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Water and Sediment Quality in the Yukon River Basin, Alaska, During Water Year 2002

Open-File Report 2005-1199

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

Cover photograph: Yukon River at Eagle, Alaska.

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Edited by Paul F. Schuster

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U.S. Department of the Interior
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U.S. Department of the Interior
Gale A. Norton, Secretary

U.S. Geological Survey
P. Patrick Leahy, Acting Director

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Conversion Factors

Multiply	By	To obtain
	Length	
nanometer (NM)	3.937×10^{-8}	inch
micrometer (μm)	3.937×10^{-5}	inch
millimeter (mm)	3.937×10^{-2}	inch
centimeter (cm)	3.937×10^{-1}	inch
meter (m)	3.281	Foot (ft)
	Area	
square kilometer (km^2)	3.861×10^{-1}	square mile
	Flow	
cubic meter per second (m^3/s)	35.31	Cubic foot per second (ft^3/s)
	Volume	
microliter (μL)	3.382×10^{-5}	once, fluid
milliliter (mL)	3.382×10^{-2}	once, fluid
liter (l)	2.642×10^{-1}	gallon
	Mass	
microgram (μg)	3.527×10^{-8}	ounce, avoirdupois
milligram(mg)	3.527×10^{-5}	ounce, avoirdupois

Degree Celsius (°C) may be converted to degree Fahrenheit (°F) by using the following equation:
$F=1.8\ (^{o}C) + 32$

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

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

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

Abbreviations

The following terms and abbreviations were also used in this report:

AU	Atomic Unit
N	Normal
Fld	Field
NTU	Nephelometric Turbidity Unit
μS/cm	microseimens per centimeter
NM	Nanometer
Wtr Flt	Water, Filtered
Dis IT	Dissolved Incremental Titration
Dis tot IT	Dissolved total Incremental Titration
Dis fet	Dissolved fixed-end titration

Min	minute
DOC	Dissolved Organic Carbon
DIC	Dissolved Inorganic Carbon
SUVA	Specific Ultra Violet Absorbance
UV	Ultraviolet
ICP-AES	Inductively Coupled Plasma-Atomic Emissions Spectrometry
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
FTHg	Filtered Total mercury
PTHg	Particulate Total mercury
FMHg	Filtered Methymercury
PMHg	Particulate Methylmercury
UMHg	Unfiltered Methylmercury
UTHg	Unfiltered Total mercury
OM	Organic Matter
M	Molar
XRD	X-ray Diffraction
PAH	Poly Aromatic Hydrocarbons
PCB	Poly Chlorinated Biphenyls
EDTA	Ethylenediaminetetraacetic acid
RF	Radio Frequency
UAR	Uranium Activity Ratio

Water and Sediment Quality in the Yukon River Basin, Alaska, During Water Year 2002

Edited by Paul F. Schuster

Overview

This report contains water-quality and sediment-quality data from samples collected in the Yukon River basin from March through September during the 2002 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.

Acknowledgments

The USGS Nation Stream Quality Accounting Network (NASQAN) and the National Research Program would like to thank the USGS Alaska District office in Anchorage and the Field office in Fairbanks. Without their field expertise and continuous logistical support this work would not have been possible. A.M. Shiller's participation was partly supported by the National Science Foundation (EAR-0001049).

CHAPTER 1 - Introduction

by **Paul F. Schuster**

The U.S. Geological Survey (USGS) National Stream Quality Accounting Network (NASQAN) is conducting a 5-year (2001-2005) study of the water quality of the Yukon River basin (855,000 km^2) from the Yukon River headwaters in Canada to the Bering Sea (Landa and Hooper, 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. These 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 are being made on the upper, middle, and lower Yukon River and on the Tanana and Porcupine Rivers (Schuster and others, 2003).

A thorough description of the basin is given in Brabets and others (2000). Schuster and others (2003) describes the objectives and approach of the study and provides a brief description of the basin (fig. 1). Briefly, sediment load and concentrations, and a broad range of constituents were measured, including major ions, nutrients, dissolved and sediment-associated trace elements, biological indicators (such as chlorophyll-*a* and the stable isotopic composition of nitrogen, carbon, and sulfur of particulate organic matter), and various forms of organic carbon. Because of its extensive wetlands, 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, Yukon Territory to Pilot Station, Alaska, during

high flow in early June and low flow in late August were completed during the years 2002-2004. The intensive sampling will address process-based questions about the water quality of the basin.

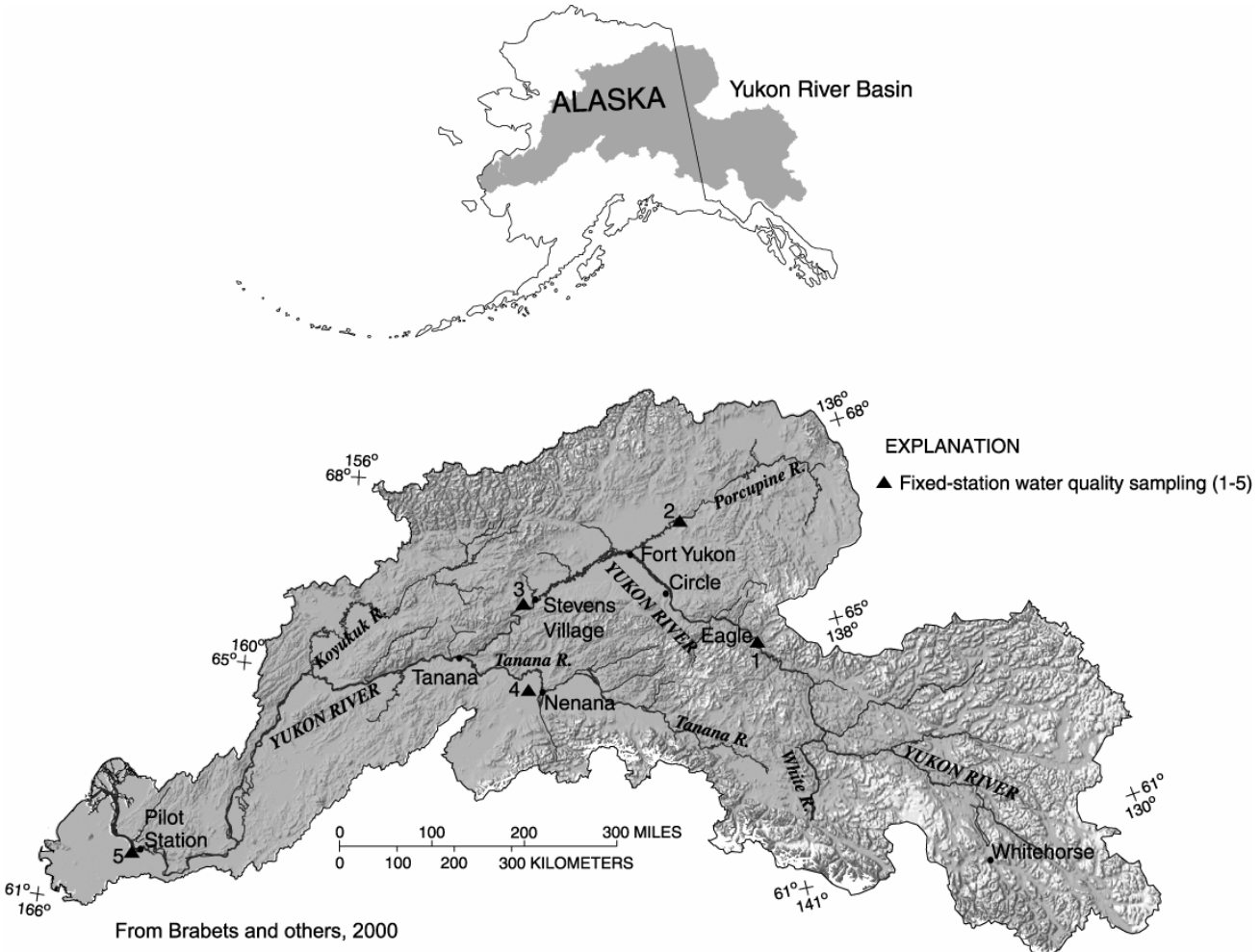

Figure 1. Map showing location of fixed-station water-quality sampling sites in the Yukon River Basin

The purpose of this report is to compile and report the water-quality and sediment-quality data collected during the WY 2002 into one source. The sample-collection methods and the laboratory analytical methods are described in Schuster and others (2003). Many of the results are not contained in the USGS National Water Information System (NWIS) database and would, otherwise, not be available to the public. This report, the second 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.

CHAPTER 2 - Fixed-Station Samples

by **Timothy P. Brabets**

The following section provides a summary of the site characteristics (table 1). References for the description of sample collection and processing of samples for various water quality constituents are given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 2. The data provided in this section also are available from the USGS NWIS database (*http://waterdata.usgs.gov/nwis/*).

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 and others (2003). Sample analysis results for WY 2002 are given in tables 2-6.

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 NAVD88)
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, 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; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees celsius; cm, centimeter; C, 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]

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	3/21/02 10:20	16,100	166	1.3	765	9.2	7.7	7.7
15356000	5/22/02 14:20	177,000	116	110	755	11.7	8.1	7.8
15356000	6/11/02 14:10	183,000	124	83	750	9.6	8.1	8.1
15356000	7/10/02 11:20	126,000	129	230	753	8.9	8.2	8.0
15356000	8/1/02 11:50	195,000	125	390	765	9.8	8.1	8.1
15356000	8/28/02 12:40	226,000	131	150	744	11.3	7.9	8.0
15356000	9/25/02 10:00	111,000	140	16	747	11.7	8.0	7.5

Station ID	Date/Time	Specific Conductance, Lab (µS/cm)	Specific Conductance Fld (µS/cm)	Air Temp (°C)	Water Temp. (°C)	UV Absorbance 254 nm, Flt (units/cm)	UV Absorbance 280 nm, Flt (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15356000	3/21/02 10:20	276	265	-7.0	0.0	0.036	0.026	36.1	9.81
15356000	5/22/02 14:20	169	154	--	8.0	0.537	0.407	20.9	5.9
15356000	6/11/02 14:10	196	182	--	13.0	0.228	0.170	24.1	7.06
15356000	7/10/02 11:20	226	222	--	16.9	--	--	29.1	8.34
15356000	8/1/02 11:50	195	189	--	13.2	0.317	0.237	26.0	6.96
15356000	8/28/02 12:40	204	205	--	10.5	0.212	0.156	27.4	7.97
15356000	9/25/02 10:00	220	222	9.5	6.5	--	--	30.7	8.80

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 fet lab, as CaCO3 (mg/L)	Alkalinity, Dis tot IT, Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT, Field (mg/L)
15356000	3/21/02 10:20	1.11	2.73	108	109	133	0.0
15356000	5/22/02 14:20	1.15	1.62	57	53	64	0.0
15356000	6/11/02 14:10	0.98	2.10	69	62	76	0.0
15356000	7/10/02 11:20	1.46	2.69	81	80	95	0.0
15356000	8/1/02 11:50	1.32	2.36	70	65	79	0.0
15356000	8/28/02 12:40	0.93	2.02	71	70	86	0.0
15356000	9/25/02 10:00	1.01	2.33	E84	78	101	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)
15356000	3/21/02 10:20	0.45	0.1	6.98	31.6	<0.015	<0.10	E0.08
15356000	5/22/02 14:20	0.36	E0.10	4.73	20.8	<0.015	0.41	0.75
15356000	6/11/02 14:10	0.42	E0.08	6.09	26.4	<0.015	0.17	0.38
15356000	7/10/02 11:20	0.62	E0.11	5.79	33.1	<0.015	E0.08	0.18
15356000	8/1/02 11:50	0.40	0.16	7.35	26.0	<0.015	0.23	0.47
15356000	8/28/02 12:40	0.34	E0.10	6.57	33.8	<0.015	0.17	0.88
15356000	9/25/02 10:00	0.69	0.12	6.84	32.5	<0.015	0.11	1.1

Station ID	Date/Time	Nitrogen, NO_2+ NO_3, dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat flt susp. (mg/L)	Phosphorus (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon Inorg. + Organic Partic. Total (mg/L)
15356000	3/21/02 10:20	0.096	<0.002	<0.02	E0.002	<0.007	E0.003	0.2
15356000	5/22/02 14:20	0.013	0.003	0.41	0.010	<0.007	0.49	5.8
15356000	6/11/02 14:10	0.037	<0.002	0.12	0.005	<0.007	0.35	3.8
15356000	7/10/02 11:20	0.024	<0.002	--	<0.004	<0.007	0.40	--
15356000	8/1/02 11:50	0.036	E0.002	0.39	E0.004	<0.007	1.22	20.6
15356000	8/28/02 12:40	0.047	<0.002	0.38	E0.003	<0.007	0.69	11.7
15356000	9/25/02 10:00	0.030	< 0.002	0.03	E0.002	<0.007	0.089	0.3

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

Station ID	Date/Time	Carbon Inorganic, Partic. 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	3/21/02 10:20	<0.1	1.6	0.2	2	0.18	0.4	55
15356000	5/22/02 14:20	0.2	13.6	5.6	49	0.11	0.5	37
15356000	6/11/02 14:10	0.4	6.4	3.5	30	0.16	0.5	37
15356000	7/10/02 11:20	--	--	--	23	0.22	0.5	41
15356000	8/1/02 11:50	12.8	9.2	7.8	31	0.18	0.6	33
15356000	8/28/02 12:40	2.1	6.3	9.6	36	0.20	0.6	40
15356000	9/25/02 10:00	<0.1	3.8	0.3	17	0.21	0.4	42

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	3/21/02 10:20	<0.06	11	E0.02	<0.8	0.068	1.0	E8	<0.08	2.4	1.7
15356000	5/22/02 14:20	<0.06	E7	0.06	<0.8	0.177	3.8	127	0.12	1.9	18.8
15356000	6/11/02 14:10	<0.06	E5	E0.02	<0.8	0.100	2.2	43	<0.08	2.0	3.4
15356000	7/10/02 11:20	<0.06	12	<0.04	<0.8	0.084	1.4	<10	<0.08	3.2	0.8
15356000	8/1/02 11:50	<0.06	12	E0.02	<0.8	0.148	3.5	48	<0.08	2.4	5.3
15356000	8/28/02 12:40	<0.06	E6	E0.03	<0.8	0.126	2.3	40	E0.05	2.4	8.2
15356000	9/25/02 10:00	<0.06	8	E0.02	< 0.8	0.099	1.6	26	<0.08	2.6	3.9

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)
15356000	3/21/02 10:20	1.4	1.16	0.6	<1.0	163	<0.2	3	1.17	--	2
15356000	5/22/02 14:20	0.7	3.33	0.4	<1.0	96.0	0.4	4	0.69	74	603
15356000	6/11/02 14:10	0.8	2.02	E0.3	<1.0	111	1.0	3	0.74	62	282
15356000	7/10/02 11:20	1.5	1.45	0.4	<1.0	139	0.8	<1	0.87	86	399
15356000	8/1/02 11:50	1.1	2.12	E0.3	<1.0	109	0.7	1	0.78	77	1040
15356000	8/28/02 12:40	1.0	1.88	0.7	<1.0	128	0.5	3	0.82	60	695
15356000	9/25/02 10:00	1.1	1.26	E0.3	<1.0	133	0.3	6	0.96	33	116

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

[Station ID, 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; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees celsius; cm, centimeter; C, 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]

Station ID	Date/Time	Inst Q (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	3/11/02 17:30	806	230	4.2	755	6.1	7.6	7.8
15389000	6/06/02 15:00	28,800	103	41	760	8.8	7.8	7.7
15389000	6/18/02 14:30	43,700	110	57	757	10.3	7.8	7.5
15389000	6/26/02 13:10	48,900	108	80	746	11.6	7.8	7.9
15389000	8/13/02 14:30	18,500	147	21	754	9.9	8.0	8.0
15389000	8/26/02 14:00	--	136	27	--	--	7.9	7.2
15389000	9/27/02 12:00	10700 160		9.8	743	12.3	8.0	7.5

Station ID	Date/Time	Specific Conductance, Lab (µS /cm)	Specific Conductance Fld (µS /cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 NM, Flt (units/cm)	UV Absorbance 280 NM, Flt (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15389000	3/11/02 17:30	410	399	-13.0	0.0	0.046	0.031	58.8	12.3
15389000	6/06/02 15:00	147	143	--	13.5	0.302	0.225	21.4	3.92
15389000	6/18/02 14:30	145	138	--	11.7	0.478	0.354	19.8	4.57
15389000	6/26/02 13:10	143	130	--	11.9	0.504	0.374	21.8	4.07
15389000	8/13/02 14:30	232	217	--	11.7	0.222	0.163	28.9	7.99
15389000	8/26/02 14:00	197	--	--	--	0.366	0.271	28.8	6.44
15389000	9/27/02 12:00	237	243	--	5.3	0.271	0.198	37.3	7.63

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	3/11/02 17:30	3.53	E0.1	4.28	34.2	<0.015	E0.06	E0.09
15389000	6/06/02 15:00	0.71	E0.07	2.39	15.1	<0.015	0.27	0.53
15389000	6/18/02 14:30	0.41	E0.08	3.11	20.9	<0.015	0.35	0.54
15389000	6/26/02 13:10	0.67	<0.10	3.18	16.9	<0.015	0.31	0.65
15389000	8/13/02 14:30	0.83	E0.11	3.16	47.8	<0.015	0.19	0.26
15389000	8/26/02 14:00	0.60	<0.10	4.04	30.5	<0.015	0.25	0.29
15389000	9/27/02 12:00	1.02	E0.08	3.77	34.6	<0.015	0.23	0.21

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab, as CaCO3 (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15389000	3/11/02 17:30	0.54	4.24	179	160	190	0.0
15389000	6/06/02 15:00	0.70	1.38	55	51	62	0.0
15389000	6/18/02 14:30	0.45	1.83	47	41	50	0.0
15389000	6/26/02 13:10	0.38	1.30	51	48	56	0.0
15389000	8/13/02 14:30	0.52	2.45	60	56	68	0.0
15389000	8/26/02 14:00	0.35	1.96	65	59	72	0.0
15389000	9/27/02 12:00	0.42	2.54	E90	96	116	0.0

Station ID	Date/Time	Nitrogen, NO_2+ NO_3, dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat flt susp (mg/L)	Phosphorus (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon Inorg. + Organic Partic. Total (mg/L)
15389000	3/11/02 17:30	0.218	<0.002	<0.02	E0.003	<0.007	E0.003	<0.1
15389000	6/06/02 15:00	0.030	E0.002	0.16	0.008	<0.007	0.080	2.1
15389000	6/18/02 14:30	E0.011	E0.002	0.19	0.008	<0.007	0.070	2.2
15389000	6/26/02 13:10	0.026	0.003	0.26	0.010	<0.007	0.146	3.3
15389000	8/13/02 14:30	0.037	E0.002	0.10	0.005	<0.007	0.036	1.1
15389000	8/26/02 14:00	0.030	E0.002	0.11	0.006	<0.007	0.048	1.3
15389000	9/27/02 12:00	0.017	E0.002	0.02	E0.003	<0.007	0.008	0.3

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	3/11/02 17:30	<0.06	11	E0.04	<0.8	0.149	0.8	11	0.29	6.7	15.7
15389000	6/06/02 15:00	<0.06	E6	<0.04	< 0.8	0.074	1.7	135	0.11	2.1	2.1
15389000	6/18/02 14:30	<0.06	E5	< 0.04	< 0.8	0.110	2.8	204	E0.05	2.9	2.8
15389000	6/26/02 13:10	<0.06	E4	<0.04	<0.8	0.125	2.6	178	0.11	2.3	3.1
15389000	8/13/02 14:30	<0.06	E6	<0.04	< 0.8	0.124	1.6	66	< 0.08	4.8	2.4
15389000	8/26/02 14:00	<0.06	E7	E0.02	< 0.8	0.118	1.9	173	E0.06	3.5	3.8
15389000	9/27/02 12:00	<0.06	7	<0.04	<0.8	0.156	1.9	123	< 0.08	4.9	3.8

Station ID	Date/Time	Carbon Inorganic, Partic. 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	3/11/02 17:30	<0.1	2.0	<0.1	3	0.06	1.4	91
15389000	6/06/02 15:00	0.2	8.2	1.9	19	0.14	0.4	40
15389000	6/18/02 14:30	<0.1	13.0	2.1	52	0.12	0.4	39
15389000	6/26/02 13:10	<0.1	14.0	3.2	41	0.12	0.4	40
15389000	8/13/02 14:30	<0.1	7.7	1.1	16	0.06	0.3	50
15389000	8/26/02 14:00	<0.1	11.0	1.3	46	0.11	0.3	49
15389000	9/27/02 12:00	<0.1	8.8	0.3	33	0.14	0.3	58

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	3/11/02 17:30	0.8	0.47	0.5	<1.0	160	<0.2	4	0.87	--	1
15389000	6/06/02 15:00	0.7	1.85	E0.3	<1.0	58.3	0.8	<1.0	0.29	93	68
15389000	6/18/02 14:30	0.7	3.06	<0.3	<1.0	61.7	0.3	2	0.22	90	76
15389000	6/26/02 13:10	0.3	2.53	<0.3	<1.0	63.0	0.6	1	0.28	95	130
15389000	8/13/02 14:30	0.3	2.25	E0.3	<1.0	107	0.4	3	0.24	99	28
15389000	8/26/02 14:00	0.4	3.00	0.4	<1.0	93.0	0.6	3	0.30	90	40
15389000	9/27/02 12:00	0.5	2.94	E0.3	<1.0	103	0.2	3	0.51	88	6

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

[Station ID, refer to table 1 for description and figure 1 for location; ft^3/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees celsius; cm, centimeter; C, Celsius; UV, Ultraviolet; NM, nanometer; Flt, filtered; NO_2, nitrite; NO_3, 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]

Station ID	Date/Time	Inst Q (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	3/19/02 19:30	20,600	178	7.0	780	8.8	7.2	8.0
15453500	6/04/02 16:30	253,000	128	88	757	9.0	8.0	7.9
15453500	6/24/02 13:30	223,000	125	73	758	12.6	8.1	8.0
15453500	7/18/02 14:00	180,000	129	320	766	7.9	8.1	7.7
15453500	7/30/02 15:10	167,000	140	300	777	9.1	8.1	8.2
15453500	8/23/02 14:40	263,000	145	210	761	11.1	7.9	8.0
15453500	9/04/02 14:50	253,000	140	110	766	9.9	7.8	E7.4

Station ID	Date/Time	Specific Conductance, Lab (µS /cm)	Specific Conductance Fld (µS /cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 NM, Flt (units/cm)	UV Absorbance 280 NM, Flt (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15453500	3/19/02 19:30	301	297	-5.0	0.0	0.041	0.029	36.4	9.30
15453500	6/04/02 16:30	180	172	--	13.4	0.281	0.210	24.0	5.73
15453500	6/24/02 13:30	201	195	--	13.1	0.220	0.162	27.8	7.07
15453500	7/18/02 14:00	214	212	--	19.3	0.136	0.100	28.0	7.37
15453500	7/30/02 15:10	226	231	--	18.5	0.097	0.070	32.4	8.28
15453500	8/23/02 14:40	215	212	10.0	10.0	0.242	0.180	28.4	7.43
15453500	9/04/02 14:50	220	213	--	11.3	0.206	0.152	29.2	8.16

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 Wat. Dis fet lab CaCO3 (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15453500	3/19/02	19:30	1.05	2.42	122	120	146	0.0
15453500	6/04/02	16:30	1.06	1.67	67	62	76	0.0
15453500	6/24/02	13:30	0.84	2.12	73	66	80	0.0
15453500	7/18/02	14:00	1.38	2.42	77	74	91	0.0
15453500	7/30/02	15:10	1.48	2.70	85	78	95	0.0
15453500	8/23/02	14:40	0.95	2.28	74	72	87	0.0
15453500	9/04/02	14:50	0.87	2.09	74	69	84	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	3/19/02	19:30	0.57	0.1	6.45	32.6	<0.015	E0.09	E0.10
15453500	6/04/02	16:30	0.84	0.15	4.41	22.4	<0.015	0.24	0.57
15453500	6/24/02	13:30	0.49	<0.10	5.12	27.5	<0.015	0.20	0.32
15453500	7/18/02	14:00	0.53	E0.07	5.30	30.5	<0.015	E0.09	0.28
15453500	7/30/02	15:10	1.08	0.12	5.73	32.8	<0.015	0.11	0.23
15453500	8/23/02	14:40	1.10	0.14	5.10	32.0	<0.015	0.18	0.57
15453500	9/04/02	14:50	0.52	E0.09	6.20	34.2	<0.015	0.17	0.32

