



Water and Sediment Quality in the Yukon River Basin, Alaska, During Water Year 2005



Open-File Report 2007-1037

**U.S. Department of the Interior
U.S. Geological Survey**

Cover photograph: U.S. Geological Survey scientists measuring discharge at the mouth of the Forty-mile River in Yukon Territories, Canada, August 2004



Water and Sediment Quality in the Yukon River Basin, Alaska, During Water Year 2005

Edited By Paul F. Schuster

Open-File Report 2007-1037

**U.S. Department of the Interior
U.S. Geological Survey**

U.S. Department of the Interior
DIRK KEMPTHORNE, Secretary

U.S. Geological Survey
Mark D. Myers, Director

U.S. Geological Survey, Boulder, Colorado 2007

For product and ordering information:
World Wide Web: <http://www.usgs.gov/pubprod>
Telephone: 1-888-ASK-USGS

For more information on the USGS—the Federal source for science about the Earth,
its natural and living resources, natural hazards, and the environment:
World Wide Web: <http://www.usgs.gov>
Telephone: 1-888-ASK-USGS

Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Although this report is in the public domain, permission must be secured from the individual copyright owners to reproduce any copyrighted material contained within this report.

Contents

Overview	vi
Acknowledgments	vii
CHAPTER 1 - Introduction.....	1
CHAPTER 2 - Fixed-Station Samples	4
CHAPTER 3 - Dissolved Organic Carbon Characterization.....	22
CHAPTER 4 - Dissolved Major Cations and Trace Elements.....	25
CHAPTER 5 - Mercury Analyses.....	42
CHAPTER 6 - Dissolved Gasses and Dissolved Inorganic Carbon.....	44
CHAPTER 7- Sediment Chemistry.....	46
CHAPTER 8 - Sediment Mineralogy	51
CHAPTER 9 - Sediment Concentration and Percent Organic Matter	56
CHAPTER 10 - Total Particulate Carbon, Particulate Inorganic Carbon Particulate Organic Carbon, and Total Particulate Nitrogen	58
CHAPTER 11 - Isotopic Analysis of Suspended Particulate Organic matter.....	60
CHAPTER 12 - Uranium Isotopes.....	62
References Cited.....	64

Figures

1. Map showing location of fixed-station water-quality sampling sites in the Yukon River Basin3

Tables

1. Summary of site characteristics at five fixed stations in the Yukon River Basin	4
2. USGS National Water Quality Laboratory analyses-Yukon River at Eagle, Alaska	5
3. USGS National Water Quality Laboratory analyses-Porcupine River near Fort Yukon, Alaska.....	8
4. USGS National Water Quality Laboratory analyses-Yukon River near Stevens Village, Alaska.....	11
5. USGS National Water Quality Laboratory analyses-Tanana River at Nenana, Alaska	15
6. USGS National Water Quality Laboratory analyses-Yukon River at Pilot Station, Alaska	19
7. Dissolved organic carbon concentrations and fractionation analyses from fixed-station sampling sites in the Yukon River Basin	23
8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin.....	26
9. Mercury and methylmercury concentrations from fixed-station sampling sites in the Yukon River Basin	43
10. Carbon dioxide, methane, and dissolved inorganic carbon concentrations from fixed-station sampling sites in the Yukon River Basin	45
11. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin	47
12. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin.....	52
13. Suspended sediment concentrations and percent organic matter in sediment from fixed-station sampling sites in the Yukon River Basin	57

14. Total particulate carbon, particulate inorganic carbon, particulate organic carbon, and total particulate nitrogen concentrations from fixed-station sampling sites in the Yukon River Basin....	59
15. Suspended sediment isotopic data from fixed-station sampling sites in the Yukon River Basin.....	61
16. Uranium concentration and $^{234}\text{U}/^{238}\text{U}$ isotopic activity ratio analyses in water samples from fixed-station sampling sites in the Yukon River Basin	63

Conversion Factors

Multiply	by	To obtain
	<u>Length</u>	
nanometer (nm)	3.937×10^{-8}	inch (in.)
micrometer (μm)	3.937×10^{-5}	inch (in.)
millimeter (mm)	3.937×10^{-2}	inch (in.)
centimeter (cm)	3.937×10^{-1}	inch (in.)
meter (m)	3.281	foot (ft)
	<u>Area</u>	
square kilometer (km^2)	3.861×10^{-1}	square mile (mi^2)
	<u>Flow</u>	
cubic meter per second (m^3/s)	35.31	cubic foot per second (ft^3/s)
	<u>Volume</u>	
microliter (μL)	3.382×10^{-5}	ounce, fluid (oz)
milliliter (mL)	3.382×10^{-2}	ounce, fluid (oz)
liter (L)	2.642×10^{-1}	gallon (gal)
	<u>Mass</u>	
microgram (μg)	3.527×10^{-8}	ounce, avoirdupois (oz)
<u>milligram (mg)</u>	3.527×10^{-5}	<u>ounce, avoirdupois (oz)</u>

Degree Celsius ($^{\circ}\text{C}$) may be converted to degree Fahrenheit ($^{\circ}\text{F}$) by using the following equation:

$$F = 1.8 (^{\circ}\text{C}) + 32$$

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88)

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83)

Water year is the 12-month period October 1 through September 30 and is designated by the calendar year in which it ends.

Overview

This report contains water-quality and sediment-quality data from samples collected in the Yukon River Basin from March through September during the 2005 water year (WY). Samples were collected throughout the year at five stations in the basin (three on the main stem Yukon River, one each on the Tanana and Porcupine Rivers). A broad range of physical, chemical, and biological analyses are presented.

This is the final report in a series of five USGS Open-File Reports spanning five WYs, from October 2000 through September 2005. The previous four reports are listed in the references (Schuster, 2003, 2005a, 2005b, 2006). All five reports are also available on the World Wide Web:

WY 2001 *<http://pubs.usgs.gov/of/2003/ofr03427/>*

WY 2002 *<http://pubs.usgs.gov/of/2005/1199/>*

WY 2003 *<http://pubs.usgs.gov/of/2005/1397/>*

WY 2004 *<http://pubs.usgs.gov/of/2006/1258/>*

WY 2005 *<http://pubs.usgs.gov/of/2007/1037/>*

Water-quality and sediment-quality data from samples collected on the Yukon River and selected major tributaries in Alaska for synoptic studies during WYs 2002–03 are published in Dornblaser and Halm (2006) and also are available at: *<http://pubs.usgs.gov/of/2006/1228/>*.

Acknowledgments

The USGS National Stream Quality Accounting Network (NASQAN) and the National Research Program would like to thank the USGS Alaska Science Center, Water Discipline, in Anchorage and the USGS Field office in Fairbanks. Without their field expertise and continuous logistical support this work would not have been possible.

As the coordinator for the USGS Yukon River Basin studies and editor of all five data reports, I would like to acknowledge each individual who participated in some capacity during these 5 years. The collective insight, help, and dedication of these individuals created a unique, productive, successful, and fun work environment. The extensive list includes personnel and volunteers from the USGS, Canadian government, universities, public schools, indigenous tribal councils, advocacy groups, and village communities.

George Aiken, Ron Antweiler, Bernie Austin, Marilyn Austin, Bill Barber, Heather Best
John Borg, Tim Brabets, Christian Breen, Kenna Butler, Leon Carroll, Mark Carr, Veronica Carrasco, Mark Castor, Ken Coe, Charlie Couvillion, Steve Darnell, Ryan Davis, Teri Dennison, Jim DeRose, John DeWild, Dan Doctor, Mark Dornblaser, Dennis Eberl, Luke Eberl, Melanie Estep, Dennis Evans, Jacques Finlay, Brian Forsyth, Zan Frederick, Doug Halm, Terry Hanlon, Wade Hanna, Bob Hirsch, Rick Hooper, Art Horowitz, Randy Host, Marlys House, Erica Keefe, Carol Kendall, Ben Kennedy, Jay Klinck, Rich Kopish, Dave Krabbenhoft, Tom Kraemer, Rebecca Kyle, Dusty Langley, Pat LaTour, Russ Livingston, Dan Long, Pat Maltais, Bev McNaughton, Bob Michel, Ed Neal, Gordie Nelson, Brian Neubert, Mark Olson, Shane Olund, Bob Ourso, Scott Palfreyman, Mike Parker, John Pearce, Francis Peters, Terry Plowman, Pete Raymond, Mike Reddy, Dennis Rosenkranz, Dave Roth, Andrea Ryan, Tom Sabin, Jenny

Schnackel, Matt Schellekens, Dick Schnieder, Joy Schockley, Brad Sether, Alan Shiller, Sharon Shoup, Steve Silva, Kent Slaughter, Gary Solin, Jay Stevens, Rob Striegl, Zach Swensen, Howard Taylor, Blair Thorson, Bob Truelson, Nick Turner, Jean Turner, Pete Van Metre, Pete Van Erp, Mary Voytek, Michelle Walvoord, Kim Wickland, Kathy Wood, and the entire grades 6 to 12 of Eagle Public School.

CHAPTER 1 - Introduction

by Paul F. Schuster

The U.S. Geological Survey (USGS) National Stream Quality Accounting Network (NASQAN) has completed a 5-year (2001–05) study of the water quality of the Yukon River Basin (330,000 square miles) from the Yukon River headwaters in Canada to the Bering Sea (Nelson and others, 2001). Climatic warming of the Yukon River Basin is resulting in lengthening of the growing season, melting of permafrost, and deepening of the soil active layer (Osterkamp, 2003; Miller and others, 2003; BESIS, 1997). These changes and related processes are anticipated to result in changes in water and sediment chemistry and discharge in upcoming decades. As a first step in understanding these changes, measurements of water discharge and water and sediment chemistry were made on the upper, middle, and lower Yukon River and on the Tanana and Porcupine Rivers (Schuster, 2003, 2005a, 2005b, 2006).

A thorough description of the basin is given in Brabets and others (2000). Schuster (2003) describes the objectives and approach of the study and provides a brief description of the basin (fig. 1), and summarizes sediment and water-quality data for Water Year (WY) 2001. Sediment and water-quality data for WY 2002, 2003, and 2004 are given in Schuster (2005a, 2005b, 2006), respectively. A broad range of constituents were measured in fixed-station samples during the 5-year study, including major ions, nutrients, dissolved and sediment-associated trace elements, biological indicators (such as dissolved oxygen) and the stable isotopic composition of nitrogen, carbon, and sulfur of particulate organic matter, and various forms of organic carbon. Because of extensive wetlands in the basin, the Yukon River exhibits high organic carbon concentrations in contrast to other large rivers. Both the chemical composition and concentration of organic carbon are expected

to change with melting permafrost. In addition to this work, intensive sampling campaigns of the entire reach of the Yukon River from headwaters above Whitehorse, Yukon Territory, Canada, to Pilot Station, Alaska, during high flow in early June and low flow in late August were completed during the years 2002–04. In 2005, intensive sampling campaigns were conducted at the fixed stations and several other key locations in the basin for the duration of the spring snowmelt peak (approximately mid May to mid June). The intensive sampling will address process-based questions about the water quality of the basin.

The purpose of this report is to compile and report the water-quality and sediment-quality data collected during WY 2005. The sample-collection methods and the laboratory analytical methods are described in Schuster (2003). Because many of the results are research-oriented, they are not contained in the USGS National Water Information System (NWIS) database, but are available to the public upon request. This report, the fifth and final in a series of annual reports for the 5-year study, is being released both in paper and electronic format to meet both archival and data dissemination objectives.

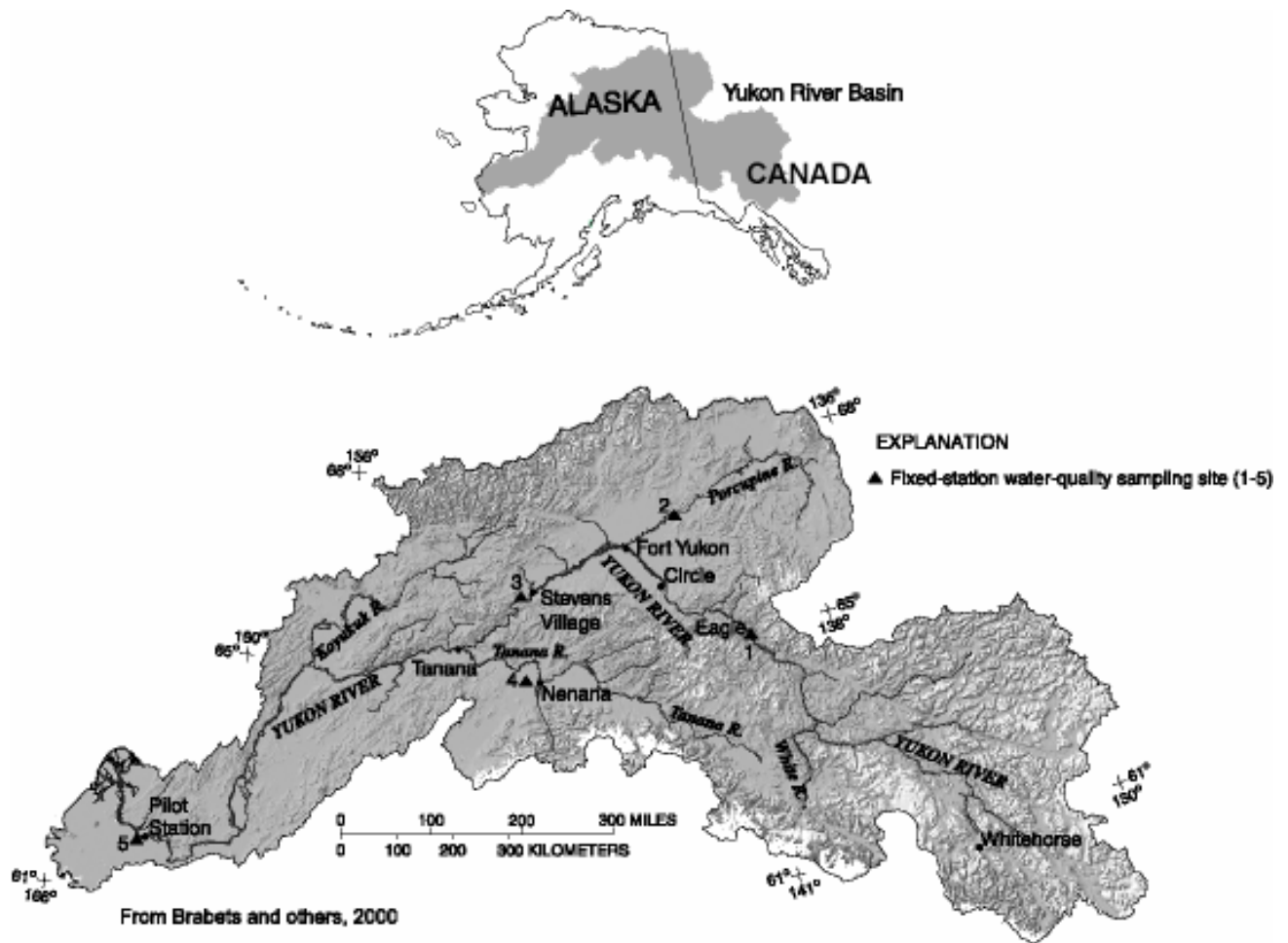


Figure 1. Location of fixed-station water-quality sampling sites in the Yukon River Basin.

Figure 1. Map showing location of fixed-station water-quality sampling sites in the Yukon River Basin. Identification numbers are listed in table 1.

CHAPTER 2 – Fixed-Station Samples

by Timothy P. Brabets

This section provides a summary of the Yukon River Basin fixed-station sampling site characteristics (table 1). References for the description of sample collection and processing of samples for various water-quality constituents are given in Schuster (2003). Sample analysis results for field measurements, major ions, nutrients, organic and inorganic carbon, trace elements, suspended sediment concentrations, and trace elements in suspended sediments during WY 2005 are given in tables 2–6. The data provided in this section also are available from the USGS NWIS database (<http://waterdata.usgs.gov/nwis/>).

Table 1. Summary of site characteristics at five fixed stations in the Yukon River Basin

[Station ID, USGS station identification number, stream flow and water-quality measurements collected at the same station; ID on figure 1, refer to figure 1 for station ID locations; sq.mi., square miles; NAD 83, North American Datum of 1983; NAVD 88, North American Vertical Datum of 1988]

Station ID	ID on Figure 1	Station Name	Latitude (NAD 83)	Longitude (NAD 83)	Drainage Area (sq. mi.)	Datum (feet above NAVD 88)
15356000	1	Yukon River at Eagle, Alaska	64°47'21"	141°12'00"	113,500	850
15389000	2	Porcupine River near Fort Yukon, Alaska	66°59'25"	143°08'26"	29,500	520
15453500	3	Yukon River near Stevens Village, Alaska	65°52'30"	149°43'13"	196,300	240
15515500	4	Tanana River at Nenana, Alaska	64°33'53"	149°05'39"	25,600	338.5
15565447	5	Yukon River at Pilot Station, Alaska	61°56'01"	162°52'59"	321,000	20

Table 2. USGS National Water Quality Laboratory analyses- Yukon River at Eagle, Alaska

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; ft³/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; Hg, mercury, <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees Celsius; cm, centimeter; °C, degrees Celsius; UV, Ultraviolet; nm, nanometer; Fil, filtered; NO₂, nitrite; NO₃, nitrate; wat flt susp., water filtered suspended; µg/L, microgram per liter; Dis fet lab, dissolved fixed end-point titration in laboratory; Dis tot IT, dissolved total incremental titration; Dis IT field, dissolved incremental titration in the field; %, percent; E, estimated; diam, diameter; Susp., Suspended]

Station ID	Date/Time	Discharge (ft ³ /s)	Solids, Residue at 180°C, Dissolved (mg/L)	Turbidity Lab Hach (NTU)	Barometric Pressure (mm of Hg)	Oxygen, dissolved (mg/L)	pH, Field (Standard Units)	pH, Lab (Standard Units)
15356000	4/7/05 17:40	19,200	146	2.5	735	10.8	7.6	7.7
15356000	5/11/05 10:30	142,000	136	77	747	11.2	7.9	E7.5
15356000	5/24/05 12:00	300,000	126	180	752	10.6	7.9	8.0
15356000	6/14/05 12:20	240,000	119	100	736	9.5	7.9	8.0
15356000	7/7/05 11:00	220,000	138	390	--	9.8	8.0	8.1
15356000	8/4/05 10:40	163,000	142	140	736	9.7	8.1	8.1
15356000	8/30/05 11:00	127,000	154	240	735	9.7	8.2	7.9

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance, Fld (µS/cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 nm, Fld (units/cm)	UV Absorbance 280 nm, Fld (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15356000	4/7/05 17:40	244	256	1.5	0.0	0.032	0.023	35.6	9.42
15356000	5/11/05 10:30	170	172	--	8.1	0.463	0.347	24.0	6.85
15356000	5/24/05 12:00	171	179	--	9.3	0.251	0.188	23.7	7.02
15356000	6/14/05 12:20	197	213	18.0	14.5	0.098	0.071	28.3	8.21
15356000	7/7/05 11:00	192	197	--	14.7	0.233	0.173	28.3	7.66
15356000	8/4/05 10:40	213	216	--	13.4	0.193	0.142	29.9	7.70
15356000	8/30/05 11:00	236	236	--	11.5	0.090	0.065	31.8	8.48

Table 2. USGS National Water Quality Laboratory Analyses- Yukon River at Eagle, Alaska—Continued

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis lab, as CaCO ₃ (mg/L)	Alkalinity, Dis tot IT, Field (mg/L)	Bicarbonate, Dis (mg/L)	Carbonate, Dis IT, Field (mg/L)
15356000	4/7/05 17:40	1.16	2.97	100	96	117	0
15356000	5/11/05 10:30	1.19	1.95	60	60	78	0
15356000	5/24/05 12:00	0.96	1.75	62	60	73	0
15356000	6/14/05 12:20	0.81	1.85	74	69	84	0
15356000	7/7/05 11:00	1.43	2.41	73	66	80	0
15356000	8/4/05 10:40	1.30	2.88	76	74	90	0
15356000	8/30/05 11:00	1.49	2.81	83	80	98	0

