

WILD AND SCENIC RIVER VALUES

NOATAK WILD RIVER | Alaska | September 2023

NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR



THE WILD AND SCENIC RIVERS ACT AND THE NOATAK RIVER

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 USC 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Wild and Scenic Rivers Act is notable for safeguarding the special character of these rivers while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

It is hereby declared to be the policy of the United States that certain selected rivers of the nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

Wild and Scenic Rivers Act, October 2, 1968

In order to protect the Noatak's free-flowing characteristics, water quality, and outstandingly remarkable values, the upper 330 miles were designated a wild river in 1980 by the Alaska National Interest Lands Conservation Act (ANILCA) under the provisions of the 1968 National Wild and Scenic Rivers Act:

NOATAK, ALASKA.—The river from its source in the Gates of the Arctic National Park to its confluence with the Kelly River in the Noatak National Preserve.

Wild rivers are rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines that are essentially primitive and waters unpolluted. These represent vestiges of pristine America. Outside of seven privately owned parcels, the uplands for the Noatak Wild River corridor are federally managed, starting in Gates of the Arctic National Park and ending in Noatak National Preserve. The Bureau of Land Management has determined that the Noatak River is navigable from the Aniuk River confluence down to its mouth.



Outstandingly
Remarkable Values



Free-Flowing
Condition

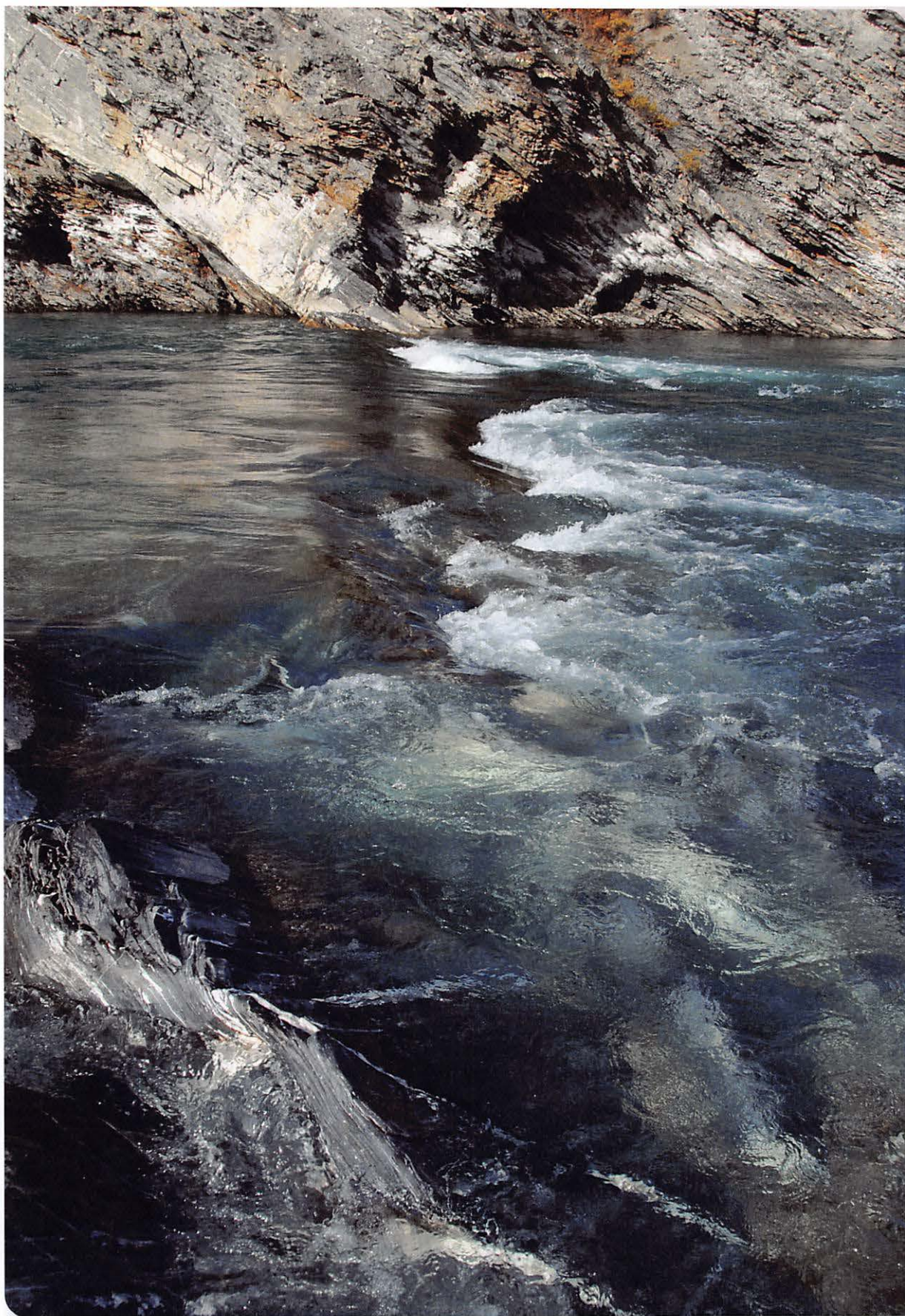


Water Quality

WILD AND SCENIC RIVER VALUES

Each river in the national system is administered with the goal of protecting and enhancing the values that caused it to be designated. Outstandingly remarkable values (ORVs), free-flowing condition, and water quality are the three pillars of protection under the Wild and Scenic Rivers Act. Because all wild and scenic rivers are free-flowing rivers whose water quality must be protected and enhanced, descriptions of these two values are included as part of this wild and scenic river values publication. These fundamental characteristics of the rivers are described after the ORV statements.

