GWICHYAA ZHEE GWICH'IN TRIBAL GOVERNMENT and CHALKYITSIK VILLAGE COUNCIL

November 7, 2017

Via U.S. Mail and Email to:
Michelle Hale, Director, Division of Water
Alaska Department of Environmental Conservation
410 Willoughby Ave , Suite 303
Juneau, Alaska 99801

Dear Ms. Hale,
The Gwichyaa Zhee Gwich'in Tribal Government and the Chalkyitsik Village Council (hereinafter referred to as "Tribes") welcome this opportunity to nominate the Draanjik River and all of its tributaries for designation as Tier 3 Outstanding National Resource Waters under the terms of the Clean Water Act, 40 CFR 131.12 and Alaska regulation 18 AAC 70.015.

The federally recognized[1] Tribes serve the Gwich'in people of Fort Yukon and Chalkyitsik. They exercise sovereign governmental authority to protect the health and welfare of tribal citizens and their homelands. The Draanjik River system constitutes the landscape upon which depend their health, identity, food security, municipal water source (for Chalkyitsik), and cultural continuity. The water is pristine, has exceptional and sensitive ecological value, offers remarkable recreational uses, and sustains rich resources that support a traditional indigenous culture.

LOCATION AND DESCRIPTION

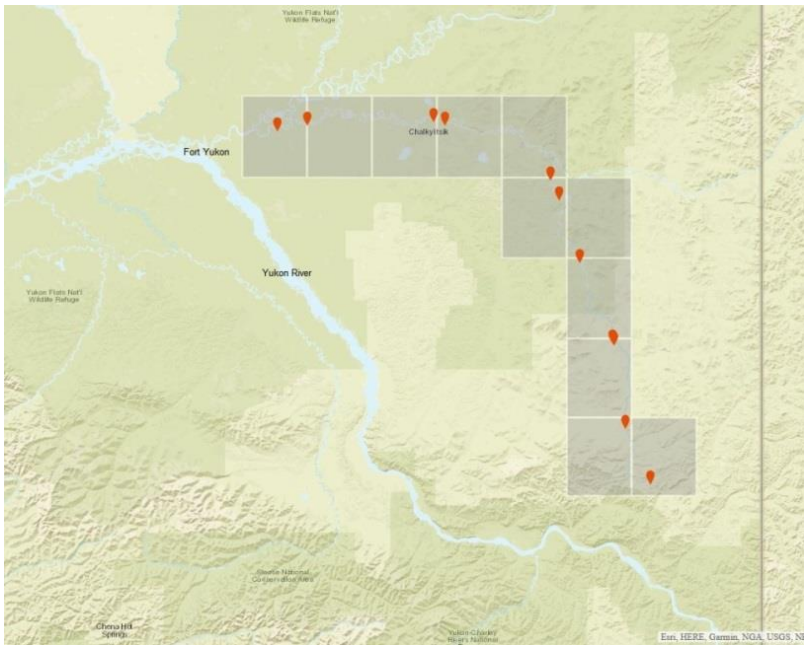
The Draanjik River, located in northeastern Alaska, is a tributary of the Porcupine River and is approximately 300 miles long.[2] It heads on land administered by the Bureau of Land Management (BLM) 35 miles southeast of Fanny Mountain at 65°33'33"N, 141°51'19"W, then flows north-northwest into the Yukon Flats National Wildlife Refuge (YFNWR), where it turns west to join the Black River Slough (an anabranch of the Porcupine River) 16 miles northeast of the community of Fort Yukon. Its two major tributaries are the Salmon Fork and the Grayling Fork. The headwaters of the Salmon Fork are in the Ogilvie Mountains in Yukon Territory, Canada, at 66° 53' 4"N, 139° 57' 2"W. It flows southwest to the international border, then another 74 miles in a general westerly direction until it enters the Draanjik River. The entire Canadian portion of the Salmon Fork is designated the Salmon Fork Chinook Salmon Conservation Unit, CK 77. In Alaska the Salmon Fork watershed is either managed as the Salmon Fork Area of Critical Environmental Concern (ACEC) by the BLM, or is part of the

[1] *Federal Register*, Volume 74, Number 183 dated August 11, 2009 (74 FR 40218) "Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs" (August 11, 2009).
[2] For an overview of the Draanjik River's physical character, see C. M. Brown to Chief, Division of Resources, March 28, 1980, file FF-09320, Alaska State Office, BLM.

YFNWR. The Grayling Fork also heads in the Ogilvie Mountains in Canada at 65° 52' 22"N, 140° 27' 35"W. The Alaskan portion is almost entirely within lands administered by the BLM. The village of Chalkyitsik is the only community located within the drainage of Draanjik River, and is the home of the Draanjik Gwich'in tribe. The name of the river is of Gwich'in Athabascan origin and translates to "caches along the river." Formerly, the name "Black River" was used, but in 2014 the U.S. Board on Geographic Names officially restored the original name.[3]

Coordinates (One point per USGS topographic map containing the feature, NAD83)