Station ID	Date/Time	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Nitrogen, Ammonia dissolved (mg/L)	Nitrogen, Ammonia + Organic, dissolved (mg/L)	Nitrogen, Ammonia + Organic Total (mg/L)
15356000	4/7/05 17:40	0.54	0.1	7.06	31.9	E0.006	E0.06	E0.05
15356000	5/11/05 10:30	0.49	E0.1	5.49	25.1	<0.010	0.37	0.64
15356000	5/24/05 12:00	0.27	E0.1	5.90	25.9	<0.010	0.25	0.68
15356000	6/14/05 12:20	0.26	0.1	6.18	33.7	<0.010	E0.10	0.23
15356000	7/7/05 11:00	0.54	0.1	6.97	30.5	E0.005	0.21	0.73
15356000	8/4/05 10:40	0.41	0.1	7.23	32.9	<0.010	0.18	0.40
15356000	8/30/05 11:00	0.48	0.1	6.34	37.8	<0.010	0.11	0.23

Station ID	Date/Time	Nitrogen, NO ₂ + NO ₃ , dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat fit susp. (mg/L)	Phosphorus, dissolved (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon, Inorganic + Organic Particulate Total (mg/L)
15356000	4/7/05 17:40	0.081	E0.001	<0.02	<0.004	<0.006	0.004	0.2
15356000	5/11/05 10:30	0.056	0.002	0.23	0.009	<0.006	0.46	3.3
15356000	5/24/05 12:00	0.046	<0.002	0.32	E0.003	<0.006	0.80	5.9
15356000	6/14/05 12:20	0.039	<0.002	0.07	<0.004	<0.006	0.31	2.5
15356000	7/7/05 11:00	0.075	E0.001	0.32	0.004	<0.006	0.90	13.4
15356000	8/4/05 10:40	0.050	E0.001	0.22	E0.003	<0.006	0.40	4.8
15356000	8/30/05 11:00	0.032	E0.001	0.09	E0.003	<0.006	0.34	3.6

Table 2. USGS National Water Quality Laboratory Analyses- Yukon River at Eagle, Alaska—Continued

Station ID	Date/Time	Carbon, Inorganic Particulate Total (mg/L)	Carbon, Organic dissolved (mg/L)	Carbon, Organic Particulate Total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)
15356000	4/7/05 17:40	<0.1	1.3	0.2	E1	E0.11	0.4	52
15356000	5/11/05 10:30	0.6	11.9	2.7	40	E0.15	0.5	41
15356000	5/24/05 12:00	0.8	6.7	5.1	39	E0.19	0.6	38
15356000	6/14/05 12:20	0.6	3.2	2.0	26	E0.16	0.5	41
15356000	7/7/05 11:00	6.9	6.8	6.5	28	E0.19	0.7	36
15356000	8/4/05 10:40	1.4	5.4	3.4	29	E0.18	0.6	38
15356000	8/30/05 11:00	1.6	3.3	2.0	23	0.21	0.6	36

Station ID	Date/Time	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)
15356000	4/7/05 17:40	<0.06	E6	E0.04	<0.8	0.089	1.1	E4	<0.08	1.9	1.2
15356000	5/11/05 10:30	<0.06	E5	0.05	<0.8	0.139	3.1	104	E0.08	1.7	13.9
15356000	5/24/05 12:00	<0.06	E5	E0.03	<0.8	0.204	2.7	60	E0.06	2.2	7.2
15356000	6/14/05 12:20	<0.06	<8	<0.04	<0.8	0.068	1.9	17	0.18	2.8	2.2
15356000	7/7/05 11:00	<0.06	10	<0.04	<0.8	0.096	2.9	28	<0.08	2.7	2.0
15356000	8/4/05 10:40	<0.06	14	<0.04	<0.8	0.119	2.2	23	<0.08	2.4	3.6
15356000	8/30/05 11:00	<0.06	13	<0.04	0.10	0.089	4.3	13	E0.05	3.1	1.6

Station ID	Date/Time	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Uranium, natural (µg/L)	Sediment, Susp. (Sieve diam. < 0.062mm) % Susp. (mg/L)
15356000	4/7/05 17:40	1.3	1.86	0.5	<0.2	179	0.4	1.5	1.08	23
15356000	5/11/05 10:30	0.7	2.79	0.5	<0.2	121	0.5	4.8	0.75	49
15356000	5/24/05 12:00	0.8	3.42	0.6	<0.2	118	0.5	1.0	0.63	60
15356000	6/14/05 12:20	0.9	2.37	0.6	<0.2	129	0.4	0.7	0.69	57
15356000	7/7/05 11:00	1.2	2.47	0.5	<0.2	132	0.8	0.9	0.78	83
15356000	8/4/05 10:40	1.2	1.80	0.4	<0.2	146	0.6	E0.4	0.81	69
15356000	8/30/05 11:00	1.5	2.37	0.6	<0.2	155	0.5	1.2	0.86	75

Table 3. USGS National Water Quality Laboratory Analyses- Porcupine River near Fort Yukon, Alaska

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; ft³/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; Hg, mercury; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees Celsius; cm, centimeter; °C, degrees Celsius; UV, Ultraviolet; nm, nanometer; Flt, filtered; NO₂, nitrite; NO₃, nitrate; wat flt susp., water filtered suspended; µg/L, microgram per liter; Dis fet lab, dissolved fixed end-point titration in laboratory; Dis tot IT, dissolved total incremental titration; Dis IT field, dissolved incremental titration in the field; %, percent; E, estimated; diam., diameter; Susp., Suspended]

Station ID	Date/Time	Discharge (ft ³ /s)	Solids, Residue at 180°C, Dissolved (mg/L)	Turbidity Lab Hach (NTU)	Barometric Pressure (mm of Hg)	Oxygen, dissolved (mg/L)	pH, Field (Standard Units)	pH, Lab (Standard Units)
15389000	4/6/05 15:40	830	234	<2.0	748	4.6	7.4	7.7
15389000	5/19/05 13:00	92,600	99	99	747	11.2	7.4	7.7
15389000	5/25/05 15:10	51,300	105	88	--	11.3	7.7	7.6
15389000	6/7/05 17:00	40,100	97	40	--	9.2	7.6	7.7
15389000	7/14/05 14:30	16,400	163	17	755	9.2	7.8	8.1
15389000	8/3/05 13:30	4,770	168	2.2	--	9.6	8.0	8.1
15389000	8/26/05 13:00	4,520	168	<2.0	753	11.2	8.0	8.0

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance, Fld (µS/cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 nm, Fld (units/cm)	UV Absorbance 280 nm, Fld (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15389000	4/6/05 15:40	384	403	-2.2	0.0	0.040	0.029	62.4	14.1
15389000	5/19/05 13:00	101	100	--	6.1	0.653	0.494	15.5	2.80
15389000	5/25/05 15:10	120	126	--	7.5	0.544	0.408	18.7	3.45
15389000	6/7/05 17:00	132	132	23.8	11.9	0.534	0.397	20.4	4.45
15389000	7/14/05 14:30	261	261	--	15.3	0.187	0.137	39.8	8.35
15389000	8/3/05 13:30	265	263	17.0	12.8	0.173	0.122	38.6	8.42
15389000	8/26/05 13:00	264	257	15.3	11.5	0.238	0.170	22.8	5.32

Table 3. USGS National Water Quality Laboratory Analyses- Porcupine River near Fort Yukon, Alaska—Continued

Station ID	Date/Time	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Nitrogen, Ammonia dissolved (mg/L)	Nitrogen, Ammonia + Organic Dissolved (mg/L)	Nitrogen, Ammonia + Organic Total (mg/L)
15389000	4/6/05 15:40	5.07	0.1	4.69	34.4	<0.010	<0.10	<0.10
15389000	5/19/05 13:00	0.61	E0.1	2.20	11.0	E0.005	0.47	0.83
15389000	5/25/05 15:10	0.68	E0.1	2.50	12.8	E0.005	0.66	0.86
15389000	6/7/05 17:00	0.86	E0.1	3.14	16.9	<0.010	0.42	0.56
15389000	7/14/05 14:30	2.18	E0.1	2.84	40.9	<0.010	0.22	0.33
15389000	8/3/05 13:30	1.67	0.1	2.87	43.1	<0.010	0.20	0.22
15389000	8/26/05 13:00	1.78	E0.1	1.56	43.4	<0.010	0.24	0.27

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab, as CaCO ₃ (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15389000	4/6/05 15:40	0.67	5.69	175	173	209	0.0
15389000	5/19/05 13:00	0.97	1.20	38	34	41	0.0
15389000	5/25/05 15:10	1.02	1.32	45	48	59	0.0
15389000	6/7/05 17:00	0.71	1.81	50	51	62	0.0
15389000	7/14/05 14:30	0.70	4.23	90	80	104	0.0
15389000	8/3/05 13:30	0.67	3.55	89	90	110	0.0
15389000	8/26/05 13:00	0.36	2.70	87	84	102	0.0

Station ID	Date/Time	Nitrogen, NO ₂ +NO ₃ , dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat fit susp (mg/L)	Phosphorus, dissolved (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon, Inorganic + Organic Particulate Total (mg/L)
15389000	4/6/05 15:40	0.205	<0.002	<0.02	E0.003	<0.006	0.004	<0.1
15389000	5/19/05 13:00	0.026	E0.001	0.32	0.015	<0.006	0.154	4.1
15389000	5/25/05 15:10	0.049	0.003	0.37	0.013	<0.006	0.169	4.3
15389000	6/7/05 17:00	0.034	E0.001	0.13	0.011	<0.006	0.081	1.8
15389000	7/14/05 14:30	<0.016	E0.001	0.16	E0.003	<0.006	0.041	3.0
15389000	8/3/05 13:30	E0.008	E0.001	0.04	E0.003	<0.006	0.006	0.3
15389000	8/26/05 13:00	E0.009	E0.001	<0.02	E0.003	<0.006	0.006	0.2

Table 3. USGS National Water Quality Laboratory Analyses- Porcupine River near Fort Yukon, Alaska—Continued

Station ID	Date/Time	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)
15389000	4/6/05 15:40	<0.06	13	<0.04	<0.8	0.173	0.9	7	<0.08	8.5	16.0
15389000	5/19/05 13:00	<0.06	8	E0.03	<0.8	0.304	3.7	302	<0.08	2.6	17.3
15389000	5/25/05 15:10	<0.06	E4	<0.04	E0.8	0.259	3.3	220	0.12	2.4	6.8
15389000	6/7/05 17:00	E0.05	E6	<0.04	E0.6	0.135	2.5	224	0.11	3.2	4.0
15389000	7/14/05 14:30	<0.06	E7	<0.04	<0.8	0.111	1.4	29	<0.08	5.8	1.3
15389000	8/3/05 13:30	<0.06	13	<0.04	<0.8	0.093	1.5	16	<0.08	5.3	2.2
15389000	8/26/05 13:00	E0.03	E5	0.05	<0.8	0.105	8.4	20	0.27	3.4	4.2

Station ID	Date/Time	Carbon, Inorganic Particulate Total (mg/L)	Carbon, Organic dissolved (mg/L)	Carbon, Organic Particulate Total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)
15389000	4/6/05 15:40	<0.1	1.3	<0.1	2	<0.2	0.2	102
15389000	5/19/05 13:00	0.2	17.5	3.9	69	<0.2	0.4	33
15389000	5/25/05 15:10	0.1	15.2	4.2	40	<0.2	0.4	42
15389000	6/7/05 17:00	<0.1	14.3	1.7	39	<0.2	0.4	43
15389000	7/14/05 14:30	<0.1	6.2	3.0	11	<0.2	0.4	68
15389000	8/3/05 13:30	<0.1	5.8	0.3	10	<0.2	0.3	58
15389000	8/26/05 13:00	<0.1	7.6	0.2	12	<0.2	E0.2	44

Station ID	Date/Time	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Uranium, natural (µg/L)	Sediment, Susp. (Sieve diam. < 0.062mm) %	Sediment, Susp. (mg/L)
15389000	4/6/05 15:40	0.7	4.60	0.4	<0.2	187	0.3	1.3	0.82	76	13
15389000	5/19/05 13:00	<0.4	3.61	E0.2	<0.2	44.3	0.4	6.6	0.26	98	178
15389000	5/25/05 15:10	E0.3	3.74	E0.3	<0.2	42.9	0.5	1.1	0.25	95	158
15389000	6/7/05 17:00	E0.3	3.15	E0.3	<0.2	65.8	0.5	0.8	0.21	94	69
15389000	7/14/05 14:30	0.5	2.29	E0.3	<0.2	135	0.2	0.7	0.46	96	34
15389000	8/3/05 13:30	0.5	2.32	E0.3	<0.2	135	0.3	E0.5	0.40	81	1
15389000	8/26/05 13:00	E0.3	2.12	<0.4	<0.2	80.5	0.2	16	0.19	87	1

Table 4. USGS National Water Quality Laboratory Analyses- Yukon River near Stevens Village, Alaska

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; ft³/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; Hg, mercury; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees Celsius; cm, centimeter; °C, degrees Celsius; UV, Ultraviolet; nm, nanometer; Fil, filtered; NO₃, nitrate; NO₂, nitrite; Dis tot, Dis total; Dis tot IT, dissolved fixed end-point titration in laboratory; Dis tot IT, dissolved total incremental titration; Dis IT field, dissolved incremental titration in the field; %, percent; E, estimated; diam., diameter; Susp., Suspended]

Station ID	Date/Time	Discharge (ft ³ /s)	Solids, Residue at 180°C, Dissolved (mg/L)	Turbidity Lab Hach (NTU)	Barometric Pressure (mm of Hg)	Oxygen, dissolved (mg/L)	pH, Field (Standard Units)	pH, Lab (Standard Units)
15453500	3/30/05 17:30	22,000	173	--	757	--	--	7.8
15453500	5/13/05 11:15	402,000	140	270	756	11.9	8.0	7.9
15453500	5/23/05 16:00	466,000	119	240	--	9.9	8.4	8.0
15453500	6/2/05 17:00	398,000	131	160	767	9.7	8.0	7.8
15453500	7/6/05 17:30	188,000	140	220	750	10.4	8.0	8.0
15453500	8/1/05 16:00	173,000	152	140	762	9.8	8.1	8.2
15453500	8/22/05 17:20	163,500	142	530	--	11.6	7.9	7.0

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance, Fld (µS/cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 nm, Fld (units/cm)	UV Absorbance 280 nm, Fld (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15453500	3/30/05 17:30	268	257	-7.8	0.0	0.035	0.025	43.0	10.5
15453500	5/13/05 11:15	175	171	--	5.8	0.619	0.463	25.1	5.63
15453500	5/23/05 16:00	155	155	--	6.6	0.413	0.311	23.3	5.25
15453500	6/2/05 17:00	176	189	--	12.7	0.285	0.213	10.4	2.49
15453500	7/6/05 17:30	202	228	--	13.8	0.109	0.080	33.3	8.64
15453500	8/1/05 16:00	237	240	--	14.9	0.312	0.244	32.5	8.59
15453500	2/22/05 17:20	238	247	--	13.4	0.087	0.064	32.8	8.84

Table 4. USGS National Water Quality Laboratory Analyses- Yukon River near Stevens Village, Alaska—Continued

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab CaCO ₃ (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15453500	3/30/05 17:30	1.20	2.93	113	109	133	0.0
15453500	5/13/05 11:15	1.52	1.96	62	55	72	0.0
15453500	5/23/05 16:00	1.12	1.70	58	58	70	0.0
15453500	6/2/05 17:00	0.40	0.80	67	69	84	0.0
15453500	7/63/05 17:30	1.44	2.60	83	75	91	0.0
15453500	8/1/05 16:00	1.23	2.83	83	85	103	0.0
15453500	8/22/05 17:20	1.70	3.25	79	86	104	0.0

Station ID	Date/Time	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Nitrogen, Ammonia, dissolved (mg/L)	Nitrogen, Ammonia + Organic, dissolved (mg/L)	Nitrogen, Ammonia + Organic Total (mg/L)
15453500	3/30/05 17:30	0.85	0.1	7.60	35.0	E0.006	E0.06	0.10
15453500	5/13/05 11:15	1.228	E0.1	4.14	20.5	0.024	0.60	1.40
15453500	5/23/05 16:00	0.45	E0.1	4.21	20.1	<0.010	0.30	0.87
15453500	6/2/05 17:00	0.38	E0.1	2.09	25.8	<0.010	0.26	0.63
15453500	7/6/05 17:30	0.67	E0.1	6.31	33.8	0.010	0.11	0.31
15453500	8/1/05 16:00	0.59	0.1	6.42	37.0	0.013	0.18	0.31
15453500	8/22/05 17:20	0.62	0.1	6.14	34.8	0.015	0.20	0.41

Table 4. USGS National Water Quality Laboratory Analyses- Yukon River near Stevens Village, Alaska—Continued

Station ID	Date/Time	Nitrogen, NO ₃ , dissolved (mg/L)	Nitrogen, NO ₂ ⁺ , dissolved (mg/L)	Nitrite (mg/L)	Nitrogen, Nitrate dissolved (mg/L)	Nitrogen, particulate wat ft susp (mg/L)	Phosphorus, dissolved (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon, Inorganic + Organic Particulate Total (mg/L)
15453500	3/30/05 17:30	0.097	0.097	0.002	0.002	0.03	<0.004	<0.006	0.022	0.4
15453500	5/13/05 11:15	0.066	0.066	0.002	0.002	0.82	0.015	<0.006	0.62	17.6
15453500	5/23/05 16:00	0.053	0.053	E0.001	E0.001	0.24	0.008	<0.006	0.55	5.1
15453500	6/2/05 17:00	0.058	0.058	E0.001	E0.001	0.35	E0.004	<0.006	0.47	9.9
15453500	7/6/05 17:30	0.044	0.044	E0.001	E0.001	0.16	E0.003	<0.006	0.43	4.7
15453500	8/1/05 16:00	0.053	0.053	E0.001	E0.001	0.20	E0.002	<0.006	0.28	5.8
15453500	8/22/05 17:20	0.038	0.038	0.002	0.002	0.20	E0.003	<0.006	0.52	7.8

Station ID	Date/Time	Carbon, Inorganic Particulate Total (mg/L)	Carbon, Organic dissolved (mg/L)	Carbon, Organic Particulate Total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)
15453500	3/30/05 17:30	<0.1	1.4	0.4	E1	E0.11	0.4	58
15453500	5/13/05 11:15	4.0	16.6	13.6	29	E0.11	0.7	45
15453500	5/23/05 16:00	2.5	11.4	2.6	33	<0.20	0.7	38
15453500	6/2/05 17:00	3.2	8.0	6.7	11	<0.20	0.2	17
15453500	7/6/05 17:30	2.1	3.8	2.6	24	E0.16	0.7	50
15453500	8/1/05 16:00	2.7	3.8	3.2	20	E0.20	0.7	42
15453500	8/22/05 17:20	5.4	2.8	2.3	17	0.27	0.7	48

Station ID	Date/Time	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)
15453500	3/30/05 17:30	<0.06	12	<0.04	<0.8	0.079	0.7	9	<0.08	2.4	6.8
15453500	5/13/05 11:15	<0.06	E6	E0.02	<0.8	0.329	5.7	163	0.13	2.8	31.7
15453500	5/23/05 16:00	<0.06	13	<0.04	<0.8	0.198	4.8	112	<0.08	2.7	9.4
15453500	6/2/05 17:00	<0.06	E5	E0.03	<0.8	0.076	5.1	26	1.44	1.0	2.5
15453500	7/6/05 17:30	<0.06	10	<0.04	<0.8	0.080	1.8	10	<0.08	3.3	3.4
15453500	8/1/05 16:00	<0.06	12	<0.04	<0.8	0.097	2.1	8	<0.08	3.1	5.0
15453500	8/22/05 17:20	<0.06	14	<0.04	<0.8	0.105	2.9	9	<0.08	4.1	3.8

Table 4. USGS National Water Quality Laboratory Analyses- Yukon River near Stevens Village, Alaska—Continued