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

Station ID	Date/Time		Nitrogen, NO_2+ NO_3, dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat flt susp (mg/L)	Phosphorus (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon Inorg. + Organic Partic. Total (mg/L)
15453500	3/19/02	19:30	0.103	<0.002	<0.02	<0.004	<0.007	0.010	<0.1
15453500	6/04/02	16:30	0.025	E0.002	0.29	0.007	<0.007	0.37	5.1
15453500	6/24/02	13:30	0.033	<0.002	0.09	0.005	<0.007	0.20	2.5
15453500	7/18/02	14:00	0.027	<0.002	0.18	E0.002	<0.007	0.39	8.5
15453500	7/30/02	15:10	0.031	<0.002	0.17	E0.002	<0.007	0.35	8.7
15453500	8/23/02	14:40	0.061	<0.002	0.40	0.004	<0.007	0.46	9.4
15453500	9/04/02	14:50	0.053	<0.002	0.14	E0.003	<0.007	0.26	3.0

Station ID	Date/Time		Carbon Inorganic, Partic. 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	3/19/02	19:30	<0.1	1.9	<0.1	3	0.16	0.4	61
15453500	6/04/02	16:30	0.7	7.9	4.4	24	0.19	0.5	40
15453500	6/24/02	13:30	0.2	6.5	2.2	22	0.17	0.5	40
15453500	7/18/02	14:00	5.0	4.0	3.6	26	0.24	0.7	44
15453500	7/30/02	15:10	4.4	3.4	4.3	19	0.22	0.6	45
15453500	8/23/02	14:40	3.8	7.3	5.7	20	0.22	0.5	38
15453500	9/04/02	14:50	0.4	6.2	2.6	32	0.22	0.5	44

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	3/19/02	19:30	<0.06	9	E0.03	<0.8	0.092	1.3	E8	0.16	2.7	13.7
15453500	6/04/02	16:30	<0.06	E7	E0.02	1.0	0.107	3.3	75	0.21	2.1	6.1
15453500	6/24/02	13:30	<0.06	E6	<0.04	<0.8	0.098	2.3	48	0.14	2.4	4.0
15453500	7/18/02	14:00	<0.06	12	<0.04	<0.8	0.086	2.2	11	<0.08	3.3	2.5
15453500	7/30/02	15:10	<0.06	11	<0.04	<0.8	0.072	1.6	E7	<0.08	3.2	2.0
15453500	8/23/02	14:40	<0.06	8	E0.02	<0.8	0.105	2.3	55	E0.07	3.2	4.4
15453500	9/04/02	14:50	<0.06	9	E0.02	<0.8	0.090	2.4	45	<0.08	3.0	3.1

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. % <0.062mm)	Sediment, Susp. (mg/L)
15453500	3/19/02 19:30	1.2	1.30	0.6	<1.0	150	<0.2	4	1.01	86	8
15453500	6/04/02 16:30	0.5	2.28	0.5	<1.0	94.1	0.9	6	0.58	63	388
15453500	6/24/02 13:30	0.8	1.72	E0.3	<1.0	105	1.0	2	0.63	60	223
15453500	7/18/02 14:00	1.3	0.95	0.5	<1.0	118	0.7	<1	0.68	85	381
15453500	7/30/02 15:10	1.2	0.85	0.5	<1.0	126	0.7	2	0.77	85	403
15453500	8/23/02 14:40	0.6	2.02	0.5	<1.0	114	0.7	7	0.58	74	468
15453500	9/04/02 14:50	0.9	1.47	0.6	<1.0	125	0.6	6	0.79	73	236

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

[Station ID, refer to table 1 for description and figure 1 for location; ft^3/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees celsius; cm, centimeter; C, Celsius; UV, Ultraviolet; NM, nanometer; Flt, filtered; NO_2, nitrite; NO_3, 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]

Station ID	Date/Time	Inst Q (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	3/22/02 18:00	6,600	202	4.7	766	8.2	7.6	7.7
15515500	5/14/02 15:00	46,100	130	540	767	9.9	7.8	7.9
15515500	5/29/02 15:50	51,000	131	790	745	9.0	8.0	8.0
15515500	7/16/02 14:30	55,000	126	780	762	9.2	8.0	7.7
15515500	7/29/02 13:10	60,400	129	1300	771	9.2	7.9	7.9
15515500	8/21/02 13:30	72,500	132	380	747	11.3	7.9	7.9
15515500	8/30/02 15:40	50,000	145	210	758	11.1	7.7	7.7

Station ID	Date/Time	Specific Conductance, Lab (µS /cm)	Specific Conductance Fld (µS /cm)	Air Temp. (°C)	Water Temp. (°C)	UV Absorbance 254 NM, Flt (units/cm)	UV Absorbance 280 NM, Flt (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15515500	3/22/02 18:00	323	310	0.0	0.0	0.024	0.018	45.0	9.28
15515500	5/14/02 15:00	184	171	--	1.5	0.406	0.306	24.0	5.43
15515500	5/29/02 15:50	214	205	--	12.1	0.130	0.097	25.9	6.57
15515500	7/16/02 14:30	214	208	--	17.3	0.053	0.039	28.6	6.43
15515500	7/29/02 13:10	210	206	--	14.5	0.044	0.032	29.1	6.11
15515500	8/21/02 13:30	191	181	--	9.0	0.249	0.185	25.3	6.01
15515500	8/30/02 15:40	231	229	--	10.9	0.125	0.091	31.0	7.67

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 CaCO3 (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15515500	3/22/02 18:00	2.24	4.11	130	126	151	0.0
15515500	5/14/02 15:00	1.80	2.32	62	57	69	0.0
15515500	5/29/02 15:50	1.95	2.57	71	64	78	0.0
15515500	7/16/02 14:30	1.98	3.48	73	70	85	0.0
15515500	7/29/02 13:10	1.92	3.28	72	68	82	0.0
15515500	8/21/02 13:30	1.41	2.58	63	59	72	0.0
15515500	8/30/02 15:40	1.43	3.39	80	76	93	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	3/22/02 18:00	1.33	0.1	14.7	34.3	0.049	0.11	0.11
15515500	5/14/02 15:00	0.45	E0.0.7	6.97	23.1	E0.009	0.33	1.1
15515500	5/29/02 15:50	0.99	E0.10	6.79	31.8	<0.015	0.13	0.64
15515500	7/16/02 14:30	1.23	<0.10	6.98	30.8	<0.015	E0.07	0.52
15515500	7/29/02 13:10	1.12	0.11	6.61	30.5	<0.015	E0.08	0.57
15515500	8/21/02 13:30	0.76	E0.09	7.64	27.6	<0.015	0.20	0.45
15515500	8/30/02 15:40	1.13	E0.11	8.86	35.2	<0.015	0.12	0.33

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)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat flt susp (mg/L)	Phosphorus (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon Inorg. + Organic Partic. Total (mg/L)
15515500	3/22/02 18:00	0.184	E0.002	<0.02	<0.004	<0.007	0.027	0.3
15515500	5/14/02 15:00	0.081	E0.002	0.62	0.011	E0.004	2.13	10.2
15515500	5/29/02 15:50	0.089	E0.002	0.40	0.006	<0.007	0.83	6.9
15515500	7/16/02 14:30	0.083	<0.002	0.29	E0.003	<0.007	1.35	4.9
15515500	7/29/02 13:10	0.078	<0.002	0.48	E0.004	E0.004	1.47	9.9
15515500	8/21/02 13:30	0.122	E0.002	0.56	0.006	<0.007	1.24	8.8
15515500	8/30/02 15:40	0.105	E0.002	0.18	E0.004	<0.007	0.66	5.0

Station ID	Date/Time	Carbon Inorganic, Partic. 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	3/22/02 18:00	<0.1	1.0	0.3	1	0.17	0.5	49
15515500	5/14/02 15:00	1.6	11.7	8.6	32	0.29	1.2	30
15515500	5/29/02 15:50	1.1	3.7	5.8	16	0.47	1.0	31
15515500	7/16/02 14:30	1.1	1.8	3.8	22	0.34	1.2	31
15515500	7/29/02 13:10	1.6	1.5	8.3	16	0.38	0.9	28
15515500	8/21/02 13:30	1.6	7.4	7.2	29	0.30	1.1	25
15515500	8/30/02 15:40	0.5	3.8	4.4	19	0.34	1.0	32

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	3/22/02 18:00	<0.06	22	E0.02	E0.5	0.194	0.9	19	<0.08	3.4	89.0
15515500	5/14/02 15:00	<0.06	11	E0.03	<0.8	0.336	4.6	209	0.24	1.8	72.5
15515500	5/29/02 15:50	<0.06	14	E0.02	<0.8	0.133	3.0	25	E0.07	3.1	9.1
15515500	7/16/02 14:30	<0.06	18	<0.04	<0.8	0.080	1.5	E6	<0.08	4.6	4.7
15515500	7/29/02 13:10	<0.06	19	<0.04	<0.8	0.064	1.3	E6	<0.08	4.2	3.1
15515500	8/21/02 13:30	<0.06	12	0.04	E0.6	0.217	3.6	88	0.11	2.6	29.3
15515500	8/30/02 15:40	<0.06	20	<0.04	<0.8	0.158	2.5	42	<0.08	4.2	19.1

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	3/22/02 18:00	1.3	0.25	0.9	<1.0	193	<0.2	1	0.83	73	13
15515500	5/14/02 15:00	0.7	2.71	E0.3	<1.0	105	0.9	3	0.68	46	3050
15515500	5/29/02 15:50	0.9	1.79	0.5	<1.0	118	1.5	2	0.89	72	1200
15515500	7/16/02 14:30	1.1	0.44	0.7	<1.0	121	1.2	<1	0.82	69	1710
15515500	7/29/02 13:10	1.2	0.77	0.4	<1.0	113	0.6	3	0.73	78	1940
15515500	8/21/02 13:30	0.7	2.09	0.4	<1.0	102	0.6	4	0.60	61	1910
15515500	8/30/02 15:40	1.2	0.93	0.6	<1.0	136	0.6	2	0.78	55	998

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

[Station ID, refer to table 1 for description and figure 1 for location; ft^3/s, cubic feet per second; mg/L, milligram per liter; NTU, Nephelometric turbidity unit; <, less than detection limit; --, missing value; mm, millimeter; lab, laboratory; fld, field; µS/cm, microsiemen per centimeter at 25 degrees celsius; cm, centimeter; C, Celsius; UV, Ultraviolet; NM, nanometer; Flt, filtered; NO_2, nitrite; NO_3, 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]

Station ID	Date/Time	Inst Q (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	4/2/02 18:10	38,300	200	9.7	778	2.5	7.1	7.3
15565447	6/12/02 13:40	570,000	107	76	773	8.7	7.6	8.0
15565447	6/20/02 18:50	446,000	114	78	764	8.0	7.7	7.7
15565447	7/1/02 19:00	441,000	119	79	764	8.6	7.7	7.6
15565447	7/16/02 11:30	344,000	142	230	763	9.7	7.8	8.1
15565447	8/8/02 14:20	317,000	140	--	760	9.0	7.8	8.1
15565447	9/24/02 16:30	367,000	137	7.6	760	11.0	7.9	7.3

Station ID	Date/Time	Specific Conductance, Lab (µS /cm)	Specific Conductance Fld (µS/cm)	Air Temp (°C)	Water Temp (°C)	UV Absorbance 254 NM, Flt (units/cm)	UV Absorbance 280 NM, Flt (units/cm)	Calcium (mg/L)	Magnesium (mg/L)
15565447	4/2/02 18:10	328	318	-9.5	0.0	0.053	0.038	45.3	10.4
15565447	6/12/02 13:40	154	143	--	13.5	0.369	0.280	22.3	4.25
15565447	6/20/02 18:50	176	176	--	17.5	0.291	0.218	22.9	5.23
15565447	7/1/02 19:00	191	186	--	16.5	0.272	0.203	27.0	6.21
15565447	7/16/02 11:30	216	219	13.5	16.0	0.165	0.120	26.6	6.47
15565447	8/8/02 14:20	227	232	--	19.0	0.107	0.077	30.1	7.41
15565447	9/24/02 16:30	224	221	--	8.0	0.187	0.138	30.1	8.19

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	4/2/02 18:10	0.98	0.2	11.6	26.4	0.125	0.16	0.22
15565447	6/12/02 13:40	0.56	E0.08	4.57	14.4	E0.011	0.41	0.70
15565447	6/20/02 18:50	0.72	E0.08	5.10	19.5	<0.015	0.24	0.59
15565447	7/1/02 19:00	0.62	E0.06	5.97	22.9	<0.015	0.19	E0.44
15565447	7/16/02 11:30	1.23	E0.11	5.53	28.4	<0.015	0.13	0.46
15565447	8/8/02 14:20	0.77	0.12	6.22	31.1	<0.015	0.10	0.44
15565447	9/24/02 16:30	0.69	E0.10	7.11	31.6	<0.015	0.17	0.35

Station ID	Date/Time	Potassium (mg/L)	Sodium (mg/L)	Alkalinity, Dis fet lab, as CaCO3 (mg/L)	Alkalinity, Dis tot IT Field (mg/L)	Bicarbonate, Dis IT Field (mg/L)	Carbonate, Dis IT Field (mg/L)
15565447	4/2/02 18:10	1.35	3.36	147	154	188	0.0
15565447	6/12/02 13:40	1.14	1.46	59	50	61	0.0
15565447	6/20/02 18:50	1.14	1.95	66	65	79	0.0
15565447	7/1/02 19:00	1.16	2.11	70	68	83	0.0
15565447	7/16/02 11:30	1.14	2.26	80	76	93	0.0
15565447	8/8/02 14:20	1.61	2.84	84	80	98	0.0
15565447	9/24/02 16:30	1.00	2.59	E78	74	90	0.0

Station ID	Date/Time	Nitrogen, NO_2+ NO_3, dissolved (mg/L)	Nitrogen, Nitrite dissolved (mg/L)	Nitrogen, particulate wat flt susp (mg/L)	Phosphorus (mg/L)	Ortho-phosphorus (mg/L)	Phosphorus, Total (mg/L)	Carbon Inorg. + Organic Partic. Total (mg/L)
15565447	4/2/02 18:10	0.163	E0.002	0.04	E0.002	<0.007	0.023	0.4
15565447	6/12/02 13:40	0.046	E0.002	0.11	0.014	<0.007	0.22	1.4
15565447	6/20/02 18:50	0.055	E0.002	0.16	0.011	E0.005	0.27	3.0
15565447	7/1/02 19:00	0.056	E0.002	0.07	0.011	E0.005	E0.183	1.3
15565447	7/16/02 11:30	0.079	E0.002	0.28	0.008	E0.004	0.35	5.2
15565447	8/8/02 14:20	0.079	E0.002	0.26	0.005	<0.007	0.47	6.7
15565447	9/24/02 16:30	0.087	E0.002	0.16	0.007	<0.007	0.026	2.7

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

Station ID	Date/Time	Carbon Inorganic, Partic. 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	4/2/02 18:10	<0.1	2.3	0.4	<1	<0.05	0.3	82
15565447	6/12/02 13:40	<0.1	10.6	1.3	18	0.26	0.8	38
15565447	6/20/02 18:50	<0.1	7.8	2.9	15	0.27	1.0	42
15565447	7/1/02 19:00	<0.1	7.3	1.3	13	0.27	0.9	39
15565447	7/16/02 11:30	0.7	4.5	4.5	44	0.29	0.8	42
15565447	8/8/02 14:20	2.7	3.5	3.9	16	0.39	0.9	52
15565447	9/24/02 16:30	<0.1	6.0	2.7	11	0.23	0.8	39

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	4/2/02 18:10	<0.06	11	E0.03	<0.8	0.253	0.8	51	<0.08	2.8	162
15565447	6/12/02 13:40	<0.06	E6	0.05	<0.8	0.111	5.0	279	0.29	1.7	15.1
15565447	6/20/02 18:50	<0.06	E5	E0.03	<0.8	0.089	3.3	320	0.31	1.7	9.9
15565447	7/1/02 19:00	<0.06	E6	E0.02	<0.8	0.092	3.3	238	0.14	2.1	6.6
15565447	7/16/02 11:30	<0.06	7	E0.04	<0.8	0.116	2.6	115	0.32	2.6	4.9
15565447	8/8/02 14:20	<0.06	14	E0.02	<0.8	0.077	2.1	24	E0.06	3.1	2.4
15565447	9/24/02 16:30	<0.06	E6	0.04	<0.8	0.122	2.7	125	0.09	2.5	6.9

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)
15565447	4/2/02 18:10	0.8	1.39	0.3	<1.0	188	0.8	3	0.89	--	3
15565447	6/12/02 13:40	1.6	1.58	<0.3	<1.0	80.1	0.9	1	0.36	--	342
15565447	6/20/02 18:50	0.7	1.20	0.3	<1.0	88.4	0.9	1	0.47	--	269
15565447	7/1/02 19:00	0.7	1.22	0.4	<1.0	99.1	0.7	1	0.54	--	--
15565447	7/16/02 11:30	0.9	1.53	0.4	<1.0	105	0.9	3	0.69	--	344
15565447	8/8/02 14:20	1.0	0.75	E0.2	<1.0	135	1.4	1	0.84	--	502
15565447	9/24/02 16:30	0.9	2.21	0.4	<1.0	118	0.7	2	0.67	--	200

CHAPTER 3 - Dissolved Organic Carbon (DOC) Characterization

by **George R. Aiken**

A description of sample collection and processing of samples for DOC, ultraviolet (UV) absorbance spectroscopy, specific UV absorbance (SUVA), and DOC fractionation analyses is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 7.

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

[Station ID, 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 times a one meter path length; %, percent]

Station ID	Date	Whole Water DOC (mg C/L)	Whole Water UV (abs @ 254nm)	Whole Water SUVA [L/(mg C*m)]	Hydrophobic Acid SUVA [L/(mg C*m)]	Hydrophobic Acid (%)
15389000	6/6/02	8.5	0.296	3.5	4.1	54
15389000	6/18/02	12.9	0.461	3.6	3.9	56
15389000	6/18/02	13.1	0.456	3.5	4.0	61
15389000	6/26/02	14.1	0.503	3.6	3.9	58
15389000	8/13/02	7.0	0.236	3.4	3.7	53
15389000	8/26/02	10.0	0.363	3.6	3.9	59
15389000	9/27/02	8.1	0.268	3.3	3.7	57
15515500	3/22/02	1.3	0.023	1.8	2.7	38
15515500	5/14/02	11.3	0.408	3.6	4.1	53
15515500	5/29/02	3.8	0.127	3.4	3.9	54
15515500	7/16/02	2.0	0.060	3.1	3.4	49
15515500	7/29/02	1.9	0.054	2.9	3.4	40
15515500	8/21/02	6.6	0.246	3.7	4.0	54
15515500	8/30/02	4.0	0.122	3.1	3.5	56
15356000	3/21/02	1.6	0.034	2.1	2.4	51
15356000	5/22/02	14.0	0.533	3.8	4.4	54
15356000	6/11/02	6.1	0.227	3.7	3.9	62
15356000	7/10/02	2.3	0.066	2.8	3.3	44
15356000	8/01/02	7.8	0.313	4.0	4.2	59
15356000	8/28/02	5.9	0.212	3.6	3.9	54
15356000	9/25/02	3.9	0.111	2.8	3.5	51
15565447	4/02/02	2.4	0.050	2.1	2.9	48
15565447	6/12/02	9.9	0.363	3.7	4.2	54
15565447	6/20/02	7.8	0.285	3.7	3.6	58
15565447	7/01/02	7.5	0.261	3.5	4.1	45
15565447	7/16/02	4.8	0.174	3.6	3.8	53
15565447	8/08/02	3.4	0.105	3.1	3.5	53
15565447	9/24/02	6.0	0.185	3.1	4.0	42
15453500	4/01/02	2.6	0.042	1.6	2.6	35
15453500	6/04/02	7.9	0.280	3.6	4.1	56
15453500	6/24/02	6.3	0.215	3.4	3.9	49
15453500	7/18/02	4.2	0.136	3.2	3.5	55
15453500	7/30/02	3.3	0.095	2.9	3.4	46
15453500	8/23/02	6.7	0.236	3.5	3.8	59
15453500	9/04/02	6.1	0.205	3.4	3.8	51

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

Station ID	Date	Hydrophilic organic matterSUVA [L/(mg C*m)]	Hydrophilic organic matter (%)	Transphylic Acids SUVA [L/(mg C*m)]	Transphylic Acids (%)
15389000	6/6/02	1.1	19	2.7	16
15389000	6/18/02	2.8	13	3.0	14
15389000	6/18/02	1.6	24	2.7	17
15389000	6/26/02	2.1	15	3.1	20
15389000	8/13/02	1.1	19	2.9	18
15389000	8/26/02	2.3	16	2.8	17
15389000	9/27/02	1.6	26	2.8	18
15515500	3/22/02	1.2	49	1.9	24
15515500	5/14/02	2.1	21	3.0	16
15515500	5/29/02	1.7	26	3.0	16
15515500	7/16/02	1.6	33	2.6	21
15515500	7/29/02	1.4	33	2.2	21
15515500	8/21/02	1.9	18	3.1	21
15515500	8/30/02	1.2	24	2.9	19
15356000	3/21/02	1.7	40	2.1	26
15356000	5/22/02	1.7	16	3.2	17
15356000	6/11/02	1.3	17	3.1	19
15356000	7/10/02	1.1	29	2.5	21
15356000	8/01/02	2.0	18	3.1	22
15356000	8/28/02	1.2	33	2.8	20
15356000	9/25/02	1.3	40	2.6	19
15565447	4/02/02	1.9	36	2.2	19
15565447	6/12/02	2.1	18	3.1	17
15565447	6/20/02	2.0	19	2.5	17
15565447	7/01/02	2.1	18	3.3	22
15565447	7/16/02	2.1	23	2.8	19
15565447	8/08/02	1.3	27	2.6	19
15565447	9/24/02	1.3	23	2.7	17
15453500	4/01/02	1.1	41	2.0	18
15453500	6/04/02	2.1	17	2.9	16
15453500	6/24/02	1.9	19	3.4	21
15453500	7/18/02	1.4	22	2.8	19
15453500	7/30/02	1.3	28	2.5	21
15453500	8/23/02	1.6	18	2.8	18
15453500	9/04/02	2.4	16	3.2	16

CHAPTER 4 - Dissolved Trace Metals

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 and others (2003). A description of sample analysis for major cations and trace metals is given in Chapter 4 of Schuster and others (2003). Sample analysis results for WY 2002 are given below in table 8.

