Area, p. 12.
138. Cordova Daily Alaskan, August 4, 1913.
139. Stephen R. Capps, Mineral Resources of the Chisana-White River District, p. 195.
140. The Cordova Daily Times, October 1, 1929.
141. The Cordova Daily Times, October 23, 1929.
142. Pitts, op. cit., p. 105.
143. Beth Day, Glacier Pilot: The Story of Bob Reeve and the Flyers Who Pushed Back Alaska's Air Frontiers (New York, 1957), pp. 209-211; "Staff Easment Report," ANCSA Files.
144. "Staff Easement Report," ANCSA Files.
145. See U.S. Geological Survey, Map of Nabesna Quadrangle, 1960.
146. "Description of Chisana-Nabesna Aviation Fields," n.d., and R.J. Shepard to Alaska Road Commission, December 6, 1929, Inactive Records of the Old Alaska Road Commission and the Bureau of Public Roads for Alaska, 1920-58, RG 30, Federal Archives and Records Center, Seattle, WA.
147. Bush, Jr., op. cit., p. 111.
148. "Staff Easement Report," ANCSA Files.
149. "Description of Chisana-Nabesna Aviation Fields," op. cit.; Beth Day, op. cit., p. 219.
150. Beth Day, op. cit., p. 93.



United States Department of the Interior

IN REPLY REFER TO

BUREAU OF LAND MANAGEMENT

Alaska State Office
701 C Street, Box 13
Anchorage, Alaska 99513

2620 (932)
F-14912-A
F-19155-20

Memorandum

To: State Director, Alaska

From: Chief, Division of Resources

Subject: Navigable and Nonnavigable Waters in the Northway Area,
Eastern Alaska

Attached is a staff analysis of navigable and nonnavigable waters on lands selected by Northway Natives, Inc. and Doyon, Ltd. in the Northway area, Eastern Alaska. On the basis of this report, we recommend that, within the area selected by the corporations, Nabesna River, Mark Creek, Fish Lake, the unnamed lake in Sections 21 and 28, T. 14 N., R. 19 E., C.R.M., and the unnamed lake in Sections 14-15, 22-26, T. 14 N., R. 19 E., C.R.M., be determined navigable. We also recommend that Moose Creek to the unnamed lake in Sections 21 and 28, T. 14 N., R. 19 E., C.R.M., be determined navigable. The Chisana River was determined navigable on March 22, 1979.

No other water bodies in the area selected by the corporations appear to meet the standards of navigability as set forth in Departmental guidelines and the Alaska Native Claims Appeal Board's decision of December 14, 1979, on the navigability of the Nation and Kandik Rivers.

Your concurrence with these recommendations is respectfully requested.

I Concur,

ACTING

3-28-80
State Director

Enclosure

cc: DM-F with enclosure except maps



United States Department of the Interior

IN REPLY REFER TO

BUREAU OF LAND MANAGEMENT

Alaska State Office
701 C Street, Box 13
Anchorage, Alaska 99513

2620 (NAV)(932)
F-14912-A
F-19155-20

Memorandum

To: Chief, Division of Resources (930)

From: Historian

Subject: Navigable and Nonnavigable Waters in the Northway Area,
Eastern Alaska

On March 22, 1979, the State Director, U.S. Bureau of Land Management, determined the upper Tanana River, the Nabesna River to Northway, and the Chisana River to Scottie Creek, to be navigable waterways. Based upon a factual report on the Nabesna and Chisana River basins which was prepared by this office, the State Director's determinations reaffirmed all but one determination made earlier in connection with land conveyances to Northway Natives, Inc. and Doyon, Ltd. Previously, it was determined that the Nabesna River was navigable to Nabesna Village.

Hitherto the State Director's determinations of navigability and nonnavigability were based solely on Departmental guidelines, notably the so-called "Garner Memorandum" of March 16, 1976. The Alaska Native Claims Appeal Board has, however, recently clarified several principles set forth in the "Garner Memorandum" in its decision of December 14, 1979, on the navigability of the Nation and Kandik Rivers.