Station ID	Date/Time	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Uranium, natural (µg/L)	Sediment, Susp. (Sieve diam. % <0.062 mm)	Sediment, Susp. (mg/L)
15453500	3/30/05 17:30	1.2	1.32	0.7	<0.2	180	0.7	0.6	0.91	94	14
15453500	5/13/05 11:15	0.5	4.15	E0.2	<0.2	92.1	0.6	5.5	0.53	84	985
15453500	5/23/05 16:00	0.6	2.63	0.4	<0.2	83.8	0.6	1.7	0.61	80	781
15453500	6/2/05 17:00	E0.3	3.54	<0.4	<0.2	43.2	0.3	16.5	0.22	79	499
15453500	7/6/05 17:30	1.2	1.77	0.6	<0.2	140	0.6	2.5	0.89	81	403
15453500	8/1/05 16:00	1.3	1.51	0.7	<0.2	148	0.7	E0.5	0.78	75	311
15453500	8/22/05 17:20	1.5	2.42	0.6	<0.2	148	0.8	0.7	0.83	91	616

Table 5. USGS National Water Quality Laboratory Analyses- Tanana River at Nenana, Alaska

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; ft³/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; Hg, mercury; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees Celsius; cm, centimeter; °C, degrees Celsius; UV, Ultraviolet; nm, nanometer; Flt, filtered; NO₃, nitrate; Dis, Dis; Dis lab, dissolved fixed end-point titration in laboratory; Dis tot, Dis total; Dis tot IT, dissolved total incremental titration; Dis IT field, dissolved incremental titration in the field; %, percent; E, estimated; diam., diameter; Susp., Suspended]

Station ID	Date/Time	Discharge (ft ³ /s)	Solids, Residue at 180°C, Dissolved (mg/L)	Turbidity Lab Hach (NTU)	Barometric Pressure (mm of Hg)	Oxygen, dissolved (mg/L)	pH, Field (Standard Units)	pH, Lab (Standard Units)
15515500	3/31/05 18:00	7,500	184	7.3	747	10.1	7.8	7.7
15515500	5/10/05 18:00	36,200	152	130	745	9.9	7.4	7.9
15515500	5/18/05 16:30	40,600	159	210	--	10.1	7.8	8.0
15515500	5/27/05 15:00	32,000	170	160	--	10.3	7.9	8.1
15515500	7/12/05 14:30	75,800	154	650	758	9.3	7.9	8.0
15515500	8/5/05 14:50	54,000	164	390	--	12.6	7.9	8.1
15515500	8/30/05 14:10	44,000	172	340	--	10.7	7.9	8.1

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance, Fld (µS/cm)	Air Temp. (°C)	Water Temp. (°C)	UV Absorbance 254 nm, Fit (units/cm)	UV Absorbance 280 nm, Fit (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15515500	3/31/05 18:00	289	303	25.0	0.0	0.025	0.019	47.0	10.1
15515500	5/10/05 18:00	218	217	18.0	11.9	0.239	0.177	30.3	7.15
15515500	5/18/05 16:30	222	222	--	10.4	0.138	0.103	29.8	7.86
15515500	5/27/05 15:00	242	268	--	13.8	0.083	0.061	34.7	10.2
15515500	7/12/05 14:30	224	253	--	15.7	0.089	0.065	33.4	7.91
15515500	8/5/05 14:50	259	257	--	14.1	0.085	0.062	35.6	7.91
15515500	8/30/05 14:10	274	264	--	10.9	0.048	0.035	38.7	8.88

Table 5. USGS National Water Quality Laboratory Analyses- Tanana River at Nenana, Alaska—Continued

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab, as CaCO ₃ (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15515500	3/31/05 18:00	2.34	4.45	126	128	156	0.0
15515500	5/10/05 18:00	1.76	3.70	76	76	93	0.0
15515500	5/18/05 16:30	1.77	3.57	72	60	73	0.0
15515500	5/27/05 15:00	2.13	4.50	88	89	109	0.0
15515500	7/12/05 14:30	2.04	3.81	74	72	87	0.0
15515500	8/5/05 14:50	1.88	4.12	82	82	100	0.0
15515500	8/30/05 14:10	2.04	4.81	90	86	105	0.0

Station ID	Date/Time	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Nitrogen, Ammonia dissolved (mg/L)	Nitrogen, Ammonia + Organic Dissolved (mg/L)	Nitrogen, Ammonia + Organic Total (mg/L)
15515500	3/31/05 18:00	1.26	0.1	16.1	35.3	0.053	0.11	0.11
15515500	5/10/05 18:00	1.82	0.1	9.14	30.8	0.010	0.22	0.51
15515500	5/18/05 16:30	1.48	E0.1	8.36	38.0	E0.009	0.20	0.44
15515500	5/27/05 15:00	1.91	0.1	9.57	46.3	E0.009	0.17	0.30
15515500	7/12/05 14:30	1.23	0.1	7.10	47.0	E0.006	0.16	0.60
15515500	8/5/05 14:50	1.34	0.1	8.11	46.7	E0.005	0.11	0.36
15515500	8/30/05 14:10	1.75	0.1	8.77	50.0	0.012	0.57	0.39

Table 5. USGS National Water Quality Laboratory Analyses- Tanana River at Nenana, Alaska—Continued

Station ID	Date/Time	Nitrogen, NO ₂ + NO ₃ , dissolved (mg/L)	Nitrite dissolved (mg/L)	Nitrogen, particulate wat fit susp (mg/L)	Phosphorus, dissolved (mg/L)	Ortho- phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon, Inorganic + Organic Particulate Total (mg/L)
15515500	3/31/05 18:00	0.164	0.003	<0.02	<0.004	E0.003	0.028	0.3
15515500	5/10/05 18:00	0.148	0.003	0.29	0.010	E0.004	0.60	5.0
15515500	5/18/05 16:30	0.188	E0.001	0.26	0.005	<0.006	0.71	4.4
15515500	5/27/05 15:00	0.142	E0.001	0.16	0.49	0.494	0.47	2.7
15515500	7/12/05 14:30	0.112	E0.001	0.36	0.005	<0.006	1.19	6.8
15515500	8/5/05 14:50	0.125	E0.001	0.19	E0.003	<0.006	0.76	2.7
15515500	8/30/05 14:10	0.089	E0.001	0.14	E0.003	<0.006	0.71	2.3

Station ID	Date/Time	Carbon, Inorganic Particulate Total (mg/L)	Carbon, Organic dissolved (mg/L)	Carbon, Organic Particulate Total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)
15515500	3/31/05 18:00	<0.1	1.0	0.3	E2	E0.17	0.5	50
15515500	5/10/05 18:00	0.4	6.9	4.5	18	0.20	1.1	34
15515500	5/18/05 16:30	0.4	3.8	4.1	16	0.21	0.9	33
15515500	5/27/05 15:00	0.3	3.8	2.3	14	0.26	1.0	33
15515500	7/12/05 14:30	1.5	4.4	5.3	14	0.34	1.1	36
15515500	8/5/05 14:50	0.5	2.9	2.1	14	0.26	1.0	31
15515500	8/30/05 14:10	0.3	2.0	2.0	15	0.33	1.0	36

Table 5. USGS National Water Quality Laboratory Analyses- Tanana River at Nenana, Alaska—Continued

Station ID	Date/Time	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)
15515500	3/31/05 18:00	<0.06	18	E0.03	<0.8	0.247	1.5	12	<0.08	2.7	88.0
15515500	5/10/05 18:00	<0.06	28	E0.03	<0.8	0.164	4.3	88	0.09	3.4	16.2
15515500	5/18/05 16:30	<0.06	18	<0.04	<0.8	0.184	4.2	41	E0.06	3.4	15.5
15515500	5/27/05 15:00	<0.06	29	<0.04	<0.8	0.151	2.2	20	<0.08	5.1	10.5
15515500	7/12/05 14:30	<0.06	26	E0.02	<0.8	0.104	2.2	8	E0.05	4.3	5.0
15515500	8/5/05 14:50	<0.06	22	<0.04	<0.8	0.109	2.3	14	<0.08	3.9	7.1
15515500	8/30/05 14:10	<0.06	27	0.04	<0.8	0.129	1.6	E3	<0.08	5.3	22.2

Station ID	Date/Time	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Uranium, natural (µg/L)	Sediment, Susp. (Sieve diam. % <0.062mm)	Sediment, Susp. (mg/L)
15515500	3/31/05 18:00	1.2	3.31	0.5	<0.2	222	1.0	1.2	0.84	68	20
15515500	5/10/05 18:00	0.9	1.85	0.5	<0.2	148	0.7	1.3	0.73	43	787
15515500	5/18/05 16:30	0.9	2.50	0.6	<0.2	132	0.6	4.0	0.80	52	930
15515500	5/27/05 15:00	1.1	2.69	0.6	<0.2	168	0.5	E0.5	0.79	53	646
15515500	7/12/05 14:30	1.2	2.29	0.8	<0.2	151	0.6	E0.5	0.81	70	2,210
15515500	8/5/05 14:50	1.2	1.54	0.6	<0.2	159	1.2	E0.5	0.78	50	1,600
15515500	8/30/05 14:10	1.3	1.40	0.6	<0.2	182	1.8	E0.6	0.93	66	1,090

Table 6. USGS National Water Quality Laboratory Analyses- Yukon River at Pilot Station, Alaska

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; ft³/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; Hg, mercury; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees Celsius; cm, centimeter; °C, degrees Celsius; UV, Ultraviolet; nm, nanometer; Fil, filtered; NO₃, nitrate; NO₂, nitrite; wat flt susp., water filtered suspended; µg/L, microgram per liter; Dis fet lab, dissolved fixed end-point titration in laboratory; Dis tot IT, dissolved total incremental titration; Dis IT field, dissolved incremental titration in the field; %, percent; E, estimated; diam., diameter; Susp., Suspended]

Station ID	Date/Time	Discharge (ft ³ /s)	Solids, Residue at 180°C, Dissolved (mg/L)	Turbidity Lab Hach (NTU)	Barometric Pressure (mm of Hg)	Oxygen, dissolved (mg/L)	pH, Field (Standard Units)	pH, Lab (Standard Units)
15565447	3/17/05 19:30	41,600	189	7.9	767	2.5	7.0	7.2
15565447	5/17/05 10:30	1,150,000	112	270	748	10.1	7.9	8.0
15565447	6/1/05 12:00	761,000	120	130	762	9.2	7.8	7.8
15565447	6/14/05 15:30	680,000	114	100	762	8.0	7.9	7.7
15565447	7/12/05 09:30	416,000	144	230	756	9.1	8.1	8.1
15565447	8/16/05 18:20	316,000	165	190	762	8.5	7.9	8.0
15565447	9/27/05 14:50	377,000	160	67	742	10.9	7.9	6.1

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance, Fid (µS/cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 nm, Fit (units/cm)	UV Absorbance 280 nm, Fit (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15565447	3/17/05 19:30	317	315	-0.3	0.0	0.063	0.045	47.9	11.7
15565447	5/17/05 10:30	149	150	4.4	5.5	0.524	0.393	22.4	4.20
15565447	6/1/05 12:00	166	165	12.6	12.5	0.371	0.277	24.2	4.63
15565447	6/14/05 15:30	178	189	19.6	15.6	0.255	0.189	27.6	5.95
15565447	7/12/05 09:30	199	222	--	17.5	0.194	0.143	30.8	7.39
15565447	8/16/05 18:20	254	255	19.7	16.8	0.197	0.160	35.2	8.61
15565447	9/27/05 14:50	231	225	9.0	9.0	0.248	0.184	30.8	7.86

Table 6. USGS National Water Quality Laboratory Analyses- Yukon River at Pilot Station, Alaska—Continued

Station ID	Date/Time	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Nitrogen, Ammonia dissolved (mg/L)	Nitrogen, Ammonia + Organic Dissolved (mg/L)	Nitrogen, Ammonia + Organic Total (mg/L)
15565447	3/17/05 19:30	1.15	0.1	13.2	26.8	0.080	0.20	0.22
15565447	5/17/05 10:30	0.73	E0.1	4.76	12.8	0.049	0.51	0.98
15565447	6/1/05 12:00	0.52	E0.1	4.97	18.0	E0.008	0.31	0.68
15565447	6/14/05 15:30	0.51	E0.1	5.86	25.7	E0.005	0.22	0.51
15565447	7/12/05 09:30	0.83	0.1	6.88	32.3	E0.006	0.19	0.64
15565447	8/16/05 18:20	0.78	0.1	7.27	39.4	E0.007	E0.10	0.35
15565447	9/27/05 14:50	1.26	E0.1	7.55	36.6	E0.006	0.22	0.40

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab, as CaCO ₃ (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15565447	3/17/05 19:30	1.39	3.93	141	128	156	0.0
15565447	5/17/05 10:30	1.16	1.72	60	62	76	0.0
15565447	6/1/05 12:00	1.16	1.66	65	64	79	0.0
15565447	6/14/05 15:30	1.11	1.80	70	59	72	0.0
15565447	7/12/05 09:30	1.58	2.76	81	100	122	0.0
15565447	8/16/05 18:20	1.53	3.24	89	119	145	0.0
15565447	9/27/05 14:50	1.07	2.76	78	101	124	0.0

Station ID	Date/Time	Nitrogen, NO ₃ , dissolved (mg/L)	Nitrite dissolved (mg/L)	Nitrogen, particulate wat fit susp (mg/L)	Phosphorus, dissolved (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon, Inorganic + Organic Particulate Total (mg/L)
15565447	3/17/05 19:30	0.195	0.002	0.03	E0.003	E0.003	0.02	0.4
15565447	5/17/05 10:30	0.121	0.004	0.64	0.018	0.006	0.70	11.8
15565447	6/1/05 12:00	0.079	0.002	0.34	0.010	<0.006	0.30	6.0
15565447	6/14/05 15:30	0.084	E0.001	0.37	0.007	<0.006	0.30	5.4
15565447	7/12/05 09:30	0.094	E0.001	0.35	0.009	E0.004	0.39	6.6
15565447	8/16/05 18:20	0.105	0.002	0.27	0.006	E0.003	0.32	5.6
15565447	9/27/05 14:50	0.113	E0.001	0.21	0.013	E0.005	0.17	3.3

Table 6. USGS National Water Quality Laboratory Analyses- Yukon River at Pilot Station, Alaska—Continued

Station ID	Date/Time	Carbon, Inorganic Particulate Total (mg/L)	Carbon, Organic dissolved (mg/L)	Carbon, Organic Particulate Total (mg/L)	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)
15565447	3/17/05 19:30	<0.1	2.1	0.4	E1	<0.20	0.4	81
15565447	5/17/05 10:30	2.4	14.4	9.4	29	0.22	1.1	39
15565447	6/1/05 12:00	0.6	10.2	5.5	21	0.25	1.0	45
15565447	6/14/05 15:30	0.4	7.0	4.9	14	0.25	0.9	43
15565447	7/12/05 09:30	1.7	5.8	4.8	12	0.29	1.1	48
15565447	8/16/05 18:20	1.4	3.5	4.2	13	0.27	0.9	50
15565447	9/27/05 14:50	0.1	6.5	3.1	17	0.22	0.9	46

Station ID	Date/Time	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Lithium (µg/L)	Manganese (µg/L)
15565447	3/17/05 19:30	<0.06	14	E0.04	<0.8	0.239	1.4	94	0.20	2.9	139
15565447	5/17/05 10:30	<0.06	9	<0.04	<0.8	0.294	6.0	332	0.23	1.9	72.4
15565447	6/1/05 12:00	<0.06	E4	<0.04	<0.8	0.176	5.3	193	0.63	1.7	29.3
15565447	6/14/05 15:30	<0.06	E5	E0.02	<0.8	0.118	2.9	150	0.17	2.4	16.8
15565447	7/12/05 09:30	<0.06	12	0.06	<0.8	0.092	2.6	207	0.20	2.7	2.7
15565447	8/16/05 18:20	<0.06	12	<0.04	<0.8	0.104	2.4	50	E0.07	3.5	3.7
15565447	9/27/05 14:50	<0.06	12	E0.03	0.21	0.080	3.1	178	0.14	2.4	10.0

Station ID	Date/Time	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Strontium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Uranium, natural (µg/L)	Sediment, Susp. (Sieve diam. < 0.062 mm) %	Sediment, Susp. (mg/L)
15565447	3/17/05 19:30	0.8	1.92	E0.3	<0.2	208	1.4	3.8	0.95	95	5
15565447	5/17/05 10:30	0.6	2.57	<0.4	<0.2	80.2	1.1	1.2	0.56	72	863
15565447	6/1/05 12:00	0.6	2.76	E0.3	<0.2	95.0	0.8	1.7	0.47	63	612
15565447	6/14/05 15:30	0.7	2.38	E0.3	<0.2	105	0.8	2.4	0.47	69	393
15565447	7/12/05 09:30	1.2	2.03	0.5	<0.2	128	0.8	1.7	0.70	86	461
15565447	8/16/05 18:20	1.3	2.26	0.5	<0.2	156	0.6	1.1	0.84	64	413
15565447	9/27/05 14:50	0.9	1.10	0.4	<0.2	135	0.6	0.7	0.76	82	287

CHAPTER 3 - Dissolved Organic Carbon Characterization

by George R. Aiken

A description of sample collection and processing of samples for dissolved organic carbon (DOC), ultraviolet (UV) absorbance spectroscopy, specific UV absorbance (SUVA), and DOC fractionation analyses is given in Schuster (2003). These analyses were performed at the USGS National Research Program Laboratories in Boulder, Colorado. Sample analysis results for WY 2005 are given in table 7.