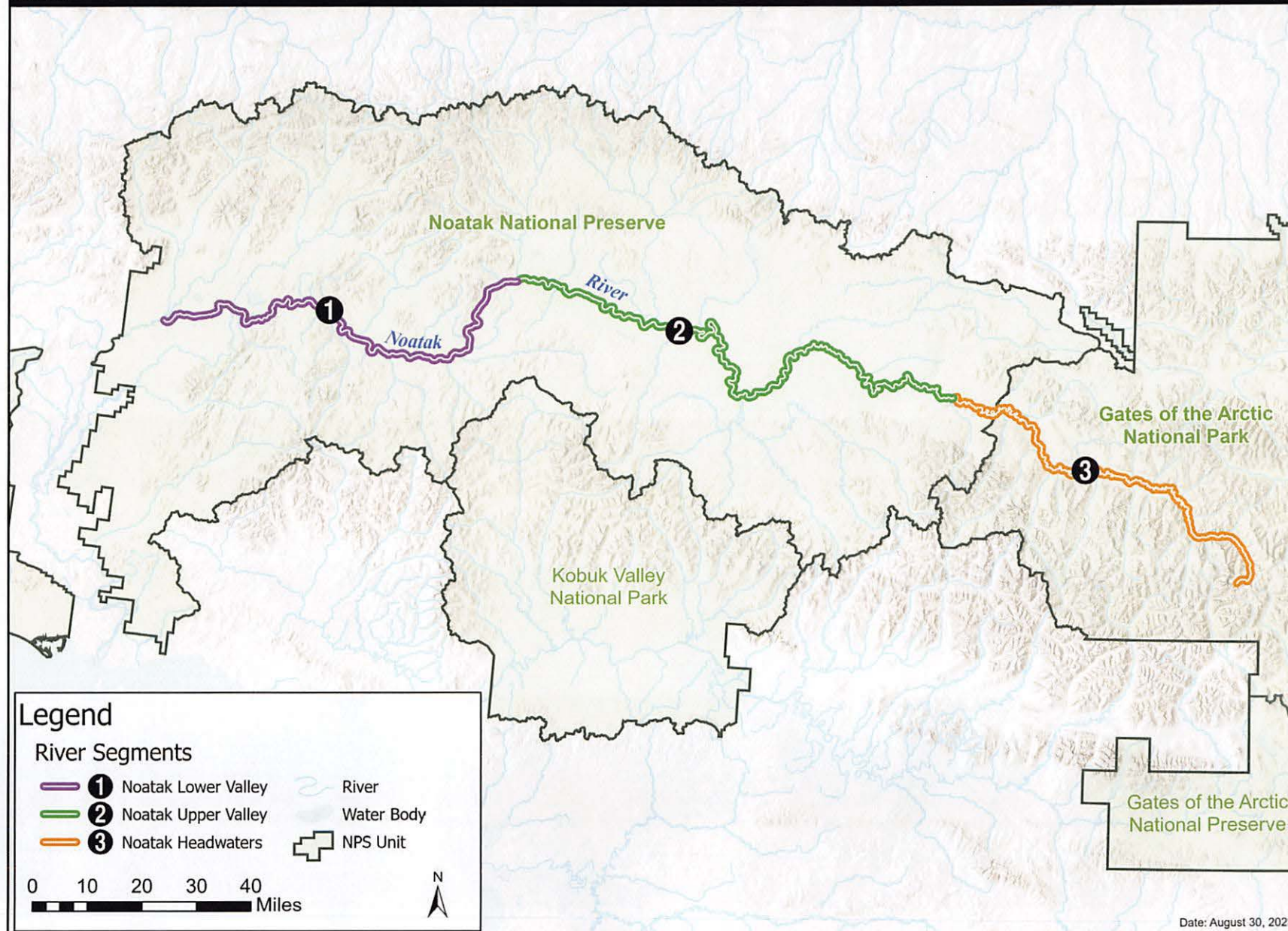




Noatak Wild River

Alaska

Alaska Region
National Park Service
U.S. Department of the Interior





OUTSTANDINGLY REMARKABLE VALUES

Outstandingly remarkable values are defined by the Wild and Scenic Rivers Act as the characteristics that make a river worthy of special protection. Thus, the foundation for wild and scenic river management is a clearly defined set of ORVs. The Interagency Wild and Scenic Rivers Coordinating Council has issued criteria for identifying and defining these values. The criteria guidance states that:

An ORV must be river related or dependent. This means that a value must:

- be located in the river or on its immediate shorelands (generally within a quarter-mile of either side of the river)
- contribute substantially to the functioning of the river ecosystem
- owe its location or existence to the presence of the river

An ORV must also be rare, unique, or exemplary at a comparative regional or national scale. Such a value would be one that is a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.