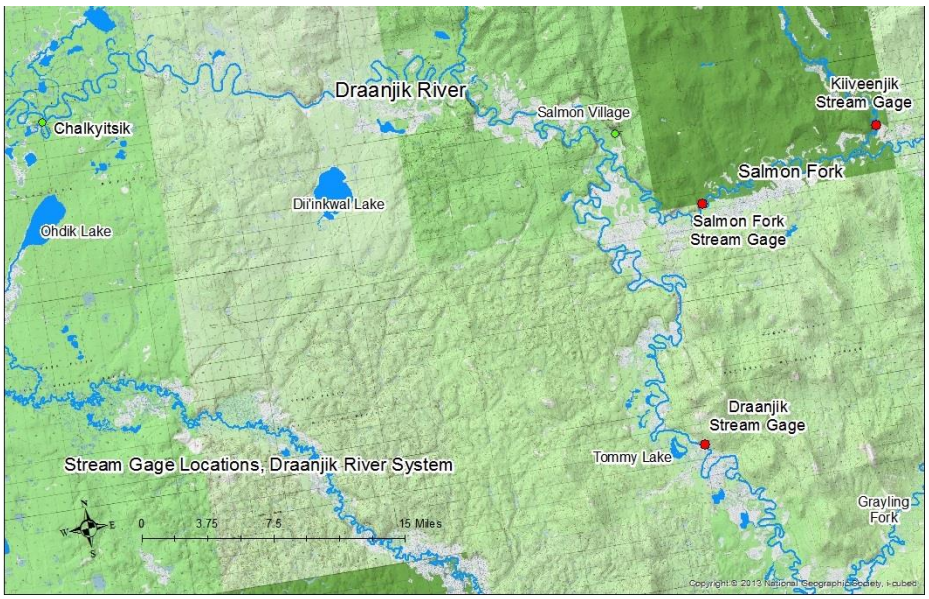
Sequence	Latitude(DEC)	Longitude(DEC)	Latitude(DMS)	Longitude(DMS)	Map Name
1	66.6641667	-144.7277778	663951N	1444340W	Fort Yukon C-2
2	66.6797222	-144.4991667	664047N	1442957W	Fort Yukon C-1
3	66.6917194	-143.5259638	664130N	1433133W	Black River C-6
4	66.6817912	-143.4417730	664054N	1432630W	Black River C-5
5	66.5138234	-142.6286085	663050N	1423743W	Black River C-4
6	66.4510659	-142.5596339	662704N	1423335W	Black River B-4
7	66.2578806	-142.4031690	661528N	1422411W	Black River B-3
8	66.0065647	-142.1491608	660024N	1420857W	Black River A-3
9	65.9994444	-142.1366667	655958N	1420812W	Charley River D-3
10	65.7374787	-142.0487081	654415N	1420255W	Charley River C-3
11	65.5591667	-141.8552778	653333N	1415119W	Charley River C-2



Source: USGS Geographic Names Information System (GNIS): ID 1399160

[3] https://geonames.usgs.gov/apex/f?p=138:3:0::NO::P3_FID,P3_TITLE:1399160,Draanjik%20River

In 1991 the BLM performed a reconnaissance level aquatic resource investigation on the Salmon Fork from the international boundary to Kiiveenjik Creek, which included some preliminary hydrologic data.[4] More complete streamflow data is available from the US Fish and Wildlife Service, which operated three continuous recording discharge gages from 1993 to 1998, on the Draanjik River near Tommy Lake, on the Salmon Fork and on Kiiveenjik Creek:[5]



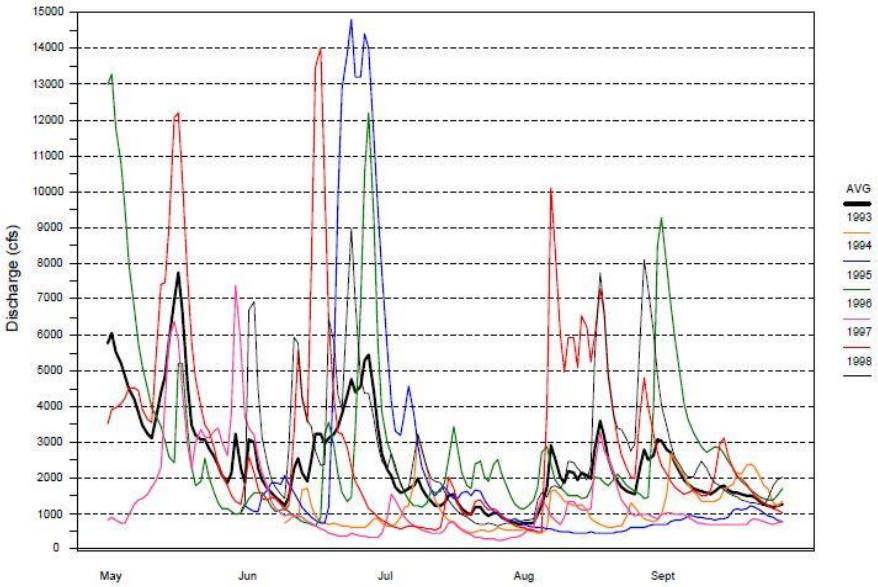
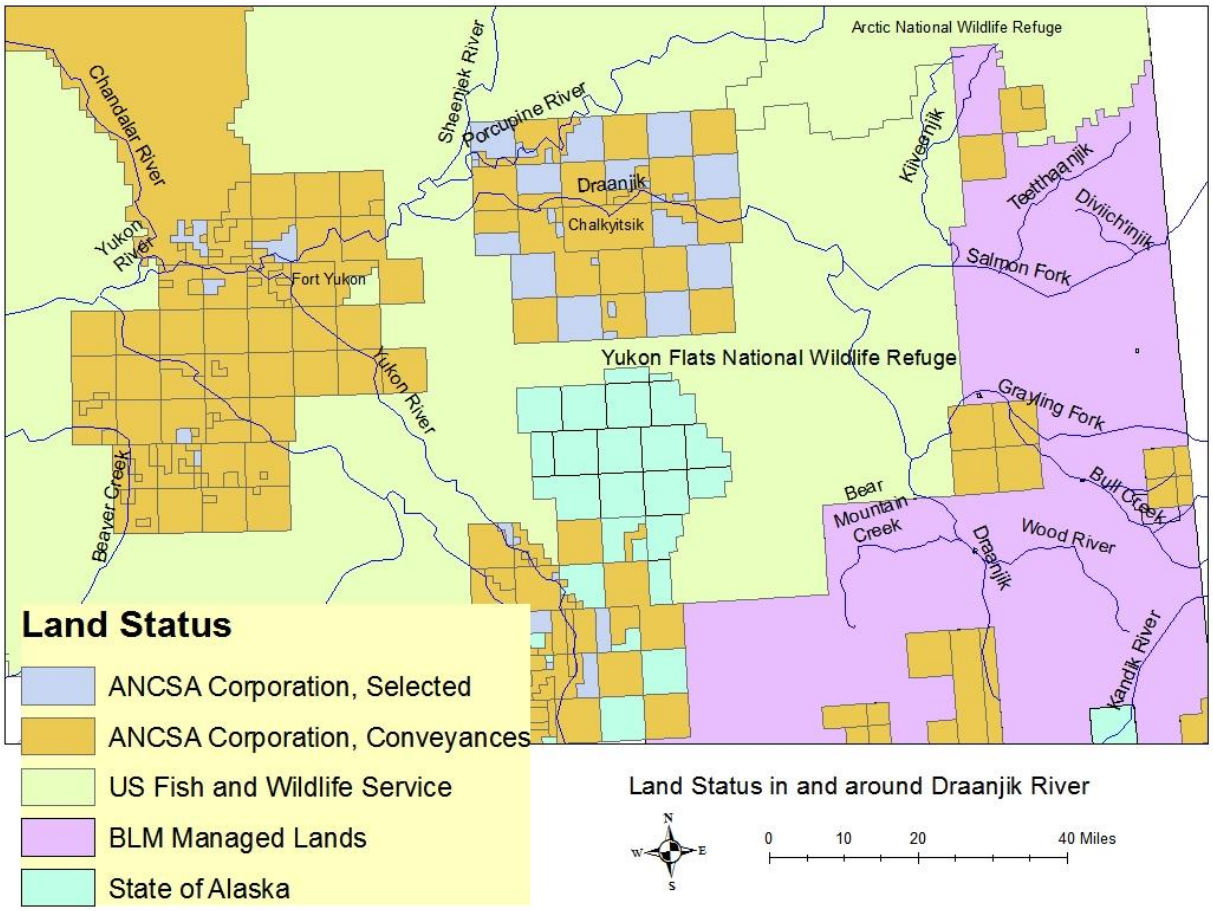