Table 7. Dissolved organic carbon concentrations and fractionation analyses from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; DOC, dissolved organic carbon; mg C/L, milligrams carbon per liter; UV (abs @ 254 nm), Ultraviolet absorbance at the 254 nanometer wavelength; SUVA, Specific UV absorbance; L/(mg C*m), liters per milligram carbon multiplied by a one-meter path length; %, percent; --, missing value; all samples filtered with 0.45- μ m glass-fiber filters prior to analyses]

Station ID	Date	DOC (mg C/L)	UV (abs @ 254nm)	SUVA [L/(mg C*m)]	Hydrophobic Acid SUVA [L/(mg C*m)]	Hydrophobic Acid (%)
15356000	4/7/2005	1.9	0.035	1.8	2.6	39
15356000	5/11/2005	13.6	0.461	3.4	--	--
15356000	5/24/2005	7.4	0.247	3.3	4.0	43
15356000	6/14/2005	3.6	0.106	2.9	3.6	51
15356000	7/7/2005	7.4	0.231	3.1	3.8	52
15356000	8/4/2005	6.4	0.194	3.0	3.4	54
15356000	8/30/2005	3.4	0.088	2.6	3.2	49
15389000	4/6/2005	1.9	0.033	1.7	2.7	38
15389000	5/19/2005	18.6	0.637	3.4	4.2	56
15389000	5/25/2005	16.2	0.531	3.3	4.0	51
15389000	6/7/2005	15.2	0.524	3.4	3.9	56
15389000	7/14/2005	6.7	0.181	2.7	3.3	49
15389000	8/3/2005	6.9	0.178	2.6	3.0	53
15389000	8/26/2005	8.6	0.237	2.8	3.4	50
15453500	3/30/2005	2.0	0.039	2.0	2.7	47
15453500	5/13/2005	19.4	0.607	3.1	4.2	48
15453500	5/23/2005	11.8	0.413	3.5	4.3	56
15453500	6/2/2005	8.2	0.281	3.5	3.8	60
15453500	7/6/2005	4.0	0.106	2.6	3.2	50
15453500	8/1/2005	4.2	0.112	2.7	3.4	46
15453500	8/22/2005	3.2	0.083	2.6	3.2	49
15515500	3/31/2005	1.5	0.024	1.6	2.4	37
15515500	5/10/2005	8.1	0.237	2.9	3.9	49
15515500	5/18/2005	4.7	0.133	2.9	3.7	46
15515500	5/27/2005	3.0	0.080	2.6	--	--
15515500	7/12/2005	3.6	0.084	2.4	3.3	45
15515500	8/5/2005	3.3	0.082	2.6	3.2	56
15515500	8/30/2005	2.1	0.048	2.2	2.7	43
15565447	3/17/2005	2.6	0.061	2.4	2.6	51
15565447	5/17/2005	16.7	0.499	3.0	3.7	50
15565447	6/1/2005	10.9	0.376	3.5	4.0	56
15565447	6/14/2005	7.7	0.261	3.4	3.2	54
15565447	7/12/2005	6.1	0.189	3.1	3.6	53
15565447	8/16/2005	4.6	0.115	2.5	3.5	41
15565447	9/27/2005	7.7	0.247	3.2	3.5	53

Table 7. Dissolved organic carbon concentrations and fractionation analyses from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Hydrophilic Organic Matter SUVA [L/(mg C*m)]	Hydrophilic Organic Matter (%)	Transphilic Acids SUVA [L/(mg C*m)]	Transphilic Acids (%)
15356000	4/7/2005	--	--	--	--
15356000	5/11/2005	--	--	--	--
15356000	5/24/2005	2.2	15	2.7	15
15356000	6/14/2005	1.5	18	2.2	18
15356000	7/7/2005	1.6	15	2.7	17
15356000	8/4/2005	1.6	15	2.7	17
15356000	8/30/2005	1.5	20	2.1	19
15389000	4/6/2005	--	--	--	--
15389000	5/19/2005	1.5	19	2.6	14
15389000	5/25/2005	1.7	18	2.6	12
15389000	6/7/2005	1.5	19	2.4	16
15389000	7/14/2005	1.4	19	2.2	17
15389000	8/3/2005	1.4	18	2.0	18
15389000	8/26/2005	2.1	16	2.2	17
15453500	3/30/2005	--	--	--	--
15453500	5/13/2005	1.5	20	2.7	14
15453500	5/23/2005	1.7	21	2.7	16
15453500	6/2/2005	1.7	16	2.3	17
15453500	7/6/2005	1.4	18	2.1	16
15453500	8/1/2005	1.0	21	2.0	20
15453500	8/22/2005	1.5	17	2.0	22
15515500	3/31/2005	--	--	--	--
15515500	5/10/2005	1.2	19	2.3	16
15515500	5/18/2005	1.3	18	1.7	15
15515500	5/27/2005	--	--	--	--
15515500	7/12/2005	--	15	2.1	16
15515500	8/5/2005	2.2	23	2.2	18
15515500	8/30/2005	--	--	--	--
15565447	3/17/2005	--	--	--	--
15565447	5/17/2005	2	18	2.2	9
15565447	6/1/2005	1.8	18	2.8	15
15565447	6/14/2005	1.9	17	2.6	16
15565447	7/12/2005	1.6	16	2.4	16
15565447	8/16/2005	2.0	15	2.4	17
15565447	9/27/2005	2.2	14	2.5	21

CHAPTER 4 - Dissolved Major Cations and Trace Elements

by Howard E. Taylor, David A. Roth, and Ronald C. Antweiler

References for the description of sample collection and processing of samples for various water-quality constituents are given in Chapter 2 of Schuster (2003). A description of sample analysis for major cations and trace elements at the USGS National Research Program Laboratories in Boulder, Colorado, is given in Chapter 4 of Schuster (2003). Sample analysis results for WY 2005 are given below in table 8.

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin

[See Schuster (2003) for qualification of the accuracy of these data; Station ID, station identification number, refer to table 1 for description and figure 1 for location; *, field replicate; µg/L, microgram per liter; mg/L, milligram per liter; A, average of triplicate analysis; SD, standard deviation of triplicate analysis; <, less than; ±, plus or minus]

Station ID	Date	Aluminum µg/L		Arsenic µg/L		Boron µg/L		Barium µg/L		Beryllium µg/L		Bismuth µg/L		Calcium mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	2	± 0.1	0.35	± 0.02	10.0	± 1.1	49	± 3	< 0.01	± 0.000	< 0.0009	± 0.0003	34	± 0
15356000	05/11/05	58	± 0.6	0.53	± 0.01	5.3	± 1.1	37	± 1	0.010	± 0.004	0.0020	± 0.0015	23	± 1
15356000	05/24/05	32	± 0.0	0.55	± 0.02	4.1	± 0.1	36	± 2	0.012	± 0.003	0.0047	± 0.0018	24	± 1
15356000	06/14/05	57	± 0.3	0.53	± 0.02	10.0	± 1.1	55	± 0	0.009	± 0.003	0.0030	± 0.001	27	± 0
15356000	07/07/05	30	± 0.5	0.72	± 0.00	8.9	± 0.7	36	± 1	< 0.01	± 0.000	0.0019	± 0.0011	26	± 1
15356000	08/04/05	27	± 0.1	0.60	± 0.03	10.0	± 0.8	38	± 1	0.010	± 0.002	< 0.0009	± 0.0000	29	± 1
15356000	08/30/05	22	± 0.2	0.55	± 0.01	11.3	± 0.3	39	± 0	< 0.01	± 0.010	< 0.0009	± 0.0005	31	± 1
15389000	04/06/05	1	± 0.1	0.21	± 0.01	10.2	± 0.5	98	± 4	< 0.01	± 0.010	< 0.0009	± 0.0002	60	± 1
15389000	05/19/05	63	± 0.2	0.33	± 0.01	4.4	± 0.8	32	± 1	0.020	± 0.000	0.0023	± 0.0007	16	± 1
15389000	05/25/05	25	± 0.3	0.38	± 0.02	4.5	± 0.9	38	± 2	0.022	± 0.004	0.0054	± 0.0042	19	± 0
15389000	06/07/05	37	± 1.9	0.39	± 0.02	5.4	± 0.5	42	± 3	0.018	± 0.006	0.0017	± 0.0002	20	± 0
15389000	07/14/05	12	± 0.7	0.32	± 0.01	9.1	± 1.0	66	± 2	< 0.01	± 0.000	0.0011	± 0.0007	37	± 2
15389000	08/03/05	11	± 0.3	0.31	± 0.00	9.2	± 0.2	63	± 3	< 0.01	± 0.000	< 0.0009	± 0.0005	38	± 1
15389000	08/26/05	14	± 0.4	0.32	± 0.01	9.4	± 0.2	68	± 2	0.011	± 0.003	< 0.0009	± 0.0005	38	± 0
15453500	03/30/05	1	± 0.0	0.30	± 0.01	8.5	± 0.6	60	± 2	< 0.01	± 0.000	0.0011	± 0.0012	41	± 1
15453500	05/13/05	28	± 0.4	0.63	± 0.02	5.4	± 0.5	43	± 2	0.016	± 0.008	0.0015	± 0.0001	26	± 1
15453500	05/23/05	27	± 0.1	0.59	± 0.02	4.5	± 0.4	35	± 1	0.011	± 0.009	0.0015	± 0.0007	24	± 1
15453500	06/02/05	23	± 1.4	0.56	± 0.01	4.2	± 0.6	39	± 4	0.011	± 0.006	0.0016	± 0.0008	25	± 0
15453500	07/06/05	20	± 1.6	0.66	± 0.04	9.5	± 0.7	44	± 6	< 0.01	± 0.000	0.0009	± 0.0010	29	± 0
15453500	08/01/05	21	± 0.5	0.64	± 0.02	10.1	± 0.5	45	± 1	< 0.01	± 0.000	< 0.0009	± 0.0001	33	± 0
15453500	08/22/05	17	± 0.6	0.64	± 0.00	11.1	± 1.3	44	± 1	< 0.01	± 0.000	< 0.0009	± 0.0001	34	± 1

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Aluminum µg/L		Arsenic µg/L		Boron µg/L		Barium µg/L		Beryllium µg/L		Bismuth µg/L		Calcium mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	1	± 0.1	0.48	± 0.01	18.9	± 0.5	45	± 1	<0.01	± 0.00	<0.0009	± 0.0001	46	± 1
15515500	05/10/05	18	± 0.2	1.0	± 0.0	21.2	± 0.8	32	± 1	<0.01	± 0.00	0.0014	± 0.0011	31	± 1
15515500	05/18/05	15	± 0.8	0.85	± 0.02	18.5	± 0.7	30	± 1	<0.01	± 0.00	<0.0009	± 0.0002	32	± 0
15515500	05/27/05	19	± 0.8	0.87	± 0.02	24.0	± 0.6	31	± 2	<0.01	± 0.00	<0.0009	± 0.0000	33	± 1
15515500	07/12/05	17	± 1.5	1.0	± 0.1	19.8	± 1.0	30	± 3	<0.01	± 0.00	<0.0009	± 0.0007	30	± 0
15515500	08/05/05	41	± 0.4	1.0	± 0.0	22.6	± 0.9	31	± 1	<0.01	± 0.00	<0.0009	± 0.0002	35	± 1
15515500	08/05/05*	16	± 0.2	1.0	± 0.0	22.8	± 0.3	31	± 1	<0.01	± 0.01	<0.0009	± 0.0011	35	± 1
15515500	08/30/05	13	± 0.1	1.0	± 0.0	25.6	± 0.6	33	± 1	<0.01	± 0.00	<0.0009	± 0.0004	38	± 1
15565447	03/17/05	2	± 0.1	0.38	± 0.02	11.9	± 0.6	73	± 3	<0.01	± 0.00	0.0010	± 0.0007	45	± 0
15565447	05/17/05	25	± 1.0	1.0	± 0.0	7.4	± 0.6	37	± 3	<0.01	± 0.00	0.0048	± 0.0017	23	± 0
15565447	06/01/05	16	± 0.4	0.95	± 0.03	6.0	± 2.1	42	± 3	<0.01	± 0.01	0.0043	± 0.0021	25	± 1
15565447	06/14/05	15	± 0.7	0.95	± 0.02	5.5	± 0.1	41	± 1	<0.01	± 0.00	0.0031	± 0.0003	27	± 1
15565447	07/12/05	13	± 0.2	1.1	± 0.1	9.8	± 1.3	46	± 3	<0.01	± 0.00	0.0039	± 0.0023	29	± 0
15565447	08/16/05	12	± 0.3	0.86	± 0.02	10.2	± 0.6	47	± 2	<0.01	± 0.00	<0.0009	± 0.0007	32	± 1
15565447	09/27/05	18	± 0.3	0.86	± 0.02	8.3	± 0.3	41	± 1	<0.01	± 0.00	0.0028	± 0.0007	30	± 1

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Cadmium µg/L			Cerium µg/L			Cobalt µg/L			Chromium µg/L			Cesium µg/L			Copper µg/L		
		A	SD	A	A	SD	A	A	SD	A	A	SD	A	SD	A	A	SD	A	SD
15356000	04/07/05	0.018	± 0.004	0.008	± 0.000	0.004	± 0.003	0.004	± 0.003	0.17	± 0.03	<0.009	± 0.012	0.73	± 0.01				
15356000	05/11/05	0.049	± 0.003	0.278	± 0.008	0.117	± 0.005	0.08	± 0.005	0.08	± 0.02	<0.009	± 0.007	3.25	± 0.01				
15356000	05/24/05	0.028	± 0.001	0.113	± 0.002	0.076	± 0.003	0.11	± 0.03	0.11	± 0.03	<0.009	± 0.008	2.60	± 0.05				
15356000	06/14/05	0.021	± 0.001	0.079	± 0.002	0.053	± 0.003	0.01	± 0.02	0.01	± 0.02	<0.002	± 0.005	1.39	± 0.03				
15356000	07/07/05	0.008	± 0.002	0.082	± 0.002	0.047	± 0.004	0.09	± 0.01	0.09	± 0.01	<0.009	± 0.003	2.84	± 0.05				
15356000	08/04/05	0.007	± 0.002	0.060	± 0.001	0.046	± 0.002	0.15	± 0.00	0.15	± 0.00	<0.009	± 0.007	1.91	± 0.08				
15356000	08/30/05	0.006	± 0.002	0.016	± 0.000	0.025	± 0.002	0.07	± 0.01	0.07	± 0.01	0.010	± 0.005	1.95	± 0.04				
15389000	04/06/05	0.006	± 0.002	0.004	± 0.000	0.027	± 0.006	0.14	± 0.01	0.14	± 0.01	0.012	± 0.010	0.58	± 0.02				
15389000	05/19/05	0.026	± 0.001	0.312	± 0.012	0.230	± 0.006	0.14	± 0.02	0.14	± 0.02	<0.009	± 0.006	3.11	± 0.03				
15389000	05/25/05	0.014	± 0.000	0.143	± 0.001	0.079	± 0.003	<0.05	± 0.06	<0.05	± 0.06	<0.009	± 0.006	2.86	± 0.04				
15389000	06/07/05	0.009	± 0.002	0.159	± 0.015	0.088	± 0.007	0.18	± 0.02	0.18	± 0.02	<0.009	± 0.005	2.33	± 0.04				
15389000	07/14/05	0.005	± 0.001	0.018	± 0.002	0.031	± 0.006	0.09	± 0.01	0.09	± 0.01	<0.009	± 0.007	1.21	± 0.01				
15389000	08/03/05	0.004	± 0.001	0.010	± 0.000	0.049	± 0.004	0.14	± 0.02	0.14	± 0.02	<0.009	± 0.008	1.37	± 0.04				
15389000	08/26/05	0.006	± 0.002	0.020	± 0.001	0.056	± 0.004	0.18	± 0.02	0.18	± 0.02	<0.009	± 0.010	1.34	± 0.03				
15453500	03/30/05	0.005	± 0.001	0.004	± 0.000	0.010	± 0.002	0.13	± 0.01	0.13	± 0.01	0.009	± 0.012	0.53	± 0.04				
15453500	05/13/05	0.035	± 0.001	0.270	± 0.002	0.239	± 0.004	0.08	± 0.02	0.08	± 0.02	0.010	± 0.011	9.14	± 0.16				
15453500	05/23/05	0.017	± 0.001	0.180	± 0.010	0.104	± 0.012	0.06	± 0.01	0.06	± 0.01	<0.009	± 0.005	4.06	± 0.03				
15453500	06/02/05	0.014	± 0.001	0.091	± 0.009	0.052	± 0.005	<0.05	± 0.02	<0.05	± 0.02	<0.009	± 0.003	3.57	± 0.02				
15453500	07/06/05	0.009	± 0.001	0.015	± 0.002	0.028	± 0.005	0.07	± 0.00	0.07	± 0.00	<0.009	± 0.004	1.73	± 0.06				
15453500	08/01/05	0.007	± 0.002	0.016	± 0.001	0.031	± 0.004	0.09	± 0.02	0.09	± 0.02	<0.009	± 0.010	1.88	± 0.06				
15453500	08/22/05	0.005	± 0.000	0.011	± 0.000	0.026	± 0.002	0.10	± 0.02	0.10	± 0.02	0.013	± 0.006	3.13	± 0.08				

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Cadmium µg/L		Cerium µg/L		Cobalt µg/L		Chromium µg/L		Cesium µg/L		Copper µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.016	± 0.002	0.006	± 0.001	0.116	± 0.007	<0.05	± 0.01	<0.009	± 0.000	1.20	± 0.06
15515500	05/10/05	0.017	± 0.001	0.078	± 0.003	0.103	± 0.000	0.09	± 0.01	<0.009	± 0.010	3.88	± 0.05
15515500	05/18/05	0.013	± 0.003	0.038	± 0.002	0.081	± 0.005	<0.05	± 0.01	0.010	± 0.008	3.11	± 0.04
15515500	05/27/05	0.012	± 0.001	0.025	± 0.002	0.061	± 0.001	0.11	± 0.02	0.009	± 0.004	2.99	± 0.06
15515500	07/12/05	0.009	± 0.002	0.014	± 0.002	0.051	± 0.005	<0.05	± 0.04	0.012	± 0.001	1.88	± 0.06
15515500	08/05/05	0.009	± 0.002	0.031	± 0.002	0.065	± 0.002	0.14	± 0.01	0.019	± 0.010	1.82	± 0.04
15515500	08/05/05*	0.009	± 0.001	0.013	± 0.000	0.049	± 0.002	0.07	± 0.01	0.015	± 0.010	1.80	± 0.04
15515500	08/30/05	0.013	± 0.002	0.009	± 0.000	0.067	± 0.004	0.10	± 0.02	0.011	± 0.008	1.31	± 0.03
15565447	03/17/05	0.026	± 0.002	0.011	± 0.001	0.131	± 0.001	0.19	± 0.01	<0.009	± 0.005	1.11	± 0.02
15565447	05/17/05	0.021	± 0.001	0.319	± 0.026	0.207	± 0.004	0.19	± 0.02	0.009	± 0.009	5.13	± 0.01
15565447	06/01/05	0.011	± 0.001	0.176	± 0.015	0.114	± 0.005	0.08	± 0.03	0.009	± 0.007	3.95	± 0.17
15565447	06/14/05	0.012	± 0.001	0.115	± 0.004	0.077	± 0.006	0.06	± 0.03	<0.009	± 0.006	2.87	± 0.01
15565447	07/12/05	0.037	± 0.005	0.071	± 0.004	0.037	± 0.007	<0.05	± 0.02	<0.009	± 0.004	2.44	± 0.10
15565447	08/16/05	0.012	± 0.003	0.028	± 0.002	0.024	± 0.001	0.14	± 0.02	<0.009	± 0.009	2.00	± 0.01
15565447	09/27/05	0.021	± 0.002	0.108	± 0.001	0.067	± 0.002	0.11	± 0.00	<0.009	± 0.009	2.84	± 0.09

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Dysprosium µg/L		Erbium µg/L		Europium µg/L		Iron µg/L		Gadolinium µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	0.002	± 0.000	0.002	± 0.000	0.001	± 0.001	<6	± 9	0.002	± 0.001
15356000	05/11/05	0.044	± 0.002	0.024	± 0.001	0.010	± 0.001	117	± 3	0.043	± 0.000
15356000	05/24/05	0.021	± 0.000	0.013	± 0.001	0.005	± 0.001	66	± 7	0.022	± 0.003
15356000	06/14/05	0.011	± 0.001	0.006	± 0.000	0.003	± 0.000	68	± 7	0.012	± 0.001
15356000	07/07/05	0.018	± 0.000	0.011	± 0.001	0.004	± 0.002	23	± 12	0.014	± 0.002
15356000	08/04/05	0.014	± 0.000	0.009	± 0.000	0.003	± 0.000	23	± 3	0.012	± 0.000
15356000	08/30/05	0.004	± 0.000	0.004	± 0.000	0.001	± 0.001	10	± 4	0.003	± 0.000
15389000	04/06/05	0.002	± 0.000	0.001	± 0.001	0.001	± 0.001	36	± 9	0.001	± 0.001
15389000	05/19/05	0.081	± 0.005	0.042	± 0.001	0.019	± 0.001	311	± 14	0.087	± 0.002
15389000	05/25/05	0.044	± 0.003	0.024	± 0.001	0.010	± 0.001	145	± 14	0.045	± 0.002
15389000	06/07/05	0.048	± 0.003	0.027	± 0.001	0.012	± 0.000	222	± 10	0.061	± 0.001
15389000	07/14/05	0.007	± 0.002	0.004	± 0.000	0.001	± 0.001	34	± 12	0.007	± 0.001
15389000	08/03/05	0.007	± 0.001	0.004	± 0.001	0.001	± 0.000	28	± 10	0.006	± 0.001
15389000	08/26/05	0.013	± 0.000	0.008	± 0.001	0.003	± 0.000	42	± 7	0.013	± 0.001
15453500	03/30/05	0.002	± 0.000	0.001	± 0.000	0.001	± 0.000	12	± 8	0.001	± 0.000
15453500	05/13/05	0.053	± 0.004	0.027	± 0.001	0.012	± 0.001	176	± 3	0.048	± 0.001
15453500	05/23/05	0.037	± 0.002	0.022	± 0.001	0.009	± 0.001	110	± 8	0.036	± 0.003
15453500	06/02/05	0.018	± 0.000	0.011	± 0.000	0.005	± 0.000	49	± 13	0.019	± 0.004
15453500	07/06/05	0.004	± 0.001	0.003	± 0.001	0.000	± 0.001	<6	± 13	0.003	± 0.000
15453500	08/01/05	0.004	± 0.001	0.003	± 0.001	0.001	± 0.001	<6	± 16	0.004	± 0.001
15453500	08/22/05	0.003	± 0.001	0.003	± 0.001	0.001	± 0.001	<6	± 5	0.002	± 0.000