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

[See Schuster and others (2003) for qualification of the accuracy of these data; Station ID, refer to table 1 for description and figure 1 for location; µg/L, microgram per liter; mg/L, milligram per liter; Avg, average; SD, standard deviation of triplicate analysis; Rep, replicate samples collected in the field; BLANK, deionized water blank processed in field]

Station ID	Date	Rep	Arsenic µg/L		Boron µg/L		Barium µg/L		Beryllium µg/L		Bismuth µg/L		Calcium mg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/02	1 of 2	0.36	± 0.01	8.9	± 0.8	56	± 2	< 0.009	± 0.004	< 0.001	± 0.001	38	± 0
15356000	3/21/02	2 of 2	0.35	± 0.02	8.0	± 0.3	57	± 0	< 0.009	± 0.005	< 0.001	± 0.000	38	± 1
15356000	5/22/02	1 of 2	0.52	± 0.02	4.3	± 0.1	36	± 1	0.16	± 0.007	0.002	± 0.000	22	± 0
15356000	5/22/02	2 of 2	0.52	± 0.01	4.3	± 0.2	38	± 1	0.012	± 0.002	0.002	± 0.001	22	± 0
15356000	6/11/02	1 of 2	0.49	± 0.02	6.5	± 0.5	36	± 0	< 0.009	± 0.004	< 0.001	± 0.001	25	± 0
15356000	6/11/02	2 of 2	0.49	± 0.01	6.1	± 0.2	38	± 0	< 0.009	± 0.002	< 0.001	± 0.001	26	± 1
15356000	7/10/02	1 of 2	0.60	± 0.02	13	± 1	42	± 0	0.012	± 0.003	< 0.0007	± 0.0007	29	± 0
15356000	7/10/02	2 of 2	0.55	± 0.02	12	± 0	42	± 0	0.009	± 0.005	0.0033	± 0.0005	29	± 0
15356000	8/1/02	1 of 2	0.70	± 0.02	11	± 1	35	± 0	0.012	± 0.008	0.0009	± 0.0001	25	± 0
15356000	8/1/02	2 of 2	0.70	± 0.02	11	± 1	35	± 0	0.013	± 0.001	< 0.0007	± 0.0006	26	± 0
15356000	8/28/02	1 of 2	0.54	± 0.01	8.6	± 0.5	40	± 0	0.007	± 0.009	< 0.0007	± 0.0007	27	± 0
15356000	8/28/02	2 of 2	0.54	± 0.01	9.2	± 0.3	40	± 0	0.010	± 0.010	< 0.0007	± 0.0009	26	± 1
15356000	9/25/02	1 of 2	0.42	± 0.02	8.7	± 0.5	43	± 0	< 0.007	± 0.001	< 0.0007	± 0.0012	29	± 0
15356000	9/25/02	2 of 2	0.42	± 0.00	8.6	± 0.5	43	± 0	< 0.007	± 0.004	< 0.0007	± 0.0013	29	± 0
15389000	3/11/02	1 of 2	0.19	± 0.02	8.9	± 0.4	96	± 1	< 0.009	± 0.005	< 0.001	± 0.000	64	± 1
15389000	3/11/02	2 of 2	0.20	± 0.01	8.3	± 0.5	97	± 1	< 0.009	± 0.004	< 0.001	± 0.000	63	± 0
15389000	6/6/02	1 of 2	0.31	± 0.01	4.6	± 0.2	39	± 1	0.016	± 0.007	0.002	± 0.000	22	± 0
15389000	6/6/02	2 of 2	0.32	± 0.01	4.8	± 0.2	40	± 1	0.012	± 0.008	0.003	± 0.001	22	± 0
15389000	6/18/02	1 of 2	0.30	± 0.00	5.9	± 0.2	41	± 0	0.017	± 0.002	< 0.001	± 0.000	20	± 0
15389000	6/18/02	2 of 2	0.29	± 0.00	5.3	± 0.5	41	± 0	0.016	± 0.001	< 0.001	± 0.001	20	± 0
15389000	6/26/02	1 of 2	0.39	± 0.01	3.9	± 0.3	38	± 0	0.025	± 0.004	0.002	± 0.000	22	± 0
15389000	6/26/02	2 of 2	0.36	± 0.01	4.0	± 0.3	36	± 0	0.015	± 0.003	< 0.001	± 0.001	22	± 1
15389000	8/13/02	1 of 2	0.26	± 0.01	8.8	± 0.3	52	± 1	< 0.007	± 0.008	< 0.0007	± 0.0009	28	± 0
15389000	8/13/02	2 of 2	0.27	± 0.00	9.1	± 0.5	52	± 0	< 0.007	± 0.002	0.0007	± 0.0012	28	± 0
15389000	8/26/02	1 of 2	0.26	± 0.00	7.7	± 0.4	46	± 1	0.013	± 0.005	< 0.0007	± 0.0005	27	± 0
15389000	8/26/02	2 of 2	0.27	± 0.01	7.4	± 0.2	46	± 1	0.015	± 0.003	0.0008	± 0.0015	27	± 0
15389000	9/27/02	1 of 2	0.26	± 0.01	7.9	± 0.1	59	± 1	0.023	± 0.003	< 0.0007	± 0.0012	35	± 0
15389000	9/27/02	2 of 2	0.25	± 0.01	7.7	± 0.3	60	± 0	0.012	± 0.006	< 0.0007	± 0.0003	35	± 0

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

Station ID	Date	Rep	Arsenic µg/L		Boron µg/L		Barium µg/L		Beryllium µg/L		Bismuth µg/L		Calcium mg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/21/02	1 of 2	0.30	± 0.00	8.0	± 0.5	68	± 1	< 0.009	± 0.005	< 0.001	± 0.001	42	± 0
15453500	3/21/02	2 of 2	0.31	± 0.02	8.1	± 0.2	68	± 1	< 0.009	± 0.003	< 0.001	± 0.001	43	± 1
15453500	5/22/02	1 of 2	0.50	± 0.01	5.8	± 0.3	42	± 0	0.016	± 0.000	< 0.001	± 0.001	25	± 0
15453500	5/22/02	2 of 2	0.49	± 0.01	8.8	± 1.0	41	± 0	< 0.009	± 0.004	0.001	± 0.002	25	± 0
15453500	6/11/02	1 of 2	0.45	± 0.02	5.6	± 0.5	41	± 1	< 0.009	± 0.005	< 0.001	± 0.000	28	± 1
15453500	6/11/02	2 of 2	0.49	± 0.02	7.4	± 0.9	41	± 1	0.007	± 0.003	0.0014	± 0.0019	27	± 0
15453500	7/10/02	1 of 2	0.58	± 0.02	9.0	± 0.2	46	± 1	< 0.007	± 0.002	< 0.0007	± 0.0003	29	± 0
15453500	7/10/02	2 of 2	0.58	± 0.01	9.0	± 0.3	45	± 0	< 0.007	± 0.005	0.0019	± 0.0004	28	± 0
15453500	8/1/02	1 of 2	0.61	± 0.02	11	± 0	46	± 1	< 0.007	± 0.004	< 0.0007	± 0.0008	30	± 0
15453500	8/1/02	2 of 2	0.62	± 0.01	12	± 0	45	± 1	0.011	± 0.005	< 0.0007	± 0.0007	30	± 0
15453500	8/28/02	1 of 2	0.41	± 0.02	9.5	± 0.3	39	± 0	0.007	± 0.007	< 0.0007	± 0.0004	27	± 0
15453500	8/28/02	2 of 2	0.42	± 0.01	10	± 0	40	± 0	0.009	± 0.002	< 0.0007	± 0.0001	28	± 0
15453500	9/25/02	1 of 2	0.56	± 0.02	8.1	± 0.3	44	± 0	0.018	± 0.001	0.006	± 0.000	29	± 0
15453500	9/25/02	2 of 2	0.51	± 0.02	8.6	± 0.7	42	± 1	0.011	± 0.005	0.001	± 0.002	29	± 0
15515500	3/11/02	1 of 2	0.47	± 0.01	21	± 1	48	± 0	< 0.009	± 0.003	< 0.001	± 0.001	47	± 1
15515500	3/11/02	2 of 2	0.47	± 0.01	20	± 0	48	± 1	< 0.009	± 0.003	< 0.001	± 0.000	47	± 0
15515500	6/6/02	1 of 2	1.2	± 0.0	11	± 0	31	± 1	< 0.009	± 0.001	0.006	± 0.001	25	± 0
15515500	6/6/02	2 of 2	1.1	± 0.0	10	± 1	31	± 0	< 0.009	± 0.001	0.004	± 0.000	25	± 0
15515500	6/18/02	1 of 2	0.86	± 0.00	15	± 0	32	± 1	< 0.009	± 0.001	< 0.001	± 0.001	29	± 0
15515500	6/18/02	2 of 2	0.90	± 0.01	15	± 0	32	± 0	< 0.009	± 0.003	< 0.001	± 0.000	28	± 0
15515500	6/26/02	1 of 2	1.1	± 0.0	20	± 0	31	± 0	< 0.007	± 0.002	< 0.0007	± 0.0013	28	± 0
15515500	6/26/02	2 of 2	1.0	± 0.0	20	± 1	30	± 0	< 0.007	± 0.005	< 0.0007	± 0.0011	28	± 0
15515500	8/13/02	1 of 2	0.95	± 0.03	20	± 1	29	± 0	< 0.007	± 0.004	< 0.0007	± 0.0004	28	± 0
15515500	8/13/02	2 of 2	0.91	± 0.03	19	± 1	29	± 1	< 0.007	± 0.007	0.0008	± 0.0013	27	± 0
15515500	8/26/02	1 of 2	1.1	± 0.0	14	± 1	27	± 0	0.007	± 0.004	0.0015	± 0.0008	24	± 0
15515500	8/26/02	2 of 2	1.0	± 0.0	13	± 1	26	± 0	< 0.007	± 0.002	< 0.0007	± 0.0007	24	± 0
15515500	9/27/02	1 of 2	0.88	± 0.01	20	± 1	30	± 1	< 0.004	± 0.005	0.002	± 0.002	31	± 0
15515500	9/27/02	2 of 2	0.97	± 0.00	20	± 0	30	± 1	0.005	± 0.006	< 0.001	± 0.000	30	± 0

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

Station ID	Date	Rep	Arsenic µg/L			Boron µg/L			Barium µg/L			Beryllium µg/L			Bismuth µg/L			Calcium mg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15565447	4/2/2002	1 of 2	0.22	±	0.01	10	±	0	79	±	1	< 0.009	±	0.002	< 0.001	±	0.001	48	±	0
15565447	4/2/2002	2 of 2	0.24	±	0.01	10	±	0	80	±	1	< 0.009	±	0.004	< 0.001	±	0.000	47	±	1
15565447	6/12/2002	1 of 2	0.75	±	0.02	5.3	±	0.9	38	±	0	< 0.007	±	0.009	0.0041	±	0.0011	22	±	0
15565447	6/12/2002	2 of 2	0.68	±	0.02	5.3	±	0.6	38	±	1	0.011	±	0.002	0.0039	±	0.0000	22	±	0
15565447	6/20/2002	1 of 2	0.89	±	0.01	7.0	±	0.4	42	±	0	< 0.009	±	0.002	0.002	±	0.001	25	±	0
15565447	6/20/2002	2 of 2	0.88	±	0.02	7.5	±	0.8	37	±	1	0.014	±	0.002	0.002	±	0.000	25	±	0
15565447	7/1/2002	1 of 2	0.71	±	0.01	7.1	±	0.5	40	±	1	0.008	±	0.004	0.0010	±	0.0003	26	±	0
15565447	7/1/2002	2 of 2	0.71	±	0.01	7.1	±	0.6	40	±	0	< 0.007	±	0.003	0.0022	±	0.0014	26	±	0
15565447	7/16/2002	1 of 2	0.78	±	0.01	9.4	±	0.9	45	±	0	< 0.007	±	0.001	< 0.0007	±	0.0005	30	±	0
15565447	7/16/2002	2 of 2	0.76	±	0.01	9.5	±	0.7	44	±	1	< 0.007	±	0.004	< 0.0007	±	0.0003	29	±	0
15565447	8/8/2002	1 of 2	0.83	±	0.03	14	±	1	46	±	0	0.008	±	0.004	< 0.0007	±	0.0006	29	±	0
15565447	8/8/2002	2 of 2	0.85	±	0.00	14	±	1	47	±	1	< 0.007	±	0.004	< 0.0007	±	0.0014	29	±	0
15565447	9/24/2002	1 of 2	0.69	±	0.01	9.8	±	0.2	39	±	1	< 0.004	±	0.000	0.002	±	0.002	29	±	0
15565447	9/24/2002	2 of 2	0.71	±	0.01	9.6	±	0.5	40	±	2	< 0.004	±	0.003	0.002	±	0.001	29	±	0

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

Station	Date	Rep	Cadmium µg/L		Cerium µg/L		Cobalt µg/L		Chromium µg/L		Cesium µg/L		Copper µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/2002	1 of 2	0.023	± 0.001	0.0079	± 0.0005	0.006	± 0.002	< 0.03	± 0.02	< 0.006	± 0.001	0.52	± 0.02
15356000	3/21/2002	2 of 2	0.017	± 0.001	0.0093	± 0.0004	0.009	± 0.003	< 0.03	± 0.02	< 0.006	± 0.005	0.51	± 0.01
15356000	5/22/2002	1 of 2	0.072	± 0.002	0.31	± 0.00	0.091	± 0.002	0.07	± 0.01	< 0.006	± 0.003	3.7	± 0.1
15356000	5/22/2002	2 of 2	0.061	± 0.002	0.32	± 0.00	0.10	± 0.00	0.06	± 0.02	< 0.006	± 0.003	3.7	± 0.1
15356000	6/11/2002	1 of 2	0.019	± 0.001	0.088	± 0.001	0.035	± 0.003	< 0.03	± 0.01	< 0.006	± 0.002	2.2	± 0.0
15356000	6/11/2002	2 of 2	0.020	± 0.003	0.092	± 0.001	0.029	± 0.002	0.05	± 0.02	< 0.006	± 0.004	2.2	± 0.0
15356000	7/10/2002	1 of 2	0.013	± 0.001	0.039	± 0.001	0.029	± 0.001	< 0.05	± 0.02	0.010	± 0.002	1.3	± 0.0
15356000	7/10/2002	2 of 2	0.008	± 0.001	0.0074	± 0.0004	0.006	± 0.002	< 0.05	± 0.01	< 0.002	± 0.001	1.3	± 0.0
15356000	8/1/2002	1 of 2	0.019	± 0.002	0.17	± 0.00	0.041	± 0.001	0.21	± 0.03	0.005	± 0.003	3.9	± 0.0
15356000	8/1/2002	2 of 2	0.014	± 0.001	0.18	± 0.00	0.049	± 0.008	0.19	± 0.02	0.004	± 0.003	3.7	± 0.1
15356000	8/28/2002	1 of 2	0.024	± 0.003	0.087	± 0.000	0.034	± 0.000	0.09	± 0.04	< 0.002	± 0.003	2.2	± 0.0
15356000	8/28/2002	2 of 2	0.029	± 0.002	0.10	± 0.00	0.054	± 0.002	0.19	± 0.03	< 0.002	± 0.000	2.3	± 0.0
15356000	9/25/2002	1 of 2	0.097	± 0.000	0.036	± 0.002	0.015	± 0.006	0.09	± 0.02	< 0.002	± 0.001	1.2	± 0.0
15356000	9/25/2002	2 of 2	0.016	± 0.002	0.034	± 0.002	0.014	± 0.003	0.09	± 0.02	< 0.002	± 0.002	1.1	± 0.0
15389000	3/11/2002	1 of 2	0.041	± 0.001	0.0040	± 0.0007	0.023	± 0.004	< 0.03	± 0.01	< 0.006	± 0.004	0.52	± 0.02
15389000	3/11/2002	2 of 2	0.038	± 0.001	0.0043	± 0.0004	0.020	± 0.001	< 0.03	± 0.01	< 0.006	± 0.000	0.46	± 0.01
15389000	6/6/2002	1 of 2	0.015	± 0.001	0.10	± 0.00	0.030	± 0.004	0.13	± 0.01	< 0.006	± 0.002	1.9	± 0.0
15389000	6/6/2002	2 of 2	0.013	± 0.002	0.11	± 0.00	0.039	± 0.001	0.12	± 0.01	< 0.006	± 0.004	1.9	± 0.0
15389000	6/18/2002	1 of 2	0.014	± 0.000	0.16	± 0.00	0.064	± 0.003	0.22	± 0.03	< 0.006	± 0.001	2.6	± 0.1
15389000	6/18/2002	2 of 2	0.029	± 0.002	0.15	± 0.01	0.057	± 0.005	0.21	± 0.00	< 0.006	± 0.005	2.6	± 0.0
15389000	6/26/2002	1 of 2	0.023	± 0.002	0.21	± 0.00	0.080	± 0.002	0.34	± 0.04	< 0.006	± 0.000	2.5	± 0.0
15389000	6/26/2002	2 of 2	0.010	± 0.002	0.14	± 0.00	0.061	± 0.004	0.18	± 0.02	< 0.006	± 0.001	2.4	± 0.0
15389000	8/13/2002	1 of 2	0.010	± 0.001	0.044	± 0.001	0.030	± 0.004	0.24	± 0.02	< 0.002	± 0.003	1.2	± 0.0
15389000	8/13/2002	2 of 2	0.011	± 0.002	0.033	± 0.000	0.027	± 0.004	0.20	± 0.07	< 0.002	± 0.001	1.4	± 0.0
15389000	8/26/2002	1 of 2	0.013	± 0.003	0.077	± 0.000	0.054	± 0.004	0.21	± 0.07	< 0.002	± 0.001	1.8	± 0.0
15389000	8/26/2002	2 of 2	0.013	± 0.001	0.079	± 0.000	0.051	± 0.003	0.23	± 0.03	< 0.002	± 0.002	1.8	± 0.0
15389000	9/27/2002	1 of 2	0.014	± 0.002	0.042	± 0.001	0.069	± 0.003	0.19	± 0.03	< 0.002	± 0.002	1.6	± 0.0
15389000	9/27/2002	2 of 2	0.030	± 0.001	0.040	± 0.001	0.062	± 0.003	0.21	± 0.02	< 0.002	± 0.003	1.6	± 0.0

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

Station	Date	Rep	Cadmium µg/L		Cerium µg/L		Cobalt µg/L		Chromium µg/L		Cesium µg/L		Copper µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	0.019	± 0.000	0.0073	± 0.0003	0.011	± 0.001	< 0.03	± 0.02	< 0.006	± 0.004	0.64	± 0.02
15453500	3/19/2002	2 of 2	0.019	± 0.001	0.0068	± 0.0003	0.009	± 0.002	< 0.03	± 0.02	< 0.006	± 0.004	0.60	± 0.02
15453500	6/4/2002	1 of 2	0.017	± 0.002	0.095	± 0.002	0.039	± 0.002	< 0.03	± 0.01	< 0.006	± 0.001	2.6	± 0.0
15453500	6/4/2002	2 of 2	0.022	± 0.002	0.094	± 0.002	0.036	± 0.001	0.07	± 0.01	< 0.006	± 0.001	2.7	± 0.0
15453500	6/24/2002	1 of 2	0.012	± 0.002	0.049	± 0.001	0.023	± 0.002	0.04	± 0.02	< 0.006	± 0.005	1.9	± 0.0
15453500	6/24/2002	2 of 2	0.010	± 0.001	0.047	± 0.001	0.026	± 0.003	< 0.05	± 0.02	< 0.002	± 0.004	2.1	± 0.0
15453500	7/18/2002	1 of 2	0.015	± 0.001	0.078	± 0.000	0.048	± 0.006	0.12	± 0.02	0.003	± 0.003	1.9	± 0.0
15453500	7/18/2002	2 of 2	0.010	± 0.001	0.057	± 0.000	0.032	± 0.006	0.11	± 0.04	< 0.002	± 0.000	2.0	± 0.0
15453500	7/30/2002	1 of 2	0.007	± 0.001	0.016	± 0.001	0.015	± 0.004	0.06	± 0.03	< 0.002	± 0.001	1.6	± 0.0
15453500	7/30/2002	2 of 2	0.012	± 0.002	0.027	± 0.001	0.024	± 0.004	0.09	± 0.04	< 0.002	± 0.003	1.6	± 0.0
15453500	8/23/2002	1 of 2	0.017	± 0.001	0.066	± 0.001	0.035	± 0.003	0.17	± 0.01	< 0.002	± 0.000	2.3	± 0.0
15453500	8/23/2002	2 of 2	0.081	± 0.056	0.064	± 0.001	0.039	± 0.000	0.21	± 0.02	< 0.002	± 0.003	2.3	± 0.0
15453500	9/4/2002	1 of 2	0.019	± 0.003	0.14	± 0.00	0.091	± 0.004	0.23	± 0.01	0.011	± 0.003	2.7	± 0.0
15453500	9/4/2002	2 of 2	0.018	± 0.001	0.054	± 0.002	0.024	± 0.004	0.12	± 0.05	< 0.009	± 0.006	2.4	± 0.0
15515500	3/22/2002	1 of 2	0.018	± 0.000	0.0043	± 0.0006	0.11	± 0.00	< 0.03	± 0.02	< 0.006	± 0.006	0.52	± 0.02
15515500	3/22/2002	2 of 2	0.020	± 0.001	0.0043	± 0.0005	0.12	± 0.00	< 0.03	± 0.02	< 0.006	± 0.001	0.49	± 0.01
15515500	5/14/2002	1 of 2	0.028	± 0.001	0.28	± 0.00	0.18	± 0.00	0.15	± 0.01	< 0.006	± 0.001	5.3	± 0.1
15515500	5/14/2002	2 of 2	0.026	± 0.001	0.26	± 0.00	0.17	± 0.00	0.13	± 0.01	< 0.006	± 0.005	5.1	± 0.1
15515500	5/29/2002	1 of 2	0.011	± 0.000	0.050	± 0.001	0.023	± 0.000	< 0.03	± 0.02	0.008	± 0.003	3.1	± 0.0
15515500	5/29/2002	2 of 2	0.013	± 0.002	0.071	± 0.001	0.051	± 0.002	0.16	± 0.02	0.013	± 0.002	3.2	± 0.1
15515500	7/16/2002	1 of 2	0.013	± 0.003	0.11	± 0.00	0.091	± 0.004	0.20	± 0.05	0.016	± 0.004	1.6	± 0.0
15515500	7/16/2002	2 of 2	0.010	± 0.001	0.035	± 0.000	0.032	± 0.001	0.06	± 0.02	0.010	± 0.003	1.4	± 0.0
15515500	7/29/2002	1 of 2	0.010	± 0.001	0.011	± 0.000	0.0095	± 0.003	< 0.05	± 0.02	0.006	± 0.003	1.3	± 0.1
15515500	7/29/2002	2 of 2	0.013	± 0.003	0.034	± 0.001	0.029	± 0.002	0.11	± 0.04	0.009	± 0.001	1.4	± 0.0
15515500	8/21/2002	1 of 2	0.028	± 0.004	0.14	± 0.00	0.10	± 0.01	0.25	± 0.04	0.005	± 0.003	3.7	± 0.0
15515500	8/21/2002	2 of 2	0.027	± 0.002	0.14	± 0.00	0.10	± 0.00	0.15	± 0.02	0.006	± 0.004	3.7	± 0.0
15515500	8/30/2002	1 of 2	0.015	± 0.002	0.024	± 0.002	0.019	± 0.001	0.13	± 0.03	0.015	± 0.001	2.7	± 0.0
15515500	8/30/2002	2 of 2	0.21	± 0.02	0.029	± 0.000	0.023	± 0.002	0.21	± 0.00	0.010	± 0.005	2.9	± 0.0

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

Station	Date	Rep	Cadmium µg/L			Cerium µg/L			Cobalt µg/L			Chromium µg/L			Cesium µg/L			Copper µg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15565447	4/2/2002	1 of 2	0.020	±	0.002	0.0060	±	0.0004	0.065	±	0.002	< 0.03	±	0.02	< 0.006	±	0.001	0.68	±	0.01
15565447	4/2/2002	2 of 2	0.019	±	0.001	0.0047	±	0.0004	0.066	±	0.002	< 0.03	±	0.02	< 0.006	±	0.003	0.69	±	0.01
15565447	6/12/2002	1 of 2	0.024	±	0.002	0.20	±	0.00	0.053	±	0.006	0.08	±	0.03	< 0.002	±	0.004	4.8	±	0.0
15565447	6/12/2002	2 of 2	0.021	±	0.002	0.18	±	0.00	0.039	±	0.003	0.09	±	0.03	< 0.002	±	0.002	4.9	±	0.0
15565447	6/20/2002	1 of 2	0.023	±	0.001	0.16	±	0.00	0.025	±	0.003	0.04	±	0.01	< 0.006	±	0.001	3.2	±	0.0
15565447	6/20/2002	2 of 2	0.022	±	0.001	0.17	±	0.00	0.036	±	0.003	0.06	±	0.01	< 0.006	±	0.003	3.2	±	0.1
15565447	7/1/2002	1 of 2	0.013	±	0.001	0.056	±	0.001	0.020	±	0.004	0.06	±	0.02	< 0.002	±	0.004	3.3	±	0.1
15565447	7/1/2002	2 of 2	0.013	±	0.002	0.058	±	0.001	0.018	±	0.005	0.05	±	0.02	< 0.002	±	0.003	3.3	±	0.1
15565447	7/16/2002	1 of 2	0.011	±	0.001	0.041	±	0.001	0.024	±	0.005	0.07	±	0.03	< 0.002	±	0.003	2.3	±	0.0
15565447	7/16/2002	2 of 2	0.014	±	0.001	0.040	±	0.001	0.026	±	0.005	< 0.05	±	0.00	< 0.002	±	0.003	2.3	±	0.0
15565447	8/8/2002	1 of 2	0.012	±	0.001	0.018	±	0.001	0.017	±	0.001	0.15	±	0.02	< 0.002	±	0.003	2.1	±	0.0
15565447	8/8/2002	2 of 2	0.013	±	0.001	0.033	±	0.000	0.026	±	0.002	0.16	±	0.02	< 0.002	±	0.003	2.0	±	0.0
15565447	9/24/2002	1 of 2	0.015	±	0.001	0.032	±	0.001	0.018	±	0.003	0.09	±	0.04	< 0.009	±	0.004	2.4	±	0.0
15565447	9/24/2002	2 of 2	0.018	±	0.003	0.031	±	0.002	0.020	±	0.004	0.12	±	0.02	< 0.009	±	0.006	2.4	±	0.0