Figure 2.- Annual and average hydrographs for the Black River (1993-1998), Yukon Flats National Wildlife Refuge, Alaska.

[4] Kostohrys, J., Lubinski, B., and Collin, N. 1991. Aquatic Resources of the Salmon Fork Black River, Alaska. Bureau of Land Management Open File Report No. 51

[5] John Trawicki, "Water Resources Inventory and Assessment, Yukon Flats National Wildlife Refuge (Water Years 1993-1998): Final Report," WRB 00-04 (Water Resources Branch, U.S. Fish and Wildlife Service, April 2000), 7

LAND OWNERSHIP

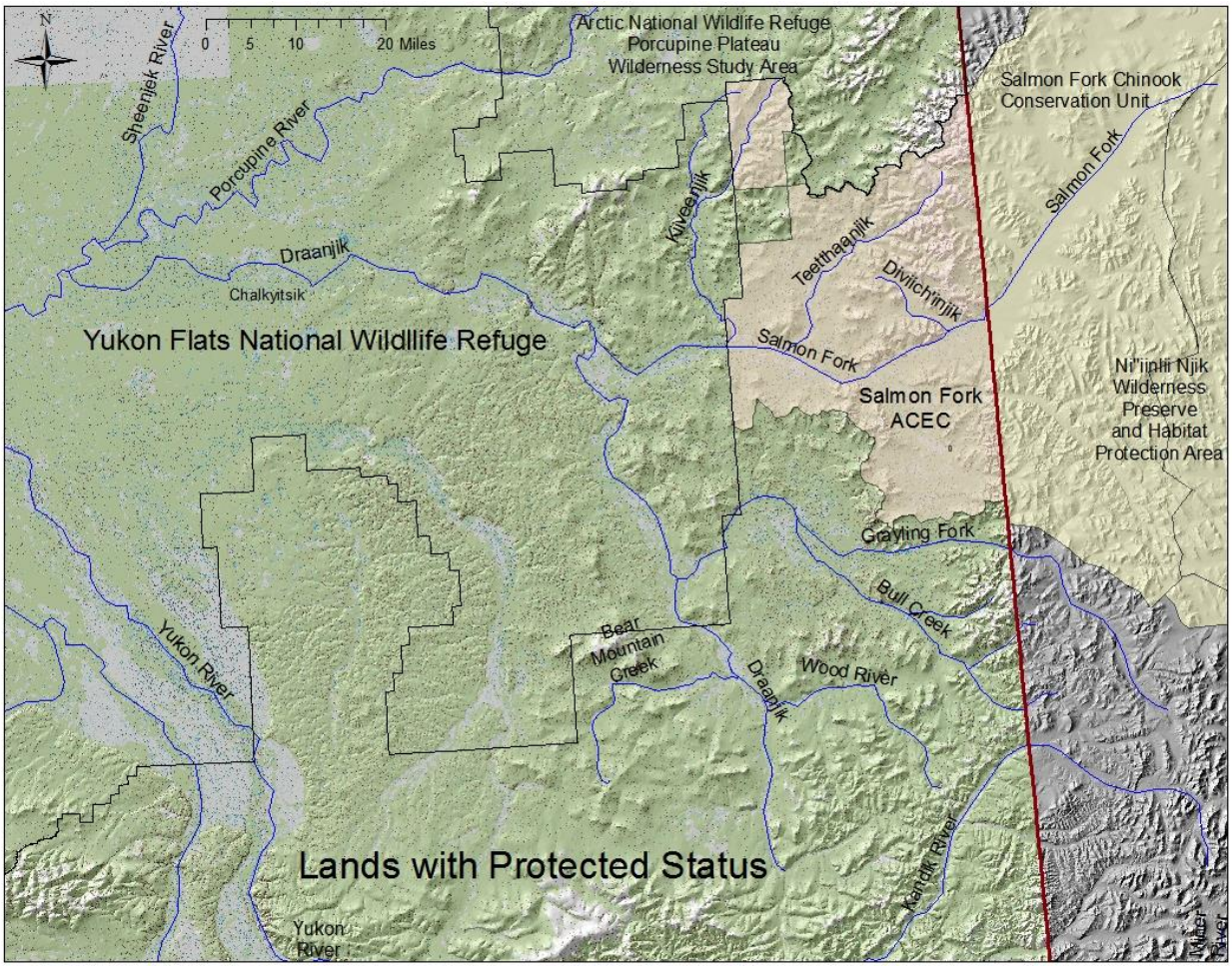


From the mouth of Wood River, the Draanjik River flows through 32 townships before emptying into the Porcupine River. The upper river and its headwaters tributaries flow broadly across BLM lands before entering the YFNWR. The remainder of the river is located in the Refuge. Of that portion, land in nearly eight townships has been conveyed to the Chalkyitsik Native Corporation and Doyon, Ltd. Some parcels are selected but not yet conveyed under the provisions of the Alaska Native Claims Settlement Act. The river and stream bed below mean high water mark were not include in the conveyances.[6] The Grayling Fork flows mostly across BLM lands. It crosses Doyon, Ltd, lands in two townships, which were conveyed by Interim Conveyance Nos. 331 and 432. In both townships, the Grayling Fork itself was excluded from the conveyances as a navigable waterway. Grayling Fork then flows through three townships in the YFNWR before it empties into the Draanjik River. The Salmon Fork and its tributaries are located on land managed by the BLM or by the YFNWR.

[6] Robert W. Faithful to Assistant Deputy State Director for Conveyance Management, July 22, 1983, file F-14846-A, Alaska Native Claims Settlement Act files, Northern Field Office, Bureau of Land Management, Fairbanks

On February 14, 2003, the State of Alaska applied to the BLM for a Recordable Disclaimer of Interest (RDI) to provide finality on the navigability on Draanjik River and its tributaries. On October 24, 2003, the BLM issued an RDI determining that the Draanjik River as far upriver as the mouth of Grayling Fork, Salmon Fork to the international border, Grayling Fork for the first 54 river miles, and Bull Creek for 16 miles are navigable, and the underlying lands therefore are the property of the State.[7] Alaska owns the lands underlying navigable waters by virtue of the equal footing doctrine, under which new states are admitted to the Union with all of the powers of sovereignty and jurisdiction that pertained to the original states, and ownership of lands underlying navigable waters is an essential attribute of state sovereignty. When Alaska became a state, title to lands underlying navigable waters within its boundaries passed to it automatically. The bed of most of Draanjik River up to mean high water mark therefore is State property.

PROTECTED AREAS



[7] Recordable Disclaimer of Interest, Serial Number F-93920. BLM, Anchorage. http://www.dnr.state.ak.us/mlw/nav/rdi/blackgroup/blackgroup_rdi.pdf

In 2008, Chalkyitsik Village Council recommended the portion of the Draanjik River watershed within BLM managed lands for designation as an ACEC. The 1991 BLM study, *Aquatic Resources of the Salmon Fork Black River, Alaska*,[8] stated that:

> Given the high quality and diversity of this ecosystem, the areas of critical spawning and rearing habitat for anadromous and resident fish populations, and the high potential for future recreational and subsistence use, we should consider giving parts or all of the area a special land designation, such as naming it an Area of Critical Environmental Concern…

In 2016, the BLM designated approximately 623,000 acres within the Salmon Fork watershed as the Salmon Fork ACEC, to protect relevant and important values including bald eagle nesting habitat, priority fish habitat, and rare flora.[9] The goals of the ACEC include the maintenance of stream channel integrity, ensuring the proper functioning of riparian habitat, and preserving water quality for fish and aquatic resources. The ACEC is a right-of-way avoidance area, limiting winter use to snowmobiles weighing 1,000 pounds and less, and prohibiting summer use of off-highway vehicles Along with 28 Riparian Conservation Units and the upper Draanjik River headwaters area, the ACEC is closed to locatable mineral entry and leasable minerals.

The Porcupine Plateau Wilderness Study Area (WSA) in the Arctic National Wildlife Refuge extends along the northern boundary of the Draanjik River watershed. Its 4.4 million acres are exemplary in the degree to which they meet the criteria of the Wilderness Act. Comprising about 23 percent of the Refuge, the Porcupine Plateau WSA is sufficiently large, protected, and distant from substantial threats to enable it to be managed as wilderness. This WSA was determined to be highly suitable for wilderness designation and was recommended as such in the 2015 Arctic National Wildlife Refuge Comprehensive Conservation Plan.[10] President Obama proposed wilderness designation to Congress in 1915.

To the east, the entire watershed of the Salmon Fork on the Canadian side of the international boundary is designated Chinook Salmon Conservation Unit, CK-77. The Canadian Department of Fisheries and Oceans establishes Conservation Units in order to delineate important units of salmon diversity, to provide the basis of current and future salmon production, and to protect stocks that have unique adaptations that are genetically encoded and are geographically isolated. Additionally, the Canadian Government and the Vuntut Gwich'in First Nation have established the Ni'iinlii Njik Habitat Protection Area, the Ni'iinlii Njik Ecological Reserve, and the Ni'iinlii Njik Wilderness Preserve. The purposes of this combined Wilderness Preserve and Habitat Protection Area are to protect in its natural state a representative example of the North Ogilvie Mountains from development, to protect numerous streams including the headwaters of the Salmon Fork of Draanjik River, and to provide a buffer to mitigate human activities that could adversely affect the wilderness characteristics of the area.

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[8] Kostohrys, J., Lubinski, B., and Collin, N. 1991. Aquatic Resources of the Salmon Fork Black River, Alaska. Bureau of Land Management Open File Report No. 51

[9] *Eastern Interior, Draanjik Record of Decision and Approved Resource Management Plan,* 2016. BLM, Fairbanks.

[10] Arctic National Wildlife Refuge Comprehensive Conservation Plan and Final Environmental Impact Statement (CCP/FEIS). 2015.