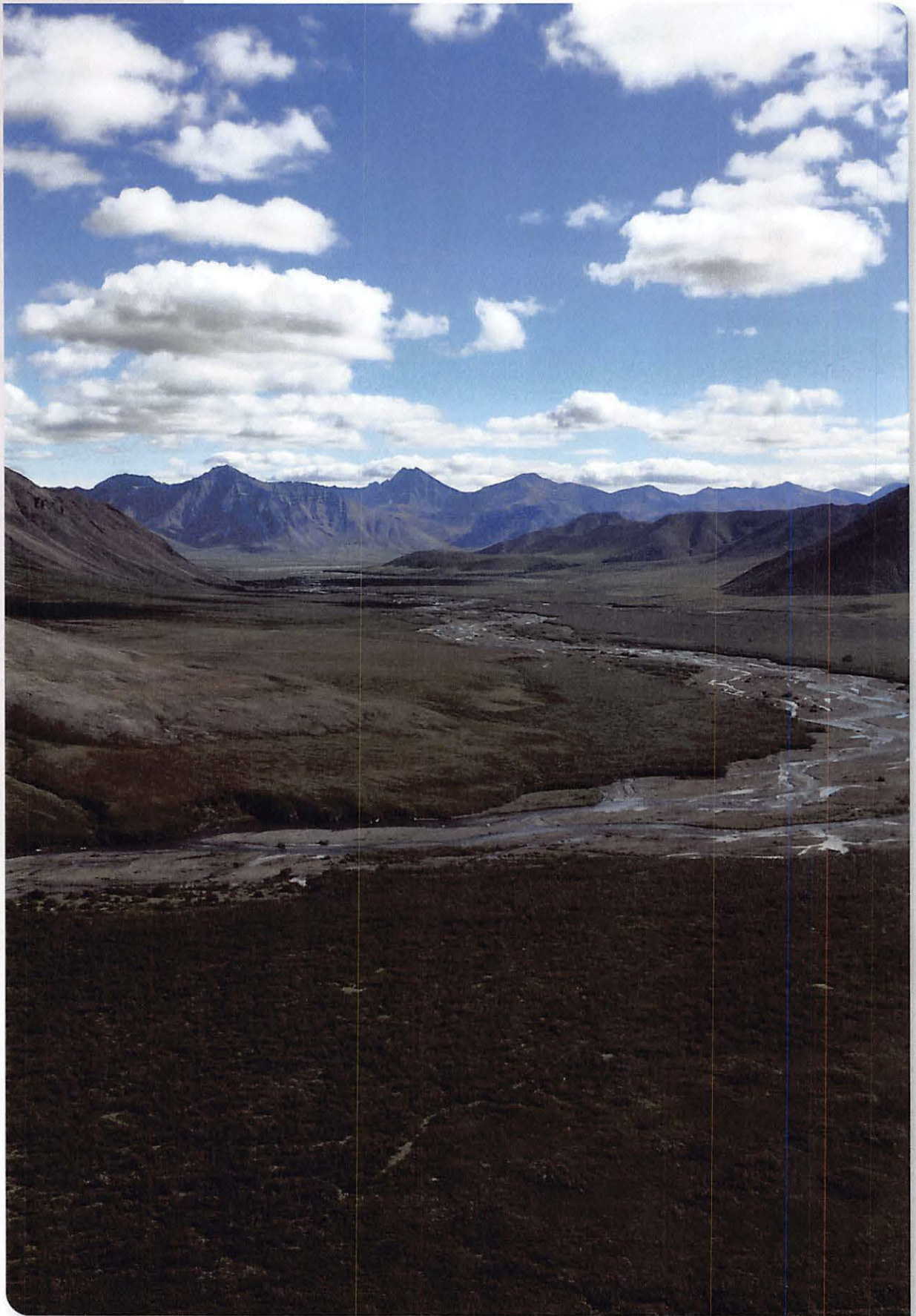
Based on these criteria and a careful analysis of the designated reaches of the Noatak Wild River, the National Park Service (NPS) has determined that eight ORVs are present. The analysis concluded that the Noatak Wild River contains the following ORVs: fish, wildlife, ecological processes, cultural, subsistence, geology, scenic, and recreation. A set of broad statements has been developed that articulates each ORV for the entire river designation. An evaluation process for each ORV was then used to determine which river segments contain the different ORVs. The results of this evaluation were used to develop segment-specific ORV descriptions for individual river segments, providing further evidence and support for the broad ORV statements. All of these broad statements and segment-specific descriptions are included in this document. The following matrix summarizes the evaluation results and provides organization to the ORV statements and segment-specific descriptions that follow. It indicates which segments of the Noatak River possess the above-mentioned ORVs.

For the purpose of the ORV evaluation, the Noatak Wild River was divided into distinct river segments. The segments were defined based on physical processes, features, ecology, recreational use, and resources. The segments are defined as follows:

- Headwaters (starting in Gates of the Arctic National Park to Kavachurak Creek)
- Noatak Upper Valley (below Kavachurak Creek to Nimiuktuk [Ninnguqtuuq] Creek)
- Noatak Lower Valley (below Nimiuktuk Creek to the Kelly River)

TABLE 1. OUTSTANDINGLY REMARKABLE VALUES FOR THE NOATAK WILD RIVER

Noatak Wild River Segment	Fish	Wildlife	Ecological Processes	Cultural	Subsistence	Geological	Scenic	Recreation
Headwaters	•	•	•	•	•	•	•	•
Upper Valley	•	•	•	•	•	•	•	•
Lower Valley	•	•	•	•	•	•	•	•





Fish Values

Region of comparison: Northwest Alaska for chum salmon and Dolly Varden

RIVER-WIDE (ALL THREE SEGMENTS)

The Noatak Wild River is outstanding with respect to chum salmon spawning and rearing habitat, Dolly Varden spawning and overwintering habitat, and the populations of chum salmon and Dolly Varden that are supported. Other fish that have been documented in the Noatak Wild River include Arctic grayling, round whitefish, humpback whitefish, pink salmon, coho salmon, slimy sculpin, lake trout, burbot, and northern pike.

For chum salmon, the Noatak River is one of the largest northernmost spawning areas in Alaska. The Noatak River receives considerable inputs from groundwater, which allows for under-ice flow and expansive overwintering habitat, unlike more northern rivers where flow ceases during the winter and the rivers can completely freeze. Large numbers of chum salmon migrate up the main stem of the Noatak Wild River to spawn in areas as far upstream as the confluence of the Kugururok River during September and October. Smaller numbers migrate farther upstream and into some of the tributaries to spawn. The chum salmon die after spawning, and their fertilized eggs develop and emerge as alevins during the winter, before developing into fry that migrate back through the Noatak Wild River and to the sea in May and June. Including the area downstream of the wild river boundary, the Noatak River as a whole is considered to be the largest salmon spawning stream in northwest Alaska, large enough to support a commercial fishery in Kotzebue Sound.

Dolly Varden are locally referred to as “Noatak trout,” and the Noatak Wild River is essential in providing connectivity between the overwintering area in the main stem of the Noatak River and spawning habitats in the tributaries. Unlike the chum salmon, Dolly Varden can spawn multiple times and overwinter in non-natal streams. Dolly Varden spawn in numerous tributaries along the Noatak Wild River from the Kelly River upstream to the Kugrak River, with at least fourteen tributaries known to be used for spawning. The Noatak River provides overwintering habitat in the main stem of the Noatak Wild River from the mouth of the Kugururok River in the mid-reaches of the drainage to the mouth of the Kelly River, and farther downstream. Thus, the Noatak Wild River provides essential Dolly Varden habitat for overwintering as well as an essential migratory pathway to the spawning areas.

