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Final Report

**Water Resources Inventory and Assessment
Yukon Flats National Wildlife Refuge**

(Water Years 1993-1998)

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Final Report

WATER RESOURCES INVENTORY AND ASSESSMENT

YUKON FLATS NATIONAL WILDLIFE REFUGE

(Water Years 1993-1998)

Introduction

This report documents the accomplishments of a 5 year water resource inventory and assessment of the Yukon Flats National Wildlife Refuge. The data in this report are the final stream discharge data for water years 1993 through 1998. The stream discharge data are intended to assist resource managers in making management decisions. Data published in previous progress reports were labeled as preliminary and should have been used as such. Data published in this report are considered to be final. The final data are based on the best stage discharge relationship available.

The Yukon Flats National Wildlife Refuge became one of 16 national wildlife refuges in Alaska when Congress enacted the Alaska National Lands Conservation Act (ANILCA) P.L. 96-487, December 2, 1980. Section 302(9)(B) of ANILCA sets forth the purposes for which the Refuge was established including: maintaining the water quality and quantity to conserve fish and wildlife habitat in their natural diversity.

Congress enacted the National Wildlife Refuge System Improvement Act of 1997 (NWRSIA) P.L. 105-57, to provide a common mission for all 509 refuges in the 50 states. The mission of the System is to administer a national network of lands and waters for the conservation, management and restoration of fish, wildlife, and plant resources and their habitats. The NWRSIA states that administration of refuge lands will include maintaining adequate water quantity and water quality to meet the mission of the Refuge System and directs the Service to acquire, under state law, water rights needed to meet the purposes of the System and the Refuge as stated in ANILCA.

The Yukon Flats National Wildlife Refuge (Refuge) encompasses approximately 8,480,000 acres of Federal lands. Within the Refuge boundary, there are an additional 2,696,000 acres of private inholdings owned by six Native Village Corporations, Doyon Limited and numerous Native allotments. Extending 220 miles east-west along the Arctic Circle, the Refuge lies between the Brooks Range to the north and the White-Crazy Mountains to the south. The Trans-Alaska pipeline corridor runs along the Refuge's western boundary while the eastern boundary extends to within 30 miles of the Canadian border, Figure 1. The Yukon River bisects the Refuge creating the dominant terrain feature. Water as lakes, ponds, sloughs, and streams, is the dominant feature of the Refuge landscape.

Flooding and fire are the two primary physical forces creating the habitat for which the Refuge was established. As many as 40,000 lakes and ponds may occur on the Refuge, most are concentrated in the flood plain of the Yukon River and its tributaries (U.S. Fish and Wildlife Service 1987). The abundance of water in lakes, ponds and streams provide habitat for waterfowl from all four North American flyways. It is the waterfowl nesting and rearing habitat that are of national significance. The Yukon Flats basin is a segment of the continental waterfowl breeding grounds almost unequaled in extent and continuous high productivity.

Though the Refuge supports a varied population of mammals and fish, birds are important in maintaining the traditional subsistence lifestyle of local residents (U.S. Fish and Wildlife Service 1987).

The purpose of the water resource inventory and assessment is to provide specific water supply data required to meet the objectives and administrative requirements of ANILCA and NWRSIA.

Existing Water Resource Data

The U.S. Geological Survey (USGS 1994, USGS 1995, USGS 1996, USGS 1997, USGS 1998, USGS 1999) began collecting stream discharge data for the Yukon River as early as 1911, Table 1. However, most of the discharge data collection within the Yukon basin has taken place within the past 30 years. Long-term databases (20 years or more) exist for the Yukon River at Eagle, the Porcupine River at Old Crow, Canada, and at the international boundary of Canada and the United States. More than 10 years of stream discharge data exist at three (3) other stream gaging stations: the Yukon River, the Porcupine River, and the Chandalar River, see Table 1. In addition, water quality data exist at several gaging stations within the Yukon Flats basin.

The Bureau of Land Management (BLM) operates two crest stage gages and one automated water-level recorder stream gaging station within the Beaver Creek watershed above the Refuge boundary (Kostohrys and Sterin 1994), see Table 1. The automated stream gaging station is located above the Victoria Creek confluence near the Refuge boundary and has been operational from June to mid-September each year since 1988. The two crest gages measure the peak stage that occurs between field visits. The BLM operates three automated stream gaging stations on Birch Creek within the Steese National Conservation Area South Unit. These gaging stations were installed in the fall of 1989 (Kostohrys and Sterin 1996). The Birch Creek hydrologic data was incorporated with resource values for determining and recommending instream flows (Sterin et al. 1998). The BLM performed a reconnaissance level aquatic resource investigation on the Salmon Fork from the international boundary to Kevinjek Creek. The Salmon Fork flows on to the Refuge at this point. The reconnaissance investigation included fishery, hydrologic and water quality data collection (Kostohrys et al. 1991).

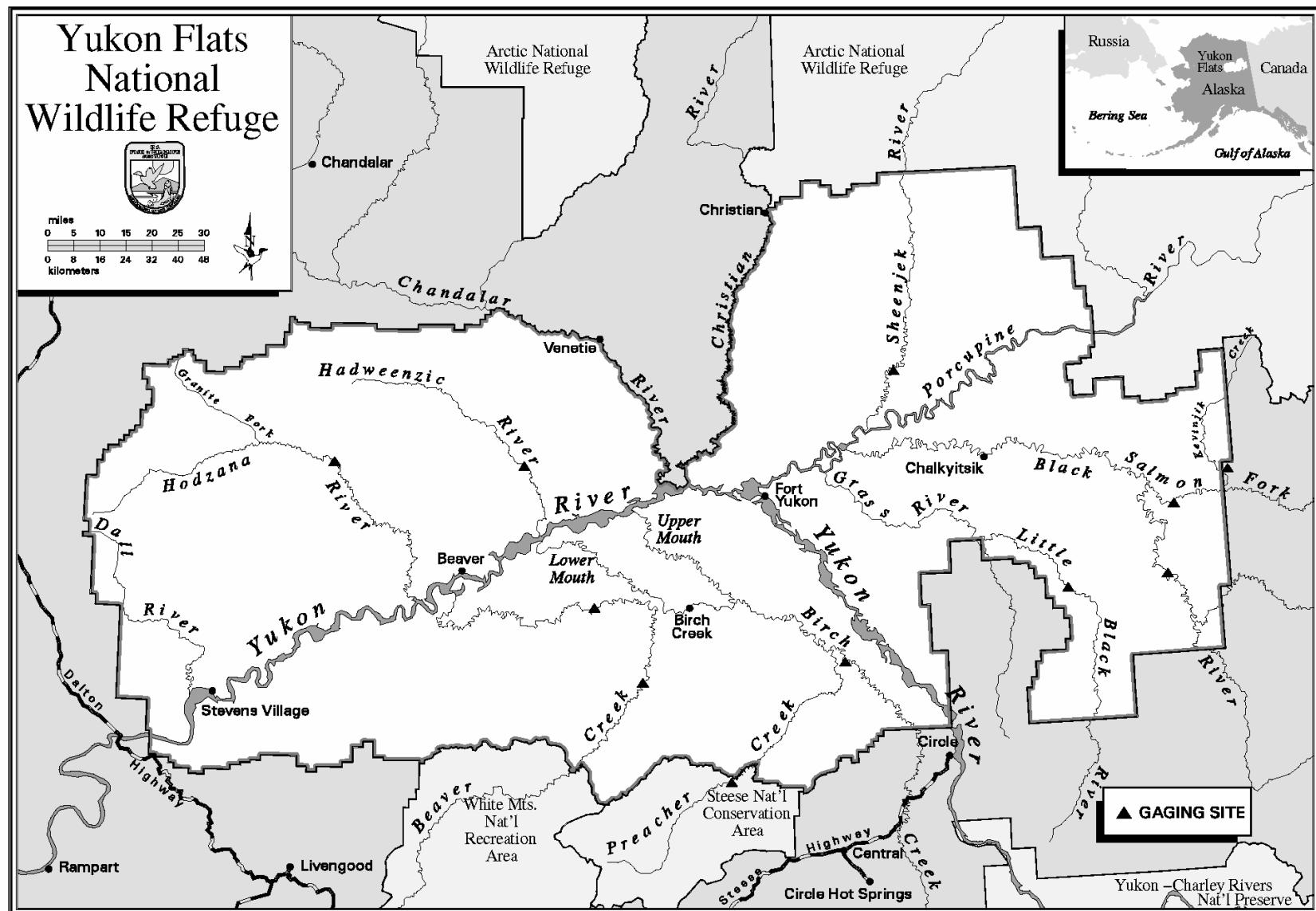


Figure 1.-The Yukon Flats National Wildlife Refuge with USFWS stream gaging stations.

The Alaska Department of Natural Resources (ADNR), Division of Water, maintains five seasonal discharge gaging stations on Birch Creek and its tributaries above the Refuge boundary, see Table 1. The ADNR collected water quality samples for all Birch Creek tributaries during August 1984. Sixteen water quality parameters were analyzed (basic nutrients and toxic metals) (Mack and Moorman 1986). The ADNR performed a reconnaissance level hydrologic investigation of the Sheenjek River and its major tributaries in August 1984 and May 1985. This report provides basic flow and water quality characteristics of the Sheenjek River (Maurer 1997).

With more than 40,000 lakes, and innumerable ponds and sloughs, the existing database is limited. Limnological studies have been conducted on several lakes and lake/wetland complexes. Although the data sets cover only a small fraction of the lakes and wetlands, they do cover the different types of wetlands, water quality, limnological characteristics, and the relationship of habitat to aquatic birds (Heglund 1992, Heglund 1988, Clautice and Mowatt 1981, and Likens and Johnson 1968). Global Positioning Services Inc., (1996) under contract with the Service conducted a survey to measure the true water surface elevation and true elevation of the outer perimeter of the wet meadow zone on 59 lakes on the Refuge. The surveyed lakes were located south of the Yukon River in the vicinity of the Lower Mouth of Birch Creek, Beaver Creek and near the confluence of Preacher Creek and Birch Creek. Bayha and Wolfe (1999) summarized biological data collected in conjunction with the GPS Inc., lake elevation survey, other studies in the Yukon Flats Basin and from available literature.

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. The water is generally classified as calcium-bicarbonate type. The one notable exception is Birch Creek. Mining activities in the headwaters of Birch Creek (off Refuge) have resulted in significant water quality deterioration (sediment load and toxic metals) which is evident on the Refuge (U.S. Fish and Wildlife Service 1990).

Climate

The climate of the Yukon Flats basin is characterized as subarctic. The Yukon Flats basin experiences temperature and daylight extremes. Temperatures in Fort Yukon range from a summer high of 97°F to a winter low of -71°F (Leslie 1989). Warm summer temperatures are augmented by essentially continuous sunlight, while extreme winter cold temperatures are prolonged by long hours of darkness. Freeze-up of rivers, lakes and ponds usually begins in late September and continues through mid-May. Extensive flooding of lowland areas, due to ice damning frequently occurs during breakup. Flooding is the primary water source for many of the lakes in the Refuge.

Precipitation in the Yukon Flats basin is relatively low, averaging near 6.5 inches per year at Fort Yukon. The National Weather Service (NOAA), publish monthly climatological data for stations

Table 1.-Existing stream water data within and near the Yukon Flats National Wildlife Refuge, Alaska.

Watershed	Tributary To	Record Type	Dates	Agency
Beaver Creek above Nome Creek	Yukon River	Crest Gage	1989-Pres.	BLM
Beaver Creek Below Wickersham Creek	Yukon River	Crest Gage	1989-Pres.	BLM
Beaver Creek above Victoria Creek	Yukon River	Seasonal Discharge	1988-Pres.	BLM
Bear Creek	Birch Creek	Seasonal Discharge	1991-Pres.	ADNR
Birch Creek at Steese Highway Bridge	Yukon River	Seasonal Discharge Water Quality (sediment)	1985-Pres. 1985-Pres.	ADNR ADNR
Birch Creek above Twelvemile Creek	Yukon River	Seasonal Discharge	1986-Pres.	ADNR
Chandalar River near Venetie	Yukon River	Continuous Discharge Crest Gage Water Quality (chemical) Water Quality (sediment)	1963-73 1974 1966-70, 72 1967-73	USGS USGS USGS USGS
Deadwood Creek	Crooked/Birch Creek	Seasonal Discharge Water Quality (sediment)	1986-Pres. 1990-Pres.	ADNR ADNR

Table 1.-Continued

Watershed	Tributary To	Record Type	Dates	Agency
Porcupine River at Old Crow, Canada	Yukon River	Continuous Discharge	1961-66 1968-89	USGS
Porcupine River near International Boundary, Canada	Yukon River	Continuous Discharge	1961-66 1968-Pres.	USGS
Porcupine River near Fort Yukon	Yukon River	Continuous Discharge Water Quality (chemical) Water Quality (sediment)	1964-79 1966-70, 1974-75, 1978 1967-72	USGS USGS USGS
Yukon River at Eagle		Continuous Discharge Water Quality (chemical) Water Quality (temperature) Water Quality (sediment) Water Quality (biological)	1911-13, 1950-Pres. 1950-53, 1962-64, 1967-71, 74, 76, 1978-79 1951-52, 1962-63, 1965-66 1954-56, 1962-66, 1967-74, 1978-79 1978-79	USGS USGS USGS USGS USGS
Yukon River near Stevens Village		Continuous Discharge Water Quality (chemical) Water Quality (biological)	1976-Pres. 1970-72 1970-71	USGS USGS USGS

throughout Alaska. Table 2 lists the climatological data stations within the Yukon Flats basin. Note that most of the stations have been discontinued. The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS, formerly the Soil Conservation Service), has telemetry equipped precipitation and temperature measuring devices at Fort Yukon. In addition, the NRCS collects snow depth and snow-water content data for Alaska. These data are used to predict spring breakup flows and potential flood events.

The Alaska Fire Service, Bureau of Land Management operates 15 Remote Automated Weather Stations (RAWS) in the Upper Yukon Zone. Most of these stations were initiated in 1990. They are actively maintained during the fire season with minimal maintenance during the fall, winter and spring. Data from the RAWS stations provide valuable information and confirmation with regard to location, duration and intensity of rainfall events. Current RAWS data is available from the BLM Alaska Fire Service web page (<http://fire.ak.blm.gov>). RAWS data is in an hourly format. There is no annual publication or summary of this data. Historical RAWS data can be obtained from the Western Regional Climatic Center, Reno, Nevada.

Methods

The Water Resources Branch initiated a stream gaging network on the Yukon Flats National Wildlife Refuge in 1993. Stream gaging stations were installed at eight locations: (Upper) Beaver Creek, Black River, Hadweenzic River, Hodzanna River, Little Black River, Preacher Creek, Salmon Fork, and the Sheenjek River. In 1994, three additional stream gaging stations were installed: Birch Creek, (Lower) Beaver Creek, and Kevinjek Creek. In 1995, all 11 of the stream gaging stations were in operation. Table 3 contains the location of each stream gaging station. Figure 1 is a map of the Yukon Flats National Wildlife Refuge with the stream gaging stations.

Stream gaging stations were installed by driving a sandpoint well tip and 1¼" steel pipe through the streambank and into the substrate. A submersible pressure transducer was then lowered down into the steel pipe and well tip. The pressure transducer was than wired to a field recorder and power source located in a weather resistant canister mounted to a tree.

Stage measurements were recorded at 15 minute intervals. At the end of each 24-hour period, two reports were written. Report one included date, time, and the 15 minute stage measurement. Report two was a summary of the day and included: date, daily average stage, maximum daily stage, time of the maximum stage, minimum daily stage, time of the minimum stage, and battery voltage. Data from the field recorder was later downloaded onto a computer and entered into a database.

Stream discharge was measured periodically at each stream gaging station to correlate stream discharge to stage (water depth). Stream discharge was measured using a Price AA or Pygmy current meter and a top setting wading rod. Standard discharge procedures as outlined in

Table 2.-Climatological data within the Yukon Flats basin.

Station	Period of Record	Elevation (msl)	Data Type*	Agency**
Big Fish Lake	1967-Pres.	1790	S	SCS
Black River	1965-86	650	S	SCS
Bull Lake	1967-73	810	S	SCS
Central	1947-54	870	P&T	NOAA
Central 2	1962-80	1000	P&T	NOAA
Chalkytsik	1962-72	560	P&T	NOAA
Chandalar Lake	1968-Pres. 1964-Pres.	1900 2040	P&T S	NOAA SCS
Circle Hot Springs	1935-74 1975-Pres.	940 860	P&T S	NOAA SCS
Circle City	1957-Pres. 1965-Pres.	700 600	P&T S	NOAA SCS
Coleen River	1962-68 1965-86	1120 1100	P&T S	NOAA SCS
Dempsey Creek	1969-78	950	S	SCS
Fort Yukon	1922-33 1935-87 1964-Pres.	443 430	P&T S	NOAA SCS
Squaw Lake	1967-Pres.	2150	S	SCS
Venetie	1962-66 1964-Pres.	620 610	P&T S	NOAA SCS
Vundik Lake	1967-79	950	S	SCS

* P = precipitation, T = temperature, S = snow course

** NOAA = National Oceanic and Atmospheric Administration, SCS = Soil Conservation Service (now known as Natural Resources Conservation Service)

Table 3.-U.S. Fish and Wildlife stream gaging station locations, Yukon Flats National Wildlife Refuge, Alaska.

Watershed	Township and Range Fairbanks Meridian	Latitude Longitude
Beaver Creek, Upper	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.14N., R.8E.	N 66°03.28' W 146°08.61'
Beaver Creek, Lower	SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.31, T.17N., R.6E.	N 66°15.44' W 146°30.88'
Birch Creek	NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R14E.	N 66°05.98' W 144°44.85'
Black River	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E.	N 66°18.20' W 142°29.22'
Kevinjik Creek	NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R6E.	N 66°32.27' W 142°01.64'
Little Black River	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T17N., R.22E.	N 66°16.71' W 143°10.91'
Hadweenzic River	SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7., T.21N.,R.4E.	N 66°39.80' W 146°57.30'
Hodzanna River	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R3W.	N 66°38.71' W 148°15.58'
Preacher Creek	SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E.	N 65°46.45' W 145°32.81'
Salmon Fork (Black River)	S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.4, T.19N., R.25E.	N 66°29.93' W 142°24.52'
Sheenjek River	S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E.	N 66°54.62' W 144°19.91'

Buchanan and Sommers (1969), and Lyons (1988), were followed. Reference bench marks and water surface elevations were surveyed at the time discharge measurements were taken.

Stage and discharge measurements were plotted. Correlation between stage and discharge was established. The correlation between stage and discharge was used to create a rating for each station. The rating was applied to each 15 minute stage reading to produce 15 minute discharge data. The 15 minute discharge data were averaged for each day to get the mean daily discharge. As channel geometry shifted over time new ratings were created and applied. The stage discharge correlation was only valid during the open water season. As ice begins to form along the river banks and in the stilling well, the ice causes an inverse relationship and the summer rating is no longer valid. Starting at the time of ice formation, daily discharge must be estimated. Discharge measurements were made in early winter and late winter before breakup. The winter discharge measurements for all years of record are plotted and a curve is drawn through the points. The curve is then used to estimate the mean daily discharge for the winter months. The estimates are adjusted for a given year to account for wet and dry year cycles. This method is considered reliable because base flow normally dominates throughout this time of year as new precipitation inputs are stored as snow and ice.

Site Description

Beaver Creek, (Upper): The local name published in 1867 was the "Nocotocargut" meaning the mouth of the Nokot (Orth 1971). Beaver Creek begins at the confluence of Bear and Champion Creeks in the White Mountains and flows 303 miles to its confluence with the Yukon River. The upper 127 river miles of Beaver Creek are designated as a Wild River, most of which are on BLM lands. The Service stream gaging station is located approximately 20 miles downstream from the confluence of Victoria Creek and is still in the foothills of the White Mountains. The substrate ranges from large cobbles to sand and silt. Gravel bars are common with willows and large woody debris present.

Beaver Creek, (Lower): The Lower Beaver Creek gage is located out on the flats. Beaver Creek at this point has slowed. There are few mud bars exposed at low flows. River banks are steep, muddy, and 20-30 ft. high. Substrate range from small gravels to silt. Vegetation along the river changes from willows on the lower bank to alder, spruce, aspen and birch on the upper bank. Once Beaver Creek enters the flats the river begins to meander, with large U-bends and oxbow lakes and sloughs are common.

Birch Creek: Named by the traders of the Hudson Bay Company at Fort Yukon in the mid-1800s. Its' Indian name was reported to be "Tohwun-nukakat" (Orth 1971). Birch Creek is a designated Wild and Scenic River for the portion of the river south of the Steese Highway. This river segment lies within the BLM administered Steese National Conservation Area. The description of the river segment and resource values are included in the draft Resource Values and Instream Flow Recommendations (Whittaker et al. unpublished). Birch Creek crosses Native lands before entering the Refuge. Birch Creek has been affected by mining activities upstream of the Refuge. Water quality and quantity are a concern for the Refuge and the Village of Birch Creek. The Service stream gage is located on the flats. There are few sand and mud bars and only at low

water. The substrate is generally sand and silt. The banks are 6-8 ft high. At this point the river is meandering on the flats and oxbow lakes and sloughs are common. Birch Creek divides into two distributaries (Upper and Lower Mouths) before reaching the Village of Birch Creek. The Village of Birch Creek is located on the Lower Mouth.

Black River: A tributary to the Porcupine River. The Black River, is the largest watershed in the southeast quarter of the Refuge. Its tributaries originate on State lands and lands belonging to Canada. The Service stream gaging station on the Black River is located near Tommy Lake. The river at this point has the appearance of a canal. Stream banks are steep and 30-35 ft high. The substrate is generally sand and silt. The water has a dark tannin color.

Kevinjik Creek: A tributary to the Salmon Fork of the Black River. Kevinjik Creek is a small creek with gravel and sand substrate. Sand bars are present but infrequent at low water. River banks are 5-10 ft. high, muddy and lined with willows. It is reported that this tributary is an important spawning area for Chum salmon (Daum personal comm).

Little Black River: The Little Black River begins off Refuge on State lands. The lower end of this drainage is complex. Just below its confluence with Big Creek, the Little Black River splits creating two distributaries, the Grass and Sucker Rivers. The Little Black River no longer exists at this point. The distributaries, the Sucker River and the Grass River flow west then northwest to the Porcupine River. The substrate at the gaging station varies from small gravel to silt. Gravel bars are present at low flows. River banks are steep and 15 to 20 ft. high.

Hadweenzic River: The Indian name, as reported by Archdeacon Hudson Stuck in 1907, was "Orenzik" (Orth 1971). The Hadweenzic River is a tributary to the Yukon River. Its headwaters are in the Endicott Mountains in the central Brooks Range. The entire watershed is located within the Refuge boundary. The substrate near the gage ranges from large cobbles to silt and gravel and sand bars are common.

Hodzana River: Indian name "Hosiana" meaning "He Beaver" was published on Edwards Track Chart of the Yukon (Orth 1971). The headwaters of the Hodzana River are located in the Endicott Mountains of the central Brooks Range. The headwaters all lie within the Refuge Boundary, while the mouth of the Hodzana River lies on Native lands. The Hodzana stream gaging station is located just below the Narrows. The substrate ranges from large cobbles to sand. Large gravel and sand bars are common.

Preacher Creek: Named for Robert McDonald, Church of England missionary, Fort Yukon. McDonald reported to have made the first discovery of gold in this area. Later prospectors named the creek in honor of the clergyman (Orth 1971). The headwaters of Preacher Creek are in the Crazy Mountains within the BLM-administered Steese Conservation Area. Preacher Creek flows north out of the mountains, onto the Refuge and is a tributary to Birch Creek. The Service stream gaging station is located off Refuge lands on BLM-administered lands. The substrate varies from cobbles to sand, with bedrock outcrops visible in some locations. Gravel bars are common.

Salmon Fork (of the Black River): The Salmon Fork is a tributary to the Black River. The characteristics of the Salmon Fork are quite different from those of the Black River. The Salmon Fork, with its clear water, gravel bars and low river banks, extend upstream off Refuge lands onto State lands and then continue into Canada.

Sheenjek River: The name "Sheenjek" was first published in 1895. J.H. Turner with USC&GS called it the Salmon River in 1889. The river is presently called the Sheenjek River, but is called the Salmon River in some literature (Orth 1971). Except for a small segment of river located near the mouth, the entire watershed lies within the boundaries of the Arctic and Yukon Flats National Wildlife Refuges. The Sheenjek River headwaters are in the Brooks Range and flows south approximately 270 miles before entering the Porcupine River. Substrate ranges from small cobbles to silt. Gravel and sand bars are present along this section of the river. The river banks are 5 to 10 ft high, muddy and steep.

Results

This report contains the final stream discharge data from 11 stream gaging stations located on or near the Yukon Flats National Wildlife Refuge. This was a 5 year study. Stream gaging stations were installed in the summers of 1993 and 1994 and operated through September 30, 1998. Appendix 1 contains the final stream discharge data for each stream gaging station for all years of record, a plot of the average discharge for all years of record, and a plot of the individual years average daily discharge for May through September.

Water Year 1993

Stream gaging stations were installed on the Black River, Little Black River, Preacher Creek, and Salmon Fork in June of 1993. Due to frozen ground, installation was delayed until July on the Hadweenzic River, Hodzana River, and Sheenjek River. June and July were hot with little thunderstorm activity. Water levels were generally low throughout the summer with the exception of two high flow events, one in late June and the second in mid September. Discharge measurements were made several times at each station. Stilling wells were installed on Beaver Creek and Birch Creek in September, but not instrumented until the spring of 1994. Pressure transducers were removed from all gaging stations in early October 1993 to avoid freezing.

Water Year 1994

April 1994, pressure transducers were reinstalled on the Salmon Fork, Sheenjek River and Hodzana River. Pressure transducers were installed for the first time on Birch Creek and Upper Beaver Creek. Reinstallation of transducers was delayed until June on the Black River, Hadweenzic River, Preacher Creek, and Little Black River due to ice conditions in the well. Two new stations were installed in July 1994, Lower Beaver Creek and Kevinjek Creek. Stream discharge was measured several times at each station. The hydrologic highlight for WY1994 was a flood event in late June. This event was wide spread and was at or near the peak event for the period of record for several stations. Data is missing from the Little Black River July 28 through September 25, 1994. This is the result of field recorder failure. No estimates were made for these missing data points. The Hadweenzic River has two periods of estimated data, September 12-23 and September 29 and 30. Estimates were required because of insufficient data storage space and field recorder failure. The Hodzana gaging station experienced multiple field recorder failures resulting in data being estimated for June 7 through July 25, 1994. Data was estimated for the high flow event on the Salmon Fork June 20 through June 24, 1994.

Water Year 1995

Stream gaging stations were operated at all 11 sites in 1995. Ice damaged the well at the Upper Beaver Creek site. It was reinstalled on June 29, 1995. Data was estimated for the period of June 1 through June 28 at this site. Bears destroyed the Birch Creek gaging station multiple times. Except for actual discharge measurements there are no data reported from the Birch Creek site for May, June, August or September. Field recorder failure resulted in estimated data being reported for Kevinjek Creek June 16 and 17, and missing data September 3 through 7. Field recorder failure also resulted in estimated data on the Salmon Fork August 13 through September 30. High flows on Preacher Creek June 27, August 14 through 16 , and August 30 through September 4 exceeded the rating and have been estimated.

Water Year 1996

Stream gaging stations were operated at all 11 sites in 1996. Field recorder failure after the April visit resulted in data being estimated on the Hodzana River May 26 through June 5; Kevinjek Creek June 1 through June 7, and July 10 through 13; Salmon Fork June 1 through July 10; and missing data on the Sheenjek River May 24 through June 8. Field recorders and pressure transducers were replaced at all gaging stations in early July 1996. The Salmon Fork gaging station was damaged on August 25 and repaired on September 6, 1996. Data was estimated for this time period. Water levels were generally low throughout the open water season.

Water Year 1997

Stream gaging stations were operated at all 11 sites in 1997. Highlights for the 1997 water year were high water events in early May and extensive flooding on Kevinjek Creek and Salmon Fork June 17-19. The RAWS station located in the Salmon Trout drainage reported 3.83 inches of rain June 13-15, 1997. Discharge was generally higher than normal with multiple peaks throughout the summer. Erratic stage reading at the Hodzana site resulted in estimated data June 18 through 30. The pressure transducer was replaced. Data was estimated on the Little Black River May 2 through 7. The Salmon Fork gaging station was inundated during the flood on June 21. The boat used to access the site was temporarily lost. The gage could not be replaced until August 18. The flood event on Kevinjek Creek and Sheenjek River in mid June exceeded their ratings. No estimates of these flood flows are available.

Water Year 1998

All 11 gaging stations were operated in 1998. A series of erratic pressure transducers resulted in significant data loss at the Upper Beaver Creek site. The Salmon Fork site was damaged by wildlife, there is no data reported June 1 through September 30. The Sheenjek River flooded on June 13 and 14. No estimate was made for these flood events. The rating table for Preacher Creek was exceeded on four events: June 1, June 17, July 2 through 3, and August 14. Discharge was estimated for these points. Water year 1998 was generally a wet year. There were several storm events throughout the summer as can be seen in the discharge record.

Discussion

The stream discharge data in this report were part of a 5 year planned water resource investigation. Gaging stations were installed in the summers of 1993 and 1994 and operated through the end of water year 1998. The network of stream gaging stations were installed to provide the Refuge with the water resource data required to meet the objectives and administrative requirements of ANILCA and NWRSIA. The data presented in this report are based on the best stage-discharge correlation available. Previous reports contained preliminary data based on a limited number of points to establish the correlation and the rating was applied to the average daily stage. All previous data were labeled preliminary and should be discarded. The final data are based on the 15 minute stage data and provide a more accurate estimate of the actual discharge.

A typical water year for a river in interior Alaska starts in October with water levels dropping fairly quick as air temperature decreases, ice begins to form in the rivers, and precipitation is in the form of snow. By late October most rivers are frozen over and discharge continues to decrease. Throughout the winter ice thickness increases and flow decreases. Rivers generally reach their base flows in February, March, and April. Many small rivers or portions of rivers may freeze to substrate. Ice thickness can vary significantly due to overflow, variations in snowfall and antecedent moisture conditions. April brings longer days and warmer temperatures and the start of breakup. Breakup is characterized by rising stages and discharge from snow melt

and extensive ice flows. Breakups vary significantly from year to year and location to location. Depending on ice flow conditions breakup can be mild or cause extensive flooding. By late May the ice is gone and discharge is decreasing. June, July and early August are generally the low flow months with higher flows caused by thunderstorms. Interior Alaska experiences intense, short duration thunderstorms during the summer months of June and July. These thunderstorms are localized and often cause high water or flooding in localized areas. Lightening strikes leading to forest fires are often associated with these storms. August is still warm, but the thunderstorm activity decreases significantly. Rain events later in the year are generally associated with fronts. These large weather systems affect large portions of the region. September brings cooler temperatures and a steady decrease in discharge.

Logistics, climate, wildlife, and remoteness all make stream gaging in interior Alaska challenging. There are several data gaps for which no estimates were made. Stage readings from the pressure transducers under ice are not valid. Therefore data were estimated from freeze up through break up. There were an excessive number of field recorder failures the spring of 1996. All field recorders and pressure transducers were replaced in July 1996. Estimates of peak flows were made when possible, but there are several events in which no estimates were made. There are a number of estimated or missing data points resulting from damage to gaging stations from wildlife, flooding, or ice flows. All estimated data is considered to be poor.

The stream gaging stations (Yukon River at Stevens Village , and the Porcupine River) operated by the U.S. Geological Survey in the Yukon Flats Basin are located on large rivers with drainage areas that extend well beyond the Yukon Flats Basin. Due to the extent of these larger rivers it is difficult to use them as comparable drainages. The USGS operates several gaging stations in the Fairbanks area with comparable drainage areas and long periods of record. The Salcha River gaging station is located 2 mi. upstream from the mouth near the Richardson Highway. Although this gaging station is a considerable distance from the stream gaging stations in the Yukon Flats, its relatively long period record (47 years) does provide general information with respect to wet and dry years for streams of interior Alaska, but does not allow for a direct comparison of the gaging stations in the Yukon Flats. For 1995, the Salcha River was approximately 15 percent above its long-term average annual discharge, while 1993 and 1994 were within 3 percent of the long-term average annual discharge. Water years 1996, 1997, and 1998 were significantly below the long-term average annual discharge. The mean annual discharge for water years 1994 through 1998 was 16 percent below the long term mean annual discharge (1949-1998). The mean annual discharge for water years 1994 through 1998 at the USGS Chena River gaging station at two rivers was 11 percent below its' long term mean annual discharge (1968-1998). The USGS Yukon River gaging station at Stevens Village was five percent below the long term mean annual discharge (1977-1998) for the same five year period (USGS 1993, USGS 1994, USGS 1995, USGS 1996, USGS 1997, USGS 1998).

The RAWS data was used on several instances to confirm peak discharge events The RAWS stations are well distributed across the Yukon Flats and are valuable in confirming local thunderstorm events. The RAWS data is of short duration and does not provide long-term climatic information.

NOAA data does provide a large scale, long-term climatic picture of interior Alaska. NOAA stations are generally located in villages or areas with access. Due to their location they do not provide information specific to the smaller drainage.

Flooding and fire are the two primary physical forces responsible for creating the habitat for which the Refuge was established. Flooding on the Refuge can be extensive at times, but unpredictable in time and location. Ice damning, snowmelt, and localized heavy rains are responsible for most of the high water and overbank events. Measurement and quantification of overbank events are infrequent and extremely difficult to measure. These events are critical to the habitats of the Refuge and need to be considered with respect to management objectives. Figure 2 is an annual hydrograph for the summer months (1993-98) at the Black River stream gaging station and highlights the variations that exist between individual years of discharge and the average discharge.

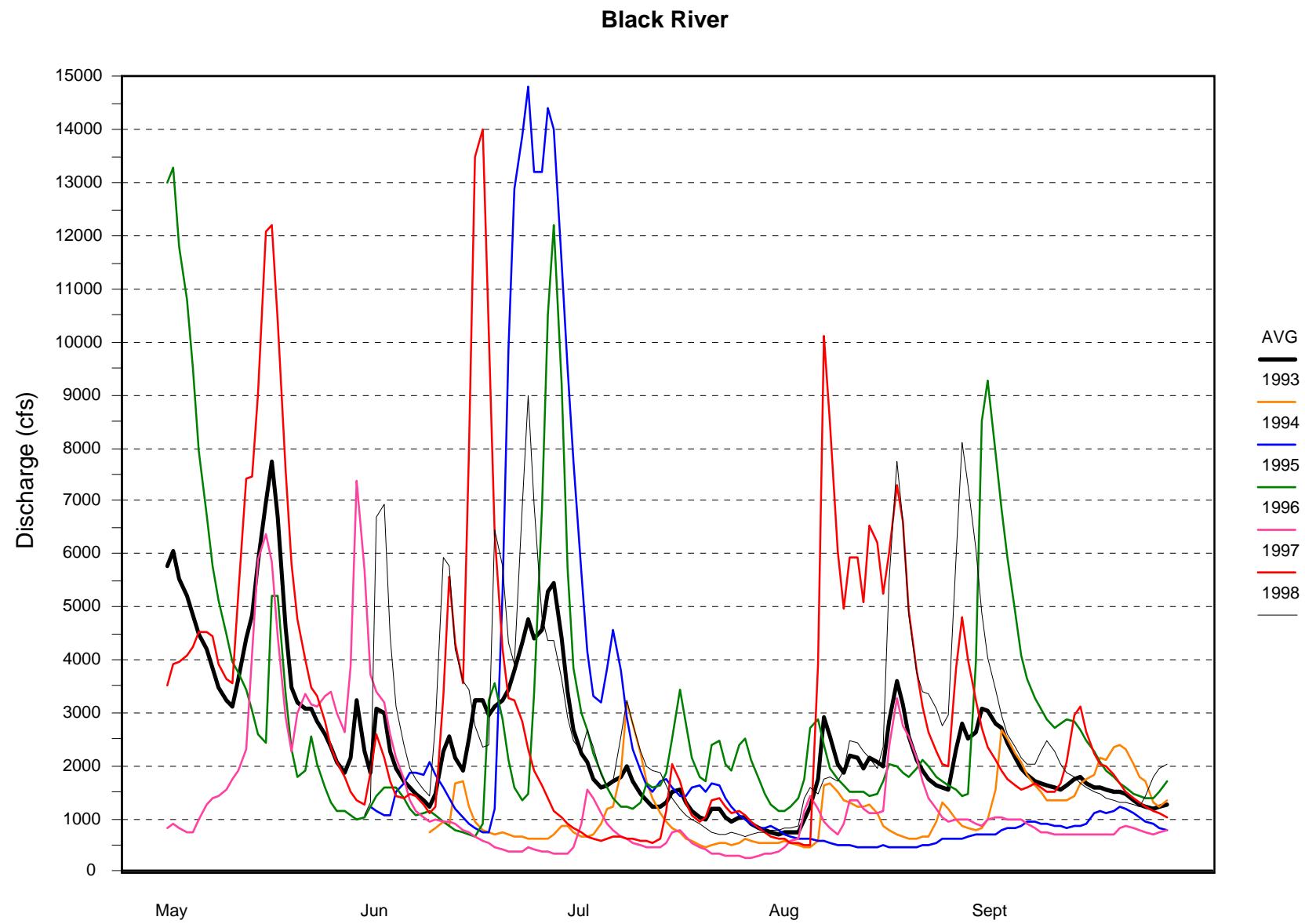


Figure 2.- Annual and average hydrographs for the Black River (1993-1998), Yukon Flats National Wildlife Refuge, Alaska.

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Appendix A

Surface Water Discharge Records 1993-1998

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Lower

LOCATION.-Lat N 66°15.44', Long W 146°30.88', in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec., T.20N., R.27E., Fairbanks Meridian.
DRAINAGE AREA.-2317 mi².

PERIOD OF RECORD.-July 1, 1994 thru Sept. 30, 1994.

REMARKS.-This gaging station was initiated on July 26, 1994. Data prior to July 26 was estimated based on data from the Upper Beaver Creek gaging station. Extremes for the current water year and the period of record are based on estimated data.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 4,6000 cfs, July 1, 1994; Minimum Discharge, 800 cfs, Sept. 30, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 4,6000 cfs, July 1, 1994; Minimum Discharge, 800 cfs, Sept. 30, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	4,600e	1,480	2,730	
2	-----	-----	-----	-----	-----	-----	-----	-----	3,900e	1,450	2,540	
3	-----	-----	-----	-----	-----	-----	-----	-----	3,300e	1,390	2,400	
4	-----	-----	-----	-----	-----	-----	-----	-----	3,000e	1,350	2,260	
5	-----	-----	-----	-----	-----	-----	-----	-----	2,750e	1,330	2,140	
6	-----	-----	-----	-----	-----	-----	-----	-----	2,600e	1,330	2,060	
7	-----	-----	-----	-----	-----	-----	-----	-----	2,500e	1,330	2,010	
8	-----	-----	-----	-----	-----	-----	-----	-----	2,400e	1,340	1,940	
9	-----	-----	-----	-----	-----	-----	-----	-----	2,300e	1,440	1,820	
10	-----	-----	-----	-----	-----	-----	-----	-----	2,100e	1,460	1,780	
11	-----	-----	-----	-----	-----	-----	-----	-----	2,000e	1,430	1,760	
12	-----	-----	-----	-----	-----	-----	-----	-----	1,900e	1,430	1,710	
13	-----	-----	-----	-----	-----	-----	-----	-----	1,800e	1,410	1,690	
14	-----	-----	-----	-----	-----	-----	-----	-----	1,700e	1,410	1,650	
15	-----	-----	-----	-----	-----	-----	-----	-----	1,700e	1,410	1,600	
16	-----	-----	-----	-----	-----	-----	-----	-----	1,700e	1,430	1,530	
17	-----	-----	-----	-----	-----	-----	-----	-----	1,650e	1,440	1,470	
18	-----	-----	-----	-----	-----	-----	-----	-----	1,600e	1,410	1,410	
19	-----	-----	-----	-----	-----	-----	-----	-----	1,800e	1,440	1,350	
20	-----	-----	-----	-----	-----	-----	-----	-----	2,100e	1,610	1,290	
21	-----	-----	-----	-----	-----	-----	-----	-----	2,200e	1,750	1,220	
22	-----	-----	-----	-----	-----	-----	-----	-----	2,300e	1,810	1,140	
23	-----	-----	-----	-----	-----	-----	-----	-----	2,200e	1,780	1,060	
24	-----	-----	-----	-----	-----	-----	-----	-----	2,100e	1,860	967	
25	-----	-----	-----	-----	-----	-----	-----	-----	1,770	2,030	950e	
26	-----	-----	-----	-----	-----	-----	-----	-----	1,720	2,120	925e	
27	-----	-----	-----	-----	-----	-----	-----	-----	1,580	2,600	900e	
28	-----	-----	-----	-----	-----	-----	-----	-----	1,490	3,920	860e	
29	-----	-----	-----	-----	-----	-----	-----	-----	1,420	3,750	830e	
30	-----	-----	-----	-----	-----	-----	-----	-----	1,370	3,250	800e	
31	-----	-----	-----	-----	-----	-----	-----	-----	1,400	2,940	-----	
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	66,950	56,130	46,792	
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	2,160	1,811	1,560	
MAX	-----	-----	-----	-----	-----	-----	-----	-----	4,600	3,920	2,730	
MIN	-----	-----	-----	-----	-----	-----	-----	-----	1,370	1,330	800	
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	132,800	111,300	92,810	
CAL YEAR 1993 TOTAL	0											
WTR YEAR 1994 TOTAL	169,872		MEAN	1,846	MAX	4,600	MIN	800	AC-FT	336,900		

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Lower

LOCATION.-Lat N 66°15.44', Long W 146°30.88', in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec., T.20N., R.27E., Fairbanks Meridian.
DRAINAGE AREA.-2317 mi².

PERIOD OF RECORD.-July 26, 1994 thru Sept. 30, 1995.