WATER QUALITY

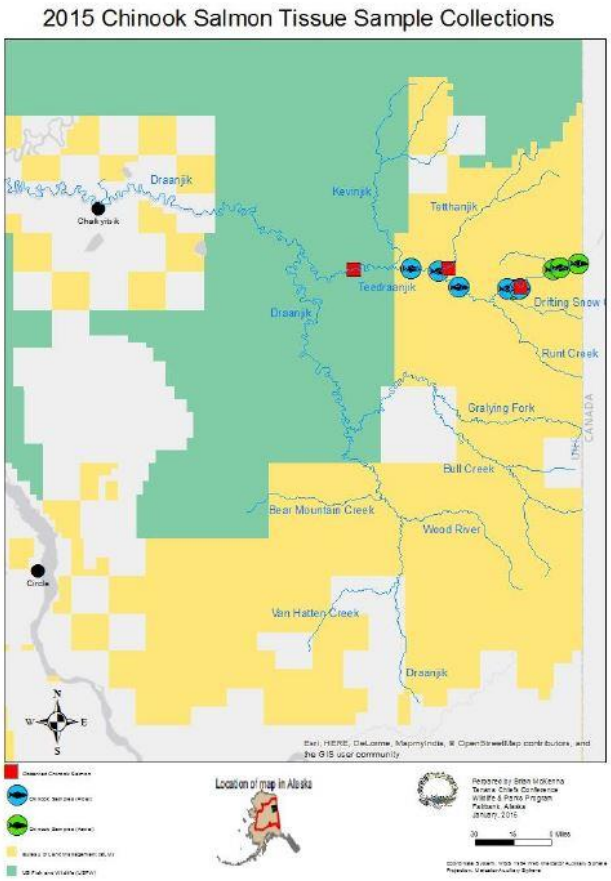
40 CFR 131.12(a)(3): "Where high quality waters constitute an outstanding National resource, such as waters of the National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected."

By far most of Draanjik River flows within the Yukon Flats National Wildlife Refuge. According to Trawicki, "The chemical water quality of surface water on and adjacent to the Refuge is considered good. Dissolved solids average less than 200 milligrams per liter."[11] The Refuge comprises approximately 10.9 million acres and is bisected by the Yukon River. The purposes for which Congress established the Refuge in 1980 include ensuring water quality in a manner consistent with conserving fish and wildlife populations and habitats in their natural diversity. The Refuge is particularly rich in waterfowl. The number of breeding ducks averages between 1 and 2 million, the highest density in the state. More canvasbacks nest on the Refuge than in the rest of Alaska combined. With some 20,000 wetlands, the Refuge provides thousands of miles of shoreline and cover for nesting. Water quality in the Yukon Flats is of national interest, as waterfowl banded on the Yukon Flats have been recovered in 11 foreign countries, eight Canadian Provinces, and 45 of the 50 United States. Numerous other water birds and shorebirds, including some 15,000 common, Pacific and red-throated loons, spend summers among the lakes, rivers and wetlands on the Refuge. Discharge into the Yukon Flats from Draanjik River is crucial to maintaining the pristine water quality necessary to achieve the purposes of the Refuge.

Draanjik River is of exceptional ecological significance, with more than just local importance. Three species of salmon spawn in its waters, providing subsistence opportunity to Alaskans living along 800 miles of the Yukon River. The uniqueness of Draanjik River salmon stocks is part of nature's strategy of genetic diversity. The upper reaches of different river systems, like Draanjik River and Porcupine River, can be in the same ecological zone, but the salmon in them are geographically isolated from each other and are genetically distinct. Groups of wild salmon living in an area sufficiently isolated from other groups, if extirpated, are very unlikely to be recolonized naturally within an acceptable time frame (e.g. a human life time). Maintenance of genetic diversity lends a species a degree of adaptivity and resilience, and is very important to the future of salmon because of the impacts that climate change is expected to have in the north.

The Yukon River Chinook salmon stocks are currently classified as a yield concern. Draanjik River supports a valuable spawning population of Chinook salmon. Redds and spawning activity have been documented in the main stem of the Salmon Fork from its mouth to about 10 miles into Canada.[12] Since 2015 the Alaska Department of Fish and Game and Tanana Chiefs Conference have been collecting tissue samples of spawning Chinook in Salmon Fork for genetic analysis.

[11] John Trawicki, "Water Resources Inventory and Assessment, Yukon Flats National Wildlife Refuge (Water Years 1993-1998): Final Report," WRB 00-04 (Water Resources Branch, U.S. Fish and Wildlife Service, April 2000), 7
[12] McKenna, Brian, 2017. Personal communication.



Map illustrating the location of Chinook salmon tissue samples collected in the Salmon Fork in 2015. Fifty samples were collected during 2015. Another forty eight were collected in 2017. Adding to and improving the Yukon River salmon genetic baselines database is an ongoing process which will ultimately result in more accurate and timely management decisions.

Source: McKenna, Brian and Nick DeCovich, 2015. Chinook Salmon Tissue Sample Collections for the Analysis of Yukon River DNA Baseline Samples in Alaska. Yukon River Panel Project CRE-78-14B. Tanana Chiefs Conference, Fairbanks, Alaska

Draanjik River supports significant runs of fall chum and coho salmon. The watershed's spawning and rearing habitat and water quality are important contributors to the success of the Yukon River's commercial, sport and subsistence fisheries. Spawning mostly occurs in the mainstem of Salmon Fork and in tributaries, especially at locations where water wells up through the eroded limestone karst substrate and maintains constant water temperatures. Karst ecosystems are rare and are more productive than ecosystems based on other substrates. Karst is formed by the dissolving action of water on bedrock (usually carbonates). This geological process occurs over thousands of years and results in unusual surface and subsurface features including sinkholes, vertical shafts, disappearing streams, springs, complex underground drainage systems and caves. The numerous areas of upwelling water make Kiiveenjik and Teetthąąnjik Creeks prime spawning habitat for fall chum and coho salmon. The most significant such location, both biologically and culturally for the Draanjik Gwich'in, is Nee'inlįį, located on a side tributary of Kiiveenjik Creek. Nee'inlįį translates literally as "fish swim there repeatedly," and has the more general meaning of "salmon spawning place." Although on the Arctic Circle, upwelling groundwater keeps the stream open throughout the year. This phenomenon creates its own microclimate which affects vegetation, opportunities for habitat use and consequent biological diversity and abundance. Every year thousands of salmon travel from the Bering Sea to spawn and die in this "salmon hole." The resulting nutrient load, and warm upwelling water of this system, sustains an unusually diverse ecosystem for this latitude and location. Grizzly bears congregate around Nee'inlįį and along

the river each fall to feed on the spawning salmon. The integrity of the watershed is critical to the maintenance of these natural processes and biological relationships – including the salmon spawning areas and the grizzly bear-salmon interaction.