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Dysprosium µg/L		Erbium µg/L		Europium µg/L		Iron µg/L		Gadolinium µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.001	± 0.000	0.001	± 0.001	0.001	± 0.001	<6	± 6	0.001	± 0.000
15515500	05/10/05	0.014	± 0.001	0.009	± 0.001	0.003	± 0.000	81	± 6	0.013	± 0.001
15515500	05/18/05	0.008	± 0.001	0.005	± 0.000	0.002	± 0.001	26	± 8	0.007	± 0.001
15515500	05/27/05	0.004	± 0.001	0.003	± 0.001	0.001	± 0.001	14	± 16	0.004	± 0.001
15515500	07/12/05	0.004	± 0.001	0.002	± 0.001	0.000	± 0.001	<6	± 14	0.003	± 0.000
15515500	08/05/05	0.005	± 0.001	0.003	± 0.001	0.002	± 0.000	31	± 7	0.004	± 0.001
15515500	08/05/05*	0.004	± 0.000	0.002	± 0.001	0.001	± 0.000	<6	± 8	0.003	± 0.000
15515500	08/30/05	0.003	± 0.000	0.002	± 0.000	0.001	± 0.001	<6	± 12	0.002	± 0.001
15565447	03/17/05	0.003	± 0.000	0.003	± 0.000	0.000	± 0.001	95	± 6	0.002	± 0.000
15565447	05/17/05	0.053	± 0.005	0.031	± 0.000	0.012	± 0.002	329	± 11	0.048	± 0.001
15565447	06/01/05	0.033	± 0.001	0.019	± 0.000	0.007	± 0.001	180	± 18	0.031	± 0.003
15565447	06/06/05	0.030	± 0.002	0.018	± 0.001	0.008	± 0.001	254	± 12	0.031	± 0.001
15565447	06/14/05	0.019	± 0.000	0.011	± 0.001	0.005	± 0.000	154	± 10	0.019	± 0.001
15565447	07/12/05	0.012	± 0.001	0.007	± 0.000	0.003	± 0.002	197	± 19	0.011	± 0.000
15565447	08/16/05	0.005	± 0.000	0.003	± 0.001	0.001	± 0.001	55	± 14	0.004	± 0.000
15565447	09/27/05	0.021	± 0.001	0.012	± 0.000	0.005	± 0.000	195	± 4	0.021	± 0.001

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Holmium µg/L		Potassium mg/L		Lanthanum µg/L		Lithium µg/L		Lutetium µg/L		Magnesium mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	0.000	± 0.000	1.10	± 0.04	0.007	± 0.000	2.2	± 0.0	0.000	± 0.000	9.4	± 0.3
15356000	05/11/05	0.009	± 0.000	1.10	± 0.02	0.159	± 0.003	2.0	± 0.0	0.003	± 0.000	6.9	± 0.2
15356000	05/24/05	0.005	± 0.000	0.89	± 0.01	0.063	± 0.001	2.0	± 0.0	0.002	± 0.000	6.9	± 0.3
15356000	06/14/05	0.002	± 0.000	0.97	± 0.02	0.045	± 0.000	2.4	± 0.0	0.001	± 0.000	8.4	± 0.1
15356000	07/07/05	0.004	± 0.001	1.37	± 0.01	0.046	± 0.002	2.6	± 0.0	0.002	± 0.000	7.3	± 0.1
15356000	08/04/05	0.003	± 0.000	1.15	± 0.02	0.033	± 0.001	2.7	± 0.0	0.001	± 0.000	8.4	± 0.3
15356000	08/30/05	0.001	± 0.000	1.31	± 0.02	0.010	± 0.000	3.1	± 0.1	0.001	± 0.000	9.1	± 0.4
15389000	04/06/05	0.000	± 0.000	0.61	± 0.01	0.004	± 0.000	6.8	± 0.0	0.000	± 0.000	14.2	± 0.1
15389000	05/19/05	0.014	± 0.000	1.01	± 0.01	0.145	± 0.004	1.8	± 0.0	0.005	± 0.000	2.7	± 0.2
15389000	05/25/05	0.008	± 0.001	1.00	± 0.01	0.064	± 0.001	2.1	± 0.0	0.003	± 0.000	3.3	± 0.0
15389000	06/07/05	0.010	± 0.001	0.69	± 0.01	0.078	± 0.007	3.0	± 0.0	0.003	± 0.000	4.4	± 0.0
15389000	07/14/05	0.001	± 0.000	0.63	± 0.04	0.010	± 0.001	5.8	± 0.0	0.001	± 0.000	8.3	± 0.4
15389000	08/03/05	0.001	± 0.000	0.68	± 0.01	0.006	± 0.000	5.5	± 0.1	0.001	± 0.000	9.0	± 0.2
15389000	08/26/05	0.003	± 0.000	0.66	± 0.01	0.012	± 0.000	5.8	± 0.1	0.001	± 0.000	9.0	± 0.1
15453500	03/30/05	0.000	± 0.000	1.10	± 0.03	0.004	± 0.000	2.7	± 0.0	0.000	± 0.000	10.3	± 0.1
15453500	05/13/05	0.011	± 0.001	1.46	± 0.03	0.137	± 0.004	2.3	± 0.1	0.004	± 0.000	5.7	± 0.1
15453500	05/23/05	0.008	± 0.001	1.11	± 0.03	0.099	± 0.005	2.0	± 0.0	0.003	± 0.000	5.3	± 0.2
15453500	06/02/05	0.004	± 0.001	0.93	± 0.03	0.053	± 0.006	2.2	± 0.1	0.002	± 0.000	6.5	± 0.1
15453500	07/06/05	0.001	± 0.000	1.24	± 0.04	0.010	± 0.002	3.0	± 0.0	0.000	± 0.000	8.0	± 0.2
15453500	08/01/05	0.001	± 0.000	1.23	± 0.04	0.010	± 0.000	3.1	± 0.1	0.001	± 0.000	8.9	± 0.3
15453500	08/22/05	0.001	± 0.000	1.54	± 0.01	0.008	± 0.000	3.3	± 0.0	0.000	± 0.000	9.1	± 0.1

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Holmium µg/L		Potassium mg/L		Lanthanum µg/L		Lithium µg/L		Lutetium µg/L		Magnesium mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.000	± 0.000	2.34	± 0.02	0.003	± 0.000	2.8	± 0.0	0.000	± 0.000	9.7	± 0.2
15515500	05/10/05	0.003	± 0.000	1.70	± 0.02	0.047	± 0.001	3.1	± 0.1	0.002	± 0.000	7.3	± 0.2
15515500	05/18/05	0.002	± 0.000	1.71	± 0.02	0.023	± 0.001	3.6	± 0.1	0.001	± 0.000	8.1	± 0.3
15515500	05/27/05	0.001	± 0.000	1.74	± 0.05	0.013	± 0.001	4.4	± 0.1	0.000	± 0.000	8.8	± 0.3
15515500	07/12/05	0.001	± 0.000	1.86	± 0.02	0.009	± 0.002	4.2	± 0.0	0.000	± 0.000	7.5	± 0.1
15515500	08/05/05	0.001	± 0.000	1.75	± 0.02	0.018	± 0.001	4.3	± 0.1	0.001	± 0.000	8.8	± 0.3
15515500	08/05/05*	0.001	± 0.000	1.76	± 0.04	0.009	± 0.000	4.3	± 0.1	0.001	± 0.000	8.6	± 0.2
15515500	08/30/05	0.001	± 0.000	1.86	± 0.04	0.007	± 0.000	4.5	± 0.0	0.000	± 0.000	9.3	± 0.5
15565447	03/17/05	0.001	± 0.000	1.35	± 0.03	0.007	± 0.000	2.8	± 0.0	0.000	± 0.000	10.6	± 0.0
15565447	05/17/05	0.010	± 0.001	1.17	± 0.04	0.162	± 0.014	1.5	± 0.0	0.004	± 0.000	4.3	± 0.1
15565447	06/01/05	0.006	± 0.001	1.12	± 0.04	0.095	± 0.005	1.8	± 0.1	0.003	± 0.000	4.7	± 0.2
15565447	06/14/05	0.004	± 0.000	1.05	± 0.04	0.067	± 0.006	2.0	± 0.0	0.002	± 0.000	6.0	± 0.1
15565447	07/12/05	0.003	± 0.000	1.38	± 0.01	0.046	± 0.001	2.6	± 0.0	0.001	± 0.000	7.5	± 0.0
15565447	08/16/05	0.001	± 0.000	1.41	± 0.00	0.017	± 0.000	3.0	± 0.1	0.000	± 0.000	8.4	± 0.4
15565447	09/27/05	0.004	± 0.000	1.02	± 0.04	0.062	± 0.001	2.4	± 0.0	0.002	± 0.000	8.2	± 0.2

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Manganese µg/L		Molybdenum µg/L		Sodium mg/L		Neodymium µg/L		Nickel µg/L		Phosphorus mg/L		Lead µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	1.3	± 0.0	1.21	± 0.00	2.6	± 0.1	0.008	± 0.001	0.48	± 0.09	<6	± 3	0.025	± 0.003
15356000	05/11/05	17.6	± 0.2	0.66	± 0.04	1.9	± 0.2	0.181	± 0.008	2.54	± 0.08	<6	± 2	0.105	± 0.005
15356000	05/24/05	9.6	± 0.5	0.71	± 0.02	1.6	± 0.2	0.080	± 0.006	2.13	± 0.07	<6	± 2	0.073	± 0.002
15356000	06/14/05	4.5	± 0.2	0.96	± 0.02	1.9	± 0.1	0.049	± 0.000	1.14	± 0.04	<5	± 1	0.073	± 0.003
15356000	07/07/05	2.4	± 0.2	1.16	± 0.03	2.4	± 0.2	0.050	± 0.002	1.42	± 0.00	8	± 1	0.031	± 0.016
15356000	08/04/05	4.1	± 0.0	1.15	± 0.03	2.5	± 0.2	0.045	± 0.002	1.09	± 0.06	<6	± 1	0.010	± 0.001
15356000	08/30/05	1.6	± 0.0	1.33	± 0.03	2.6	± 0.2	0.012	± 0.001	1.02	± 0.07	<6	± 1	0.018	± 0.003
15389000	04/06/05	17.1	± 0.2	0.65	± 0.05	5.1	± 0.4	0.005	± 0.001	0.63	± 0.14	<6	± 3	0.021	± 0.002
15389000	05/19/05	18.8	± 0.2	0.19	± 0.01	1.0	± 0.1	0.246	± 0.000	3.06	± 0.05	13	± 2	0.165	± 0.007
15389000	05/25/05	3.3	± 0.4	0.34	± 0.08	1.1	± 0.1	0.121	± 0.002	1.86	± 0.09	<6	± 3	0.102	± 0.002
15389000	06/07/05	4.4	± 0.3	0.30	± 0.02	1.7	± 0.1	0.154	± 0.012	2.50	± 0.00	10	± 1	0.111	± 0.012
15389000	07/14/05	1.6	± 0.1	0.49	± 0.02	3.9	± 0.1	0.019	± 0.001	1.13	± 0.21	7	± 1	0.028	± 0.005
15389000	08/03/05	2.8	± 0.0	0.47	± 0.03	3.4	± 0.0	0.014	± 0.001	1.33	± 0.07	<6	± 2	0.025	± 0.002
15389000	08/26/05	3.2	± 0.0	0.45	± 0.02	3.7	± 0.2	0.029	± 0.000	1.80	± 0.02	<6	± 1	0.016	± 0.002
15453500	03/30/05	8.2	± 0.2	1.12	± 0.07	2.9	± 0.1	0.005	± 0.001	0.50	± 0.10	<6	± 2	0.022	± 0.007
15453500	05/13/05	30.5	± 0.9	0.48	± 0.02	1.9	± 0.1	0.177	± 0.004	3.21	± 0.08	13	± 2	0.251	± 0.014
15453500	05/23/05	9.8	± 0.6	0.53	± 0.01	1.5	± 0.1	0.124	± 0.005	2.20	± 0.11	6	± 3	0.089	± 0.006
15453500	06/02/05	4.1	± 0.3	0.65	± 0.04	1.7	± 0.1	0.072	± 0.002	1.71	± 0.10	<6	± 3	0.059	± 0.001
15453500	07/06/05	3.8	± 0.4	1.25	± 0.01	2.4	± 0.2	0.011	± 0.002	0.63	± 0.10	<6	± 1	0.019	± 0.002
15453500	08/01/05	5.8	± 0.1	1.18	± 0.03	2.5	± 0.1	0.012	± 0.001	0.76	± 0.07	<6	± 2	0.013	± 0.002
15453500	08/22/05	4.4	± 0.0	1.39	± 0.02	2.7	± 0.1	0.009	± 0.001	0.76	± 0.04	<6	± 1	0.021	± 0.001

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Manganese µg/L		Molybdenum µg/L		Sodium mg/L		Neodymium µg/L		Nickel µg/L		Phosphorus mg/L		Lead µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	92.3	± 1.8	1.16	± 0.02	4.0	± 0.1	0.003	± 0.001	0.47	± 0.14	<6	± 1	0.026	± 0.003
15515500	05/10/05	19.8	± 0.4	0.85	± 0.01	3.5	± 0.2	0.052	± 0.002	1.29	± 0.09	<6	± 2	0.082	± 0.004
15515500	05/18/05	16.2	± 0.3	0.88	± 0.03	3.2	± 0.0	0.029	± 0.002	1.54	± 0.07	<6	± 3	0.050	± 0.004
15515500	05/27/05	13.8	± 1.1	0.93	± 0.01	3.7	± 0.1	0.014	± 0.000	0.69	± 0.13	<6	± 3	0.073	± 0.010
15515500	07/12/05	6.7	± 0.7	1.17	± 0.08	3.3	± 0.1	0.011	± 0.001	0.92	± 0.03	<6	± 1	0.023	± 0.005
15515500	08/05/05	9.5	± 0.3	1.12	± 0.08	3.8	± 0.2	0.021	± 0.001	0.80	± 0.09	<6	± 3	0.020	± 0.001
15515500	08/05/05*	8.5	± 0.0	1.10	± 0.01	3.6	± 0.0	0.011	± 0.001	0.82	± 0.09	<6	± 1	0.015	± 0.007
15515500	08/30/05	23.8	± 0.2	1.25	± 0.01	4.1	± 0.2	0.009	± 0.002	0.82	± 0.03	<6	± 1	0.018	± 0.002
15565447	03/17/05	158.6	± 2.4	0.77	± 0.04	3.5	± 0.5	0.008	± 0.001	0.92	± 0.00	<6	± 2	0.103	± 0.005
15565447	05/17/05	77.5	± 0.6	0.54	± 0.02	1.5	± 0.2	0.192	± 0.013	2.03	± 0.11	15	± 3	0.213	± 0.021
15565447	06/01/05	31.6	± 0.2	0.59	± 0.04	1.5	± 0.1	0.109	± 0.005	1.63	± 0.00	11	± 1	0.202	± 0.001
15565447	06/14/05	21.7	± 1.4	0.70	± 0.04	1.8	± 0.1	0.073	± 0.001	1.12	± 0.11	7	± 3	0.156	± 0.017
15565447	07/12/05	3.6	± 0.3	1.11	± 0.04	2.6	± 0.1	0.047	± 0.001	0.95	± 0.06	9	± 2	0.172	± 0.005
15565447	08/16/05	4.0	± 0.1	1.13	± 0.03	2.5	± 0.2	0.019	± 0.002	1.01	± 0.06	<6	± 1	0.100	± 0.009
15565447	09/27/05	9.6	± 0.1	0.81	± 0.04	2.6	± 0.2	0.078	± 0.000	1.24	± 0.07	<6	± 1	0.248	± 0.011

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Praseodymium µg/L		Rubidium µg/L		Sulfur mg/L		Antimony µg/L		Selenium µg/L		Silica mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	0.002	± 0.000	0.84	± 0.01	12	± 0	0.10	± 0.00	0.45	± 0.08	6.4	± 0.2
15356000	05/11/05	0.042	± 0.000	0.84	± 0.01	10	± 0	0.13	± 0.00	0.30	± 0.05	4.8	± 0.2
15356000	05/24/05	0.017	± 0.000	0.80	± 0.03	10	± 0	0.16	± 0.00	0.45	± 0.06	5.2	± 0.2
15356000	06/14/05	0.012	± 0.000	0.62	± 0.00	13	± 0	0.16	± 0.00	0.50	± 0.04	6.0	± 0.0
15356000	07/07/05	0.012	± 0.002	1.68	± 0.12	11	± 0	0.20	± 0.00	0.42	± 0.07	6.4	± 0.1
15356000	08/04/05	0.010	± 0.001	1.24	± 0.01	14	± 0	0.16	± 0.00	0.37	± 0.06	7.4	± 0.3
15356000	08/30/05	0.002	± 0.000	1.52	± 0.03	16	± 0	0.18	± 0.01	0.35	± 0.05	6.0	± 0.4
15389000	04/06/05	0.001	± 0.000	0.34	± 0.01	14	± 0	0.06	± 0.00	0.33	± 0.09	4.2	± 0.1
15389000	05/19/05	0.049	± 0.001	0.36	± 0.02	4	± 0	0.06	± 0.00	0.14	± 0.04	1.8	± 0.1
15389000	05/25/05	0.025	± 0.000	0.37	± 0.03	5	± 0	0.08	± 0.00	0.25	± 0.11	2.1	± 0.0
15389000	06/07/05	0.031	± 0.002	0.27	± 0.01	7	± 0	0.08	± 0.00	0.20	± 0.02	2.6	± 0.1
15389000	07/14/05	0.004	± 0.000	0.33	± 0.02	16	± 0	0.08	± 0.01	0.23	± 0.07	2.6	± 0.2
15389000	08/03/05	0.002	± 0.000	0.34	± 0.01	17	± 1	0.08	± 0.00	0.20	± 0.07	2.7	± 0.1
15389000	08/26/05	0.005	± 0.000	0.33	± 0.00	18	± 1	0.08	± 0.00	0.17	± 0.06	2.6	± 0.1
15453500	03/30/05	0.001	± 0.000	0.88	± 0.02	13	± 0	0.09	± 0.00	0.35	± 0.04	6.9	± 0.0
15453500	05/13/05	0.038	± 0.000	1.17	± 0.01	8	± 0	0.13	± 0.00	0.24	± 0.08	3.7	± 0.1
15453500	05/23/05	0.027	± 0.001	0.80	± 0.03	8	± 0	0.15	± 0.00	0.29	± 0.02	3.8	± 0.2
15453500	06/02/05	0.014	± 0.000	0.84	± 0.03	10	± 0	0.16	± 0.01	0.37	± 0.01	4.8	± 0.1
15453500	07/06/05	0.003	± 0.000	1.32	± 0.02	13	± 0	0.19	± 0.01	0.46	± 0.03	5.7	± 0.2
15453500	08/01/05	0.003	± 0.000	1.50	± 0.02	15	± 1	0.18	± 0.00	0.43	± 0.06	6.3	± 0.2
15453500	08/22/05	0.002	± 0.000	1.97	± 0.02	16	± 0	0.23	± 0.00	0.43	± 0.20	6.0	± 0.2