In accordance with your request to review previous determinations of navigability in the Northway area in light of the Board's decision, we have again analyzed the physical character and historic uses of waterways in the Northway area, specifically those water bodies located in the area selected by Northway Natives, Inc. and Doyon, Ltd. which are the subject of an appeal now before the Board. The result of the analysis leads us to recommend that, within the area of selection, Nabesna River, Moose Creek, Mark Creek, Fish Lake, the unnamed lake in Sections 21 and 28, T. 14 N., R. 19 E., C.R.M., and the unnamed lake in Sections 14-15, 22-26, T. 14 N., R. 19 E., C.R.M., be determined navigable. We have considered all other water bodies in the area of selection, particularly those illustrated on the State of Alaska's Water Delineation Map as navigable waterways, and found that none meet the criteria of navigability.

For your review we have summarized the pertinent facts relating to our recommendations. Our source of information is the factual report,

dated March 16, 1979, on the area which was used in preparing earlier recommendations. A copy of the report is attached to this memorandum for your perusal in determining whether the current recommendations and supporting rationales are warranted. We have moreover attached U.S. Geological Survey maps which illustrate the area selected by the corporations. Water bodies colored dark blue are those recommended by this office to be determined navigable. Water bodies outlined in red are those considered by the State of Alaska to be navigable.

Economic Conditions

Historically, two spheres of economic activity have developed in the upper Tanana River basin. In the headwaters of the Nabesna and Chisana Rivers, hard-rock and placer mining was the dominant economic activity from the late 1890's to the late 1940's when the Nabesna Mine ceased operations. Small-scale placer mining operations continues at Chisana and vicinity to the present day, and recent discoveries of minerals along the Nabesna River may again lead to a revival of hard-rock mining. Big-game hunting and trapping also occur in the area, and is an important source of income to residents along the Nabesna Road.

In the Northway area, where hundreds of small lakes abound, the dominant economic activity for much of the present century was the fur trade. Until the 1940's, local residents derived much of their income by trapping small fur-bearing animals. The fur trade, principally in muskrat and beaver pelts, continues to flourish in the area, but not to the degree as in former days. Local residents are occasionally employed by nearby government offices and mercantile businesses, and some travel to distant towns and cities for summer employment.

Transportation Systems

The development of different resources in the Nabesna and Chisana River basins required different transportation systems. Mining operations in the first stage of development were adequately served by trails extending to Gulkana on the Richardson Highway and McCarthy on the Copper River & Northwestern Railway. Successful mining operations, particularly hard-rock mining, required a large work force, heavy machinery, and most important, year-round access to the ice-free ports of Cordova and Valdez; hence the construction of a truck road from the Richardson Highway to the Nabesna Mine in 1929-33. In addition, airfields were constructed in 1929 at Nabesna and Chisana for the transport of men and light freight by airplane to the mines.

In contrast, the fur trade in the Northway area was based upon a system of water transportation. Fur traders relied upon small steamboats and large wooden riverboats to transport supplies from Fairbanks to trading posts near Nabesna Village and on the Chisana River. With the construction of the Alaska Highway and Northway airfield in the early 1940's, local communities became dependent upon trucks and airplanes for the delivery of all commodities. And the fur traders began to use airplanes to travel to the small villages.

Today, much of the water-based travel in the Northway area is done in light boats and canoes in connection with subsistence activities. In the past, however, miners and fur traders used the waterways as routes of travel in much heavier boats. Steamboats, barges, launches, riverboats, and pole boats were the customary modes of travel, trade, and commerce on the Tanana River, and nearly all of these crafts were operated with varying degrees of success on the Nabesna and Chisana Rivers. Since World War II, however, most travel on the principal waterways has been conducted in aluminum riverboats, light canoes, and to a lesser extent, rubber rafts. Light canoes and boats are used on the creeks and lakes, principally those adjacent to the Chisana River and the Alaska Highway, in order to obtain small fur-bearing animals.

Nabesna River

Next to the Tanana and Chisana Rivers, the Nabesna River has been and is the most important route of summer travel in the area. The absence of summer trails or roads along the river above Northway indicates significantly the degree to which the lower and middle reaches of the river is relied upon for travel. The historic record reveals that in 1905 and again in 1913 miners ascended the Nabesna River in small steamboats, and failed on both occasions to reach the upper reaches of the river in the steamboats. One party succeeded in ascending the Nabesna River some 25 to 35 miles before grounding the boat. In the summer of 1913, some prospectors in the Chisana gold rush ascended the river in poling boats. Despite great difficulties, one party managed to reach Camp Creek with a poling boat.

In more recent times, local residents frequently ascend the river in light motor-powered boats in connection with subsistence activities. The limit of their travel appears to be the Black Hills, or beyond the area selected by the corporations. In addition, an increasing number of recreation float trips are taking place on the river. People have floated down the river from Nabesna to Northway in canoes, rafts, and kayaks.