REMARKS.-Winter and breakup data are estimated due to ice effects. Data were estimated for the high water event Sept. 1 thru Sept. 6, 1995. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 12,000 cfs, Sept. 4, 1995; Minimum Discharge, 79 cfs, Apr. 10, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 12,000 cfs, Sept. 4, 1995; Minimum Discharge, 79 cfs, Apr. 10, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	780e	420e	310e	250e	190e	130e	80e	1,800e	1,680	3,420	857	8,400e
2	760e	420e	310e	250e	190e	130e	80e	2,200e	1,520	2,650	856	12,500e
3	740e	410e	310e	250e	190e	130e	80e	2,700e	1,450	2,190	839	12,500e
4	720e	410e	310e	250e	180e	130e	80e	3,200e	1,490	1,900	846	12,000e
5	700e	400e	310e	240e	180e	130e	80e	3,900e	1,700	1,750	835	11,000e
6	680e	400e	300e	240e	180e	120e	80e	4,700e	2,550	1,630	817	9,500e
7	660e	390e	300e	240e	180e	120e	80e	5,600e	2,550	1,480	841	7,280
8	640e	390e	300e	240e	180e	120e	80e	6,790	2,120	1,370	917	6,050
9	620e	380e	300e	240e	170e	120e	80e	5,660	1,770	1,290	1,090	5,360
10	600e	380e	300e	230e	170e	120e	79	5,130	1,530	1,210	1,280	4,930
11	580e	370e	290e	230e	170e	120e	80e	5,280	1,380	1,110	1,360	4,510
12	570e	370e	290e	230e	170e	110e	80e	5,340	1,320	1,050	1,320	4,270
13	560e	370e	290e	230e	170e	110e	90e	5,430	1,290	1,050	1,380	4,470
14	550e	360e	290e	230e	160e	110e	90e	5,330	1,230	1,210	1,450	4,790
15	540e	360e	290e	220e	160e	110e	100e	6,140	1,150	1,210	1,570	4,640
16	530e	360e	280e	220e	160e	110e	110e	5,410	1,070	1,170	2,790	4,320
17	520e	350e	280e	220e	160e	100e	120e	4,140	1,020	1,150	4,560	3,960
18	510e	350e	280e	220e	160e	100e	160e	3,270	1,010	1,180	4,540	3,640
19	500e	350e	280e	220e	150e	100e	200e	2,640	1,090	1,160	3,770	3,360
20	490e	340e	280e	210e	150e	100e	240e	2,190	1,130	1,120	3,170	3,080
21	480e	340e	270e	210e	150e	100e	290e	1,900	1,070	1,050	2,820	2,830
22	470e	340e	270e	210e	150e	100e	340e	1,730	1,020	988	2,800	2,630
23	470e	330e	270e	210e	150e	90e	410e	1,560	978	925	3,030	2,470
24	460e	330e	270e	210e	140e	90e	500e	1,420	1,020	920	2,970	2,340
25	460e	330e	270e	200e	140e	90e	600e	1,300	1,020	879	2,730	2,210
26	450e	330e	260e	200e	140e	90e	730e	1,210	981	864	2,550	2,130
27	450e	330e	260e	200e	140e	90e	870e	1,180	1,010	898	2,530	2,110
28	440e	320e	260e	200e	140e	90e	1,100e	1,540	3,140	1,060	2,650	3,640
29	440e	320e	260e	200e	-----	90e	1,300e	1,980	6,140	1,040	2,640	6,590
30	430e	320e	260e	190e	-----	80e	1,500e	2,150	4,830	979	2,480	5,600
31	430e	-----	250e	190e	-----	80e	-----	1,900	-----	903	2,820	-----
TOTAL	17,230	10,870	8,800	6,880	4,570	3,310	9,709	104,720	51,259	40,806	65,108	163,110
MEAN	556	362	284	222	163	107	324	3,378	1,709	1,316	2,100	5,437
MAX	780	420	310	250	190	130	1,500	6,790	6,140	3,420	4,560	12,500
MIN	430	320	250	190	140	80	79	1,180	978	864	817	2,110
AC-FT	34,180	21,560	17,450	13,650	9,060	6,570	19,260	207,700	101,700	80,940	129,100	323,500
CAL YEAR 1994 TOTAL	141,010	MEAN	386	MAX	3,900	MIN	250	AC-FT	279,700			
WTR YEAR 1995 TOTAL	486,372	MEAN	1,333	MAX	12,500	MIN	79	AC-FT	964,700			

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Lower

LOCATION.-Lat N 66°15.44', Long W 146°30.88', in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec., T.20N., R.27E., Fairbanks Meridian.
DRAINAGE AREA.-2317 mi 2 .

PERIOD OF RECORD.-July 26, 1994 thru Sept. 30, 1996.

REMARKS.-Winter and breakup data are estimated due to ice effects. Extreme maximum for current water year and period of record are estimated. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 9,500 cfs, May 5, 1996; Minimum Discharge, 8 cfs, Apr. 3, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 12,000 cfs, Sept. 4, 1995; Minimum Discharge, 8 cfs, Apr. 3, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,490	240e	160e	110e	60e	20e	10 e	7,400e	2,390	735	692	2,100
2	3,810	230e	160e	110e	60e	20e	10 e	7,500e	2,250	729	715	2,400
3	3,350	230e	160e	100e	60e	20e	8.0	7,700e	2,130	744	761	2,550
4	3,040	220e	160e	100e	60e	20e	10 e	8,600e	1,990	891	849	2,300
5	2,750	220e	160e	100e	50e	20e	10 e	9,500e	1,860	1,190	1,240	2,030
6	2,560	220e	160e	100e	50e	20e	10 e	9,300e	1,670	1,390	1,960	1,820
7	2,360	210e	150e	100e	50e	20e	10 e	8,000e	1,470	1,270	2,050	1,640
8	2,170	210e	150e	100e	50e	20e	10 e	6,500e	1,250	1,190	1,780	1,500
9	2,040	210e	150e	90e	50e	20e	10 e	5,500e	1,070	1,220	1,550	1,380
10	1,940	200e	150e	90e	50e	20e	10 e	4,400e	954	1,160	1,410	1,280
11	1,800	200e	150e	90e	50e	20e	10 e	3,500e	924	1,040	1,520	1,220
12	1,750	200e	140e	90e	40e	20e	10 e	4,100e	912	857	3,720	1,200
13	1,620	200e	140e	90e	40e	20e	15 e	4,600e	945	1,600	4,350	1,240
14	1,490e	203	140e	90e	40e	20e	25 e	5,900e	2,960	2,050	3,380	1,300
15	1,370e	200e	140e	90e	40e	20e	40 e	8,300e	4,890	1,640	2,650	1,340
16	1,250e	190e	140e	80e	40e	10e	70 e	8,900e	3,350	1,320	2,170	1,330
17	1,150e	190e	140e	80e	40e	10e	120 e	7,300e	2,430	1,170	1,860	1,270
18	1,050e	190e	130e	80e	40e	10e	200 e	5,850	1,950	1,620	1,650	1,220
19	950e	190e	130e	80e	40e	10e	310 e	4,480	1,730	1,750	1,520	1,190
20	850e	190e	130e	80e	40e	10e	470 e	3,790	1,550	1,480	1,440	1,140
21	780e	180e	130e	80e	30e	10e	700 e	3,260	1,440	1,230	1,380	1,110
22	700e	180e	130e	80e	30e	10e	1,000 e	2,900	1,340	1,050	1,300	1,160
23	630e	180e	120e	70e	30e	10e	1,400 e	2,490	1,200	924	1,220	1,250
24	570e	180e	120e	70e	30e	10e	2,000 e	2,160	1,090	837	1,070	1,260
25	510e	180e	120e	70e	30e	10e	2,700 e	2,230	997	785	1,010	1,210
26	450e	170e	120e	70e	30e	10e	3,500 e	2,560	915	756	972	1,140
27	400e	170e	120e	70e	30e	10e	4,600 e	2,870	840	735	961	1,070
28	350e	170e	120e	70e	20e	10e	5,600 e	2,830	786	705	1,500	1,010
29	310e	170e	110e	70e	20e	10e	6,200 e	2,650	750	660	2,650	973
30	270e	170e	110e	60e	-----	10e	6,900 e	2,760	722	660	2,740	933
31	250e	-----	110e	60e	-----	10e	-----	2,650	-----	668	2,350	-----
TOTAL	47,010	5,893	4,250	2,620	1,200	460	35,968.0	160,480	48,755	34,056	54,420	42,566
MEAN	1,516	196	137	84.5	41.4	14.8	1,199	5,177	1,625	1,099	1,755	1,419
MAX	4,490	240	160	110	60	20	6,900	9,500	4,890	2,050	4,350	2,550
MIN	250	170	110	60	20	10	8.0	2,160	722	660	692	933
AC-FT	93,240	11,690	8,430	5,200	2,380	912	71,340	318,300	96,710	67,550	107,900	84,430
CAL YEAR 1995 TOTAL	561,937.1	MEAN	1,540	MAX	16,800	MIN	0	AC-FT	1,115,000			
WTR YEAR 1996 TOTAL	437,678.0	MEAN	1,196	MAX	9,500	MIN	8.0	AC-FT	868,100			

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Lower

LOCATION.-Lat N 66°15.44', Long W 146°30.88', in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec., T.20N., R.27E., Fairbanks Meridian.
DRAINAGE AREA.-2317 mi².

PERIOD OF RECORD.-July 26, 1994 thru Sept. 30, 1997.

REMARKS.-Winter and breakup data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 2,900 cfs, May 18, 1997 @14:30; Minimum Discharge, 49 cfs, Apr. 17, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 12,000 cfs, Sept. 4, 1995; Minimum Discharge, 8 cfs, Apr. 3, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	889	380e	310e	250e	170e	120e	70e	240e	1,100	602	847	1,540
2	857	380e	310e	250e	170e	120e	70e	270e	1,020	575	784	1,530
3	1,080	370e	310e	250e	160e	120e	70e	310e	957	494	741	1,720
4	1,580	370e	310e	240e	160e	110e	70e	360e	902	404	756	1,790
5	1,150	370e	300e	240e	160e	110e	70e	410e	923	416	754	1,780
6	1,080	360e	300e	240e	160e	110e	70e	470e	1,040	429	722	1,680
7	847	360e	300e	240e	160e	110e	70e	540e	1,180	382	699	1,580
8	742	360e	300e	240e	150e	110e	60e	620e	1,320	383	702	1,500
9	704	360e	300e	230e	150e	110e	60e	720e	1,380	395	703	1,420
10	654	350e	290e	230e	150e	100e	60e	820e	1,320	414	729	1,350
11	623	350e	290e	230e	150e	100e	60e	950e	1,270	432	771	1,270
12	586	350e	290e	230e	150e	100e	60e	1,100e	995	456	796	1,230
13	570	350e	290e	230e	150e	100e	60e	1,200e	834	468	814	1,260
14	550e	350e	290e	200e	140e	100e	60e	1,400e	889	488	824	1,330
15	530e	340e	280e	200e	140e	100e	50e	1,600e	955	1,310	862	1,460
16	520e	340e	280e	200e	140e	100e	50e	1,900e	934	1,950	888	1,520
17	510e	340e	280e	200e	140e	90e	49	2,200e	962	1,500	898	1,570
18	500e	340e	280e	200e	140e	90e	50e	2,500e	942	1,280	984	1,520
19	490e	340e	280e	190e	130e	90e	50e	2,880	769	1,080	1,230	1,480
20	480e	330e	270e	190e	130e	90e	50e	2,650	687	965	1,840	1,730
21	470e	330e	270e	190e	130e	90e	60e	2,480	657	1,380	2,230	2,550
22	460e	330e	270e	190e	130e	90e	70e	2,400	591	2,010	2,090	2,650
23	450e	330e	270e	190e	130e	90e	80e	2,430	549	2,200	1,810	2,660
24	440e	330e	270e	180e	130e	90e	90e	2,220	570	2,270	1,600	2,380
25	430e	320e	260e	180e	120e	80e	100e	2,020	607	2,050	1,440	2,130
26	420e	320e	260e	180e	120e	80e	120e	1,650	631	1,740	1,360	1,960
27	410e	320e	260e	180e	120e	80e	140e	1,400	637	1,490	1,370	1,850
28	400e	320e	260e	180e	120e	80e	160e	1,250	616	1,300	1,740	1,730
29	400e	320e	260e	170e	-----	80e	180e	1,140	612	1,150	1,960	1,630
30	390e	310e	250e	170e	-----	80e	200e	1,070	620	1,050	1,810	1,560
31	390e	-----	250e	170e	-----	80e	-----	1,090	-----	983	1,660	-----
TOTAL	19,602	10,320	8,740	6,460	4,000	3,000	2,409	42,290	26,469	32,046	36,414	51,360
MEAN	632	344	282	208	143	96.8	80.3	1,364	882	1,034	1,175	1,712
MAX	1,580	380	310	250	170	120	200	2,880	1,380	2,270	2,230	2,660
MIN	390	310	250	170	120	80	49	240	549	382	699	1,230
AC-FT	38,880	20,470	17,340	12,810	7,930	5,950	4,780	83,880	52,500	63,560	72,230	101,900
CAL YEAR 1996 TOTAL	391,637	MEAN	1,070	MAX	15,000	MIN	250	AC-FT	776,800			
WTR YEAR 1997 TOTAL	243,110	MEAN	666	MAX	2,880	MIN	49	AC-FT	482,200			

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Lower

LOCATION.-Lat N 66°15.44', Long W 146°30.88', in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec., T.20N., R.27E., Fairbanks Meridian.
DRAINAGE AREA.-2317 mi².

PERIOD OF RECORD.-July 26, 1994 thru Sept. 30, 1998.

REMARKS.-Winter and breakup data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing May 27 thru 29, and June 3 thru Sept. 30, 1998 due to wildlife damage to gage site. Station was terminated Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 4,810 cfs, June 1, 1998 @11:15; Minimum Discharge, 68 cfs, Apr. 17, 1998.

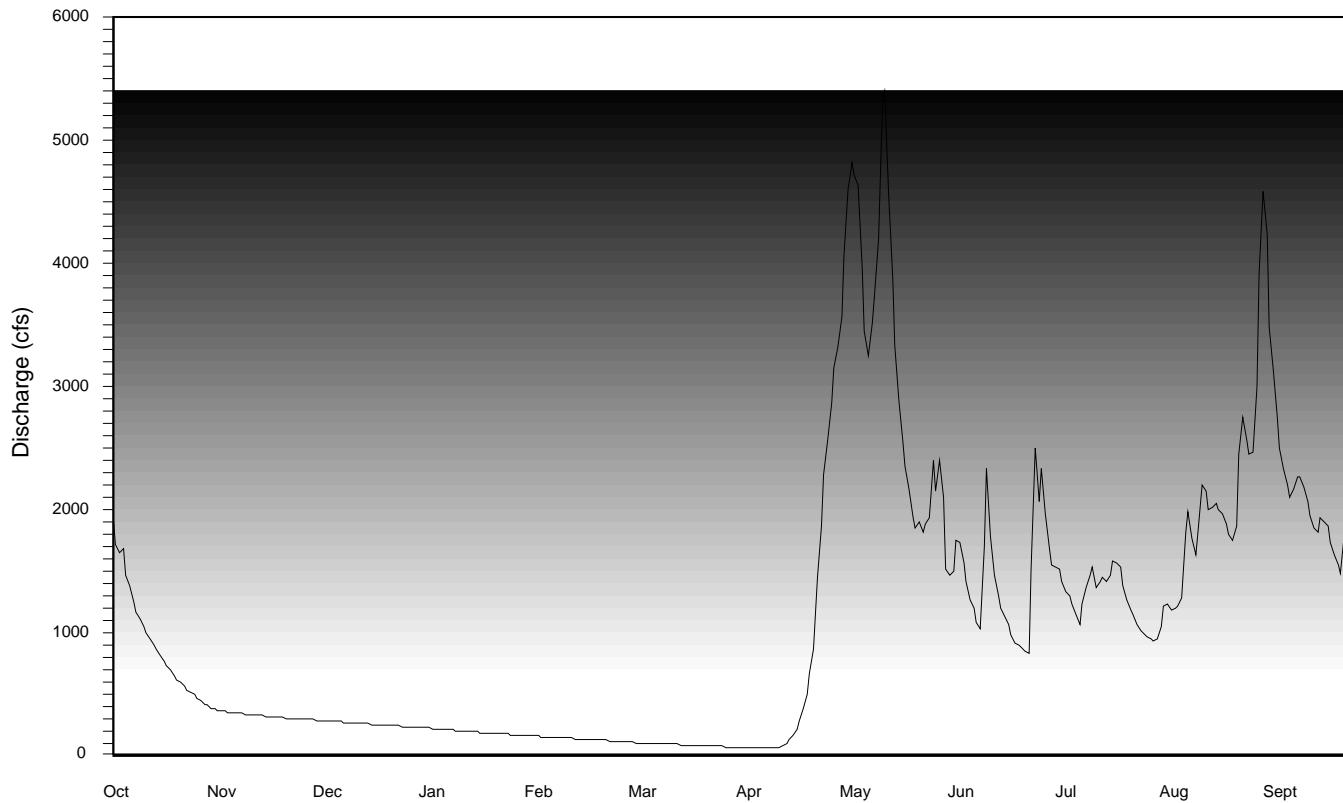
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 12,000 cfs, Sept. 4, 1995; Minimum Discharge, 8 cfs, Apr. 3, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

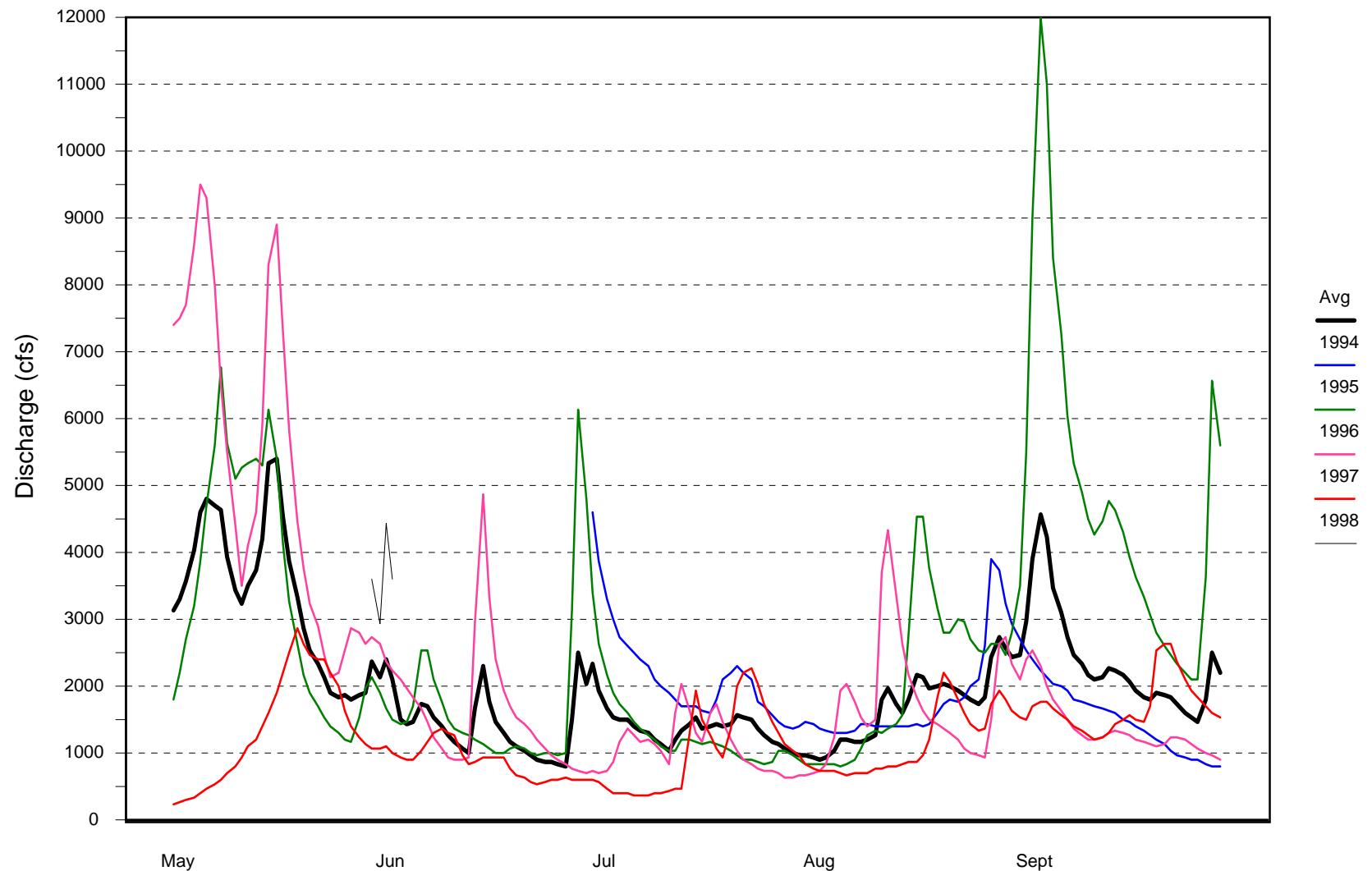
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,510	410e	330e	270e	200e	150e	80e	-----	4,450	-----	-----	-----
2	1,440	400e	330e	260e	200e	140e	80e	-----	3,630	-----	-----	-----
3	1,410	400e	320e	260e	200e	140e	80e	-----	-----	-----	-----	-----
4	1,360	390e	320e	260e	200e	140e	80e	-----	-----	-----	-----	-----
5	1,250	390e	320e	260e	190e	140e	80e	-----	-----	-----	-----	-----
6	1,170	390e	320e	260e	190e	140e	70e	-----	-----	-----	-----	-----
7	1,100	380e	320e	250e	190e	130e	70e	-----	-----	-----	-----	-----
8	1,090	380e	310e	250e	190e	130e	70e	-----	-----	-----	-----	-----
9	1,050	380e	310e	250e	190e	130e	70e	-----	-----	-----	-----	-----
10	1,000e	373	310e	250e	180e	130e	70e	-----	-----	-----	-----	-----
11	950e	370e	310e	250e	180e	130e	70e	-----	-----	-----	-----	-----
12	900e	370e	310e	240e	180e	120e	70e	-----	-----	-----	-----	-----
13	860e	370e	300e	240e	180e	120e	70e	-----	-----	-----	-----	-----
14	820e	360e	300e	240e	180e	120e	70e	-----	-----	-----	-----	-----
15	780e	360e	300e	240e	170e	120e	70e	-----	-----	-----	-----	-----
16	750e	360e	300e	240e	170e	120e	70e	-----	-----	-----	-----	-----
17	720e	360e	300e	230e	170e	110e	68	-----	-----	-----	-----	-----
18	690e	350e	290e	230e	170e	110e	70e	-----	-----	-----	-----	-----
19	660e	350e	290e	230e	170e	110e	70e	-----	-----	-----	-----	-----
20	640e	350e	290e	230e	160e	110e	70e	-----	-----	-----	-----	-----
21	620e	350e	290e	220e	160e	110e	-----	-----	-----	-----	-----	-----
22	600e	350e	290e	220e	160e	100e	-----	-----	-----	-----	-----	-----
23	580e	340e	280e	220e	160e	100e	-----	-----	-----	-----	-----	-----
24	560e	340e	280e	220e	160e	100e	-----	-----	-----	-----	-----	-----
25	540e	340e	280e	220e	150e	100e	-----	-----	-----	-----	-----	-----
26	520e	340e	280e	210e	150e	100e	-----	2,140	-----	-----	-----	-----
27	500e	340e	280e	210e	150e	90e	-----	-----	-----	-----	-----	-----
28	480e	330e	270e	210e	150e	90e	-----	-----	-----	-----	-----	-----
29	460e	330e	270e	210e	-----	90e	-----	-----	-----	-----	-----	-----
30	440e	330e	270e	210e	-----	90e	-----	3,610	-----	-----	-----	-----
31	420e	-----	270e	200e	-----	90e	-----	2,940	-----	-----	-----	-----
TOTAL	25,870	10,883	9,240	7,290	4,900	3,600	-----	-----	-----	-----	-----	-----
MEAN	835	363	298	235	175	116	-----	-----	-----	-----	-----	-----
MAX	1,510	410	330	270	200	150	-----	-----	-----	-----	-----	-----
MIN	420	330	270	200	150	90	-----	-----	-----	-----	-----	-----
AC-FT	51,310	21,590	18,330	14,460	9,720	7,140	-----	-----	-----	-----	-----	-----
CAL YEAR 1997 TOTAL		317,923	MEAN	871	MAX	2,740	MIN	270	AC-FT	630,600		
WTR YEAR 1998 TOTAL		80,001	MEAN	386	MAX	4,450	MIN	68	AC-FT	158,700		

e Estimated daily mean discharge

Beaver Creek, Lower
Average Annual Hydrograph 1994-1998



Beaver Creek, Lower
Annual Hydrographs 1994-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Upper

LOCATION.-Lat 66°03.28'N, Long 146°08.61'W, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.14N., R.8E., Fairbanks Meridian.
Located approximately 7 miles west of the Burman Lakes.

DRAINAGE AREA.-2,134 mi².

PERIOD OF RECORD.-June 5, 1994 thru Sept. 30, 1994.

REMARKS.-This gaging station was initiated on June 5, 1994. Minimum extreme discharge was a measured discharge on Apr. 14, 1994. Extremes for this water year are based on a partial record.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 10,237 cfs, June 24, 1995 @0345 hrs.
Minimum Discharge, 63 cfs, Apr. 14, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 10,237 cfs, June 24, 1995 @0345 hrs.
Minimum Discharge, 63 cfs, Apr. 14, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	3,710	1,320	2,050	
2	-----	-----	-----	-----	-----	-----	-----	-----	3,180	1,250	1,900	
3	-----	-----	-----	-----	-----	-----	-----	-----	2,840	1,200	1,800	
4	-----	-----	-----	-----	-----	-----	-----	-----	2,610	1,160	1,720	
5	-----	-----	-----	-----	-----	-----	-----	-----	1,460	2,510	1,150	1,650
6	-----	-----	-----	-----	-----	-----	-----	-----	1,490	2,400	1,120	1,570
7	-----	-----	-----	-----	-----	-----	-----	-----	1,540	2,270	1,090	1,490
8	-----	-----	-----	-----	-----	-----	-----	-----	1,810	2,170	1,200	1,420
9	-----	-----	-----	-----	-----	-----	-----	-----	2,300	2,040	1,150	1,370
10	-----	-----	-----	-----	-----	-----	-----	-----	2,440	1,910	1,100	1,330
11	-----	-----	-----	-----	-----	-----	-----	-----	2,250	1,780	1,060	1,310
12	-----	-----	-----	-----	-----	-----	-----	-----	2,130	1,690	1,020	1,270
13	-----	-----	-----	-----	-----	-----	-----	-----	2,010	1,610	1,000	1,220
14	-----	-----	-----	-----	-----	-----	63	-----	1,850	1,650	999	1,200
15	-----	-----	-----	-----	-----	-----	-----	-----	1,690	1,640	980	1,170
16	-----	-----	-----	-----	-----	-----	-----	-----	1,540	1,570	965	1,130
17	-----	-----	-----	-----	-----	-----	-----	-----	1,430	1,540	951	1,100
18	-----	-----	-----	-----	-----	-----	-----	-----	1,350	1,720	1,010	1,060
19	-----	-----	-----	-----	-----	-----	-----	-----	1,360	2,000	1,200	1,030
20	-----	-----	-----	-----	-----	-----	-----	-----	2,320	2,060	1,370	1,000
21	-----	-----	-----	-----	-----	-----	-----	-----	5,780	2,230	1,410	980
22	-----	-----	-----	-----	-----	-----	-----	-----	8,260	2,080	1,380	960
23	-----	-----	-----	-----	-----	-----	-----	-----	10,100	2,010	1,540	941
24	-----	-----	-----	-----	-----	-----	-----	-----	10,100	1,960	1,740	917
25	-----	-----	-----	-----	-----	-----	-----	-----	8,270	1,940	1,770	903
26	-----	-----	-----	-----	-----	-----	-----	-----	9,960	1,470	2,270	878
27	-----	-----	-----	-----	-----	-----	-----	-----	10,100	1,370	3,410	853
28	-----	-----	-----	-----	-----	-----	-----	-----	9,200	1,300	3,330	827
29	-----	-----	-----	-----	-----	-----	-----	-----	5,660	1,250	2,800	803
30	-----	-----	-----	-----	-----	-----	-----	-----	4,420	1,320	2,470	782
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,380	2,230	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	110,820	61,210	46,645	36,634
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	4,262	1,975	1,505	1,221
MAX	-----	-----	-----	-----	-----	-----	-----	-----	10,100	3,710	3,410	2,050
MIN	-----	-----	-----	-----	-----	-----	-----	-----	1,350	1,250	951	782
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	219,800	121,400	92,520	72,660
CAL YEAR 1993 TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	0	-----	-----	-----
WTR YEAR 1994 TOTAL	255,372	MEAN	2,146	MAX	10,100	MIN	63	AC-FT	506,500	-----	-----	-----

e estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Upper

LOCATION.-Lat 66°03.28'N, Long 146°08.61'W, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.14N., R.8E., Fairbanks Meridian.
Located approximately 7 miles west of the Burman Lakes.

DRAINAGE AREA.-2,134 mi².

PERIOD OF RECORD.-June 5, 1994 thru Sept. 30, 1995.

REMARKS.-Data are estimated Apr. 15 thru June 28 due to ice effects during breakup and ice damage to the gaging station. Extremes for the current water year are estimated.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 11,900 cfs, Sept. 1 and 2, 1995. Minimum Discharge, 80 cfs, Apr. 6 thru 14, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 11,900 cfs, Sept. 1 and 2, 1995. Minimum Discharge, 63 cfs, Apr. 14, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	907	470e	380e	290e	210e	140e	90e	2,100e	1,450e	2,680	851	11,900e
2	886	470e	380e	290e	210e	140e	90e	2,550e	1,400e	2,430	909	11,900e
3	863	470e	380e	290e	210e	140e	90e	3,050e	1,400e	2,040	892	11,500e
4	844	460e	370e	280e	200e	140e	90e	3,700e	1,600e	1,810	817	10,500e
5	836	460e	370e	280e	200e	130e	90e	4,450e	2,400e	1,680	817	9,000e
6	822	460e	370e	280e	200e	130e	80e	5,300e	2,400e	1,490	876	7,240
7	813	450e	370e	280e	200e	130e	80e	6,450e	2,000e	1,420	1,010	5,850
8	817	450e	360e	270e	190e	130e	80e	5,400e	1,700e	1,330	1,190	5,060
9	808	450e	360e	270e	190e	120e	80e	4,850e	1,450e	1,250	1,400	4,620
10	783	440e	360e	270e	190e	120e	80e	5,000e	1,300e	1,160	1,470	4,260
11	708	440e	360e	270e	190e	120e	80e	5,100e	1,250e	1,140	1,490	4,000
12	640	440e	350e	260e	180e	120e	80e	5,150e	1,200e	1,080	1,650	4,230
13	603	430e	350e	260e	180e	120e	80e	5,050e	1,200e	1,320	1,590	4,600
14	580e	430e	350e	260e	180e	120e	90e	5,800e	1,100e	1,280	1,650	4,500
15	560e	430e	350e	260e	180e	110e	110e	5,150e	1,000e	1,280	2,900	4,130
16	550e	420e	340e	250e	180e	110e	120e	3,900e	970e	1,270	4,590	3,780
17	540e	420e	340e	250e	170e	110e	150e	3,100e	960e	1,280	4,800	3,420
18	540e	420e	340e	250e	170e	110e	190e	2,500e	1,000e	1,280	3,950	3,100
19	530e	410e	330e	240e	170e	110e	230e	2,100e	1,100e	1,150	3,330	2,830
20	530e	410e	330e	240e	170e	100e	270e	1,800e	1,000e	1,070	2,960	2,620
21	520e	410e	330e	240e	160e	100e	320e	1,650e	970e	979	2,950	2,440
22	520e	400e	330e	240e	160e	100e	390e	1,500e	930e	921	3,180	2,280
23	510e	400e	320e	230e	160e	100e	475e	1,350e	970e	883	3,100	2,140
24	510e	400e	320e	230e	160e	100e	570e	1,250e	970e	858	2,810	2,020
25	500e	400e	320e	230e	150e	100e	690e	1,150e	930e	902	2,640	1,930
26	500e	390e	310e	230e	150e	100e	830e	1,100e	960e	1,050	2,630	1,930
27	490e	390e	310e	220e	150e	100e	1,050e	1,450e	3,000e	1,240	2,780	3,090
28	490e	390e	310e	220e	150e	100e	1,200e	1,900e	5,800e	1,140	2,740	6,520
29	480e	390e	300e	220e	-----	90e	1,400e	2,050e	4,830	1,010	2,520	5,690
30	480e	380e	300e	220e	-----	90e	1,700e	1,800e	3,350	917	2,530	4,450
31	480e	-----	300e	210e	-----	90e	-----	1,580	-----	853	6,810	-----
TOTAL	19,640	12,780	10,590	7,830	5,010	3,520	10,875	99,280	50,590	40,193	73,832	151,530
MEAN	634	426	342	253	179	114	363	3,203	1,686	1,297	2,382	5,051
MAX	907	470	380	290	210	140	1,700	6,450	5,800	2,680	6,810	11,900
MIN	480	380	300	210	150	90	80	1,100	930	853	817	1,930
AC-FT	38,960	25,350	21,010	15,530	9,940	6,980	21,570	196,900	100,300	79,720	146,400	300,600
CAL YEAR 1994 TOTAL	298,319	MEAN	817	MAX	10,100	MIN	300	AC-FT	591,700			
WTR YEAR 1995 TOTAL	485,670	MEAN	1,331	MAX	11,900	MIN	80	AC-FT	963,300			

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Upper

LOCATION.-Lat 66°03.28'N, Long 146°08.61'W, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.14N., R.8E., Fairbanks Meridian.
Located approximately 7 miles west of the Burman Lakes.

DRAINAGE AREA.-2,134 mi².

PERIOD OF RECORD.-June 5, 1994 thru Sept. 30, 1996.

REMARKS.-Data are estimated during winter months and breakup due to ice effects.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 9,140 cfs, May 5, 1996 @18:30 hrs.
Minimum Discharge, 15 cfs, Apr. 4 thru 12, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 11,900 cfs, Sept. 1 and 2, 1995. Minimum
Discharge, 15 cfs, Apr. 4 thru 12, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,920	460e	190e	100e	50e	30e	20e	6,920	2,260	657	594	2,300
2	3,410	440e	190e	100e	50e	30e	20e	7,010	2,120	690	665	2,450
3	3,020	420e	190e	100e	50e	30e	17	7,260	1,980	881	786	2,200
4	2,720	400e	180e	90e	50e	30e	15e	8,060	1,860	1,170	1,290	1,930
5	2,510	380e	180e	90e	50e	30e	15e	8,980	1,670	1,350	2,010	1,710
6	2,300	360e	180e	90e	50e	30e	15e	8,740	1,400	1,250	1,970	1,540
7	2,110	340e	170e	90e	50e	20e	15e	7,470	1,120	1,160	1,660	1,400
8	1,950	320e	170e	90e	50e	20e	15e	6,140	975	1,160	1,420	1,280
9	1,850	300e	170e	90e	50e	20e	15e	5,100	905	1,070	1,320	1,190
10	1,760	290e	160e	80e	50e	20e	15e	4,100	878	1,060	1,440	1,140
11	1,630	280e	160e	80e	40e	20e	15e	3,260	833	898	3,540	1,130
12	1,390	270e	160e	80e	40e	20e	15e	3,830	947	1,750	4,310	1,190
13	1,280	260e	150e	80e	40e	20e	30e	4,260	2,590	2,070	3,280	1,230
14	1,180e	260e	150e	80e	40e	20e	30e	5,440	5,070	1,550	2,500	1,270
15	1,090e	250e	150e	80e	40e	20e	40e	7,680	3,480	1,220	2,010	1,260
16	1,010e	250e	140e	70e	40e	20e	50e	8,300	2,410	1,120	1,690	1,200
17	930e	240e	140e	70e	40e	20e	70e	6,730	1,880	1,680	1,480	1,150
18	860e	240e	140e	70e	40e	20e	100e	4,960	1,640	1,730	1,360	1,110
19	810e	240e	130e	70e	40e	20e	130e	4,100	1,490	1,400	1,280	1,070
20	770e	230e	130e	70e	40e	20e	200e	3,480	1,380	1,140	1,210	1,050
21	740e	230e	130e	70e	40e	20e	400e	3,090	1,260	967	1,140	1,100
22	710e	220e	120e	70e	30e	20e	600e	2,610	1,130	846	1,060	1,200
23	680e	220e	120e	60e	30e	20e	900e	2,220	996	758	985	1,170
24	650e	220e	120e	60e	30e	20e	1,700e	2,290	890	703	920	1,110
25	620e	210e	120e	60e	30e	20e	2,800e	2,590	788	662	880	1,050
26	590e	210e	110e	60e	30e	20e	3,900e	2,910	725	624	909	981
27	560e	210e	110e	60e	30e	20e	4,900e	2,900	682	590	1,550	943
28	540e	200e	110e	60e	30e	20e	5,810	2,700	667	564	2,590	898
29	520e	200e	110e	60e	30e	20e	6,410	2,800	648	546	2,630	852
30	500e	200e	100e	60e	-----	20e	6,860	2,740	643	545	2,210	812
31	480e	-----	100e	50e	-----	20e	-----	2,460	-----	573	1,970	-----
TOTAL	43,090	8,350	4,480	2,340	1,180	680	35,122	151,130	45,317	32,384	52,659	38,916
MEAN	1,390	278	145	75.5	40.7	21.9	1,171	4,875	1,511	1,045	1,699	1,297
MAX	3,920	460	190	100	50	30	6,860	8,980	5,070	2,070	4,310	2,450
MIN	480	200	100	50	30	20	15	2,220	643	545	594	812
AC-FT	85,470	16,560	8,890	4,640	2,340	1,350	69,660	299,800	89,890	64,230	104,400	77,190
CAL YEAR 1995 TOTAL	415,694	MEAN	1,139	MAX	11,300	MIN	1.0	AC-FT	824,500			
WTR YEAR 1996 TOTAL	415,648	MEAN	1,136	MAX	8,980	MIN	15	AC-FT	824,400			

e Estimated mean daily discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Upper

LOCATION.-Lat 66°03.28'N, Long 146°08.61'W, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.14N., R.8E., Fairbanks Meridian.
Located approximately 7 miles west of the Burman Lakes.

DRAINAGE AREA.-2,134 mi².

PERIOD OF RECORD.-June 5, 1994 thru Sept. 30, 1997.

REMARKS.-Data are estimated Oct. 11 thru June 21 due to ice effects and equipment failure.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 2,700 cfs, May 19, 1997. Minimum Discharge, 25 cfs, Apr. 1 thru 15, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 11,900 cfs, Sept. 1 and 2, 1995. Minimum Discharge, 15 cfs, Apr. 4 thru 12, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	785	200e	140e	100e	70e	40e	25e	195e	1,050e	441	731	1,390
2	750	200e	140e	100e	70e	40e	25e	230e	970e	423	695	1,560
3	662	200e	140e	100e	60e	40e	25e	280e	910e	410	730	1,610
4	573	190e	140e	100e	60e	30e	25e	340e	860e	402	707	1,560
5	487	190e	140e	100e	60e	30e	25e	390e	880e	391	667	1,450
6	440	190e	140e	100e	60e	30e	25e	450e	990e	397	654	1,390
7	424	190e	140e	100e	60e	30e	25	510e	1,100e	414	655	1,310
8	402	180e	130e	90e	60e	30e	25e	590e	1,250e	419	659	1,240
9	355	180e	130e	90e	60e	30e	25e	680e	1,300e	438	687	1,170
10	322	180e	130e	90e	60e	30e	25e	780e	1,250e	459	717	1,100
11	300e	180e	130e	90e	60e	30e	25e	900e	1,200e	467	732	1,050
12	290e	180e	130e	90e	60e	30e	25e	1,050e	910e	462	750	1,070
13	280e	180e	130e	90e	50e	30e	25e	1,150e	790e	489	767	1,140
14	280e	170e	130e	90e	50e	30e	25e	1,300e	840e	1,560	806	1,210
15	270e	170e	130e	90e	50e	30e	25e	1,500e	910e	1,920	811	1,280
16	260e	170e	120e	80e	50e	30e	25e	1,800e	890e	1,430	824	1,310
17	250e	170e	120e	80e	50e	30e	25e	2,100e	910e	1,240	945	1,270
18	250e	170e	120e	80e	50e	30e	25e	2,400e	890e	1,020	1,190	1,190
19	240e	160e	120e	80e	50e	30e	25e	2,700e	730e	891	1,810	1,480
20	240e	160e	120e	80e	50e	30e	30e	2,500e	650e	1,430	2,100	2,150
21	230e	160e	120e	80e	50e	30e	40e	2,400e	620e	1,980	1,930	2,230
22	230e	160e	120e	80e	40e	30e	45e	2,300e	577	2,130	1,650	2,300
23	230e	160e	120e	80e	40e	30e	55e	2,300e	561	2,190	1,440	2,070
24	220e	150e	110e	80e	40e	30e	65e	2,100e	559	1,960	1,290	1,830
25	220e	150e	110e	70e	40e	30e	75e	1,900e	588	1,630	1,200	1,680
26	220e	150e	110e	70e	40e	30e	85e	1,600e	577	1,370	1,240	1,590
27	210e	150e	110e	70e	40e	30e	100e	1,300e	550	1,200	1,660	1,470
28	210e	150e	110e	70e	40e	30e	120e	1,200e	519	1,060	1,790	1,380
29	210e	150e	110e	70e	-----	30e	140e	1,100e	488	947	1,630	1,300
30	210e	140e	110e	70e	-----	30e	170e	1,000e	464	858	1,480	1,230
31	200e	-----	100e	70e	-----	30e	-----	1,000e	-----	783	1,350	-----
TOTAL	10,250	5,130	3,850	2,630	1,470	960	1,400	40,045	24,783	31,211	34,297	44,010
MEAN	331	171	124	84.8	52.5	31.0	46.7	1,292	826	1,007	1,106	1,467
MAX	785	200	140	100	70	40	170	2,700	1,300	2,190	2,100	2,300
MIN	200	140	100	70	40	30	25	195	464	391	654	1,050
AC-FT	20,330	10,180	7,640	5,220	2,920	1,900	2,780	79,430	49,160	61,910	68,030	87,290
CAL YEAR 1996 TOTAL	1,765,328	MEAN	4,823	MAX	19,600	MIN	96	AC-FT	3,502,000			
WTR YEAR 1997 TOTAL	200,036	MEAN	548	MAX	2,700	MIN	25	AC-FT	396,800			

e Estimated mean daily discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Beaver Creek, Upper

LOCATION.-Lat 66°03.28'N, Long 146°08.61'W, in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 7, T.14N., R.8E., Fairbanks Meridian. Located approximately 7 miles west of the Burman Lakes.

DRAINAGE AREA.-2,134 mi².

PERIOD OF RECORD.-June 5, 1994 thru Sept. 30, 1998.

REMARKS.-Data are estimated during the winter months due to ice effects. Missing data for the periods of April 28 thru May 21, June 2 thru July 3, July 5 thru July 7, July 17 thru Aug. 17, and Aug. 21 thru Sept. 30 are the result of equipment failure and damage from wildlife. Station was terminated Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 5,570 cfs, May 31, 1998 @09:30 hrs.
Minimum Discharge, 40 cfs, Apr. 19 thru 27, 1997.