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

Station	Date	Rep	Ysprosium µg/L		Erbium µg/L		Europium µg/L		Iron µg/L		Gallium µg/L		Gadolinium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/2002	1 of 2	0.0028	± 0.0004	0.0017	± 0.0004	< 0.0002	± 0.0007	5.6	± 0.3	0.0051	± 0.0009	0.0024	± 0.0007
15356000	3/21/2002	2 of 2	0.0027	± 0.0002	0.0018	± 0.0003	< 0.0002	± 0.0006	12	± 0	0.010	± 0.000	0.0019	± 0.0003
15356000	5/22/2002	1 of 2	0.057	± 0.001	0.032	± 0.000	0.013	± 0.000	150	± 0	0.012	± 0.001	0.059	± 0.001
15356000	5/22/2002	2 of 2	0.057	± 0.002	0.034	± 0.000	0.013	± 0.000	150	± 0	0.012	± 0.001	0.061	± 0.000
15356000	6/11/2002	1 of 2	0.020	± 0.000	0.013	± 0.002	0.0042	± 0.0009	31	± 0	0.0094	± 0.0009	0.024	± 0.000
15356000	6/11/2002	2 of 2	0.020	± 0.001	0.014	± 0.002	0.0056	± 0.0004	31	± 1	0.013	± 0.001	0.020	± 0.001
15356000	7/10/2002	1 of 2	0.0047	± 0.0004	0.0028	± 0.0005	0.0007	± 0.0006	35	± 1	0.032	± 0.000	0.0048	± 0.0005
15356000	7/10/2002	2 of 2	0.0028	± 0.0003	0.0019	± 0.0004	0.0008	± 0.0002	3.9	± 0.4	0.023	± 0.001	0.0017	± 0.0004
15356000	8/1/2002	1 of 2	0.036	± 0.002	0.023	± 0.001	0.0083	± 0.0003	57	± 1	0.025	± 0.001	0.035	± 0.001
15356000	8/1/2002	2 of 2	0.037	± 0.001	0.022	± 0.002	0.0058	± 0.0000	61	± 1	0.026	± 0.001	0.034	± 0.001
15356000	8/28/2002	1 of 2	0.024	± 0.001	0.012	± 0.000	0.0035	± 0.0008	27	± 1	0.011	± 0.001	0.022	± 0.000
15356000	8/28/2002	2 of 2	0.024	± 0.001	0.014	± 0.002	0.0049	± 0.0007	50	± 1	0.016	± 0.000	0.023	± 0.001
15356000	9/25/2002	1 of 2	0.010	± 0.001	0.0063	± 0.0005	0.0021	± 0.0007	19	± 0	0.009	± 0.001	0.0098	± 0.0006
15356000	9/25/2002	2 of 2	0.0096	± 0.0003	0.0072	± 0.0004	0.0020	± 0.0004	16	± 0	0.008	± 0.000	0.0091	± 0.0012
15389000	3/11/2002	1 of 2	0.0022	± 0.0003	0.0015	± 0.0004	< 0.0002	± 0.0001	6.4	± 0.3	0.0065	± 0.0006	0.0024	± 0.0003
15389000	3/11/2002	2 of 2	0.0019	± 0.0002	0.0019	± 0.0003	< 0.0002	± 0.0001	5.7	± 0.1	0.0024	± 0.0006	0.0023	± 0.0007
15389000	6/6/2002	1 of 2	0.028	± 0.000	0.015	± 0.002	0.0060	± 0.0008	140	± 0	0.0066	± 0.0007	0.032	± 0.000
15389000	6/6/2002	2 of 2	0.030	± 0.000	0.016	± 0.000	0.0065	± 0.0004	150	± 0	0.0073	± 0.0010	0.036	± 0.000
15389000	6/18/2002	1 of 2	0.070	± 0.000	0.035	± 0.001	0.015	± 0.001	190	± 0	0.0052	± 0.0008	0.078	± 0.003
15389000	6/18/2002	2 of 2	0.064	± 0.003	0.034	± 0.000	0.014	± 0.000	180	± 0	0.0047	± 0.0006	0.075	± 0.000
15389000	6/26/2002	1 of 2	0.062	± 0.000	0.030	± 0.000	0.013	± 0.001	210	± 0	0.014	± 0.001	0.070	± 0.001
15389000	6/26/2002	2 of 2	0.052	± 0.002	0.027	± 0.001	0.011	± 0.001	130	± 0	0.0070	± 0.0008	0.061	± 0.001
15389000	8/13/2002	1 of 2	0.019	± 0.000	0.0098	± 0.0004	0.0049	± 0.0006	63	± 1	0.006	± 0.001	0.018	± 0.000
15389000	8/13/2002	2 of 2	0.018	± 0.002	0.0085	± 0.0020	0.0034	± 0.0008	50	± 1	0.004	± 0.001	0.018	± 0.000
15389000	8/26/2002	1 of 2	0.043	± 0.000	0.026	± 0.002	0.0083	± 0.0001	100	± 0	0.005	± 0.001	0.048	± 0.001
15389000	8/26/2002	2 of 2	0.044	± 0.000	0.023	± 0.001	0.0087	± 0.0008	100	± 0	0.005	± 0.000	0.049	± 0.001
15389000	9/27/2002	1 of 2	0.030	± 0.001	0.016	± 0.001	0.0064	± 0.0005	75	± 1	0.005	± 0.001	0.030	± 0.001
15389000	9/27/2002	2 of 2	0.029	± 0.000	0.018	± 0.000	0.0046	± 0.0000	69	± 1	0.003	± 0.001	0.031	± 0.001

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

Station	Date	Rep	Ysprosium µg/L		Erbium µg/L		Europium µg/L		Iron µg/L		Gallium µg/L		Gadolinium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	0.0024	± 0.0006	0.0015	± 0.0003	< 0.0002	± 0.0009	13	± 0	0.013	± 0.001	0.0026	± 0.0000
15453500	3/19/2002	2 of 2	0.0026	± 0.0002	0.0015	± 0.0005	< 0.0002	± 0.0005	12	± 1	0.0054	± 0.0005	0.0026	± 0.0003
15453500	6/4/2002	1 of 2	0.021	± 0.000	0.012	± 0.000	0.0043	± 0.0007	75	± 1	0.012	± 0.001	0.024	± 0.002
15453500	6/4/2002	2 of 2	0.022	± 0.001	0.012	± 0.001	0.0040	± 0.0006	72	± 1	0.012	± 0.001	0.022	± 0.001
15453500	6/24/2002	1 of 2	0.015	± 0.000	0.0079	± 0.0009	0.0035	± 0.0014	35	± 1	0.0094	± 0.0012	0.014	± 0.001
15453500	6/24/2002	2 of 2	0.014	± 0.002	0.0080	± 0.0003	0.0033	± 0.0008	31	± 1	0.012	± 0.001	0.015	± 0.001
15453500	7/18/2002	1 of 2	0.011	± 0.000	0.0077	± 0.0007	0.0022	± 0.0004	80	± 1	0.037	± 0.001	0.011	± 0.000
15453500	7/18/2002	2 of 2	0.0079	± 0.0009	0.0055	± 0.0003	0.0019	± 0.0005	49	± 1	0.032	± 0.000	0.0086	± 0.0002
15453500	7/30/2002	1 of 2	0.0036	± 0.0004	0.0032	± 0.0003	0.0023	± 0.0002	12	± 0	0.027	± 0.001	0.0040	± 0.0006
15453500	7/30/2002	2 of 2	0.0049	± 0.0006	0.0030	± 0.0004	0.0013	± 0.0006	26	± 1	0.032	± 0.003	0.0041	± 0.0004
15453500	8/23/2002	1 of 2	0.022	± 0.000	0.012	± 0.000	0.0066	± 0.0004	45	± 1	0.017	± 0.001	0.022	± 0.001
15453500	8/23/2002	2 of 2	0.021	± 0.002	0.013	± 0.000	0.0049	± 0.0011	48	± 2	0.017	± 0.001	0.021	± 0.003
15453500	9/4/2002	1 of 2	0.028	± 0.004	0.015	± 0.002	0.0075	± 0.0001	160	± 0	0.040	± 0.005	0.028	± 0.000
15453500	9/4/2002	2 of 2	0.016	± 0.001	0.011	± 0.001	0.0035	± 0.0007	38	± 1	0.016	± 0.001	0.018	± 0.000
15515500	3/22/2002	1 of 2	0.0012	± 0.0002	0.0017	± 0.0006	< 0.0002	± 0.0005	8.3	± 0.1	0.0053	± 0.0012	0.0010	± 0.0001
15515500	3/22/2002	2 of 2	0.0013	± 0.0003	0.0012	± 0.0001	< 0.0002	± 0.0002	7.9	± 0.5	0.0056	± 0.0002	0.0013	± 0.0006
15515500	5/14/2002	1 of 2	0.042	± 0.003	0.028	± 0.001	0.010	± 0.001	230	± 0	0.015	± 0.001	0.043	± 0.005
15515500	5/14/2002	2 of 2	0.042	± 0.000	0.028	± 0.000	0.0090	± 0.0006	220	± 0	0.014	± 0.001	0.046	± 0.000
15515500	5/29/2002	1 of 2	0.0087	± 0.0011	0.0058	± 0.0000	0.0019	± 0.0008	35	± 1	0.019	± 0.001	0.0073	± 0.0000
15515500	5/29/2002	2 of 2	0.011	± 0.000	0.0056	± 0.0002	0.0022	± 0.0004	87	± 1	0.033	± 0.002	0.011	± 0.000
15515500	7/16/2002	1 of 2	0.0096	± 0.0004	0.0049	± 0.0010	0.0022	± 0.0006	150	± 0	0.060	± 0.001	0.0089	± 0.0010
15515500	7/16/2002	2 of 2	0.0044	± 0.0011	0.0031	± 0.0004	0.0010	± 0.0005	38	± 1	0.038	± 0.003	0.0049	± 0.0005
15515500	7/29/2002	1 of 2	0.0026	± 0.0002	0.0013	± 0.0010	0.0007	± 0.0000	6.4	± 0.4	0.033	± 0.002	0.0024	± 0.0002
15515500	7/29/2002	2 of 2	0.0046	± 0.0004	0.0028	± 0.0004	0.0014	± 0.0005	54	± 0	0.043	± 0.001	0.0035	± 0.0012
15515500	8/21/2002	1 of 2	0.029	± 0.003	0.019	± 0.000	0.0059	± 0.0003	72	± 1	0.021	± 0.002	0.026	± 0.002
15515500	8/21/2002	2 of 2	0.028	± 0.002	0.019	± 0.001	0.0057	± 0.0002	82	± 1	0.023	± 0.000	0.026	± 0.001
15515500	8/30/2002	1 of 2	0.0074	± 0.0010	0.0049	± 0.0011	0.0018	± 0.0005	25	± 2	0.022	± 0.002	0.0063	± 0.0010
15515500	8/30/2002	2 of 2	0.0076	± 0.0005	0.0050	± 0.0008	0.0015	± 0.0016	27	± 1	0.022	± 0.001	0.0080	± 0.0011

Table 8. Selected dissolved trace elements fixed-station sampling sites in the Yukon River Basin – continued

Station	Date	Rep	Ysprosium µg/L		Erbium µg/L		Europium µg/L		Iron µg/L		Gallium µg/L		Gadolinium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15565447	4/2/2002	1 of 2	0.0021	± 0.0006	0.0015	± 0.0005	< 0.0002	± 0.0004	29	± 1	0.0036	± 0.0005	0.0018	± 0.0006
15565447	4/2/2002	2 of 2	0.0019	± 0.0007	0.0015	± 0.0007	0.0005	± 0.0004	31	± 1	0.0046	± 0.0007	0.0019	± 0.0004
15565447	6/12/2002	1 of 2	0.037	± 0.000	0.022	± 0.001	0.0092	± 0.0006	310	± 0	0.019	± 0.002	0.039	± 0.001
15565447	6/12/2002	2 of 2	0.035	± 0.002	0.021	± 0.001	0.0086	± 0.0003	260	± 0	0.014	± 0.002	0.038	± 0.001
15565447	6/20/2002	1 of 2	0.026	± 0.001	0.015	± 0.000	0.0058	± 0.0005	320	± 0	0.012	± 0.001	0.030	± 0.001
15565447	6/20/2002	2 of 2	0.028	± 0.001	0.016	± 0.001	0.0068	± 0.0004	340	± 0	0.016	± 0.000	0.030	± 0.001
15565447	7/1/2002	1 of 2	0.015	± 0.001	0.0094	± 0.0001	0.0039	± 0.0000	98	± 1	0.015	± 0.001	0.015	± 0.000
15565447	7/1/2002	2 of 2	0.015	± 0.001	0.010	± 0.001	0.0028	± 0.0005	99	± 0	0.015	± 0.001	0.015	± 0.001
15565447	7/16/2002	1 of 2	0.0073	± 0.0009	0.0052	± 0.0003	0.0021	± 0.0012	67	± 1	0.019	± 0.003	0.0085	± 0.0013
15565447	7/16/2002	2 of 2	0.0077	± 0.0004	0.0051	± 0.0006	0.0023	± 0.0004	64	± 1	0.018	± 0.002	0.0088	± 0.0010
15565447	8/8/2002	1 of 2	0.0035	± 0.0002	0.0030	± 0.0004	0.0006	± 0.0003	23	± 0	0.025	± 0.001	0.0041	± 0.0002
15565447	8/8/2002	2 of 2	0.0058	± 0.0003	0.0035	± 0.0004	0.0012	± 0.0004	46	± 1	0.031	± 0.000	0.0056	± 0.0007
15565447	9/24/2002	1 of 2	0.011	± 0.001	0.0077	± 0.0012	0.0020	± 0.0008	59	± 1	0.014	± 0.002	0.012	± 0.001
15565447	9/24/2002	2 of 2	0.013	± 0.000	0.0075	± 0.0005	0.0015	± 0.0001	48	± 0	0.014	± 0.002	0.012	± 0.000

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

Station	Date	Rep	Holmium µg/L			Potassium mg/L			Lanthanum µg/L			Lithium µg/L			Lutetium µg/L			Magnesium mg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15356000	3/21/2002	1 of 2	0.0007	±	0.0002	1.1	±	0.0	0.0081	±	0.0003	2.6	±	0.2	0.0003	±	0.0000	10	±	0
15356000	3/21/2002	2 of 2	0.0006	±	0.0002	1.1	±	0.0	0.0090	±	0.0005	2.5	±	0.1	0.0003	±	0.0000	10	±	0
15356000	5/22/2002	1 of 2	0.011	±	0.000	1.1	±	0.0	0.18	±	0.00	1.9	±	0.1	0.0046	±	0.0009	6.1	±	0.1
15356000	5/22/2002	2 of 2	0.012	±	0.000	1.1	±	0.0	0.19	±	0.00	1.9	±	0.1	0.0050	±	0.0007	6.1	±	0.1
15356000	6/11/2002	1 of 2	0.0041	±	0.0003	0.96	±	0.02	0.059	±	0.001	2.2	±	0.1	0.0017	±	0.0000	7.2	±	0.0
15356000	6/11/2002	2 of 2	0.0043	±	0.0002	0.98	±	0.02	0.060	±	0.001	2.3	±	0.1	0.0020	±	0.0000	7.2	±	0.0
15356000	7/10/2002	1 of 2	0.0009	±	0.0002	1.5	±	0.0	0.021	±	0.001	3.7	±	0.3	0.0006	±	0.0001	8.4	±	0.1
15356000	7/10/2002	2 of 2	0.0004	±	0.0000	1.5	±	0.0	0.0050	±	0.0003	3.4	±	0.3	0.0003	±	0.0001	8.3	±	0.1
15356000	8/1/2002	1 of 2	0.0074	±	0.0002	1.5	±	0.0	0.096	±	0.000	2.7	±	0.1	0.0035	±	0.0000	6.7	±	0.0
15356000	8/1/2002	2 of 2	0.0081	±	0.0002	1.5	±	0.0	0.10	±	0.00	2.7	±	0.1	0.0038	±	0.0002	6.8	±	0.0
15356000	8/28/2002	1 of 2	0.0045	±	0.0002	0.97	±	0.02	0.052	±	0.001	2.6	±	0.0	0.0023	±	0.0002	8.0	±	0.1
15356000	8/28/2002	2 of 2	0.0046	±	0.0001	0.97	±	0.02	0.056	±	0.000	2.6	±	0.1	0.0025	±	0.0001	7.9	±	0.1
15356000	9/25/2002	1 of 2	0.0021	±	0.0002	0.95	±	0.01	0.026	±	0.000	2.5	±	0.1	0.0010	±	0.0001	8.5	±	0.1
15356000	9/25/2002	2 of 2	0.0021	±	0.0003	0.95	±	0.02	0.024	±	0.001	2.6	±	0.1	0.0011	±	0.0001	8.6	±	0.1
15389000	3/11/2002	1 of 2	0.0005	±	0.0001	0.61	±	0.01	0.0036	±	0.0006	6.5	±	0.1	0.0003	±	0.0001	13	±	0
15389000	3/11/2002	2 of 2	0.0004	±	0.0001	0.61	±	0.00	0.0035	±	0.0002	6.5	±	0.1	0.0002	±	0.0000	13	±	0
15389000	6/6/2002	1 of 2	0.0060	±	0.0001	0.70	±	0.01	0.059	±	0.001	2.4	±	0.1	0.0022	±	0.0001	4.0	±	0.0
15389000	6/6/2002	2 of 2	0.0061	±	0.0001	0.70	±	0.01	0.062	±	0.001	2.4	±	0.1	0.0023	±	0.0003	4.0	±	0.0
15389000	6/18/2002	1 of 2	0.014	±	0.000	0.48	±	0.01	0.077	±	0.000	3.2	±	0.1	0.0042	±	0.0001	4.6	±	0.0
15389000	6/18/2002	2 of 2	0.013	±	0.000	0.47	±	0.00	0.078	±	0.001	3.2	±	0.1	0.0043	±	0.0007	4.6	±	0.0
15389000	6/26/2002	1 of 2	0.012	±	0.000	0.39	±	0.01	0.11	±	0.00	2.6	±	0.1	0.0039	±	0.0000	4.0	±	0.0
15389000	6/26/2002	2 of 2	0.0100	±	0.0003	0.42	±	0.00	0.073	±	0.002	2.5	±	0.1	0.0036	±	0.0001	4.0	±	0.1
15389000	8/13/2002	1 of 2	0.0036	±	0.0002	0.52	±	0.01	0.023	±	0.000	5.0	±	0.1	0.0013	±	0.0001	7.9	±	0.1
15389000	8/13/2002	2 of 2	0.0036	±	0.0002	0.52	±	0.03	0.019	±	0.001	5.0	±	0.2	0.0012	±	0.0001	7.9	±	0.1
15389000	8/26/2002	1 of 2	0.0094	±	0.0005	0.39	±	0.01	0.042	±	0.001	4.2	±	0.1	0.0033	±	0.0000	6.3	±	0.1
15389000	8/26/2002	2 of 2	0.0092	±	0.0008	0.39	±	0.00	0.040	±	0.001	4.1	±	0.1	0.0031	±	0.0004	6.3	±	0.0
15389000	9/27/2002	1 of 2	0.0061	±	0.0005	0.45	±	0.01	0.023	±	0.001	5.0	±	0.0	0.0022	±	0.0002	7.5	±	0.0
15389000	9/27/2002	2 of 2	0.0059	±	0.0001	0.45	±	0.00	0.022	±	0.001	5.0	±	0.1	0.0021	±	0.0001	7.5	±	0.0

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

Station	Date	Rep	Holmium µg/L			Potassium mg/L			Lanthanum µg/L			Lithium µg/L			Lutetium µg/L			Magnesium mg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15453500	3/19/2002	1 of 2	0.0006	±	0.0005	1.2	±	0.0	0.0055	±	0.0003	3.0	±	0.4	0.0003	±	0.0001	11	±	0
15453500	3/19/2002	2 of 2	0.0006	±	0.0008	1.2	±	0.0	0.0062	±	0.0008	2.9	±	0.0	0.0003	±	0.0001	11	±	0
15453500	6/4/2002	1 of 2	0.0045	±	0.0005	1.1	±	0.0	0.059	±	0.001	2.3	±	0.2	0.0020	±	0.0001	6.0	±	0.1
15453500	6/4/2002	2 of 2	0.0049	±	0.0001	1.2	±	0.0	0.057	±	0.001	2.3	±	0.1	0.0018	±	0.0001	6.0	±	0.0
15453500	6/24/2002	1 of 2	0.0031	±	0.0001	0.86	±	0.02	0.032	±	0.000	2.6	±	0.2	0.0010	±	0.0000	7.0	±	0.1
15453500	6/24/2002	2 of 2	0.0030	±	0.0000	0.89	±	0.01	0.031	±	0.001	2.7	±	0.2	0.0011	±	0.0002	6.9	±	0.1
15453500	7/18/2002	1 of 2	0.0022	±	0.0001	1.4	±	0.0	0.042	±	0.000	3.3	±	0.1	0.0011	±	0.0000	7.6	±	0.1
15453500	7/18/2002	2 of 2	0.0019	±	0.0001	1.4	±	0.0	0.032	±	0.000	3.3	±	0.1	0.0008	±	0.0001	7.4	±	0.0
15453500	7/30/2002	1 of 2	0.0009	±	0.0001	1.5	±	0.0	0.0096	±	0.0004	3.4	±	0.2	0.0005	±	0.0001	8.0	±	0.1
15453500	7/30/2002	2 of 2	0.0009	±	0.0002	1.5	±	0.0	0.015	±	0.000	3.6	±	0.2	0.0007	±	0.0002	7.9	±	0.2
15453500	8/23/2002	1 of 2	0.0045	±	0.0001	0.99	±	0.01	0.039	±	0.002	3.4	±	0.1	0.0018	±	0.0002	7.2	±	0.0
15453500	8/23/2002	2 of 2	0.0039	±	0.0002	1.0	±	0.0	0.038	±	0.001	3.4	±	0.1	0.0018	±	0.0003	7.3	±	0.1
15453500	9/4/2002	1 of 2	0.0054	±	0.0001	0.91	±	0.02	0.083	±	0.002	3.1	±	0.0	0.0021	±	0.0002	8.1	±	0.1
15453500	9/4/2002	2 of 2	0.0037	±	0.0002	0.89	±	0.01	0.039	±	0.000	3.1	±	0.0	0.0015	±	0.0001	8.1	±	0.0
15515500	3/22/2002	1 of 2	0.0004	±	0.0000	2.3	±	0.0	0.0023	±	0.0003	3.9	±	0.2	< 0.0002	±	0.0001	9.8	±	0.1
15515500	3/22/2002	2 of 2	0.0005	±	0.0002	2.3	±	0.0	0.0024	±	0.0002	3.7	±	0.0	0.0004	±	0.0000	9.8	±	0.0
15515500	5/14/2002	1 of 2	0.0090	±	0.0002	1.7	±	0.0	0.16	±	0.00	2.1	±	0.1	0.0048	±	0.0000	5.5	±	0.1
15515500	5/14/2002	2 of 2	0.0097	±	0.0001	1.7	±	0.0	0.15	±	0.00	2.1	±	0.1	0.0042	±	0.0002	5.5	±	0.1
15515500	5/29/2002	1 of 2	0.0019	±	0.0001	1.9	±	0.0	0.033	±	0.001	3.3	±	0.2	0.0013	±	0.0002	6.6	±	0.0
15515500	5/29/2002	2 of 2	0.0025	±	0.0002	2.0	±	0.0	0.046	±	0.002	3.4	±	0.2	0.0012	±	0.0002	6.6	±	0.0
15515500	7/16/2002	1 of 2	0.0015	±	0.0001	2.0	±	0.0	0.057	±	0.001	4.6	±	0.2	0.0007	±	0.0001	6.3	±	0.0
15515500	7/16/2002	2 of 2	0.0010	±	0.0002	2.0	±	0.0	0.020	±	0.001	4.8	±	0.1	0.0006	±	0.0002	6.3	±	0.1
15515500	7/29/2002	1 of 2	0.0004	±	0.0001	1.9	±	0.1	0.0083	±	0.0004	4.6	±	0.2	0.0003	±	0.0001	6.2	±	0.1
15515500	7/29/2002	2 of 2	0.0010	±	0.0002	1.9	±	0.0	0.018	±	0.001	4.5	±	0.1	0.0005	±	0.0001	6.0	±	0.1
15515500	8/21/2002	1 of 2	0.0058	±	0.0001	1.5	±	0.0	0.079	±	0.001	2.8	±	0.1	0.0036	±	0.0003	5.8	±	0.0
15515500	8/21/2002	2 of 2	0.0056	±	0.0003	1.5	±	0.0	0.081	±	0.000	2.8	±	0.2	0.0035	±	0.0001	5.8	±	0.1
15515500	8/30/2002	1 of 2	0.0017	±	0.0001	1.7	±	0.0	0.020	±	0.001	3.7	±	0.1	0.0012	±	0.0001	7.6	±	0.0
15515500	8/30/2002	2 of 2	0.0020	±	0.0001	1.7	±	0.0	0.022	±	0.001	3.6	±	0.0	0.0011	±	0.0002	7.5	±	0.1