In view of the historical evidence, it is clear that Nabesna River as far as the Black Hills affords a route of water travel. If there had been a need, small boats like those customarily used on the Tanana River for commercial purposes, could have been successfully operated on the middle and lower stretches of the Nabesna River by experienced navigators and under the right set of river conditions. If the record fails to reveal few instances of commercial boat traffic on the upper river, it is because this stretch of the river was not a suitable route of travel. Hence the rapid extension of the land transportation system in the Copper River region to the upper Nabesna River. The Nabesna Road more than adequately met the needs of miners, hunters, and trappers on the upper Nabesna River.

Moose Creek and Unnamed Lake System

Together, Moose Creek and the unnamed lake in Sections 21 and 28, T. 14 N., R. 19 E., C.R.M., afford another route of water travel. For many years, local residents maintained a spring fish camp on the banks of the unnamed lake and Fish Lake, and used the former lake and Moose Creek as an alternative route of travel to the navigable Chisana River, especially in the years prior to the construction of the Alaska Highway. The route may also have been used by Indians on Chisana River to return to the camps for the fall fishing season. In 1929, it was reported that local fur traders traveled to the spring camps in the area by motorboat. It is entirely possible that the traders used the creek and lake to reach the camps on Fish Lake and the unnamed lake. There is certainly nothing in the physical character of the creek and the lake to prevent navigation. The creek ranges in width from 50 to 75 feet, and has a water depth of two to three feet in low water stages, and four to five feet in high water stages. In the lake, the water is generally one to three feet deep, although there is a channel with three to five feet deep. Clearly, the creek and lake afford a potential highway of commerce.

Beyond Section 21, T. 14 N., R. 19 E., C.R.M., Moose Creek is very narrow and shallow. The creek swings to the south near Northway, and heads in Chindaglekne Creek in the marshlands just north of the Black Hills. Motorboats may be used on the creek a short distance above Section 21 only in high water stages. Canoes may be used on the creek at any time of the open season. Given the fact that the creek is paralleled by the Northway Junction Road to Northway, it is clear that Moose Creek is not a potential highway of commerce. It is highly unlikely that canoe traffic or even motorboat traffic on the creek would ever have satisfied the economic needs of Northway, one of the largest communities in the upper Tanana River area.

In the case of the unnamed lake in Sections 16, 17, 20, and 21, T. 14 N., R. 19 E., C.R.M., which is drained by Moose Creek, we have found no evidence of boat traffic on the lake, and lack detailed information about its physical character. Given our knowledge of other lakes of comparable size in the area, we may safely conclude that the lake has the capacity to float large river boats. Local residents doubtless hunt and fish on the lake in small canoes. Otherwise there is no reason to use the lake as a route of travel. The Master Title Plats do not illustrate any Native allotments on the lake. In view of the small size of the lake, the propinquity of the Northway Junction Road and settlements, the limited resources about and in the lake, and other factors, the lake is clearly not susceptible to navigation.

Fish Lake

One of the largest lakes in the Northway area, Fish Lake is separated from the unnamed lake in Sections 21 and 28, T. 14 N., R. 19 E., C.R.M., by a narrow, low strip of land. Here is located Kathakne Village, where local Indians traditionally gathered in the summer to

catch fish migrating to and from Fish Lake, Moose Creek, and Chisana River. The lake does not form part of known water transportation system; but given the existence of a summer village on its north bank, people could use the lake in boats for commercial purposes.

Historically, people travel about the lake in small, light boats in the course of duck hunting, fishing, and simply for recreation. The lake is shallow in places, but generally has a water depth of three to five feet --- sufficient to carry a wooden riverboat or pole boat. There are no known obstructions to navigation in the lake. While the lake is generally surrounded by marshland, there are firm banks, especially in Sections 32 and 34, upon which homes may be built. Small stands of commercial-size timber are located near the lake. We lack historic evidence of commercial traffic on the lake; but it is clear that commercial boat traffic could develop on the lake if the need arose. Local residents could use large riverboats to transport firewood for sale, or to haul groceries from the Northway Junction Road to the fish camp.