Wildlife Values

Region of comparison: Northern Alaska

RIVER-WIDE

The entirety of the Noatak Wild River possesses outstanding wildlife value. This mountain-ringed Arctic river basin is the nation's largest unaltered river basin and free-flowing wild river, hosting a mosaic of diverse intact ecosystems characteristic of northwest Alaska. Wildlife diversity and abundance are due in part to the high diversity of ecosystems in this single river basin, including wet and alpine tundra, spruce poplar forest, high brush, and upland spruce hardwood forest. Representing a sample of ecosystems characteristic of northern Alaska, the Noatak River basin and the Noatak River corridor in particular support natural and healthy populations of wildlife, ranging from large mammal species such as brown bear, caribou, Dall sheep, muskoxen, moose, and wolves to rare species of raptors, shorebirds, and terns. The wet tundra and wetland areas of the west host a massive avian population. The basin is a major breeding and migratory bird feeding and resting area, including for several unique migratory Asiatic species. No other river basin of its size in the Arctic hosts such a large and diverse collection of wildlife.

Specific species that rely on habitat in the river corridor include wolves, lynx, Dall sheep, brown bears, caribou, raptors, and waterfowl and other birds. Wolves are highly dependent on water bodies for denning, and the majority of known dens are within a few hundred yards of the Noatak Wild River. The river corridor is considered especially prime habitat for the Canada lynx. Dall sheep and brown bears exist in high abundance for northern Alaska. A portion of the Western Arctic caribou herd funnel to certain river-crossing locations along their migration route. Raptor species are especially diverse and include rough-legged hawk, golden eagle, bald eagle, peregrine falcon, and gyrfalcon. Multiple lakes around the river provide breeding grounds for waterfowl species, including American wigeon, greater scaup, common loon, and scoters.

HEADWATERS SEGMENT

In the upper segment from the headwaters to Kavachurak Creek, the wildlife value is exemplary for a variety of species. The Noatak Wild River area in Gates of the Arctic National Park accounts for the majority of observed muskoxen within the park. Wolves den near the banks of the river. Caribou migrate across the river corridor and are present during winter and parts of summer as they funnel into certain spots along the waterway to cross. Dall sheep habitat is close to the river in this section as the river cuts through a steep-walled valley. Wolverine, red fox, and moose are abundant as well.

The upper reach of the Noatak Wild River serves as important fishing habitat for bears. The only spring-fed tributary, Kugrak River, has an especially late salmon run that attracts a substantial aggregation of brown bears and is unique for northern Alaska.



NOATAK UPPER VALLEY SEGMENT

In addition to the wildlife values that are common across all river segments, the middle segment serves as especially important habitat for caribou, moose, and wolves. This river section is at the center of the Western Arctic caribou herd migration range and many caribou can be observed swimming across the river in this area. Long stretches of willows attract moose to this part of the river, and for northern Alaska, an abundance of moose is rare, as this is the northern edge of their range. Wolves prefer to den closer to water, and the higher banks along this segment provide good drainage.

NOATAK LOWER VALLEY SEGMENT

In addition to the wildlife values that are common across all river segments and discussed above, the lower segment serves as especially important habitat for moose, caribou, wolves, bears, and raptors. High and steep canyon walls in this section of the Noatak Wild River provide important nesting habitat for raptors. Finally, there is a relatively high density of brown bears around the confluence with the Kelly River.

Ecological Processes Values

Region of comparison: United States

RIVER-WIDE

The 330-mile Noatak Wild River begins in Gates of the Arctic National Park and flows unimpeded through Noatak National Preserve, draining the largest mountain-ringed river basin in the United States, nearly unaffected by human development and where natural ecological processes still thrive. The Wild River section comprises nearly three-fourths of the entire Noatak River and drains a massive interior plateau valley of about 12,600 square miles. The Noatak River watershed includes a wider diversity of ecosystems than any other drainage of comparable size in the Arctic region, stemming from the complex geology and variety of climatic and terrain conditions. Natural ecological processes such as the migration of caribou and fish, influx of marine nutrients near salmon spawning habitats, fire, broad swaths of uninterrupted and diverse habitat types, and carbon sequestration are sustained across the Noatak Wild River.

Migration in particular is an ecological process that sets the Noatak Wild River apart from other comparable rivers. The iconic migration of the Western Arctic caribou herd, the largest herd in Alaska, where caribou head north to their calving grounds in the early summer and south to their wintering grounds in the fall, has been occurring through the river corridor for thousands of years. Throughout the annual cycle, caribou utilize different ecological zones to meet the energetic and nutritional demands of persisting at such northern latitudes. The migration of chum salmon from the Noatak Wild River to the sea and returning up the Noatak Wild River to spawn in the tributaries is also significant: of the northern chum salmon populations, this is the largest one in northwest Alaska. These salmon bring an influx of marine nutrients into the freshwater system and attract many brown bears in the fall to the river corridor. Also key are Dolly Varden that spawn in Noatak Wild River tributaries, overwinter in the Noatak Wild River main stem, and migrate to the sea to forage, although they are more variable in their migration timing than chum salmon.



HEADWATERS SEGMENT

The Noatak Wild River headwaters cut through and are constrained by the steep Schwatka Mountains, leading to fast river flows. The upper Noatak Wild River is distinct from the rest of the Noatak River, with mostly alpine alkaline barrens on thin soil along the steep hillsides and dryas dwarf shrub tundras. A transition occurs near Lake Matcharak where the Noatak Wild River is no longer constrained, where the river basin widens and the river slows. In this area, a corresponding vegetation change occurs to dwarf shrub tussock tundra on more gentle slopes over permafrost. This is the eastern portion of the caribou migration range. From 12 Mile Slough to Pingo Lake, the width of the river drainage is noteworthy, a vast interconnected series of wetlands and lakes formed by geomorphic processes in the riparian zone.