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

Station	Date	Rep	Holmium µg/L			Potassium mg/L			Lanthanum µg/L			Lithium µg/L			Lutetium µg/L			Magnesium mg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15565447	4/2/2002	1 of 2	0.0006	±	0.0001	1.4	±	0.0	0.0037	±	0.0004	3.1	±	0.3	0.0005	±	0.0000	11	±	0
15565447	4/2/2002	2 of 2	0.0005	±	0.0001	1.4	±	0.0	0.0035	±	0.0002	3.1	±	0.1	0.0005	±	0.0001	11	±	0
15565447	6/12/2002	1 of 2	0.0077	±	0.0001	1.1	±	0.0	0.13	±	0.00	1.7	±	0.1	0.0035	±	0.0001	4.2	±	0.0
15565447	6/12/2002	2 of 2	0.0066	±	0.0002	1.1	±	0.0	0.11	±	0.00	1.7	±	0.2	0.0033	±	0.0001	4.1	±	0.1
15565447	6/20/2002	1 of 2	0.0057	±	0.0007	1.2	±	0.0	0.099	±	0.001	2.1	±	0.1	0.0021	±	0.0004	5.3	±	0.1
15565447	6/20/2002	2 of 2	0.0054	±	0.0000	1.2	±	0.0	0.10	±	0.00	2.0	±	0.0	0.0024	±	0.0001	5.3	±	0.0
15565447	7/1/2002	1 of 2	0.0030	±	0.0001	1.1	±	0.0	0.041	±	0.000	2.4	±	0.0	0.0016	±	0.0002	6.1	±	0.0
15565447	7/1/2002	2 of 2	0.0031	±	0.0001	1.1	±	0.0	0.041	±	0.001	2.3	±	0.1	0.0015	±	0.0002	6.1	±	0.0
15565447	7/16/2002	1 of 2	0.0019	±	0.0001	1.3	±	0.0	0.026	±	0.001	2.8	±	0.2	0.0010	±	0.0002	7.3	±	0.1
15565447	7/16/2002	2 of 2	0.0015	±	0.0001	1.3	±	0.0	0.025	±	0.000	2.8	±	0.1	0.0010	±	0.0002	7.0	±	0.0
15565447	8/8/2002	1 of 2	0.0009	±	0.0000	1.6	±	0.0	0.013	±	0.000	3.4	±	0.0	0.0004	±	0.0001	7.2	±	0.0
15565447	8/8/2002	2 of 2	0.0011	±	0.0003	1.6	±	0.0	0.019	±	0.000	3.4	±	0.1	0.0006	±	0.0001	7.3	±	0.1
15565447	9/24/2002	1 of 2	0.0017	±	0.0001	0.99	±	0.01	0.025	±	0.000	2.8	±	0.0	0.0013	±	0.0000	8.0	±	0.1
15565447	9/24/2002	2 of 2	0.0024	±	0.0002	1.0	±	0.0	0.025	±	0.001	2.8	±	0.2	0.0014	±	0.0002	7.9	±	0.0

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

Station	Date	Rep	Manganese µg/L		Molybdenum µg/L		Sodium mg/L		Neodymium µg/L		Nickel µg/L		Phosphorus mg/L		Lead µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/2002	1 of 2	1.5	± 0.0	1.2	± 0.1	2.6	± 0.0	0.0077	± 0.0003	0.39	± 0.06	< 10	± 10	0.030	± 0.021
15356000	3/21/2002	2 of 2	1.7	± 0.0	1.2	± 0.0	2.7	± 0.2	0.010	± 0.002	0.44	± 0.05	< 10	± 10	0.010	± 0.003
15356000	5/22/2002	1 of 2	7.7	± 0.0	0.60	± 0.02	1.6	± 0.1	0.21	± 0.00	2.9	± 0.1	< 10	± 0	0.11	± 0.00
15356000	5/22/2002	2 of 2	8.9	± 0.01	0.60	± 0.02	1.6	± 0.1	0.21	± 0.00	2.9	± 0.0	< 8	± 3	0.11	± 0.00
15356000	6/11/2002	1 of 2	1.2	± 0.01	0.83	± 0.02	1.9	± 0.1	0.072	± 0.002	1.3	± 0.0	< 8	± 1	0.030	± 0.004
15356000	6/11/2002	2 of 2	1.2	± 0.0	0.86	± 0.04	1.9	± 0.1	0.071	± 0.004	1.3	± 0.0	< 8	± 7	0.026	± 0.003
15356000	7/10/2002	1 of 2	0.88	± 0.0	1.4	± 0.1	2.5	± 0.0	0.020	± 0.002	0.94	± 0.01	9	± 2	0.021	± 0.004
15356000	7/10/2002	2 of 2	0.27	± 0.1	1.4	± 0.0	2.3	± 0.0	0.0051	± 0.0009	0.72	± 0.07	< 8	± 8	0.019	± 0.004
15356000	8/1/2002	1 of 2	1.1	± 0.0	1.0	± 0.0	2.0	± 0.0	0.12	± 0.00	1.8	± 0.0	< 8	± 2	0.037	± 0.005
15356000	8/1/2002	2 of 2	1.5	± 0.01	1.1	± 0.0	2.0	± 0.0	0.12	± 0.00	1.7	± 0.1	< 8	± 3	0.037	± 0.001
15356000	8/28/2002	1 of 2	2.8	± 0.02	0.91	± 0.05	1.8	± 0.0	0.067	± 0.000	1.7	± 0.1	< 8	± 5	0.024	± 0.002
15356000	8/28/2002	2 of 2	3.8	± 0	0.91	± 0.02	1.8	± 0.0	0.072	± 0.002	1.8	± 0.0	< 10	± 10	0.040	± 0.001
15356000	9/25/2002	1 of 2	0.91	± 0	0.99	± 0.02	2.0	± 0.0	0.030	± 0.005	1.2	± 0.1	< 10	± 10	0.019	± 0.000
15356000	9/25/2002	2 of 2	0.83	± 0.01	0.98	± 0.00	2.0	± 0.0	0.031	± 0.000	1.1	± 0.0	< 10	± 10	0.089	± 0.002
15389000	3/11/2002	1 of 2	15	± 0.01	0.64	± 0.00	4.5	± 0.4	0.0043	± 0.0003	0.49	± 0.19	< 10	± 0	0.15	± 0.00
15389000	3/11/2002	2 of 2	14	± 0.0	0.63	± 0.01	4.3	± 0.2	0.0040	± 0.0004	0.50	± 0.08	< 10	± 0	0.14	± 0.00
15389000	6/6/2002	1 of 2	0.73	± 0.0	0.33	± 0.01	1.3	± 0.1	0.086	± 0.008	1.7	± 0.0	< 10	± 0.0	0.11	± 0.00
15389000	6/6/2002	2 of 2	0.76	± 0.0	0.33	± 0.01	1.3	± 0.1	0.097	± 0.001	1.7	± 0.1	< 10	± 0.0	0.14	± 0.01
15389000	6/18/2002	1 of 2	1.9	± 0.0	0.31	± 0.04	1.7	± 0.1	0.17	± 0.00	2.8	± 0.1	< 10	± 0.0	0.078	± 0.005
15389000	6/18/2002	2 of 2	1.8	± 0.01	0.26	± 0.01	1.7	± 0.1	0.16	± 0.00	2.7	± 0.0	< 8	± 0.0	0.066	± 0.004
15389000	6/26/2002	1 of 2	2.3	± 0.02	0.25	± 0.04	1.2	± 0.0	0.17	± 0.00	2.5	± 0.0	< 8	± 0.0	0.12	± 0.01
15389000	6/26/2002	2 of 2	1.5	± 0.03	0.23	± 0.02	1.2	± 0.1	0.14	± 0.00	2.4	± 0.0	< 8	± 0.1	0.058	± 0.001
15389000	8/13/2002	1 of 2	0.84	± 0.01	0.30	± 0.03	2.2	± 0.0	0.045	± 0.001	1.5	± 0.1	< 8	± 0.1	0.042	± 0.003
15389000	8/13/2002	2 of 2	0.49	± 0.0	0.30	± 0.04	2.1	± 0.0	0.044	± 0.001	1.5	± 0.2	< 8	± 0.1	0.043	± 0.005
15389000	8/26/2002	1 of 2	0.95	± 0.1	0.34	± 0.00	1.7	± 0.0	0.093	± 0.004	2.8	± 0.1	< 8	± 0.1	0.035	± 0.002
15389000	8/26/2002	2 of 2	0.86	± 0.0	0.35	± 0.01	1.7	± 0.0	0.092	± 0.000	2.9	± 0.1	< 10	± 0.0	0.039	± 0.003
15389000	9/27/2002	1 of 2	2.6	± 0.0	0.48	± 0.01	2.2	± 0.0	0.053	± 0.002	2.8	± 0.0	< 10	± 0.0	0.029	± 0.002
15389000	9/27/2002	2 of 2	2.4	± 0.0	0.49	± 0.07	2.2	± 0.0	0.053	± 0.002	2.8	± 0.1	< 10	± 0.0	0.027	± 0.005

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

Station	Date	Rep	Manganese µg/L		Molybdenum µg/L		Sodium mg/L		Neodymium µg/L		Nickel µg/L		Phosphorus mg/L		Lead µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	11	± 0	1.2	± 0.1	2.8	± 0.1	0.0062	± 0.0017	0.40	± 0.09	< 10	± 10	0.077	± 0.003
15453500	3/19/2002	2 of 2	7.6	± 0.0	1.1	± 0.0	2.8	± 0.1	0.0066	± 0.0013	0.42	± 0.07	< 10	± 10	0.015	± 0.003
15453500	6/4/2002	1 of 2	1.7	± 0.0	0.71	± 0.05	1.6	± 0.0	0.075	± 0.001	1.6	± 0.0	< 10	± 10	0.067	± 0.004
15453500	6/4/2002	2 of 2	1.4	± 0.0	0.69	± 0.01	1.6	± 0.1	0.069	± 0.001	1.6	± 0.0	14	± 6	0.078	± 0.004
15453500	6/24/2002	1 of 2	0.97	± 0.02	0.69	± 0.01	1.9	± 0.1	0.041	± 0.005	1.1	± 0.1	< 10	± 10	0.021	± 0.001
15453500	6/24/2002	2 of 2	0.78	± 0.01	0.75	± 0.04	1.7	± 0.0	0.041	± 0.001	1.3	± 0.1	< 8	± 4	0.027	± 0.005
15453500	7/18/2002	1 of 2	2.0	± 0.0	1.1	± 0.0	2.2	± 0.0	0.041	± 0.000	0.99	± 0.04	< 8	± 1	0.041	± 0.001
15453500	7/18/2002	2 of 2	1.4	± 0.0	1.1	± 0.0	2.1	± 0.0	0.034	± 0.000	0.94	± 0.07	< 8	± 3	0.028	± 0.003
15453500	7/30/2002	1 of 2	0.46	± 0.01	1.2	± 0.0	2.4	± 0.0	0.011	± 0.001	0.82	± 0.08	< 8	± 4	0.018	± 0.003
15453500	7/30/2002	2 of 2	0.75	± 0.02	1.2	± 0.1	2.4	± 0.0	0.017	± 0.002	0.79	± 0.12	< 8	± 5	0.021	± 0.002
15453500	8/23/2002	1 of 2	1.5	± 0.0	0.80	± 0.03	2.0	± 0.0	0.057	± 0.001	1.7	± 0.1	< 8	± 3	0.035	± 0.001
15453500	8/23/2002	2 of 2	1.7	± 0.0	0.84	± 0.06	2.0	± 0.0	0.054	± 0.001	1.7	± 0.1	10	± 2	0.038	± 0.002
15453500	9/4/2002	1 of 2	5.0	± 0.1	0.76	± 0.01	1.9	± 0.1	0.10	± 0.01	1.8	± 0.0	< 10	± 10	0.098	± 0.002
15453500	9/4/2002	2 of 2	0.85	± 0.01	0.80	± 0.07	1.9	± 0.0	0.050	± 0.002	1.4	± 0.1	< 10	± 10	0.037	± 0.005
15515500	3/22/2002	1 of 2	82	± 1	1.1	± 0.0	4.0	± 0.1	0.0029	± 0.0003	0.19	± 0.03	< 10	± 20	< 0.005	± 0.002
15515500	3/22/2002	2 of 2	84	± 1	1.1	± 0.0	4.1	± 0.0	0.0027	± 0.0007	0.29	± 0.10	< 10	± 10	< 0.005	± 0.001
15515500	5/14/2002	1 of 2	37	± 0	0.76	± 0.05	2.2	± 0.0	0.17	± 0.01	2.1	± 0.1	< 10	± 10	0.24	± 0.00
15515500	5/14/2002	2 of 2	37	± 1	0.72	± 0.05	2.2	± 0.1	0.17	± 0.00	2.1	± 0.1	< 10	± 10	0.21	± 0.00
15515500	5/29/2002	1 of 2	0.91	± 0.02	0.84	± 0.02	2.4	± 0.0	0.033	± 0.001	1.1	± 0.1	< 10	± 10	0.071	± 0.005
15515500	5/29/2002	2 of 2	2.0	± 0.0	0.86	± 0.02	2.4	± 0.0	0.047	± 0.000	1.1	± 0.1	< 10	± 0	0.084	± 0.002
15515500	7/16/2002	1 of 2	4.0	± 0.0	1.0	± 0.1	3.0	± 0.0	0.050	± 0.002	1.4	± 0.1	< 8	± 0	0.072	± 0.000
15515500	7/16/2002	2 of 2	1.5	± 0.0	1.1	± 0.1	2.9	± 0.0	0.019	± 0.003	2.2	± 0.0	9	± 2	0.030	± 0.004
15515500	7/29/2002	1 of 2	0.55	± 0.01	1.1	± 0.0	3.0	± 0.0	0.0093	± 0.0004	0.58	± 0.00	12	± 3	0.020	± 0.002
15515500	7/29/2002	2 of 2	1.4	± 0.0	1.1	± 0.1	2.9	± 0.0	0.019	± 0.001	0.71	± 0.02	< 8	± 5	0.066	± 0.005
15515500	8/21/2002	1 of 2	11	± 0	0.75	± 0.01	2.2	± 0.0	0.10	± 0.00	1.8	± 0.1	9	± 5	0.085	± 0.001
15515500	8/21/2002	2 of 2	11	± 0	0.69	± 0.03	2.2	± 0.0	0.096	± 0.004	1.7	± 0.1	< 8	± 5	0.074	± 0.001
15515500	8/30/2002	1 of 2	0.45	± 0.02	0.93	± 0.02	3.0	± 0.1	0.025	± 0.002	1.1	± 0.1	< 10	± 10	0.035	± 0.005
15515500	8/30/2002	2 of 2	0.66	± 0.03	0.93	± 0.07	3.0	± 0.0	0.026	± 0.001	1.0	± 0.0	< 10	± 10	0.047	± 0.006

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

Station	Date	Rep	Manganese µg/L		Molybdenum µg/L		Sodium mg/L		Neodymium µg/L		Nickel µg/L		Phosphorus mg/L		Lead µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15565447	4/2/2002	1 of 2	130	± 0	0.79	± 0.01	3.3	± 0.1	0.0052	± 0.0004	0.63	± 0.05	< 10	± 10	0.019	± 0.005
15565447	4/2/2002	2 of 2	130	± 0	0.81	± 0.01	3.3	± 0.1	0.0037	± 0.0003	0.72	± 0.03	< 10	± 10	0.019	± 0.006
15565447	6/12/2002	1 of 2	2.6	± 0.0	0.50	± 0.06	1.2	± 0.0	0.15	± 0.00	1.7	± 0.0	16	± 2	0.25	± 0.00
15565447	6/12/2002	2 of 2	1.7	± 0.0	0.53	± 0.04	1.2	± 0.0	0.14	± 0.01	1.5	± 0.1	12	± 4	0.21	± 0.01
15565447	6/20/2002	1 of 2	1.4	± 0.0	0.66	± 0.02	1.8	± 0.1	0.11	± 0.00	1.1	± 0.0	14	± 5	0.20	± 0.00
15565447	6/20/2002	2 of 2	2.0	± 0.0	0.68	± 0.02	1.8	± 0.1	0.11	± 0.00	1.2	± 0.0	< 10	± 0	0.20	± 0.01
15565447	7/1/2002	1 of 2	0.35	± 0.01	0.74	± 0.05	1.8	± 0.0	0.048	± 0.004	1.2	± 0.1	< 8	± 1	0.059	± 0.002
15565447	7/1/2002	2 of 2	0.43	± 0.01	0.76	± 0.04	1.8	± 0.0	0.049	± 0.001	1.1	± 0.0	8	± 5	0.066	± 0.006
15565447	7/16/2002	1 of 2	0.90	± 0.01	0.96	± 0.02	2.2	± 0.0	0.030	± 0.004	0.89	± 0.05	9	± 4	0.053	± 0.004
15565447	7/16/2002	2 of 2	0.80	± 0.01	0.95	± 0.06	2.1	± 0.0	0.026	± 0.003	0.91	± 0.01	10	± 4	0.053	± 0.002
15565447	8/8/2002	1 of 2	0.44	± 0.01	1.2	± 0.0	2.4	± 0.0	0.013	± 0.001	0.69	± 0.07	< 8	± 2	0.030	± 0.001
15565447	8/8/2002	2 of 2	0.91	± 0.02	1.2	± 0.0	2.5	± 0.1	0.022	± 0.001	0.66	± 0.04	8	± 8	0.040	± 0.005
15565447	9/24/2002	1 of 2	0.76	± 0.02	0.80	± 0.06	2.3	± 0.1	0.031	± 0.001	0.84	± 0.03	< 10	± 10	0.044	± 0.002
15565447	9/24/2002	2 of 2	0.73	± 0.02	0.78	± 0.03	2.3	± 0.0	0.027	± 0.003	0.90	± 0.05	< 10	± 10	0.038	± 0.003

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

Station	Date	Rep	Praseodymium µg/L		Rubidium µg/L		Rhenium µg/L		Sulfur mg/L		Antimony µg/L		Selenium µg/L		Silica mg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/2002	1 of 2	0.0018	± 0.0002	0.91	± 0.01	0.0028	± 0.0002	13	± 0	0.10	± 0.01	0.47	± 0.03	7.2	± 0.2
15356000	3/21/2002	2 of 2	0.0017	± 0.0002	0.91	± 0.02	0.0028	± 0.0003	13	± 0	0.099	± 0.003	0.48	± 0.03	7.5	± 0.3
15356000	5/22/2002	1 of 2	0.048	± 0.000	0.93	± 0.0	0.0020	± 0.0003	8.6	± 0.1	0.12	± 0.00	0.28	± 0.03	4.9	± 0.2
15356000	5/22/2002	2 of 2	0.049	± 0.001	0.95	± 0.0	0.0020	± 0.0005	8.6	± 0.1	0.12	± 0.00	0.31	± 0.04	5.0	± 0.2
15356000	6/11/2002	1 of 2	0.016	± 0.000	0.96	± 0.0	0.0024	± 0.0006	10	± 0	0.14	± 0.00	0.35	± 0.02	6.1	± 0.1
15356000	6/11/2002	2 of 2	0.016	± 0.000	1.0	± 0.0	0.0025	± 0.0004	11	± 0	0.13	± 0.00	0.33	± 0.02	6.2	± 0.1
15356000	7/10/2002	1 of 2	0.0048	± 0.0001	2.2	± 0.0	0.0031	± 0.0001	13	± 0	0.21	± 0.00	0.50	± 0.05	5.7	± 0.0
15356000	7/10/2002	2 of 2	0.0012	± 0.0001	2.1	± 0.0	0.0030	± 0.0001	13	± 0	0.20	± 0.01	0.43	± 0.06	5.5	± 0.0
15356000	8/1/2002	1 of 2	0.029	± 0.001	2.2	± 0.0	0.0018	± 0.0004	9.9	± 0.1	0.17	± 0.01	0.33	± 0.02	6.7	± 0.0
15356000	8/1/2002	2 of 2	0.029	± 0.000	2.1	± 0.0	0.0021	± 0.0003	10	± 0	0.18	± 0.00	0.32	± 0.02	6.7	± 0.0
15356000	8/28/2002	1 of 2	0.015	± 0.001	1.1	± 0.0	0.0028	± 0.0002	13	± 0	0.17	± 0.00	0.44	± 0.08	6.3	± 0.1
15356000	8/28/2002	2 of 2	0.017	± 0.001	1.1	± 0.0	0.0022	± 0.0004	13	± 0	0.16	± 0.01	0.37	± 0.03	6.4	± 0.0
15356000	9/25/2002	1 of 2	0.0073	± 0.0002	0.86	± 0.01	0.0023	± 0.0001	13	± 0	0.12	± 0.01	0.45	± 0.07	6.4	± 0.1
15356000	9/25/2002	2 of 2	0.0069	± 0.0005	0.87	± 0.01	0.0027	± 0.0002	13	± 0	0.13	± 0.01	0.42	± 0.04	6.5	± 0.0
15389000	3/11/2002	1 of 2	0.0009	± 0.0001	0.38	± 0.01	0.0034	± 0.0004	14	± 0	0.060	± 0.001	0.37	± 0.02	4.6	± 0.2
15389000	3/11/2002	2 of 2	0.0007	± 0.0002	0.36	± 0.01	0.0041	± 0.0001	14	± 0	0.062	± 0.005	0.41	± 0.02	4.6	± 0.1
15389000	6/6/2002	1 of 2	0.018	± 0.000	0.30	± 0.0	0.0017	± 0.0001	6.3	± 0.0	0.081	± 0.002	0.14	± 0.01	2.5	± 0.0
15389000	6/6/2002	2 of 2	0.020	± 0.000	0.30	± 0.0	0.0017	± 0.0004	6.3	± 0.1	0.087	± 0.001	0.15	± 0.01	2.5	± 0.1
15389000	6/18/2002	1 of 2	0.032	± 0.000	0.22	± 0.01	0.0015	± 0.0003	8.7	± 0.1	0.085	± 0.003	0.15	± 0.03	3.2	± 0.0
15389000	6/18/2002	2 of 2	0.031	± 0.000	0.23	± 0.0	0.0016	± 0.0004	8.7	± 0.1	0.081	± 0.004	0.14	± 0.03	3.2	± 0.1
15389000	6/26/2002	1 of 2	0.037	± 0.000	0.22	± 0.0	0.0010	± 0.0003	7.2	± 0.0	0.095	± 0.007	0.14	± 0.01	3.4	± 0.1
15389000	6/26/2002	2 of 2	0.026	± 0.001	0.21	± 0.0	0.0014	± 0.0001	7.0	± 0.0	0.080	± 0.002	0.15	± 0.02	3.4	± 0.1
15389000	8/13/2002	1 of 2	0.0088	± 0.0004	0.27	± 0.0	0.0013	± 0.0002	18	± 0	0.063	± 0.001	0.19	± 0.03	3.1	± 0.0
15389000	8/13/2002	2 of 2	0.0075	± 0.0002	0.26	± 0.01	0.0012	± 0.0002	18	± 0	0.064	± 0.003	0.19	± 0.01	3.0	± 0.0
15389000	8/26/2002	1 of 2	0.016	± 0.000	0.19	± 0.0	0.0018	± 0.0004	12	± 0	0.075	± 0.004	0.25	± 0.01	3.8	± 0.1
15389000	8/26/2002	2 of 2	0.017	± 0.000	0.19	± 0.01	0.0014	± 0.0001	12	± 0	0.079	± 0.002	0.27	± 0.01	3.8	± 0.0
15389000	9/27/2002	1 of 2	0.0098	± 0.0008	0.20	± 0.0	0.0024	± 0.0005	13	± 0	0.082	± 0.004	0.27	± 0.02	3.5	± 0.0
15389000	9/27/2002	2 of 2	0.0100	± 0.0001	0.20	± 0.0	0.0023	± 0.0003	13	± 0	0.077	± 0.001	0.28	± 0.02	3.5	± 0.0