The Draanjik River also supports a resident spawning population of sheefish.[13] Brown describes this population as a smaller-maturing, upper drainage stock with little or no anadromy which restricts its migrations to freshwater habitats.[14] This is significant because Draanjik River is one of only six sheefish spawning areas which have been identified or verified in the Yukon River drainage.[15] Arctic grayling are found in good numbers throughout the Draanjik River and were the most abundant of all fish species sampled during a fisheries inventory conducted in 1991.[16]

Nee'inlįį, located on a small tributary of Draanjik River. (Photo credit: Brian McKenna, TCC)

[13] Alt, K. T. 1978. A life history and study of sheefish and whitefish in Alaska. Alaska Department of Fish and Game, Division of Sport Fish, Annual Performance Report, 1977–1978, Federal Aid in Fish Restoration, Project F-9-10, Vol. 19:1–22, R-II, Juneau.

[14] Brown, R. J., C. Brown, N. M. Braem, W. K. Carter III, N. Legere, and L. Slayton. 2012. Whitefish biology, distribution, and fisheries in the Yukon and Kuskokwim River drainages in Alaska: a synthesis of available information. U.S. Fish and Wildlife Service, Alaska Fisheries Data Series 2012–4, Fairbanks, Alaska.

[15] Brown, R.J., and J.M. Burr. 2012. A radiotelemetry investigation of the spawning origins of Innoko River inconnu (sheefish). Alaska Department of Fish and Game. Fishery Data Series No. 12-54.

[16] Kostohrys, J., Lubinski, B., and Collin, N. 1991. Aquatic Resources of the Salmon Fork Black River, Alaska. Bureau of Land Management Open File Report No. 51

Nee'inlįį. The light blue areas are redds. Numerous individual chum salmon are visible.
(Photo credit: Brian McKenna, TCC)

WATER CHEMISTRY

In the mid-1970's, the U.S. Geological Survey[17] conducted a water geochemical survey in the Draanjik River hydrologic unit. A total of 627 water samples were collected from locations in the Black River quadrangle. Not all samples from this quadrangle come from the Draanjik River drainage, as small portions of other streams (e.g. Little Black River and Porcupine River) are included. Samples were collected during September of 1978. Draanjik River also lies on the Charley River quadrangle. Altogether, the USGS obtained water sample geochemistry for 1,148 sample locations within the Draanjik River hydrologic unit.

[17] U.S. Geological Survey, 1997, Geochemistry of Alaska--National Uranium Resource Evaluation, Hydrogeochemical and Stream Sediment Reconnaissance Program: U.S. Geological Survey Open-File Report 97-492.

Summary of Black River quadrangle sample types.

Sediment Sample Type	Number of Samples	Water Sample Type	Number of Samples
Wet Streams	142	Streams	137
Dry Streams	7	Lakes	490
Wet Lakes	489		
Total Sediments	**638**	**Total Waters**	**627**

The 627 water samples from the Black River quadrangle were sent to the Oak Ridge Gaseous Diffusion Plant (ORGDP) for analysis. These samples were analyzed for uranium and up to 27 additional elements and the results were released by ORGDP in the GJBX-339(81) report. Maps and data for the Black River quadrangle are available online at: https://mrdata.usgs.gov/nure/water/select.php?place=q67144&div=quad&map=on

All 1,148 records from the Draanjik River watershed can be found at: https://mrdata.usgs.gov/nure/water/select.php?place=h19040204&div=fips

The highest anomaly is for naturally occurring zinc in Bull Creek, about three miles west of Midnight Mountain. Water at that sample site contains up to 1,584 ppb zinc, along with elevated barium, cobalt, chromium, iron, magnesium, manganese, and vanadium. The area which Bull Creek drains includes Midnight Mountain, the summit of which is about one mile east of a mineral prospect containing deposits of zinc, and lesser amounts of silver, copper and lead. These prospects are located on land conveyed to Doyon, Ltd.[18]

CONTINUING THREATS TO WATER QUALITY

Midnight Hill; North Midnight

Doyon, Ltd, selected and received conveyance for land which contains deposits of zinc, along with smaller concentrations of lead, silver and copper, located about one mile west of the top of Midnight Hill, in the Bull Creek drainage. The prospects occur along an east-west trending gossan, about 250 feet wide, that extends for about 900 feet. Another, smaller, gossan is located approximately 1000 feet to the northeast.[19][20][21] Commercial development of this prospect, with associated transportation infrastructure, could pose serious threats to water quality in Draanjik River.

[18] Alaska Resource Data File, Open-File Report 03-53. Black River Quadrangle.
[19] Doyon Limited, 1987, Mines, prospects, and geochemical anomalies on Doyon, Ltd. regional overselection lands, Alaska, Blocks 1-8: Fairbanks, Alaska, WGM, Inc., Doyon Limited Report 86-01A, 150 p. (volume 1 of 2).
[20] Bright, M.J., 1989, Mineral potential of Doyon, Ltd. overselection block VII, east-central Alaska: Fairbanks, Alaska, WGM Inc., Doyon Limited Report 90-35, 29 p.
[21] Jirik, D., Rishel, J., Yinger, M., and Ruzicka, J., 1979, 1978 Annual progress report, Midnight Hill area report: Fairbanks, Alaska, WGM Inc., Doyon Limited Report 79-09.