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Praseodymium µg/L		Rubidium µg/L		Sulfur mg/L		Antimony µg/L		Selenium µg/L		Silica mg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.001	± 0.000	1.23	± 0.00	14	± 0	0.15	± 0.01	0.54	± 0.02	14.9	± 0.1
15515500	05/10/05	0.012	± 0.000	1.58	± 0.03	13	± 0	0.20	± 0.01	0.37	± 0.05	8.8	± 0.2
15515500	05/18/05	0.006	± 0.000	1.61	± 0.01	16	± 0	0.22	± 0.00	0.49	± 0.07	7.9	± 0.2
15515500	05/27/05	0.003	± 0.000	1.79	± 0.12	16	± 0	0.21	± 0.00	0.53	± 0.05	7.8	± 0.1
15515500	07/12/05	0.002	± 0.000	2.46	± 0.22	17	± 1	0.32	± 0.00	0.60	± 0.04	6.2	± 0.2
15515500	08/05/05	0.004	± 0.000	2.18	± 0.06	19	± 1	0.25	± 0.01	0.55	± 0.06	8.4	± 0.3
15515500	08/05/05*	0.002	± 0.000	2.14	± 0.04	18	± 0	0.25	± 0.01	0.55	± 0.09	7.9	± 0.0
15515500	08/30/05	0.001	± 0.000	2.10	± 0.03	20	± 1	0.28	± 0.00	0.57	± 0.07	8.1	± 0.5
15565447	03/17/05	0.002	± 0.000	1.39	± 0.04	10	± 0	0.09	± 0.00	0.32	± 0.06	12.0	± 0.3
15565447	05/17/05	0.043	± 0.003	1.28	± 0.07	5	± 0	0.20	± 0.01	0.21	± 0.10	4.4	± 0.1
15565447	06/01/05	0.026	± 0.002	1.03	± 0.06	7	± 0	0.24	± 0.01	0.36	± 0.12	4.3	± 0.3
15565447	06/14/05	0.016	± 0.001	1.05	± 0.06	10	± 0	0.27	± 0.05	0.37	± 0.04	5.2	± 0.2
15565447	07/12/05	0.011	± 0.001	1.48	± 0.01	13	± 1	0.28	± 0.01	0.50	± 0.04	6.5	± 0.1
15565447	08/16/05	0.004	± 0.000	1.55	± 0.02	14	± 0	0.24	± 0.00	0.45	± 0.03	6.1	± 0.1
15565447	09/27/05	0.017	± 0.000	1.04	± 0.02	14	± 0	0.20	± 0.00	0.32	± 0.13	7.4	± 0.2

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Samarium µg/L		Strontium µg/L		Terbium µg/L		Tellurium µg/L		Thorium µg/L		Thallium µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	0.002	± 0.000	157	± 5	0.000	± 0.000	<0.006	± 0.003	0.006	± 0.001	<0.006	± 0.001
15356000	05/11/05	0.040	± 0.003	112	± 3	0.007	± 0.000	<0.006	± 0.002	0.071	± 0.003	0.016	± 0.011
15356000	05/24/05	0.018	± 0.000	108	± 4	0.004	± 0.000	<0.006	± 0.002	0.055	± 0.002	<0.006	± 0.001
15356000	06/14/05	0.011	± 0.001	126	± 0	0.002	± 0.000	<0.003	± 0.001	0.031	± 0.004	<0.004	± 0.002
15356000	07/07/05	0.012	± 0.001	126	± 8	0.003	± 0.000	<0.006	± 0.002	0.040	± 0.012	0.010	± 0.006
15356000	08/04/05	0.010	± 0.001	140	± 1	0.002	± 0.000	<0.006	± 0.001	0.024	± 0.003	<0.006	± 0.005
15356000	08/30/05	0.002	± 0.001	152	± 0	0.001	± 0.000	<0.006	± 0.001	0.006	± 0.000	<0.006	± 0.002
15389000	04/06/05	0.001	± 0.000	156	± 2	0.000	± 0.000	<0.006	± 0.001	0.002	± 0.001	0.013	± 0.003
15389000	05/19/05	0.071	± 0.001	43	± 1	0.014	± 0.000	<0.006	± 0.001	0.125	± 0.003	0.007	± 0.003
15389000	05/25/05	0.031	± 0.001	53	± 3	0.007	± 0.000	<0.006	± 0.000	0.118	± 0.012	0.12	± 0.003
15389000	06/07/05	0.049	± 0.008	64	± 3	0.009	± 0.001	<0.006	± 0.002	0.089	± 0.011	0.006	± 0.002
15389000	07/14/05	0.006	± 0.001	126	± 6	0.001	± 0.000	<0.006	± 0.003	0.018	± 0.006	0.008	± 0.002
15389000	08/03/05	0.004	± 0.000	130	± 2	0.001	± 0.000	<0.006	± 0.006	0.009	± 0.000	0.007	± 0.004
15389000	08/26/05	0.009	± 0.001	126	± 1	0.002	± 0.000	<0.006	± 0.003	0.020	± 0.000	0.008	± 0.001
15453500	03/30/05	0.001	± 0.000	163	± 7	0.000	± 0.000	<0.006	± 0.002	0.004	± 0.002	<0.006	± 0.002
15453500	05/13/05	0.046	± 0.002	88	± 2	0.008	± 0.000	<0.006	± 0.001	0.115	± 0.003	<0.006	± 0.002
15453500	05/23/05	0.030	± 0.001	85	± 3	0.006	± 0.000	<0.006	± 0.001	0.073	± 0.005	<0.006	± 0.001
15453500	06/02/05	0.016	± 0.002	100	± 4	0.003	± 0.000	<0.006	± 0.003	0.044	± 0.004	<0.006	± 0.003
15453500	07/06/05	0.003	± 0.001	137	± 9	0.000	± 0.000	<0.006	± 0.002	0.006	± 0.000	0.027	± 0.023
15453500	08/01/05	0.003	± 0.001	144	± 2	0.001	± 0.000	<0.006	± 0.000	0.005	± 0.002	<0.006	± 0.000
15453500	08/22/05	0.002	± 0.000	150	± 3	0.000	± 0.000	<0.006	± 0.003	0.004	± 0.003	<0.006	± 0.001

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Samarium µg/L		Strontium µg/L		Terbium µg/L		Tellurium µg/L		Thorium µg/L		Thallium µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.001	± 0.000	195	± 5	0.000	± 0.000	<0.006	± 0.004	0.007	± 0.006	<0.006	± 0.000
15515500	05/10/05	0.011	± 0.001	135	± 1	0.002	± 0.000	<0.006	± 0.001	0.023	± 0.001	0.008	± 0.003
15515500	05/18/05	0.006	± 0.001	140	± 4	0.001	± 0.000	<0.006	± 0.001	0.019	± 0.001	0.007	± 0.006
15515500	05/27/05	0.003	± 0.001	150	± 9	0.001	± 0.000	<0.006	± 0.001	0.010	± 0.004	0.012	± 0.006
15515500	07/12/05	0.002	± 0.001	147	± 12	0.001	± 0.000	<0.006	± 0.002	0.006	± 0.001	0.010	± 0.002
15515500	08/05/05	0.004	± 0.001	161	± 0	0.001	± 0.000	<0.006	± 0.002	0.008	± 0.001	0.011	± 0.002
15515500	08/05/05*	0.003	± 0.000	156	± 3	0.001	± 0.000	<0.006	± 0.003	0.004	± 0.001	0.008	± 0.006
15515500	08/30/05	0.002	± 0.001	169	± 1	0.000	± 0.000	<0.006	± 0.001	0.002	± 0.001	<0.006	± 0.002
15565447	03/17/05	0.002	± 0.000	190	± 5	0.000	± 0.000	<0.006	± 0.001	0.007	± 0.003	0.007	± 0.002
15565447	05/17/05	0.043	± 0.002	86	± 4	0.008	± 0.000	<0.006	± 0.002	0.099	± 0.015	0.012	± 0.010
15565447	06/01/05	0.024	± 0.000	90	± 4	0.005	± 0.000	<0.006	± 0.003	0.064	± 0.008	0.009	± 0.008
15565447	06/14/05	0.018	± 0.003	102	± 4	0.003	± 0.000	<0.006	± 0.002	0.041	± 0.005	0.009	± 0.004
15565447	07/12/05	0.010	± 0.002	129	± 1	0.002	± 0.000	<0.006	± 0.002	0.026	± 0.009	0.009	± 0.000
15565447	08/16/05	0.004	± 0.000	142	± 2	0.001	± 0.000	<0.006	± 0.002	0.006	± 0.001	<0.006	± 0.004
15565447	09/27/05	0.018	± 0.000	129	± 3	0.004	± 0.000	<0.006	± 0.004	0.036	± 0.002	<0.006	± 0.001

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Thulium		Uranium		Vanadium		Yttrium		Ytterbium		Zinc		Zirconium	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15356000	04/07/05	0.0003	± 0.0000	1.05	± 0.11	0.16	± 0.06	0.02	± 0.00	0.002	± 0.000	1.5	± 0.0	0.02	± 0.00
15356000	05/11/05	0.0034	± 0.0002	0.69	± 0.03	0.35	± 0.03	0.27	± 0.00	0.021	± 0.000	2.9	± 0.1	0.18	± 0.01
15356000	05/24/05	0.0019	± 0.0001	0.62	± 0.03	0.36	± 0.03	0.15	± 0.00	0.012	± 0.001	1.0	± 0.1	0.11	± 0.01
15356000	06/14/05	0.0008	± 0.0002	0.78	± 0.01	0.47	± 0.05	0.07	± 0.00	0.006	± 0.000	16.9	± 0.1	0.15	± 0.01
15356000	07/07/05	0.0016	± 0.0002	0.82	± 0.04	0.63	± 0.04	0.11	± 0.01	0.012	± 0.000	0.9	± 0.1	0.19	± 0.01
15356000	08/04/05	0.0015	± 0.0001	0.81	± 0.03	0.54	± 0.02	0.10	± 0.00	0.008	± 0.001	0.7	± 0.1	0.17	± 0.01
15356000	08/30/05	0.0005	± 0.0001	0.88	± 0.01	0.35	± 0.03	0.03	± 0.00	0.004	± 0.000	0.5	± 0.0	0.07	± 0.01
15389000	04/06/05	0.0002	± 0.0001	0.82	± 0.06	< 0.04	± 0.05	0.02	± 0.00	0.001	± 0.000	1.3	± 0.1	0.03	± 0.00
15389000	05/19/05	0.0048	± 0.0001	0.23	± 0.01	0.30	± 0.02	0.46	± 0.00	0.031	± 0.001	2.8	± 0.1	0.21	± 0.02
15389000	05/25/05	0.0032	± 0.0000	0.21	± 0.01	0.28	± 0.04	0.26	± 0.01	0.021	± 0.000	1.1	± 0.2	0.31	± 0.03
15389000	06/07/05	0.0034	± 0.0001	0.21	± 0.02	0.34	± 0.03	0.33	± 0.01	0.021	± 0.000	1.2	± 0.0	0.23	± 0.01
15389000	07/14/05	0.0007	± 0.0001	0.40	± 0.05	0.17	± 0.03	0.05	± 0.00	0.003	± 0.000	0.6	± 0.1	0.11	± 0.00
15389000	08/03/05	0.0005	± 0.0001	0.44	± 0.03	0.13	± 0.02	0.04	± 0.00	0.004	± 0.000	0.3	± 0.0	0.10	± 0.01
15389000	08/26/05	0.0010	± 0.0002	0.37	± 0.01	0.10	± 0.04	0.09	± 0.00	0.007	± 0.001	0.5	± 0.0	0.15	± 0.01
15453500	03/30/05	0.0002	± 0.0001	0.94	± 0.02	0.10	± 0.03	0.02	± 0.00	0.001	± 0.000	0.6	± 0.0	0.02	± 0.00
15453500	05/13/05	0.0039	± 0.0000	0.56	± 0.03	0.45	± 0.02	0.32	± 0.00	0.025	± 0.001	14.0	± 0.1	0.26	± 0.01
15453500	05/23/05	0.0032	± 0.0004	0.54	± 0.03	0.47	± 0.04	0.23	± 0.00	0.019	± 0.001	1.6	± 0.2	0.17	± 0.01
15453500	06/02/05	0.0019	± 0.0003	0.58	± 0.06	0.44	± 0.02	0.13	± 0.01	0.012	± 0.000	0.8	± 0.1	0.11	± 0.01
15453500	07/06/05	0.0003	± 0.0001	0.77	± 0.13	0.65	± 0.01	0.03	± 0.00	0.002	± 0.000	2.6	± 0.1	0.06	± 0.01
15453500	08/01/05	0.0005	± 0.0001	0.83	± 0.05	0.58	± 0.04	0.03	± 0.00	0.003	± 0.000	0.8	± 0.0	0.07	± 0.01
15453500	08/22/05	0.0004	± 0.0001	0.81	± 0.02	0.44	± 0.00	0.02	± 0.00	0.002	± 0.000	1.8	± 0.0	0.04	± 0.00

Table 8. Selected dissolved major cations and trace elements from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Thulium µg/L		Uranium µg/L		Vanadium µg/L		Yttrium µg/L		Ytterbium µg/L		Zinc µg/L		Zirconium µg/L	
		A	SD	A	SD	A	SD	A	SD	A	SD	A	SD	A	SD
15515500	03/31/05	0.0002	± 0.0000	0.76	± 0.04	0.21	± 0.03	0.02	± 0.00	0.002	± 0.000	1.2	± 0.0	0.03	± 0.00
15515500	05/10/05	0.0013	± 0.0000	0.66	± 0.02	0.56	± 0.04	0.10	± 0.00	0.010	± 0.000	1.1	± 0.0	0.08	± 0.01
15515500	05/18/05	0.0008	± 0.0002	0.74	± 0.05	0.42	± 0.04	0.06	± 0.00	0.005	± 0.000	2.3	± 0.0	0.06	± 0.00
15515500	05/27/05	0.0004	± 0.0001	0.78	± 0.08	0.44	± 0.03	0.03	± 0.00	0.003	± 0.000	2.6	± 0.4	0.05	± 0.01
15515500	07/12/05	0.0005	± 0.0002	0.78	± 0.11	0.52	± 0.05	0.03	± 0.00	0.003	± 0.001	0.8	± 0.1	0.04	± 0.01
15515500	08/05/05	0.0006	± 0.0001	0.79	± 0.04	0.64	± 0.06	0.04	± 0.00	0.004	± 0.001	0.6	± 0.1	0.05	± 0.00
15515500	08/05/05*	0.0005	± 0.0001	0.78	± 0.03	0.60	± 0.03	0.03	± 0.00	0.003	± 0.000	0.3	± 0.1	0.04	± 0.01
15515500	08/30/05	0.0003	± 0.0002	0.85	± 0.02	0.53	± 0.02	0.02	± 0.00	0.002	± 0.000	0.5	± 0.0	0.04	± 0.01
15565447	03/17/05	0.0004	± 0.0001	0.76	± 0.03	<0.04	± 0.03	0.03	± 0.00	0.003	± 0.000	2.4	± 0.1	0.04	± 0.00
15565447	05/17/05	0.0040	± 0.0001	0.48	± 0.05	0.73	± 0.03	0.34	± 0.00	0.026	± 0.002	1.2	± 0.1	0.27	± 0.01
15565447	06/01/05	0.0026	± 0.0001	0.46	± 0.04	0.76	± 0.07	0.20	± 0.01	0.018	± 0.000	0.5	± 0.1	0.18	± 0.03
15565447	06/14/05	0.0015	± 0.0001	0.47	± 0.05	0.73	± 0.05	0.13	± 0.01	0.011	± 0.001	0.6	± 0.0	0.15	± 0.02
15565447	07/12/05	0.0010	± 0.0001	0.69	± 0.07	0.72	± 0.04	0.07	± 0.00	0.007	± 0.001	0.9	± 0.1	0.11	± 0.03
15565447	08/16/05	0.0005	± 0.0002	0.80	± 0.03	0.53	± 0.04	0.03	± 0.00	0.002	± 0.000	1.6	± 0.0	0.04	± 0.00
15565447	09/27/05	0.0019	± 0.0002	0.70	± 0.03	0.57	± 0.04	0.13	± 0.00	0.012	± 0.001	1.8	± 0.1	0.18	± 0.01

CHAPTER 5 - Mercury Analyses

by John F. DeWild and Mark L. Olson

A description of sample collection and processing of samples for filtered (dissolved), methyl, particulate, and total mercury (Hg) is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 9.

Table 9. Mercury and methylmercury concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; Hg, mercury; ng/L, nanogram per liter; FMHg, Filtered Methylmercury; FTHg, Filtered Total mercury; PMHg, Particulate Methylmercury; PTHg, Particulate Total mercury; <, less than; *, relative standard deviation among replicate analyses greater than 10%; E, estimated]

Station ID	Date/Time	Filtered Methyl-Hg (FMHg) (ng/L)	Filtered Total-Hg (FTHg) (ng/L)	Particulate Methyl-Hg (PMHg) (ng/L)	Particulate Total-Hg (PTHg) (ng/L)
15356000	4/7/05 17:40	<0.04	0.48	<0.013	<0.139
15356000	5/24/05 12:00	0.05	3.54	0.097	39.1
15356000	6/14/05 12:20	<0.04	1.48	0.036	14.1
15356000	7/7/05 11:00	<0.04	1.64*	0.081	33.7
15356000	8/4/05 10:40	<0.04	1.73	<0.033	12.9
15356000	8/30/05 11:00	<0.04	0.80	<0.036	11.7
15389000	4/6/05 15:30	<0.04	0.37	<0.013	<0.143
15389000	5/19/05 1300	0.04	4.64	0.095	12.7
15389000	5/25/05 15:10	<0.04	3.86	0.067	11.2
15389000	6/7/05 17:00	0.06	3.69	0.035	5.34
15389000	8/3/05 13:30	<0.04	0.86	<0.017	0.152E
15389000	8/26/05 13:00	<0.04	0.98	<0.014	0.277
15453500	3/30/05 17:30	<0.04	0.16	<0.015	0.540
15453500	5/13/05 11:15	0.05	4.63	0.209	46.5
15453500	5/23/05 16:00	0.06	3.38*	0.146	35.2
15453500	6/2/05 17:00	0.04	3.07	0.094	24.3
15453500	7/6/05 17:30	<0.04	0.86	0.054	17.7
15453500	8/1/05 16:00	<0.04	0.98	0.041	18.3
15453500	8/22/05 17:20	<0.04	0.44	<0.048	32.1
15515500	3/31/05 18:00	<0.04	0.19	<0.018	0.625
15515500	5/10/05 18:00	<0.04	1.78	0.068	21.3
15515500	5/18/05 16:30	<0.04	1.55	0.067	26.0
15515500	5/27/05 15:00	<0.04	0.93	0.046	20.2
15515500	7/12/05 14:30	<0.04	1.10	<0.062	53.1
15515500	8/5/05 14:50	<0.04	0.93	0.079	31.6
15565447	3/17/05 19:30	0.04	0.14	<0.050	<0.560
15565447	5/17/05 10:30	<0.04	3.67	0.118	33.6
15565447	6/1/05 12:00	0.04	2.52	0.083	24.3
15565447	6/14/05 15:30	<0.04	1.62	0.076	17.8
15565447	7/12/05 9:30	0.07	0.97	0.096	21.3
15565447	8/16/05 18:20	<0.04	0.83	0.045	16.7
15565447	9/27/05 14:50	<0.04	1.44	0.044	11.8

CHAPTER 6 - Dissolved Gasses and Dissolved Inorganic Carbon

by Robert G. Striegl and Mark M. Dornblaser

A description of sample collection and processing of samples for the partial pressures of carbon dioxide (P_{CO_2}) and methane (P_{CH_4}) is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 10.