Table 8. Selected dissolved trace elements from fixed-station sampling sites in the Yukon River Basin –continued

Station	Date	Rep	Praseodymium µg/L		Rubidium µg/L		Rhenium µg/L		Sulfur mg/L		Antimony µg/L		Selenium µg/L		Silica mg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	0.0013	± 0.0000	0.99	± 0.01	0.0030	± 0.0001	13	± 0	0.094	± 0.007	0.43	± 0.04	7.4	± 0.0
15453500	3/19/2002	2 of 2	0.0014	± 0.0001	0.96	± 0.00	0.0029	± 0.0002	13	± 0	0.098	± 0.001	0.46	± 0.08	7.3	± 0.2
15453500	6/4/2002	1 of 2	0.016	± 0.000	0.86	± 0.01	0.0021	± 0.0002	9.0	± 0.1	0.14	± 0.00	0.26	± 0.02	4.5	± 0.0
15453500	6/4/2002	2 of 2	0.016	± 0.001	0.88	± 0.01	0.0020	± 0.0001	9.0	± 0.1	0.14	± 0.00	0.31	± 0.01	4.5	± 0.1
15453500	6/24/2002	1 of 2	0.0090	± 0.0005	0.79	± 0.01	0.0024	± 0.0001	11	± 0	0.13	± 0.00	0.34	± 0.00	5.2	± 0.2
15453500	6/24/2002	2 of 2	0.0087	± 0.0007	0.81	± 0.02	0.0028	± 0.0000	10	± 0	0.14	± 0.01	0.35	± 0.02	4.9	± 0.1
15453500	7/18/2002	1 of 2	0.011	± 0.000	1.8	± 0.0	0.0024	± 0.0000	12	± 0	0.20	± 0.00	0.35	± 0.03	5.3	± 0.0
15453500	7/18/2002	2 of 2	0.0080	± 0.0009	1.8	± 0.0	0.0023	± 0.0004	12	± 0	0.19	± 0.01	0.38	± 0.01	5.1	± 0.0
15453500	7/30/2002	1 of 2	0.0026	± 0.0003	2.0	± 0.0	0.0024	± 0.0002	13	± 0	0.20	± 0.00	0.38	± 0.06	5.2	± 0.0
15453500	7/30/2002	2 of 2	0.0037	± 0.0002	2.0	± 0.0	0.0022	± 0.0004	12	± 0	0.20	± 0.00	0.37	± 0.01	5.2	± 0.1
15453500	8/23/2002	1 of 2	0.012	± 0.000	1.1	± 0.0	0.0021	± 0.0003	12	± 0	0.14	± 0.00	0.37	± 0.02	4.8	± 0.0
15453500	8/23/2002	2 of 2	0.012	± 0.001	1.1	± 0.0	0.0020	± 0.0003	12	± 0	0.15	± 0.01	0.39	± 0.04	4.8	± 0.1
15453500	9/4/2002	1 of 2	0.023	± 0.000	1.2	± 0.0	0.0024	± 0.0004	14	± 0	0.16	± 0.01	0.47	± 0.02	6.3	± 0.1
15453500	9/4/2002	2 of 2	0.011	± 0.001	1.1	± 0.0	0.0019	± 0.0002	14	± 0	0.16	± 0.00	0.53	± 0.00	6.0	± 0.1
15515500	3/22/2002	1 of 2	0.0006	± 0.0001	1.3	± 0.0	0.0031	± 0.0002	14	± 0	0.15	± 0.00	0.66	± 0.06	15	± 1
15515500	3/22/2002	2 of 2	0.0006	± 0.0000	1.3	± 0.0	0.0034	± 0.0004	14	± 0	0.14	± 0.00	0.67	± 0.02	15	± 0
15515500	5/14/2002	1 of 2	0.041	± 0.000	1.6	± 0.0	0.0025	± 0.0003	9.5	± 0.1	0.25	± 0.01	0.36	± 0.06	7.1	± 0.1
15515500	5/14/2002	2 of 2	0.039	± 0.001	1.6	± 0.0	0.0023	± 0.0002	9.4	± 0.1	0.25	± 0.01	0.34	± 0.04	7.0	± 0.0
15515500	5/29/2002	1 of 2	0.0090	± 0.0007	2.4	± 0.0	0.0035	± 0.0000	13	± 0	0.29	± 0.00	0.48	± 0.04	6.7	± 0.1
15515500	5/29/2002	2 of 2	0.011	± 0.000	2.5	± 0.0	0.0029	± 0.0003	13	± 0	0.29	± 0.00	0.44	± 0.06	6.8	± 0.1
15515500	7/16/2002	1 of 2	0.013	± 0.001	2.7	± 0.0	0.0029	± 0.0001	12	± 0	0.34	± 0.00	0.44	± 0.06	6.9	± 0.0
15515500	7/16/2002	2 of 2	0.0047	± 0.0001	2.7	± 0.0	0.0024	± 0.0002	12	± 0	0.33	± 0.00	0.48	± 0.02	6.6	± 0.0
15515500	7/29/2002	1 of 2	0.0018	± 0.0002	2.6	± 0.0	0.0029	± 0.0004	12	± 0	0.35	± 0.01	0.47	± 0.07	6.3	± 0.0
15515500	7/29/2002	2 of 2	0.0046	± 0.0003	2.5	± 0.0	0.0023	± 0.0003	12	± 0	0.36	± 0.01	0.50	± 0.00	6.2	± 0.1
15515500	8/21/2002	1 of 2	0.022	± 0.001	1.9	± 0.0	0.0023	± 0.0005	11	± 0	0.26	± 0.01	0.44	± 0.00	7.0	± 0.0
15515500	8/21/2002	2 of 2	0.021	± 0.000	1.8	± 0.0	0.0020	± 0.0003	11	± 0	0.26	± 0.01	0.43	± 0.05	7.0	± 0.0
15515500	8/30/2002	1 of 2	0.0048	± 0.0000	2.1	± 0.0	0.0026	± 0.0000	14	± 0	0.26	± 0.01	0.39	± 0.04	8.5	± 0.0
15515500	8/30/2002	2 of 2	0.0058	± 0.0003	2.1	± 0.0	0.0022	± 0.0004	14	± 0	0.25	± 0.02	0.54	± 0.02	8.3	± 0.1

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

Station	Date	Rep	Praseodymium µg/L		Rubidium µg/L		Rhenium µg/L		Sulfur mg/L		Antimony µg/L		Selenium µg/L		Silica mg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15565447	4/2/2002	1 of 2	0.0009	± 0.0002	1.6	± 0.0	0.0026	± 0.0002	11	± 0	0.085	± 0.003	0.38	± 0.03	12	± 0
15565447	4/2/2002	2 of 2	0.0008	± 0.0002	1.6	± 0.0	0.0029	± 0.0001	10	± 0	0.082	± 0.001	0.38	± 0.03	12	± 0
15565447	6/12/2002	1 of 2	0.035	± 0.001	1.1	± 0.0	0.0017	± 0.0002	5.7	± 0.0	0.21	± 0.00	0.23	± 0.02	4.3	± 0.1
15565447	6/12/2002	2 of 2	0.031	± 0.000	1.1	± 0.0	0.0014	± 0.0001	5.6	± 0.0	0.21	± 0.00	0.21	± 0.05	4.4	± 0.0
15565447	6/20/2002	1 of 2	0.026	± 0.000	1.2	± 0.0	0.0024	± 0.0004	7.9	± 0.1	0.21	± 0.00	0.30	± 0.01	5.6	± 0.1
15565447	6/20/2002	2 of 2	0.027	± 0.000	1.2	± 0.0	0.0015	± 0.0001	7.9	± 0.0	0.21	± 0.00	0.26	± 0.00	6.4	± 0.1
15565447	7/1/2002	1 of 2	0.011	± 0.001	1.2	± 0.0	0.0022	± 0.0004	9.1	± 0.1	0.21	± 0.01	0.32	± 0.04	5.6	± 0.1
15565447	7/1/2002	2 of 2	0.011	± 0.000	1.2	± 0.0	0.0024	± 0.0002	9.2	± 0.1	0.21	± 0.01	0.32	± 0.02	5.7	± 0.0
15565447	7/16/2002	1 of 2	0.0069	± 0.0004	1.4	± 0.0	0.0027	± 0.0000	11	± 0	0.24	± 0.01	0.41	± 0.03	5.8	± 0.0
15565447	7/16/2002	2 of 2	0.0064	± 0.0005	1.3	± 0.0	0.0026	± 0.0000	11	± 0	0.24	± 0.01	0.37	± 0.08	5.6	± 0.0
15565447	8/8/2002	1 of 2	0.0031	± 0.0006	1.7	± 0.0	0.0023	± 0.0003	12	± 0	0.30	± 0.00	0.43	± 0.05	5.7	± 0.0
15565447	8/8/2002	2 of 2	0.0050	± 0.0003	1.7	± 0.0	0.0022	± 0.0003	12	± 0	0.31	± 0.00	0.40	± 0.03	5.8	± 0.1
15565447	9/24/2002	1 of 2	0.0065	± 0.0003	1.0	± 0.0	0.0017	± 0.0002	12	± 0	0.19	± 0.01	0.42	± 0.01	6.9	± 0.1
15565447	9/24/2002	2 of 2	0.0062	± 0.0007	1.1	± 0.0	0.0027	± 0.0002	12	± 0	0.18	± 0.01	0.45	± 0.04	7.0	± 0.0

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

Station	Date	Rep	Samarium µg/L			Strontium µg/L			Terbium µg/L			Tellurium µg/L			Thorium µg/L			Thallium µg/L		
			Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD	Avg		SD
15356000	3/21/2002	1 of 2	0.0025	±	0.0003	180	±	0	0.0004	±	0.0003	< 0.006	±	0.003	< 0.001	±	0.001	< 0.002	±	0.002
15356000	3/21/2002	2 of 2	0.0025	±	0.0002	170	±	0	0.0003	±	0.0001	< 0.006	±	0.002	0.002	±	0.002	< 0.002	±	0.002
15356000	5/22/2002	1 of 2	0.052	±	0.003	100	±	0	0.0098	±	0.0002	< 0.006	±	0.001	0.041	±	0.001	0.003	±	0.002
15356000	5/22/2002	2 of 2	0.057	±	0.000	100	±	0	0.0098	±	0.0005	< 0.006	±	0.002	0.043	±	0.001	0.003	±	0.001
15356000	6/11/2002	1 of 2	0.019	±	0.002	120	±	0	0.0031	±	0.0002	< 0.006	±	0.003	0.015	±	0.001	0.003	±	0.000
15356000	6/11/2002	2 of 2	0.017	±	0.000	120	±	0	0.0036	±	0.0003	< 0.006	±	0.004	0.014	±	0.001	0.004	±	0.002
15356000	7/10/2002	1 of 2	0.0042	±	0.0010	140	±	0	0.0006	±	0.0001	0.004	±	0.003	0.0051	±	0.0005	0.039	±	0.002
15356000	7/10/2002	2 of 2	0.0013	±	0.0002	140	±	0	0.0003	±	0.0001	< 0.004	±	0.003	0.0051	±	0.0042	0.011	±	0.001
15356000	8/1/2002	1 of 2	0.029	±	0.001	120	±	0	0.0055	±	0.0004	< 0.004	±	0.003	0.036	±	0.001	0.008	±	0.003
15356000	8/1/2002	2 of 2	0.032	±	0.000	120	±	0	0.0057	±	0.0002	< 0.004	±	0.002	0.039	±	0.001	0.005	±	0.002
15356000	8/28/2002	1 of 2	0.019	±	0.001	130	±	0	0.0033	±	0.0002	< 0.004	±	0.003	0.017	±	0.001	0.003	±	0.003
15356000	8/28/2002	2 of 2	0.019	±	0.001	130	±	0	0.0034	±	0.0004	< 0.004	±	0.002	0.020	±	0.002	0.004	±	0.002
15356000	9/25/2002	1 of 2	0.010	±	0.000	140	±	0	0.0014	±	0.0001	< 0.004	±	0.003	0.0054	±	0.0019	< 0.003	±	0.002
15356000	9/25/2002	2 of 2	0.0062	±	0.0013	140	±	0	0.0013	±	0.0001	0.005	±	0.002	0.0047	±	0.0005	< 0.003	±	0.001
15389000	3/11/2002	1 of 2	0.0014	±	0.0007	160	±	0	0.0003	±	0.0002	< 0.006	±	0.000	< 0.001	±	0.000	0.003	±	0.003
15389000	3/11/2002	2 of 2	0.0016	±	0.0007	160	±	0	0.0003	±	0.0002	< 0.006	±	0.000	< 0.001	±	0.000	< 0.002	±	0.000
15389000	6/6/2002	1 of 2	0.027	±	0.003	61	±	1	0.0055	±	0.0006	< 0.006	±	0.002	0.026	±	0.001	0.002	±	0.001
15389000	6/6/2002	2 of 2	0.027	±	0.002	61	±	0	0.0057	±	0.0003	< 0.006	±	0.002	0.027	±	0.001	< 0.002	±	0.001
15389000	6/18/2002	1 of 2	0.058	±	0.001	66	±	1	0.013	±	0.001	< 0.006	±	0.004	0.052	±	0.002	< 0.002	±	0.001
15389000	6/18/2002	2 of 2	0.057	±	0.002	65	±	0	0.012	±	0.001	< 0.006	±	0.001	0.052	±	0.002	< 0.002	±	0.004
15389000	6/26/2002	1 of 2	0.050	±	0.000	65	±	1	0.010	±	0.000	< 0.006	±	0.002	0.046	±	0.001	< 0.002	±	0.000
15389000	6/26/2002	2 of 2	0.040	±	0.001	64	±	1	0.0092	±	0.0003	< 0.006	±	0.002	0.040	±	0.002	< 0.002	±	0.001
15389000	8/13/2002	1 of 2	0.016	±	0.000	120	±	0	0.0028	±	0.0001	< 0.004	±	0.003	0.014	±	0.000	< 0.003	±	0.001
15389000	8/13/2002	2 of 2	0.014	±	0.000	120	±	0	0.0028	±	0.0001	< 0.004	±	0.004	0.014	±	0.000	< 0.003	±	0.001
15389000	8/26/2002	1 of 2	0.033	±	0.001	95	±	1	0.0074	±	0.0003	< 0.004	±	0.002	0.027	±	0.001	< 0.003	±	0.004
15389000	8/26/2002	2 of 2	0.033	±	0.001	95	±	1	0.0074	±	0.0001	< 0.004	±	0.002	0.031	±	0.001	< 0.003	±	0.002
15389000	9/27/2002	1 of 2	0.020	±	0.000	110	±	0	0.0049	±	0.0003	< 0.004	±	0.002	0.018	±	0.001	< 0.003	±	0.001
15389000	9/27/2002	2 of 2	0.017	±	0.001	110	±	0	0.0050	±	0.0002	< 0.004	±	0.001	0.019	±	0.001	< 0.003	±	0.001

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

Station	Date	Rep	Samarium µg/L		Strontium µg/L		Terbium µg/L		Tellurium µg/L		Thorium µg/L		Thallium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	0.0014	± 0.0001	180	± 0	0.0004	± 0.0001	< 0.006	± 0.003	< 0.001	± 0.001	0.004	± 0.002
15453500	3/19/2002	2 of 2	0.0024	± 0.0006	180	± 0	0.0003	± 0.0001	< 0.006	± 0.002	< 0.001	± 0.001	0.004	± 0.005
15453500	6/4/2002	1 of 2	0.019	± 0.001	100	± 1	0.0040	± 0.0005	< 0.006	± 0.004	0.021	± 0.004	< 0.002	± 0.000
15453500	6/4/2002	2 of 2	0.017	± 0.001	99	± 2	0.0037	± 0.0000	< 0.006	± 0.001	0.020	± 0.001	0.003	± 0.001
15453500	6/24/2002	1 of 2	0.012	± 0.000	110	± 0	0.0026	± 0.0004	< 0.006	± 0.000	0.008	± 0.001	< 0.002	± 0.004
15453500	6/24/2002	2 of 2	0.012	± 0.001	110	± 0	0.0022	± 0.0003	< 0.004	± 0.001	0.011	± 0.001	0.005	± 0.005
15453500	7/18/2002	1 of 2	0.0091	± 0.0003	130	± 0	0.0019	± 0.0003	< 0.004	± 0.003	0.0081	± 0.0015	0.007	± 0.002
15453500	7/18/2002	2 of 2	0.0091	± 0.0003	120	± 0	0.0015	± 0.0001	< 0.004	± 0.002	0.0074	± 0.0015	0.006	± 0.001
15453500	7/30/2002	1 of 2	0.0025	± 0.0003	140	± 0	0.0006	± 0.0002	< 0.004	± 0.005	0.0040	± 0.0035	0.004	± 0.001
15453500	7/30/2002	2 of 2	0.0054	± 0.0007	140	± 0	0.0007	± 0.0001	< 0.004	± 0.004	0.0035	± 0.0011	0.010	± 0.002
15453500	8/23/2002	1 of 2	0.015	± 0.002	120	± 0	0.0031	± 0.0002	0.006	± 0.001	0.014	± 0.001	0.004	± 0.002
15453500	8/23/2002	2 of 2	0.018	± 0.000	120	± 0	0.0033	± 0.0002	0.009	± 0.002	0.016	± 0.000	0.005	± 0.001
15453500	9/4/2002	1 of 2	0.026	± 0.001	130	± 0	0.0049	± 0.0001	< 0.006	± 0.003	0.025	± 0.005	0.008	± 0.004
15453500	9/4/2002	2 of 2	0.014	± 0.001	130	± 0	0.0030	± 0.0002	< 0.006	± 0.004	0.010	± 0.001	0.004	± 0.001
15515500	3/22/2002	1 of 2	0.0012	± 0.0005	210	± 0	0.0003	± 0.0001	< 0.006	± 0.003	< 0.001	± 0.000	0.003	± 0.003
15515500	3/22/2002	2 of 2	0.0013	± 0.0002	210	± 0	0.0002	± 0.0000	< 0.006	± 0.002	< 0.001	± 0.000	< 0.002	± 0.001
15515500	5/14/2002	1 of 2	0.038	± 0.003	110	± 0	0.0077	± 0.0005	< 0.006	± 0.002	0.044	± 0.000	0.005	± 0.000
15515500	5/14/2002	2 of 2	0.036	± 0.000	110	± 0	0.0066	± 0.0003	< 0.006	± 0.001	0.040	± 0.001	0.004	± 0.001
15515500	5/29/2002	1 of 2	0.0087	± 0.0007	130	± 0	0.0014	± 0.0001	< 0.006	± 0.003	0.007	± 0.001	0.005	± 0.002
15515500	5/29/2002	2 of 2	0.011	± 0.000	130	± 0	0.0018	± 0.0004	< 0.006	± 0.002	0.012	± 0.000	0.007	± 0.004
15515500	7/16/2002	1 of 2	0.0097	± 0.0002	130	± 0	0.0017	± 0.0002	< 0.004	± 0.002	0.018	± 0.002	0.008	± 0.001
15515500	7/16/2002	2 of 2	0.0045	± 0.0007	130	± 0	0.0008	± 0.0001	< 0.004	± 0.001	0.0070	± 0.0008	0.010	± 0.004
15515500	7/29/2002	1 of 2	0.0020	± 0.0011	130	± 0	0.0003	± 0.0001	< 0.004	± 0.001	0.0005	± 0.0003	0.009	± 0.006
15515500	7/29/2002	2 of 2	0.0047	± 0.0009	120	± 0	0.0006	± 0.0001	< 0.004	± 0.002	0.0055	± 0.0019	0.006	± 0.001
15515500	8/21/2002	1 of 2	0.021	± 0.001	110	± 0	0.0038	± 0.0000	< 0.004	± 0.002	0.028	± 0.001	0.006	± 0.002
15515500	8/21/2002	2 of 2	0.024	± 0.001	110	± 0	0.0043	± 0.0003	< 0.004	± 0.002	0.023	± 0.001	0.005	± 0.001
15515500	8/30/2002	1 of 2	0.0051	± 0.0015	140	± 0	0.0012	± 0.0001	< 0.006	± 0.000	0.005	± 0.002	0.009	± 0.005
15515500	8/30/2002	2 of 2	0.0068	± 0.0007	140	± 0	0.0013	± 0.0002	< 0.006	± 0.004	0.005	± 0.000	0.013	± 0.000

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

Station	Date	Rep	Samarium µg/L		Strontium µg/L		Terbium µg/L		Tellurium µg/L		Thorium µg/L		Thallium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15565447	4/2/2002	1 of 2	0.0013	± 0.0003	200	± 0	0.0002	± 0.0000	< 0.006	± 0.001	< 0.001	± 0.001	0.004	± 0.000
15565447	4/2/2002	2 of 2	0.0015	± 0.0005	200	± 0	0.0004	± 0.0001	< 0.006	± 0.003	< 0.001	± 0.000	0.004	± 0.001
15565447	6/12/2002	1 of 2	0.037	± 0.002	82	± 0	0.0066	± 0.0004	< 0.004	± 0.002	0.036	± 0.002	0.007	± 0.003
15565447	6/12/2002	2 of 2	0.032	± 0.001	82	± 2	0.0056	± 0.0003	< 0.004	± 0.002	0.032	± 0.000	0.005	± 0.003
15565447	6/20/2002	1 of 2	0.025	± 0.002	95	± 1	0.0041	± 0.0002	< 0.006	± 0.004	0.021	± 0.001	0.003	± 0.001
15565447	6/20/2002	2 of 2	0.028	± 0.002	95	± 1	0.0043	± 0.0001	< 0.006	± 0.005	0.021	± 0.000	0.003	± 0.001
15565447	7/1/2002	1 of 2	0.014	± 0.001	110	± 0	0.0022	± 0.0002	< 0.004	± 0.002	0.010	± 0.001	0.005	± 0.001
15565447	7/1/2002	2 of 2	0.013	± 0.001	110	± 0	0.0022	± 0.0004	< 0.004	± 0.004	0.012	± 0.002	< 0.003	± 0.000
15565447	7/16/2002	1 of 2	0.0071	± 0.0005	120	± 0	0.0014	± 0.0002	< 0.004	± 0.002	0.0064	± 0.0004	0.005	± 0.002
15565447	7/16/2002	2 of 2	0.0063	± 0.0005	120	± 0	0.0014	± 0.0002	0.006	± 0.003	0.0067	± 0.0023	0.007	± 0.002
15565447	8/8/2002	1 of 2	0.0033	± 0.0004	130	± 0	0.0006	± 0.0001	< 0.004	± 0.003	0.0026	± 0.0010	< 0.003	± 0.000
15565447	8/8/2002	2 of 2	0.0047	± 0.0005	130	± 0	0.0010	± 0.0002	< 0.004	± 0.002	0.0042	± 0.0006	< 0.003	± 0.001
15565447	9/24/2002	1 of 2	0.0079	± 0.0004	130	± 0	0.0018	± 0.0001	< 0.006	± 0.002	0.010	± 0.004	0.004	± 0.000
15565447	9/24/2002	2 of 2	0.0073	± 0.0005	130	± 0	0.0016	± 0.0004	< 0.006	± 0.001	0.008	± 0.002	0.007	± 0.004