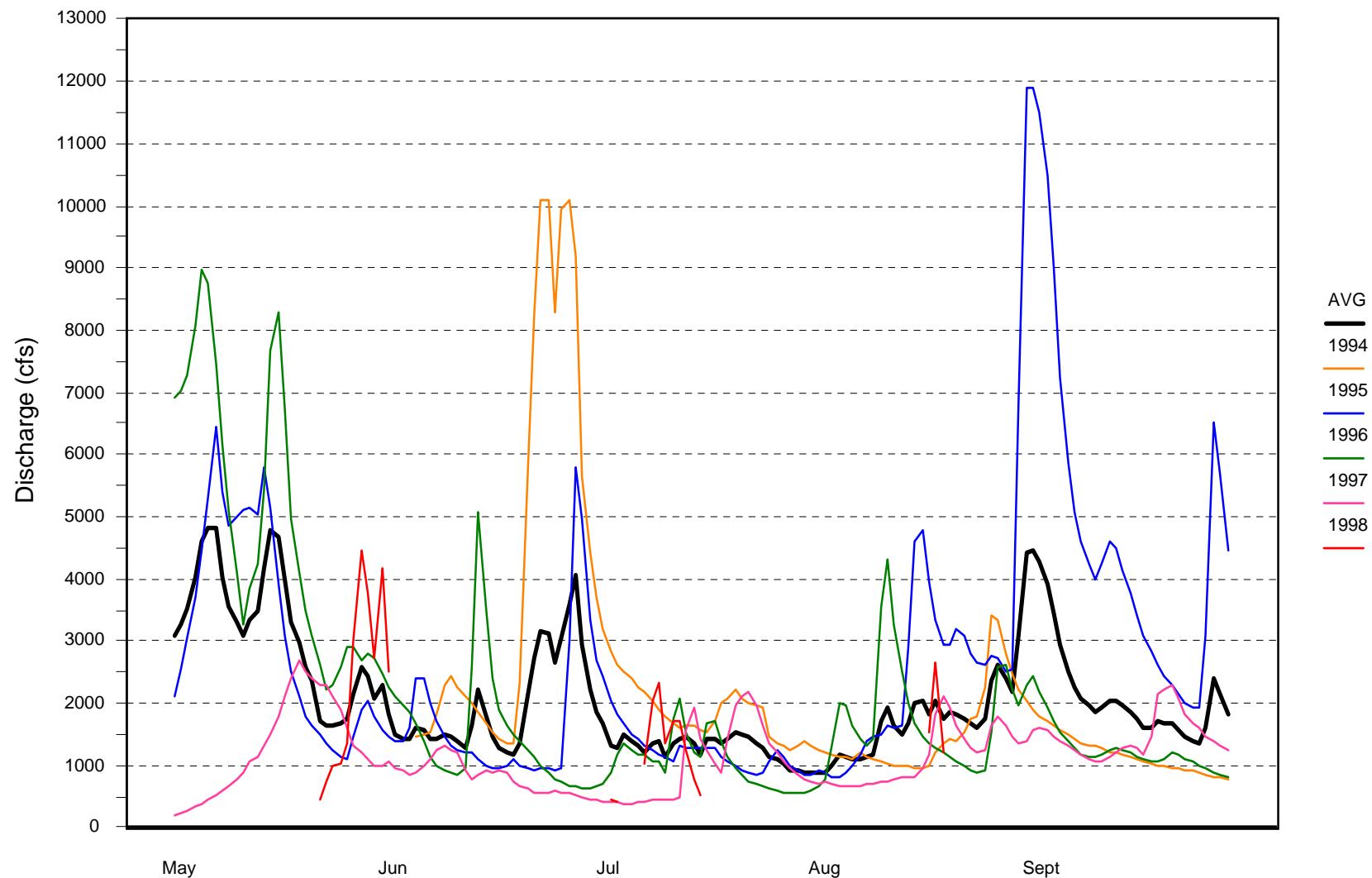
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 11,900 cfs, Sept. 1 and 2, 1995. Minimum Discharge, 15 cfs, Apr. 4 thru 12, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,200	350e	260e	180e	120e	80e	50e	-----	2,520	-----	-----	-----
2	1,150	350e	250e	180e	120e	80e	50e	-----	-----	-----	-----	-----
3	1,080	340e	250e	170e	120e	80e	50e	-----	-----	440	-----	-----
4	1,010	340e	250e	170e	120e	80e	50e	-----	-----	420	-----	-----
5	968	340e	250e	170e	120e	80e	50e	-----	-----	-----	-----	-----
6	921	330e	240e	170e	110e	80e	50e	-----	-----	-----	-----	-----
7	871	330e	240e	160e	110e	70e	50e	-----	-----	-----	-----	-----
8	807	330e	240e	160e	110e	70e	50e	-----	-----	1,020	-----	-----
9	755	330e	240e	160e	110e	70e	50e	-----	-----	2,030	-----	-----
10	722	325	230e	160e	110e	70e	50e	-----	-----	2,320	-----	-----
11	655	320e	230e	160e	110e	70e	50e	-----	-----	1,360	-----	-----
12	528	320e	230e	150e	110e	70e	50e	-----	-----	1,700	-----	-----
13	500	320e	230e	150e	100e	70e	50e	-----	-----	1,720	-----	-----
14	480e	310e	220e	150e	100e	60e	50e	-----	-----	1,240	-----	-----
15	460e	310e	220e	150e	100e	60e	50e	-----	-----	793	-----	-----
16	440e	310e	220e	150e	100e	60e	50e	-----	-----	525	-----	-----
17	430e	300e	220e	150e	100e	60e	50e	-----	-----	-----	-----	-----
18	420e	300e	210e	140e	100e	60e	46	-----	-----	-----	1,550	-----
19	410e	300e	210e	140e	100e	60e	40e	-----	-----	-----	2,670	-----
20	400e	290e	210e	140e	90e	60e	40e	-----	-----	-----	1,200	-----
21	400e	290e	210e	140e	90e	60e	40e	-----	-----	-----	-----	-----
22	390e	290e	200e	140e	90e	50e	40e	440	-----	-----	-----	-----
23	390e	280e	200e	140e	90e	50e	40e	748	-----	-----	-----	-----
24	380e	280e	200e	130e	90e	50e	40e	994	-----	-----	-----	-----
25	380e	280e	200e	130e	90e	50e	40e	1,030	-----	-----	-----	-----
26	380e	270e	190e	130e	90e	50e	40e	1,350	-----	-----	-----	-----
27	370e	270e	190e	130e	80e	50e	40e	3,000	-----	-----	-----	-----
28	370e	270e	190e	130e	80e	50e	-----	4,460	-----	-----	-----	-----
29	360e	260e	190e	130e	-----	50e	-----	3,780	-----	-----	-----	-----
30	360e	260e	180e	130e	-----	50e	-----	2,730	-----	-----	-----	-----
31	350e	-----	180e	120e	-----	50e	-----	4,170	-----	-----	-----	-----
TOTAL	18,337	9,195	6,780	4,610	2,860	1,950	1,256	-----	-----	-----	-----	-----
MEAN	592	307	219	149	102	62.9	46.5	-----	-----	-----	-----	-----
MAX	1,200	350	260	180	120	80	50	-----	-----	-----	-----	-----
MIN	350	260	180	120	80	50	40	-----	-----	-----	-----	-----
AC-FT	36,370	18,240	13,450	9,140	5,670	3,870	2,490	-----	-----	-----	-----	-----
CAL YEAR 1997 TOTAL	217,408	MEAN	596	MAX	9,860	MIN	180	AC-FT	431,200	-----	-----	-----
WTR YEAR 1998 TOTAL	89,198	MEAN	381	MAX	4,460	MIN	40	AC-FT	176,900	-----	-----	-----

e Estimated mean daily discharge

Beaver Creek, Upper
Annual Hydrographs 1994-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Birch Creek

LOCATION.-Lat 66°05.98'N, Long 144°44.85'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R.14E., Fairbanks Meridian.
Located a few miles upstream of the confluence of Preacher Creek.

DRAINAGE AREA.-2,535 mi².

PERIOD OF RECORD.-Oct. 17, 1993 thru Sept. 30, 1994.

REMARKS.-This gaging station was initiated on June 4, 1994. Discharge measurements were made in Nov. 1993 and Apr. 1994. Winter estimates were based on these measurements. Data is estimated for Sept. 22 thru Sept. 30, 1994. All estimated data is considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 6,350 cfs, June 29 1994 @2200 hrs;
Minimum Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 6,350 cfs, June 29 1994 @2200 hrs; Minimum Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	410e	260e	160e	60e	20 e	0e	-----	-----	4,370	1,120	1,200
2	-----	400e	260e	150e	60e	20 e	0e	-----	-----	3,410	1,140	1,160
3	-----	390e	250e	150e	60e	20 e	0e	-----	-----	2,850	1,080	1,100
4	-----	390e	250e	150e	50e	20 e	0e	-----	1,400	2,470	1,030	1,090
5	-----	380e	250e	140e	50e	20 e	0e	-----	1,540	2,220	984	1,130
6	-----	380e	240e	140e	50e	20 e	0e	-----	1,540	2,260	966	1,220
7	-----	370e	240e	140e	50e	20 e	0e	-----	1,460	2,610	949	1,250
8	-----	367	240e	130e	50e	10 e	0e	-----	1,470	2,600	901	1,280
9	-----	360e	230e	130e	40e	10 e	0e	-----	1,600	2,420	852	1,310
10	-----	360e	230e	130e	40e	10 e	0e	-----	1,760	2,130	817	1,270
11	-----	350e	230e	120e	40e	10 e	0e	-----	1,750	1,910	790	1,260
12	-----	350e	220e	120e	40e	10 e	0e	-----	1,660	1,740	771	1,280
13	-----	340e	220e	120e	40e	10 e	0e	-----	1,540	1,610	749	1,230
14	-----	340e	220e	110e	40e	10 e	0e	-----	1,450	1,550	728	1,180
15	-----	330e	210e	110e	30e	10 e	0e	-----	1,410	1,670	709	1,150
16	-----	330e	210e	110e	30e	5.0e	0	-----	1,330	1,670	696	1,100
17	580e	320e	210e	100e	30e	5.0e	0e	-----	1,240	1,550	678	1,060
18	560e	320e	200e	100e	30e	5.0e	0e	-----	1,190	1,590	662	1,020
19	540e	310e	200e	100e	30e	5.0e	0e	-----	1,160	2,000	646	980
20	530e	310e	200e	90e	30e	5.0e	0e	-----	1,140	2,580	634	939
21	520e	300e	190e	90e	30e	5.0e	0e	-----	1,180	3,240	643	910
22	510e	300e	190e	90e	30e	5.0e	0e	-----	2,680	2,930	724	890e
23	500e	290e	190e	80e	20e	5.0e	0e	-----	4,720	2,670	735	870e
24	490e	290e	180e	80e	20e	5.0e	0e	-----	5,300	2,440	734	840e
25	480e	280e	180e	80e	20e	5.0e	0e	-----	5,670	2,240	740	820e
26	470e	280e	180e	80e	20e	5.0e	-----	-----	4,100	2,070	750	800e
27	460e	270e	170e	70e	20e	5.0e	-----	-----	5,050	3,150	751	790e
28	450e	270e	170e	70e	20e	5.0e	-----	-----	6,240	1,380	758	750e
29	440e	270e	170e	70e	-----	5.0e	-----	-----	6,340	1,130	989	730e
30	430e	260e	160e	70e	-----	0 e	-----	-----	6,040	1,070	1,080	710e
31	420e	-----	160e	60e	-----	0 e	-----	-----	-----	1,060	1,130	-----
TOTAL	-----	9,917	6,510	3,340	1,030	290.0	-----	-----	71,960	68,590	25,936	31,319
MEAN	-----	331	210	108	36.8	9.35	-----	-----	2,665	2,213	837	1,044
MAX	-----	410	260	160	60	20	-----	-----	6,340	4,370	1,140	1,310
MIN	-----	260	160	60	20	0	-----	-----	1,140	1,060	634	710
AC-FT	-----	19,670	12,910	6,620	2,040	575	-----	-----	142,700	136,000	51,440	62,120

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Birch Creek

LOCATION.-Lat 66°05.98'N, Long 144°44.85'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R.14E., Fairbanks Meridian.
Located a few miles upstream of the confluence of Preacher Creek.

DRAINAGE AREA.-2,535 mi².

PERIOD OF RECORD.-Oct. 17, 1993 thru Sept. 30, 1995.

REMARKS.-Data gaps exist for the periods Apr. 21 thru July 3, 1995 and July 29 thru Sept 30, 1995. Discharge measurements were made on June 2, 4 and 29, 1995. Due to the effects of ice data are estimated during the winter months. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 9,710 cfs, June 29 1995; Minimum Discharge, 15 cfs, Mar. 15, thru Apr. 20, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 9,710 cfs, June 29 1995; Minimum Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	700e	160e	60e	40e	30e	20e	15e	-----	-----	-----	-----	-----
2	660e	150e	60e	40e	30e	20e	15e	-----	3,600	-----	-----	-----
3	640e	140e	60e	40e	30e	20e	15e	-----	-----	-----	-----	-----
4	620e	130e	60e	40e	30e	20e	15e	-----	2,790	2,060	-----	-----
5	600e	130e	60e	40e	30e	20e	15e	-----	-----	1,890	-----	-----
6	580e	120e	60e	40e	30e	20e	15e	-----	-----	1,720	-----	-----
7	560e	120e	60e	40e	30e	20e	15e	-----	-----	1,530	-----	-----
8	540e	110e	60e	40e	30e	20e	15	-----	-----	1,380	-----	-----
9	520e	110e	60e	40e	30e	20e	15e	-----	-----	1,250	-----	-----
10	500e	100e	60e	40e	30e	20e	15e	-----	-----	1,100	-----	-----
11	480e	100e	50e	40e	30e	20e	15e	-----	-----	925	-----	-----
12	460e	90e	50e	40e	30e	20e	15e	-----	-----	876	-----	-----
13	440e	90e	50e	40e	30e	20e	15e	-----	-----	847	-----	-----
14	420e	90e	50e	40e	30e	20e	15e	-----	-----	908	-----	-----
15	400e	80e	50e	40e	30e	20e	15e	-----	-----	1,120	-----	-----
16	380e	80e	50e	40e	20e	20e	15e	-----	-----	1,490	-----	-----
17	360e	80e	50e	40e	20e	20e	15e	-----	-----	3,280	-----	-----
18	340e	80e	50e	40e	20e	20e	15e	-----	-----	3,970	-----	-----
19	320e	80e	50e	40e	20e	20e	15e	-----	-----	3,150	-----	-----
20	300e	80e	50e	40e	20e	20e	15e	-----	-----	2,370	-----	-----
21	280e	70e	50e	30e	20e	15e	-----	-----	-----	1,910	-----	-----
22	260e	70e	50e	30e	20e	15e	-----	-----	-----	1,610	-----	-----
23	250e	70e	50e	30e	20e	15e	-----	-----	-----	1,400	-----	-----
24	240e	70e	50e	30e	20e	15e	-----	-----	-----	1,240	-----	-----
25	230e	70e	50e	30e	20e	15e	-----	-----	-----	1,150	-----	-----
26	220e	70e	50e	30e	20e	15e	-----	-----	-----	1,130	-----	-----
27	210e	70e	50e	30e	20e	15e	-----	-----	-----	1,180	-----	-----
28	200e	60e	50e	30e	20e	15e	-----	-----	-----	1,570	-----	-----
29	190e	60e	50e	30e	-----	15e	-----	-----	9,710	1,400	-----	-----
30	180e	60e	50e	30e	-----	15e	-----	-----	-----	-----	-----	-----
31	170e	-----	50e	30e	-----	15e	-----	-----	-----	-----	-----	-----
TOTAL	12,250	2,790	1,650	1,130	710	565	-----	-----	-----	42,456	-----	-----
MEAN	395	93.0	53.2	36.5	25.4	18.2	-----	-----	-----	1,633	-----	-----
MAX	700	160	60	40	30	20	-----	-----	-----	3,970	-----	-----
MIN	170	60	50	30	20	15	-----	-----	-----	847	-----	-----
AC-FT	24,300	5,530	3,270	2,240	1,410	1,120	-----	-----	-----	84,210	-----	-----

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Birch Creek

LOCATION.-Lat 66°05.98'N, Long 144°44.85'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R.14E., Fairbanks Meridian.
Located a few miles upstream of the confluence of Preacher Creek.

DRAINAGE AREA.-2,535 mi².

PERIOD OF RECORD.-Oct. 17, 1993 thru Sept. 30, 1996.

REMARKS.-Data gaps exist for the periods Oct. 1 thru Oct. 26, 1995. Due to the effects of ice
data is estimated during the winter months. All estimated data is considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 6,720 cfs, May 14 1996 @21:00 hrs;
Minimum Discharge, 15 cfs, Apr. 7 thru Apr. 15, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 9,710 cfs, June 29 1995; Minimum
Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	300e	150e	70e	20e	15e	15e	230e	2,660	981	512	871
2	-----	290e	150e	70e	20e	15e	15e	280e	2,560	4,750	470	825
3	-----	280e	140e	70e	20e	15e	15e	340e	2,390	5,430	455	842
4	-----	270e	140e	60e	20e	15e	15e	410e	2,190	5,000	467	934
5	-----	270e	140e	60e	20e	15e	15e	493	2,110	3,680	451	930
6	-----	260e	130e	60e	20e	15e	16	555	1,790	2,660	465	874
7	-----	260e	130e	60e	20e	15e	15e	582	1,470	2,180	600	828
8	-----	250e	130e	60e	20e	15e	15e	648	1,220	2,030	729	790
9	-----	250e	130e	50e	20e	15e	15e	1,540	1,070	1,870	681	752
10	-----	240e	120e	50e	20e	15e	15e	1,840	1,040	1,630	601	720
11	-----	240e	120e	50e	20e	15e	15e	2,210	1,080	1,420	532	704
12	-----	230e	120e	50e	20e	15e	15e	2,660	1,020	1,250	483	664
13	-----	230e	120e	50e	20e	15e	15e	3,490	2,420	1,390	955	639
14	-----	220e	110e	40e	20e	15e	15e	5,630	3,880	1,590	1,580	627
15	-----	220e	110e	40e	20e	15e	15e	6,200	3,090	1,430	1,430	639
16	-----	210e	110e	40e	20e	15e	15e	4,870	2,410	1,220	1,300	654
17	-----	210e	110e	40e	20e	15e	15e	3,750	2,030	1,060	1,180	655
18	-----	200e	100e	40e	20e	15e	20e	3,050	2,030	967	1,060	649
19	-----	200e	100e	40e	20e	15e	25e	2,800	1,840	1,170	968	653
20	-----	190e	100e	40e	20e	15e	30e	2,690	1,660	1,100	1,450	657
21	-----	190e	100e	30e	15e	15e	35e	2,590	1,560	948	1,970	656
22	-----	180e	90e	30e	15e	15e	40e	2,440	1,390	833	1,740	670
23	-----	180e	90e	30e	15e	15e	55e	2,270	1,220	742	1,490	786
24	-----	170e	90e	30e	15e	15e	65e	2,390	1,130	667	1,310	870
25	-----	170e	90e	30e	15e	15e	75e	2,920	1,150	611	1,190	859
26	-----	170e	80e	30e	15e	15e	90e	3,650	1,120	564	1,090	799
27	350e	160e	80e	30e	15e	15e	110e	3,500	1,010	520	986	758
28	340e	160e	80e	30e	15e	15e	130e	3,300	875	483	905	716
29	330e	160e	80e	30e	15e	15e	160e	3,410	783	470	862	709
30	320e	150e	70e	30e	-----	15e	190e	3,400	727	528	870	688
31	310e	-----	70e	30e	-----	15e	-----	2,950	-----	533	904	-----
TOTAL	-----	6,510	3,380	1,370	535	465	1,281	77,088	50,925	49,707	29,686	22,418
MEAN	-----	217	109	44.2	18.4	15.0	42.7	2,487	1,698	1,603	958	747
MAX	-----	300	150	70	20	15	190	6,200	3,880	5,430	1,970	934
MIN	-----	150	70	30	15	15	15	230	727	470	451	627
AC-FT	-----	12,910	6,700	2,720	1,060	922	2,540	152,900	101,000	98,590	58,880	44,470
WTR YEAR 1996 TOTAL		245,015	MEAN	721	MAX	6,200	MIN	15				

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Birch Creek

LOCATION.-Lat 66°05.98'N, Long 144°44.85'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R.14E., Fairbanks Meridian.
Located a few miles upstream of the confluence of Preacher Creek.

DRAINAGE AREA.-2,535 mi².

PERIOD OF RECORD.-Oct. 17, 1993 thru Sept. 30, 1997.

REMARKS.-Due to the effects of ice data is estimated during the winter months. All estimated data is considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 8,250 cfs, May 7, 1997 @1600 hrs; Minimum Discharge, 0 cfs, Apr. 11, thru Apr. 23, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 9,710 cfs, June 29 1995; Minimum Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994 and Apr. 11 thru Apr. 23, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	659	220e	70e	30e	20e	10 e	5.0e	1,500e	1,850	710	1,030	1,530
2	630	210e	60e	30e	20e	10 e	5.0e	2,570	2,020	618	931	1,400
3	581	200e	60e	30e	20e	10 e	5.0e	4,380	2,010	549	872	1,300
4	550e	190e	60e	30e	20e	10 e	5.0e	5,370	1,810	522	914	1,210
5	530e	180e	60e	30e	20e	10 e	5.0e	5,720	1,600	466	904	1,150
6	510e	170e	50e	30e	20e	10 e	5.0e	7,010	1,520	415	868	1,100
7	490e	160e	50e	30e	20e	10 e	5.0e	7,590	1,700	384	808	1,040
8	470e	150e	50e	30e	20e	10 e	5.0e	6,520	1,870	359	746	996
9	450e	150e	50e	30e	20e	10 e	5.0e	4,730	1,780	370	795	960
10	440e	140e	50e	30e	20e	10 e	5.0e	3,990	1,580	498	1,090	931
11	430e	140e	40e	30e	20e	10 e	0 e	3,610	1,380	675	1,300	916
12	420e	130e	40e	30e	20e	10 e	0 e	3,570	2,140	867	1,370	904
13	410e	130e	40e	30e	20e	10 e	0 e	4,010	2,260	831	1,280	909
14	400e	120e	40e	30e	20e	10 e	0 e	4,760	1,840	928	1,170	1,160
15	390e	120e	40e	30e	20e	10 e	0 e	5,270	1,570	2,020	1,090	2,050
16	380e	120e	40e	20e	20e	10 e	0 e	6,600	1,620	3,760	1,030	2,510
17	370e	110e	40e	20e	20e	10 e	0 e	5,880	1,600	3,280	992	2,510
18	360e	110e	40e	20e	20e	10 e	0 e	4,830	1,530	2,390	1,030	2,310
19	350e	110e	40e	20e	20e	10 e	0	4,180	1,320	1,810	1,300	2,100
20	340e	100e	40e	20e	20e	10 e	0 e	3,650	1,280	1,480	1,650	1,900
21	330e	100e	40e	20e	10e	10 e	0 e	3,240	1,140	1,850	1,880	1,750
22	320e	100e	40e	20e	10e	10 e	10 e	3,120	1,010	2,430	1,810	1,680
23	310e	90e	40e	20e	10e	10 e	25 e	3,240	1,220	2,400	1,640	1,650
24	300e	90e	40e	20e	10e	10 e	40 e	3,290	1,410	2,470	1,480	1,570
25	260e	90e	40e	20e	10e	10 e	70 e	2,800	1,380	2,520	1,360	1,480
26	290e	80e	30e	20e	10e	5.0e	120 e	2,360	1,330	2,550	1,280	1,390
27	280e	80e	30e	20e	10e	5.0e	200 e	2,090	1,300	2,300	1,200	1,330
28	270e	80e	30e	20e	10e	5.0e	330 e	1,930	1,150	1,870	1,190	1,460
29	260e	70e	30e	20e	-----	5.0e	550 e	1,780	967	1,540	1,440	1,580
30	250e	70e	30e	20e	-----	5.0e	930 e	1,650	823	1,310	1,730	1,500
31	230e	-----	30e	20e	-----	5.0e	-----	1,660	-----	1,150	1,660	-----
TOTAL	12,260	3,810	1,340	770	480	280.0	2,325.0	122,900	46,010	45,322	37,840	44,276
MEAN	395	127	43.2	24.8	17.1	9.03	77.5	3,965	1,534	1,462	1,221	1,476
MAX	659	220	70	30	20	10	930	7,590	2,260	3,760	1,880	2,510
MIN	230	70	30	20	10	5.0	0	1,500	823	359	746	904
AC-FT	24,320	7,560	2,660	1,530	952	555	4,610	243,800	91,260	89,900	75,060	87,820
CAL YEAR 1996	TOTAL	250885	MEAN	707	MAX	6,200	MIN	15	AC-FT	512,900		
WTR YEAR 1997	TOTAL	317,613	MEAN	870	MAX	7,590	MIN	0	AC-FT	630,000		

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Birch Creek

LOCATION.-Lat 66°05.98'N, Long 144°44.85'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.27, T.15N., R.14E., Fairbanks Meridian.
Located a few miles upstream of the confluence of Preacher Creek.

DRAINAGE AREA.-2,535 mi².

PERIOD OF RECORD.-Oct. 17, 1993 thru Sept. 30, 1998. Stream gaging station was discontinued on Sept. 30, 1998.

REMARKS.-Data are estimated during the winter months. All estimated data is considered to be poor. This station was discontinued Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 8,400 cfs, July 15, 1997 @11:15; Minimum Discharge, 20 cfs, Mar. 26, thru Apr. 25, 1997.

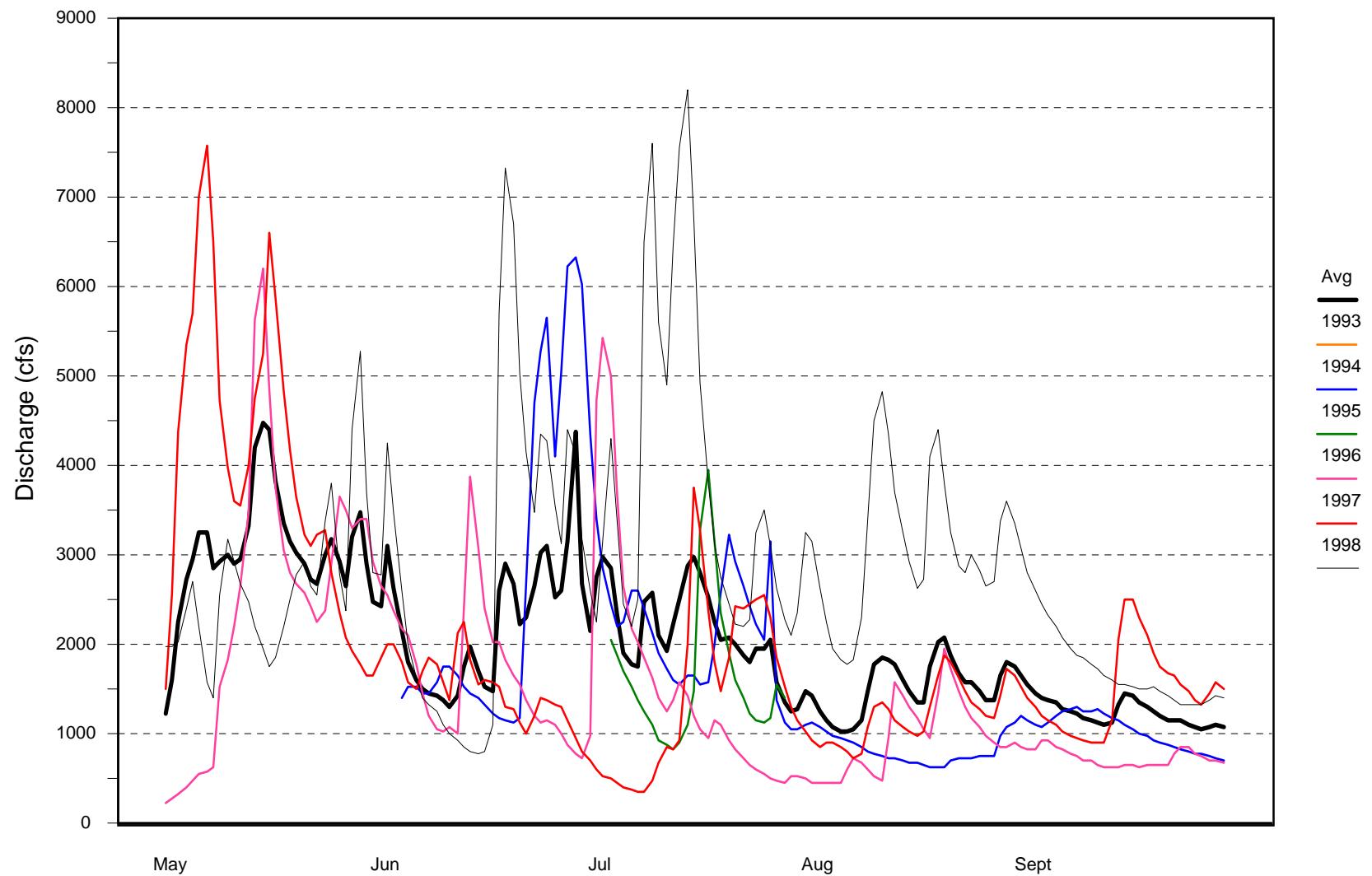
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 9,710 cfs, June 29 1995; Minimum Discharge, 0 cfs, Mar. 30 thru Apr. 25, 1994 and Apr. 11 thru Apr. 23, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,400	330e	150e	80e	50e	40e	20e	1,980	2,790	2,620	3,270	3,080
2	1,310	320e	150e	80e	50e	40e	20e	1,990	4,260	2,270	3,170	2,820
3	1,230	310e	150e	80e	50e	40e	20e	2,030	3,480	3,170	2,650	2,620
4	1,180	300e	140e	80e	50e	40e	20e	2,400	2,600	4,300	2,250	2,450
5	1,120	290e	140e	80e	50e	40e	20e	2,700	2,020	3,380	1,970	2,330
6	1,050	280e	140e	80e	50e	30e	20e	2,220	1,640	2,460	1,840	2,210
7	987	270e	140e	80e	50e	30e	20e	1,590	1,400	2,200	1,790	2,080
8	930	260e	130e	70e	50e	30e	20e	1,410	1,330	2,500	1,840	1,970
9	902	250e	130e	70e	50e	30e	20e	2,560	1,250	6,510	2,320	1,890
10	859	250e	130e	70e	50e	30e	20e	3,180	1,120	7,610	3,420	1,850
11	753	240e	130e	70e	50e	30e	20e	2,940	1,010	5,620	4,510	1,790
12	674	239	120e	70e	50e	30e	20e	2,690	931	4,920	4,830	1,730
13	630e	230e	120e	70e	50e	30e	20e	2,490	869	6,470	4,350	1,660
14	610e	230e	120e	70e	50e	30e	20e	2,210	816	7,570	3,720	1,610
15	590e	220e	120e	70e	50e	30e	20e	1,960	793	8,220	3,270	1,560
16	570e	220e	120e	60e	40e	30e	19	1,770	820	6,750	2,930	1,560
17	550e	210e	110e	60e	40e	30e	20e	1,870	1,120	4,930	2,640	1,530
18	530e	210e	110e	60e	40e	30e	20e	2,210	5,720	3,800	2,730	1,520
19	510e	200e	110e	60e	40e	30e	20e	2,520	7,330	3,130	4,120	1,520
20	490e	200e	110e	60e	40e	30e	30e	2,790	6,700	2,750	4,410	1,530
21	470e	190e	110e	60e	40e	30e	40e	2,930	5,040	2,450	3,820	1,490
22	450e	190e	100e	60e	40e	30e	60e	2,660	4,170	2,240	3,270	1,430
23	430e	180e	100e	60e	40e	30e	90e	2,550	3,490	2,200	2,880	1,380
24	410e	180e	100e	60e	40e	30e	130e	3,380	4,350	2,280	2,820	1,340
25	400e	170e	100e	60e	40e	30e	200e	3,810	4,290	3,260	3,020	1,340
26	390e	170e	100e	50e	40e	20e	280e	2,790	3,550	3,520	2,840	1,330
27	380e	170e	90e	50e	40e	20e	420e	2,380	3,130	3,120	2,660	1,330
28	370e	160e	90e	50e	40e	20e	620e	4,420	4,410	2,650	2,700	1,390
29	360e	160e	90e	50e	-----	20e	920e	5,280	4,140	2,280	3,380	1,430
30	350e	160e	90e	50e	-----	20e	1,300e	3,700	3,200	2,100	3,600	1,410
31	340e	-----	90e	50e	-----	20e	-----	2,820	-----	2,370	3,350	-----
TOTAL	21,225	6,789	3,630	2,020	1,270	920	4,469	82,230	87,769	119,650	96,370	53,180
MEAN	685	226	117	65.2	45.4	29.7	149	2,653	2,926	3,860	3,109	1,773
MAX	1,400	330	150	80	50	40	1,300	5,280	7,330	8,220	4,830	3,080
MIN	340	160	90	50	40	20	19	1,410	793	2,100	1,790	1,330
AC-FT	42,100	13,470	7,200	4,010	2,520	1,820	8,860	163,100	174,100	237,300	191,100	105,500
CAL YEAR 1997	TOTAL	331,847	MEAN	909	MAX	7,590	MIN	0	AC-FT	658,209		
WTR YEAR 1998	TOTAL	479,522	MEAN	1,314	MAX	8,220	MIN	19	AC-FT	951,100		

e Estimated daily mean discharge

Birch Creek
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N66°18.20', Long W142°29.22', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1993.

REMARKS.-This gaging station was initiated on June 10, 1993.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 3,310 cfs, July 11, 1993 @23:45 hrs; Minimum Discharge, 450 cfs, Aug. 6, 1993 @18:45 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 3,310 cfs, July 11, 1993 @23:45 hrs; Minimum Discharge, 450 cfs, Aug. 6, 1993 @18:45 hrs.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	872	548	804
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	733	562	824
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	666	567	993
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	656	529	1,560
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	692	508	2,680
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	917	472	2,520
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,200	461	2,240
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,220	588	2,070
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,870	1,620	1,810
10	-----	-----	-----	-----	-----	-----	-----	-----	729	3,200	1,670	1,630
11	-----	-----	-----	-----	-----	-----	-----	-----	843	2,810	1,490	1,490
12	-----	-----	-----	-----	-----	-----	-----	-----	938	2,230	1,360	1,360
13	-----	-----	-----	-----	-----	-----	-----	-----	876	1,710	1,300	1,340
14	-----	-----	-----	-----	-----	-----	-----	-----	1,670	1,370	1,240	1,350
15	-----	-----	-----	-----	-----	-----	-----	-----	1,710	1,110	1,240	1,340
16	-----	-----	-----	-----	-----	-----	-----	-----	1,240	931	1,260	1,440
17	-----	-----	-----	-----	-----	-----	-----	-----	939	806	1,110	1,680
18	-----	-----	-----	-----	-----	-----	-----	-----	786	729	878	1,750
19	-----	-----	-----	-----	-----	-----	-----	-----	727	638	779	1,840
20	-----	-----	-----	-----	-----	-----	-----	-----	717	567	700	2,160
21	-----	-----	-----	-----	-----	-----	-----	-----	730	496	652	2,120
22	-----	-----	-----	-----	-----	-----	-----	-----	696	478	634	2,340
23	-----	-----	-----	-----	-----	-----	-----	-----	665	495	643	2,410
24	-----	-----	-----	-----	-----	-----	-----	-----	651	533	658	2,310
25	-----	-----	-----	-----	-----	-----	-----	-----	634	543	675	2,020
26	-----	-----	-----	-----	-----	-----	-----	-----	613	514	953	1,800
27	-----	-----	-----	-----	-----	-----	-----	-----	607	548	1,290	1,720
28	-----	-----	-----	-----	-----	-----	-----	-----	611	618	1,180	1,290
29	-----	-----	-----	-----	-----	-----	-----	-----	687	589	1,000	1,240
30	-----	-----	-----	-----	-----	-----	-----	-----	867	557	871	1,340
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	551	821	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	-----	30,849	28,259	51,471
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	-----	995	912	1,716
MAX	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,200	1,670	2,680
MIN	-----	-----	-----	-----	-----	-----	-----	-----	-----	478	461	804
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	-----	61,190	56,050	102,100

CAL YEAR 1992 TOTAL 0
WTR YEAR 1993 TOTAL 128,515 MEAN 1,137 MAX 3,200 MIN 461 AC-FT 254,900

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N $66^{\circ}18.20'$, Long W $142^{\circ}29.22'$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1994.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects on stage recording equipment.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 15,000 cfs, June 25, 1994 @10:15 hrs; Minimum Discharge, 60 cfs, Feb. 16 thru Apr. 20, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 15,000 cfs, June 25, 1994 @10:15 hrs;
Minimum Discharge, 60 cfs, Feb. 16 thru Apr. 20, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,340	360e	180e	130e	70e	60e	60e	-----	1,210	9,530	849	689
2	1,230	350e	180e	120e	70e	60e	60e	-----	1,160	7,760	781	695
3	1,190	340e	180e	120e	70e	60e	60e	-----	1,070	5,670	720	697
4	1,190	330e	180e	120e	70e	60e	60e	-----	1,050	4,170	670	706
5	1,130	310e	170e	110e	70e	60e	60e	-----	1,520	3,300	634	798
6	1,090	300e	170e	110e	70e	60e	60e	-----	1,670	3,180	610	841
7	1,020e	290e	170e	110e	70e	60e	60e	-----	1,890	3,850	612	841
8	960e	280e	170e	110e	70e	60e	60e	-----	1,850	4,580	601	864
9	900e	270e	170e	110e	70e	60e	60e	-----	1,840	3,800	567	930
10	840e	259	160e	110e	70e	60e	60e	-----	2,070	2,920	535	937
11	790e	250e	160e	100e	70e	60e	60e	-----	1,820	2,310	512	908
12	740e	240e	160e	100e	70e	60e	60e	-----	1,590	1,910	499	899
13	700e	240e	160e	100e	70e	60e	60e	-----	1,370	1,620	486	874
14	660e	230e	160e	100e	70e	60e	60e	-----	1,170	1,520	470	848
15	620e	230e	150e	100e	70e	60e	60e	-----	1,020	1,720	463	840
16	590e	230e	150e	100e	60e	60e	55	-----	914	1,730	468	849
17	560e	220e	150e	90e	60e	60e	50e	-----	818	1,600	473	848
18	530e	220e	150e	90e	60e	60e	50e	-----	764	1,420	483	893
19	510e	220e	150e	90e	60e	60e	50e	-----	763	1,410	476	1,100
20	490e	210e	150e	90e	60e	60e	50e	-----	1,170	1,570	468	1,160
21	470e	210e	140e	90e	60e	60e	-----	-----	5,280	1,610	473	1,110
22	460e	210e	140e	90e	60e	60e	-----	-----	9,870	1,500	480	1,140
23	450e	210e	140e	90e	60e	60e	-----	-----	12,900e	1,670	482	1,210
24	440e	200e	140e	80e	60e	60e	-----	-----	13,900e	1,620	483	1,180
25	430e	200e	140e	80e	60e	60e	-----	-----	14,800e	1,400	499	1,120
26	420e	200e	140e	80e	60e	60e	-----	-----	13,200e	1,210	558	1,030
27	410e	200e	140e	80e	60e	60e	-----	-----	13,200e	1,080	606	960
28	400e	190e	140e	80e	60e	60e	-----	-----	14,400e	977	632	905
29	390e	190e	130e	80e	-----	60e	-----	-----	14,000e	898	643	840
30	380e	190e	130e	80e	-----	60e	-----	-----	11,500e	838	638	791
31	370e	-----	130e	80e	-----	60e	-----	-----	-----	818	671	-----
TOTAL	21,700	7,379	4,780	3,020	1,830	1,860	-----	-----	149,779	79,191	17,542	27,503
MEAN	700	246	154	97.4	65.4	60.0	-----	-----	4,993	2,555	566	917
MAX	1,340	360	180	130	70	60	-----	-----	14,800	9,530	849	1,210
MIN	370	190	130	80	60	60	-----	-----	763	818	463	689
AC-FT	43,040	14,640	9,480	5,990	3,630	3,690	-----	-----	297,100	157,100	34,790	54,550
CAL YEAR 1993 TOTAL		169,190	MEAN	464	MAX	3,190	MIN	130	AC-FT	335,600		
WTR YEAR 1994 TOTAL		315,739	MEAN	975	MAX	14,800	MIN	50	AC-FT	626,300		

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N $66^{\circ}18.20'$, Long W $142^{\circ}29.22'$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1995.

REMARKS.-Winter data is estimated due to ice effects. All estimated data is considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 13,300 cfs, May 2, 1995 @20:15 hrs; Minimum Discharge, 40 cfs, Mar. 26 thru Apr. 12, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 15,000 cfs, June 25, 1994 @10:15 hrs;
Minimum Discharge, 40 cfs, Mar. 26 thru Apr. 12, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	770	270e	150e	80e	60e	50e	40e	13,000e	1,220	5,720	1,260	3,960
2	735	260e	150e	80e	60e	50e	40e	13,300e	1,430	3,840	1,150	8,490
3	681	260e	150e	80e	60e	50e	40e	11,800e	1,600	2,990	1,160	9,260
4	633	250e	140e	80e	60e	50e	40e	10,800	1,590	2,660	1,240	7,910
5	637	250e	140e	80e	60e	50e	40e	9,530	1,580	2,230	1,370	6,850
6	640e	240e	140e	80e	60e	50e	40e	7,950	1,400	1,860	1,740	5,940
7	630e	240e	130e	80e	60e	50e	40e	6,730	1,200	1,580	2,730	4,880
8	600e	230e	130e	80e	60e	50e	40	5,760	1,070	1,380	2,880	4,100
9	570e	230e	130e	80e	60e	50e	40e	5,120	1,090	1,240	2,400	3,620
10	540e	220e	120e	80e	60e	50e	40e	4,500	1,140	1,210	1,950	3,280
11	510e	220e	120e	70e	60e	50e	40e	3,980	1,060	1,170	1,740	3,070
12	480e	220e	120e	70e	50e	50e	40e	3,760	965	1,320	1,620	2,870
13	460e	210e	120e	70e	50e	50e	75e	3,420	872	1,660	1,490	2,730
14	440e	210e	110e	70e	50e	50e	100e	3,020	799	1,570	1,520	2,780
15	420e	210e	110e	70e	50e	50e	130e	2,580	740	1,610	1,490	2,870
16	400e	200e	110e	70e	50e	50e	170e	2,430	684	1,870	1,440	2,840
17	390e	200e	110e	70e	50e	50e	230e	5,190	683	2,520	1,450	2,690
18	380e	200e	100e	70e	50e	50e	310e	5,220	907	3,440	1,690	2,480
19	370e	190e	100e	70e	50e	50e	410e	3,360	3,240	2,810	2,030	2,260
20	360e	190e	100e	70e	50e	50e	550e	2,310	3,570	2,140	2,010	2,070
21	350e	190e	100e	70e	50e	50e	730e	1,780	2,880	1,770	1,850	1,910
22	340e	180e	100e	70e	50e	50e	980e	1,920	2,130	1,720	1,800	1,780
23	330e	180e	90e	70e	50e	50e	1,300e	2,540	1,590	2,410	1,970	1,670
24	320e	180e	90e	70e	50e	50e	1,700e	2,050	1,330	2,490	2,130	1,570
25	310e	170e	90e	70e	50e	50e	2,300e	1,600	1,460	2,040	1,990	1,480
26	300e	170e	90e	70e	50e	40e	3,100e	1,310	3,360	1,900	1,790	1,410
27	290e	170e	90e	70e	50e	40e	4,100e	1,140	6,840	2,400	1,690	1,380
28	290e	160e	90e	70e	50e	40e	5,500e	1,140	10,500	2,500	1,640	1,390
29	280e	160e	80e	60e	-----	40e	7,300e	1,070	12,200e	2,120	1,550	1,520
30	280e	160e	80e	60e	-----	40e	9,800e	991	9,180	1,730	1,440	1,710
31	270e	-----	80e	60e	-----	40e	-----	1,010	-----	1,450	1,450	-----
TOTAL	14,006	6,220	3,460	2,240	1,510	1,490	39,265	140,311	78,310	67,350	53,660	100,770
MEAN	452	207	112	72.3	53.9	48.1	1,309	4,526	2,610	2,173	1,731	3,359
MAX	770	270	150	80	60	50	9,800	13,300	12,200	5,720	2,880	9,260
MIN	270	160	80	60	50	40	40	991	683	1,170	1,150	1,380
AC-FT	27,780	12,340	6,860	4,440	3,000	2,960	77,880	278,300	155,300	133,600	106,400	199,900
CAL YEAR 1994 TOTAL	296,591	MEAN	813	MAX	14,800	MIN	80	AC-FT	588,300			
WTR YEAR 1995 TOTAL	508,592	MEAN	1,393	MAX	13,300	MIN	40	AC-FT	1,009,000			

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N $66^{\circ}18.20'$, Long W $142^{\circ}29.22'$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1996.