Table 10. Carbon dioxide, methane, and dissolved inorganic carbon concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; CO₂, carbon dioxide; μmol/L, micromole per liter; P_{CO₂}, partial pressure of CO₂; μatmos, microatmospheres; CH₄, methane; P_{CH₄}, partial pressure of CH₄; DIC, dissolved inorganic carbon]

Station ID	Date	CO ₂ (μmol/L)	Corrected P _{CO₂} (μatmos)	CH ₄ (μmol/L)	Corrected P _{CH₄} (μatmos)	DIC (μmol/L)
15356000	4/7/2005	141.5	1,761	0.46	9.8	2,452
15356000	5/4/2005	52.1	730	0.14	3.2	1,295
15356000	5/11/2005	199.7	3,372	0.26	5.9	1,485
15356000	5/24/2005	89.4	1,574	0.15	3.4	1,373
15356000	6/14/2005	82.7	1,731	0.32	6.9	1,725
15356000	7/7/2005	66.9	1,409	0.16	3.6	1,629
15356000	8/4/2005	55.0	1,111	0.18	3.8	1,721
15356000	8/30/2005	65.1	1,231	0.23	5.0	1,898
15389000	4/6/2005	385.6	4,857	0.38	8.1	4,418
15389000	5/19/2005	68.0	1,082	0.25	5.4	876
15389000	5/25/2005	137.1	2,281	0.27	6.0	1,062
15389000	6/7/2005	154.1	2,999	0.24	5.6	1,223
15389000	7/14/2005	33.1	719	0.18	4.0	2,078
15389000	8/3/2005	93.5	1,873	0.24	5.1	2,105
15389000	8/26/2005	77.3	1,483	0.13	3.0	1,804
15453500	3/30/2005	208.5	2,653	0.39	8.4	2,753
15453500	5/23/2005	41.9	763	0.22	4.8	1,323
15453500	6/2/2005	45.4	916	0.22	4.7	1,589
15453500	7/6/2005	55.4	1,288	0.25	5.7	1,810
15453500	8/1/2005	107.0	2,318	0.44	9.3	1,995
15453500	8/22/2005	32.5	670	0.25	5.7	1,862
15515500	3/31/2005	193.9	2,458	3.09	65.7	3,248
15515500	5/10/2005	110.3	2,142	0.87	19.6	1,884
15515500	5/18/2005	135.3	2,519	0.65	14.7	1,917
15515500	5/27/2005	51.7	1,074	0.92	20.9	2,079
15515500	7/12/2005	100.1	2,217	0.45	9.6	1,869
15515500	8/5/2005	44.4	934	0.73	15.5	1,874
15515500	8/30/2005	111.5	2,111	1.28	27.3	2,379
15565447	3/17/2005	710.0	9,106	2.0	42.4	4,168
15565447	5/17/2005	72.6	1,151	0.38	8.1	1,431
15565447	6/1/2005	56.1	1,133	0.48	10.3	1,492
15565447	6/14/2005	62.6	1,397	0.41	8.7	1,588
15565447	7/12/2005	66.0	1,561	0.22	4.7	1,909
15565447	8/16/2005	99.8	2,312	0.31	6.7	2,109
15565447	9/27/2005	92.4	1,657	0.34	7.2	1,667

CHAPTER 7 - Sediment Chemistry

by Arthur J. Horowitz

A description of sample collection and processing of samples for suspended sediment chemistry is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 11.

Table 11. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; mg/L, milligram per liter; µg/g, microgram per gram; %, percent; Sets A & B indicate duplicate samples; *, average value reported; <, less than]

Station ID	Date	Time	Suspended Sediment (mg/L)	Silver (µg/g)	Copper (µg/g)	Lead (µg/g)	Zinc (µg/g)	Cadmium (µg/g)
15356000	5/11/2005	10:30	375	0.9	29	18	130	1.9
15356000 (Set A)	5/24/2005	12:00	894	<0.5	29	11	120	0.7
15356000 (Set B)	5/24/2005	12:10	873	<0.5	31	12	130	0.8
15356000	6/14/2005	12:20	314	<0.5	32	7	120	0.7
15356000	7/7/2005	11:00	1,226	<0.5	38	10	92	0.4
15356000	8/4/2005	10:40	381	<0.5	37	22	98	0.3
15356000	8/30/2005	11:00	373	<0.5	38	13	100	0.4
15389000	5/19/2005	13:00	149	0.5	27	27	190	1.0
15389000	5/25/2005	15:10	160	<0.5	25	24	170	0.7
15389000	6/7/2005	17:00	68	<0.5	30	25	190	1.1
15389000 (Sets A & B)*	7/14/2005	14:30	36	<1.0	29	26	170	0.8
15453500	5/13/2005	11:15	1,032	0.6	32	14	120	0.6
15453500	5/23/2005	16:00	692	<0.5	44	14	130	0.8
15453500 (Set A)	6/2/2005	17:00	471	<0.5	33	14	130	0.7
15453500 (Set B)	6/2/2005	17:10	446	<0.5	34	15	130	0.7
15453500	7/6/2005	17:30	373	<0.5	40	10	120	0.6
15453500	8/1/2005	16:00	314	<1.0	39	16	120	0.5
15453500	8/22/2005	17:20	610	<0.5	50	23	120	0.5
15515500	3/31/2005	18:00	20	<0.5	57	12	130	0.7
15515500	5/10/2005	18:00	895	<0.5	32	13	75	0.5
15515500	5/18/2005	16:30	862	0.5	42	16	100	0.4
15515500	5/27/2005	15:00	690	<0.5	36	16	93	0.4
15515500	7/12/2005	14:30	2,382	<0.5	46	16	92	0.3
15515500	8/5/2005	14:50	1,223	<0.5	47	16	81	0.2
15515500	8/26/2005	14:10	1,214	<0.5	45	14	85	0.3
15565447	5/17/2005	10:30	862	<0.5	31	13	110	0.8
15565447 (Set A)	6/1/2005	12:00	586	<0.5	31	15	110	0.5
15565447 (Set B)	6/1/2005	12:10	600	<0.5	30	15	110	1.1
15565447	6/14/2005	15:30	393	<0.5	32	12	110	0.4
15565447	7/12/2005	9:30	454	<0.5	46	17	130	0.6
15565447	8/16/2005	18:20	271	<1.0	52	22	130	0.5
15565447	9/27/2005	14:50	276	<0.5	38	14	120	0.4

Table 11. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Time	Chromium (µg/g)	Cobalt (µg/g)	Nickel (µg/g)	Barium (µg/g)	Vanadium (µg/g)	Lithium (µg/g)	Beryllium (µg/g)	Molybdenum (µg/g)
15356000	5/11/2005	10:30	84	14	44	1,000	130	24	1.5	3
15356000 (Set A)	5/24/2005	12:00	84	14	44	950	130	22	1.5	2
15356000 (Set B)	5/24/2005	12:10	84	14	44	970	140	23	1.6	2
15356000	6/14/2005	12:20	91	15	51	1,000	120	24	1.4	4
15356000	7/7/2005	11:00	87	17	42	730	130	22	1.4	2
15356000	8/4/2005	10:40	95	16	48	790	120	22	1.4	3
15356000	8/30/2005	11:00	88	17	48	740	130	26	1.4	3
15389000	5/19/2005	13:00	99	15	51	880	190	60	2.1	2
15389000	5/25/2005	15:10	100	16	52	770	170	58	2.2	3
15389000	6/7/2005	17:00	120	16	66	790	170	57	2.1	5
15389000 (Sets A & B)*	7/14/2005	14:30	110	15	60	830	150	54	1.8	5
15453500	5/13/2005	11:15	88	15	45	820	140	30	1.6	2
15453500	5/23/2005	16:00	86	16	46	870	140	28	1.6	2
15453500 (Set A)	6/2/2005	17:00	88	15	48	940	140	27	1.6	2
15453500 (Set B)	6/2/2005	17:10	93	16	49	960	140	28	1.6	3
15453500	7/6/2005	17:30	91	19	49	820	130	26	1.5	2
15453500	8/1/2005	16:00	110	17	63	870	130	25	1.5	5
15453500	8/22/2005	17:20	91	20	56	770	140	30	1.5	3
15515500	3/31/2005	18:00	96	18	52	240	110	21	1.3	3
15515500	5/10/2005	18:00	72	14	37	670	100	18	1.2	2
15515500	5/18/2005	16:30	87	18	44	810	130	24	1.5	2
15515500	5/27/2005	15:00	85	16	43	770	120	23	1.4	2
15515500	7/12/2005	14:30	83	17	40	900	120	23	1.5	2
15515500	8/5/2005	14:50	79	16	42	790	120	22	1.4	2
15515500	8/26/2005	14:10	81	16	42	850	120	22	1.4	2
15565447	5/17/2005	10:30	86	16	46	860	130	27	1.6	2
15565447 (Set A)	6/1/2005	12:00	85	16	44	870	130	29	1.6	2
15565447 (Set B)	6/1/2005	12:10	85	15	44	850	130	28	1.6	2
15565447	6/14/2005	15:30	90	16	45	920	130	28	1.5	2
15565447	7/12/2005	9:30	97	19	51	1,000	150	33	1.7	2
15565447	8/16/2005	18:20	110	21	59	1,000	150	33	1.7	3
15565447	9/27/2005	14:50	94	16	44	960	130	31	1.6	2

Table 11. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Time	Phosphorus (µg/g)	Strontium (µg/g)	Arsenic (µg/g)	Antimony (µg/g)	Selenium (µg/g)	Mercury (µg/g)	Thallium (µg/g)	Uranium (µg/g)
15356000	5/11/2005	10:30	990	330	13	1.4	1.1	0.03	<50	<50
15356000 (Set A)	5/24/2005	12:00	1,000	350	13	1.4	0.7	0.02	<50	<50
15356000 (Set B)	5/24/2005	12:10	1,000	340	13	1.6	0.8	0.05	<50	<50
15356000	6/14/2005	12:20	860	310	10	1.2	0.6	0.05	<50	<50
15356000	7/7/2005	11:00	1,000	370	12	1.3	0.4	0.02	<50	<50
15356000	8/4/2005	10:40	930	380	11	1.4	0.4	<0.01	<50	<50
15356000	8/30/2005	11:00	910	370	11	1.4	0.4	<0.01	<50	<50
15389000	5/19/2005	13:00	1,000	130	15	1.4	1.3	0.08	<50	<50
15389000	5/25/2005	15:10	1,000	140	16	1.0	1.3	0.07	<50	<50
15389000	6/7/2005	17:00	980	170	14	1.0	1.3	0.07	<50	<50
15389000 (Sets A & B)*	7/14/2005	14:30	850	220	14	0.9	1.5	<0.02	<100	<100
15453500	5/13/2005	11:15	1,100	290	12	1.2	0.8	0.03	<50	<50
15453500	5/23/2005	16:00	1,100	300	13	1.5	0.8	0.06	<50	<50
15453500 (Set A)	6/2/2005	17:00	1,000	310	13	1.5	0.8	0.04	<50	<50
15453500 (Set B)	6/2/2005	17:10	1,100	320	14	1.6	0.9	0.05	<50	<50
15453500	7/6/2005	17:30	990	300	12	1.5	0.4	0.07	<50	<50
15453500	8/1/2005	16:00	920	340	11	1.4	0.5	<0.02	<100	<100
15453500	8/22/2005	17:20	960	320	13	1.7	0.5	<0.01	<50	<50
15515500	3/31/2005	18:00	1,000	320	38	1.5	0.9	<0.01	<50	<50
15515500	5/10/2005	18:00	660	240	11	1.2	0.4	0.03	<50	<50
15515500	5/18/2005	16:30	760	250	15	1.5	0.5	0.03	<50	<50
15515500	5/27/2005	15:00	710	240	14	1.3	0.5	0.05	<50	<50
15515500	7/12/2005	14:30	720	260	14	1.2	0.4	0.02	<50	<50
15515500	8/5/2005	14:50	710	270	13	1.1	0.3	<0.01	<50	<50
15515500	8/26/2005	14:10	760	280	11	1.1	0.4	0.01	<50	<50
15565447	5/17/2005	10:30	930	250	14	1.4	0.5	0.05	<50	<50
15565447 (Set A)	6/1/2005	12:00	910	240	13	1.3	0.6	0.05	<50	<50
15565447 (Set B)	6/1/2005	12:10	880	240	13	1.3	0.6	0.06	<50	<50
15565447	6/14/2005	15:30	870	230	13	1.2	0.5	0.05	<50	<50
15565447	7/12/2005	9:30	920	270	17	1.7	0.6	<0.01	<50	<50
15565447	8/16/2005	18:20	920	290	19	1.8	0.6	0.04	<100	<100
15565447	9/27/2005	14:50	850	260	15	1.4	0.7	0.04	<50	<50

Table 11. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin—Continued

Station ID	Date	Time	Iron (%)	Manganese (µg/g)	Aluminum (%)	Titanium (%)	Total Organic Carbon (%)	Total Carbon (%)	Total Nitrogen (%)
15356000	5/11/2005	10:30	3.7	820	6.5	0.45	1.0	2.0	0.10
15356000	5/24/2005	12:00	3.7	750	6.3	0.46	0.7	2.2	0.05
15356000 (Set A)	5/24/2005	12:10	3.8	770	6.5	0.46	0.6	2.1	0.05
15356000 (Set B)	6/14/2005	12:20	3.5	690	6.1	0.4	0.9	2.2	0.08
15356000	7/7/2005	11:00	4.3	780	6.8	0.47	0.6	2.6	0.04
15356000	8/4/2005	10:40	4.2	770	6.7	0.45	1.0	2.8	0.08
15356000	8/30/2005	11:00	4.3	750	6.7	0.44	0.6	2.1	0.07
15389000	5/19/2005	13:00	3.8	680	7.0	0.43	3.3	3.7	0.30
15389000	5/25/2005	15:10	3.9	630	7.0	0.43	3.3	3.8	0.30
15389000	6/7/2005	17:00	3.8	690	6.7	0.43	3.6	4.1	0.31
15389000	7/14/2005	14:30	3.5	1,200	5.9	0.36	3.4	4.8	0.34
15453500	5/13/2005	11:15	3.9	790	6.6	0.47	1.2	2.3	0.12
15453500	5/23/2005	16:00	4.1	790	6.6	0.46	1.2	2.4	0.10
15453500	6/2/2005	17:00	4.0	790	6.5	0.46	1.3	2.5	0.10
15453500	6/2/2005	17:10	4.0	820	6.7	0.48	1.3	2.5	0.09
15453500	7/6/2005	17:30	4.3	780	6.6	0.46	1.1	2.6	0.08
15453500	8/1/2005	16:00	4.0	810	6.3	0.42	1.1	2.8	0.09
15453500	8/22/2005	17:20	4.9	840	7.0	0.46	0.6	2.6	0.05
15515500	3/31/2005	18:00	5.1	3,200	6.2	0.35	1.3	2.3	0.17
15515500	5/10/2005	18:00	3.3	650	6.2	0.37	0.5	0.6	0.03
15515500	5/18/2005	16:30	4.1	790	7.1	0.43	0.5	0.8	0.05
15515500	5/27/2005	15:00	3.8	750	6.8	0.42	0.7	0.8	0.04
15515500	7/12/2005	14:30	4.1	760	7.2	0.43	0.3	0.7	0.02
15515500	8/5/2005	14:50	4.0	720	7.0	0.40	0.5	0.6	0.03
15515500	8/26/2005	14:10	4.0	750	7.1	0.42	0.3	0.7	0.03
15565447	5/17/2005	10:30	4.0	780	6.7	0.44	1.0	1.4	0.08
15565447	6/1/2005	12:00	3.9	750	6.7	0.43	1.1	1.4	0.08
15565447	6/1/2005	12:10	3.9	750	6.7	0.45	1.1	1.5	0.08
15565447	6/14/2005	15:30	3.8	730	6.5	0.43	1.3	1.7	0.10
15565447	7/12/2005	9:30	4.6	900	7.4	0.45	1.1	1.9	0.08
15565447	8/16/2005	18:20	4.8	1,000	7.4	0.44	0.9	1.9	0.09
15565447	9/27/2005	14:50	4.1	710	7.0	0.46	1.2	1.9	0.11

CHAPTER 8 - Sediment Mineralogy

by Dennis D. Eberl

A description of sample collection and processing of samples for quantitative X-ray mineralogical analysis is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 12.

Table 12. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; %, percent; *, replicate]

Station ID:	15356000	15356000	15356000*	15356000	15356000	15356000	15356000
Date:	5/11/05	5/24/05	5/24/05	6/14/05	7/7/06	8/4/06	8/30/06
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %
Non-clays:							
Quartz	30.6	26.7	27.3	28.1	17.9	19.5	15.8
Ordered Microcline Intermediate	1.8	0.6	1.9	0.6	0.0	1.5	0.9
Microcline	3.3	4.6	3.2	4.4	7.0	4.5	5.3
Sanidine	1.3	0.2	0.5	1.7	0.0	0.0	0.0
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Anorthoclase	14.7	17.9	13.2	10.3	20.1	20.5	22.7
Albite	7.2	6.5	7.0	6.0	6.6	7.0	7.3
Oligoclase	1.4	1.3	1.4	2.8	0.0	0.7	0.1
Andesine	0.5	0.0	0.9	2.2	0.0	1.9	0.0
Labradorite	7.8	5.9	7.5	6.2	7.2	5.2	3.9
Bytownite	1.5	2.0	2.4	1.1	2.8	1.5	0.9
Anorthite	0.5	0.6	0.0	0.4	0.0	0.0	0.3
Calcite	2.3	5.2	5.5	6.1	10.2	9.6	13.6
Mg-calcite	0.7	0.6	0.5	0.4	0.0	0.0	0.4
Dolomite	2.6	3.1	3.0	2.5	3.8	3.3	4.2
Amphibole	1.4	1.0	1.1	1.8	0.9	1.1	1.6
Pyroxene	1.5	0.7	1.5	1.0	2.1	2.5	0.5
Hematite	0.1	0.2	0.3	0.1	0.4	0.3	0.2
Maghemite	1.1	0.4	0.4	1.4	0.4	0.5	0.0
Apatite	1.0	0.2	0.4	1.0	0.1	0.6	0.6
Total non-clays:	81.3	77.9	78.0	78.0	79.5	80.2	78.2
Clays:							
Goethite	0.2	0.0	0.1	0.4	0.0	0.1	0.0
Disordered Kaolinite	0.6	0.5	0.4	0.7	0.6	1.0	0.4
Ferruginous smectite	7.4	9.5	6.1	4.9	9.4	10.6	12.4
Illite + Smectite	6.8	4.8	5.2	6.6	6.6	5.5	4.9
Chlorite	7.8	7.4	7.4	9.5	11.0	10.0	13.6
Muscovite (2M1)	4.5	3.2	4.7	4.3	0.8	2.9	3.0
Total clays:	27.2	25.4	23.8	26.3	28.4	30.0	34.3
Total:	108.5	103.2	101.9	104.4	108.0	110.3	112.5
Full Pattern degree of fit:	0.101	0.094	0.079	0.119	0.091	0.089	0.100

Table 12. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin—
Continued

Station ID:	15453500	15453500	15453500	15453500*	15453500	15453500	15453500
Date:	5/13/05	5/23/05	6/2/05	6/2/05	7/6/05	8/1/05	8/22/05
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %
Non-clays:							
Quartz	30.2	26.8	27.9	28.6	21.3	20.9	11.9
Ordered Microcline Intermediate	1.7	1.3	1.2	1.5	1.1	0.0	0.5
Microcline	2.0	3.4	3.5	3.7	3.4	6.8	4.5
Sanidine	0.8	0.9	0.8	0.4	0.3	0.0	0.0
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Anorthoclase	15.1	14.5	14.7	13.1	14.4	18.3	15.2
Albite	6.1	6.6	6.0	6.1	5.9	4.5	5.6
Oligoclase	0.0	0.9	1.3	1.1	1.1	2.0	0.9
Andesine	0.0	0.0	1.1	0.0	0.0	0.0	1.0
Labradorite	5.8	5.2	5.3	5.5	6.0	4.9	4.9
Bytownite	1.6	1.4	1.4	2.6	1.2	1.7	0.1
Anorthite	0.7	0.3	0.6	0.0	0.9	0.0	1.2
Calcite	3.4	4.5	4.7	4.6	9.2	7.7	11.2
Mg-calcite	0.4	0.3	0.4	0.5	0.3	1.0	0.7
Dolomite	3.1	3.5	3.1	3.3	3.3	2.9	3.6
Amphibole	1.0	1.2	1.1	0.9	0.9	1.0	1.1
Pyroxene	1.4	0.8	0.7	0.8	1.2	0.0	0.6
Hematite	0.3	0.3	0.2	0.3	0.2	0.4	0.4
Maghemite	0.1	0.6	0.2	0.7	1.2	0.0	0.6
Apatite	0.4	0.6	0.8	0.3	0.3	0.7	0.8
Total non-clays:	74.1	73.1	75.0	74.2	72.1	72.6	64.7
Clays:							
Goethite	0.1	0.1	0.3	0.1	0.1	0.3	0.1
Disordered Kaolinite	0.6	0.9	0.3	0.7	0.9	0.6	0.7
Ferruginous smectite	7.0	6.8	7.1	7.9	7.6	16.4	15.7
Illite + Smectite	10.2	7.7	8.1	7.9	6.8	1.2	3.2
Chlorite	8.0	9.5	9.6	9.4	10.7	10.8	12.2
Muscovite (2M1)	4.1	6.0	5.2	4.8	4.1	4.8	5.1
Total clays:	30.1	31.0	30.7	30.8	30.2	34.1	37.0
Total:	104.2	104.1	105.6	105.0	102.4	106.8	101.7
Full Pattern degree of fit:	0.074	0.086	0.102	0.080	0.072	0.129	0.102