Mark Creek

From a liberal point of view, Mark Creek could be considered an interconnected slough of Chisana River. The creek heads in Chisana River in Section 31, T. 14 N., R. 20 E., C.R.M., and flows in a single, wide channel through a marshy and lake-dotted country to empty into the Chisana River in its rivermile 5. According to local residents, they have traveled on the creek in light boats for the purpose of hunting and trapping. Like other creeks of comparable width and length in the area, the creek has sufficient depth to accomodate large riverboats. Accessible by the Chisana River, the creek is considered to be an alternative route of water travel, and thus a potential highway of commerce.

The closed slough in Section 31, T. 14 N., R. 20 E., C.R.M., does not meet the criteria of navigability. The slough is accessible by boat via Mark Creek and Chisana River. Small boats may be taken up and down the slough; otherwise there is no place to go.

Unnamed Lake and Channel System

In the same vein, the large unnamed lake in Sections 14-15, 22-26, T. 14 N., R. 19 E., C.R.M., might also be considered an interconnected slough of Chisana River and Mark Creek. The U.S. Geological Survey map (Nabesna D-2), based upon aerial photographs taken in 1952 and 1954 and published in 1955, shows the lake to be connected to Mark Creek by a channel and lake system in Sections 23-25. The Master Title Plats indicate, however, that the channel and lake system ends in the NW 1/4 of Section 25. We have no reason to believe that the channel was not interconnected in 1959.

The lake shores support timber, and thus are probably firm. The lake empties into Chisana River through two wide, deep channels in Section

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15. According to one report, local residents use the lake, known to them as "Sucker Lake," for muskrat hunting and for fishing. A Native allotment is located on the lake shore in Section 15, adjacent to Mark Creek. Accessible by water from the Chisana River, the lake is considered to be an alternative route of water travel from Chisana River to Mark Creek in existence in 1959. Local resources are sufficient to warrant the location of a seasonal camp on the lake. The lake and interconnecting channels were, therefore, potential highways of commerce in 1959.

The dead-end sloughs in Sections 23 and 26, and in Sections 24 and 25, are not considered to be navigable waterways. The sloughs are doubtless shallow and narrow. Even were it possible for someone to ascend the sloughs in a riverboat, there would be no place for them to go, as the sloughs terminate in an extensive area of marshland and swamp. Seasonal camps are not likely to have been located on the sloughs; and the limited resources near the sloughs do not warrant speculations that camps will ever be established on the sloughs.

Other Water Bodies

While recognizing that each lake in the Northway area is a unique water body, we must recognize too that the word unique is a relative term, subject to varying interpretations, and that to identify the uniqueness of each and every lake, numbering in the hundreds, requires a level of effort well beyond present needs. Therefore, in order to identify those lakes which may be potential highways of commerce, we propose simply to describe, first, the general characteristics which are common to all of the lakes; second, to classify the lakes in terms of shoreline and surrounding terrain conditions, proximity to communities and routes of travel, and historic uses; and finally, to summarize the rationales behind the recommendations for determinations of navigability and nonnavigability for each category of lakes.

Lakes in the Northway area have much in common. First, all lakes were in their natural and ordinary condition on the date of Statehood. We have found no evidence, direct or indirect, of improvements to navigation. Second, all lakes in the area are very small, by most standards. Only a few are more than two miles in length. The vast majority are less than one mile in length and width. Third, the majority of the lakes are landlocked. Even those that have outlets, are for all practical purposes landlocked, the creeks being very narrow and shallow. Fourth, many if not most of the lakes have sufficient depth to float a large wooden riverboat such as those customarily used on the lower Chisana and Nabesna Rivers and on the Tanana River. Fifth, all of the lakes are accessible with varying degrees of difficulty. All may be reached in the winter by snowmachine and dogsled, or on foot. In fact, most overland travel in this area is done in the winter. In the summer, overland access to the lakes ranges from difficult to extremely difficult --- depending upon the location of the lake in question and the mode of travel. It

is to be noted, however, that many of the lakes are of sufficient size to accomodate landings by airplanes equipped with pontoons. Finally, many if not most of the lakes have been used by local residents in canoes for the purpose of hunting waterfowl or muskrats, or for fishing.