REMARKS.-Winter data is estimated due to ice effects. All estimated data is considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 7,740 cfs, May 30, 1996 @11:45 hrs; Minimum Discharge, 10 cfs, Apr. 1-15, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 15,000 cfs, June 25, 1994 @10:15 hrs;
Minimum Discharge, 10 cfs, Apr. 1-15, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,700	380e	160e	50e	20e	15e	10e	814	3,730	330	357	915
2	1,620	370e	150e	50e	20e	15e	10e	914	3,400	448	384	878
3	1,540	360e	150e	50e	20e	15e	10e	820	3,210	918	475	976
4	1,460	350e	140e	50e	20e	15e	10e	757	2,580	1,560	575	1,010
5	1,370	340e	140e	50e	20e	15e	10e	756	2,160	1,400	616	1,020
6	1,280	330e	130e	40e	15e	15e	10e	975	1,740	1,110	1,160	969
7	1,190	320e	130e	40e	15e	15e	12	1,280	1,360	906	1,410	1,000
8	1,100	310e	120e	40e	15e	15e	10e	1,370	1,140	783	1,180	989
9	1,000	300e	120e	40e	15e	15e	10e	1,440	1,010	675	960	907
10	982	290e	110e	40e	15e	15e	10e	1,550	965	611	808	827
11	964	280e	110e	40e	15e	15e	10e	1,760	973	554	704	764
12	926	270e	100e	40e	15e	15e	10e	1,910	935	516	901	724
13	843	260e	100e	30e	15e	15e	10e	2,330	940	482	1,360	711
14	800e	250e	90e	30e	15e	15e	10e	4,130	887	466	1,340	696
15	780e	240e	90e	30e	15e	15e	10e	5,880	804	465	1,180	696
16	750e	230e	90e	30e	15e	15e	15k	6,380	743	545	1,120	709
17	720e	229	80e	30e	15e	15e	20k	5,840	668	759	1,090	700
18	690e	220e	80e	30e	15e	15e	25k	4,440	589	767	1,160	687
19	660e	220e	80e	30e	15e	15e	35k	2,900	527	651	2,340	686
20	630e	210e	80e	30e	15e	15e	45k	2,270	482	549	3,270	692
21	600e	210e	70e	30e	15e	15e	60k	3,010	439	466	2,760	694
22	580e	200e	70e	30e	15e	15e	75k	3,350	399	405	2,550	722
23	560e	200e	70e	20e	15e	15e	100k	3,150	371	360	2,140	832
24	540e	190e	70e	20e	15e	15e	130k	3,130	385	328	1,700	880
25	520e	190e	60e	20e	15e	15e	170k	3,330	471	305	1,390	842
26	500e	180e	60e	20e	15e	15e	220k	3,410	439	294	1,180	789
27	480e	180e	60e	20e	15e	15e	290k	3,000	402	284	1,030	743
28	460e	170e	60e	20e	15e	15e	370k	2,620	378	272	935	702
29	440e	170e	60e	20e	15e	15e	480k	3,900	355	277	970	736
30	420e	160e	60e	20e	-----	15e	630k	7,380	349	315	1,000	781
31	400e	-----	50e	20e	-----	15e	-----	5,710	-----	338	975	-----
TOTAL	26,505	7,609	2,940	1,010	460	465	2,817	90,506	32,831	18,139	39,020	24,277
MEAN	855	254	94.8	32.6	15.9	15.0	93.9	2,920	1,094	585	1,259	809
MAX	1,700	380	160	50	20	15	630	7,380	3,730	1,560	3,270	1,020
MIN	400	160	50	20	15	15	10	756	349	272	357	686
AC-FT	52,570	15,090	5,830	2,000	912	922	5,590	179,500	65,120	35,980	77,400	48,150
CAL YEAR 1995	TOTAL	582,104	MEAN	1,595	MAX	13,300	MIN	50	AC-FT	1,155,000		
WTR YEAR 1996	TOTAL	246,579	MEAN	674	MAX	7,380	MIN	10	AC-FT	489,100		

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N $66^{\circ}18.20'$, Long W $142^{\circ}29.22'$, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1997.

REMARKS.-Winter data is estimated due to ice effects. All estimated data is considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 14,800 cfs, June 18, 1997 @03:00 hrs; Minimum Discharge, 20 cfs, Feb. 11, thru Apr. 15, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 15,000 cfs, June 25, 1994 @10:15 hrs;
Minimum Discharge, 10 cfs, Apr. 1-15, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	741	190e	90e	40e	30e	20e	20e	3,530	1,850	918	683	3,240	
2	688	180e	90e	40e	30e	20e	20e	3,910	2,590	829	632	2,710	
3	633	180e	90e	40e	30e	20e	20e	3,970	2,170	749	608	2,350	
4	583	170e	90e	40e	30e	20e	20e	4,070	1,700	683	555	2,120	
5	516	170e	80e	40e	30e	20e	20e	4,230	1,430	628	524	1,920	
6	457	160e	80e	40e	30e	20e	20e	4,540	1,400	590	508	1,760	
7	421	160e	80e	40e	30e	20e	20e	4,540	1,460	614	511	1,630	
8	403	160e	80e	40e	30e	20e	20e	4,440	1,430	658	3,910	1,560	
9	386	150e	80e	40e	30e	20e	20e	3,930	1,270	648	10,100	1,600	
10	374	150e	70e	40e	30e	20e	20e	3,630	1,120	639	8,450	1,660	
11	360e	140e	70e	30e	20e	20e	20e	3,570	1,220	638	6,060	1,580	
12	340e	140e	70e	30e	20e	20e	20e	5,230	3,310	603	4,950	1,510	
13	320e	140e	70e	30e	20e	20e	20e	7,410	5,560	565	5,930	1,490	
14	300e	130e	70e	30e	20e	20e	20e	7,440	4,310	563	5,920	1,670	
15	290e	130e	70e	30e	20e	20e	20e	9,040	3,560	618	5,100	2,080	
16	280e	130e	60e	30e	20e	20e	20e	12,100e	7,950	1,160	6,550	2,960	
17	270e	120e	60e	30e	20e	20e	20e	12,200e	13,500e	2,050	6,220	3,100	
18	260e	120e	60e	30e	20e	20e	20e	21	10,400	14,000e	1,690	5,260	2,650
19	250e	120e	60e	30e	20e	20e	20e	7,570	10,200	1,310	6,030	2,240	
20	250e	120e	60e	30e	20e	20e	20e	5,820	6,390	1,070	7,290	2,030	
21	240e	110e	60e	30e	20e	20e	50e	4,770	4,220	937	6,620	1,980	
22	240e	110e	60e	30e	20e	20e	75e	3,990	3,290	1,030	4,940	1,820	
23	230e	110e	50e	30e	20e	20e	110e	3,480	3,240	1,350	3,790	1,650	
24	230e	110e	50e	30e	20e	20e	170e	3,330	2,840	1,380	3,100	1,510	
25	220e	100e	50e	30e	20e	20e	270e	2,840	2,300	1,210	2,630	1,400	
26	220e	100e	50e	30e	20e	20e	410e	2,360	1,930	1,090	2,280	1,310	
27	210e	100e	50e	30e	20e	20e	630e	2,080	1,630	1,140	2,050	1,220	
28	210e	100e	50e	30e	20e	20e	970e	1,790	1,370	1,070	1,990	1,150	
29	200e	90e	50e	30e	-----	20e	1,500e	1,520	1,160	940	3,840	1,090	
30	200e	90e	40e	30e	-----	20e	2,300e	1,330	1,020	827	4,790	1,040	
31	190e	-----	40e	30e	-----	20e	-----	1,250	-----	744	3,990	-----	
TOTAL	10,512	3,980	2,030	1,030	660	620	6,901	150,310	109,420	28,941	125,811	56,030	
MEAN	339	133	65.5	33.2	23.6	20.0	230	4,849	3,647	934	4,058	1,868	
MAX	741	190	90	40	30	20	2,300	12,200	14,000	2,050	10,100	3,240	
MIN	190	90	40	30	20	20	20	1,250	1,020	563	508	1,040	
AC-FT	20,850	7,890	4,030	2,040	1,310	1,230	13,690	298,100	217,000	57,400	249,500	111,100	
CAL YEAR 1996 TOTAL	248,209	MEAN	678	MAX	7,410	MIN	40	AC-FT	492,300				
WTR YEAR 1997 TOTAL	496,245	MEAN	1,360	MAX	14,000	MIN	20	AC-FT	984,300				

e Estimated daily mean discharge

YUKON FLATS NATIONAL WILDLIFE REFUGE

Black River

LOCATION.-Lat N66°18.20', Long W142°29.22', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.17N., R.25E., Fairbanks Meridian.
Located adjacent to Tommy Lake.

DRAINAGE AREA.-2085 mi².

PERIOD OF RECORD.-June 9, 1993 thru Sept. 30, 1998.

REMARKS.-Winter data is estimated due to ice effects. All estimated data is considered to be poor. This station was discontinued on Sept. 30, 1998.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 9,260 cfs, June 25, 1998 @07:30 hrs; Minimum Discharge, 70 cfs, Feb. 07, thru March 24, 1998.

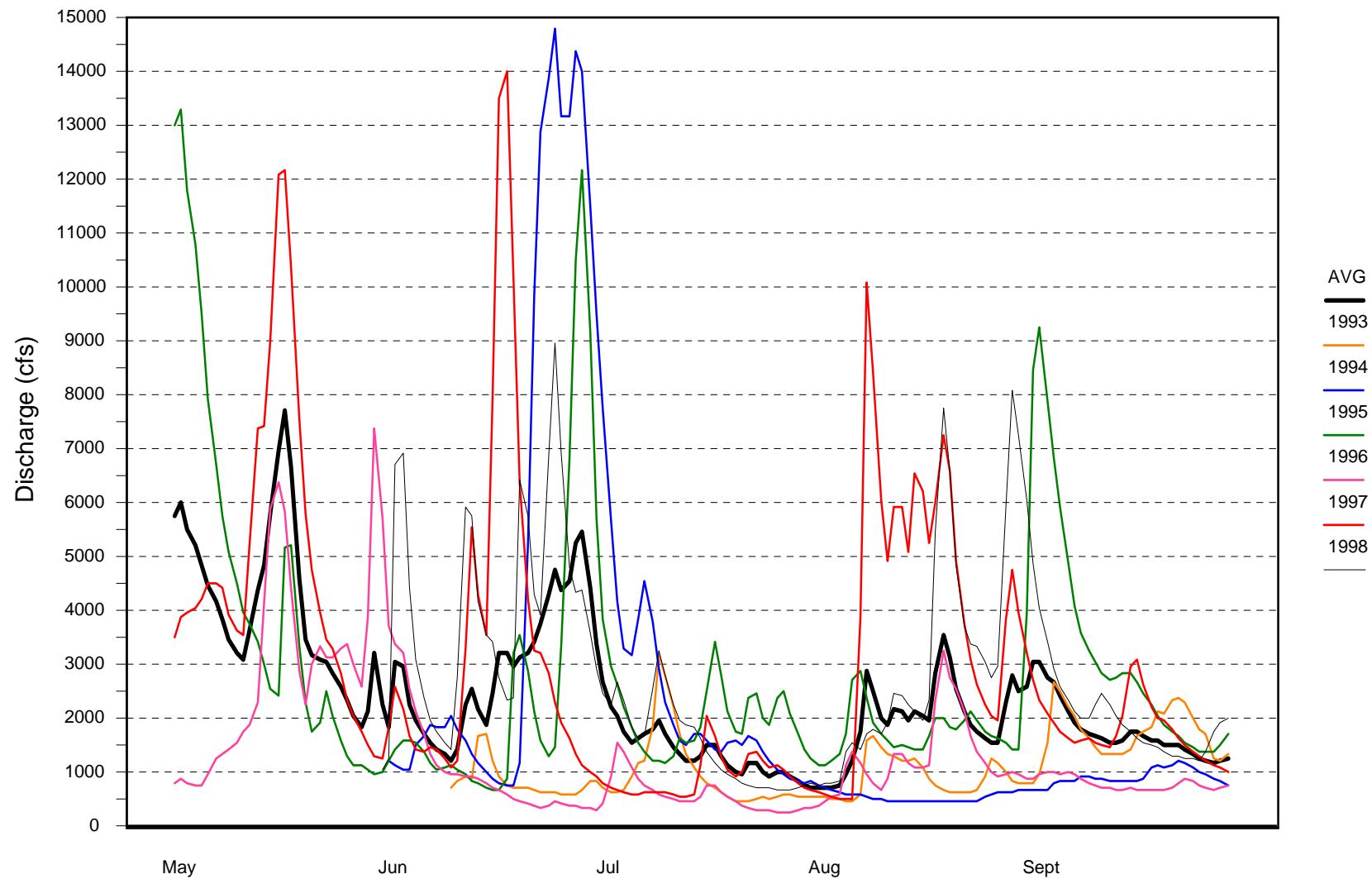
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 14,800 cfs, June 25, 1994; Minimum Discharge, 10 cfs, Apr. 1-15, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	990	310e	140e	90e	70e	70e	110e	-----	1,290	2,930	794	6,080
2	949	300e	140e	90e	70e	70e	110e	-----	6,710	2,460	778	4,900
3	904	290e	140e	90e	70e	70e	120e	-----	6,930	2,280	823	4,050
4	864	280e	140e	80e	70e	70e	120e	-----	4,440	2,670	821	3,430
5	835	270e	140e	80e	70e	70e	120e	-----	3,110	2,340	848	2,950
6	791	260e	130e	80e	70e	70e	130e	-----	2,390	1,840	1,390	2,600
7	750	250e	130e	80e	70e	70e	130e	-----	1,970	1,640	1,580	2,340
8	709	240e	130e	80e	70e	70e	130e	-----	1,760	1,700	1,450	2,150
9	682	240e	130e	80e	70e	70e	140e	-----	1,560	2,570	1,730	2,030
10	671	230e	130e	80e	70e	70e	150e	-----	1,420	3,250	1,800	2,030
11	653	230e	120e	80e	70e	70e	160e	-----	2,780	2,810	1,710	2,290
12	630e	222	120e	70e	70e	70e	170e	-----	5,920	2,260	1,920	2,460
13	610e	210e	120e	70e	70e	70e	186	-----	5,790	1,990	2,490	2,270
14	590e	200e	120e	70e	70e	70e	198	-----	4,190	1,900	2,420	2,050
15	570e	200e	120e	70e	70e	70e	229	-----	3,580	1,850	2,280	1,880
16	550e	190e	110e	70e	70e	70e	252	-----	3,430	1,630	2,140	1,770
17	530e	190e	110e	70e	70e	70e	288	-----	2,770	1,390	1,970	1,660
18	510e	190e	110e	70e	70e	70e	530	-----	2,370	1,200	2,360	1,570
19	490e	180e	110e	70e	70e	70e	629	-----	2,390	1,070	5,470	1,520
20	470e	180e	110e	70e	70e	70e	587	-----	6,450	968	7,750	1,470
21	450e	180e	100e	70e	70e	70e	621	-----	5,780	890	6,600	1,400
22	430e	170e	100e	70e	70e	70e	1,020	-----	4,320	816	4,850	1,330
23	420e	170e	100e	70e	70e	70e	-----	-----	3,920	757	3,740	1,300
24	410e	170e	100e	70e	70e	70e	-----	-----	6,890	723	3,380	1,290
25	400e	160e	100e	70e	70e	80e	-----	-----	8,980	717	3,360	1,250
26	390e	160e	90e	70e	70e	80e	-----	-----	6,950	726	3,070	1,240
27	380e	160e	90e	70e	70e	90e	-----	-----	4,810	700	2,770	1,410
28	370e	150e	90e	70e	70e	90e	-----	-----	4,350	679	2,970	1,770
29	360e	150e	90e	70e	70e	100e	-----	-----	4,380	698	5,940	1,950
30	350e	150e	90e	70e	70e	100e	-----	-----	3,620	743	8,120	2,040
31	320e	-----	90e	70e	70e	110e	-----	1,080	-----	764	7,280	-----
TOTAL	18,028	6,282	3,540	2,310	1,960	2,330	-----	-----	125,250	48,961	94,604	66,480
MEAN	582	209	114	74.5	70.0	75.2	-----	-----	4,175	1,579	3,052	2,216
MAX	990	310	140	90	70	110	-----	-----	8,980	3,250	8,120	6,080
MIN	320	150	90	70	70	70	-----	-----	1,290	679	778	1,240
AC-FT	35,760	12,460	7,020	4,580	3,890	4,620	-----	-----	248,400	97,110	187,600	131,900
CAL YEAR 1997	TOTAL	496,103	MEAN	1,359	MAX	14,000	MIN	21	AC-FT	984,000		
WTR YEAR 1998	TOTAL	376,955	MEAN	1,153	MAX	8,980	MIN	70	AC-FT	747,700		

e Estimated daily mean discharge

Black River
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic RiverLOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.21N., R.4E., Fairbanks Meridian.DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1993.

REMARKS.-This gaging station was initiated on July 16, 1993.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 1,890 cfs, Sept. 232, 1993 @18:30 hrs;
Minimum Discharge, 39 cfs, July 25, 1993 @09:00 hrs.EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 1,890 cfs, Sept. 23, 1993 @18:30 hrs;
Minimum Discharge, 39 cfs, July 25, 1993 @09:00 hrs.DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	57	163
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	55	194
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	55	284
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	60	443
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	67	1,020
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	71	1,230
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	65	1,020
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	73	847
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	83	709
10	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	84	527
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	77	420
12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	68	367
13	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	66	325
14	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	80	299
15	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	64	296
16	-----	-----	-----	-----	-----	-----	-----	-----	-----	60	56	308
17	-----	-----	-----	-----	-----	-----	-----	-----	-----	56	57	274
18	-----	-----	-----	-----	-----	-----	-----	-----	-----	55	79	280
19	-----	-----	-----	-----	-----	-----	-----	-----	-----	51	129	377
20	-----	-----	-----	-----	-----	-----	-----	-----	-----	47	130	395
21	-----	-----	-----	-----	-----	-----	-----	-----	-----	47	118	416
22	-----	-----	-----	-----	-----	-----	-----	-----	-----	44	104	641
23	-----	-----	-----	-----	-----	-----	-----	-----	-----	42	97	1,630
24	-----	-----	-----	-----	-----	-----	-----	-----	-----	41	95	1,600
25	-----	-----	-----	-----	-----	-----	-----	-----	-----	40	114	1,090
26	-----	-----	-----	-----	-----	-----	-----	-----	-----	41	308	812
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	42	439	609
28	-----	-----	-----	-----	-----	-----	-----	-----	-----	42	340	509
29	-----	-----	-----	-----	-----	-----	-----	-----	-----	61	269	361
30	-----	-----	-----	-----	-----	-----	-----	-----	-----	66	217	346
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	60	180	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,757	17,792
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	121	593
MAX	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	439	1,630
MIN	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	55	163
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	7,450	35,290
CAL YEAR 1992 TOTAL				0								
WTR YEAR 1993 TOTAL	22,344	MEAN	290	MAX	1,630	MIN	40	AC-FT	44,320			

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic River

LOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.21N., R.4E., Fairbanks Meridian.DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1994.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects on stage recording equipment and equipment damage from wildlife.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 1,440 cfs, Aug. 28, 1994 @17:30 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 1,890 cfs, Sept. 23, 1993 @18:30 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	252	40e	20e	15e	10e	10 e	0e	-----	-----	266	87	460
2	214	40e	20e	15e	10e	10 e	0e	-----	-----	214	87	383
3	179	30e	20e	15e	10e	10 e	0e	-----	-----	174	86	328
4	163	30e	20e	15e	10e	5.0e	0e	-----	-----	149	82	288
5	160e	30e	20e	15e	10e	5.0e	0e	-----	246	130	78	259
6	150e	30e	20e	15e	10e	5.0e	0e	-----	230	116	74	238
7	140e	30e	20e	15e	10e	5.0e	0e	-----	221	106	72	222
8	130e	25e	20e	15e	10e	5.0e	0e	-----	218	97	71	204
9	130e	25e	20e	15e	10e	5.0e	0e	-----	224	103	69	188
10	120e	24	20e	15e	10e	5.0e	0e	-----	264	97	66	178
11	120e	25e	20e	15e	10e	5.0e	0e	-----	448	89	72	170
12	110e	20e	20e	15e	10e	5.0e	0e	-----	404	82	79	160
13	110e	20e	20e	15e	10e	5.0e	0e	-----	338	78	76	155e
14	100e	20e	20e	15e	10e	5.0e	0e	-----	289	79	73	145e
15	100e	20e	20e	15e	10e	5.0e	0	-----	252	78	70	140e
16	90e	20e	20e	15e	10e	5.0e	0e	-----	220	79	68	135e
17	90e	20e	20e	15e	10e	5.0e	0e	-----	194	81	66	130e
18	80e	20e	20e	15e	10e	5.0e	0e	-----	177	91	66	125e
19	80e	20e	20e	15e	10e	5.0e	0e	-----	161	97	66	117e
20	70e	20e	20e	15e	10e	5.0e	-----	-----	147	114	65	115e
21	70e	20e	20e	10e	10e	5.0e	-----	-----	135	201	112	113e
22	70e	20e	20e	10e	10e	5.0e	-----	-----	133	297	147	112e
23	60e	20e	20e	10e	10e	5.0e	-----	-----	134	274	134	110e
24	60e	20e	20e	10e	10e	5.0e	-----	-----	135	226	131	110
25	60e	20e	20e	10e	10e	5.0e	-----	-----	172	189	150	112
26	50e	20e	15e	10e	10e	5.0e	-----	-----	295	160	169	112
27	50e	20e	15e	10e	10e	5.0e	-----	-----	308	141	564	109
28	50e	20e	15e	10e	10e	5.0e	-----	-----	456	127	1,350	106
29	50e	20e	15e	10e	-----	0 e	-----	-----	480	113	1,270	101
30	40e	20e	15e	10e	-----	0 e	-----	-----	348	103	879	93
31	40e	-----	15e	10e	-----	0 e	-----	-----	94	595	-----	-----
TOTAL	3,188	709	590	410	280	155.0	-----	-----	6,629	4,245	6,974	5,218
MEAN	103	23.6	19.0	13.2	10.0	5.00	-----	-----	255	137	225	174
MAX	252	40	20	15	10	10	-----	-----	480	297	1,350	460
MIN	40	20	15	10	10	0	-----	-----	133	78	65	93
AC-FT	6,320	1,410	1,170	813	555	307	-----	-----	13,150	8,420	13,830	10,350
CAL YEAR 1993	TOTAL	24,101.0	MEAN	66.0	MAX	1,330	MIN	15	AC-FT	47,800		
WTR YEAR 1994	TOTAL*	28,398.0	MEAN	89.0	MAX	1,350	MIN	0	AC-FT	56,330		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic River

LOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.21N., R.4E., Fairbanks Meridian.

DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1995.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 2,320 cfs, Sept. 5, 1995 @09:15 hrs; Minimum Discharge, 0 cfs, Mar. 3 thru Apr. 15, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,320 cfs, Sept. 5, 1995 @09:15 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994; 0 cfs, Mar. 3 thru Apr. 15, 1995

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90e	15e	10 e	5.0e	5.0e	5.0e	0 e	260e	926	112	82	274
2	90e	15e	10 e	5.0e	5.0e	5.0e	0 e	340e	902	101	79	993
3	80e	15e	10 e	5.0e	5.0e	5.0e	0 e	430e	709	103	76	1,820
4	80e	15e	10 e	5.0e	5.0e	5.0e	0 e	550e	753	98	78	2,050
5	70e	15e	10 e	5.0e	5.0e	5.0e	0 e	710e	1,090	96	78	2,210
6	70e	15e	10 e	5.0e	5.0e	0 e	0 e	910e	950	96	106	1,670
7	60e	15e	10 e	5.0e	5.0e	0 e	0 e	1,200e	727	104	333	1,310
8	60e	10e	10 e	5.0e	5.0e	0 e	0 e	1,500e	571	95	315	1,100
9	60e	10e	10 e	5.0e	5.0e	0 e	0 e	1,910	461	85	472	1,020
10	50e	10e	10 e	5.0e	5.0e	0 e	0 e	1,650	396	77	474	1,090
11	50e	10e	10 e	5.0e	5.0e	0 e	0 e	1,570	387	70	376	1,270
12	50e	10e	10 e	5.0e	5.0e	0 e	0 e	1,450	352	65	315	1,210
13	40e	10e	10 e	5.0e	5.0e	0 e	0 e	1,220	305	62	283	1,100
14	40e	10e	10 e	5.0e	5.0e	0 e	0 e	1,020	263	61	292	1,320
15	40e	10e	10 e	5.0e	5.0e	0 e	0 e	836	228	63	348	1,350
16	40e	10e	10 e	5.0e	5.0e	0 e	5.0e	725	199	68	355	1,150
17	40e	10e	5.0e	5.0e	5.0e	0 e	10 e	815	184	98	839	946
18	30e	10e	5.0e	5.0e	5.0e	0 e	15 e	678	175	126	1,100	796
19	30e	10e	5.0e	5.0e	5.0e	0 e	15 e	512	168	186	867	680
20	30e	10e	5.0e	5.0e	5.0e	0 e	20 e	414	165	184	666	596
21	30e	10e	5.0e	5.0e	5.0e	0 e	20 e	355	149	162	554	532
22	30e	10e	5.0e	5.0e	5.0e	0 e	30 e	312	132	159	491	483
23	20e	10e	5.0e	5.0e	5.0e	0 e	35 e	274	117	144	457	444
24	20e	10e	5.0e	5.0e	5.0e	0 e	45 e	238	105	128	403	415
25	20e	10e	5.0e	5.0e	5.0e	0 e	60 e	209	104	118	358	386
26	20e	10e	5.0e	5.0e	5.0e	0 e	75 e	197	143	113	322	368
27	20e	10e	5.0e	5.0e	5.0e	0 e	95 e	218	134	104	294	359
28	20e	10e	5.0e	5.0e	5.0e	0 e	120 e	833	125	98	272	394
29	15e	10e	5.0e	5.0e	-----	0 e	160 e	1,340	127	103	252	494
30	15e	10e	5.0e	5.0e	-----	0 e	200 e	1,110	124	96	235	570
31	15e	-----	5.0e	5.0e	-----	0 e	-----	828	-----	88	233	-----
TOTAL	1,325	335	235.0	155.0	140.0	15.0	905.0	24,614	11,171	3,263	11,405	28,400
MEAN	42.7	11.2	7.58	5.00	5.00	.48	30.2	794	372	105	368	947
MAX	90	15	10	5.0	5.0	5.0	200	1,910	1,090	186	1,100	2,210
MIN	15	10	5.0	5.0	5.0	0	0	197	104	61	76	274
AC-FT	2,630	664	466	307	278	30	1,800	48,820	22,160	6,470	22,620	56,330
CAL YEAR 1994 TOTAL	34,498.0	MEAN	94.5	MAX	1,550	MIN	5.0	AC-FT	68,430			
WTR YEAR 1995 TOTAL	81,963.0	MEAN	225	MAX	2,210	MIN	0	AC-FT	162,600			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic River

LOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.21N., R.4E., Fairbanks Meridian.

DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1996.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. No data are reported April 21 thru May 31, 1996 gages were ice effected.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 801 cfs, July 17, 1996 @05:30 hrs; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 20, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,320 cfs, Sept. 5, 1995 @09:15 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994; Mar. 3 thru Apr. 15, 1995; Mar. 16 thru Apr. 20, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	545	40e	15e	10e	10 e	5.0e	0e	-----	172	151	175	96
2	461	40e	15e	10e	10 e	5.0e	0e	-----	152	222	308	86
3	423	30e	15e	10e	10 e	5.0e	0e	-----	138	265	263	117
4	388	30e	15e	10e	10 e	5.0e	0e	-----	138	321	234	157
5	360	30e	15e	10e	10 e	5.0e	0	-----	105	264	221	138
6	338	30e	15e	10e	5.0e	5.0e	0e	-----	108	213	181	121
7	302	20e	15e	10e	5.0e	5.0e	0e	-----	109	198	139	108
8	266	20e	15e	10e	5.0e	5.0e	0e	-----	112	165	112	97
9	241	20e	15e	10e	5.0e	5.0e	0e	-----	121	133	96	88
10	227	20e	15e	10e	5.0e	5.0e	0e	-----	106	111	90	82
11	214	19	15e	10e	5.0e	5.0e	0e	-----	94	91	84	77
12	183	15e	15e	10e	5.0e	5.0e	0e	-----	88	77	91	78
13	158	15e	15e	10e	5.0e	5.0e	0e	-----	86	65	123	85
14	160	15e	15e	10e	5.0e	5.0e	0e	-----	89	61	112	100
15	148	15e	15e	10e	5.0e	5.0e	0e	-----	129	57	97	106
16	141	15e	15e	10e	5.0e	0 e	0e	-----	151	237	84	113
17	135e	15e	15e	10e	5.0e	0 e	0e	-----	129	715	75	117
18	130e	15e	15e	10e	5.0e	0 e	0e	-----	109	464	68	123
19	120e	15e	15e	10e	5.0e	0 e	0e	-----	92	314	63	144
20	110e	15e	10e	10e	5.0e	0 e	0e	-----	78	227	59	168
21	100e	15e	10e	10e	5.0e	0 e	-----	-----	69	169	55	255
22	90e	15e	10e	10e	5.0e	0 e	-----	-----	61	130	51	346
23	90e	15e	10e	10e	5.0e	0 e	-----	-----	56	105	46	326
24	80e	15e	10e	10e	5.0e	0 e	-----	-----	151	89	42	293
25	80e	15e	10e	10e	5.0e	0 e	-----	-----	166	78	41	269
26	70e	15e	10e	10e	5.0e	0 e	-----	-----	124	68	44	244
27	70e	15e	10e	10e	5.0e	0 e	-----	-----	97	60	48	209
28	60e	15e	10e	10e	5.0e	0 e	-----	-----	79	58	47	185
29	60e	15e	10e	10e	5.0e	0 e	-----	-----	81	58	72	172
30	50e	15e	10e	10e	-----	0 e	-----	-----	148	66	117	157
31	50e	-----	10e	10e	-----	0 e	-----	-----	92	109	-----	-----
TOTAL	5,850	584	405	310	170.0	75.0	-----	-----	3,338	5,324	3,347	4,657
MEAN	189	19.5	13.1	10.0	5.86	2.42	-----	-----	111	172	108	155
MAX	545	40	15	10	10	5.0	-----	-----	172	715	308	346
MIN	50	15	10	10	5.0	0	-----	-----	56	57	41	77
AC-FT	11,600	1,160	803	615	337	149	-----	-----	6,620	10,560	6,640	9,240
CAL YEAR 1995 TOTAL	76,011.0	MEAN	208	MAX	1,920	MIN	10	AC-FT	150,800			
WTR YEAR 1996 TOTAL	24,060.0	MEAN	74.0	MAX	715	MIN	0	AC-FT	47,720			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic River

LOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.7, T.21N., R.4E., Fairbanks Meridian.

DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1997.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 2,220 cfs, May 15, 1997 @16:00 hrs; Minimum Discharge, 0 cfs, Feb. 6 thru Apr. 25, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,320 cfs, Sept. 5, 1995 @09:15 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994; Mar. 3 thru Apr. 15, 1995; Mar. 16 thru Apr. 20, 1996; Feb. 6 thru Apr. 25, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	10 e	5.0e	5.0e	5.0e	0e	0 e	50e	367	187	210	409
2	101	10 e	5.0e	5.0e	5.0e	0e	0 e	80e	300	163	189	406
3	107	10 e	5.0e	5.0e	5.0e	0e	0 e	130e	263	143	170	626
4	100	10 e	5.0e	5.0e	5.0e	0e	0 e	200e	254	126	156	715
5	95	10 e	5.0e	5.0e	5.0e	0e	0 e	320e	273	113	147	665
6	84	10 e	5.0e	5.0e	0 e	0e	0 e	520e	293	100	139	597
7	72	10 e	5.0e	5.0e	0 e	0e	0 e	820e	303	121	132	603
8	69	10 e	5.0e	5.0e	0 e	0e	0 e	1,300e	277	129	123	575
9	69	10 e	5.0e	5.0e	0 e	0e	0 e	2,060	251	114	115	522
10	68	10 e	5.0e	5.0e	0 e	0e	0 e	1,560	230	103	107	469
11	67	10 e	5.0e	5.0e	0 e	0e	0 e	1,320	259	103	101	430
12	60e	10 e	5.0e	5.0e	0 e	0e	0 e	1,330	351	138	101	395
13	50e	10 e	5.0e	5.0e	0 e	0e	0 e	1,690	358	199	97	395
14	40e	10 e	5.0e	5.0e	0 e	0e	0 e	1,910	339	217	99	391
15	40e	10 e	5.0e	5.0e	0 e	0e	0 e	2,130	306	451	125	440
16	30e	10 e	5.0e	5.0e	0 e	0e	0 e	1,700	331	1,020	136	466
17	30e	10 e	5.0e	5.0e	0 e	0e	0 e	1,280	1,090	646	129	433
18	30e	10 e	5.0e	5.0e	0 e	0e	0 e	1,080	1,830	428	124	402
19	30e	10 e	5.0e	5.0e	0 e	0e	0 e	914	1,160	330	119	400
20	20e	10 e	5.0e	5.0e	0 e	0e	0 e	768	745	275	115	456
21	20e	10 e	5.0e	5.0e	0 e	0e	0 e	655	545	340	114	481
22	20e	10 e	5.0e	5.0e	0 e	0e	0 e	581	514	574	110	439
23	20e	10 e	5.0e	5.0e	0 e	0e	0 e	583	752	852	106	397
24	20e	10 e	5.0e	5.0e	0 e	0e	0 e	548	716	782	102	367
25	10e	10 e	5.0e	5.0e	0 e	0e	5.0e	523	548	602	98	346
26	10e	5.0e	5.0e	5.0e	0 e	0e	5.0e	617	436	484	103	330
27	10e	5.0e	5.0e	5.0e	0 e	0e	10 e	573	353	391	135	315
28	10e	5.0e	5.0e	5.0e	0 e	0e	15 e	503	289	334	640	301
29	10e	5.0e	5.0e	5.0e	-----	0e	20 e	458	244	295	737	305
30	10e	5.0e	5.0e	5.0e	-----	0e	30 e	426	212	264	566	306
31	10e	-----	5.0e	5.0e	-----	0e	-----	413	-----	236	462	-----
TOTAL	1,450	275.0	155.0	155.0	25.0	0	85.0	27,042	14,189	10,260	5,807	13,382
MEAN	46.8	9.17	5.00	5.00	.89	0	2.83	872	473	331	187	446
MAX	138	10	5.0	5.0	5.0	0	30	2,130	1,830	1,020	737	715
MIN	10	5.0	5.0	5.0	0	0	0	50	212	100	97	301
AC-FT	2,880	545	307	307	50	0	169	53,640	28,140	20,350	11,520	26,540
CAL YEAR 1996 TOTAL		18,666.0	MEAN	51.0	MAX	702	MIN	5.0	AC-FT	37,020		
WTR YEAR 1997 TOTAL		72,825.0	MEAN	200	MAX	2,130	MIN	0	AC-FT	144,400		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hadweenzic RiverLOCATION.-Lat N 66°39.80', Long W 146°57.30', in SE^{1/4}NE^{1/4} sec.7, T.21N., R.4E., Fairbanks Meridian.DRAINAGE AREA.-880.6 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1998.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. This station was discontinued Sept. 30, 1998.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 3,690 cfs, Aug. 30, 1998 @10:45 hrs; Minimum Discharge, 0 cfs, Feb. 1 thru Apr. 20, 1998.