NOATAK UPPER VALLEY SEGMENT

Below the Kavachurak Creek confluence, the Noatak Wild River basin is exceptional with respect to disturbances from wildfire, where tundra fire frequency and extent is higher than in other Arctic tundra regions of Alaska. Numerous fires have occurred here from prehistoric times to the present, many of which burned right up to the floodplain of the river. Fires are important in this ecosystem, as they combust insulative organic soils and contribute to permafrost thaw. This area of the Noatak Wild River is also at the core of the caribou migration area as well as for Dolly Varden to access their spawning areas.

NOATAK LOWER VALLEY SEGMENT

This Noatak Wild River segment passes from tundra into the tundra-boreal forest ecotonal zone. From the river, the first white spruce trees that can be seen while floating downstream are growing near their climatic limit. The scattered trees become denser downstream until forming a true forest on the floodplain. The Noatak Wild River and its tributaries, the Kelly River and the Kugururok River, are distinctive for the area in having a gradual forested transition in a lowland setting. On the north side of the river near the mouth of Akikukchiak Creek is one of Alaska's largest retrogressive thaw slumps, a common thermal erosion feature formed in terrain where permafrost is thawing. This Noatak Wild River segment is the western part of the caribou migration path, and this river segment is key for chum salmon to access their spawning tributaries. Dolly Varden not only use this segment to access their spawning tributaries but also overwinter here.



Cultural Values

Region of comparison: Northern Alaska

RIVER-WIDE

The Noatak Wild River runs through the ancestral homeland for the Iñupiat living on and near its banks, and it plays a central role in their spiritual connection to the land. Stretching hundreds of miles from west to east, the Iñupiaq social groups known as the Napaaqtuġmiut and Nuataaġmiut made their seasonal rounds along the river, traveling to inland hunting areas for caribou in particular during the summer and fall, as well as for moose and bear. The river was a rich conduit for maritime-related resources such as anadromous fish and spotted seals, in addition to providing transportation access to the coast of Kotzebue Sound. The Nuataaġmiut traveled from the headwaters in the Brooks Range to the coast each spring, journeying back in the fall, with dogs pulling and using a sail against the current. Many of the descendants of these groups now live in the village of Noatak, the only village on the river, and continue to rely on the river for travel, water, hunting, and fishing.

Archeological sites along the Noatak Wild River include some of the best-preserved in northern Alaska. Archeological studies have documented 11,000 years of human occupation in the region, with the oldest archeological artifacts found near the Noatak River dating to 7,000 years ago. These early people are referred to as “Northern Archaic” people and appear to have relied heavily on caribou. The Arctic Small Tool Tradition is seen around 4,200 years ago where maritime resources also started to dominate, and by around 1,600 years ago, the Northern Maritime tradition began, during which Native people subsisted on marine resources, caribou, and other large mammals.

HEADWATERS SEGMENT

The Noatak River has long been an important focus of human activity, as demonstrated by regionally and nationally significant archeological sites that date to at least 7,000 years ago. In the ethnohistory, the upper headwaters area of the Noatak Wild River was frequently visited by Iñupiat from the Lower Noatak and the Upper Kobuk River to harvest resources, with Midas Creek appearing to be the site of the most upriver village on the Noatak Wild River. This area was also known to have been home to the Gwich'in Athabaskan group known as the Uyaġaġmiut. While the area has only been cursorily surveyed, the river corridor in Gates of the Arctic National Park is known to contain at least thirty-three archeological sites. Most significant among them are a cluster of sites that include the Arctic Small Tool Tradition near Matcharak Lake. These sites were frozen shortly after their occupation between 3,500 and 7,000 years ago and contain exceptionally well-preserved organic materials (food remains and bone tools). Such preservation is unprecedented in northern Alaska and the insights derived from these data about ancient human behavior are highly significant.



NOATAK UPPER VALLEY SEGMENT

Twenty-five archeological sites have been discovered in this segment tied to two cultural periods/traditions. The sites include seven pre-contact to historic period villages and eighteen activity areas (such as hunting blinds, tool production sites, and temporary camps) that are likely associated with these villages. The name “Noatak” is derived from the Iñupiaq word “Nuataaq,” and archeological remains for the Nuataagmiut settlements show the key importance of caribou for their subsistence and cultural practices (much of which continues to this day for their descendants).

The year-round settlements or villages of the Nuataagmiut people (“the inland river people”) appear to have extended beyond both edges of this wild river segment, but the upper valley of the Noatak River was the central area for the Nuataagmiut settlements. Some of the locations of the seven known settlements are closely tied to locations where caribou are most likely to cross the Noatak River during their annual migratory path, and this pattern of hunting at river crossings is suggested as an ancient practice by archeological and oral history evidence (and is still known and used by modern hunters today). The traditional settlements in this segment include Ninjuqtuuq, Ninjuqtuuqtutuchiaq, Itimnigrauk, Nanigialik, Anisaagiaq, Maqpik, and Aniyaaq. As today’s hunters from the village of Noatak travel upriver in search of caribou and pass the sites of old settlements, many recall the names ascribed by their ancestors and stories passed down through generations.

NOATAK LOWER VALLEY SEGMENT

Forty-one archeological sites in this segment have been tied to at least three cultural periods/traditions. These sites include twelve ancestral settlements or villages and twenty-nine activity areas (such as hunting blinds, tool production sites, and temporary camps) that are likely associated with these villages. Three archeological sites from the 17th century located along the Noatak Wild River show the significance of caribou and coastal trade: one near the confluence of the Kangiguksuk Creek, another near the confluence of Maiyumerak Creek, and a camp south of Lake Narvakrak that have faunal remains and coastal resources dating to the last 4,000 years.

From the Kuguruk River to the Kelly River, the settlements of the Napaaqtagmiut (“people of the trees” or “people of the spruce”) appear to be more prevalent, although there were several archeological studies of Nuataagmiut settlements here as well. The Napaaqtagmiut used this part of the river primarily in fall and winter. Traditional settlements in this segment include Isaguqtugvik, Uliksigaun, Sisigaatchaiq, Akitquchiak, and Pauktugvik. Some traditional settlements are current day stops on subsistence boat trips for lunch or to camp.