In this connection, it is important to remember that the canoe has been the most effective mode of travel in the development of local resources in or near the lakes. Local residents have traditionally hunted muskrats on the lakes in the spring, when the ice has receded from the shoreline, permitting the use of light canoes along the edges of the lake. Canoes are almost always used in hunting muskrat as well as waterfowl on the lakes. Originally covered with birchbark, and later with canvas, the canoes are very light, and thus may be carried a short distance from the navigable waterways to nearby lakes. Setting low in the water and easy to maneuver, the canoes are the most effective modes of travel on the lakes for the purpose of hunting. Aluminum canoes and riverboats may also be used on the lakes, but it is not presently known with what success. Larger crafts, such as wooden riverboats, are too cumbersome and conspicuous to be used on the lakes when hunting small game. Not surprisingly, the historical record fails to reveal instances of riverboat traffic on the lakes.

Lakes 1

In the area northwest of the confluence of the Nabesna and Chisana Rivers, and southwest of the Tanana River, there are a number of lakes which are least likely to be highways of commerce. These lakes --- Big John Lake, Nuziamundcho Lake, Tsilchin Lake, Joe Lake, Tlechegn Lake, Fish Camp Lake, Tlocogn Lake, Long Lake, and numerous smaller unnamed lakes --- are not located near communities or routes of travel; and are virtually inaccessible in the summer owing to their location in an extensive area of marshland, bogs, swamps, and tundra. One of the largest lakes, Nuziamundcho Lake is about two miles long and about 0.5 mile wide, with its length running in an east-west direction. Another of the larger lakes, Big John Lake is irregularly shaped; it is about 1.5 miles long and 1.5 miles wide; it is situated at the base of Big John Hill (elevation 1900') while hills, 30 feet high, border its eastern perimeter. The remaining lakes, including Tlocogn Lake, Fish Camp Lake, and Tlechegn Lake, are circular in shape. Tlocogn Lake is about one mile long and 0.5 mile wide. The others are smaller.

All but two of the lakes in this area are landlocked. Both Fish Camp Lake and Big John Lake have outlets --- small and narrow creeks. The creek draining Fish Camp Lake empties into a slough of the Tanana River. The creek flowing into Big John Lake heads in numerous small lakes located in the marshlands and tundra in the south.

With the exception of Big John Lake and Nuziamundcho Lake, the lakes are bordered by swamp, tundra, or marshland. Big John Lake abuts a wooded area, so it is likely that its northern shoreline is generally

firm. Swamp or marshland prevails on its southern perimeter. Nuziamundcho Lake is bordered by swamp or marshland on its eastern western, and northern perimeter, and by wooded land interspersed with marshland on its southern perimeter.

For all practical purposes, the lakes are inaccessible by land or water. Each lake is located a considerable distance from the customary routes of travel: the Tanana River and the Alaska Highway. Distances range from less than 0.5 mile in the case of Tlocogn Lake to more than four miles in the case of Big John Lake. Nuziamundcho Lake is located about two miles as the crow flies from the Tanana River.

Very little activity occurs on or near the lakes. The U.S. Geological Survey map (Tanacross A-3) dated 1948 illustrates several cabins on the west bank of Tlechegn Lake. Evidently the cabins are no longer occupied, for the only record of activity in this area concerns one or two people traveling from the Alaska Highway in the winter in order to trap animals. Master Title Plats do not illustrate any Native - Allotments or other land uses in this area. Fishing and muskrat hunting may have attracted some people to the lakes in the past. And there is a possibility that timber near Big John Hill may someday be harvested. No other natural resources of commercial value or prospective value are known to exist in this area.

Clearly, none of the lakes in this area affords a potential highway of commerce. There are no known resources of value in the area; or at least none of sufficient value to sustain a community, or seasonal camp. In the event that local resources proved valuable, the lakes would not be critical in the development of the resources. In view of the rugged and wet terrain, development of local resources would require construction of a trail or road from the Tanana River or the Alaska Highway. The construction of a summer road from the Alaska Highway is most unlikely in view of the expense that a bridge over the Tanana River would entail. The alternative would be to travel to this area in the winter. The record indicates that most overland travel in this area is in fact done in the winter. People might reach some of the lakes in the summer by traveling short distances overland from the Tanana River with a light canoe. It is highly unlikely that anyone would portage from the river to the lakes with a heavy riverboat. Even if they did, there is simply nowhere to go on the lake. Riverboat traffic on the lakes has not occurred, and it is not likely to occur in the future.