Table 12. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin—
Continued

Station ID:	15515500	15515500	15515500	15515500	15515500	15515500
Date:	5/10/05	5/18/05	5/27/05	7/12/05	8/5/05	8/26/05
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %
Non-clays:						
Quartz	43.8	36.5	37.4	32.6	31.2	36.3
Ordered Microcline	1.0	1.1	1.0	0.3	0.6	0.4
Intermediate Microcline	2.7	2.7	2.8	3.8	3.6	3.8
Sanidine	0.8	0.0	0.0	0.0	0.4	0.0
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0
Anorthoclase	9.0	10.8	10.4	14.2	13.8	16.1
Albite	8.0	7.3	6.8	6.5	6.7	7.5
Oligoclase	2.5	1.4	1.7	0.9	1.2	0.0
Andesine	1.0	0.0	1.8	0.0	0.0	0.5
Labradorite	6.1	6.0	5.1	6.6	7.0	6.4
Bytownite	2.0	1.3	1.8	0.8	2.1	2.1
Anorthite	1.7	1.1	0.4	1.9	2.6	0.8
Calcite	0.5	1.0	0.5	1.0	0.8	1.2
Mg-calcite	0.4	0.2	0.5	0.3	0.2	0.0
Dolomite	0.4	0.3	0.4	0.1	0.3	0.2
Amphibole	1.2	1.0	1.3	1.0	0.4	0.6
Pyroxene	0.7	0.9	0.3	0.0	0.6	1.2
Hematite	0.1	0.1	0.2	0.0	0.2	0.2
Maghemite	0.0	0.0	0.0	0.0	0.0	0.0
Apatite	0.0	0.1	0.0	0.4	0.2	0.1
Total non-clays:	81.8	72.0	72.4	70.3	72.0	77.5
Clays:						
Goethite	0.2	0.2	0.3	0.4	0.4	0.3
Disordered Kaolinite	0.4	0.3	0.3	0.6	1.0	1.8
Ferruginous smectite	6.4	6.7	6.9	11.4	10.7	10.1
Illite + Smectite	0.0	0.0	0.0	0.0	0.0	0.0
Chlorite	8.9	10.9	10.1	8.7	8.1	8.2
Muscovite (2M1)	9.2	12.4	12.9	14.6	12.9	11.3
Total clays:	25.3	30.5	30.4	35.8	33.0	31.8
Total:	107.1	102.5	102.8	106.1	105.0	109.2
Full Pattern degree of fit:	0.094	0.082	0.081	0.114	0.102	0.097

Table 12. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin—
Continued

Station ID:	15565447	15565447	15565447*	15565447	15565447	15565447
Date:	5/17/05	6/1/05	6/1/05	6/14/05	7/12/05	8/16/05
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %
Non-clays:						
Quartz	34.4	35.4	36.5	35.2	26.7	21.9
Ordered Microcline	1.9	1.1	0.9	1.1	0.0	0.1
Intermediate Microcline	2.7	3.6	3.7	3.5	6.3	5.3
Sanidine	0.6	0.7	0.5	1.0	0.3	0.1
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0
Anorthoclase	13.0	10.0	11.1	10.7	11.3	14.8
Albite	7.2	6.5	7.1	6.5	5.9	5.4
Oligoclase	2.1	2.1	1.8	1.3	3.5	2.3
Andesine	0.0	1.8	0.0	0.0	0.8	0.0
Labradorite	3.5	5.1	3.5	4.9	3.2	4.7
Bytownite	1.8	0.3	1.9	2.3	0.6	0.8
Anorthite	1.0	0.9	0.8	0.0	0.7	1.5
Calcite	0.1	0.3	0.2	0.8	2.9	4.4
Mg-calcite	0.1	0.5	0.0	0.2	0.4	0.0
Dolomite	1.6	1.3	1.2	1.4	2.3	1.5
Amphibole	0.6	1.0	1.0	0.6	1.5	0.6
Pyroxene	0.6	0.0	0.8	0.8	0.1	0.0
Hematite	0.2	0.1	0.1	0.3	0.0	0.5
Maghemite	1.0	0.0	0.0	0.0	1.3	0.0
Apatite	0.4	0.6	0.3	0.3	1.2	0.0
Total non-clays:	72.7	71.1	71.5	70.7	68.6	64.0
Clays:						
Goethite	0.2	0.4	0.2	0.3	0.1	0.0
Disordered Kaolinite	1.2	0.7	0.7	0.8	0.2	2.0
Ferruginous smectite	6.1	7.6	6.3	7.9	13.7	15.6
Illite + Smectite	4.4	5.5	3.5	2.5	4.6	2.3
Chlorite	11.3	10.9	10.9	10.7	13.0	14.3
Muscovite (2M1)	9.1	9.2	8.2	10.4	12.1	11.9
Total clays:	32.3	34.2	29.7	32.6	43.7	46.1
Total:	105.0	105.4	101.2	103.3	112.3	110.1
Full Pattern degree of fit:	0.077	0.103	0.076	0.085	0.148	0.097

CHAPTER 9 – Sediment Concentration and Percent Organic Matter

by Paul F. Schuster and Michael M. Reddy

A description of sample collection and processing of samples for suspended sediment concentration and percent organic matter (OM) in the sediment is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 13.

Table 13. Suspended sediment concentrations and percent organic matter in sediment from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; mg/L, milligram per liter; OM, Organic Matter; --, missing data; <, less than; *, replicate]

Station ID	Date	Sediment concentration (mg/L)	Percent OM in sediment
15356000	4/7/2005	1	93
15356000	5/11/2005	194	8
15356000	5/24/2005	390	7
15356000	6/14/2005	217	6
15356000	7/7/2005	1,019	5
15356000	8/4/2005	232	9
15356000	8/30/2005	237	9
15389000	4/6/2005	<1	--
15389000	5/19/2005	--	--
15389000	5/25/2005	116	15
15389000	6/7/2005	52	14
15389000	7/14/2005	21	19
15389000	8/3/2005	<1	--
15389000	8/26/2005	<1	--
15453500	3/30/2005	14	14
15453500	5/13/2005	667	7
15453500	5/23/2005	576	6
15453500	6/2/2005	322	7
15453500*	6/2/2005	364	8
15453500	7/6/2005	384	6
15453500	8/1/2005	185	8
15453500	8/22/2005	375	12
15515500	3/31/2005	14	11
15515500	5/10/2005	426	4
15515500	5/18/2005	364	5
15515500	5/27/2005	247	7
15515500	7/12/2005	1,812	3
15515500	8/5/2005	772	4
15515500*	8/5/2005	825	4
15515500	8/30/2005	636	4
15565447	9/27/2005	71	11
15453500	3/30/2005	14	14
15453500	5/13/2005	667	7
15453500	5/23/2005	576	6
15453500	6/2/2005	322	7
15453500	6/2/2005	364	8
15453500	7/6/2005	384	6

CHAPTER 10 – Total Particulate Carbon, Particulate Inorganic Carbon, Particulate Organic Carbon, and Total Particulate Nitrogen

by Paul F. Schuster and Michael M. Reddy

A description of sample collection and processing of samples for total particulate carbon (TPC) and total particulate nitrogen (TPN) concentrations, also referred to as particulate carbon (PC) and particulate nitrogen (PN), respectively, is given in Schuster (2003). Duplicate samples are required for the determination of particulate inorganic carbon (PIC) and particulate organic carbon (POC). The first duplicate was analyzed for TPC (Zimmerman and others, 1997). The second duplicate was combusted at 500° C to remove all the POC. The second duplicate was then analyzed for PIC (Zimmerman and others, 1997). POC was determined by the difference of TPC and PIC. Sample analysis results for WY 2005 are given in table 14.

Table 14. Total particulate carbon, particulate inorganic carbon, particulate organic carbon, and total particulate nitrogen concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; TPC, total particulate carbon; PIC, particulate inorganic carbon; POC, particulate organic carbon; TPN, total particulate nitrogen; mg/L, milligram per liter; <, less than; *, replicate; concentrations averaged from duplicate samples; --, missing data]

Station ID	Date	TPC (mg/L)	PIC (mg/L)	POC (mg/L)	TPN (mg/L)
15356000	4/7/2005	0.19	<0.076	--	<0.012
15356000	5/11/2005	6.19	1.15	5.04	0.282
15356000	5/24/2005	12.40	3.81	8.59	0.401
15356000	6/14/2005	4.28	2.03	2.25	0.141
15356000	7/7/2005	28.20	16.60	11.60	0.549
15356000	8/4/2005	7.82	3.08	4.74	0.220
15356000	8/30/2005	7.51	3.63	3.88	0.144
15389000	4/6/2005	<0.076	<0.076	--	<0.012
15389000	5/19/2005	--	--	--	--
15389000	5/25/2005	4.77	0.15	4.62	0.381
15389000	6/7/2005	2.38	0.14	2.24	0.180
15389000	7/14/2005	1.41	<0.076	--	0.131
15389000	8/3/2005	0.19	<0.076	--	0.025
15389000	8/26/2005	0.39	<0.076	--	0.032
15453500	3/30/2005	0.51	<0.076	--	0.025
15453500	5/13/2005	17.90	5.67	12.23	0.805
15453500	5/23/2005	17.00	4.56	12.44	0.588
15453500	6/2/2005	10.50	2.69	7.81	0.375
15453500*	6/2/2005	9.63	2.80	6.83	0.365
15453500	7/6/2005	9.99	4.08	5.91	0.269
15453500	8/1/2005	6.66	2.75	3.91	0.206
15453500	8/22/2005	13.90	6.54	7.36	0.309
15515500	3/31/2005	0.33	<0.076	--	0.021
15515500	5/10/2005	3.86	0.41	3.45	0.265
15515500	5/18/2005	4.55	0.29	4.26	0.262
15515500	5/27/2005	3.43	0.27	3.16	0.186
15515500	7/12/2005	8.89	1.86	7.03	0.394
15515500	8/5/2005	7.94	0.59	7.35	0.397
15515500*	8/5/2005	8.44	1.30	7.14	0.408
15515500	8/30/2005	6.09	0.87	5.22	0.356
15565447	3/17/2005	0.52	<0.076	--	0.040
15565447	5/17/2005	11.70	0.58	11.12	0.596
15565447	6/1/2005	9.74	0.61	9.13	0.495
15565447	6/14/2005	5.71	0.52	5.19	0.340
15565447	7/12/2005	8.92	1.19	7.73	0.438
15565447	8/16/2005	5.05	1.08	3.97	0.220
15565447	9/27/2005	6.42	0.18	6.24	0.408

CHAPTER 11 - Isotopic Analysis of Suspended Particulate Organic Matter

by Steven R. Silva and Carol Kendall

A description of sample collection and processing of samples for the percent of carbon and nitrogen, carbon:nitrogen ratios, carbon-13, and nitrogen-15 isotopes in suspended particulate organic matter (POM) is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 15.

Table 15. Suspended sediment isotopic data from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; C, carbon; N, nitrogen; %, percent; δ , delta; *, replicate]

Station ID	Date	% C	% N	C:N	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$
15356000	5/11/2005	1.03	0.08	15.02	-25.10	0.13
15356000	6/14/2005	0.92	0.11	9.76	-25.35	6.12
15356000	7/7/2005	0.62	0.05	14.47	-25.43	3.23
15356000	8/4/2005	1.00	0.13	8.97	-24.95	7.85
15356000	8/30/2005	0.66	0.07	11.00	-25.14	3.93
15389000	5/19/2005	3.55	0.30	13.81	-26.12	1.43
15389000	5/25/2005	3.17	0.27	13.70	-26.04	2.47
15389000	7/14/2005	3.58	0.49	8.52	-26.72	6.34
15453500	5/13/2005	1.23	0.11	13.05	-25.77	2.56
15453500	5/23/2005	1.21	0.11	12.83	-26.41	0.98
15453500	7/6/2005	1.10	0.09	14.26	-24.99	1.66
15453500	8/1/2005	1.12	0.15	8.71	-26.22	6.03
15515500	3/31/2005	1.52	0.25	7.09	-25.57	4.30
15515500	5/10/2005	0.51	0.04	14.88	-25.18	1.91
15515500	5/18/2005	0.44	0.05	10.27	-26.11	6.45
15515500	5/27/2005	0.77	0.05	17.97	-24.99	1.46
15515500	7/12/2005	0.37	0.04	10.79	-25.63	3.89
15515500	8/5/2005	0.38	0.04	11.08	-25.76	3.42
15515500	8/26/2005	0.39	0.04	11.38	-23.92	4.35
15565447	5/17/2005	1.16	0.08	16.92	-25.88	0.25
15565447	6/1/2005	1.34	0.10	15.63	-25.69	1.59
15565447*	6/1/2005	1.05	0.08	15.31	-26.29	0.70
15565447	6/14/2005	1.17	0.15	9.10	-26.08	6.38
15565447	7/12/2005	1.13	0.14	9.42	-26.60	6.59
15565447	8/16/2005	1.04	0.14	8.67	-26.12	5.98
15565447	9/27/2005	1.64	0.09	21.26	-26.50	5.20

CHAPTER 12 - Uranium Isotopes

by Thomas F. Kraemer

A description of sample collection and processing of samples for uranium concentrations and activity ratios (UAR) is given in Schuster (2003). Sample analysis results for WY 2005 are given in table 16.

Table 16. Uranium concentration and $^{234}\text{U}/^{238}\text{U}$ isotopic activity ratio analyses in water samples from fixed-station sampling sites in the Yukon River Basin

[Station ID, station identification number, refer to table 1 for description and figure 1 for location; $\mu\text{g/L}$, microgram per liter; U, Uranium; \pm , plus or minus; *, replicate]

Station ID	Date and time	U ($\mu\text{g/L}$)	$^{234}\text{U}/^{238}\text{U}$ activity ratio (± 1 sigma uncertainty)
15356000	04/07/05 17:40	1.16	1.397 \pm 0.008
15356000	05/11/05 10:30	0.78	1.451 \pm 0.017
15356000	05/24/05 12:00	0.6	1.391 \pm 0.011
15356000	06/14/05 12:20	0.85	1.361 \pm 0.013
15356000	07/07/05 11:00	0.91	1.39 \pm 0.009
15356000	08/04/05 10:40	0.96	1.37 \pm 0.011
15356000	08/30/05 11:00	1.04	1.373 \pm 0.01
15389000	04/06/05 15:40	0.85	2.415 \pm 0.021
15389000	05/19/05 12:00	0.25	1.689 \pm 0.020
15389000	05/25/05 15:10	0.27	1.949 \pm 0.026
15389000	06/07/05 17:00	0.25	1.701 \pm 0.015
15389000	07/14/05 14:30	0.43	2.089 \pm 0.025
15389000	08/03/05 13:30	0.47	2.195 \pm 0.029
15389000	08/26/05 13:30	0.42	2.174 \pm 0.023
15453500	03/31/05 17:30	1.07	1.436 \pm 0.01
15453500	05/13/05 11:15	0.58	1.501 \pm 0.01
15453500	05/23/05 16:00	0.63	1.431 \pm 0.01
15453500	06/02/05 17:00	0.69	1.325 \pm 0.02
15453500	07/06/05 17:30	0.94	1.429 \pm 0.006
15453500	08/01/05 16:00	0.93	1.379 \pm 0.008
15453500	08/22/05 17:20	0.99	1.404 \pm 0.014
15515500	03/31/05 18:00	0.85	1.331 \pm 0.008
15515500	05/10/05 18:00	0.75	1.299 \pm 0.006
15515500	05/18/05 16:30	0.83	1.216 \pm 0.010
15515500	05/27/05 15:00	1.00	1.177 \pm 0.018
15515500	07/12/05 14:30	0.94	1.154 \pm 0.011
15515500	08/05/05 14:50	0.90	1.206 \pm 0.009
15515500*	08/05/05 15:00	0.88	1.203 \pm 0.008
15515500	08/30/05 14:10	1.02	1.204 \pm 0.012
15565447	03/17/05 19:30	0.72	1.396 \pm 0.01
15565447	05/17/05 10:30	0.56	1.315 \pm 0.01
15565447	06/01/05 12:00	0.51	1.354 \pm 0.01
15565447	06/14/05 15:30	0.56	1.34 \pm 0.02
15565447	07/12/05 09:30	0.83	1.329 \pm 0.01
15565447	08/16/05 18:20	0.99	1.286 \pm 0.01
15565447	09/27/05 14:50	0.82	1.356 \pm 0.013

References Cited

- BESIS (Bering Sea Impacts Study), 1997, The impacts of global climate change in the Bering sea region: Girdwood, Alaska, September 18-21, 1996, 42 p.
- Brabets, T.P, Wang, B., and Meade, R.H., 2000, Environmental and hydrologic overview of the Yukon River Basin, Alaska and Canada: U.S. Geological Survey Water-Resources Investigations Report 99-4204, 106 p.
- Dornblaser, M., and Halm, D.R., 2006, Water and sediment quality of the Yukon River and its tributaries, from Eagle to St. Marys, Alaska, 2002–2003: U.S. Geological Survey Open-File Report 2006–1228, 213 p., accessed September 2006 at <http://pubs.usgs.gov/of/2006/1228/>.
- Miller, M.M., Miller, L.D., Molnia, B.F., Coleman, B., Pinchak, A.C., Welsch, W.M., McGee, S., Miller, J.W., and Dittrich, W.A., 2003, Juneau Icefield research 1946–2003; Global warming documented in the longest record of mass balance and glacial regimes in the Western Hemisphere: Geological Society of America, v. 35, no. 6, 424 p.
- Nelson, G., Brabets, T.P., Hooper, R., and Landa, E., 2001, Water quality in the Yukon River Basin: U.S. Geological Survey Fact Sheet 050-01.
- Osterkamp, T.E., 2003, Establishing long-term permafrost observations for active-layer and permafrost investigations in Alaska, 1977–2002: Permafrost and Periglacial Processes, v. 14, no. 4, p. 331–342.

Schuster, P.F., 2003, Water and sediment quality in the Yukon River Basin, Alaska, during water year 2001: U.S. Geological Survey Open-File Report 03–427, 120 p., accessed July 2003 at <http://water.usgs.gov/pubs/of/2003/ofr03427/>.

Schuster, P.F., 2005a, Water and sediment quality in the Yukon River Basin, Alaska, during water year 2002: U.S. Geological Survey Open-File Report 2005–1199, 82 p., accessed February 2005 at <http://pubs.usgs.gov/of/2005/1199/>.

Schuster, P.F., 2005b, Water and sediment quality in the Yukon River Basin, Alaska, during water year 2003: U.S. Geological Survey Open-File Report 2005–1397, 74 p., accessed June 2005 at <http://pubs.usgs.gov/of/2005/1397/>.

Schuster, P.F., 2006, Water and sediment quality in the Yukon River Basin, Alaska, during water year 2004: U.S. Geological Survey Open-File Report 2006–1258, 67 p., accessed March 2006 at <http://pubs.usgs.gov/of/2006/1258/>.

Zimmerman, C.F., Keefe, C.W., and Bashe, J., 1997, Determination of carbon and nitrogen in sediments and particulates of estuarine/coastal waters using elemental analysis-Method 440.0: Cincinnati, Ohio, U.S. Environmental Protection Agency, Office of Research and Development.