Subsistence Values

Region of comparison: Northern Alaska

RIVER-WIDE

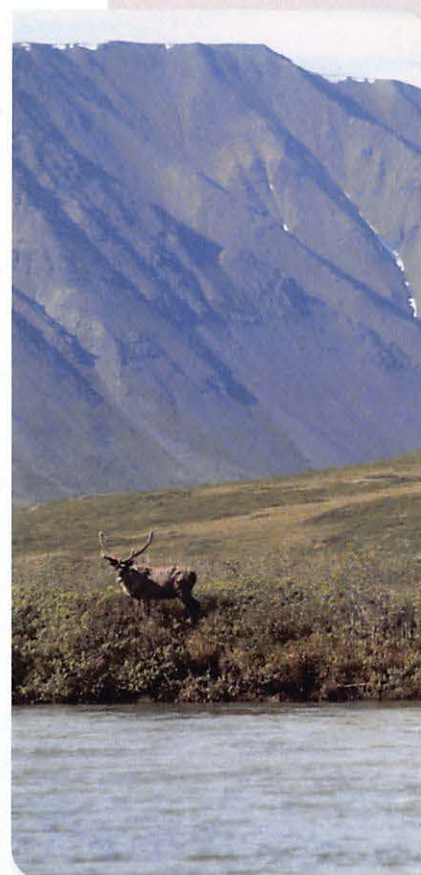
Hunting, fishing, and gathering in the Noatak River valley have sustained long-standing cultural practices and spiritual values for the Iñupiat of northwest Alaska. Additionally, subsistence provides food and nourishment. For many rural residents in northwest Alaska, harvesting from the land provides food security, as the cost of living is extremely high and access to goods can be unreliable, especially for groceries and fuel. The river is critical for continuation of this subsistence way of life.

Subsistence resources and opportunities for subsistence activities are outstanding and numerous for the Noatak Wild River. Species harvested include geese, ducks, ptarmigan, northern pike, lake trout, whitefish, burbot, Arctic ground squirrel, Arctic grayling, Alaska marmot, and snowshoe hare. The Noatak Wild River provides chum salmon and Dolly Varden to sustain the village of Noatak, the only village on the river, and the harvest is shared with neighboring communities. If not for the river, access to these resources during non-winter months would be limited to air travel and would be cost-prohibitive. The practice of traveling by boat in the summer and over the river ice in the winter is as ancient and enduring as the river itself.

The Western Arctic caribou herd is hunted along the river every fall and has been a critical subsistence resource for the past 13,000 years, as evidenced by archeological remains. The east-west 330-mile Noatak Wild River transects more than three-fourths of the herd's annual north-south migrations. Traditionally, caribou hunting camps were spread throughout the Noatak River basin as the people of the Noatak went where there were caribou. By the late 1950s and 1960s, caribou hunting had largely become a fall activity, with hunting methods focused particularly on camps where hunters could wait at traditional caribou crossing areas on or near the Noatak River, taking caribou from boats or from the shore.

The Noatak River is so rich with fishing opportunities for Dolly Varden that communities along the coast and up the neighboring Kobuk River know the fish as "Noatak Trout" that are prized in trading relationships. Along the Noatak Wild River, Dolly Varden spawn in at least fourteen tributaries from the Kelly River upstream to the Kugrak River, and critical overwintering habitat for Dolly Varden is found in the main-stem Noatak Wild River from the mouth of the Kuguruk River to farther downstream. The Noatak River as a whole is the largest and most reliable chum salmon run in northwest Alaska and is fished from the lower segment of the Wild and Scenic River to the mouth.

Year-round subsistence activities have occurred for thousands of years, as evidenced by archeological sites where use of the Noatak Wild River area in the spring, summer, fall, and winter can be seen. Whether flowing or frozen, for thousands of years the Noatak Wild River was regularly used as a harvest area and travel corridor for people in the Noatak basin.



HEADWATERS SEGMENT

In addition to caribou and Dolly Varden, Dall sheep are a prized source of meat known to be a key subsistence resource in this river segment, and the river has cut the steep slopes that provide important sheep habitat. Local subsistence hunters from nearby resident zone communities travel up the Noatak Wild River to hunt sheep along these steep slopes created by the river, especially when sheep are scarce in nearby mountain ranges. Archeological evidence for sheep hunting is present in a 5,500-year-old archeological site at Matcharak Lake, a valley-bottom camp from which people hunted sheep and caribou.

NOATAK UPPER VALLEY SEGMENT

This segment of the Noatak Wild River covers much of the Noatak River valley and is at the center of caribou migration for the river. This core area of migration is also reflected by the culturally significant sites near caribou river crossings where people traditionally moved between settlements based on where the caribou were migrating. The fall migration across the Noatak Wild River was and continues to be a key subsistence harvest opportunity for Noatak village residents. Boating past the Nimiuktuk is difficult due to shallow water and requires intimate knowledge of the channel. Hunters often float back to Noatak to reduce the cost of their hunting trip. Other rural residents from nearby communities also travel into the Noatak River Valley to harvest caribou in years of scarcity.

NOATAK LOWER VALLEY SEGMENT

This Wild River segment is the most accessible for subsistence activities, given its proximity to the village of Noatak and the subsistence camps that dot the river banks. This segment provides a variety of subsistence resources including chum salmon, Dolly Varden, and caribou. Not only does the Noatak River host the largest chum run in northwest Alaska, but Noatak River chum salmon tend to be larger and have a higher fat content than other western Alaskan chum salmon. Chum salmon migrate up the main-stem Noatak Wild River to spawn in areas as far upstream as the confluence of the Kugururok River in the fall. This Wild River segment hosts the highest number of Dolly Varden spawning tributaries and supports the eastern end of the Dolly Varden overwintering habitat in the main stem of the river. Through the winter and summer, Noatak residents visit fishing spots at the Kelly and Kugururok Rivers to catch and store Dolly Varden and other species of fish such as grayling and Arctic char. Additionally, caribou are a key subsistence resource from this segment. In a recent harvest survey estimate for the village of Noatak, hunters harvested sixty-six caribou resulting in around sixteen pounds per person. More than half of the caribou harvested by Noatak village residents were in the Noatak River drainage above Kelly River, a hunting area extending from the mouth of the Kelly River to the Qiruqtaġvik (Kaluktavik) River that includes the Pauktuġvik (Poktovik) Creek area. In addition to caribou, moose and bear are harvested here.