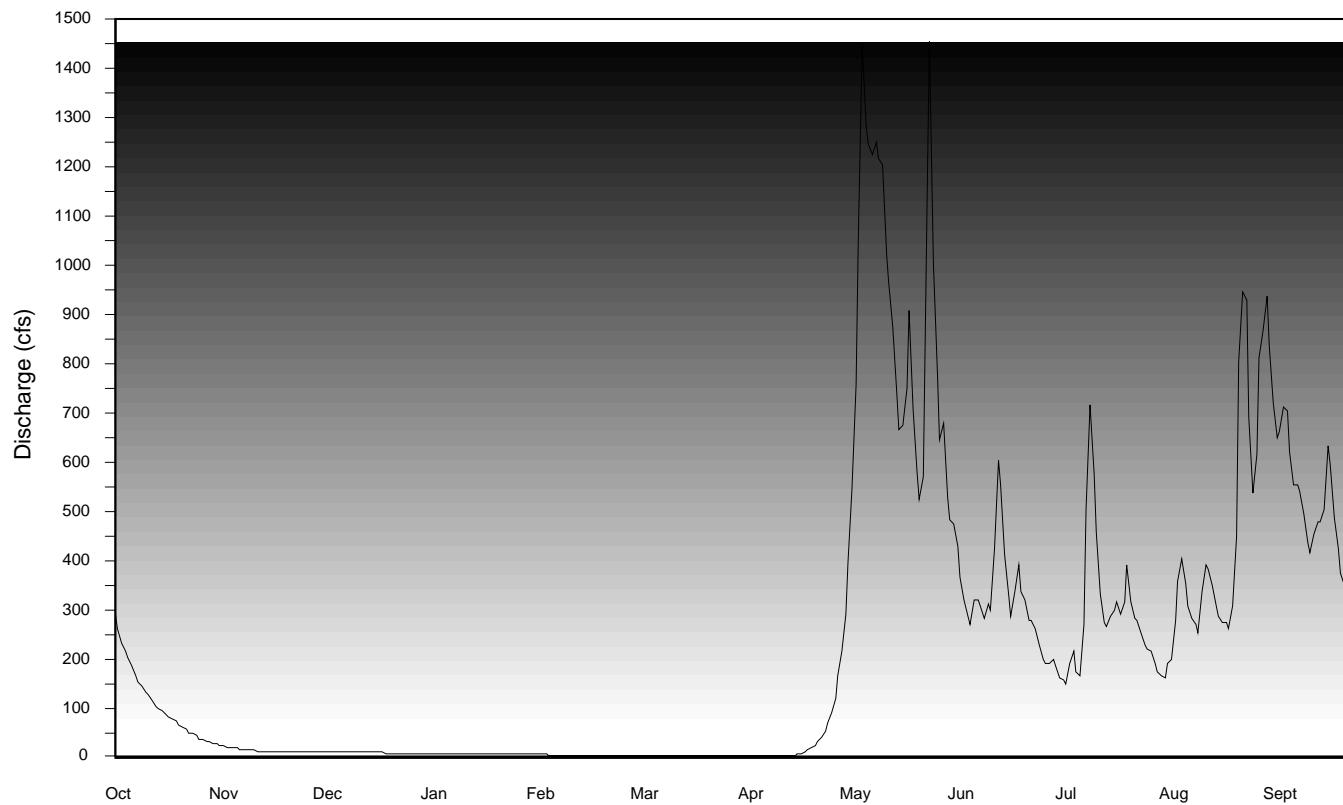
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 3,690 cfs, Aug. 30, 1998 @10:45 hrs; Minimum Discharge, 0 cfs, Mar. 29 thru Apr. 19, 1994; Mar. 3 thru Apr. 15, 1995; Mar. 16 thru Apr. 20, 1996; Feb. 6 thru Apr. 25, 1997; Feb. 1 thru Apr. 20, 1998.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

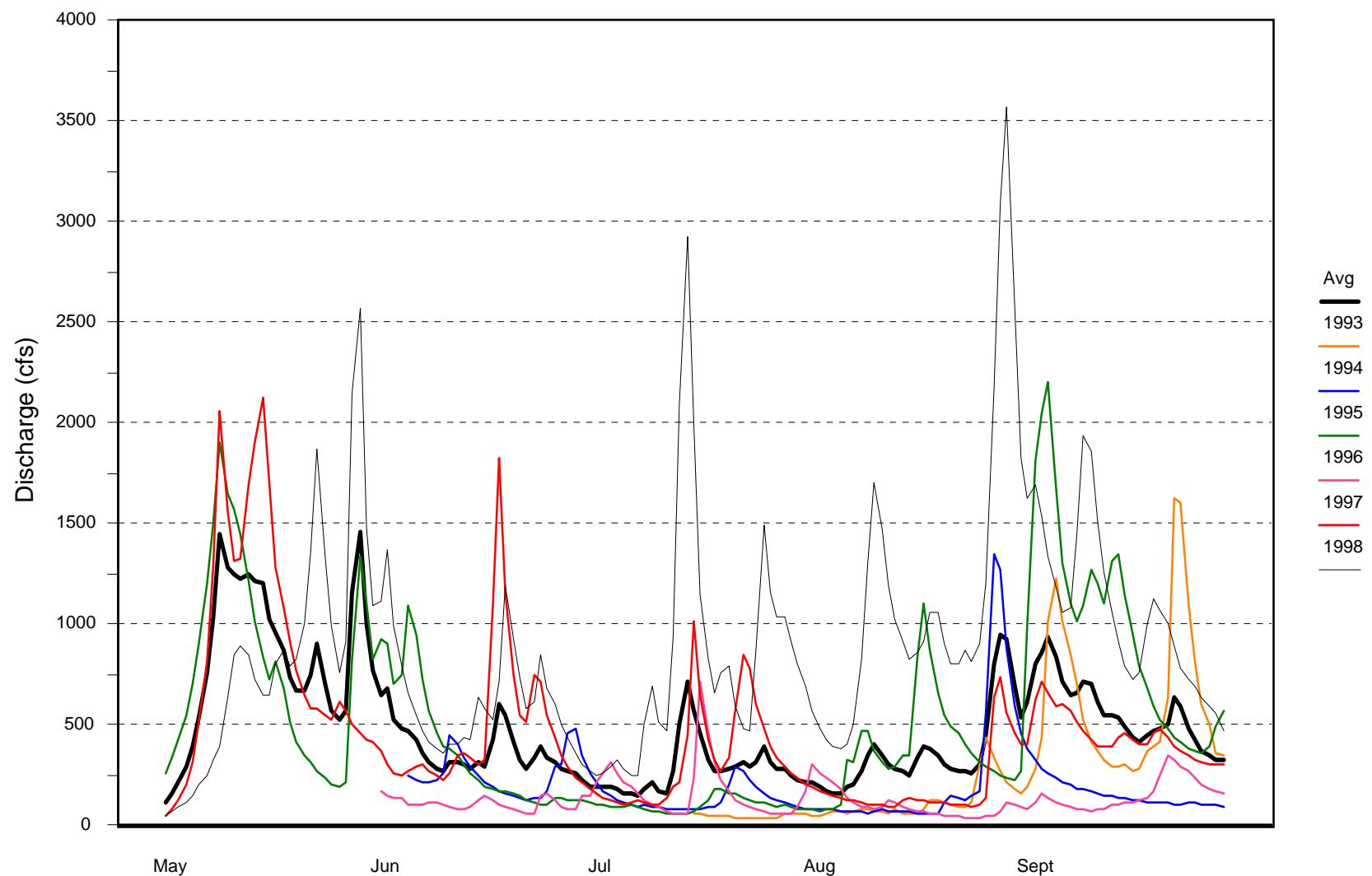
Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	421	15	e	1.0e	1.0e	0e	0	50e	1,120	272	699	1,830	
2	440	10	e	1.0e	1.0e	0e	0	70e	1,370	254	575	1,630	
3	380	10	e	1.0e	1.0e	0e	0	90e	996	263	485	1,690	
4	353	10	e	1.0e	1.0e	0e	0	120e	793	291	426	1,540	
5	322	5.0	e	1.0e	1.0e	0e	0	150e	665	326	395	1,340	
6	290e	5.0	e	1.0e	1.0e	0e	0	200e	551	285	388	1,180	
7	260e	5.0	e	1.0e	1.0e	0e	0	250e	471	250	409	1,060	
8	240e	5.0	e	1.0e	1.0e	0e	0	329	420	247	507	1,080	
9	220e	1.0	e	1.0e	1.0e	0e	0	392	380	509	825	1,450	
10	200e	1.0	e	1.0e	1.0e	0e	0	640	361	696	1,310	1,940	
11	180e	1.0	e	1.0e	1.0e	0e	0	850	400	518	1,700	1,860	
12	170e	1.0	e	1.0e	1.0e	0e	0	899	409	469	1,470	1,520	
13	160e	.80		1.0e	1.0e	0e	0	849	441	937	1,190	1,260	
14	150e	1.0	e	1.0e	1.0e	0e	0	727	428	2,100	1,030	1,060	
15	140e	1.0	e	1.0e	1.0e	0e	0	647	643	2,930	920	918	
16	130e	1.0	e	1.0e	1.0e	0e	0	645	586	1,990	824	794	
17	120e	1.0	e	1.0e	1.0e	0e	.20	801	531	1,150	862	731	
18	110e	1.0	e	1.0e	1.0e	0e	0	867	719	831	913	762	
19	100e	1.0	e	1.0e	1.0e	0e	0	798	1,190	666	1,060	1,010	
20	90e	1.0	e	1.0e	1.0e	0e	0	823	929	756	1,060	1,130	
21	890e	1.0	e	1.0e	1.0e	0e	5.0	1,010	737	789	902	1,070	
22	70e	1.0	e	1.0e	1.0e	0e	5.0	1,360	585	594	807	1,000	
23	60e	1.0	e	1.0e	1.0e	0e	5.0	1,870	621	487	808	897	
24	50e	1.0	e	1.0e	1.0e	0e	10	1,340	846	468	872	788	
25	40e	1.0	e	1.0e	1.0e	0e	10	999	683	870	818	726	
26	30e	1.0	e	1.0e	1.0e	0e	15	765	604	1,490	904	689	
27	30e	1.0	e	1.0e	1.0e	0e	20	916	504	1,160	1,210	640	
28	20e	1.0	e	1.0e	1.0e	0e	25	1,150	435	1,040	2,180	597	
29	20e	1.0	e	1.0e	1.0e	---	30	2,570	364	1,040	3,090	558	
30	15e	1.0	e	1.0e	1.0e	---	40	1,480	309	921	3,570	475	
31	15e	----		1.0e	1.0e	---	---	1,090	-----	807	2,570	-----	
TOTAL	5,716	86.80		31.0	31.0	0	0	165.20	25,747	19,091	25,406	34,779	33,225
MEAN	184	2.89		1.00	1.00	0	0	5.51	831	636	820	1,122	1,108
MAX	890	15		1.0	1.0	0	0	40	2,570	1,370	2,930	3,570	1,940
MIN	15	.80		1.0	1.0	0	0	0	50	309	247	388	475
AC-FT	11,340	172		61	61	0	0	328	51,070	37,870	50,390	68,980	65,900
CAL YEAR 1997	TOTAL	71,500.80	MEAN	196	MAX	2,120	MIN	0	AC-FT	141,800			
WTR YEAR 1998	TOTAL	144,278.00	MEAN	395	MAX	3,570	MIN	0	AC-FT	286,200			

e Estimated daily mean values

Hadweenzic River
Average Annual Hydrograph 1993-1998



Hadweenzic River
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1993.

REMARKS.-Gage was installed on July 16, 1993.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 6,100 cfs, Sept. 4, 1993 @12:15 hrs;
Minimum Discharge, 289 cfs, Aug. 2, 1993 @06:15 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 6,100 cfs, Sept. 4, 1993 @12:15 hrs;
Minimum Discharge, 289 cfs, Aug. 2, 1993 @06:15 hrs.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	301	1,440	
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	295	1,830	
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	300	2,940	
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	331	5,700	
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	448	4,600	
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	483	3,470	
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	510	3,100	
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	507	2,630	
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	460	2,220	
10	-----	-----	-----	-----	-----	-----	-----	-----	-----	434	1,950	
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	410	1,740	
12	-----	-----	-----	-----	-----	-----	-----	-----	-----	393	1,560	
13	-----	-----	-----	-----	-----	-----	-----	-----	-----	375	1,440	
14	-----	-----	-----	-----	-----	-----	-----	-----	-----	380	1,340	
15	-----	-----	-----	-----	-----	-----	-----	-----	-----	469	1,270	
16	-----	-----	-----	-----	-----	-----	-----	-----	-----	772	1,310	
17	-----	-----	-----	-----	-----	-----	-----	-----	-----	525	993	1,850
18	-----	-----	-----	-----	-----	-----	-----	-----	-----	531	961	2,090
19	-----	-----	-----	-----	-----	-----	-----	-----	-----	520	969	1,820
20	-----	-----	-----	-----	-----	-----	-----	-----	-----	498	897	1,750
21	-----	-----	-----	-----	-----	-----	-----	-----	-----	452	806	2,190
22	-----	-----	-----	-----	-----	-----	-----	-----	-----	440	877	3,520
23	-----	-----	-----	-----	-----	-----	-----	-----	-----	430	1,260	2,900
24	-----	-----	-----	-----	-----	-----	-----	-----	-----	419	1,650	2,100
25	-----	-----	-----	-----	-----	-----	-----	-----	-----	395	1,820	1,690
26	-----	-----	-----	-----	-----	-----	-----	-----	-----	361	1,580	1,410
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	353	1,340	1,220
28	-----	-----	-----	-----	-----	-----	-----	-----	-----	343	1,170	1,180
29	-----	-----	-----	-----	-----	-----	-----	-----	-----	333	1,050	977
30	-----	-----	-----	-----	-----	-----	-----	-----	-----	319	963	1,010
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	308	970	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	-----	24,174	64,247	
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	-----	780	2,142	
MAX	-----	-----	-----	-----	-----	-----	-----	-----	-----	1,820	5,700	
MIN	-----	-----	-----	-----	-----	-----	-----	-----	-----	295	977	
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	-----	47,950	127,400	
CAL YEAR 1992 TOTAL	0											
WTR YEAR 1993 TOTAL	94,648	MEAN	1,245	MAX	5,700	MIN	295	AC-FT	187,700			

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1994.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects on stage recording equipment and equipment failure.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 7,750 cfs, Aug. 27, 1994 @05:15 hrs;
Minimum Discharge, 50 cfs, Apr.16-23, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,750 cfs, Aug. 27, 1994 @05:15 hrs;
Minimum Discharge, 50 cfs, Apr.16-23, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	917	290e	230e	190e	150e	110e	80e	-----	-----	2,500e	680	2,300
2	865	290e	220e	190e	150e	110e	70e	-----	-----	2,000e	643	2,020
3	830	280e	220e	180e	150e	110e	70e	-----	-----	1,550e	619	1,800
4	717	280e	220e	180e	150e	110e	70e	-----	-----	1,100e	600	1,640
5	669	280e	220e	180e	140e	110e	70e	-----	-----	850e	572	1,510
6	630e	270e	220e	180e	140e	110e	70e	-----	-----	750e	545	1,390
7	600e	270e	220e	180e	140e	110e	70e	-----	1,265	572	532	1,300
8	570e	270e	220e	180e	140e	110e	70e	-----	2,000e	543	580	1,230
9	540e	270	210e	180e	140e	100e	70e	-----	2,700e	550e	679	1,170
10	520e	260e	210e	180e	140e	100e	60e	-----	3,650e	550e	639	1,110
11	510e	260e	210e	170e	140e	100e	60e	-----	3,400e	580e	604	1,060
12	490e	260e	210e	170e	140e	100e	60e	-----	2,800e	600e	575	1,010
13	470e	260e	210e	170e	130e	100e	60e	-----	2,250e	650e	565	965
14	460e	250e	210e	170e	130e	100e	60e	-----	1,900e	727	556	925
15	450e	250e	210e	170e	130e	100e	55	-----	1,600e	850e	550	892
16	440e	250e	210e	170e	130e	100e	50e	-----	1,400e	950e	545	861
17	430e	250e	200e	170e	130e	90e	50e	-----	1,250e	1,150e	672	837
18	420e	250e	200e	170e	130e	90e	50e	-----	1,050e	1,400e	2,710	815
19	410e	240e	200e	170e	130e	90e	50e	-----	950e	1,700e	2,970	789
20	400e	240e	200e	160e	130e	90e	50e	-----	900e	1,950e	2,060	772
21	390e	240e	200e	160e	120e	90e	50e	-----	900e	2104	1,780	754
22	380e	240e	200e	160e	120e	90e	50e	-----	1,000e	2,400e	2,330	747
23	370e	240e	200e	160e	120e	90e	50e	-----	1,350e	2,500e	2,050	746
24	360e	240e	200e	160e	120e	90e	-----	-----	2,000e	1,600e	1,730	736
25	350e	230e	190e	160e	120e	80e	-----	-----	2,400e	1,150e	2,350	722
26	340e	230e	190e	160e	120e	80e	-----	-----	2,800e	928	5,380	708
27	330e	230e	190e	160e	120e	80e	-----	-----	3,000e	841	7,690	681
28	320e	230e	190e	150e	120e	80e	-----	-----	3,250e	768	7,320	632
29	310e	230e	190e	150e	-----	80e	-----	-----	3,800e	758	4,550	618
30	300e	230e	190e	150e	-----	80e	-----	-----	3,300e	745	3,270	596
31	300e	-----	190e	150e	-----	80e	-----	-----	727	2,700	-----	-----
TOTAL	15,088	7,610	6,380	5,230	3,720	2,960	-----	-----	-----	4,382	59,046	31,336
MEAN	487	254	206	169	133	95.5	-----	-----	-----	730	1,905	1,045
MAX	917	290	230	190	150	110	-----	-----	-----	841	7,690	2,300
MIN	300	230	190	150	120	80	-----	-----	-----	543	532	596
AC-FT	29,930	15,090	12,650	10,370	7,380	5,870	-----	-----	-----	8,690	117,100	62,150
CAL YEAR 1993 TOTAL	122,681	MEAN	336	MAX	5,630	MIN	190	AC-FT	243,300			
WTR YEAR 1994 TOTAL	137,147	MEAN	504	MAX	7,690	MIN	50	AC-FT	272,000			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1995.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects and equipment failure.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 4,750 cfs, Sept. 2, 1995 @16:00 hrs;
Minimum Discharge, 40 cfs, Apr. 10-16, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,690 cfs, Aug. 27, 1994; Minimum
Discharge, 40 cfs, Apr. 10-16, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	567	140e	90e	70e	60e	50e	50e	-----	-----	594	460	2,280
2	525	130e	90e	70e	60e	50e	50e	-----	-----	681	394	4,410
3	534	130e	90e	70e	60e	50e	50e	-----	1,603	773	417	4,300
4	519	130e	90e	70e	60e	50e	50e	-----	3,500	738	657	4,030
5	525	130e	90e	70e	60e	50e	50e	-----	3,600	691	741	2,890
6	521	120e	90e	70e	60e	50e	50e	-----	2,500	563	669	2,350
7	532	120e	90e	70e	60e	50e	50e	-----	1,830	472	655	1,850
8	485	120e	90e	70e	60e	50e	50e	-----	1,440	532	877	1,840
9	440	120e	90e	70e	60e	50e	45	-----	1,490	461	851	2,310
10	400e	120e	90e	70e	60e	50e	40e	-----	1,340	366	840	2,600
11	360e	110e	90e	70e	60e	50e	40e	-----	1,020	351	822	2,780
12	330e	110e	80e	70e	60e	50e	40e	-----	930	392	1,000	3,000
13	310e	110e	80e	70e	60e	50e	40e	-----	842	407	1,150	4,060
14	290e	110e	80e	70e	60e	50e	40e	-----	778	448	1,080	3,720
15	280e	110e	80e	70e	60e	50e	40e	-----	787	556	1,470	3,120
16	270e	110e	80e	60e	60e	50e	40e	-----	855	830	3,390	2,620
17	260e	110e	80e	60e	50e	50e	-----	-----	853	1,170	2,770	2,070
18	250e	110e	80e	60e	50e	50e	-----	-----	752	1,120	2,010	1,810
19	240e	100e	80e	60e	50e	50e	-----	-----	645	1,030	1,720	1,740
20	230e	100e	80e	60e	50e	50e	-----	-----	530	1,240	1,540	1,400
21	220e	100e	80e	60e	50e	50e	-----	-----	470	1,150	1,350	1,330
22	210e	100e	80e	60e	50e	50e	-----	-----	440	979	1,090	1,430
23	200e	100e	80e	60e	50e	50e	-----	-----	447	824	1,030	1,360
24	190e	100e	80e	60e	50e	50e	-----	-----	627	690	970	1,250
25	180e	100e	70e	60e	50e	50e	-----	-----	622	663	948	1,070
26	170e	100e	70e	60e	50e	50e	-----	-----	735	711	877	1,130
27	160e	100e	70e	60e	50e	50e	-----	-----	1,170	689	803	1,350
28	150e	100e	70e	60e	50e	50e	-----	-----	984	641	773	1,530
29	150e	100e	70e	60e	-----	50e	-----	-----	723	557	663	1,630
30	140e	90e	70e	60e	-----	50e	-----	-----	569	493	713	1,530
31	140e	-----	70e	60e	-----	50e	-----	-----	523	829	-----	-----
TOTAL	9,778	3,330	2,520	2,010	1,560	1,550	-----	-----	30,479	21,335	33,559	68,790
MEAN	315	111	81.3	64.8	55.7	50.0	-----	-----	1,129	688	1,083	2,293
MAX	567	140	90	70	60	50	-----	-----	3,600	1,240	3,390	4,410
MIN	140	90	70	60	50	50	-----	-----	440	351	394	1,070
AC-FT	19,390	6,610	5,000	3,990	3,090	3,070	-----	-----	60,460	42,320	66,560	136,400
CAL YEAR 1994 TOTAL	115,052	MEAN	315	MAX	7,600	MIN	70	AC-FT	228,200			
WTR YEAR 1995 TOTAL	175,636	MEAN	554	MAX	4,410	MIN	40	AC-FT	348,400			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1996.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 6,960 cfs, May 14, 1996 @03:45 hrs;
Minimum Discharge, 5 cfs, Apr. 6-14, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,690 cfs, Aug. 27, 1994; Minimum
Discharge, 5 cfs, Apr. 6-14, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,300	250e	70e	40e	20e	10e	10 e	260e	1,700e	622	803	547
2	1,150e	240e	70e	40e	20e	10e	10 e	330e	1,600e	472	673	562
3	1,050e	230e	60e	40e	20e	10e	10 e	430e	1,400e	362	845	504
4	970e	220e	60e	40e	20e	10e	10 e	560e	1,200e	329	894	463
5	890e	210e	60e	40e	20e	10e	6.3	730e	1,000e	340	807	432
6	830e	200e	60e	30e	20e	10e	5.0e	950e	975e	327	673	407
7	790e	190e	60e	30e	20e	10e	5.0e	1,200e	925e	276	614	385
8	760e	180e	60e	30e	20e	10e	5.0e	1,600e	928	214	565	367
9	730e	170e	60e	30e	20e	10e	5.0e	2,100e	831	253	526	351
10	700e	160e	60e	30e	20e	10e	5.0e	2,700e	779	285	557	339
11	670e	154	50e	30e	10e	10e	5.0e	3,500e	895	319	657	347
12	640e	150e	50e	30e	10e	10e	5.0e	4,500e	2,310	335	634	355
13	610e	140e	50e	30e	10e	10e	5.0e	5,890	2,170	274	560	361
14	580e	130e	50e	30e	10e	10e	5.0e	6,580	1,440	258	498	384
15	550	120e	50e	30e	10e	10e	5.0e	5,880	1,040	558	455	382
16	520e	110e	50e	30e	10e	10e	5.0e	4,640	796	669	429	368
17	490e	110e	50e	30e	10e	10e	10 e	3,800	725	511	413	363
18	470e	100e	50e	30e	10e	10e	10 e	3,230	701	395	393	387
19	450e	100e	50e	30e	10e	10e	10 e	2,610	624	319	373	513
20	430e	90e	50e	30e	10e	10e	15 e	2,090	578	268	353	743
21	410e	90e	40e	30e	10e	10e	20 e	1,840	573	236	332	816
22	390e	90e	40e	30e	10e	10e	25 e	1,980	780	216	315	718
23	370e	90e	40e	30e	10e	10e	30 e	2,510	627	204	303	638
24	350e	80e	40e	30e	10e	10e	40 e	4,010	456	197	290	575
25	330e	80e	40e	30e	10e	10e	55 e	4,670	425	199	290	518
26	310e	80e	40e	20e	10e	10e	70 e	4,170	432	204	337	471
27	300e	80e	40e	20e	10e	10e	90 e	3,400e	561	210	590	425
28	290e	70e	40e	20e	10e	10e	120 e	2,500e	761	321	646	406
29	280e	70e	40e	20e	10e	10e	150 e	2,100e	739	433	566	367
30	270e	70e	40e	20e	-----	10e	200 e	1,900e	731	956	501	334
31	260e	-----	40e	20e	-----	10e	-----	1,800e	-----	1,010	475	-----
TOTAL	18,140	4,054	1,560	920	390	310	946.3	84,460	28,702	11,572	16,367	13,828
MEAN	585	135	50.3	29.7	13.4	10.0	31.5	2,725	957	373	528	461
MAX	1,300	250	70	40	20	10	200	6,580	2,310	1,010	894	816
MIN	260	70	40	20	10	10	5.0	260	425	197	290	334
AC-FT	35,980	8,040	3,090	1,820	774	615	1,880	167,500	56,930	22,950	32,460	27,430
CAL YEAR 1995 TOTAL	180,848.0	MEAN	495	MAX	4,430	MIN	40	AC-FT	358,700			
WTR YEAR 1996 TOTAL	181,249.3	MEAN	495	MAX	6,580	MIN	5.0	AC-FT	359,500			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1997.

REMARKS.-Winter data are estimated due to ice effects.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 7,950 cfs, May 14, 1997 @12:15 hrs;
Minimum Discharge, 1 cfs, Apr.22-27, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,950 cfs, May 14, 1997 @12:15 hrs; Minimum
Discharge, 1 cfs, Apr.22-27, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	120e	90e	70e	50e	30e	10 e	55e	1,100	426	511	1,500
2	396	120e	90e	60e	50e	30e	10 e	85e	1,000	393	481	3,560
3	466	120e	80e	60e	40e	30e	10 e	130e	1,170	361	487	3,410
4	406	120e	80e	60e	40e	30e	10 e	200e	1,370	344	507	2,760
5	350e	120e	80e	60e	40e	30e	10 e	310e	1,980	346	467	2,330
6	310e	110e	80e	60e	40e	30e	10 e	480e	2,040	375	444	2,250
7	280e	110e	80e	60e	40e	30e	10 e	730e	1,680	350	423	2,020
8	260e	110e	80e	60e	40e	30e	10 e	1,100e	1,360	336	404	1,770
9	250e	110e	80e	60e	40e	30e	10 e	1,700e	1,130	346	389	1,630
10	240e	110e	80e	60e	40e	20e	10 e	2,660	1,300	400	377	1,520
11	230e	110e	80e	60e	40e	20e	10 e	3,110	2,170	515	370	1,380
12	220e	100e	80e	60e	40e	20e	10 e	5,010	2,290	582	380	1,290
13	210e	100e	80e	60e	40e	20e	10 e	6,420	1,600	553	581	1,250
14	200e	100e	80e	60e	40e	20e	10 e	7,590	1,100	2,260	637	1,310
15	190e	100e	80e	60e	40e	20e	10 e	5,910	1,080	1,920	604	1,260
16	180e	100e	80e	60e	40e	20e	10 e	4,680	2,450	1,230	602	1,180
17	170e	100e	70e	60e	40e	20e	5.0 e	4,380	4,190	899	587	1,090
18	170e	100e	70e	50e	40e	20e	5.0 e	3,960	4,500e	724	611	1,080
19	160e	100e	70e	50e	30e	20e	5.0 e	3,590	3,500e	653	733	1,300
20	160e	90e	70e	50e	30e	20e	5.0e	2,930	2,700e	674	678	1,260
21	160e	90e	70e	50e	30e	20e	1.4	2,960	2,100e	982	612	1,130
22	150e	90e	70e	50e	30e	20e	1.0e	3,480	1,700e	1,560	566	1,030
23	150e	90e	70e	50e	30e	20e	1.0e	3,020	1,290	1,390	534	981
24	150e	90e	70e	50e	30e	20e	1.0e	2,180	1,100e	1,250	502	943
25	140e	90e	70e	50e	30e	20e	1.0e	1,910	980e	1,040	489	904
26	140e	90e	70e	50e	30e	20e	1.0e	1,840	850e	859	591	856
27	140e	90e	70e	50e	30e	10e	1.0e	1,920	740e	770	1,530	837
28	130e	90e	70e	50e	30e	10e	10 e	2,080	640e	709	1,540	814
29	130e	90e	70e	50e	-----	10e	20 e	2,310	560e	657	1,240	787
30	130e	90e	70e	50e	-----	10e	35 e	2,630	490e	602	1,070	765
31	130e	-----	70e	50e	-----	10e	-----	1,780	-----	552	994	-----
TOTAL	6,744	3,050	2,350	1,730	1,040	660	252.4	81,140	50,160	24,058	19,941	44,197
MEAN	218	102	75.8	55.8	37.1	21.3	8.41	2,617	1,672	776	643	1,473
MAX	466	120	90	70	50	30	35	7,590	4,500	2,260	1,540	3,560
MIN	130	90	70	50	30	10	1.0	55	490	336	370	765
AC-FT	13,380	6,050	4,660	3,430	2,060	1,310	501	160,900	99,490	47,720	39,550	87,660
CAL YEAR 1996 TOTAL	195,364.0	MEAN	534	MAX	7,190	MIN	70	AC-FT	387,500			
WTR YEAR 1997 TOTAL	235,322.4	MEAN	645	MAX	7,590	MIN	1.0	AC-FT	466,800			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Hodzana River

LOCATION.-Lat 66°38.71'N, Long 148°15.58'W, in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.18, T.21N., R.3W., Fairbanks Meridian.
Located in the vicinity of the narrows.

DRAINAGE AREA.-1,282 mi².

PERIOD OF RECORD.-July 16, 1993 thru Sept. 30, 1998.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Gaging station was discontinued on Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 13,600 cfs, May 27, 1998; Minimum Discharge, 30 cfs, Mar. 31, 1998 thru Apr. 16, 1998.

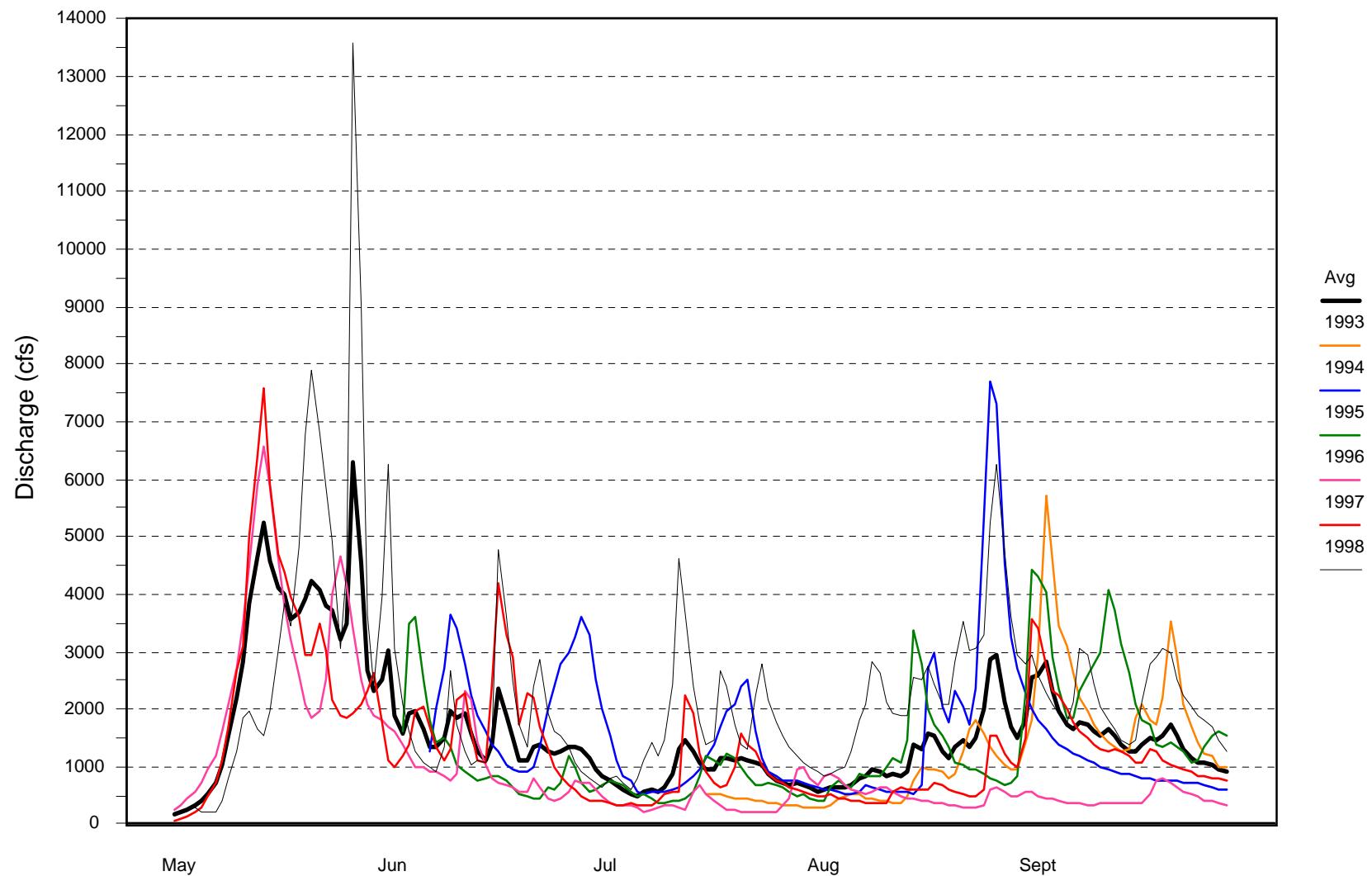
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 13,600 cfs, May. 27, 1998; Minimum Discharge, 1 cfs, Apr. 22-27, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	747	210e	120e	100e	70e	50e	30e	190e	6,240	711	990	2,800
2	710	200e	120e	90e	70e	50e	30e	220e	3,080	652	908	2,960
3	670	190e	120e	90e	70e	50e	30e	250e	2,100	783	850	2,600
4	652	180e	120e	90e	70e	50e	30e	289	1,610	847	869	2,270
5	630	170e	120e	90e	70e	50e	30e	229	1,280	705	939	2,070
6	587	170e	120e	90e	70e	50e	30e	200	1,080	612	1,010	1,930
7	526	160e	120e	90e	70e	50e	30e	230	987	785	1,270	1,790
8	467	160e	110e	90e	70e	50e	30e	418	902	1,130	1,810	2,130
9	440e	160e	110e	90e	70e	50e	30e	781	1,340	1,430	2,100	3,070
10	430e	150e	110e	90e	70e	50e	30e	1,270	2,690	1,190	2,820	2,940
11	420e	150e	110e	90e	70e	50e	30e	1,850	1,750	1,460	2,640	2,420
12	410e	150e	110e	90e	60e	50e	30e	1,970	1,260	2,420	2,120	2,050
13	400e	142	110e	90e	60e	50e	30e	1,660	1,040	4,640	1,940	1,810
14	390e	140e	110e	80e	60e	50e	30e	1,530	1,100	3,670	1,890	1,650
15	380e	140e	110e	80e	60e	40e	30e	1,950	1,080	2,410	1,890	1,460
16	370e	140e	110e	80e	60e	40e	30e	3,040	1,510	1,760	2,550	1,380
17	360e	140e	110e	80e	60e	40e	30e	3,840	4,790	1,380	2,500	1,480
18	350e	140e	110e	80e	60e	40e	30e	3,470	3,610	1,450	2,740	2,140
19	340e	140e	110e	80e	60e	40e	35e	4,810	2,460	2,680	2,450	2,790
20	330e	130e	100e	80e	60e	40e	40e	6,760	1,730	2,380	2,090	2,910
21	320e	130e	100e	80e	60e	40e	45e	7,880	1,350	1,740	2,100	3,070
22	310e	130e	100e	80e	60e	40e	55e	6,820	2,390	1,390	2,840	2,970
23	300e	130e	100e	80e	60e	40e	60e	5,860	2,880	1,300	3,530	2,510
24	290e	130e	100e	80e	60e	40e	70e	4,950	1,920	2,250	3,010	2,240
25	280e	130e	100e	80e	60e	40e	85e	3,080	1,600	2,790	3,070	2,060
26	270e	130e	100e	80e	60e	40e	95e	4,460	1,550	2,180	3,280	1,880
27	260e	130e	100e	80e	50e	40e	110e	13,600e	1,330	1,780	5,260	1,810
28	250e	120e	100e	80e	50e	40e	120e	9,020	1,080	1,540	6,250	1,690
29	240e	120e	100e	70e	-----	40e	140e	3,630	908	1,340	4,750	1,470
30	230e	120e	100e	70e	-----	40e	170e	2,390	790	1,200	3,620	1,270
31	220e	-----	100e	70e	-----	30e	-----	3,940	-----	1,080	2,940	-----
TOTAL	12,579	4,432	3,360	2,590	1,770	1,370	1,565	100,587	57,437	51,685	77,026	65,620
MEAN	406	148	108	83.5	63.2	44.2	52.2	3,245	1,915	1,667	2,485	2,187
MAX	747	210	120	100	70	50	170	13,600	6,240	4,640	6,250	3,070
MIN	220	120	100	70	50	30	30	190	790	612	850	1,270
AC-FT	24,950	8,790	6,660	5,140	3,510	2,720	3,100	199,500	113,900	102,500	152,800	130,200
CAL YEAR 1997	TOTAL	308,659	MEAN	846	MAX	7,590	MIN	100	AC-FT	612,200		
WTR YEAR 1998	TOTAL	380,021	MEAN	1,041	MAX	13,600	MIN	30	AC-FT	753,800		

e Estimated daily mean values

Hodzana River
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Kevinjek Creek

LOCATION.-Lat N 66°32.27', Long W 142°01.64', in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R.6E., Fairbanks Meridian. This drainage is a tributary to the Salmon Fork.

DRAINAGE AREA.-395 mi².

PERIOD OF RECORD.-June 3, 1994 thru Sept. 30, 1994.

REMARKS.-This gaging station was initiated on June 4, 1994.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs; Minimum Discharge, 52 cfs, Aug. 11, 1994 @13:00 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs; Minimum Discharge, 52 cfs, Aug. 11, 1994 @13:00 hrs.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	287	62	83	
2	-----	-----	-----	-----	-----	-----	-----	-----	224	59	81	
3	-----	-----	-----	-----	-----	-----	-----	85	180	58	79	
4	-----	-----	-----	-----	-----	-----	-----	80	159	57	78	
5	-----	-----	-----	-----	-----	-----	-----	76	159	55	79	
6	-----	-----	-----	-----	-----	-----	-----	74	363	54	79	
7	-----	-----	-----	-----	-----	-----	-----	81	638	54	77	
8	-----	-----	-----	-----	-----	-----	-----	76	450	53	76	
9	-----	-----	-----	-----	-----	-----	-----	80	291	53	81	
10	-----	-----	-----	-----	-----	-----	-----	112	201	53	80	
11	-----	-----	-----	-----	-----	-----	-----	128	154	52	76	
12	-----	-----	-----	-----	-----	-----	-----	104	131	53	73	
13	-----	-----	-----	-----	-----	-----	-----	86	107	57	71	
14	-----	-----	-----	-----	-----	-----	-----	74	104	59	68	
15	-----	-----	-----	-----	-----	-----	-----	66	121	58	66	
16	-----	-----	-----	-----	-----	-----	-----	62	107	57	66	
17	-----	-----	-----	-----	-----	-----	-----	59	109	58	64	
18	-----	-----	-----	-----	-----	-----	-----	61	99	66	63	
19	-----	-----	-----	-----	-----	-----	-----	113	109	69	64	
20	-----	-----	-----	-----	-----	-----	-----	644	166	67	62	
21	-----	-----	-----	-----	-----	-----	-----	1,610	147	66	67	
22	-----	-----	-----	-----	-----	-----	-----	1,340	125	65	74	
23	-----	-----	-----	-----	-----	-----	-----	1,960	105	66	70	
24	-----	-----	-----	-----	-----	-----	-----	1,510	93	65	76	
25	-----	-----	-----	-----	-----	-----	-----	775	82	66	69	
26	-----	-----	-----	-----	-----	-----	-----	594	74	76	59	
27	-----	-----	-----	-----	-----	-----	-----	459	69	87	56	
28	-----	-----	-----	-----	-----	-----	-----	407	65	85	55	
29	-----	-----	-----	-----	-----	-----	-----	384	73	93	53	
30	-----	-----	-----	-----	-----	-----	-----	332	74	91	59	
31	-----	-----	-----	-----	-----	-----	-----	-----	66	87	-----	
TOTAL	-----	-----	-----	-----	-----	-----	-----	11,432	5,132	2,001	2,104	
MEAN	-----	-----	-----	-----	-----	-----	-----	408	166	64.5	70.1	
MAX	-----	-----	-----	-----	-----	-----	-----	1,960	638	93	83	
MIN	-----	-----	-----	-----	-----	-----	-----	59	65	52	53	
AC-FT	-----	-----	-----	-----	-----	-----	-----	22,680	10,180	3,970	4,170	

YUKON FLATS NATIONAL WILDLIFE REFUGE

Kevinjek Creek

LOCATION.-Lat N 66°32.27', Long W 142°01.64', in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R.6E., Fairbanks Meridian. This drainage is a tributary to the Salmon Fork.

DRAINAGE AREA.-395 mi².

PERIOD OF RECORD.-June 3, 1994 thru Sept. 30, 1995.

REMARKS.-Winter data are estimated due to ice effects. No estimates were made for the flood event Sept. 3 thru Sept. 8, 1995. Estimated data for May, July and Sept. are based on discharge records from the Salmon Fork, Black River, Little Black River, and surveyed high water marks. Estimated data are considered to be poor. Note that extremes for current water year and period of record were exceeded during the 1995 June and Sept. flood events.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 1,880 cfs, June 7, 1995; Minimum Discharge, 28 cfs, Apr. 6, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs; Minimum Discharge, 28 cfs, Apr. 6, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	60e	55e	45e	40e	35e	30e	1,400e	319	486	94	374
2	80	60e	55e	45e	40e	35e	30e	1,800e	315	481	91	577
3	91	60e	55e	45e	40e	35e	30e	2,300e	300	475	96	-----
4	91	60e	55e	45e	40e	35e	30e	2,900e	292	461	121	-----
5	85	60e	55e	45e	40e	35e	30e	2,300e	307	521	307	-----
6	86	60e	50e	45e	40e	30e	28	1,800e	927	863	871	-----
7	68	60e	50e	45e	40e	30e	30e	1,400e	1,880	801	958	-----
8	75	60e	50e	45e	40e	30e	30e	1,200e	1,250	749	708	890e
9	68	60e	50e	45e	40e	30e	30e	990e	918	620	485	800e
10	64	60e	50e	45e	40e	30e	30e	850e	690	501	378	730e
11	64	55e	50e	45e	35e	30e	30e	740e	549	432	337	680e
12	65e	55e	50e	45e	35e	30e	30e	657	475	381	297	590e
13	65e	55e	50e	45e	35e	30e	30e	580	585	371	259	530e
14	65e	55e	50e	45e	35e	30e	30e	514	1,070	326	271	510e
15	65e	55e	50e	45e	35e	30e	30e	465	1,850	325	524	550e
16	60e	55e	50e	45e	35e	30e	35e	433	3,080e	299	724	530e
17	60e	55e	50e	45e	35e	30e	40e	408	2,920e	270e	984	450e
18	60e	55e	50e	45e	35e	30e	55e	382	1,500	230e	803	380e
19	60e	55e	50e	45e	35e	30e	70e	361	940	210e	592	320e
20	60e	55e	50e	45e	35e	30e	90e	346	702	300e	542	270e
21	60e	55e	50e	40e	35e	30e	110e	580	631	330e	505	220e
22	60e	55e	50e	40e	35e	30e	150e	648	1,570	400e	453	190e
23	60e	55e	50e	40e	35e	30e	190e	642	987	490e	374	160e
24	60e	55e	50e	40e	35e	30e	240e	594	657	390e	312	150e
25	60e	55e	50e	40e	35e	30e	310e	509	520	300e	267	140e
26	60e	55e	45e	40e	35e	30e	400e	451	445	240e	235	130e
27	60e	55e	45e	40e	35e	30e	510e	420	399	190e	210	120e
28	60e	55e	45e	40e	35e	30e	650e	394	373	161	189	160e
29	60e	55e	45e	40e	-----	30e	840e	368	392	134	172	190e
30	60e	55e	45e	40e	-----	30e	1,100e	346	507	113	164	220e
31	60e	-----	45e	40e	-----	30e	-----	327	-----	100	183	-----
TOTAL	2,061	1,700	1,545	1,340	1,030	955	5,238	27,105	27,350	11,950	12,506	9,861
MEAN	66.5	56.7	49.8	43.2	36.8	30.8	175	874	912	385	403	394
MAX	91	60	55	45	40	35	1,100	2,900	3,080	863	984	890
MIN	60	55	45	40	35	30	28	327	292	100	91	120
AC-FT	4,090	3,370	3,060	2,660	2,040	1,890	10,390	53,760	54,250	23,700	24,810	19,560
WTR YEAR 1995 TOTAL	102,641	MEAN	285	MAX	3,080	MIN	28	AC-FT	203,600			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Kevinjek Creek

LOCATION.-Lat N 66°32.27', Long W 142°01.64', in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R.6E., Fairbanks Meridian. This drainage is a tributary to the Salmon Fork.

DRAINAGE AREA.-395 mi².

PERIOD OF RECORD.-June 3, 1994 thru Sept. 30, 1996.