Existing mineral claims at Rusty Springs property

The Rusty Springs Property is located in the Salmon Fork drainage in Yukon Territory, Canada, 29 km east of the Alaska border. It was first staked in 1975 after investigation of the deep red-orange colored springs and seeps in the valley of Carrol Creek, a tributary of Salmon Fork. Over a 40 year period Rusty Springs has had nearly $5 million in exploration, including 123 drill holes, targeting high-grade silver, lead, copper and zinc mineralization. An all-weather, 600 meter airstrip was completed in 1996 and a 193 kilometer winter road accesses the property from the Dempster Highway. The claims are 100 % owned by Eagle Plains Resources Ltd, which has made Rusty Springs available for option to joint-venture partners.[22] Economic development of this prospect poses complex problems concerning environmental controls, because the effects of mining in Canada could have profound ecological repercussions in Alaska.

Climate change

Changes in habitat within and beyond the Draanjik River system are predicted to stress all of the wildlife, waterfowl and fish populations that serve as subsistence resources. Some populations may increase in abundance while others may alter their migration and become unavailable. The State of Alaska's Department of Commerce stated in its letter to the Alaska Impact Assessment Commission that:

> 'Continued thawing of permafrost, and the retreat and thinning of sea ice is likely to cause widespread alterations to the lifecycles, habitats and health of ecosystems of subsistence resources. As habitats change, these populations are likely to undergo dramatic shifts in range and abundance, which in turn will affect communities that are dependent upon subsistence resources.'
>
> 'Anticipated rural community impacts include:
>
> - Impaired dietary and economic well-being of subsistence based way of life.
> - Loss of traditional meat ice cellars in several northern villages to thaw, making them useless.
> - Reduced quality of life.'

As sovereign governments with the duty to ensure the future wellbeing of their citizens, the Tribes strive to mitigate these impacts, and recognize not only challenges from climate change but consider the compounding of impacts when reviewing potential development that could promote damage to subsistence resources. The Tribes consider the maintenance of water quality to be key to the environmental health of the watershed as a whole, and an indicator of inchoate changes that may have negative and wide ranging impacts. The governing councils of the Tribes have concluded that Tier 3 designation of the Draanjik River is required in order to maintain the watershed's high water quality in the face of these changes.

Changes to the BLM Eastern Interior Resource Management Plan

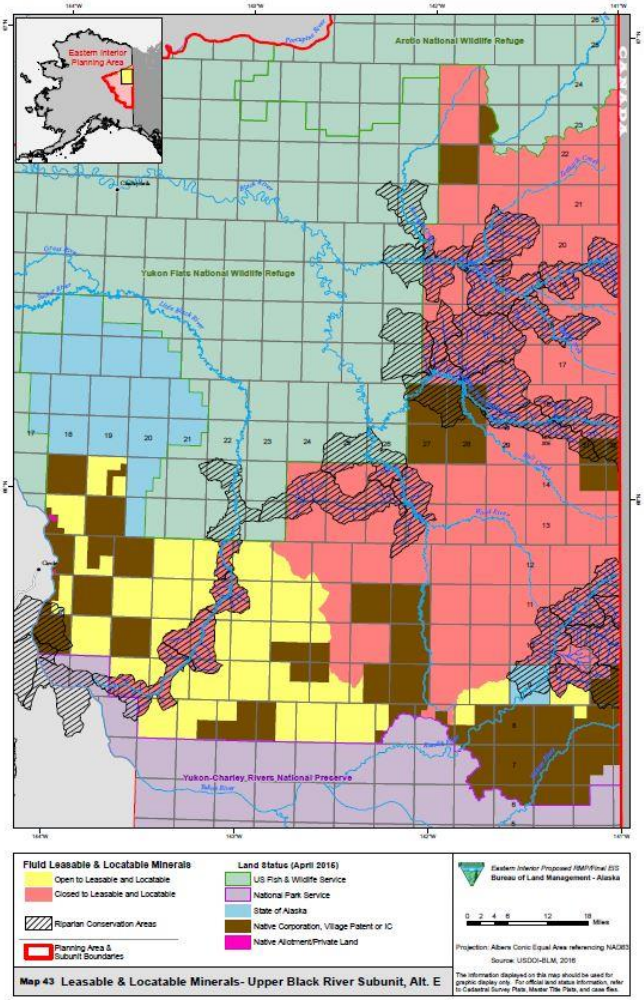
In early January of 2017, the BLM approved the Draanjik Resource Management Plan (RMP)[23] for the BLM-managed portion of the Draanjik watershed after eight years of effort. The Plan

[22] http://www.eagleplains.com/projects/rusty-springs

[23] https://eplanning.blm.gov/epl-front-office/eplanning/docset_view.do?projectId=1100&currentPageId=10151&documentId=94622

closes 77 percent of the lands in its planning area to both mineral leasing and mineral entry, including the Salmon Fork ACEC and the upper Draanjik watershed.

The Tribes and the State of Alaska were Cooperating Agencies during the development of the Plan. The BLM also engaged in extensive government-to-government consultation with the Tribes, who acknowledge that the plan is a compromise that strikes an appropriate balance between the protection of important areas of traditional use and development in conformity with the BLM's multiple use mandate. The approved RMP recognizes the important cultural link between the Tribes and the Draanjik Planning Area, and seeks to protect values important to the Tribes such as water quality. It is designed to protect and maintain the natural chemical, physical, and biological quality of surface and ground waters, wetlands, and floodplains, as well as the natural flow regime, water levels and integrity of surface and ground waters.