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

Station	Date	Rep	Thulium µg/L		Uranium µg/L		Vanadium µg/L		Tungsten µg/L		Yttrium µg/L		Ytterbium µg/L		Zirconium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15356000	3/21/2002	1 of 2	0.0003	± 0.0001	1.1	± 0.0	0.17	± 0.04	0.009	± 0.002	0.024	± 0.000	0.0024	± 0.0007	0.025	± 0.004
15356000	3/21/2002	2 of 2	< 0.0001	± 0.0001	1.1	± 0.0	0.21	± 0.02	0.008	± 0.002	0.024	± 0.001	0.0017	± 0.0005	0.046	± 0.012
15356000	5/22/2002	1 of 2	0.0046	± 0.0002	0.71	± 0.01	0.32	± 0.01	0.007	± 0.001	0.39	± 0.01	0.028	± 0.002	0.24	± 0.01
15356000	5/22/2002	2 of 2	0.0049	± 0.0006	0.71	± 0.01	0.41	± 0.01	0.009	± 0.001	0.39	± 0.00	0.031	± 0.001	0.24	± 0.00
15356000	6/11/2002	1 of 2	0.0020	± 0.0001	0.73	± 0.01	0.35	± 0.00	0.010	± 0.002	0.14	± 0.00	0.014	± 0.001	0.15	± 0.00
15356000	6/11/2002	2 of 2	0.0019	± 0.0002	0.74	± 0.01	0.36	± 0.01	0.013	± 0.000	0.15	± 0.00	0.012	± 0.000	0.16	± 0.00
15356000	7/10/2002	1 of 2	0.0005	± 0.0001	0.94	± 0.01	0.49	± 0.05	0.023	± 0.000	0.031	± 0.001	0.0025	± 0.0003	0.038	± 0.003
15356000	7/10/2002	2 of 2	0.0002	± 0.0001	0.90	± 0.01	0.37	± 0.00	0.024	± 0.001	0.019	± 0.001	0.0019	± 0.0004	0.055	± 0.004
15356000	8/1/2002	1 of 2	0.0031	± 0.0000	0.84	± 0.01	0.54	± 0.01	0.016	± 0.000	0.23	± 0.00	0.024	± 0.002	0.31	± 0.00
15356000	8/1/2002	2 of 2	0.0037	± 0.0001	0.84	± 0.01	0.55	± 0.01	0.017	± 0.004	0.24	± 0.00	0.024	± 0.000	0.32	± 0.00
15356000	8/28/2002	1 of 2	0.0019	± 0.0003	0.82	± 0.01	0.39	± 0.01	0.013	± 0.001	0.15	± 0.01	0.013	± 0.001	0.26	± 0.00
15356000	8/28/2002	2 of 2	0.0019	± 0.0001	0.81	± 0.01	0.43	± 0.03	0.013	± 0.002	0.15	± 0.00	0.015	± 0.000	0.21	± 0.00
15356000	9/25/2002	1 of 2	0.0011	± 0.0000	0.92	± 0.03	0.27	± 0.01	0.011	± 0.001	0.072	± 0.001	0.0062	± 0.0006	0.11	± 0.00
15356000	9/25/2002	2 of 2	0.0011	± 0.0001	0.93	± 0.01	0.26	± 0.02	0.010	± 0.002	0.068	± 0.002	0.0062	± 0.0008	0.14	± 0.01
15389000	3/11/2002	1 of 2	0.0002	± 0.0001	0.88	± 0.02	0.11	± 0.02	0.003	± 0.001	0.024	± 0.000	0.0017	± 0.0004	0.036	± 0.001
15389000	3/11/2002	2 of 2	0.0003	± 0.0001	0.90	± 0.01	0.08	± 0.02	0.004	± 0.002	0.021	± 0.001	0.0013	± 0.0003	0.043	± 0.001
15389000	6/6/2002	1 of 2	0.0019	± 0.0001	0.29	± 0.01	0.24	± 0.01	0.007	± 0.001	0.19	± 0.00	0.014	± 0.000	0.19	± 0.01
15389000	6/6/2002	2 of 2	0.0021	± 0.0001	0.28	± 0.00	0.26	± 0.01	0.006	± 0.001	0.20	± 0.00	0.014	± 0.001	0.19	± 0.00
15389000	6/18/2002	1 of 2	0.0047	± 0.0001	0.23	± 0.00	0.26	± 0.02	0.004	± 0.001	0.41	± 0.00	0.028	± 0.000	0.36	± 0.01
15389000	6/18/2002	2 of 2	0.0048	± 0.0007	0.23	± 0.00	0.18	± 0.01	0.003	± 0.001	0.40	± 0.00	0.029	± 0.001	0.34	± 0.01
15389000	6/26/2002	1 of 2	0.0044	± 0.0004	0.26	± 0.00	0.33	± 0.01	0.010	± 0.001	0.37	± 0.00	0.027	± 0.001	0.33	± 0.00
15389000	6/26/2002	2 of 2	0.0037	± 0.0001	0.25	± 0.00	0.23	± 0.01	0.007	± 0.001	0.34	± 0.00	0.024	± 0.001	0.28	± 0.01
15389000	8/13/2002	1 of 2	0.0015	± 0.0001	0.25	± 0.00	0.14	± 0.01	0.007	± 0.002	0.11	± 0.00	0.0096	± 0.0000	0.14	± 0.00
15389000	8/13/2002	2 of 2	0.0012	± 0.0001	0.25	± 0.00	0.12	± 0.02	0.009	± 0.000	0.11	± 0.00	0.0084	± 0.0007	0.14	± 0.00
15389000	8/26/2002	1 of 2	0.0031	± 0.0001	0.30	± 0.01	0.15	± 0.00	0.004	± 0.002	0.29	± 0.00	0.019	± 0.001	0.24	± 0.00
15389000	8/26/2002	2 of 2	0.0036	± 0.0001	0.30	± 0.00	0.15	± 0.01	0.005	± 0.001	0.28	± 0.00	0.019	± 0.001	0.25	± 0.00
15389000	9/27/2002	1 of 2	0.0021	± 0.0002	0.49	± 0.00	0.11	± 0.01	0.008	± 0.003	0.20	± 0.00	0.015	± 0.001	0.23	± 0.00
15389000	9/27/2002	2 of 2	0.0025	± 0.0000	0.49	± 0.00	0.10	± 0.01	0.009	± 0.001	0.20	± 0.00	0.014	± 0.001	0.23	± 0.00

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

Station	Date	Rep	Thulium µg/L		Uranium µg/L		Vanadium µg/L		Tungsten µg/L		Yttrium µg/L		Ytterbium µg/L		Zirconium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15453500	3/19/2002	1 of 2	0.0003	± 0.0000	1.1	± 0.0	0.21	± 0.04	0.006	± 0.001	0.020	± 0.001	0.0015	± 0.0004	0.033	± 0.002
15453500	3/19/2002	2 of 2	0.0003	± 0.0001	1.1	± 0.0	0.16	± 0.03	0.007	± 0.001	0.021	± 0.001	0.0018	± 0.0005	0.033	± 0.003
15453500	6/4/2002	1 of 2	0.0019	± 0.0000	0.60	± 0.01	0.39	± 0.02	0.013	± 0.001	0.14	± 0.00	0.012	± 0.001	0.17	± 0.00
15453500	6/4/2002	2 of 2	0.0017	± 0.0001	0.61	± 0.01	0.37	± 0.02	0.013	± 0.000	0.14	± 0.00	0.012	± 0.001	0.17	± 0.00
15453500	6/24/2002	1 of 2	0.0012	± 0.0002	0.64	± 0.02	0.29	± 0.02	0.011	± 0.002	0.099	± 0.002	0.0088	± 0.0017	0.14	± 0.01
15453500	6/24/2002	2 of 2	0.0014	± 0.0002	0.69	± 0.00	0.34	± 0.02	0.014	± 0.001	0.10	± 0.00	0.0077	± 0.0004	0.15	± 0.00
15453500	7/18/2002	1 of 2	0.0009	± 0.0001	0.77	± 0.01	0.54	± 0.01	0.015	± 0.002	0.070	± 0.001	0.0061	± 0.0006	0.11	± 0.00
15453500	7/18/2002	2 of 2	0.0007	± 0.0001	0.73	± 0.01	0.49	± 0.03	0.017	± 0.002	0.058	± 0.000	0.0054	± 0.0003	0.087	± 0.003
15453500	7/30/2002	1 of 2	0.0004	± 0.0001	0.82	± 0.01	0.50	± 0.03	0.020	± 0.001	0.027	± 0.001	0.0023	± 0.0012	0.062	± 0.014
15453500	7/30/2002	2 of 2	0.0004	± 0.0000	0.81	± 0.02	0.53	± 0.02	0.018	± 0.001	0.034	± 0.001	0.0027	± 0.0007	0.059	± 0.003
15453500	8/23/2002	1 of 2	0.0016	± 0.0001	0.62	± 0.01	0.31	± 0.00	0.008	± 0.000	0.14	± 0.00	0.012	± 0.000	0.17	± 0.00
15453500	8/23/2002	2 of 2	0.0017	± 0.0001	0.62	± 0.01	0.31	± 0.03	0.010	± 0.001	0.14	± 0.00	0.011	± 0.001	0.18	± 0.00
15453500	9/4/2002	1 of 2	0.0021	± 0.0001	0.76	± 0.00	0.57	± 0.02	0.012	± 0.000	0.17	± 0.00	0.014	± 0.001	0.36	± 0.00
15453500	9/4/2002	2 of 2	0.0016	± 0.0003	0.75	± 0.01	0.35	± 0.01	0.012	± 0.001	0.12	± 0.00	0.011	± 0.001	0.31	± 0.02
15515500	3/22/2002	1 of 2	0.0002	± 0.0001	0.82	± 0.03	0.21	± 0.01	0.009	± 0.001	0.016	± 0.000	0.0020	± 0.0003	0.011	± 0.001
15515500	3/22/2002	2 of 2	0.0001	± 0.0001	0.80	± 0.01	0.21	± 0.01	0.008	± 0.001	0.017	± 0.000	0.0015	± 0.0002	0.014	± 0.000
15515500	5/14/2002	1 of 2	0.0038	± 0.0000	0.70	± 0.00	0.53	± 0.03	0.013	± 0.002	0.31	± 0.00	0.029	± 0.001	0.18	± 0.01
15515500	5/14/2002	2 of 2	0.0043	± 0.0002	0.68	± 0.00	0.48	± 0.03	0.010	± 0.000	0.30	± 0.00	0.028	± 0.002	0.16	± 0.01
15515500	5/29/2002	1 of 2	0.0011	± 0.0002	0.89	± 0.00	0.36	± 0.02	0.017	± 0.001	0.066	± 0.002	0.0064	± 0.0004	0.048	± 0.004
15515500	5/29/2002	2 of 2	0.0010	± 0.0002	0.90	± 0.00	0.49	± 0.01	0.015	± 0.001	0.074	± 0.002	0.0077	± 0.0001	0.048	± 0.002
15515500	7/16/2002	1 of 2	0.0007	± 0.0000	0.78	± 0.01	0.75	± 0.00	0.017	± 0.002	0.055	± 0.000	0.0051	± 0.0008	0.060	± 0.003
15515500	7/16/2002	2 of 2	0.0004	± 0.0001	0.80	± 0.02	0.55	± 0.01	0.020	± 0.001	0.032	± 0.001	0.0031	± 0.0013	0.025	± 0.003
15515500	7/29/2002	1 of 2	0.0003	± 0.0001	0.81	± 0.01	0.50	± 0.01	0.021	± 0.002	0.022	± 0.000	0.0020	± 0.0006	0.013	± 0.001
15515500	7/29/2002	2 of 2	0.0004	± 0.0001	0.79	± 0.01	0.57	± 0.04	0.021	± 0.001	0.031	± 0.001	0.0029	± 0.0012	0.030	± 0.005
15515500	8/21/2002	1 of 2	0.0027	± 0.0000	0.64	± 0.00	0.53	± 0.02	0.015	± 0.002	0.19	± 0.00	0.019	± 0.001	0.19	± 0.00
15515500	8/21/2002	2 of 2	0.0025	± 0.0001	0.64	± 0.00	0.53	± 0.03	0.013	± 0.001	0.19	± 0.00	0.019	± 0.001	0.14	± 0.01
15515500	8/30/2002	1 of 2	0.0009	± 0.0001	0.78	± 0.00	0.45	± 0.01	0.017	± 0.001	0.060	± 0.001	0.0064	± 0.0009	0.12	± 0.01
15515500	8/30/2002	2 of 2	0.0007	± 0.0002	0.77	± 0.00	0.46	± 0.01	0.016	± 0.001	0.061	± 0.001	0.0065	± 0.0006	0.11	± 0.01

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

Station	Date	Rep	Thulium µg/L		Uranium µg/L		Vanadium µg/L		Tungsten µg/L		Yttrium µg/L		Ytterbium µg/L		Zirconium µg/L	
			Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD	Avg	SD
15565447	4/2/2002	1 of 2	0.0003	± 0.0002	0.85	± 0.01	< 0.04	± 0.02	0.003	± 0.001	0.017	± 0.000	0.0021	± 0.0004	0.037	± 0.004
15565447	4/2/2002	2 of 2	0.0003	± 0.0002	0.86	± 0.01	< 0.04	± 0.02	0.003	± 0.000	0.017	± 0.000	0.0023	± 0.0001	0.032	± 0.002
15565447	6/12/2002	1 of 2	0.0033	± 0.0002	0.36	± 0.01	0.63	± 0.01	0.011	± 0.000	0.24	± 0.00	0.023	± 0.003	0.28	± 0.00
15565447	6/12/2002	2 of 2	0.0029	± 0.0001	0.33	± 0.01	0.54	± 0.02	0.014	± 0.001	0.22	± 0.00	0.019	± 0.000	0.27	± 0.01
15565447	6/20/2002	1 of 2	0.0022	± 0.0002	0.46	± 0.01	0.76	± 0.02	0.012	± 0.002	0.16	± 0.00	0.015	± 0.001	0.17	± 0.01
15565447	6/20/2002	2 of 2	0.0023	± 0.0001	0.45	± 0.01	0.71	± 0.01	0.014	± 0.001	0.17	± 0.00	0.015	± 0.000	0.19	± 0.00
15565447	7/1/2002	1 of 2	0.0015	± 0.0003	0.60	± 0.01	0.41	± 0.02	0.016	± 0.002	0.11	± 0.00	0.010	± 0.001	0.16	± 0.00
15565447	7/1/2002	2 of 2	0.0014	± 0.0002	0.60	± 0.01	0.41	± 0.02	0.013	± 0.001	0.11	± 0.00	0.0093	± 0.0005	0.16	± 0.00
15565447	7/16/2002	1 of 2	0.0007	± 0.0002	0.78	± 0.01	0.52	± 0.03	0.015	± 0.001	0.059	± 0.001	0.0050	± 0.0001	0.086	± 0.001
15565447	7/16/2002	2 of 2	0.0007	± 0.0000	0.75	± 0.00	0.49	± 0.03	0.018	± 0.001	0.056	± 0.000	0.0057	± 0.0002	0.086	± 0.007
15565447	8/8/2002	1 of 2	0.0005	± 0.0002	0.81	± 0.00	0.53	± 0.01	0.018	± 0.001	0.031	± 0.001	0.0026	± 0.0005	0.056	± 0.006
15565447	8/8/2002	2 of 2	0.0006	± 0.0000	0.82	± 0.00	0.57	± 0.02	0.018	± 0.000	0.039	± 0.001	0.0031	± 0.0006	0.053	± 0.002
15565447	9/24/2002	1 of 2	0.0010	± 0.0002	0.72	± 0.01	0.39	± 0.01	0.013	± 0.001	0.076	± 0.002	0.0078	± 0.0009	0.19	± 0.01
15565447	9/24/2002	2 of 2	0.0009	± 0.0000	0.73	± 0.02	0.39	± 0.00	0.013	± 0.001	0.077	± 0.003	0.0079	± 0.0010	0.21	± 0.01

CHAPTER 5 - Dissolved and Colloidal Trace Elements

by **Alan M. Shiller**

A description of sample collection and processing of samples for dissolved and colloidal trace elements filtered through 0.45-μm and 0.02-μm pore size respectively, 25-mm-diameter filters is given in Schuster and others (2003). For operational definitions in this report, the 0.45-μm filtered samples include dissolved and colloidal material whereas the 0.02-μm filtered samples include dissolved material only. The colloidal fraction of the sample can be determined by subtracting the 0.02-μm fraction from the 0.45-μm fraction. Sample analysis results for WY 2002 are given in tables 9 and 10.

Table 9. Dissolved trace elements in 0.02-µm filtered samples from five fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; data are in micrograms per liter; Ba, barium; Cd, cadmium; Ce, cerium; Co, cobalt; Cr, chromium; Cs, cesium; Cu, copper; Fe, iron; Li, lithium; Mn, manganese; Mo, molybdenum; Ni, nickel; Pb, lead; Rb, rubidium; Re, rhenium; Sr, strontium; Tl, thallium, U, uranium; V, vanadium; Zn, zinc;--, no data]

Station ID	Date	Ba	Cd	Ce	Co	Cr	Cs	Cu	Fe	Li	Mn
15356000	3/21/02	61	0.011	0.001	0.007	0.08	0.003	0.49	1	2.69	1.5
15356000	5/22/02	36	0.033	0.192	0.134	0.12	0.003	3.04	78	2.06	21.4
15356000	6/11/02	39	0.005	0.045	0.034	0.17	0.005	1.73	13	2.53	2.6
15356000	7/10/02	43	<0.001	0.002	0.015	0.08	0.014	0.82	1	3.63	0.6
15356000	8/1/02	30	<0.001	0.090	0.076	0.16	0.010	2.35	22	2.62	5.2
15356000	8/28/02	38	0.006	0.057	0.062	0.12	0.004	1.69	17	2.83	6.8
15356000	9/25/02	44	0.004	0.018	0.033	0.10	0.003	0.89	6	2.88	4.1
15565447	4/2/02	87	0.017	0.003	0.181	0.04	0.004	0.47	2	3.27	138.5
15565447	6/12/02	40	--	0.049	0.078	0.11	0.003	3.44	40	1.85	17.7
15565447	6/20/02	43	0.009	0.033	0.047	0.11	0.003	2.58	27	2.32	8.2
15565447	7/1/02	45	0.003	0.017	0.040	0.11	0.003	2.45	12	2.47	6.8
15565447	7/16/02	48	0.003	0.009	0.032	0.10	0.003	1.97	3	3.02	3.6
15565447	8/8/02	50	0.002	0.004	0.026	0.11	0.006	1.64	2	3.71	2.1
15565447	9/24/02	40	0.009	0.021	0.044	0.13	0.002	2.02	10	2.84	6.8
15389000	6/6/02	41	0.003	0.029	0.039	0.09	0.001	1.45	23	2.99	1.5
15389000	6/18/02	43	0.007	0.074	0.061	0.22	0.001	2.24	74	3.83	2.0
15389000	6/26/02	34	0.006	0.098	0.067	0.19	0.001	1.83	66	2.49	2.0
15389000	8/13/02	51	0.003	0.014	0.091	0.09	0.001	0.89	13	4.88	1.6
15389000	8/26/02	46	0.007	0.051	0.071	0.19	0.001	1.45	57	4.33	2.8
15389000	9/27/02	56	0.002	0.020	0.059	0.12	0.001	1.13	15	4.83	3.5
15453500	3/19/02	81	0.007	0.002	0.015	0.05	0.002	0.45	1	3.50	13.1
15453500	6/4/02	44	0.014	0.035	0.049	0.07	0.003	2.21	19	2.63	4.2
15453500	6/24/02	45	0.005	0.023	0.033	0.10	0.002	1.59	11	3.03	3.3
15453500	7/18/02	48	<0.001	0.006	0.028	0.09	0.008	1.53	2	3.75	2.0
15453500	7/30/02	43	<0.001	0.004	0.022	0.08	0.012	1.17	3	3.72	1.7
15453500	8/23/02	39	0.002	0.030	0.045	0.13	0.004	1.88	15	3.55	3.8
15453500	9/4/02	46	0.004	0.025	0.030	0.12	0.004	1.91	10	3.34	1.9
15515500	3/22/02	53	0.010	0.002	0.117	0.04	0.008	0.34	4	3.57	88.6
15515500	5/14/02	29	0.014	0.126	0.281	0.17	0.009	3.48	76	2.25	72.4
15515500	5/29/02	32	0.003	0.012	0.067	0.12	0.018	2.17	4	3.55	9.1
15515500	7/16/02	32	<0.001	0.003	0.040	0.12	0.022	0.98	1	5.41	6.9
15515500	7/29/02	27	<0.001	0.003	0.032	0.10	0.018	0.85	1	4.76	3.7
15515500	8/21/02	25	0.010	0.084	0.146	0.18	0.009	2.53	33	2.89	27.5
15515500	8/30/02	32	0.006	0.015	0.088	0.14	0.011	1.53	6	4.06	18.0

Table 9. Dissolved trace elements in 0.02-µm filtered samples from five fixed-station sampling sites in the Yukon River Basin—continued

Station ID	Date	Mo	Ni	Pb	Rb	Re	Sr	Tl	U	V	Zn
15356000	3/21/02	1.35	0.65	<0.003	0.87	0.003	178	0.002	1.12	0.18	0.15
15356000	5/22/02	0.59	2.97	0.017	0.94	0.002	99	0.005	0.65	0.35	0.54
15356000	6/11/02	0.83	1.32	0.003	0.96	0.002	114	0.005	0.72	0.40	<0.08
15356000	7/10/02	1.50	0.61	<0.003	2.02	0.003	132	0.008	0.89	0.45	<0.08
15356000	8/1/02	0.99	1.42	0.004	1.81	0.002	113	0.008	0.78	0.65	0.23
15356000	8/28/02	0.99	1.59	0.004	1.00	0.003	128	0.005	0.82	0.49	0.14
15356000	9/25/02	1.12	1.17	<0.003	0.86	0.003	138	0.003	0.88	0.31	<0.08
15565447	4/2/02	0.84	1.00	0.003	1.43	0.002	198	0.004	0.88	0.05	0.16
15565447	6/12/02	0.54	1.49	0.044	1.14	0.002	86	0.004	0.29	0.51	0.62
15565447	6/20/02	0.79	1.27	0.018	1.27	0.002	90	0.004	0.45	0.58	0.16
15565447	7/1/02	0.78	1.10	0.006	1.16	0.002	98	0.004	0.60	0.50	0.12
15565447	7/16/02	1.09	0.85	<0.003	1.35	0.003	128	0.004	0.73	0.60	<0.08
15565447	8/8/02	1.24	0.60	0.003	1.84	0.003	142	0.005	0.68	0.80	<0.08
15565447	9/24/02	0.91	0.97	0.014	1.02	0.002	121	0.003	0.69	0.48	--
15389000	6/6/02	0.36	1.80	0.008	0.28	0.002	66	0.003	0.25	0.23	0.14
15389000	6/18/02	0.29	2.90	0.014	0.23	0.002	73	0.003	0.22	0.20	0.20
15389000	6/26/02	0.24	2.19	0.026	0.18	0.001	61	0.002	0.25	0.28	0.59
15389000	8/13/02	0.32	1.27	0.005	0.23	0.002	117	0.002	0.09	0.12	0.35
15389000	8/26/02	0.40	2.84	0.010	0.18	0.002	85	0.002	0.13	0.20	0.50
15389000	9/27/02	0.46	2.29	<0.003	0.20	0.003	104	0.002	0.47	0.11	0.14
15453500	3/19/02	1.23	0.69	<0.003	1.05	0.003	203	0.003	1.01	0.18	<0.08
15453500	6/4/02	0.69	1.67	0.007	0.88	0.002	102	0.005	0.56	0.44	<0.08
15453500	6/24/02	0.83	1.25	<0.003	0.81	0.003	110	0.004	0.66	0.37	0.52
15453500	7/18/02	1.33	0.84	<0.003	1.90	0.003	122	0.007	0.70	0.59	0.24
15453500	7/30/02	1.26	0.68	0.007	2.21	0.003	130	0.008	0.70	0.60	0.25
15453500	8/23/02	0.86	1.45	0.003	1.04	0.003	130	0.005	0.60	0.38	0.13
15453500	9/4/02	0.94	1.48	<0.003	1.03	0.003	137	0.004	0.75	0.45	0.77
15515500	3/22/02	1.22	0.54	0.004	1.22	0.004	199	0.004	0.79	0.28	<0.08
15515500	5/14/02	0.78	2.28	0.020	1.56	0.002	105	0.005	0.61	0.49	0.13
15515500	5/29/02	0.95	1.13	<0.003	2.37	0.003	123	0.008	0.88	0.45	<0.08
15515500	7/16/02	1.24	0.64	<0.003	2.83	0.003	123	0.009	0.75	0.77	<0.08
15515500	7/29/02	1.23	0.58	<0.003	2.64	0.003	122	0.008	0.79	0.71	0.30
15515500	8/21/02	0.74	1.62	0.015	1.62	0.003	106	0.006	0.60	0.57	0.15
15515500	8/30/02	0.98	1.01	0.003	1.83	0.003	145	0.006	0.79	0.55	<0.08

Table 10. Selected dissolved and colloidal trace elements in 0.45-µm filtered samples from five fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; data are in micrograms per liter; Cu, copper; Mo, molybdenum; Ni, nickel; Rb, rubidium; Re, rhenium; Sr, strontium; Tl, thallium; U, uranium; --, no data]

Station ID	Date	Cu	Mo	Ni	Rb	Re	Sr	Tl	U
15356000	3/21/02	0.53	1.33	0.67	0.93	0.003	184	0.002	1.05
15356000	5/22/02	3.85	0.48	3.51	1.03	0.002	99	0.006	0.70
15356000	6/11/02	2.17	0.71	1.72	1.09	0.002	119	0.005	0.72
15356000	7/10/02	1.19	1.41	1.00	2.26	0.003	126	0.010	0.88
15356000	8/1/02	3.50	0.76	2.13	2.15	0.002	117	0.010	0.80
15356000	8/28/02	2.02	0.74	2.05	1.22	0.003	132	0.006	0.79
15356000	9/25/02	0.98	1.19	1.30	0.84	0.003	149	0.003	0.88
15565447	4/2/02	0.51	0.80	1.01	1.40	0.002	195	0.004	0.88
15565447	6/12/02	4.65	0.46	1.82	1.13	0.002	75	0.005	0.30
15565447	6/20/02	3.04	0.64	1.39	1.30	0.002	104	0.005	0.46
15565447	7/1/02	3.16	0.69	1.38	1.33	0.002	117	0.005	0.56
15565447	7/16/02	2.49	0.91	1.25	1.55	0.003	124	0.006	0.75
15565447	8/8/02	2.44	1.09	1.24	2.16	0.003	138	0.008	0.79
15565447	9/24/02	2.33	0.79	1.13	1.13	0.003	131	0.003	0.71
15389000	6/6/02	1.69	0.31	1.99	0.31	0.002	59	0.003	0.27
15389000	6/18/02	2.48	0.25	3.12	0.28	0.002	67	0.004	0.25
15389000	6/26/02	2.08	0.23	2.55	0.24	0.002	62	0.003	0.27
15389000	8/13/02	1.03	0.28	1.50	0.24	0.002	112	0.003	0.26
15389000	8/26/02	1.56	0.29	2.72	0.20	0.002	90	0.003	0.29
15389000	9/27/02	1.46	0.51	2.96	0.22	0.002	117	0.002	0.48
15453500	3/19/02	0.50	1.23	0.71	1.02	0.003	198	0.003	1.00
15453500	6/4/02	2.58	0.56	1.94	0.97	0.002	94	0.006	0.61
15453500	6/24/02	1.94	0.74	1.48	0.84	0.002	112	0.005	0.66
15453500	7/18/02	2.09	0.88	1.38	2.17	0.003	126	0.010	0.72
15453500	7/30/02	1.54	0.97	1.01	2.42	0.003	131	0.011	0.81
15453500	8/23/02	2.34	0.62	2.06	1.33	0.003	130	0.007	0.62
15453500	9/4/02	2.33	0.72	1.85	1.18	0.003	143	0.005	0.73
15515500	3/22/02	0.37	1.18	0.51	1.21	0.004	194	0.004	0.80
15515500	5/14/02	4.73	0.59	2.52	1.65	0.002	100	0.006	0.64
15515500	5/29/02	3.00	0.74	1.46	2.47	0.003	123	0.009	0.88
15515500	7/16/02	1.38	0.89	0.86	2.75	0.003	118	0.011	0.75
15515500	7/29/02	1.15	1.15	0.73	2.72	0.003	122	0.009	0.76
15515500	8/21/02	4.20	0.57	2.70	2.09	0.003	111	0.009	0.60
15515500	8/30/02	2.42	0.72	1.46	2.07	0.003	142	0.009	0.76

CHAPTER 6 - 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 and others (2003). Sample analysis results for WY 2002 are given in table 11.