REMARKS.-Winter data are estimated due to ice effects. Data are missing for the breakup period Apr. 16 thru May 31, 1996. Note that extremes for the period of record were exceeded during the 1995 June and Sept. flood events.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 470 cfs, June 01, 1996; Minimum Discharge, 40 cfs, Apr. 1-15, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs; Minimum Discharge, 28 cfs, Apr. 6, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200e	75e	70e	65e	55e	45e	40e	-----	470e	64	58	64
2	160e	75e	70e	65e	55e	45e	40e	-----	410e	64	57	62
3	130e	75e	70e	65e	55e	45e	40e	-----	360e	75	55	59
4	110e	75e	70e	65e	55e	45e	42	-----	300e	75	54	58
5	100e	75e	70e	65e	55e	45e	40e	-----	260e	71	55	57
6	95e	75e	70e	60e	55e	45e	40e	-----	210e	65	54	56
7	95e	75e	70e	60e	55e	45e	40e	-----	170e	59	53	56
8	90e	75e	70e	60e	55e	45e	40e	-----	130e	55	53	56
9	85e	75e	70e	60e	55e	45e	40e	-----	108	57	55	56
10	85e	75e	70e	60e	55e	45e	40e	-----	100	56e	63	55
11	85e	75e	65e	60e	50e	45e	40e	-----	97	55e	68	55
12	85	75e	65e	60e	50e	45e	40e	-----	95	54e	60	55
13	85e	75e	65e	60e	50e	45e	40e	-----	93	53e	57	56
14	85e	75e	65e	60e	50e	45e	40e	-----	91	52	55	56
15	85e	75e	65e	60e	50e	45e	40e	-----	91	53	55	57
16	80e	75e	65e	60e	50e	45e	-----	-----	83	51	58	58
17	80e	75e	65e	60e	50e	45e	-----	-----	77	51	68	60
18	80e	75e	65e	60e	50e	45e	-----	-----	79	51	77	62
19	80e	75e	65e	60e	50e	45e	-----	-----	73	51	67	65
20	80e	75e	65e	60e	50e	45e	-----	-----	68	50	62	63
21	80e	70e	65e	60e	50e	45e	-----	-----	66	52	59	61
22	80e	70e	65e	60e	50e	45e	-----	-----	63	53	57	59
23	80e	70e	65e	60e	50e	45e	-----	-----	61	53	59	59
24	80e	70e	65e	60e	50e	45e	-----	-----	56	53	55	62
25	80e	70e	65e	60e	50e	45e	-----	-----	59	53	56	63
26	75e	70e	65e	55e	50e	45e	-----	-----	58	54	60	63
27	75e	70e	65e	55e	50e	40e	-----	-----	59	56	80	59
28	75e	70e	65e	55e	50e	40e	-----	-----	59	56	73	56
29	75e	70e	65e	55e	50e	40e	-----	-----	57	55	65	54
30	75e	70e	65e	55e	-----	40e	-----	-----	61	57	64	54
31	75e	-----	65e	55e	-----	40e	-----	-----	58	63	-----	-----
TOTAL	2,825	2,200	2,065	1,855	1,500	1,370	-----	-----	3,964	1,762	1,875	1,756
MEAN	91.1	73.3	66.6	59.8	51.7	44.2	-----	-----	132	56.8	60.5	58.5
MAX	200	75	70	65	55	45	-----	-----	470	75	80	65
MIN	75	70	65	55	50	40	-----	-----	56	50	53	54
AC-FT	5,600	4,360	4,100	3,680	2,980	2,720	-----	-----	7,860	3,490	3,720	3,480

CAL YEAR 1995 TOTAL 104,425 MEAN 290 MAX 3,080 MIN 28 AC-FT 207,125

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Kevinjek Creek

LOCATION.-Lat N 66°32.27', Long W 142°01.64', in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R.6E., Fairbanks Meridian. This drainage is a tributary to the Salmon Fork.

DRAINAGE AREA.-395 mi².

PERIOD OF RECORD.-June 3, 1994 thru Sept. 30, 1997.

REMARKS.-Winter data are estimated due to ice effects. The flood event of June 15 thru June 18, 1997 was the extreme event for the period of record. The surveyed water surface elevation was 14.3 ft above the water surface elevation surveyed on June 24, 1997.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 1,380 cfs, May 7, 1997 (see remarks); Minimum Discharge, 9.2 cfs, Apr. 18, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs (see remarks); Minimum Discharge, 9.2 cfs, Apr. 18, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	50e	45e	35e	25e	20e	10 e	100e	83	88	63	152
2	51	50e	45e	35e	25e	20e	10 e	160e	69	78	62	127
3	50	50e	45e	35e	25e	20e	10 e	250e	60	74	60	108
4	65	50e	45e	35e	25e	20e	10 e	380e	58	70	65	95
5	50	50e	45e	35e	25e	20e	10 e	580e	60	64	69	87
6	56	50e	45e	35e	25e	15e	10 e	900e	59	59	67	76
7	53	50e	45e	35e	25e	15e	10 e	1,380	54	56	75	74
8	55e	50e	45e	35e	25e	15e	10 e	942	47	58	83	72
9	55e	50e	45e	35e	25e	15e	10 e	674	42	57	76	72
10	55e	50e	45e	35e	25e	15e	10 e	525	52	56	75	69
11	55e	50e	40e	35e	25e	15e	10 e	452	460e	55	71	68
12	55e	50e	40e	35e	25e	15e	10 e	814	950e	54	69	67
13	55e	50e	40e	35e	25e	15e	10 e	1,130	1,350	60	66	71
14	55e	50e	40e	35e	25e	15e	10 e	1,210	992	72	64	96
15	55e	50e	40e	30e	25e	15e	10 e	1,520	-----	74	66	115
16	55e	50e	40e	30e	20e	15e	10 e	1,170	-----	68	68	124
17	55e	50e	40e	30e	20e	15e	10 e	848	-----	67	80	139
18	55e	50e	40e	30e	20e	15e	9.2	640	-----	64	108	129
19	50e	50e	40e	30e	20e	15e	10 e	489	1,130	61	120	124
20	50e	50e	40e	30e	20e	15e	10 e	353	702	114	100	113
21	50e	45e	40e	30e	20e	15e	10 e	289	525	175	106	105
22	50e	45e	40e	30e	20e	15e	10 e	246	592	199	100	102
23	50e	45e	40e	30e	20e	15e	10 e	231	508	180	87	97
24	50e	45e	40e	30e	20e	15e	10 e	213	495	146	76	91
25	50e	45e	40e	30e	20e	15e	10 e	314	438	138	72	88
26	50e	45e	40e	30e	20e	10e	10 e	297	295	124	69	87
27	50e	45e	40e	30e	20e	10e	20 e	237	205	103	74	83
28	50e	45e	40e	30e	20e	10e	30 e	182	157	87	152	81
29	50e	45e	40e	30e	-----	10e	45 e	139	125	78	237	80
30	50e	45e	40e	30e	-----	10e	70 e	108	105	68	239	78
31	50e	-----	40e	30e	-----	10e	-----	94	-----	64	189	-----
TOTAL	1,633	1,450	1,290	1,000	635	460	424.2	16,867	9,613	2,711	2,908	2,870
MEAN	52.7	48.3	41.6	32.3	22.7	14.8	14.1	544	370	87.5	93.8	95.7
MAX	65	50	45	35	25	20	70	1,520	1,350	199	239	152
MIN	50	45	40	30	20	10	9.2	94	42	54	60	67
AC-FT	3,240	2,880	2,560	1,980	1,260	912	841	33,460	19,070	5,380	5,770	5,690
WTR YEAR 1997 TOTAL	41,861	MEAN	116	MAX	1,520	MIN	9.2	AC-FT	83,030	*		

e Estimated daily values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Kevinjek Creek

LOCATION.-Lat N 66°32.27', Long W 142°01.64', in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.32, T.17N., R.6E., Fairbanks Meridian. This drainage is a tributary to the Salmon Fork.

DRAINAGE AREA.-395 mi².

PERIOD OF RECORD.-June 3, 1994 thru Sept. 30, 1998.

REMARKS.-Winter data are estimated due to ice effects. The flood event of June 15 thru June 18, 1997 was the extreme event for the period of record. The surveyed water surface elevation was 14.3 ft above the water surface elevation surveyed on June 24, 1997. This gaging station was discontinued on Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 1,850 cfs, June 12, 1998 @00:00 hrs; Minimum Discharge, 25 cfs, Mar. 11 thru Apr. 10, 1998.

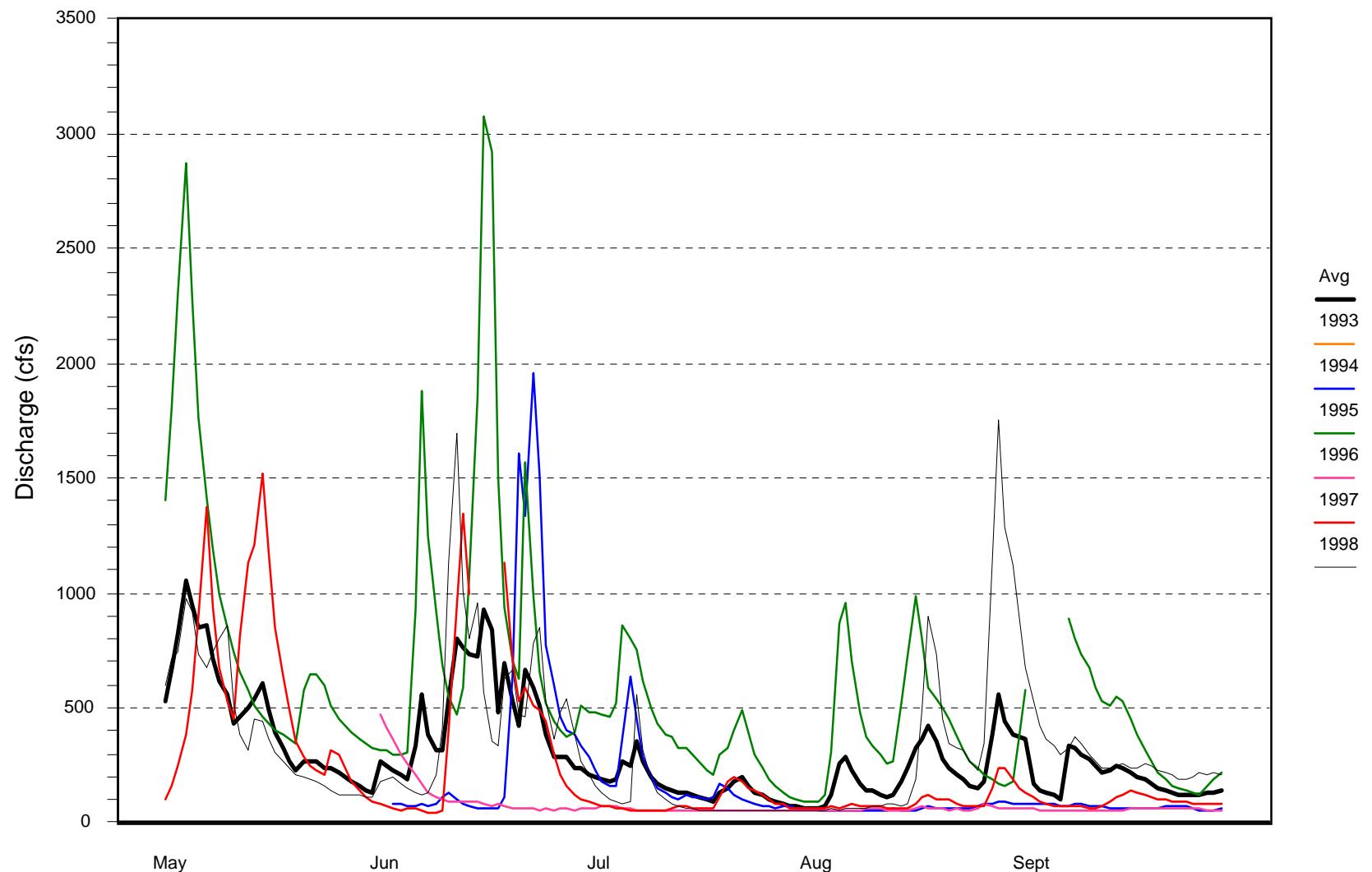
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,180 cfs, June 23, 1994 @17:30 hrs.(see remarks); Minimum Discharge, 9.2 cfs, Apr. 18, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	55e	45e	40e	35e	30e	25e	600	182	210	57	902
2	72	55e	45e	40e	35e	30e	25e	717	194	161	53	673
3	71	55e	45e	40e	35e	30e	25e	746	203	128	57	525
4	70	55e	45e	40e	35e	30e	25e	980	170	103	55	427
5	67	55e	45e	40e	35e	30e	25e	918	149	92	60	368
6	65	55e	45e	40e	35e	30e	25e	731	134	85	56	338
7	63	55e	45e	40e	35e	30e	25e	671	121	89	59	292
8	61	55e	45e	40e	35e	30e	25e	739	128	558	59	323
9	60e	55e	45e	40e	35e	30e	25e	798	206	318	63	375
10	60e	50e	45e	40e	35e	30e	25e	858	409	190	62	348
11	60e	52	45e	40e	35e	25e	30e	518	1,130	130	72	295
12	60e	50e	45e	40e	35e	25e	30e	382	1,700	100	75	263
13	60e	50e	45e	40e	35e	25e	35e	312	1,010	83	83	234
14	60e	50e	45e	40e	35e	25e	35e	453	800	74	82	239
15	60e	50e	45e	40e	35e	25e	40e	439	960	65	72	251
16	60e	50e	45e	40e	30e	25e	45e	360	567	60	84	258
17	60e	50e	45e	40e	30e	25e	50e	306	358	58	189	243
18	60e	50e	45e	40e	30e	25e	61	264	334	58	487	238
19	60e	50e	45e	40e	30e	25e	75e	235	627	56	903	256
20	60e	50e	45e	40e	30e	25e	90e	210	662	54	732	251
21	60e	50e	45e	35e	30e	25e	100e	197	469	57	450	224
22	60e	50e	45e	35e	30e	25e	120e	190	457	53	346	214
23	60e	50e	45e	35e	30e	25e	150e	181	780	55	322	206
24	60e	50e	45e	35e	30e	25e	180e	163	848	53	314	190
25	60e	50e	45e	35e	30e	25e	210e	139	533	52	266	187
26	55e	50e	40e	35e	30e	25e	250e	124	367	53	227	202
27	55e	50e	40e	35e	30e	25e	300e	125	480	57	347	215
28	55e	50e	40e	35e	30e	25e	360e	124	541	54	1,140	209
29	55e	50e	40e	35e	-----	25e	420e	119	386	55	1,750	215
30	55e	50e	40e	35e	-----	25e	500e	115	267	53	1,290	207
31	55e	-----	40e	35e	-----	25e	-----	114	-----	57	1,120	-----
TOTAL	1,893	1,547	1,365	1,185	915	825	3,331	12,828	15,172	3,271	10,932	9,168
MEAN	61.1	51.6	44.0	38.2	32.7	26.6	111	414	506	106	353	306
MAX	74	55	45	40	35	30	500	980	1,700	558	1,750	902
MIN	55	50	40	35	30	25	25	114	121	52	53	187
AC-FT	3,750	3,070	2,710	2,350	1,810	1,640	6,610	25,440	30,090	6,490	21,680	18,180
WTR YEAR 1998 TOTAL	62,432	MEAN	171	MAX	1,750	MIN	25	AC-FT	123,800			

e estimated daily mean values

Kevinjek Creek
Annual Hydrographs 1994-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black River

LOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.

DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1993.

REMARKS.-This gaging station was initiated on June 24, 1993.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 438 cfs, Sept. 6, 1993 @16:45 hrs; Minimum Discharge, 28 cfs, Aug. 5, 1993 @05:00 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 438 cfs, Sept. 6, 1993 @16:45 hrs; Minimum Discharge, 28 cfs, Aug. 5, 1993 @05:00 hrs.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	144	38	174
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	134	37	168
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	122	36	184
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	132	35	225
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	148	34	333
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	137	35	424
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	128	36	399
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	147	36	349
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	188	38	311
10	-----	-----	-----	-----	-----	-----	-----	-----	-----	180	39	275
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	205	39	249
12	-----	-----	-----	-----	-----	-----	-----	-----	-----	205	37	235
13	-----	-----	-----	-----	-----	-----	-----	-----	-----	210	37	222
14	-----	-----	-----	-----	-----	-----	-----	-----	-----	177	41	214
15	-----	-----	-----	-----	-----	-----	-----	-----	-----	144	41	226
16	-----	-----	-----	-----	-----	-----	-----	-----	-----	122	40	244
17	-----	-----	-----	-----	-----	-----	-----	-----	-----	121	41	253
18	-----	-----	-----	-----	-----	-----	-----	-----	-----	93	41	260
19	-----	-----	-----	-----	-----	-----	-----	-----	-----	94	42	263
20	-----	-----	-----	-----	-----	-----	-----	-----	-----	92	47	305
21	-----	-----	-----	-----	-----	-----	-----	-----	-----	78	50	363
22	-----	-----	-----	-----	-----	-----	-----	-----	-----	81	52	334
23	-----	-----	-----	-----	-----	-----	-----	-----	-----	67	56	301
24	-----	-----	-----	-----	-----	-----	-----	-----	-----	189	68	271
25	-----	-----	-----	-----	-----	-----	-----	-----	-----	157	70	250
26	-----	-----	-----	-----	-----	-----	-----	-----	-----	135	74	107
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	121	64	281
28	-----	-----	-----	-----	-----	-----	-----	-----	-----	111	64	321
29	-----	-----	-----	-----	-----	-----	-----	-----	-----	104	68	183
30	-----	-----	-----	-----	-----	-----	-----	-----	-----	115	47	219
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	40	189	140
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,644	2,463	7,718
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	-----	118	79.5	257
MAX	-----	-----	-----	-----	-----	-----	-----	-----	-----	210	321	424
MIN	-----	-----	-----	-----	-----	-----	-----	-----	-----	40	34	140
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	-----	7,230	4,890	15,310
CAL YEAR 1992 TOTAL	0											
WTR YEAR 1993 TOTAL	14,757	MEAN	149	MAX	424	MIN	34	AC-FT	29,270			

YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black RiverLOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1994.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects on stage recording equipment. Missing data July 28 thru Sept. 25, 1994 is due to field equipment failure.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 2,270 cfs, June 29, 1994 @10:30 hrs; Minimum Discharge, 0 cfs, Mar. 16 thru April 23, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,270 cfs, June 29, 1994 @10:30 hrs; Minimum Discharge, 0 cfs, Mar. 16 thru April 23, 1994.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	40e	25e	20e	10 e	5.0e	0e	-----	-----	1,730	-----	-----
2	114	40e	25e	20e	10 e	5.0e	0e	-----	-----	1,550	-----	-----
3	102	40e	25e	15e	10 e	5.0e	0e	-----	-----	1,430	-----	-----
4	96	35e	25e	15e	10 e	5.0e	0e	-----	-----	1,340	-----	-----
5	93	35e	25e	15e	10 e	5.0e	0e	-----	-----	1,300	-----	-----
6	90e	35e	20e	15e	10 e	5.0e	0e	-----	-----	1,360	-----	-----
7	85e	35e	20e	15e	10 e	5.0e	0e	-----	-----	1,650	-----	-----
8	85e	33	20e	15e	10 e	5.0e	0e	-----	-----	2,000	-----	-----
9	80e	30e	20e	15e	10 e	5.0e	0e	-----	-----	1,790	-----	-----
10	80e	30e	20e	15e	10 e	5.0e	0e	-----	748	1,450	-----	-----
11	75e	30e	20e	15e	10 e	5.0e	0e	-----	684	1,220	-----	-----
12	75e	30e	20e	15e	10 e	5.0e	0e	-----	597	921	-----	-----
13	70e	30e	20e	15e	10 e	5.0e	0e	-----	527	703	-----	-----
14	70e	30e	20e	15e	10 e	5.0e	0e	-----	473	626	-----	-----
15	65e	30e	20e	15e	10 e	5.0e	0e	-----	435	595	-----	-----
16	65e	30e	20e	15e	10 e	0 e	0e	-----	409	633	-----	-----
17	60e	30e	20e	15e	10 e	0 e	0e	-----	390	707	-----	-----
18	60e	30e	20e	15e	10 e	0 e	0e	-----	384	742	-----	-----
19	60e	30e	20e	15e	10 e	0 e	0e	-----	388	877	-----	-----
20	55e	30e	20e	15e	10 e	0 e	0e	-----	407	957	-----	-----
21	55e	30e	20e	15e	5.0e	0 e	0e	-----	440	898	-----	-----
22	55e	30e	20e	15e	5.0e	0 e	0e	-----	983	808	-----	-----
23	50e	30e	20e	15e	5.0e	0 e	0e	-----	1,610	734	-----	-----
24	50e	30e	20e	15e	5.0e	0 e	-----	-----	1,790	720	-----	-----
25	50e	30e	20e	10e	5.0e	0 e	-----	-----	2,030	637	-----	-----
26	50e	25e	20e	10e	5.0e	0 e	-----	-----	1,960	544	-----	308
27	45e	25e	20e	10e	5.0e	0 e	-----	-----	1,750	476	-----	296
28	45e	25e	20e	10e	5.0e	0 e	-----	-----	2,060	-----	-----	283
29	45e	25e	20e	10e	-----	0 e	-----	-----	2,250	-----	-----	271
30	45e	25e	20e	10e	-----	0 e	-----	-----	2,040	-----	-----	260
31	40e	-----	20e	10e	-----	0 e	-----	-----	-----	-----	-----	-----
TOTAL	2,142	928	645	440	240.0	75.0	-----	-----	22,355	28,398	-----	-----
MEAN	69.1	30.9	20.8	14.2	8.57	2.42	-----	-----	1,065	1,052	-----	-----
MAX	132	40	25	20	10	5.0	-----	-----	2,250	2,000	-----	-----
MIN	40	25	20	10	5.0	0	-----	-----	384	476	-----	-----
AC-FT	4,250	1,840	1,280	873	476	149	-----	-----	44,340	56,330	-----	-----
CAL YEAR 1993 TOTAL	3,715.0	MEAN	40.4	MAX	132	MIN	20	AC-FT	7,370	-----	-----	-----
WTR YEAR 1994 TOTAL	56,641.0	MEAN	220	MAX	2,250	MIN	0	AC-FT	112,300	-----	-----	-----

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black River

LOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.

DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1995.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Rating was exceeded Apr. 28 thru May 4, 1995. Extremes for the current water year occurred during this period, but are not reported.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 4,400 cfs May 2, 1995; Minimum Discharge, 0 cfs, Mar. 16, 1994 thru Apr. 7, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 4,400 cfs May 2, 1995; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 23, 1994 and Mar. 16 thru Apr. 7, 1995.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	55e	15e	10 e	5.0e	5.0e	0 e	3,400	539	879	263	454
2	232	50e	15e	10 e	5.0e	5.0e	0 e	4,400	851	650	223	1,530
3	227	50e	15e	10 e	5.0e	5.0e	0 e	3,200	839	504	200	1,770
4	208	45e	15e	10 e	5.0e	5.0e	0 e	2,400	719	409	278	1,630
5	196	45e	10e	10 e	5.0e	1.0e	0 e	2,010	634	354	374	1,510
6	189	40e	10e	10 e	5.0e	1.0e	0 e	1,960	579	324	427	1,400
7	180	40e	10e	10 e	5.0e	1.0e	0 e	1,710	518	285	536	1,270
8	176	35e	10e	10 e	5.0e	1.0e	5.0e	1,570	453	244	517	1,090
9	172	35e	10e	10 e	5.0e	1.0e	10 e	1,460	399	205	459	948
10	167	30e	10e	10 e	5.0e	1.0e	10 e	1,340	398	176	393	858
11	156	30e	10e	5.0e	5.0e	1.0e	20 e	1,250	378	157	335	784
12	145e	30e	10e	5.0e	5.0e	1.0e	29	1,130	347	141	292	719
13	135e	25e	10e	5.0e	5.0e	1.0e	31	994	299	129	262	660
14	125e	25e	10e	5.0e	5.0e	1.0e	35	880	269	129	245	616
15	115e	25e	10e	5.0e	5.0e	1.0e	42	787	236	293	238	584
16	105e	20e	10e	5.0e	5.0e	0 e	52	728	205	589	244	560
17	100e	20e	10e	5.0e	5.0e	0 e	59	797	193	992	243	534
18	95e	20e	10e	5.0e	5.0e	0 e	75	1,160	181	1,470	288	507
19	90e	20e	10e	5.0e	5.0e	0 e	92	1,080	216	1,330	426	476
20	85e	20e	10e	5.0e	5.0e	0 e	103	870	513	944	469	445
21	80e	20e	10e	5.0e	5.0e	0 e	110	705	545	663	460	416
22	80e	20e	10e	5.0e	5.0e	0 e	114	638	472	506	440	388
23	75e	15e	10e	5.0e	5.0e	0 e	113	664	378	413	439	361
24	75e	15e	10e	5.0e	5.0e	0 e	164	664	307	356	460	335
25	70e	15e	10e	5.0e	5.0e	0 e	1,260	616	257	313	459	313
26	70e	15e	10e	5.0e	5.0e	0 e	1,680	553	248	307	421	296
27	65e	15e	10e	5.0e	5.0e	0 e	2,010	501	584	304	380	288
28	65e	15e	10e	5.0e	5.0e	0 e	2,400	468	835	305	368	287
29	60e	15e	10e	5.0e	-----	0 e	2,800	524	1,310	404	357	292
30	60e	15e	10e	5.0e	-----	0 e	3,200	554	1,190	398	335	302
31	55e	-----	10e	5.0e	-----	0 e	-----	512	-----	324	328	-----
TOTAL	3,891	820	330	205.0	140.0	31.0	14,414.0	39,525	14,892	14,497	11,159	21,623
MEAN	126	27.3	10.6	6.61	5.00	1.00	480	1,275	496	468	360	721
MAX	238	55	15	10	5.0	5.0	3,200	4,400	1,310	1,470	536	1,770
MIN	55	15	10	5.0	5.0	0	0	468	181	129	200	287
AC-FT	7,720	1,630	655	407	278	61	28,590	78,400	29,540	28,750	22,130	42,890
CAL YEAR 1994	TOTAL*	5,041.0	MEAN	54.8	MAX	238	MIN	10	AC-FT	10,000		
WTR YEAR 1995	TOTAL	121,527.0	MEAN	333	MAX	4,400	MIN	0	AC-FT	241,000		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black RiverLOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1996.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. Data are missing during breakup due to ice effects on stage recording equipment. Missing data just after breakup thru June 6, 1996 resulted from wildlife damage to the gaging station. Extreme for the current water year was most likely exceeded during the period of missing record.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 422 cfs, July 4, 1996 @16:45 hrs (see remarks); Minimum Discharge, 0 cfs, Mar. 19 thru Apr. 15, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 4,400 cfs May 2, 1995; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 23, 1994, Mar. 16 thru Apr. 7, 1995 and Mar. 19 thru Apr. 15, 1996.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	306	45e	15e	10 e	5.0e	5.0e	0e	-----	-----	109	28	109
2	308	40e	15e	10 e	5.0e	5.0e	0e	-----	-----	121	31	106
3	305	40e	15e	10 e	5.0e	5.0e	0e	-----	-----	337	30	100
4	301	35e	15e	10 e	5.0e	5.0e	0e	-----	-----	413	30	99
5	297	35e	15e	10 e	5.0e	5.0e	0e	-----	-----	402	41	113
6	287	35e	10e	10 e	5.0e	5.0e	0e	-----	-----	343	47	124
7	271	30e	10e	10 e	5.0e	5.0e	0e	-----	269	283	44	128
8	251	30e	10e	10 e	5.0e	5.0e	0e	-----	230	240	38	121
9	234	30e	10e	10 e	5.0e	5.0e	0e	-----	193	200	38	115
10	215	25e	10e	10 e	5.0e	5.0e	0e	-----	190	176	36	109
11	199	25e	10e	10 e	5.0e	5.0e	0e	-----	156	158	32	104
12	187	25e	10e	10 e	5.0e	5.0e	0e	-----	144	134	30	99
13	170e	21	10e	10 e	5.0e	5.0e	0e	-----	136	122	27	93
14	155e	20e	10e	10 e	5.0e	5.0e	0e	-----	135	114	23	90
15	140e	20e	10e	10 e	5.0e	5.0e	0e	-----	145	107	19	87
16	130e	20e	10e	10 e	5.0e	5.0e	-----	-----	159	113	21	86
17	120e	20e	10e	5.0e	5.0e	5.0e	-----	-----	165	122	35	96
18	110e	20e	10e	5.0e	5.0e	5.0e	-----	-----	147	121	59	112
19	100e	20e	10e	5.0e	5.0e	0 e	-----	-----	147	111	74	121
20	90e	20e	10e	5.0e	5.0e	0 e	-----	-----	140	102	69	131
21	85e	20e	10e	5.0e	5.0e	0 e	-----	-----	130	92	108	138
22	80e	20e	10e	5.0e	5.0e	0 e	-----	-----	124	83	264	142
23	75e	20e	10e	5.0e	5.0e	0 e	-----	-----	122	73	240	144
24	70e	20e	10e	5.0e	5.0e	0 e	-----	-----	123	63	211	164
25	65e	20e	10e	5.0e	5.0e	0 e	-----	-----	144	56	187	173
26	60e	15e	10e	5.0e	5.0e	0 e	-----	-----	192	49	158	162
27	55e	15e	10e	5.0e	5.0e	0 e	-----	-----	163	42	133	141
28	55e	15e	10e	5.0e	5.0e	0 e	-----	-----	134	36	121	132
29	50e	15e	10e	5.0e	5.0e	0 e	-----	-----	123	31	111	126
30	50e	15e	10e	5.0e	-----	0 e	-----	-----	119	31	102	124
31	45e	-----	10e	5.0e	-----	0 e	-----	-----	-----	32	102	-----
TOTAL	4,866	731	335	235.0	145.0	90.0	-----	-----	3,730	4,416	2,489	3,589
MEAN	157	24.4	10.8	7.58	5.00	2.90	-----	-----	155	142	80.3	120
MAX	308	45	15	10	5.0	5.0	-----	-----	269	413	264	173
MIN	45	15	10	5.0	5.0	0	-----	-----	119	31	19	86
AC-FT	9,650	1,450	664	466	288	179	-----	-----	7,400	8,760	4,940	7,120
CAL YEAR 1995 TOTAL	5,932.0	MEAN	64.5	MAX	308	MIN	10	AC-FT	11,770			
WTR YEAR 1996 TOTAL	20,626.0	MEAN	65.7	MAX	413	MIN	0	AC-FT	40,910			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black RiverLOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1997.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 6,270 cfs, May 4, 1997 @02:00 hrs; Minimum Discharge, 1 cfs, Mar.1 thru Apr. 15, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 6,270 cfs, May 4, 1997 @02:00 hrs; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 23, 1994, Mar. 16 thru Apr. 7, 1995 and Mar. 19 thru Apr. 15, 1996.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	30e	15e	10 e	5.0e	1.0e	1.0e	1,880	349	217	114	675
2	119	30e	15e	10 e	5.0e	1.0e	1.0e	4,020e	487	185	103	543
3	115	30e	15e	10 e	5.0e	1.0e	1.0e	5,250e	587	148	96	455
4	116	30e	15e	10 e	5.0e	1.0e	1.0e	6,070e	614	130	88	378
5	114	30e	15e	10 e	5.0e	1.0e	1.0e	5,800e	549	120	81	330
6	109	25e	10e	10 e	5.0e	1.0e	1.0e	5,580e	480	110	77	294
7	104	25e	10e	10 e	5.0e	1.0e	1.0e	4,480e	419	103	77	264
8	90	25e	10e	10 e	5.0e	1.0e	1.0e	2,010	365	145	77	242
9	81	25e	10e	10 e	5.0e	1.0e	1.0e	1,510	320	107	282	241
10	75e	25e	10e	10 e	5.0e	1.0e	1.0e	1,290	285	102	741	250
11	70e	20e	10e	10 e	5.0e	1.0e	1.0e	1,060	292	96	605	247
12	65e	20e	10e	10 e	5.0e	1.0e	1.0e	906	1,010	92	509	242
13	65e	21	10e	10 e	5.0e	1.0e	1.0e	951	1,420	90	455	242
14	60e	20e	10e	10 e	5.0e	1.0e	1.0e	1,250	1,150	100	541	255
15	60e	20e	10e	10 e	5.0e	1.0e	1.0e	1,460	862	95	492	427
16	55e	20e	10e	5.0e	5.0e	1.0e	5.0e	2,210	745	123	450	727
17	55e	20e	10e	5.0e	5.0e	1.0e	5.0e	3,820	894	574	416	861
18	55e	20e	10e	5.0e	5.0e	1.0e	10 e	2,670	852	651	403	776
19	50e	20e	10e	5.0e	5.0e	1.0e	20 e	1,710	747	447	600	659
20	50e	20e	10e	5.0e	5.0e	1.0e	40 e	1,400	732	336	871	556
21	50e	15e	10e	5.0e	5.0e	1.0e	50 e	1,220	644	260	980	484
22	45e	15e	10e	5.0e	5.0e	1.0e	60 e	997	717	213	859	429
23	45e	15e	10e	5.0e	5.0e	1.0e	70 e	827	1,280	195	673	382
24	45e	15e	10e	5.0e	5.0e	1.0e	80 e	726	1,160	197	525	342
25	40e	15e	10e	5.0e	5.0e	1.0e	100 e	647	831	182	429	309
26	40e	15e	10e	5.0e	5.0e	1.0e	180 e	578	631	189	363	284
27	40e	15e	10e	5.0e	5.0e	1.0e	260 e	563	501	201	350	261
28	35e	15e	10e	5.0e	5.0e	1.0e	350 e	538	410	183	372	240
29	35e	15e	10e	5.0e	-----	1.0e	460	477	332	161	494	225
30	35e	15e	10e	5.0e	-----	1.0e	1,400	414	266	138	779	214
31	35e	-----	10e	5.0e	-----	1.0e	-----	369	-----	124	817	-----
TOTAL	2,075	626	335	230.0	140.0	31.0	3,105.0	62,683	19,931	6,014	13,719	11,834
MEAN	66.9	20.9	10.8	7.42	5.00	1.00	104	2,022	664	194	443	394
MAX	122	30	15	10	5.0	1.0	1,400	6,070	1,420	651	980	861
MIN	35	15	10	5.0	5.0	1.0	1.0	369	266	90	77	214
AC-FT	4,120	1,240	664	456	278	61	6,160	124,300	39,530	11,930	27,210	23,470
CAL YEAR 1996 TOTAL	3,036.0	MEAN	33.0	MAX	122	MIN	10	AC-FT	6,020			
WTR YEAR 1997 TOTAL	120,723.0	MEAN	331	MAX	6,070	MIN	1.0	AC-FT	239,500			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Little Black River

LOCATION.-Lat 66°16.70'N, Long 143°11.08'W, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.26, T.17N., R.22E., Fairbanks Meridian.

DRAINAGE AREA.-1,286 mi².

PERIOD OF RECORD.-June 24, 1993 thru Sept.30, 1998.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor. This gaging station was discontinued on Sept. 30, 1998.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 3,840 cfs, Aug.30, 1998 @19:30 hrs; Minimum Discharge, 0 cfs, Mar. 11, 1998 thru Mar. 31, 1998.

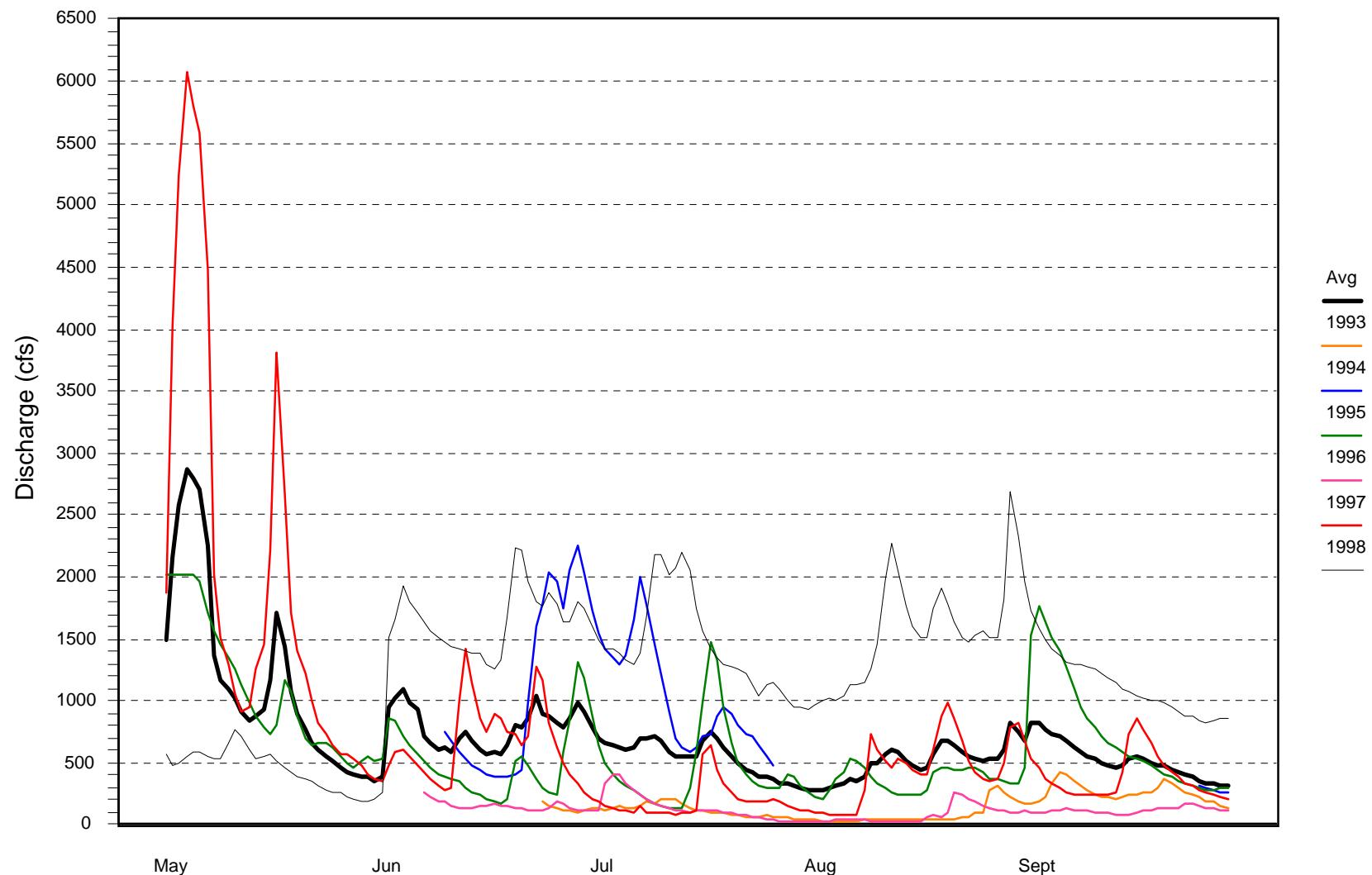
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 6,270 cfs, May 4, 1997 @02:00 hrs; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 23, 1994, Mar. 16 thru Apr. 7, 1995 and Mar. 19 thru Apr. 15, 1996 and Mar. 11, 1998 thru Mar. 31, 1998.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	35e	15e	10 e	5.0e	5.0e	0 e	565	263	1,600	935	1,970
2	194	35e	15e	10 e	5.0e	5.0e	0 e	480	1,510	1,490	971	1,730
3	183	30e	15e	10 e	5.0e	5.0e	0 e	496	1,650	1,420	998	1,580
4	172	30e	15e	10 e	5.0e	5.0e	0 e	547	1,930	1,420	1,030	1,490
5	163	30e	15e	10 e	5.0e	5.0e	5.0e	596	1,800	1,380	1,010	1,420
6	153	25e	15e	10 e	5.0e	5.0e	5.0e	585	1,720	1,330	1,050	1,360
7	142	25e	15e	10 e	5.0e	5.0e	5.0e	546	1,630	1,290	1,140	1,320
8	146	25e	15e	10 e	5.0e	5.0e	10 e	528	1,570	1,390	1,140	1,300
9	154	25e	15e	10 e	5.0e	5.0e	10 e	528	1,520	1,680	1,150	1,290
10	124	25e	15e	10 e	5.0e	5.0e	15 e	654	1,480	2,180	1,250	1,270
11	110	25e	10e	10 e	5.0e	0 e	20 e	774	1,440	2,190	1,460	1,250
12	114	25e	10e	10 e	5.0e	0 e	25 e	709	1,420	2,020	1,990	1,230
13	113	25e	10e	10 e	5.0e	0 e	30 e	600	1,400	2,070	2,270	1,180
14	108	25e	10e	10 e	5.0e	0 e	50 e	531	1,390	2,200	2,060	1,150
15	95	25e	10e	10 e	5.0e	0 e	60 e	546	1,390	2,050	1,770	1,100
16	90e	20e	10e	10 e	5.0e	0 e	80 e	568	1,290	1,750	1,600	1,070
17	85e	20e	10e	10 e	5.0e	0 e	110 e	508	1,260	1,560	1,510	1,040
18	80e	20e	10e	10 e	5.0e	0 e	150 e	463	1,330	1,430	1,510	1,020
19	75e	20e	10e	10 e	5.0e	0 e	193	423	1,680	1,340	1,740	1,010
20	70e	20e	10e	10 e	5.0e	0 e	271	395	2,240	1,300	1,910	1,000
21	65e	20e	10e	10 e	5.0e	0 e	851	374	2,210	1,270	1,790	988
22	60e	20e	10e	10 e	5.0e	0 e	1,390	353	1,970	1,260	1,640	958
23	60e	20e	10e	10 e	5.0e	0 e	1,810	323	1,800	1,230	1,520	919
24	55e	20e	10e	10 e	5.0e	0 e	2,070	288	1,760	1,130	1,480	887
25	55e	20e	10e	10 e	5.0e	0 e	2,040	266	1,880	1,040	1,530	870
26	50e	15e	10e	5.0e	5.0e	0 e	1,860	257	1,780	1,140	1,570	839
27	50e	15e	10e	5.0e	5.0e	0 e	1,660	234	1,630	1,150	1,520	831
28	45e	15e	10e	5.0e	5.0e	0 e	1,470	206	1,640	1,090	1,510	844
29	45e	15e	10e	5.0e	-----	0 e	1,260	193	1,810	1,000	1,820	857
30	40e	15e	10e	5.0e	-----	0 e	821	197	1,750	957	2,690	865
31	40e	-----	10e	5.0e	-----	0 e	-----	202	-----	955	2,330	-----
TOTAL	3,141	685	360	280.0	140.0	50.0	16,271.0	13,935	48,143	45,312	47,894	34,638
MEAN	101	22.8	11.6	9.03	5.00	1.61	542	450	1,605	1,462	1,545	1,155
MAX	205	35	15	10	5.0	5.0	2,070	774	2,240	2,200	2,690	1,970
MIN	40	15	10	5.0	5.0	0	0	193	263	955	935	831
AC-FT	6,230	1,360	714	555	278	99	32,270	27,640	95,490	89,880	95,000	68,700
CAL YEAR 1997	TOTAL	87,486.0	MEAN	240	MAX	3,820	MIN	10	AC-FT	173,500		
WTR YEAR 1998	TOTAL	210,849.0	MEAN	578	MAX	2,690	MIN	0	AC-FT	418,200		

e Estimated daily mean values

Little Black River
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks v Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1993.