Geological Values

Region of comparison: Northern Alaska for bedrock, United States for glaciolacustrine sediments

RIVER-WIDE

The Noatak Wild River cuts through the Brooks Range orogen, a contractional mountain belt, made up of a stack of allochthons (thrust sheets). The headwaters cut through the oldest rocks in the range and those most deeply buried during the orogenic (mountain-building) episode. These rocks were heavily deformed during multiple tectonic events. As the Noatak Wild River flows to the north and west, the river exposes rocks that were not buried as deep that make up the allochthons higher in the stack of thrust sheets. Although once buried deeper, the allochthons of the southern belt were thrust over the younger and less deeply buried allochthons to the north and west. These allochthons have been traced hundreds of miles east and west along the Brooks Range. The rocks are primarily sedimentary and volcanic rocks that span hundreds of millions of years including the Mesozoic, Paleozoic, and Proterozoic. This cross-section of Brooks Range geology exposed and transected by the Noatak Wild River is an exemplary exposure of the rocks of the Brooks Range orogen.

Across the Noatak Wild River starting close to Douglas Creek down toward the Kelly River, glaciolacustrine deposits show clear evidence of proglacial lakes forming during the Pleistocene when glaciers would dam the Noatak River. The largest proglacial lake, referred to as Lake Noatak, covered about 1,400 square kilometers, filled the valley to a 450-meter altitude, and was likely one of the four largest Pleistocene proglacial lakes in Alaska. Today along Noatak Wild River, the stratified lake sediments of proglacial Lake Noatak and other proglacial lakes can be seen where the river bluff exposures occur within the boundaries of the ancient lakebed.



Scenic Values

Region of comparison: Brooks Range

RIVER-WIDE

The entire Noatak Wild River is outstanding for scenic value as it flows through some of the most diverse and spectacular scenery found in the Brooks Range. There are expansive views along the entire river as well as considerable seasonal variation: the starkness of winter, brilliant reds and yellows in the fall, and lush green summer vegetation. The low angle of the sun at certain times of day or night during several seasons adds a magical quality to the landscape. Aside from cabins and related structures on Native allotments (which exemplify the longstanding and important cultural connections that local people have with the land), the highly scenic river corridor is free from recent human development; roads, formal trails, signs, installations, and other such developments are not found in or visible from the river corridor. Wildlife enhance the scenic value as well; muskox, caribou, grizzly bear, and moose wade across the river while Arctic fox and wolves rove along the river banks. During winter, the aurora borealis may dance above in ribbons of pink, green, and purple without any artificial light to diminish this sight from the river.

HEADWATERS SEGMENT

The upper segment, from the headwaters downstream to Kavachurak Creek, is characterized by the glacially-carved peaks of the Endicott and Schwatka Mountains, which rise abruptly on either side of the river valley. From the river's headwaters to the area around Lake Matcharak, the peaks range from 5,000 to more than 8,000 feet in elevation, while the glacially carved valley averages only three miles across. Also visible along the upper reaches of the river is Mount Igikpak, a granitic intrusion and one of the highest peaks in the Brooks Range. Low-lying vegetative cover in a relatively broad glacial valley provides visitors with expansive views of the surrounding countryside. The bold, mountainous landforms in the background catch the eye, and the lines of the flowing tributaries draw the eye down to the points of confluence with the Noatak Wild River.

NOATAK UPPER VALLEY SEGMENT

The scenery shifts in this segment from a narrow, steep river valley to a much wider river basin. There is tremendous ecological variation in this segment. In addition to the scenic values that are common across all the river segments, the middle segment has the unique quality of flowing through expansive tundra with mountains far in the distance. In the foreground, the river becomes braided, shallow, and rocky, while views are dominated by an abundance of sky and land.

NOATAK LOWER VALLEY SEGMENT

The original 1973 recommendation for Wild and Scenic River designation calls out the "distinct change in scenery" as one floats the entire river as a factor in assigning a scenic ORV, as well as the interesting rock formations of Noatak Canyon in this segment. Here the river narrows and the water flows slightly faster between 100-foot-high walls. It is a place to be in awe of nature. The canyon area has clear blue-green water. The fast-running river is very deep here and turns sharply, zigzagging between the glacially formed canyon walls until it opens to a lush green clearing where spruce boreal forest gives way to sandy beaches and sandbars in the shallower areas. This is "big country"—standing here and turning in a full circle, a person can see tundra, boreal forest, mountainous terrain, sandy beaches, clear blue river, and canyon walls with raptors.





Recreation Values

Region of comparison: Northern Alaska

RIVER-WIDE

The whole of the Noatak Wild River can be described as having a recreational value. Recreationalists from around the United States and the world travel to the Noatak River basin for canoeing and other nonmotorized boating, hiking, fishing, hunting, and wildlife viewing. The Noatak, one of the longest designated Wild and Scenic Rivers in Alaska, is a popular river among floaters and the main stem of the Noatak is floated recreationally at all reaches. While some people float the entire river, various points along the river that are accessible to wheeled or float bush planes make it possible for most visitors to float shorter sections.

The primary recreational activity is river-running, while secondary recreational activities such as fishing, wildlife-viewing, exploring cultural and archeological resources, hiking, and enjoying scenery add recreational value to the river trip. A combination of factors makes the Noatak Wild River a rare and exemplary recreational experience. Low visitation corresponds with minimal restrictions on visitor use, which affords visitors a sense of freedom and spontaneity that is difficult to come by in the rest of the country. Recreational experiences along the Noatak are unusual in terms of their extreme solitude; users may encounter few or no other parties during their trip. Natural sounds and quiet persist except for an occasional aircraft. The scenery is extraordinary, there are no intrusive developments or infrastructure, and excellent visibility across the tundra vegetation makes for world-class wildlife viewing. At the same time, the Noatak Wild River is accessible from Kotzebue and is not a very technical river, which makes it accessible to users with a wide range of paddling skills.