The mechanism which the RMP employs to achieve these protections is to recommend to the Secretary of the Interior that existing ANCSA 17(d)(1) withdrawals (public land order 5173 and others as applicable) be maintained until the establishment of new withdrawals under the authority of the Federal Land Policy and Management Act (FLPMA). The new withdrawals would be established on 1,813,000 acres in the following areas for the purposes of protecting sensitive resources, and would withdraw lands from locatable mineral entry and location:

- Approximately 623,000 acres in the Salmon Fork ACEC.
- Approximately 491,000 acres in Riparian Conservation Areas.
- Approximately 699,000 acres in the upper Draanjik River watershed.

The Secretary of the Interior, however, can revoke the current ANCSA 17(d)(1) withdrawals at any time without new FLPMA withdrawals in place, and indeed such revocation has been proposed and is under consideration by the Department of the Interior. If this were to occur it would allow development of placer and hardrock mining in the Draanjik watershed with profound negative impacts on water quality. Therefore, in addition to the protections for water quality written into the current version of the RMP, Tier 3 designation is required to mitigate anticipated risks to the exceptional characteristics of the water.

Karst aquifers require increased protection

> Ground-water flow in karst aquifers is very different from flow in granular or fractured aquifers. Karst ground-water flow is often turbulent within discrete conduits that are convergent in their upper reaches and may be divergent in their very lower reaches, simulating the flow pattern of surface water streams that are dendritic or trellised but with discharge to one or more springs. Significant precipitation events tend to flood karst aquifers quickly, causing a rapid rise in the potentiometric surface that may flood older, higher levels which discharge to a different set of springs. The epikarstic zone in karst terranes stores and directs infiltrating water down discrete percolation points. Chemical contamination may be fed directly to a karst aquifer via overland flow to a sinkhole with little or no attenuation and may contaminate downgradient wells, springs, and sinkholes within a few hours or a few days. Contaminants may also become temporarily stored in the epikarstic zone for eventual release to the aquifer. Flood pulses may flush the contaminants to cause transiently higher levels of contamination in the aquifer and discharge points. The convergent nature of flow in karst aquifers may result in contaminants becoming concentrated in conduits. Once contaminants have reached the subsurface conduits, they are likely to be rapidly transported to spring outlets. Traditional aquifer remediation techniques for contaminated aquifers are less applicable to karst aquifers.[24]

The exceptional productivity of Draanjik River as a salmon spawning stream is due in large part to the fact that it is a karst aquifer type. The biological richness comes with a price: high sensitivity to contamination. Disturbing the hydrogeography through mining activities or petroleum extraction can have wide ranging and unpredictable consequences for critical spawning sites such as Nee'inlįį. When oil is spilled it can have an immediate, acute, negative effect on fish and other aquatic organisms, killing or impairing them through direct contact that may block oxygen uptake, or ingestion, which may compromise other physiological functions.[25] Oil contamination has a much greater impact on the survival and fitness of eggs, larvae, and juvenile fish than on adult fish. When developing salmon embryos are exposed to very low levels of dissolved hydrocarbon (5.4 ppb) they experience reduced growth and survival compared to control groups of unexposed fish.[26] Many studies clearly indicate that oil in the environment is never a positive ecological attribute. The headwaters and uppermost tributaries of Draanjik River extend into a potential gas and oil bearing formation known as the Kandik Basin. With an eye to future oil and gas development in the Kandik Basin, large tracts of upper Draanjik land have been conveyed to Doyon, Ltd, which feels optimistic about the commercial potential of hydrocarbon extraction there.[27] Should development occur, Tier 3 designation will be necessary to ensure stringent controls for the protection of ground and surface water.

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SUMMARY

The water of Draanjik River is exceptional. It is in pristine condition, largely absent of human sources of degradation. Because of its outstanding biological significance, it is valuable to the State of Alaska as a key component to the productivity and ecology of the Yukon River system. Salmon spawning and rearing in Draanjik River provide subsistence opportunity to Alaskans living in 30 communities. It is also a route of migration for Chinook salmon which spawn in Canada.

Draanjik River occupies a karst landscape, atypical in Alaska, and has significant portions characterized by a karst aquifer type. These aquifers include valuable freshwater resources of exceptional quality, but are almost always vulnerable to contamination, due to their specific hydrogeologic properties.[28] Contaminants can easily enter karst aquifers through thin soils or via swallow holes (sinks). Inside the aquifer, contaminants can quickly spread over large distances, due to rapid and turbulent flow in the conduit network. Natural attenuation processes, such as filtration and retardation, are often less effective than in other aquifers.[29] Therefore, karst aquifers require increased protection.

In addition to having exceptional characteristics relative to other State of Alaska water, Draanjik River is a major component of a National Wildlife Refuge, which in itself qualifies the water for designation as Outstanding National Resource Water.

The Draanjik River basin is in one of the most remote corners of Alaska. Many of its headwater tributaries originate in the North Ogilvie Mountains Ecoregion, in protected wilderness areas in Canada. After traversing the Porcupine Plateau, the river ends up as a major contributor to the hydrologic regime of the Yukon Flats. This is a part of North America remarkable for its untrammeled, natural wilderness. It is not, however, uninhabited. For millennia it has been the homeland of the Draanjik Gwich'in, which means "people who dwell along Draanjik River." The river is so central to their identity that they name themselves after it. Under their stewardship the watershed has remained an intact ecosystem which continues today to support a vibrant, productive subsistence economy. The river provides food security, municipal water supply, and transportation to important subsistence resources. Many families in Fort Yukon are of Draanjik Gwich'in origin. They have a favorite story they like to tell about loading up the boat for a return to Draanjik, to visit or to go hunting. Leaving Fort Yukon, the route goes up Porcupine River about 20 miles to the mouth of Draanjik River. Once in the mouth, the boat stops, and everyone pulls out a cup to dip into river for a good drink of delicious, pure Draanjik River water.

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Respectfully Submitted,

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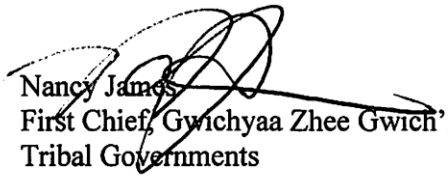

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