REMARKS.-This gaging station was initiated on June 11, 1993. Extremes for water year and period of record are based on a partial water year.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 2,410 cfs, June 20, 1993 @09:45 hrs; Minimum Discharge, 122 cfs, Aug. 1, 1993 @2300 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 2,410 cfs, June 20, 1993 @09:45 hrs; Minimum Discharge, 122 cfs, Aug. 1, 1993 @2300 hrs.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	1,210	127	211	
2	-----	-----	-----	-----	-----	-----	-----	-----	967	124	509	
3	-----	-----	-----	-----	-----	-----	-----	-----	995	126	751	
4	-----	-----	-----	-----	-----	-----	-----	-----	697	133	786	
5	-----	-----	-----	-----	-----	-----	-----	-----	541	136	682	
6	-----	-----	-----	-----	-----	-----	-----	-----	454	150	630	
7	-----	-----	-----	-----	-----	-----	-----	-----	412	220	571	
8	-----	-----	-----	-----	-----	-----	-----	-----	377	222	534	
9	-----	-----	-----	-----	-----	-----	-----	-----	341	200	501	
10	-----	-----	-----	-----	-----	-----	-----	-----	306	188	479	
11	-----	-----	-----	-----	-----	-----	-----	-----	1,240	280	178	455
12	-----	-----	-----	-----	-----	-----	-----	-----	1,150	259	171	439
13	-----	-----	-----	-----	-----	-----	-----	-----	957	240	163	437
14	-----	-----	-----	-----	-----	-----	-----	-----	828	223	159	471
15	-----	-----	-----	-----	-----	-----	-----	-----	748	212	157	479
16	-----	-----	-----	-----	-----	-----	-----	-----	698	202	145	461
17	-----	-----	-----	-----	-----	-----	-----	-----	696	203	145	538
18	-----	-----	-----	-----	-----	-----	-----	-----	1,120	200	143	591
19	-----	-----	-----	-----	-----	-----	-----	-----	1,060	182	146	535
20	-----	-----	-----	-----	-----	-----	-----	-----	2,100	170	141	957
21	-----	-----	-----	-----	-----	-----	-----	-----	1,640	165	139	1,310
22	-----	-----	-----	-----	-----	-----	-----	-----	1,030	158	145	1,070
23	-----	-----	-----	-----	-----	-----	-----	-----	775	152	159	733
24	-----	-----	-----	-----	-----	-----	-----	-----	769	147	171	584
25	-----	-----	-----	-----	-----	-----	-----	-----	690	141	176	500
26	-----	-----	-----	-----	-----	-----	-----	-----	613	142	173	426
27	-----	-----	-----	-----	-----	-----	-----	-----	631	140	170	380
28	-----	-----	-----	-----	-----	-----	-----	-----	589	133	166	394
29	-----	-----	-----	-----	-----	-----	-----	-----	534	131	164	362
30	-----	-----	-----	-----	-----	-----	-----	-----	587	139	165	326
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	135	179	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	10,054	4,981	17,102	
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	324	161	570	
MAX	-----	-----	-----	-----	-----	-----	-----	-----	1,210	222	1,310	
MIN	-----	-----	-----	-----	-----	-----	-----	-----	131	124	211	
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	19,940	9,880	33,920	

YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1994.

REMARKS.-Data is missing for the breakup period Apr. 21 thru May 29, 1994. Data is estimated during winter months due to ice effects. Estimates of high flows on June 20-27 are based on rainfall records, gage comparisons and surveyed highwater marks. Estimates data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
--												
1	324	105e	50e	20e	5.0e	0e	0e	-----	547	757	204	320
2	309	100e	45e	20e	5.0e	0e	0e	-----	636	636	187	303
3	280	100e	45e	20e	5.0e	0e	0e	-----	738	578	182	292
4	265	95e	45e	20e	5.0e	0e	0e	-----	722	654	174	287
5	249	95e	45e	20e	5.0e	0e	0e	-----	676	629	165	277
6	225	90e	45e	20e	5.0e	0e	0e	-----	691	711	155	263
7	210e	90e	40e	20e	5.0e	0e	0e	-----	766	588	154	252
8	200e	90e	40e	20e	5.0e	0e	0e	-----	831	476	163	247
9	190e	80e	40e	15e	5.0e	0e	0e	-----	802	406	154	248
10	180e	80e	40e	15e	5.0e	0e	0e	-----	805	354	148	240
11	170e	80e	40e	15e	5.0e	0e	0e	-----	768	314	141	231
12	160e	78	35e	15e	5.0e	0e	0e	-----	735	320	136	229
13	155e	75e	35e	15e	5.0e	0e	0e	-----	672	364	132	217
14	150e	75e	35e	15e	5.0e	0e	0e	-----	593	344	128	210
15	145e	75e	35e	15e	5.0e	0e	0e	-----	547	301	125	202
16	140e	70e	35e	15e	5.0e	0e	0	-----	515	392	123	195
17	140e	70e	35e	15e	5.0e	0e	0e	-----	462	363	122	186
18	135e	70e	30e	15e	5.0e	0e	0e	-----	416	662	285	176
19	135e	65e	30e	15e	5.0e	0e	0e	-----	792	590	301	174
20	130e	65e	30e	15e	5.0e	0e	0e	-----	1,900	462	261	264
21	130e	65e	30e	10e	5.0e	0e	0e	-----	2,890e	403	248	388
22	125e	60e	30e	10e	5.0e	0e	0e	-----	3,490e	348	235	388
23	125e	60e	30e	10e	5.0e	0e	-----	-----	4,480e	306	226	267
24	120e	60e	25e	10e	5.0e	0e	-----	-----	2,390	278	218	150
25	120e	60e	25e	10e	5.0e	0e	-----	-----	3,300e	258	266	150
26	115e	55e	25e	10e	5.0e	0e	-----	-----	7,570e	244	619	137
27	115e	55e	25e	10e	0 e	0e	-----	-----	2,660e	235	517	124
28	110e	55e	25e	10e	0 e	0e	-----	-----	1,630	232	434	129
29	110e	50e	25e	10e	-----	0e	-----	-----	1,190	228	388	126
30	110e	50e	25e	10e	-----	0e	-----	-----	525	930	214	362
31	105e	-----	25e	10e	-----	0e	-----	486	-----	210	341	-----
TOTAL	5,177	2,218	1,065	450	130.0	0	-----	-----	45,144	12,857	7,294	6,787
MEAN	167	73.9	34.4	14.5	4.64	0	-----	-----	1,505	415	235	226
MAX	324	105	50	20	5.0	0	-----	-----	7,570	757	619	388
MIN	105	50	25	10	0	0	-----	-----	416	210	122	115
AC-FT	10,270	4,400	2,110	893	258	0	-----	-----	89,540	25,500	14,470	13,460

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1995.

REMARKS.-Data is missing for the breakup period Apr. 15 thru May 17, 1995. Data is estimated during winter months due to ice effects. Estimates of high flows on June 26-27, Aug. 14-17, and Aug 30 thru Sept. 6, 1995 are based on rainfall records, gage comparisons and surveyed highwater marks. Estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 4,690 cfs, Aug.31, 1995; Minimum Discharge, 0 cfs, Mar. 21 thru Apr. 14, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994 and Mar. 21 thru Apr. 14,1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	50e	30e	20e	10 e	5.0e	1.0e	-----	404	524	261	4,220e
2	103	50e	30e	20e	10 e	5.0e	1.0e	-----	449	446	240	4,430e
3	123	50e	30e	20e	10 e	5.0e	1.0e	-----	1,050	386	222	4,100e
4	126	50e	25e	20e	10 e	5.0e	1.0e	-----	851	330	212	3,190e
5	122	45e	25e	20e	10 e	5.0e	1.0e	-----	596	287	219	2,300
6	114	45e	25e	20e	10 e	5.0e	1.0e	-----	480	256	251	1,890
7	108	45e	25e	20e	10 e	5.0e	1.0e	-----	414	229	319	1,670
8	99	45e	25e	15e	10 e	5.0e	1.0	-----	351	213	337	1,530
9	95e	45e	25e	15e	10 e	5.0e	1.0e	-----	324	199	405	1,520
10	90e	45e	25e	15e	10 e	5.0e	0 e	-----	304	182	420	1,520
11	85e	40e	25e	15e	10 e	5.0e	0 e	-----	289	172	767	1,570
12	85e	40e	25e	15e	10 e	5.0e	0 e	-----	290	258	978	2,000
13	80e	40e	25e	15e	10 e	5.0e	0 e	-----	272	510	787	1,700
14	80e	40e	25e	15e	10 e	5.0e	0 e	-----	238	442	2,750e	1,480
15	75e	40e	25e	15e	10 e	5.0e	-----	-----	217	953	4,180e	1,330
16	75e	40e	20e	15e	10 e	5.0e	-----	-----	219	1,560	2,650e	1,160
17	75e	40e	20e	15e	10 e	5.0e	-----	717	448	785	1,820	1,010
18	70e	35e	20e	15e	10 e	5.0e	-----	517	494	491	1,450	915
19	70e	35e	20e	15e	10 e	5.0e	-----	431	456	366	1,190	829
20	70e	35e	20e	15e	10 e	5.0e	-----	538	431	304	1,120	759
21	65e	35e	20e	15e	5.0e	1.0e	-----	544	475	259	1,470	707
22	65e	35e	20e	15e	5.0e	1.0e	-----	391	1,260	230	1,500	659
23	65e	35e	20e	15e	5.0e	1.0e	-----	309	1,100	237	1,250	616
24	60e	35e	20e	15e	5.0e	1.0e	-----	252	1,600	221	1,030	592
25	60e	35e	20e	15e	5.0e	1.0e	-----	308	1,170	225	1,120	572
26	60e	35e	20e	15e	5.0e	1.0e	-----	743	2,280	461	1,340	611
27	55e	30e	20e	15e	5.0e	1.0e	-----	1,110	3,260e	497	1,150	764
28	55e	30e	20e	15e	5.0e	1.0e	-----	642	1,480	392	962	774
29	55e	32	20e	10e	-----	1.0e	-----	515	932	333	834	732
30	55e	30e	20e	10e	-----	1.0e	-----	498	669	285	2,440e	682
31	50e	-----	20e	10e	-----	1.0e	-----	459	-----	268	4,690e	-----
TOTAL	2,487	1,187	710	485	240.0	111.0	-----	-----	22,803	12,301	38,364	45,832
MEAN	80.2	39.6	22.9	15.6	8.57	3.58	-----	-----	760	397	1,238	1,528
MAX	126	50	30	20	10	5.0	-----	-----	3,260	1,560	4,690	4,430
MIN	50	30	20	10	5.0	1.0	-----	-----	217	172	212	572
AC-FT	4,930	2,350	1,410	962	476	220	-----	-----	45,230	24,400	76,090	90,910

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1996.

REMARKS.-Data is estimated during winter months due to ice effects. Estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 681 cfs, Aug. 27, 1996; Minimum Discharge, 0 cfs, Mar. 11 thru Apr. 23, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994, Mar. 21 thru Apr. 14, 1995 and Mar. 11 thru Apr. 23, 1996.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	632	120e	50e	20e	5.0e	5.0e	0	35e	650e	300e	80	473
2	592	120e	50e	20e	5.0e	5.0e	0 e	40e	500e	400e	88	407
3	547	120e	45e	20e	5.0e	5.0e	0 e	50e	350e	340e	132	349
4	517	110e	45e	20e	5.0e	5.0e	0 e	60e	250e	300e	229	306
5	490	110e	45e	20e	5.0e	5.0e	0 e	70e	200e	270e	191	272
6	432	110e	45e	20e	5.0e	5.0e	0 e	90e	190e	250e	152	240
7	402	100e	40e	15e	5.0e	5.0e	0 e	110e	180e	220e	128	217
8	388	100e	40e	15e	5.0e	5.0e	0 e	130e	150e	200e	113	200
9	375	100e	40e	15e	5.0e	5.0e	0 e	150e	135e	180e	109	184
10	354	95e	40e	15e	5.0e	5.0e	0 e	180e	130e	200e	284	181
11	318	95e	35e	15e	5.0e	0 e	0 e	220e	200e	220e	403	195
12	300e	90e	35e	15e	5.0e	0 e	0 e	270e	300e	261	354	193
13	280e	90e	35e	15e	5.0e	0 e	0 e	320e	420e	216	291	193
14	260e	85e	35e	15e	5.0e	0 e	0 e	390e	620e	178	247	196
15	240e	85e	35e	15e	5.0e	0 e	0 e	470e	460e	157	213	191
16	230e	80e	30e	15e	5.0e	0 e	0 e	550e	380e	150	190	179
17	220e	80e	30e	15e	5.0e	0 e	0 e	700e	300e	137	180	175
18	210e	75e	30e	10e	5.0e	0 e	0 e	800e	260e	122	186	172
19	200e	75e	30e	10e	5.0e	0 e	0 e	1,000e	220e	110	210	165
20	190e	70e	30e	10e	5.0e	0 e	0 e	1,200e	200e	98	187	170
21	180e	70e	25e	10e	5.0e	0 e	0 e	1,400e	180e	91	165	165
22	170e	65e	25e	10e	5.0e	0 e	0 e	1,700e	160e	89	150	161
23	160e	65e	25e	10e	5.0e	0 e	0 e	2,100e	150e	92	139	153
24	160e	60e	25e	10e	5.0e	0 e	5.0e	2,500e	140e	88	127	143
25	150e	60e	25e	10e	5.0e	0 e	5.0e	3,000e	130e	79	127	130
26	150e	60e	25e	10e	5.0e	0 e	10 e	3,640e	120e	75	212	122
27	140e	55e	25e	10e	5.0e	0 e	15 e	2,700e	110e	105	681	128
28	140e	55e	25e	10e	5.0e	0 e	25 e	2,000e	100e	91	522	114
29	130e	55e	20e	10e	5.0e	0 e	25 e	1,500e	150e	95	386	104
30	130e	50e	20e	10e	-----	0 e	30 e	1,100e	200e	90	318	95
31	130e	-----	20e	10e	-----	0 e	-----	850e	-----	83	355	-----
TOTAL	8,817	2,505	1,025	425	145.0	50.0	115.0	29,325	7,535	5,287	7,149	5,973
MEAN	284	83.5	33.1	13.7	5.00	1.61	3.83	946	251	171	231	199
MAX	632	120	50	20	5.0	5.0	30	3,640	650	400	681	473
MIN	130	50	20	10	5.0	0	0	35	100	75	80	95
AC-FT	17,490	4,970	2,030	843	288	99	228	58,170	14,950	10,490	14,180	11,850
WTR YEAR 1996 TOTAL	68,351.0	MEAN	187	MAX	3,640	MIN	0	AC-FT	135,600			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1997.

REMARKS.-Data is estimated during winter months due to ice effects. Estimates of high flows on July 14, 15, and 23, 1997 are based on rainfall records, gage comparisons and surveyed highwater marks. Estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 1,480 cfs, Sept.20, 1997; Minimum Discharge, 0 cfs, Mar. 06 thru Apr. 25, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994, Mar. 21 thru Apr. 14, 1995, Mar. 11 thru Apr. 23, 1996 and Mar. 06 thru Apr. 25, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	25e	15e	10e	10 e	5.0e	0 e	25e	326	110	348	379
2	88	25e	15e	10e	10 e	5.0e	0 e	30e	252	112	394	455
3	80e	25e	15e	10e	10 e	5.0e	0 e	40e	269	100	1,400	408
4	75e	25e	15e	10e	10 e	5.0e	0 e	45e	433	88	908	371
5	75e	25e	15e	10e	10 e	5.0e	0 e	55e	769	81	539	349
6	70e	25e	15e	10e	5.0e	0 e	0 e	65e	808	86	397	365
7	70e	25e	15e	10e	5.0e	0 e	0 e	80e	717	102	349	344
8	65e	25e	15e	10e	5.0e	0 e	0 e	100e	519	197	316	319
9	65e	25e	15e	10e	5.0e	0 e	0 e	120e	409	298	326	297
10	60e	25e	15e	10e	5.0e	0 e	0 e	140e	1,470	204	332	279
11	60e	20e	15e	10e	5.0e	0 e	0 e	170e	1,020	153	347	290
12	55e	20e	15e	10e	5.0e	0 e	0 e	200e	651	132	365	316
13	55e	20e	15e	10e	5.0e	0 e	0 e	240e	939	221	333	336
14	50e	20e	15e	10e	5.0e	0 e	0 e	290e	950	3,950e	304	383
15	50e	20e	15e	10e	5.0e	0 e	0 e	350e	701	1,780	288	367
16	45e	20e	15e	10e	5.0e	0 e	0 e	420e	528	865	299	336
17	45e	20e	15e	10e	5.0e	0 e	0 e	510e	411	536	366	301
18	45e	20e	15e	10e	5.0e	0 e	0 e	620e	356	387	395	289
19	40e	20e	15e	10e	5.0e	0 e	0	750e	301	396	429	500
20	40e	20e	15e	10e	5.0e	0 e	0 e	900e	253	1,140	380	1,480
21	40e	20e	15e	10e	5.0e	0 e	0 e	1,080	309	1,510	334	1,080
22	35e	20e	15e	10e	5.0e	0 e	0 e	1,300	441	1,600	312	761
23	35e	20e	15e	10e	5.0e	0 e	0 e	775	410	2,000	289	616
24	35e	20e	15e	10e	5.0e	0 e	0 e	480	422	1,350	286	550
25	35e	20e	10e	10e	5.0e	0 e	0 e	382	326	838	305	526
26	35e	15e	10e	10e	5.0e	0 e	5.0e	368	243	607	352	551
27	30e	15e	10e	10e	5.0e	0 e	5.0e	357	194	491	425	501
28	30e	15e	10e	10e	5.0e	0 e	10 e	389	159	428	460	451
29	30e	15e	10e	10e	-----	0 e	15 e	496	135	381	398	404
30	30e	15e	10e	10e	-----	0 e	20 e	672	120	342	356	335
31	30e	-----	10e	10e	-----	0 e	-----	479	-----	310	333	-----
TOTAL	1,595	625	430	310	165.0	25.0	55.0	11,928	14,841	20,795	12,665	13,939
MEAN	51.5	20.8	13.9	10.0	5.89	.81	1.83	385	495	671	409	465
MAX	97	25	15	10	10	5.0	20	1,300	1,470	3,950	1,400	1,480
MIN	30	15	10	10	5.0	0	0	25	120	81	286	279
AC-FT	3,160	1,240	853	615	327	50	109	23,660	29,440	41,250	25,120	27,650
CAL YEAR 1996 TOTAL	58,654	MEAN	160	MAX	3,640	MIN	0	AC-FT	116,339			
WTR YEAR 1997 TOTAL	77,373	MEAN	212	MAX	3,950	MIN	0	AC-FT	153,467			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Preacher Creek

LOCATION.-Lat 65°46.45'N, Long 145°32.81'W, in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.11N., R.10E., Fairbanks Meridian.

DRAINAGE AREA.-630 mi².

PERIOD OF RECORD.-June 11, 1993 thru Sept. 30, 1998.

REMARKS.-Data is estimated during winter months due to ice effects. Estimates of high flows on May 10-11, May 27 thru June 1, June 17-18, July 8-15, and Aug. 18-19, 1998 are based on rainfall records, gage comparisons and surveyed highwater marks. Estimated data are considered to be poor.

EXTREMES FOR CURRENT WATER YEAR.-Maximum Discharge, 7,010 cfs, July 8, 1998; Minimum Discharge, 0 cfs, Mar. 16 thru Apr. 20, 1998.

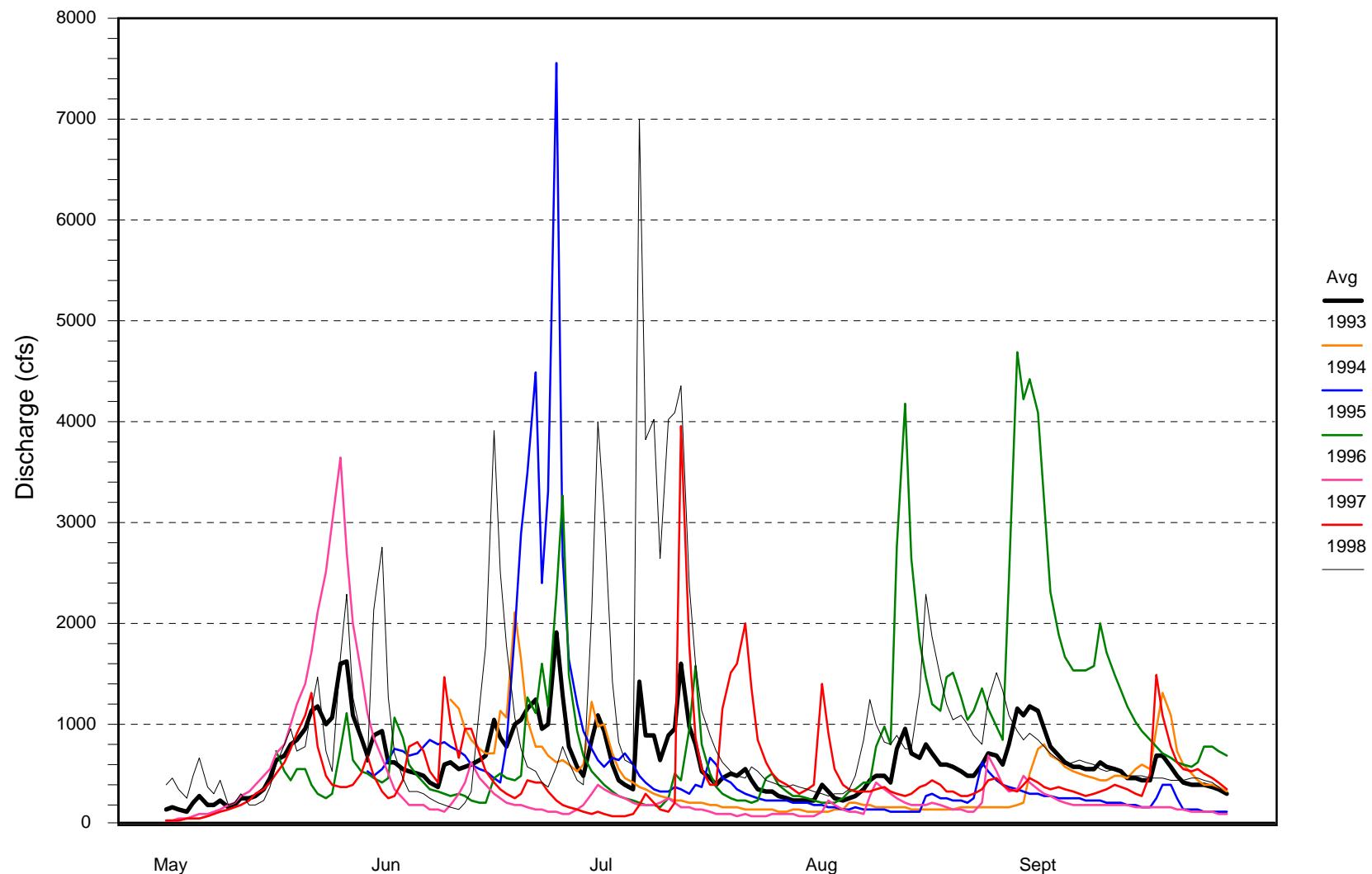
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 7,570 cfs, June 26, 1994; Minimum Discharge, 0 cfs, Feb. 27 thru Apr. 20, 1994, Mar. 21 thru Apr. 14, 1995, Mar. 11 thru Apr. 23, 1996, Mar. 06 thru Apr. 25, 1997 and Mar. 16 thru Apr. 20, 1998.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	316	40e	20e	15e	10 e	5.0e	.50e	390	2,750e	2,100	345	844
2	297	40e	20e	15e	10 e	5.0e	.50e	448	1,260	3,990e	321	905
3	269	35e	20e	15e	10 e	5.0e	.50e	348	695	3,110e	293	827
4	250	35e	20e	15e	10 e	5.0e	.50e	251	454	1,420	275	759
5	221	35e	20e	15e	10 e	5.0e	.50e	484	327	817	290	702
6	208	35e	20e	15e	10 e	5.0e	.50e	656	325	642	311	641
7	190	30e	20e	15e	10 e	5.0e	.50e	372	296	587	349	601
8	187	30e	20e	15e	10 e	5.0e	.50e	305	246	7,010e	468	622
9	126	30e	20e	15e	10 e	5.0e	.50e	437	219	3,830e	836	638
10	110e	30e	20e	15e	10 e	5.0e	.50e	197	196	4,020e	1,230	620
11	105e	30e	20e	15e	10 e	5.0e	.50e	208	166	2,650e	994	584
12	100e	30e	20e	15e	10 e	5.0e	.50e	311	154	4,030e	815	547
13	95e	25e	20e	15e	10 e	5.0e	.50e	196	201	4,100e	801	533
14	90e	25	20e	15e	10 e	5.0e	.50e	184	317	4,360e	877	539
15	85e	25e	20e	15e	10 e	5.0e	.50e	237	1,170	2,380	738	513
16	80e	25e	20e	15e	10 e	1.0e	.50	378	1,770	1,590	740	472
17	80e	25e	20e	15e	10 e	1.0e	.50e	596	3,920e	1,130	1,310	485
18	75e	25e	20e	15e	10 e	1.0e	.50e	789	2,500	873	2,290	480
19	75e	25e	20e	15e	10 e	1.0e	.50e	939	1,770	716	1,870	465
20	70e	25e	20e	15e	10 e	1.0e	1.0 e	731	1,060	603	1,470	460
21	70e	25e	15e	10e	5.0e	1.0e	5.0 e	774	738	521	1,190	448
22	65e	25e	15e	10e	5.0e	1.0e	10 e	1,150	567	480	1,030	436
23	65e	25e	15e	10e	5.0e	1.0e	20 e	1,470	518	462	1,070	442
24	60e	25e	15e	10e	5.0e	1.0e	35 e	730	408	577	989	442
25	60e	25e	15e	10e	5.0e	1.0e	70 e	531	360	518	870	456
26	55e	20e	15e	10e	5.0e	1.0e	130 e	1,650	570	441	791	449
27	55e	20e	15e	10e	5.0e	1.0e	245 e	2,290	772	406	1,240	431
28	50e	20e	15e	10e	5.0e	1.0e	460 e	1,260	603	380	1,510	408
29	50e	20e	15e	10e	-----	1.0e	873	889	428	371	1,320	375
30	45e	20e	15e	10e	-----	1.0e	452	603	388	385	1,090	306
31	45e	-----	15e	10e	-----	1.0e	-----	2,120	-----	362	932	-----
TOTAL	3,649	825	565	410	240.0	91.0	2,310.50	21,924	25,148	54,861	28,655	16,430
MEAN	118	27.5	18.2	13.2	8.57	2.94	77.0	707	838	1,770	924	548
MAX	316	40	20	15	10	5.0	873	2,290	3,920	7,010	2,290	905
MIN	45	20	15	10	5.0	1.0	.50	184	154	362	275	306
AC-FT	7,240	1,640	1,120	813	476	180	4,580	43,490	49,880	108,800	56,840	32,590
CAL YEAR 1997	TOTAL	79,762	MEAN	219	MAX	3,950	MIN	0	AC-FT	158,206		
WTR YEAR 1998	TOTAL	155,108.50	MEAN	425	MAX	7,010	MIN	.50	AC-FT	307,700		

e Estimated daily mean values

Preacher Creek
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon ForkLOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks

Meridian

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1993;

REMARKS.-This stream gaging station was initiated on June 26, 1993.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 5,250 cfs, Sept. 22, 1993 @01:00 hrs;
Minimum Discharge, 750 cfs, June 29, 1993 @11:45 hrs.EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 5,250 cfs, Sept. 22, 1993 @01:00 hrs;
Minimum Discharge, 750 cfs, June 29, 1993 @11:45 hrs.DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	793	943	1,390	
2	-----	-----	-----	-----	-----	-----	-----	-----	829	952	1,740	
3	-----	-----	-----	-----	-----	-----	-----	-----	880	924	2,580	
4	-----	-----	-----	-----	-----	-----	-----	-----	845	937	3,760	
5	-----	-----	-----	-----	-----	-----	-----	-----	1,090	946	3,680	
6	-----	-----	-----	-----	-----	-----	-----	-----	1,200	940	3,170	
7	-----	-----	-----	-----	-----	-----	-----	-----	1,220	1,060	2,820	
8	-----	-----	-----	-----	-----	-----	-----	-----	1,550	1,830	2,550	
9	-----	-----	-----	-----	-----	-----	-----	-----	3,020	2,060	2,370	
10	-----	-----	-----	-----	-----	-----	-----	-----	2,710	1,920	2,220	
11	-----	-----	-----	-----	-----	-----	-----	-----	2,210	1,770	2,070	
12	-----	-----	-----	-----	-----	-----	-----	-----	1,910	1,610	1,970	
13	-----	-----	-----	-----	-----	-----	-----	-----	1,690	1,510	1,930	
14	-----	-----	-----	-----	-----	-----	-----	-----	1,490	1,460	1,860	
15	-----	-----	-----	-----	-----	-----	-----	-----	1,410	1,380	1,920	
16	-----	-----	-----	-----	-----	-----	-----	-----	1,260	1,350	1,930	
17	-----	-----	-----	-----	-----	-----	-----	-----	1,160	1,300	1,890	
18	-----	-----	-----	-----	-----	-----	-----	-----	1,050	1,270	1,990	
19	-----	-----	-----	-----	-----	-----	-----	-----	992	1,260	2,270	
20	-----	-----	-----	-----	-----	-----	-----	-----	946	1,240	2,340	
21	-----	-----	-----	-----	-----	-----	-----	-----	948	1,220	4,090	
22	-----	-----	-----	-----	-----	-----	-----	-----	1,030	1,200	5,120	
23	-----	-----	-----	-----	-----	-----	-----	-----	968	1,180	4,560	
24	-----	-----	-----	-----	-----	-----	-----	-----	935	1,190	3,610	
25	-----	-----	-----	-----	-----	-----	-----	-----	907	1,180	2,990	
26	-----	-----	-----	-----	-----	-----	-----	-----	917	892	1,220	2,610
27	-----	-----	-----	-----	-----	-----	-----	-----	836	946	1,250	2,280
28	-----	-----	-----	-----	-----	-----	-----	-----	776	939	1,270	2,040
29	-----	-----	-----	-----	-----	-----	-----	-----	780	911	1,310	1,850
30	-----	-----	-----	-----	-----	-----	-----	-----	806	900	1,370	1,790
31	-----	-----	-----	-----	-----	-----	-----	-----	915	1,350	-----	
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	38,546	40,402	77,390	
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	1,243	1,303	2,580	
MAX	-----	-----	-----	-----	-----	-----	-----	-----	3,020	2,060	5,120	
MIN	-----	-----	-----	-----	-----	-----	-----	-----	793	924	1,390	
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	76,460	80,140	153,500	
CAL YEAR 1992 TOTAL	0											
WTR YEAR 1993 TOTAL	160,453	MEAN	1,654	MAX	5,120	MIN	776	AC-FT	318,300			

YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon Fork

LOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks

Meridian

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1994.

REMARKS.-Winter data are estimated due to ice effects. Peak flows June 21 thru 24 were estimated. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 11,000 cfs, June 24, 1994; Minimum Discharge, 240 cfs, Mar. 1, thru Apr. 21, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 11,000 cfs, June 24, 1994; Minimum Discharge, 240 cfs, Mar. 1, thru Apr. 21, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,720	780e	540e	380e	290e	240e	240e	610e	1,790	3,380	1,220	1,580
2	1,670	770e	530e	380e	280e	240e	240e	680e	1,720	3,040	1,170	1,500
3	1,650	760e	530e	370e	280e	240e	240e	760e	1,790	2,740	1,140	1,450
4	1,580	750e	520e	370e	280e	240e	240e	840e	2,110	2,620	1,120	1,430
5	1,510	740e	520e	360e	280e	240e	240e	930e	2,140	3,160	1,100	1,390
6	1,360	730e	510e	360e	270e	240e	240e	1,000e	2,010	3,450	1,080	1,380
7	1,320e	720e	510e	350e	270e	240e	240e	1,100e	1,990	3,520	1,060	1,420
8	1,290e	710e	500e	350e	270e	240e	240e	1,300e	2,510	3,180	1,040	1,440
9	1,260e	700e	500e	350e	270e	240e	240e	1,400e	2,450	2,720	1,030	1,410
10	1,230e	690e	490e	340e	270e	240e	240e	1,600e	2,260	2,380	1,030	1,420
11	1,200e	680e	490e	340e	260e	240e	240e	1,800e	2,050	2,120	1,010	1,390
12	1,170e	670e	480e	340e	260e	240e	240e	2,000e	1,920	1,930	1,010	1,340
13	1,140e	660e	480e	330e	260e	240e	240e	2,200e	1,790	1,900	1,010	1,330
14	1,120e	650e	470e	330e	260e	240e	240e	2,400e	1,650	2,040	1,010	1,290
15	1,100e	640e	470e	330e	260e	240e	240e	2,700e	1,560	2,110	1,010	1,260
16	1,080e	630e	460e	320e	260e	240e	240e	2,980	1,470	2,460	1,000	1,250
17	1,060e	620e	460e	320e	250e	240e	240e	2,790	1,430	2,170	1,010	1,240
18	1,040e	610e	450e	320e	250e	240e	240e	2,770	1,450	2,010	1,000	1,240
19	1,020e	600e	450e	320e	250e	240e	240e	3,120	1,900	1,910	1,020	1,230
20	1,000e	590e	440e	310e	250e	240e	240e	3,850	8,010	1,820	1,040	1,000
21	980e	580e	440e	310e	250e	240e	240e	5,670	9,000e	1,750	1,040	992
22	960e	580e	430e	310e	250e	240e	240e	6,790	10,100e	1,770	1,040	994
23	940e	570e	430e	310e	250e	240e	260e	5,560	10,700e	1,710	1,050	1,000
24	920e	570e	420e	300e	250e	240e	290e	4,850	11,000e	1,590	1,070	1,090
25	900e	560e	420e	300e	250e	240e	320e	3,990	10,500	1,500	1,110	951
26	880e	560e	410e	300e	250e	240e	360e	3,540	6,430	1,410	1,190	903
27	860e	550e	410e	300e	250e	240e	400e	3,230	5,390	1,350	1,260	891
28	840e	550e	400e	290e	250e	240e	450e	2,970	4,530	1,290	1,340	863
29	820e	540e	400e	290e	-----	240e	500e	2,610	3,910	1,260	1,420	842
30	800e	540e	390e	290e	-----	240e	550e	2,210	3,540	1,310	1,590	855
31	790e	-----	390e	290e	-----	240e	-----	1,900	-----	1,280	1,640	-----
TOTAL	35,210	19,300	14,340	10,160	7,320	7,440	8,410	80,150	119,100	66,880	34,860	36,371
MEAN	1,136	643	463	328	261	240	280	2,585	3,970	2,157	1,125	1,212
MAX	1,720	780	540	380	290	240	550	6,790	11,000	3,520	1,640	1,580
MIN	790	540	390	290	250	240	240	610	1,430	1,260	1,000	842
AC-FT	69,840	38,280	28,440	20,150	14,520	14,760	16,680	159,000	236,200	132,700	69,140	72,140
CAL YEAR 1993 TOTAL	229,303	MEAN	628	MAX	5,120	MIN	390	AC-FT	454,800			
WTR YEAR 1994 TOTAL	439,541	MEAN	1,204	MAX	11,000	MIN	240	AC-FT	871,800			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon Fork

LOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks

Meridian

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1995.

REMARKS.-Winter data are estimated due to ice effects. Peak flows June 21 thru 24 were estimated. Data are estimated from Aug. 31 thru Sept. 30 due to wildlife damage to gaging station. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 22,300 cfs, June 28, 1995 @17:45 hrs; Minimum Discharge, 190 cfs, Mar. 1, thru Apr. 6, 1995.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,300 cfs, June 28, 1995 @17:45 hrs; Minimum Discharge, 190 cfs, Mar. 1, thru Apr. 6, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	872	580e	370e	270e	210e	190e	190e	7,650	3,540	4,400	1,690	10,000e
2	955	570e	370e	260e	210e	190e	190e	10,500	3,240	3,670	1,620	13,000e
3	889	560e	360e	260e	210e	190e	190e	13,000	2,920	3,800	1,630	13,500e
4	870e	550e	360e	260e	200e	190e	190e	12,100	2,650	3,260	1,940	12,000e
5	850e	540e	350e	260e	200e	190e	190e	9,830	2,260	2,560	2,730	10,500e
6	840e	530e	350e	260e	200e	190e	190e	8,490	1,960	2,150	4,540	8,800e
7	830e	520e	340e	250e	200e	190e	200e	7,140	1,780	1,890	5,320	7,400e
8	820e	510e	340e	250e	200e	190e	200e	6,590	1,800	1,740	4,540	6,100e
9	810e	500e	330e	250e	200e	190e	200e	6,310	1,810	1,620	3,730	5,800e
10	800e	490e	330e	250e	200e	190e	200e	5,970	1,680	1,590	3,180	5,200e
11	790e	480e	320e	250e	200e	190e	200e	6,140	1,550	1,770	2,810	5,100e
12	780e	470e	320e	240e	200e	190e	200e	5,980	1,440	1,880	2,550	4,900e
13	770e	460e	320e	240e	200e	190e	200e	5,270	1,370	1,760	2,540	4,600e
14	760e	460e	310e	240e	200e	190e	210e	4,370	1,340	1,630	2,530	4,800e
15	750e	450e	310e	240e	200e	190e	240e	3,640	1,270	1,630	2,660	4,700e
16	740e	450e	310e	240e	200e	190e	270e	3,800	1,220	1,770	2,900	4,600e
17	730e	430e	300e	230e	200e	190e	310e	3,310	1,580	2,430	3,120	4,100e
18	720e	430e	300e	230e	200e	190e	360e	2,520	3,490	2,550	3,030	3,700e
19	710e	420e	300e	230e	200e	190e	400e	2,060	3,660	2,320	2,720	3,500e
20	700e	420e	290e	230e	200e	190e	460e	1,810	3,140	2,170	2,520	3,300e
21	690e	410e	290e	230e	200e	190e	520e	1,780	2,650	2,200	2,480	3,100e
22	680e	410e	290e	230e	200e	190e	600e	1,860	2,160	3,340	2,610	3,000e
23	670e	400e	290e	220e	200e	190e	676	1,600	1,850	3,720	2,710	2,800e
24	660e	400e	280e	220e	200e	190e	750	1,420	1,750	3,230	2,530	2,600e
25	650e	390e	280e	220e	200e	190e	1,200	1,300	2,460	2,820	2,330	2,500e
26	640e	390e	280e	220e	200e	190e	2,080	1,230	5,180	2,990	2,220	2,400e
27	630e	390e	280e	220e	200e	190e	5,680	1,270	13,400	3,330	2,170	2,350e
28	620e	380e	270e	210e	200e	190e	10,100	1,380	20,400	2,920	2,080	2,300e
29	610e	380e	270e	210e	-----	190e	9,740	1,350	11,100	2,390	2,030	2,700e
30	600e	370e	270e	210e	-----	190e	7,990	1,430	5,960	2,060	1,930	2,900e
31	590e	-----	270e	210e	-----	190e	-----	2,270	-----	1,840	5,000e	-----
TOTAL	23,026	13,740	9,650	7,340	5,630	5,890	44,126	143,370	110,610	77,430	86,390	162,250
MEAN	743	458	311	237	201	190	1,471	4,625	3,687	2,498	2,787	5,408
MAX	955	580	370	270	210	190	10,100	13,000	20,400	4,400	5,320	13,500
MIN	590	370	270	210	200	190	190	1,230	1,220	1,590	1,620	2,300
AC-FT	45,670	27,250	19,140	14,560	11,170	11,680	87,520	284,400	219,400	153,600	171,400	321,800
CAL YEAR 1994 TOTAL		480,988	MEAN	1,318	MAX	13,500	MIN	270	AC-FT	954,000		
WTR YEAR 1995 TOTAL		689,452	MEAN	1,889	MAX	20,400	MIN	190	AC-FT	1,368,000		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon Fork

LOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks

Meridian

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1996.

REMARKS.-Winter data are estimated due to ice effects. Data are estimated June 1, thru July 9, due to equipment failure. Data are estimated Aug 25, thru Sept. 6, due to wildlife damage to the gaging station. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 2,900 cfs, June 1, 1996; Minimum Discharge, 210 cfs, Mar. 11 thru Apr. 12, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,300 cfs, June 28, 1995 @17:45 hrs; Minimum Discharge, 190 cfs, Mar. 1, thru Apr. 6, 1995.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	680e	450e	320e	250e	220e	210e	-----	2,900e	2,100e	630	1,250e
2	-----	670e	440e	320e	250e	220e	210e	-----	2,400e	2,000e	730	1,300e
3	-----	660e	440e	320e	240e	220e	210e	-----	2,100e	1,500e	851	1,350e
4	-----	650e	430e	310e	240e	220e	210e	-----	1,900e	1,400e	858	1,350e
5	-----	640e	430e	310e	240e	220e	211e	-----	1,850e	1,200e	1,020	1,350e
6	-----	630e	420e	310e	240e	220e	210e	-----	1,800e	1,100e	1,180	1,350e
7	-----	620e	420e	300e	240e	220e	210e	-----	1,850e	1,000e	1,120	1,240
8	-----	610e	410e	300e	240e	220e	210e	-----	1,800e	900e	1,010	1,200
9	-----	600e	410e	300e	240e	220e	210e	-----	1,750e	800e	937	1,130
10	-----	590e	400e	290e	240e	220e	210e	-----	1,710	722	903	1,080
11	-----	580e	400e	290e	240e	210e	210e	-----	1,600e	707	1,220	1,050
12	-----	570e	390e	290e	240e	210e	210e	-----	1,450e	701	1,700	1,050
13	1,060e	560e	390e	280e	240e	210e	-----	-----	1,200e	700	1,590	1,070
14	1,000e	550e	380e	280e	230e	210e	-----	-----	1,100e	689	1,380	1,070
15	950e	540e	380e	280e	230e	210e	-----	-----	1,000e	674	1,210	1,070
16	910e	530e	380e	280e	230e	210e	-----	-----	900e	672	1,120	1,050
17	880e	520e	370e	270e	230e	210e	-----	-----	800e	664	1,110	1,040
18	860e	510e	370e	270e	230e	210e	-----	-----	750e	646	1,630	1,020
19	840e	510e	370e	270e	230e	210e	-----	-----	700e	627	2,460	997
20	820e	500e	360e	270e	230e	210e	-----	-----	750e	605	2,610	1,010
21	800e	500e	360e	260e	230e	210e	-----	-----	800e	582	2,180	1,040
22	790e	490e	360e	260e	230e	210e	-----	-----	750e	567	1,830	1,060
23	780e	490e	350e	260e	230e	210e	-----	-----	750e	554	1,580	1,030
24	770e	480e	350e	260e	230e	210e	-----	-----	700e	549	1,400	1,010
25	760e	480e	350e	250e	230e	210e	-----	-----	650e	545	1,350e	1,010
26	750e	470e	340e	250e	220e	210e	-----	-----	600e	542	1,300e	970
27	740e	470e	340e	250e	220e	210e	-----	-----	800e	537	1,250e	916
28	730e	460e	340e	250e	220e	210e	-----	-----	1,000e	538	1,300e	881
29	720e	460e	330e	250e	220e	210e	-----	-----	1,400e	542	1,350e	866
30	710e	450e	330e	250e	220e	210e	-----	-----	2,000e	561	1,250e	859
31	690e	-----	330e	250e	-----	210e	-----	-----	-----	581	1,200e	-----
TOTAL	15,560	16,470	11,820	8,650	6,780	6,610	-----	-----	39,760	25,505	41,259	32,669
MEAN	819	549	381	279	234	213	-----	-----	1,325	823	1,331	1,089
MAX	1,060	680	450	320	250	220	-----	-----	2,900	2,100	2,610	1,350
MIN	690	450	330	250	220	210	-----	-----	600	537	630	859
AC-FT	30,860	32,670	23,440	17,160	13,450	13,110	-----	-----	78,860	50,590	81,840	64,800
CAL YEAR 1995	TOTAL	542,001	MEAN	1,535	MAX	22,700	MIN	330	AC-FT	1,075,000		
WTR YEAR 1996	TOTAL	207,604	MEAN	681	MAX	2,900	MIN	210	AC-FT	411,800		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon Fork

LOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks

Meridian

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1997.