While the river's Dolly Varden are intensively fished for subsistence purposes, they are less intensively fished for sport. The Noatak is, however, known for producing trophy-size char. People also enjoy fishing for chum salmon, Arctic grayling, round whitefish, humpback whitefish, pink salmon, coho salmon, slimy sculpin, lake trout, burbot, and northern pike. Sport hunting (as opposed to subsistence hunting) along the lower river segments is also an important recreational activity.

HEADWATERS SEGMENT

The upper segment of the Noatak Wild River has dramatic scenery and exemplary opportunities to view bears, Dall sheep, and other wildlife. Hiking along the river corridor is exceptional in this segment due to easier tundra walking, challenging slopes in close proximity to the river, and sweeping vistas. Some visitors also use the river to access a technical climb up Mount Igikpak, the highest peak in the Schwatka Mountains.

Starting a float trip from Tupik Creek or Lucky Six Creek, many visitors find the Noatak Wild River easily accessible from Bettles or Kotzebue. It is common for users to do a five- to seven-day trip on this upper segment of the river. Due to its remoteness, potentially harsh Arctic weather conditions, and wildlife, it can be a very challenging and rewarding trip for novice boaters.

NOATAK UPPER VALLEY SEGMENT

In addition to the recreation values that are common across all river segments, the middle segment has a number of put-in and take-out options. Fishing and hunting are more common on the lower segments than the upper portion of the river, and many river users enjoy fishing for their dinner, including Dolly Varden, chum salmon, and humpback whitefish. When wildlife resources are abundant, non-local hunters hunt within the river corridor and use the river to access hunting opportunities in this segment.

NOATAK LOWER VALLEY SEGMENT

In addition to the recreation values that are common across all river segments, the lower segment is especially known for its scenery through the “Grand Canyon” of the Noatak Wild River. It is also common to see local people practicing their way of life along the river. Local people have riverside camps that are used as a base for fishing and hunting caribou and moose. Fishing is a common secondary activity for floaters.





FREE-FLOWING CONDITION

The Noatak River is entirely free flowing from its headwater reaches to its mouth. The Noatak River is a large high-order river, originating from the east in the central Brooks Range and flowing to the west, where it drains into Kotzebue Sound and the Bering Sea. The Noatak Wild River has not been altered by any human infrastructure, such as dams, impoundments, levees, or any other structures that could impact the free-flowing condition of the river or its tributaries.

Like many Arctic rivers, snowmelt is the dominant hydrologic event of the year, with peak discharge normally occurring during this period in late May or early June. Based on US Geological Survey discharge records from 1965 to 1971 near the village of Noatak, peak discharge during snowmelt averaged 115,000 cubic feet per second (cfs). Discharge is lowest during winter, with flows declining below 300 cfs (for 1965 to 1971). During winter, there is considerable stream flow beneath the ice, suggesting that baseflow conditions are sustained by groundwater discharge to the river channel. Discharge after snowmelt and during summer months ranges from 9,000 to 47,000 cfs and reflects a mixture of groundwater discharge, glacial melt, and runoff from storms.

Despite the lack of direct human impact, climate change is altering conditions in the Noatak River basin. Warming air temperature, changing precipitation patterns, and shifting vegetation cover such as shrubification and treeline expansion can alter the water budget, impacting river flow. In headwater stream reaches, these processes are causing a decline in summer discharge. Permafrost thaw also can impact the magnitude, seasonality, and composition of river flow. One consequence of thaw is the increased contribution of groundwater discharge to river flow, as evidenced in the Yukon River basin to the south. This can lead to higher baseflow conditions and more sustained winter flow. In the Noatak River basin, there are also many thermokarst and thermal erosional features, which can cause increased suspended sediment loads in the river.





WATER QUALITY

The Noatak Wild River is pristine with respect to water quality, as evidenced by monitoring data collected by the NPS Arctic Inventory & Monitoring Network, from the main stem and its tributaries. In general, the Noatak Wild River has low dissolved organic carbon (DOC) concentrations, low inorganic nitrogen concentrations, and phosphate concentrations that are often below detection. These low carbon and nutrient concentrations function to limit primary productivity, resulting in low chlorophyll-a concentrations in the water column and minimal periphyton cover. Sub-catchments within the basin vary with respect to water quality parameters. Tributaries draining ice-rich terrain (such as the Cutler and Imelyak Rivers) tend to have higher DOC concentrations than tributaries (such as the Agashashok River) that drain ice-poor terrain with shallow bedrock.

Water quality parameters vary seasonally in the Noatak Wild River and its tributaries. During spring snowmelt, when discharge reaches its annual peak, organic constituents (DOC and organic nitrogen) have elevated concentrations due to flushing from the basin, whereas mineral concentrations are lower due to dilution. In general, organic constituents are lower during summer and winter baseflow, whereas mineral concentrations are higher.

Water quality in the Noatak Wild River may be sensitive to climate change and related disturbance. Recent work has shown that basin-scale permafrost thaw can actually cause cooling of streamwater temperatures due to deepening of groundwater flow paths. Permafrost thaw and thermal erosion can also increase deposition and transport of suspended sediments in river flow. Permafrost thaw can also alter inputs of carbon, nutrients, and metals such as mercury, which are all mobilized from soils to streams upon thaw. A number of tributaries of the Noatak River have recently turned orange, reflecting input of iron from soils to streams. This shift in stream color is associated with increasing acidity, reduced dissolved oxygen, and a loss of biodiversity. Another concern for water quality is the range of expansion of beavers from the boreal forest into tundra ecosystems. Beavers can have a profound effect on water quality, impacting physical, chemical, and biological parameters. For instance, beavers in the lower Noatak River appear to alter stream temperature, enhance methylmercury production, and promote overwintering habitat for resident fish species. There is also concern that beavers may cause the spread of giardia in Noatak River basin streams. More research is needed to better understand the consequences of climate change and related disturbances on the Noatak River.

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