Lakes 2

Similarly, lakes located in the uplands south of Northway and north of the Black Hills are not likely to be potential highways of commerce. These lakes---Birch Lake, Dog Lake, Hillside Lake, Tushaday Lake, Pullin Lake, Long Lake, Chidek Lake, and various unnamed lakes---are not, with one exception, located immediately adjacent to communities or routes of travel. However, they are accessible by land in the summer and do have shorelines suitable for improvements. Most of the

lakes tend to be long and narrow, trending in a northwest direction. Dog Lake, the largest one in this area, is about 2.5 miles long, and less than 0.5 mile wide. The others are significantly less than two miles long, and all are 0.5 mile or less in width. All but two are landlocked. Dog Lake is drained on its southeast by a small creek which flows northward to empty into Charlieskin Creek. Long Lake is drained on its southeast and by a short creek emptying into Fish Lake.

The lakes are located in a timbered area, and thus are likely to have firm shorelines. Low hills flank the lakes in the southwest. Long Lake is bordered by marshland or tundra only on its southeast perimeter.

Being landlocked, most of the lakes in this area are inaccessible by water. The creeks draining Dog Lake and Long Lake are certainly too shallow for boat traffic. However, most of the lakes are accessible by land from the Northway Junction Road. As a matter of fact, an unimproved road extends from the Northway road to Pullin Lake. There is little in the topography of this area to prevent the construction of a road or trail from the Northway road to the other lakes. Construction of a road or trail from the Nabesna or Chisana Rivers or from the Alaska Highway to this area is highly unlikely, due to extensive marshlands and bog lakes in the east, and the necessity of a bridge over Chisana River. A road or trail from the Nabesna River is even less likely. If a road were constructed, it would most likely be a feeder to the Northway Junction Road. Pullin Lake is about two miles from the road. Dog Lake and Birch Lake are located about five miles and seven miles, respectively, from the Northway road.

Both Hillside Lake and Dog Lake are used by local residents for the purpose of fishing, trapping, and hunting. Other lakes in this area may support similar activities. Several Native allotments are located on Dog Lake; one on Hillside Lake; and one straddles the land separating Pullin Lake and Long Lake. Pullin Lake was once used for recreation purposes, and perhaps as a source of water for military facilities; it was later used as a garbage dump.

Again, none of the lakes in this area affords a potential highway of commerce. Located only a short distance from the Northway Junction Road, the lakes may someday be reached by road, as is Pullin Lake today. Systematic development of resources, whether timber or minerals, in the area would require the construction of a year-round road from Northway. While the lakes may one day support homes on its shores, summer access to the lakes would be dependent upon a road or by airplane on pontoons. The development of local resources would not be dependent upon riverboat traffic on such small lakes. People could drive around and across Dog Lake, for example; otherwise there is no place to go on the lake.

Lakes 3

Lakes near Northway and Northway Village are also unlikely highways of commerce. Including Skate Lake, Hudeuc Lake, Pauline Lakes, Tontethaimund Lake, Cemetery Lake, Andrew Lake, the unnamed lake in Sections 23-26, T. 14 N., R. 18 E., C.R.M., the unnamed lake in Sections 2 and 3, T. 13 N., R. 18 E., Section 35, T. 14 N., R. 18 E., C.R.M., and various other unnamed lakes, the lakes are very small, the majority being 0.5 mile in length and width. The largest lake, Tontethaimund Lake is about 1.75 miles long, and less than 0.5 mile wide.

Bank characteristics vary considerably from one lake to another. More than half of the shoreline of the unnamed lake in Sections 23-26, T. 14 N., R. 18 E., C.R.M., are solid. In the case of Skate Lake, the shores are gradual and solid, the banks being five feet high in some places. In contrast, the banks of Tontethaimund Lake are marshy, solid in a few places only.

Although all are landlocked, the lakes are easily accessible to local residents by road or trail. One may reach Tontethaimund Lake from the Northway Junction Road or from Moose Creek by a short portage. The Pauline Lakes may be reached by portaging from Tontethaimund Lake or from a slough of the Nabesna River. Several of the lakes are within walking distance of Northway Village and Northway.

With communities nearby, much activity occurs on the lakes. Northway Village is virtually located on the banks of Skate Lake; thus it is not surprising to find considerable use of canoes, light motorboats, and floatplanes on this lake. Local residents use small boats to hunt muskrats on Tontethaimund Lake and on the unnamed lake in Sections 23-26, T. 14 N., R. 18 E., C.R.M. Native allotments are numerous in this area. Some are located on the southeast shore of Tontethaimund Lake, adjacent to the Northway Junction Road; on the southwest shore of the north Pauline Lake; on the north and east banks of the unnamed lake in Sections 2 and 3, T. 13 N., R. 18 E., and Section 35, T. 14 N., R. 18 E., C.R.M.; and on the north shore of the unnamed lake in Section 8, T. 14 N., R. 19 E., C.R.M.