REMARKS.-Winter data are estimated due to ice effects. Data are estimated for June 15 and June 21 thru Aug. 6, 1997 due to equipment failure. All estimated data are considered to be poor. Data are missing June 16 thru 20.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 21,100 cfs, May 5, 1997; Minimum Discharge, 150 cfs, Feb. 21 thru Apr. 8, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,300 cfs, June 28, 1995 @17:45 hrs; Minimum Discharge, 150 cfs, Feb. 21 thru Apr. 8, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	839	440e	290e	220e	170e	150e	150e	7,130	2,630	1,400e	1,100e	3,450
2	807	430e	290e	220e	170e	150e	150e	11,900	2,120	1,350e	1,050e	3,040
3	777	430e	290e	220e	170e	150e	150e	14,400	1,870	1,300e	1,000e	2,730
4	706	420e	280e	210e	170e	150e	150e	17,500	1,780	1,200e	950e	2,480
5	680e	420e	280e	210e	170e	150e	150e	17,100	1,880	1,150e	900e	2,300
6	660e	410e	280e	210e	160e	150e	150e	13,500	2,170	1,100e	1,050e	2,170
7	640e	410e	270e	210e	160e	150e	150e	7,770	2,430	1,150e	4,250e	2,070
8	620e	400e	270e	210e	160e	150e	150e	5,120	2,360	1,200e	8,100e	1,990
9	600e	400e	270e	200e	160e	150e	160e	3,970	2,060	1,200e	7,250e	1,900
10	590e	390e	270e	200e	160e	150e	160e	3,480	1,940	1,200e	5,950e	1,820
11	580e	390e	260e	200e	160e	150e	160e	3,470	3,870	1,150e	5,300e	1,740
12	570e	380e	260e	200e	160e	150e	160e	4,980	8,230	1,150e	4,400e	1,680
13	560e	380e	260e	200e	160e	150e	160e	7,980	6,000	1,150e	4,600e	1,650
14	550e	370e	260e	200e	160e	150e	160e	10,500	4,430	1,250e	4,400e	1,660
15	540e	370e	250e	200e	160e	150e	160e	13,100	12,500e	1,900e	4,500e	1,780
16	530e	360e	250e	200e	160e	150e	160e	10,800	-----	2,200e	4,810	1,870
17	520e	360e	250e	190e	160e	150e	160e	8,390	-----	2,900e	3,950	1,860
18	510e	350e	250e	190e	160e	150e	170e	6,970	-----	2,150e	3,760	1,800
19	500e	350e	240e	190e	160e	150e	230e	6,190	-----	1,850e	5,740	1,800
20	500e	340e	240e	190e	160e	150e	300e	5,660	-----	1,600e	5,760	1,940
21	490e	340e	240e	190e	150e	150e	400e	5,590	5,000e	1,800e	4,610	1,990
22	490e	330e	240e	190e	150e	150e	530e	5,440	4,500e	1,900e	3,760	1,890
23	480e	330e	240e	180e	150e	150e	710e	5,450	3,900e	2,050e	3,190	1,790
24	480e	320e	230e	180e	150e	150e	950e	4,450	3,200e	1,950e	2,780	1,700
25	470e	320e	230e	180e	150e	150e	1,300e	3,920	2,700e	1,800e	2,480	1,640
26	470e	310e	230e	180e	150e	150e	1,700e	3,670	2,500e	1,850e	2,270	1,590
27	460e	310e	230e	180e	150e	150e	2,200e	3,190	2,200e	1,700e	2,230	1,550
28	460e	300e	230e	180e	150e	150e	3,000e	2,790	1,900e	1,500e	4,460	1,500
29	450e	300e	220e	170e	-----	150e	4,000e	2,550	1,700e	1,400e	6,120	1,450
30	450e	300e	220e	170e	-----	150e	5,300e	2,510	1,550e	1,250e	4,980	1,410
31	440e	-----	220e	170e	-----	150e	-----	2,920	-----	1,150e	4,070	-----
TOTAL	17,419	10,960	7,840	6,040	4,450	4,650	23,430	222,390	85,420	47,900	119,770	58,240
MEAN	562	365	253	195	159	150	781	7,174	3,417	1,545	3,864	1,941
MAX	839	440	290	220	170	150	5,300	17,500	12,500	2,900	8,100	3,450
MIN	440	300	220	170	150	150	150	2,510	1,550	1,100	900	1,410
AC-FT	34,550	21,740	15,550	11,980	8,830	9,220	46,470	441,100	169,400	95,010	237,600	115,500
CAL YEAR 1996 TOTAL	108,827	MEAN	297	MAX	2,630	MIN	220	AC-FT	215,900			
WTR YEAR 1997 TOTAL	608,509	MEAN	1,690	MAX	17,500	MIN	150	AC-FT	1,207,000			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Salmon Fork

LOCATION.-Lat 66°29.93'N, Long 142°24.52'W, in S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.4, T.19N., R.25E., Fairbanks Meridian.

DRAINAGE AREA.-3123 mi².

PERIOD OF RECORD.-June 26, 1993 thru Sept. 30, 1998.

REMARKS.-Winter data are estimated due to ice effects. Data is missing May 31 thru Sept. 30 due to wildlife damage to the gaging station. All estimated data are considered to be poor. This stream gaging station was discontinued on Sept. 30, 1998.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 6,970 cfs, May 13, 1998; Minimum Discharge, 230 cfs, Feb. 1, thru Apr. 5, 1998.

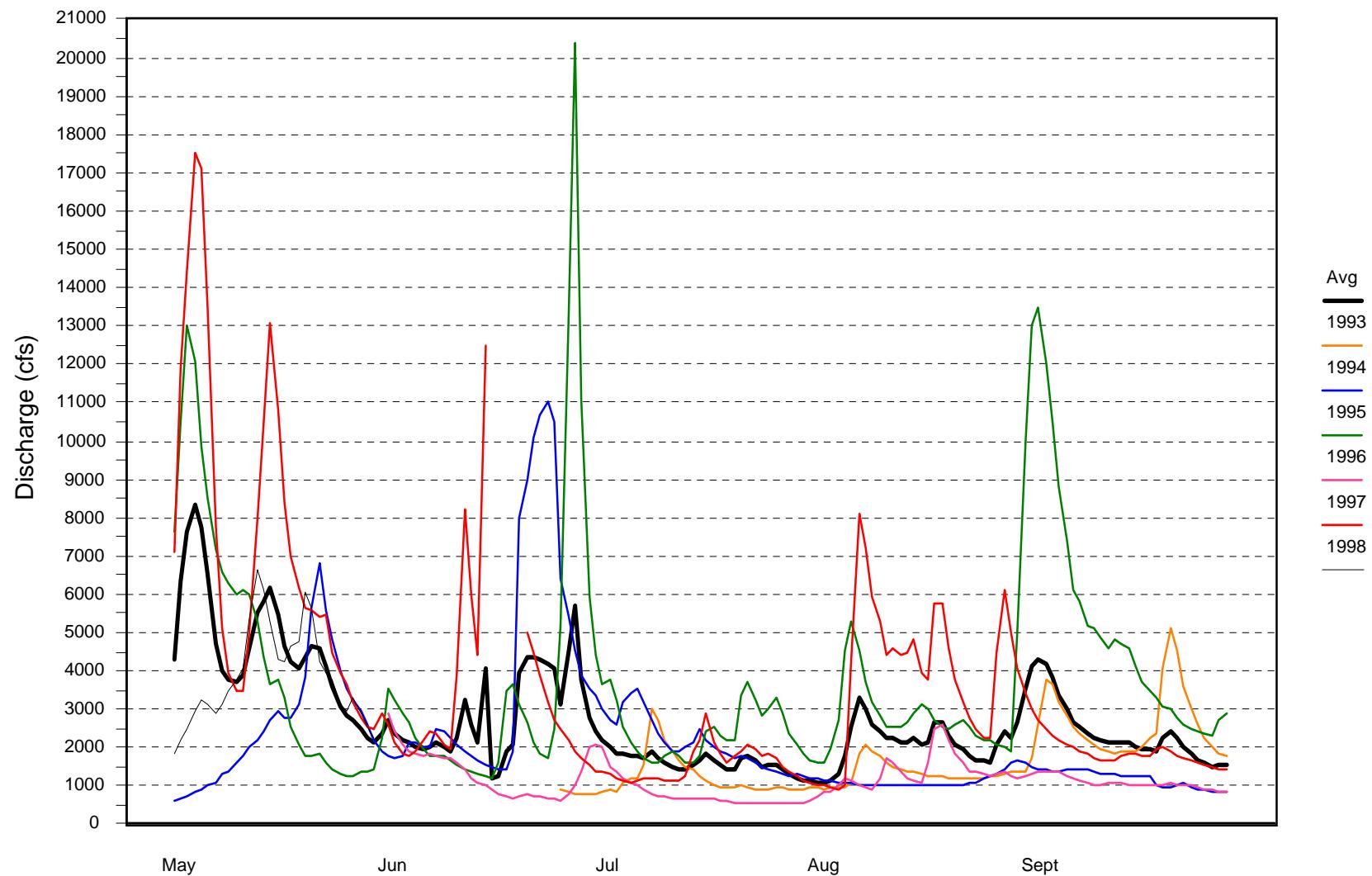
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,300 cfs, June 28, 1995 @17:45 hrs; Minimum Discharge, 150 cfs, Feb. 21 thru Apr. 8, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,380	650e	370e	270e	230e	230e	230e	1,830	-----	-----	-----	-----
2	1,330	640e	360e	270e	230e	230e	230e	2,200	-----	-----	-----	-----
3	1,300	630e	360e	270e	230e	230e	230e	2,470	-----	-----	-----	-----
4	1,280	620e	360e	270e	230e	230e	230e	2,940	-----	-----	-----	-----
5	1,230	610e	350e	260e	230e	230e	230e	3,240	-----	-----	-----	-----
6	1,210	600e	350e	260e	230e	230e	230e	3,130	-----	-----	-----	-----
7	1,180	590e	350e	260e	230e	230e	230e	2,870	-----	-----	-----	-----
8	1,130e	580e	340e	260e	230e	230e	230e	3,120	-----	-----	-----	-----
9	1,090e	570e	340e	260e	230e	230e	230e	3,460	-----	-----	-----	-----
10	1,060e	560e	340e	260e	230e	230e	240e	3,790	-----	-----	-----	-----
11	1,030e	550e	330e	250e	230e	230e	240e	4,060	-----	-----	-----	-----
12	1,000e	540e	330e	250e	230e	230e	250e	5,380	-----	-----	-----	-----
13	980e	530e	330e	250e	230e	230e	270e	6,660	-----	-----	-----	-----
14	960e	520e	320e	250e	230e	230e	300e	6,090	-----	-----	-----	-----
15	940e	510e	320e	250e	230e	230e	340e	5,310	-----	-----	-----	-----
16	920e	500e	320e	240e	230e	230e	380e	4,310	-----	-----	-----	-----
17	900e	490e	310e	240e	230e	230e	420e	4,220	-----	-----	-----	-----
18	880e	480e	310e	240e	230e	230e	467	4,650	-----	-----	-----	-----
19	860e	470e	310e	240e	230e	230e	500e	4,790	-----	-----	-----	-----
20	840e	460e	300e	240e	230e	230e	570e	6,030	-----	-----	-----	-----
21	820e	450e	300e	240e	230e	230e	640e	5,620	-----	-----	-----	-----
22	800e	440e	300e	240e	230e	230e	710e	4,250	-----	-----	-----	-----
23	780e	430e	290e	240e	230e	230e	790e	3,930	-----	-----	-----	-----
24	760e	420e	290e	240e	230e	230e	870e	3,770	-----	-----	-----	-----
25	740e	410e	290e	240e	230e	230e	970e	3,120	-----	-----	-----	-----
26	720e	400e	290e	240e	230e	230e	1,100e	2,950	-----	-----	-----	-----
27	700e	390e	280e	240e	230e	230e	1,200e	3,280	-----	-----	-----	-----
28	690e	390e	280e	240e	230e	230e	1,300e	2,910	-----	-----	-----	-----
29	680e	380e	280e	240e	-----	230e	1,500e	2,530	-----	-----	-----	-----
30	670e	380e	280e	240e	-----	230e	1,600e	2,280	-----	-----	-----	-----
31	660e	-----	270e	240e	-----	230e	-----	-----	-----	-----	-----	-----
TOTAL	29,520	15,190	9,850	7,730	6,440	7,130	16,727	115,190	-----	-----	-----	-----
MEAN	952	506	318	249	230	230	558	3,840	-----	-----	-----	-----
MAX	1,380	650	370	270	230	230	1,600	6,660	-----	-----	-----	-----
MIN	660	380	270	240	230	230	230	1,830	-----	-----	-----	-----
AC-FT	58,550	30,130	19,540	15,330	12,770	14,140	33,180	228,500	-----	-----	-----	-----
CAL YEAR 1997 TOTAL		599,038	MEAN	1,641	MAX	17,500	MIN	270	AC-FT	1,188,000		
WTR YEAR 1998 TOTAL		207,777	MEAN	859	MAX	6,660	MIN	230	AC-FT	412,100		

e Estimated daily mean values

Salmon Fork
Annual Hydrographs 1993-1998



YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.

DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1993.

REMARKS.-Stream gaging station was initiated July 4, 1993.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 14,600 cfs, July 10, 1993 @12:30 hrs;
Minimum discharge, 1,460 cfs, Sept. 30, 1993 @15:30 hrs.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 14,600 cfs, July 10, 1993 @12:30 hrs;
Minimum discharge, 1,460 cfs, Sept. 30, 1993 @15:30 hrs.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1992 TO SEP 1993
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,860	2,610
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,730	2,820
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,590	3,830
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,140	2,470	4,370
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,880	2,450	4,620
6	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,880	2,450	5,360
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,170	2,450	6,690
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,450	2,480	6,800
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	10,900	2,560	6,140
10	-----	-----	-----	-----	-----	-----	-----	-----	-----	13,800	2,630	5,440
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	10,200	2,550	4,860
12	-----	-----	-----	-----	-----	-----	-----	-----	-----	8,290	2,410	4,380
13	-----	-----	-----	-----	-----	-----	-----	-----	-----	7,410	2,290	4,000
14	-----	-----	-----	-----	-----	-----	-----	-----	-----	6,270	2,190	3,700
15	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,280	2,070	3,450
16	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,580	1,970	3,220
17	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,110	1,930	3,000
18	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,950	2,090	2,840
19	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,860	2,470	2,880
20	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,710	2,850	3,100
21	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,510	3,020	3,030
22	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,360	2,930	3,000
23	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,270	2,770	3,150
24	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,360	2,600	3,170
25	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,940	2,470	2,870
26	-----	-----	-----	-----	-----	-----	-----	-----	-----	4,280	2,390	2,550
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,980	2,340	2,310
28	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,650	2,350	2,070
29	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,380	2,530	1,780
30	-----	-----	-----	-----	-----	-----	-----	-----	-----	3,150	2,680	1,540
31	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,990	2,640	-----
TOTAL	-----	-----	-----	-----	-----	-----	-----	-----	-----	142,750	77,210	109,580
MEAN	-----	-----	-----	-----	-----	-----	-----	-----	-----	5,098	2,491	3,653
MAX	-----	-----	-----	-----	-----	-----	-----	-----	-----	13,800	3,020	6,800
MIN	-----	-----	-----	-----	-----	-----	-----	-----	-----	2,990	1,930	1,540
AC-FT	-----	-----	-----	-----	-----	-----	-----	-----	-----	283,100	153,100	217,400

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.

DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1994.

REMARKS.-Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 9,760 cfs, May 27, 1994 @10:30 hrs;
Minimum charge, 7.8 cfs, April 13, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 14,600 cfs, July 10, 1993 @12:30 hrs;
Minimum charge, 7.8 cfs, April 13, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1993 TO SEP 1994
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,390	350e	150e	90e	60e	40e	10 e	1,000e	6,110	3,720	2,910	6,970
2	1,310	340e	140e	90e	60e	40e	10 e	1,400e	5,000	3,630	2,840	5,860
3	1,260	330e	140e	80e	60e	30e	10 e	1,820	4,440	3,460	2,750	5,030
4	1,240	320e	140e	80e	60e	30e	10 e	3,580	4,390	3,350	2,700	4,400
5	1,130	310e	140e	80e	60e	30e	10 e	4,850	4,580	3,430	2,760	3,960
6	1,070e	300e	130e	80e	60e	30e	10 e	6,320	4,500	3,670	2,780	3,650
7	1,010e	290e	130e	80e	50e	30e	10 e	6,950	4,560	4,040	2,640	3,530
8	950e	280e	130e	80e	50e	30e	10 e	7,550	4,820	4,340	2,540	3,650
9	890e	270e	130e	80e	50e	30e	10 e	8,470	5,420	4,960	2,480	3,560
10	840e	260e	120e	80e	50e	30e	10 e	8,760	7,110	5,790	2,450	3,400
11	790e	250e	120e	70e	50e	30e	10 e	8,510	7,420	5,400	2,470	3,230
12	750e	240e	120e	70e	50e	20e	10 e	7,410	6,730	4,640	2,390	3,010
13	710e	230e	120e	70e	50e	20e	7.8	7,210	6,560	4,280	2,290	2,750
14	680e	220e	120e	70e	50e	20e	10 e	6,830	6,770	4,200	2,280	2,520
15	650e	210e	110e	70e	50e	20e	10 e	5,580	6,370	4,240	2,270	2,280
16	620e	200e	110e	70e	50e	20e	10 e	4,560	6,040	4,910	2,190	2,170
17	590e	200e	110e	70e	50e	20e	20 e	4,190	5,960	5,500	2,110	2,050
18	570e	190e	110e	70e	50e	20e	25 e	4,750	5,610	5,180	2,040	1,940
19	550e	190e	110e	70e	40e	20e	30 e	6,130	4,880	5,370	1,990	1,850
20	530e	180e	110e	70e	40e	20e	45 e	7,660	4,090	6,060	2,060	1,740
21	510e	180e	100e	60e	40e	20e	60 e	9,520	3,600	5,880	2,630	1,640
22	490e	170e	100e	60e	40e	20e	80 e	9,740	3,690	7,450	3,080	1,560
23	470e	170e	100e	60e	40e	20e	100 e	9,740	3,960	8,320	2,890	1,470
24	450e	170e	100e	60e	40e	20e	140 e	9,740	4,250	7,780	2,620	1,420
25	430e	160e	100e	60e	40e	20e	180 e	9,740	4,570	6,540	2,470	1,360
26	410e	160e	100e	60e	40e	20e	240 e	9,740	4,480	5,490	2,540	1,290
27	400e	160e	90e	60e	40e	20e	320 e	9,750	4,090	4,660	2,680	1,220
28	390e	150e	90e	60e	40e	20e	430 e	9,760	3,720	4,000	3,500	1,150
29	380e	150e	90e	60e	-----	20e	580 e	9,760	3,520	3,530	6,010	1,050
30	370e	150e	90e	60e	-----	10e	770 e	9,620	3,560	3,220	8,280	946
31	360e	-----	90e	60e	-----	10e	-----	7,850	-----	3,020	8,270	-----
TOTAL	22,190	6,780	3,540	2,180	1,360	730	3,177.8	218,490	150,800	150,060	93,910	80,656
MEAN	716	226	114	70.3	48.6	23.5	106	7,048	5,027	4,841	3,029	2,689
MAX	1,390	350	150	90	60	40	770	9,760	7,420	8,320	8,280	6,970
MIN	360	150	90	60	40	10	7.8	1,000	3,520	3,020	1,990	946
AC-FT	44,010	13,450	7,020	4,320	2,700	1,450	6,300	433,400	299,100	297,600	186,300	160,000
WTR YEAR 1994 TOTAL	733,874	MEAN	2,011	MAX	9,760	MIN	7.8	AC-FT	1,455,617			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.

DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1995.

REMARKS.--Winter data are estimated due to ice effects. All estimated data are considered to be poor.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 21,100 cfs, May 11, 1995 @1930 hrs; Minimum charge, 9.3 cfs, April 5, 1994.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 21,100 cfs, May 11, 1995 @1930 hrs; Minimum charge, 7.8 cfs, April 13, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1994 TO SEP 1995
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	880	200e	150e	100e	70e	40e	10 e	850e	4,700	4,600	2,660	4,250
2	835	200e	150e	100e	70e	40e	10 e	1,100e	6,320	4,000	2,600	4,040
3	793	190e	140e	100e	60e	30e	10 e	1,500e	6,830	3,740	2,650	3,980
4	721	190e	140e	100e	60e	30e	10 e	1,950	6,710	3,770	3,030	3,990
5	682	190e	140e	100e	60e	30e	9.3	4,080	6,550	3,990	3,650	4,290
6	655	190e	140e	100e	60e	30e	10 e	6,710	6,950	4,230	4,970	4,790
7	600e	190e	140e	100e	60e	30e	10 e	9,620	8,190	4,280	7,510	4,940
8	560e	180e	140e	90e	60e	30e	10 e	11,700	15,000	4,120	9,860	4,630
9	520e	180e	140e	90e	60e	30e	10 e	13,700	20,700	3,950	10,200	4,350
10	480e	180e	130e	90e	60e	30e	10 e	16,500	20,200	3,600	9,240	4,270
11	440e	180e	130e	90e	60e	30e	10 e	18,800	14,000	3,400	8,160	4,520
12	410e	180e	130e	90e	50e	20e	10 e	21,100	10,500	3,310	7,200	4,890
13	380e	180e	130e	90e	50e	20e	10 e	20,100	8,780	3,470	6,470	5,270
14	350e	170e	130e	90e	50e	20e	10 e	15,700	9,660	4,390	6,710	5,450
15	340e	170e	130e	80e	50e	20e	15 e	12,700	9,670	4,680	7,700	5,330
16	330e	170e	130e	80e	50e	20e	15 e	13,300	7,730	4,590	8,400	5,040
17	320e	170e	120e	80e	50e	20e	20 e	15,000	6,450	4,640	10,500	4,690
18	310e	170e	120e	80e	50e	20e	25 e	10,100	5,730	5,990	11,800	4,320
19	300e	170e	120e	80e	50e	20e	30 e	6,940	5,190	7,640	10,800	3,990
20	290e	160e	120e	80e	50e	20e	40 e	5,210	5,240	7,250	9,580	3,720
21	280e	160e	120e	80e	50e	20e	50 e	4,120	6,390	6,260	9,080	3,530
22	270e	160e	120e	80e	40e	20e	70 e	3,400	6,150	5,690	10,600	3,350
23	260e	160e	120e	80e	40e	10e	100 e	2,830	5,470	5,220	10,500	3,220
24	250e	160e	120e	70e	40e	10e	130 e	2,410	4,990	4,630	9,250	3,100
25	240e	160e	110e	70e	40e	10e	170 e	2,140	5,380	4,110	8,110	3,010
26	230e	150e	110e	70e	40e	10e	220 e	2,000	8,010	3,680	7,200	2,900
27	220e	150e	110e	70e	40e	10e	290 e	1,940	9,780	3,320	6,510	2,830
28	210e	150e	110e	70e	40e	10e	380 e	2,090	8,740	3,060	5,890	2,750
29	200e	150e	110e	70e	-----	10e	490 e	3,450	6,980	2,860	5,340	2,760
30	200e	150e	110e	70e	-----	10e	650 e	4,110	5,540	2,730	4,870	2,940
31	200e	-----	110e	70e	-----	10e	-----	3,910	-----	2,690	4,520	-----
TOTAL	12,756	5,160	3,920	2,610	1,460	660	2,834	239,060	252,530	133,890	225,560	121,140
MEAN	411	172	126	84.2	52.1	21.3	94.5	7,712	8,418	4,319	7,276	4,038
MAX	880	200	150	100	70	40	650	21,100	20,700	7,640	11,800	5,450
MIN	200	150	110	70	40	10	9.3	850	4,700	2,690	2,600	2,750
AC-FT	25,300	10,230	7,780	5,180	2,900	1,310	5,620	474,200	500,900	265,600	447,400	240,300
CAL YEAR 1994	TOTAL	723,200	MEAN	1,981	MAX	9,760	MIN	7.8	AC-FT	1,434,446		
WTR YEAR 1995	TOTAL	1,001,580	MEAN	2,744	MAX	21,100	MIN	9.3	AC-FT	1,987,000		

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{4}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.

DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1996.

REMARKS.--Winter data are estimated due to ice effects. All estimated data are considered to be poor. Missing data May 24 thru June 8 resulted from equipment failure.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 17,800 cfs, July, 3, 1996 @15:15 hrs; Minimum discharge, 27 cfs, April 5, 1996.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 21,100 cfs, May 11, 1995 @1930 hrs; Minimum discharge, 7.8 cfs, April 13, 1994.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1995 TO SEP 1996
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,970	440e	150e	110e	70e	50e	30e	160e	-----	6,710	2,840	1,900
2	2,710	420e	150e	110e	70e	40e	30e	180e	-----	11,200	4,990	1,900
3	2,470	400e	150e	110e	70e	40e	30e	210e	-----	17,000	10,100	2,360
4	2,320	380e	150e	110e	70e	40e	30e	240e	-----	12,900	9,530	2,940
5	2,220	360e	150e	100e	70e	40e	27	280e	-----	8,820	7,730	3,090
6	2,090	340e	150e	100e	70e	40e	30e	320e	-----	7,190	7,170	2,940
7	1,930	320e	140e	100e	70e	40e	30e	370e	-----	6,250	8,070	2,740
8	1,740	300e	140e	100e	70e	40e	30e	430e	-----	5,540	8,230	2,560
9	1,490	280e	140e	100e	70e	40e	30e	490e	2,160	5,010	7,560	2,380
10	1,320	270e	140e	100e	70e	40e	30e	560e	2,060	4,550	6,500	2,220
11	1,180	260e	140e	100e	60e	40e	30e	650e	2,240	4,270	5,610	2,110
12	1,140	250e	140e	100e	60e	40e	30e	750e	2,200	4,070	5,370	2,010
13	996	240e	130e	100e	60e	30e	30e	860e	2,400	3,680	5,380	1,910
14	950e	230e	130e	90e	60e	30e	30e	980e	2,810	3,220	4,980	1,790
15	910e	220e	130e	90e	60e	30e	30e	1,100e	3,060	2,960	4,480	1,700
16	870e	210e	130e	90e	60e	30e	30e	1,300e	3,170	2,930	4,020	1,620
17	830e	200e	130e	90e	60e	30e	30e	1,500e	3,210	3,750	3,620	1,540
18	790e	200e	130e	90e	60e	30e	40e	1,720	3,190	5,050	3,300	1,490
19	760e	190e	130e	90e	60e	30e	40e	2,370	3,230	5,190	3,150	1,440
20	730e	190e	120e	90e	60e	30e	40e	2,170	3,260	4,780	3,030	1,420
21	700e	180e	120e	90e	50e	30e	40e	2,070	3,440	4,100	2,860	1,500
22	670e	180e	120e	90e	50e	30e	45e	2,050	3,450	3,660	2,620	1,680
23	640e	170e	120e	80e	50e	30e	55e	2,330	3,430	3,520	2,410	1,790
24	610e	170e	120e	80e	50e	30e	60e	-----	3,340	3,660	2,240	1,740
25	590e	160e	120e	80e	50e	30e	70e	-----	3,270	3,620	2,100	1,620
26	560e	160e	120e	80e	50e	30e	80e	-----	3,250	3,480	1,980	1,470
27	540e	160e	120e	80e	50e	30e	90e	-----	3,530	3,260	1,860	1,340
28	520e	150e	110e	80e	50e	30e	110e	-----	3,240	3,070	1,820	1,230
29	500e	150e	110e	80e	50e	30e	120e	-----	3,880	2,930	1,970	1,140
30	480e	150e	110e	80e	-----	30e	140e	-----	5,580	2,840	2,020	1,050
31	460e	-----	110e	80e	-----	30e	-----	-----	-----	2,750	1,970	-----
TOTAL	36,686	7,330	4,050	2,870	1,750	1,060	1,437	23,090	69,400	161,960	139,510	56,620
MEAN	1,183	244	131	92.6	60.3	34.2	47.9	1,004	3,155	5,225	4,500	1,887
MAX	2,970	440	150	110	70	50	140	2,370	5,580	17,000	10,100	3,090
MIN	460	150	110	80	50	30	27	160	2,060	2,750	1,820	1,050
AC-FT	72,770	14,540	8,030	5,690	3,470	2,100	2,850	45,800	137,700	321,200	276,700	112,300
CAL YEAR 1995 TOTAL	1,0227,810	MEAN	2,816	MAX	21,000	MIN	9.3	AC-FT	2,034,784			
WTR YEAR 1996 TOTAL	505,763	MEAN	1,445	MAX	17,000	MIN	27	AC-FT	1,003,000			

e Estimated daily mean values

YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1997.

REMARKS.--Winter data are estimated due to ice effects. All estimated data are considered to be poor. Extremes for current water year and period of record were exceeded during flood event on June 19 and 20, 1997.

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 22,600 cfs, July, 18, 1997 (see remarks); Minimum charge, 0 cfs, April 6-25, 1997.

EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,600 cfs, July, 18, 1997 (see remarks); Minimum charge, 0 cfs, April 6-25, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1996 TO SEP 1997
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	908	180e	120e	80e	40e	20 e	5.0e	310e	6,380	4,100	4,060	11,700
2	726	170e	120e	70e	40e	20 e	5.0e	410e	5,490	3,730	3,690	9,740
3	693	170e	110e	70e	40e	20 e	5.0e	550e	4,830	3,510	3,420	9,390
4	672	170e	110e	70e	40e	20 e	5.0e	730e	4,780	3,420	3,150	9,610
5	641	170e	110e	70e	40e	20 e	5.0e	970e	6,310	3,540	2,990	9,650
6	561	170e	110e	70e	40e	10 e	0 e	1,300	10,500	4,670	2,920	9,320
7	517	160e	110e	70e	40e	10 e	0 e	2,400	14,900	5,120	2,840	9,090
8	480e	160e	110e	70e	40e	10 e	0 e	2,760	14,900	4,700	2,870	9,310
9	440e	160e	100e	70e	30e	10 e	0 e	2,210	14,200	4,670	2,990	8,890
10	410e	160e	100e	70e	30e	10 e	0 e	1,820	12,500	5,000	3,650	8,130
11	380e	160e	100e	60e	30e	10 e	0 e	1,620	11,800	6,590	4,200	7,310
12	350e	150e	100e	60e	30e	10 e	0 e	1,630	14,200	9,350	4,070	6,640
13	330e	150e	100e	60e	30e	10 e	0 e	1,930	19,300	10,000	3,730	6,180
14	310e	150e	100e	60e	30e	10 e	0 e	3,200	18,200	9,410	3,540	6,110
15	290e	150e	100e	60e	30e	10 e	0 e	6,240	15,400	8,870	3,890	6,120
16	280e	150e	90e	60e	30e	10 e	0 e	10,700	16,600	9,860	4,280	6,010
17	270e	140e	90e	60e	30e	10 e	0 e	14,100	21,000	11,600	4,200	5,700
18	260e	140e	90e	60e	30e	10 e	0 e	15,700	22,600	10,900	3,990	5,320
19	250e	140e	90e	60e	20e	10 e	0 e	15,500	-----	8,990	3,880	4,980
20	240e	140e	90e	50e	20e	10 e	0 e	14,500	-----	8,310	3,880	4,900
21	230e	140e	90e	50e	20e	10 e	10 e	14,500	15,500	7,860	3,900	5,080
22	220e	130e	90e	50e	20e	10 e	20 e	14,500	16,700	8,090	3,680	4,930
23	210e	130e	90e	50e	20e	10 e	30 e	15,500	17,900	9,020	3,420	4,590
24	210e	130e	80e	50e	20e	10 e	40 e	13,500	15,000	8,410	3,180	4,250
25	200e	130e	80e	50e	20e	10 e	50 e	9,540	11,800	7,660	2,970	3,960
26	200e	130e	80e	50e	20e	10 e	70 e	7,120	9,120	7,190	2,820	3,770
27	190e	120e	80e	50e	20e	5.0e	100 e	5,690	7,460	6,570	2,820	3,650
28	190e	120e	80e	50e	20e	5.0e	130 e	5,050	6,380	5,860	3,470	3,540
29	190e	120e	80e	50e	-----	5.0e	170 e	4,980	5,410	5,310	8,650	3,500
30	180e	120e	80e	40e	-----	5.0e	230 e	5,370	4,570	4,940	15,500	3,430
31	180e	-----	80e	40e	-----	5.0e	-----	6,490	-----	4,500	15,100	-----
TOTAL	11,208	4,410	2,960	1,830	820	335.0	875.0	200,820	343,730	211,750	137,750	194,800
MEAN	362	147	95.5	59.0	29.3	10.8	29.2	6,478	12,280	6,831	4,444	6,493
MAX	908	180	120	80	40	20	230	15,700	22,600	11,600	15,500	11,700
MIN	180	120	80	40	20	5.0	0	310	4,570	3,420	2,820	3,430
AC-FT	22,230	8,750	5,870	3,630	1,630	664	1,740	398,300	681,800	420,000	273,200	386,400
CAL YEAR 1996 TOTAL	476,275	MEAN	1,361	MAX	17,000	MIN	27	AC-FT	944,678			
WTR YEAR 1997 TOTAL	1,111,288	MEAN	3,061	MAX	22,600	MIN	0	AC-FT	2,204,208			

YUKON FLATS NATIONAL WILDLIFE REFUGE

Sheenjek River

LOCATION.-Lat 66°54.62'N, Long 144°19.91'W, in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec.17, T.24N., R.16E., Fairbanks Meridian.

DRAINAGE AREA.-3,945 mi².

PERIOD OF RECORD.-July 4, 1993 thru Sept. 30, 1998.

REMARKS.--Winter data are estimated due to ice effects. All estimated data are considered to be poor. Extremes for the period of record were exceeded during flood event on June 19 and 20, 1997. Extreme for current water year was exceeded during the June 13 and 14 flood event. Gaging station was discontinued on Sept. 30, 1998,

EXTREMES FOR THE CURRENT WATER YEAR.-Maximum Discharge, 20,300 cfs, June, 12, 1998 @2345 hrs (see remarks); Minimum charge, 130 cfs, April 14-16, 1998.

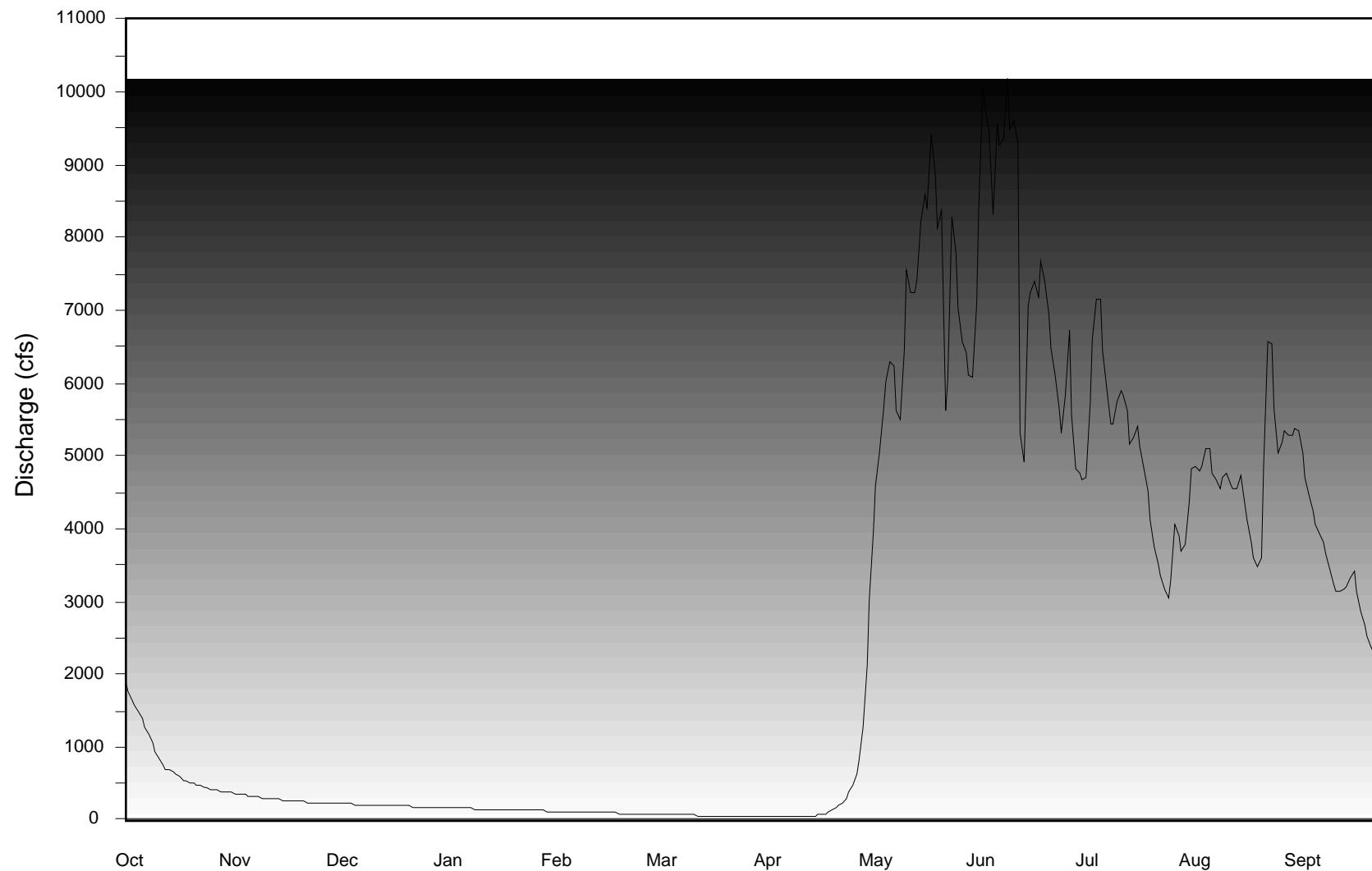
EXTREMES FOR THE PERIOD OF RECORD.-Maximum Discharge, 22,600 cfs, July, 18, 1997 (see remarks); Minimum charge, 0 cfs, April 6-25, 1997.

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1997 TO SEP 1998
Daily Mean Values

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,310	690e	570e	470e	360e	280e	180e	320e	10,900	7,480	3,020	6,420
2	3,170	690e	560e	460e	360e	270e	170e	340e	9,470	6,600	2,880	5,930
3	3,030	680e	560e	460e	360e	270e	170e	360e	9,570	5,970	2,770	6,550
4	2,870	680e	560e	460e	350e	270e	170e	380e	8,560	5,850	2,640	6,810
5	2,710	670e	550e	450e	350e	260e	160e	410e	6,910	5,370	2,530	6,190
6	2,540	670e	550e	450e	350e	260e	160e	430e	6,390	4,890	2,480	5,620
7	2,330	660e	550e	450e	350e	260e	160e	460e	5,900	4,140	2,610	5,340
8	2,110	660e	540e	440e	340e	250e	150e	490e	5,510	4,080	2,980	5,150
9	1,930	650e	540e	440e	340e	250e	150e	520e	5,720	4,780	3,290	4,970
10	1,690	650e	540e	440e	340e	250e	150e	560e	5,460	6,880	4,360	4,850
11	1,420	647	530e	430e	340e	240e	140e	590e	6,140	13,000	6,090	4,690
12	1,160	640e	530e	430e	330e	240e	140e	630	14,300	13,200	9,110	4,550
13	973	640e	530e	430e	330e	240e	140e	1,070	-----	9,950	10,500	4,310
14	1,120	630e	520e	420e	330e	230e	130e	1,470	-----	8,020	8,940	4,140
15	1,150	630e	520e	420e	320e	230e	130e	1,920	16,400	6,590	7,570	4,080
16	1,010	620e	520e	420e	320e	230e	130e	2,360	13,900	5,700	6,510	3,860
17	912	620e	510e	410e	320e	220e	140e	3,000	11,400	4,960	5,810	3,640
18	813	610e	510e	410e	310e	220e	156e	3,950	9,360	4,400	5,380	3,520
19	780e	610e	510e	410e	310e	220e	160e	5,320	7,950	4,030	5,420	3,620
20	760e	600e	500e	400e	310e	210e	190e	7,390	7,140	3,660	5,950	3,880
21	750e	600e	500e	400e	300e	210e	190e	11,000	6,400	3,420	5,840	4,250
22	740e	590e	500e	400e	300e	210e	200e	13,300	6,280	3,230	5,430	4,650
23	740e	590e	490e	390e	300e	200e	200e	11,600	6,290	3,100	5,060	5,770
24	730e	590e	490e	390e	290e	200e	210e	12,000	8,270	3,040	4,900	6,740
25	730e	580e	490e	390e	290e	200e	220e	14,100	13,300	3,030	4,780	6,020
26	720e	580e	480e	380e	290e	190e	230e	13,700	12,100	2,980	4,620	5,190
27	720e	580e	480e	380e	280e	190e	250e	16,100	9,900	2,950	4,570	4,770
28	710e	570e	480e	380e	280e	190e	260e	-----	10,300	2,900	4,530	4,480
29	710e	570e	470e	370e	-----	190e	280e	-----	10,700	3,130	4,700	4,080
30	700e	570e	470e	370e	-----	180e	300e	14,100	8,980	3,230	6,000	3,690
31	700e	-----	470e	370e	-----	180e	-----	13,000	-----	3,130	6,740	-----
TOTAL	43,738	18,767	16,020	12,920	9,050	7,040	5,416	150,870	253,500	163,690	158,010	147,760
MEAN	1,411	626	517	417	323	227	181	5,202	9,054	5,280	5,097	4,925
MAX	3,310	690	570	470	360	280	300	16,100	16,400	13,200	10,500	6,810
MIN	700	570	470	370	280	180	130	320	5,460	2,900	2,480	3,520
AC-FT	86,750	37,220	31,780	25,630	17,950	13,960	10,740	299,300	502,800	324,700	313,400	293,100
CAL YEAR 1997	TOTAL	1,171,235	MEAN	3,227	MAX	22,600	MIN	0	AC-FT	2,323,111		
WTR YEAR 1998	TOTAL*	986,781	MEAN	2,733	MAX	16,400	MIN	130	AC-FT	1,957,251		

e Estimated daily mean values

Sheenjek River
Average Annual Hydrograph 1993-1998



Sheenjek River
Annual Hydrographs 1993-1998