Considering all of these factors - the proximity of communities and routes of travel, shoreline characteristics, water depth, local resources, etc., one would at first glance expect the lakes to be highways of commerce. Quite the contrary is true. Local residents may hunt, fish, and play on the lakes, but they do not rely upon the lakes as routes of travel. Rather, the communities rely upon the Northway Junction Road-Alaska Highway system as well as airplanes for travel, trade, and commerce. No amount of riverboat traffic, if it were ever to develop on the lakes, would meet the needs of the local communities. Clearly, none of the lakes in this area are potential highways of commerce.

Lakes 4

Immediately adjacent to Chisana River, Mark Creek, and the Alaska Highway, all established routes of travel, Shashamund Lake, Thadthamund Lake, Eliza Lake, Steve Lake, Yarger Lake, Tenmile Lake, the unnamed lake in Sections 3 and 4, T. 13 N., R. 20 E., C.R.M., the unnamed lake in Sections 33 and 34, T. 14 N., R. 20 E., C.R.M., and numerous unnamed lakes in this area are also unlikely highways of commerce. Shashamund Lake is little more than one mile long, and less than 0.75 mile wide. Eliza Lake, Yarger Lake and Deadman Lake are all less than 1.5 miles long, and about one mile wide. Tenmile Lake is about two miles long, and 0.5 mile wide. Other lakes in this area are smaller. The majority of the lakes are landlocked. Those that are not, are drained by very small creeks.

Shashamund Lake and Thadthamund Lake appear to be bordered by marshlands. It is doubtful that much of their shorelines are solid. The larger lakes located between the Alaska Highway and Chisana River have varying shoreline characteristics. The shorelines are generally firm on the eastern perimeters, and marshy on the western perimeters. In the case of the unnamed lake in Sections 3 and 4, T. 13 N., R. 20 E., C.R.M., the marsh extends five to 40 feet in and around the lake. Marsh also extends 15 to 20 feet in and around the two unnamed lakes in Sections 33 and 34, T. 14 N., R. 20 E., C.R.M. Except on its western shore, where a very narrow strip of solid ground exists, marshland is characteristic of the shore of Tenmile Lake.

Despite a rather steep bank and dense vegetation, lakes adjacent to the Alaska Highway are readily accessible by land from the highway. Unimproved roads extend to campgrounds near Deadman Lake and Yarger Lake, and a road extends to a point near Eliza Lake. These lakes may also be reached from the Chisana River by short portages. The portages to Steve Lake and Eliza Lake are probably less than 100 yards. Access to Deadman Lake, Tenmile Lake, Yarger Lake, and the two large unnamed lakes would be very difficult, as marshland and sloughs would have to be crossed. Shashamund Lake and Thadthamund Lake may be reached by means of portages from the Nabesna River on the Chisana River. The same may also be true for lakes near Mark Creek.

Deadman Lake, Eliza Lake, Steve Lake, and Yarger Lake are subject to moderate amounts of recreation and subsistence activity. Gaining access to the lakes from the roads and campgrounds, people often hunt ducks and fish as well as drive light motorboats on Deadman Lake and Yarger Lake. Lakes adjacent to the Alaska Highway are also subject to muskrat hunting. Local residents may also hunt and fish on Shashamund Lake, Thadthamund Lake, and other lakes immediately west of Chisana River and Mark Creek. One Native allotment is located on Yarger Lake; one on Eliza Lake; one on Steve Lake; and one on Shashamund Lake.

None of the lakes in this area are considered to be potential highways of commerce. Lakes near the Alaska Highway are readily accessible from the road, and the record indicated that these lakes are

customarily reached overland from the highway. The lakes may also be reached from the Chisana River, but only by crossing rough wet terrain. The same is true for lakes immediately adjacent to the Chisana River or Mark Creek. In all cases, it is highly improbable that riverboats would be used on the lakes. The resources are too limited, and the lakes too small, for use in travel, trade, and commerce. In the event that commercial resources were discovered, development would certainly hinge upon the construction of a summer, or more likely, a winter road. With access to Chisana River available from the Chisana River bridge on the Northway Junction Road, it is extremely doubtful that any of the lakes near the Alaska Highway will ever figure in a route of travel to the Chisana River.

C. M. Brown