Table 11. Mercury and methymercury concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; Hg, mercury; ng/L, nanogram per liter; FMHg, Filtered Methylmercury; QA flag, Quality Assurance flag; FTHg, Filtered Total mercury; PMHg, Particulate Methylmercury; PTHg, Particulate Total mercury; UMHg, Unfiltered Methylmercury; UTHg, Unfiltered Total mercury; M, suspected matrix interference; R, result of rerun; --, no data collected; <, less than]

Station ID	Date	Time	Filtered Methyl-Hg (FMHg) (ng/L)	QA flag	Filtered Total-Hg (FTHg) (ng/L)	Particulate Methyl-Hg (PMHg) (ng/L)	Particulate Total-Hg (PTHg) (ng/L)	Unfiltered Methyl-Hg (UMHg) (ng/L)	Unfiltered Total-Hg (UTHg) (ng/L)
15389000	6/6/02	15:00	0.07	M	1.85	--	4.16	--	--
15389000	6/18/02	14:30	0.10	M	3.12	--	4.60	--	--
15389000	6/18/02	14:30	0.08	M	3.19	--		--	--
15389000	6/26/02	13:10	0.06	R	3.15	0.062	17.0	--	--
15389000	8/13/02	14:30	< 0.04	R	1.56	< 0.029	6.22	--	--
15389000	8/26/02	14:00	0.05	R	2.08	< 0.031	2.68	--	--
15389000	8/29/02	12:30	0.04		2.09	< 0.069	19.0	--	--
15389000	9/27/02	12:00	0.04	R	1.45	< 0.032	0.601	--	--
15515500	3/22/02	18:00	< 0.04		0.14	--	<0.537	--	--
15515500	5/14/02	15:00	0.08	M	2.42	--		--	--
15515500	5/29/02	15:50	0.06	M	1.61	--	42.2	--	--
15515500	7/16/02	14:30	< 0.04	R	1.29	0.086	287	0.12	66.8
15515500	7/29/02	13:10	< 0.04	R	0.91	0.103	75.4	--	--
15515500	8/21/02	13:30	< 0.04	R	2.01	0.074	37.2	--	--
15515500	8/30/02	15:40	< 0.04	R	1.18	0.051	22.6	--	--
15356000	6/11/02	14:10	0.07	M	2.06	--	8.16	--	--
15356000	7/10/02	11:20	< 0.04	R	0.77	< 0.030	14.2	--	--
15356000	8/1/02	11:50	< 0.04	R	1.90	0.081	21.8	--	--
15356000	8/22/02	11:40	< 0.04		2.01	<0.069	27.2	--	--
15356000	8/28/02	13:40	0.04	R	1.91	0.098	25.7	--	--
15356000	9/25/02	10:00	< 0.04	R	1.24	0.035	5.71	--	--
15565447	4/2/02	18:10	< 0.04		0.25	0.006	< 1.14	--	--
15565447	6/20/02	18:40	< 0.04	R	1.61	--	9.90	--	--
15565447	7/1/02	19:00	0.06	R	1.90	--	10.5	--	--
15565447	7/16/02	11:30	< 0.04	R	1.21	--	18.3	--	--
15565447	8/8/02	14:20	< 0.04	R	1.85	0.056	24.8	--	--
15565447	9/24/02	16:30	< 0.04	R	1.32	0.030	11.1	--	--
15453500	3/19/02	19:30	< 0.04	M	0.32	--	< 1.45	--	--
15453500	6/4/02	16:30	0.08	R	2.45	--	13.4	--	--
15453500	7/18/02	14:00	< 0.04	R	1.20	0.048	16.7	--	--
15453500	7/30/02	15:10	< 0.04	R	0.78	0.032	25.9	--	--
15453500	8/23/02	14:40	< 0.04	R	2.20	0.062	15.9	--	--
15453500	9/4/02	14:50	< 0.04	R	2.01	0.060	14.5	--	--

CHAPTER 7 - 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_{CO2}) and methane (P_{CH4}) is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 12.

Table 12. Carbon dioxide, methane, and dissolved inorganic carbon concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; CO_2, carbon dioxide; µmol/L, micromole per liter; P_{CO2}, partial pressure of CO_2; µatmos, microatmospheres; CH_4, methane; P_{CH4}, partial pressure of CH_4; DIC, dissolved inorganic carbon; --, not available]

Station ID	Date	CO_2 (µmol/L)	Corrected P_{CO2} (µatmos)	CH_4 (µmol/L)	Corrected P_{CH4} (µatmos)	DIC (µmol/L)
15356000	3/21/2002	175.6	2,186	0.13	2.8	2,861
15356000	5/22/2002	47.3	784	0.14	3.0	1,252
15356000	6/11/2002	45.2	901	0.11	2.5	1,609
15356000	6/12/2002	62.5	1,245	0.18	4.1	1,462
15356000	7/10/2002	37.7	852	0.19	4.4	1,917
15356000	8/1/2002	39.7	796	0.19	4.2	1,557
15356000	8/22/2002	41.1	512	0.27	5.9	1,490
15356000	8/28/2002	77.7	1,426	0.21	4.6	1,606
15356000	9/25/2002	66.7	1,067	0.18	3.9	1,790
15389000	3/11/2002	208.0	2,620	0.15	3.2	4,671
15389000	6/6/2002	126.7	2,598	0.16	3.5	1,274
15389000	6/18/2002	70.3	1,372	0.15	3.4	732
15389000	6/26/2002	32.7	639	0.07	1.5	631
15389000	8/13/2002	43.4	839	0.19	4.2	1,361
15389000	8/26/2002	60.0	1,024	0.15	3.3	1,478
15389000	9/27/2002	62.5	965	0.15	3.3	2,049
15453500	3/19/2002	197.3	2,511	0.33	7.0	3,199
15453500	4/1/2002	220.1	2,847	0.55	11.6	3,317
15453500	6/4/2002	73.4	1,515	0.16	3.7	1,412
15453500	6/24/2002	56.5	1,155	0.16	3.7	1,208
15453500	7/18/2002	36.8	912	0.30	6.9	1,876
15453500	7/30/2002	28.9	698	0.30	6.8	2,506
15453500	8/23/2002	55.9	1,031	0.19	4.2	1,597
15453500	9/4/2002	53.3	1,027	0.19	4.1	1,630
15515500	3/22/2002	278.2	3,528	2.30	48.6	3,545
15515500	5/14/2002	75.6	1,018	0.71	15.1	1,519
15515500	5/29/2002	63.7	1,255	0.65	14.6	988
15515500	7/16/2002	55.9	1,300	0.49	11.1	1,795
15515500	7/29/2002	37.1	791	0.54	12.3	1,669
15515500	8/21/2002	75.0	1,340	0.58	12.8	1,373
15515500	8/30/2002	--	--	1.19	26.7	1,288
15565447	4/2/2002	651.8	8,360	3.95	83.7	4,407
15565447	6/12/2002	85.0	1,774	0.36	8.1	1,069
15565447	6/20/2002	--	--	0.26	5.9	1,155
15565447	7/1/2002	68.7	1,576	0.22	5.0	1,703
15565447	7/16/2002	65.2	1,473	0.27	6.1	1,341
15565447	8/8/2002	72.1	1,785	0.31	7.1	1,910
15565447	9/24/2002	82.7	1,433	0.25	5.5	1,747

CHAPTER 8 - Sediment Chemistry

by **Arthur J. Horowitz**

A description of sample collection and processing of samples for suspended sediment chemistry is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 13.

Table 13. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; L, liter; mg/L, milligram per liter; µg/g; microgram per gram; %, percent; Sets A & B indicate duplicate samples; <, less than; --, not available; NR/IS, No Result/Insufficient Sample]

Station ID	Date/Time	Suspended Sediment (mg/L)	Silver (µg/g)	Copper (µg/g)	Lead µg/g)	Zinc (µg/g)	Cadmium (µg/g)
15356000	5/22/02 14:20	391	<0.5	33	14	170	1.1
15356000	6/11/02 14:10	299	<0.5	33	13	110	0.5
15356000	7/10/02 11:20	422	0.5	39	12	97	0.3
15356000 (Set A)	8/1/02 11:50	1,043	<0.5	33	12	75	0.3
15356000 (Set B)	8/1/02 12:00	1,039	<0.5	33	11	78	0.4
15356000	8/28/02 13:40	670	<0.5	31	11	100	0.9
15356000	9/25/02 10:00	99	0.5	28	17	120	0.3
15389000	6/6/02 15:00	65	<0.5	30	23	190	0.7
15389000 (Set A)	6/18/02 14:30	75	11	30	24	230	0.6
15389000 (Set B)	6/18/02 14:40	75	0.5	30	23	230	0.5
15389000	6/26/02 13:10	127	0.6	29	25	170	0.5
15389000	8/13/02 14:30	23	0.5	31	29	190	0.7
15389000	8/26/02 14:00	32	<1	43	32	350	1.0
15389000	9/27/02 12:00	2	1.7	83	31	680	2.0
15453500	3/19/02 --	7	<0.5	56	20	180	1.4
15453500	6/4/02 16:30	386	<0.5	32	26	120	3.3
15453500	6/24/02 13:30	239	<0.5	31	16	120	0.5
15453500	7/18/02 14:00	375	<0.5	43	15	100	0.4
15453500	7/30/02 15:10	408	<0.5	43	14	110	0.6
15453500 (Set A)	8/23/02 14:40	438	<0.5	35	13	110	0.5
15453500 (Set B)	8/23/02 14:50	455	<0.5	36	13	110	0.5
15453500	9/5/02 14:50	229	<0.5	40	14	150	0.7
15515500	5/14/02 15:00	2,880	<0.5	34	13	76	0.3
15515500	5/29/02 15:50	1,212	<0.5	55	20	120	0.4
15515500	7/16/02 14:30	1,606	<0.5	59	20	100	0.2
15515500	7/29/02 13:10	2,114	<0.5	54	20	94	0.3
15515500 (Set A)	8/21/02 13:30	1,921	<0.5	40	18	77	0.4
15515500 (Set B)	8/21/02 13:40	2,077	<0.5	37	17	73	0.2
15515500	8/30/02 15:40	952	<0.5	42	12	75	0.2

Table 13. Sediment chemistry data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID	Date/Time	Suspended Sediment (mg/L)	Silver (µg/g)	Copper (µg/g)	Lead µg/g)	Zinc (µg/g)	Cadmium (µg/g)
15565447	4/2/02 18:10	2	<0.5	89	47	360	2.1
15565447	6/12/02 13:40	283	<0.5	33	18	110	0.5
15565447	6/20/02 18:50	260	<0.5	34	16	110	0.4
15565447	7/1/02 19:00	165	<0.5	40	18	130	0.4
15565447	7/16/02 11:30	363	0.5	51	21	130	0.4
15565447 (Set A)	8/8/02 14:20	494	<0.5	57	19	130	0.5
15565447 (Set B)	8/8/02 14:30	493	<0.5	57	20	120	0.5
15565447	9/24/02 16:30	190	<0.5	41	16	120	0.5

Table 13. 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	5/22/02 14:20	100	15	53	1,300	140	29	1.5	3
15356000	6/11/02 14:10	98	16	48	870	120	24	1.4	3
15356000	7/10/02 11:20	94	18	45	690	130	29	1.5	2
15356000 (Set A)	8/1/02 11:50	91	15	38	610	110	22	1.3	2
15356000 (Set B)	8/1/02 12:00	91	16	40	640	110	22	1.3	2
15356000	8/28/02 13:40	93	15	44	910	130	23	1.4	2
15356000	9/25/02 10:00	150	15	90	890	110	21	1.5	10
15389000	6/6/02 15:00	110	16	58	910	180	65	2.1	2
15389000 (Set A)	6/18/02 14:30	120	17	76	1,200	200	60	2.1	4
15389000 (Set B)	6/18/02 14:40	120	17	120	1,200	210	61	2.1	4
15389000	6/26/02 13:10	110	16	56	870	170	60	2.3	2
15389000	8/13/02 14:30	130	19	64	1,000	210	86	2.4	4
15389000	8/26/02 14:00	150	22	120	1,100	230	62	2.4	6
15389000	9/27/02 12:00	210	35	230	1,200	220	61	3.1	11
15453500	3/19/02 --	110	19	68	960	140	31	1.6	4
15453500	6/4/02 16:30	97	15	48	960	130	28	1.4	3
15453500	6/24/02 13:30	91	16	47	920	130	28	1.4	2
15453500	7/18/02 14:00	150	20	74	710	130	35	1.5	8
15453500	7/30/02 15:10	100	20	53	720	130	32	1.6	3
15453500 (Set A)	8/23/02 14:40	110	15	51	810	140	34	1.5	2
15453500 (Set B)	8/23/02 14:50	120	17	57	870	150	32	1.6	2
15453500	9/5/02 14:50	110	17	62	1,100	140	32	1.6	3
15515500	5/14/02 15:00	85	14	37	780	110	20	1.3	1
15515500	5/29/02 15:50	110	21	56	1,100	150	42	1.6	2
15515500	7/16/02 14:30	95	21	46	900	130	31	1.7	1
15515500	7/29/02 13:10	76	20	43	880	130	30	1.7	1
15515500 (Set A)	8/21/02 13:30	85	16	38	770	110	24	1.4	1
15515500 (Set B)	8/21/02 13:40	84	16	35	730	110	23	1.4	1
15515500	8/30/02 15:40	86	17	46	790	120	22	1.5	<1

Table 13. 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)
15565447	4/2/02 18:10	210	15	89	970	100	13	1.1	9
15565447	6/12/02 13:40	110	17	51	940	130	30	1.6	2
15565447	6/20/02 18:50	100	17	48	920	130	28	1.5	1
15565447	7/1/02 19:00	110	19	54	980	140	34	1.8	2
15565447	7/16/02 11:30	110	21	52	1,000	150	42	1.8	2
15565447 (Set A)	8/8/02 14:20	110	23	55	1,000	160	40	1.9	2
15565447 (Set B)	8/8/02 14:30	110	22	54	1,000	150	41	1.8	2
15565447	9/24/02 16:30	100	18	57	1,000	140	34	1.6	2

Table 13. 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	5/22/02 14:20	980	300	14	1.7	0.9	0.08	<50	<50
15356000	6/11/02 14:10	980	340	10	1.4	0.3	0.05	<50	<50
15356000	7/10/02 11:20	950	350	13	2.1	0.4	0.04	<50	<50
15356000 (Set A)	8/1/02 11:50	1,000	340	11	1.4	0.5	0.03	<50	<50
15356000 (Set B)	8/1/02 12:00	1,000	360	11	1.4	0.5	0.02	<50	<50
15356000	8/28/02 13:40	970	340	9.8	1.4	1.1	0.19	<50	<50
15356000	9/25/02 10:00	860	460	7.5	1.2	0.4	0.13	<50	<50
15389000	6/6/02 15:00	970	110	14	1.1	1.0	0.07	<50	<50
15389000 (Set A)	6/18/02 14:30	860	120	16	1.4	1.3	0.08	<50	<50
15389000 (Set B)	6/18/02 14:40	860	130	15	1.4	1.5	0.08	<50	<50
15389000	6/26/02 13:10	960	120	17	1.2	1.1	0.07	<50	<50
15389000	8/13/02 14:30	1,200	150	16	1.0	1.2	0.08	<50	<50
15389000	8/26/02 14:00	1,100	140	15	1.5	1.5	0.88	<100	<100
15389000	9/27/02 12:00	1,400	160	25	1.6	4.0	NR/IS	<100	<100
15453500	3/19/02 --	1,000	300	16	1.8	1.1	0.13	<50	<50
15453500	6/4/02 16:30	960	290	10	1.8	1.3	0.06	<50	<50
15453500	6/24/02 13:30	940	300	11	1.4	0.6	0.03	<50	<50
15453500	7/18/02 14:00	940	300	14	2.1	0.4	0.04	<50	<50
15453500	7/30/02 15:10	960	310	14	2.2	0.6	0.57	<50	<50
15453500 (Set A)	8/23/02 14:40	1,000	270	11	1.5	0.9	0.17	<50	<50
15453500 (Set B)	8/23/02 14:50	1,000	290	11	1.5	1.2	0.15	<50	<50
15453500	9/5/02 14:50	990	280	15	2.0	1.1	0.08	<50	<50
15515500	5/14/02 15:00	710	230	13	1.2	0.3	0.03	<50	<50
15515500	5/29/02 15:50	750	220	21	2.2	0.5	0.04	<50	<50
15515500	7/16/02 14:30	780	240	16	1.8	0.5	0.04	<50	<50
15515500	7/29/02 13:10	770	240	15	1.8	0.2	0.03	<50	<50
15515500 (Set A)	8/21/02 13:30	750	240	14	1.2	0.2	0.20	<50	<50
15515500 (Set B)	8/21/02 13:40	740	230	12	1.2	0.3	0.14	<50	<50
15515500	8/30/02 15:40	760	230	15	1.4	0.2	0.04	<50	<50

Table 13. 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)
15565447	4/2/02 18:10	210	15	89	970	100	13	1.1	9
15565447	6/12/02 13:40	110	17	51	940	130	30	1.6	2
15565447	6/20/02 18:50	100	17	48	920	130	28	1.5	1
15565447	7/1/02 19:00	110	19	54	980	140	34	1.8	2
15565447	7/16/02 11:30	110	21	52	1,000	150	42	1.8	2
15565447 (Set A)	8/8/02 14:20	110	23	55	1,000	160	40	1.9	2
15565447 (Set B)	8/8/02 14:30	110	22	54	1,000	150	41	1.8	2
15565447	9/24/02 16:30	100	18	57	1,000	140	34	1.6	2

Table 13. 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	5/22/02 14:20	3.6	860	6.5	0.42	1.4	2.0	0.12
15356000	6/11/02 14:10	3.9	840	6.8	0.46	0.9	1.8	<0.1
15356000	7/10/02 11:20	4.4	770	6.9	0.45	0.5	2.8	<0.1
15356000 (Set A)	8/1/02 11:50	3.9	670	6.3	0.43	0.7	2.5	<0.1
15356000 (Set B)	8/1/02 12:00	3.9	710	6.4	0.45	0.7	2.6	<0.1
15356000	8/28/02 13:40	3.7	760	6.3	0.44	0.9	2.2	<0.1
15356000	9/25/02 10:00	3.3	740	6.7	0.43	0.9	2.0	<0.1
15389000	6/6/02 15:00	3.9	670	7.2	0.42	3.5	4.1	0.31
15389000 (Set A)	6/18/02 14:30	3.8	560	7.4	0.45	3.4	3.4	0.28
15389000 (Set B)	6/18/02 14:40	3.9	570	7.6	0.46	3.8	3.5	0.28
15389000	6/26/02 13:10	4.0	590	7.2	0.47	2.9	3.0	0.23
15389000	8/13/02 14:30	4.8	820	8.6	0.43	3.8	3.7	0.35
15389000	8/26/02 14:00	4.3	790	7.4	0.44	NR/IS	NR/IS	NR/IS
15389000	9/27/02 12:00	7.2	1,900	7.3	0.42	NR/IS	NR/IS	NR/IS
15453500	3/19/02 --	4.3	1,900	6.5	0.45	NR/IS	3.7	ND
15453500	6/4/02 16:30	3.5	740	6.3	0.43	1.5	2.3	0.11
15453500	6/24/02 13:30	3.7	750	6.5	0.44	1.3	2.2	<0.1
15453500	7/18/02 14:00	4.7	780	7.1	0.44	0.8	2.7	<0.1
15453500	7/30/02 15:10	4.6	810	6.9	0.44	0.9	2.7	<0.1
15453500 (Set A)	8/23/02 14:40	3.9	730	6.5	0.42	1.3	2.5	0.13
15453500 (Set B)	8/23/02 14:50	4.1	790	6.6	0.45	1.2	2.4	0.13
15453500	9/5/02 14:50	4.0	860	6.7	0.42	1.3	2.2	0.14
15515500	5/14/02 15:00	3.4	680	6.6	0.40	0.4	0.6	<0.1
15515500	5/29/02 15:50	4.6	920	7.8	0.45	0.5	0.6	<0.1
15515500	7/16/02 14:30	4.7	800	8.1	0.45	0.3	0.6	<0.1
15515500	7/29/02 13:10	4.6	770	7.9	0.44	0.4	0.6	<0.1
15515500	8/21/02 13:30	4.0	680	7.0	0.40	0.4	0.6	<0.1
15515500	8/21/02 13:40	3.9	650	6.8	0.41	0.4	0.6	<0.1
15515500	8/30/02 15:40	4.0	750	7.0	0.44	0.4	0.6	<0.1

Table 13. 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 (%)
15565447	4/2/02 18:10	19	1,600	2.8	0.23	NR/IS	NR/IS	NR/IS
15565447	6/12/02 13:40	3.9	810	6.9	0.46	1.4	1.4	0.10
15565447	6/20/02 18:50	4.0	850	6.9	0.47	1.2	1.4	0.09
15565447	7/1/02 19:00	4.5	910	7.2	0.47	1.3	1.5	0.13
15565447	7/16/02 11:30	5.0	940	7.8	0.46	1.1	1.6	0.10
15565447 (Set A)	8/8/02 14:20	5.2	960	8.1	0.46	0.9	1.7	<0.1
15565447 (Set B)	8/8/02 14:30	5.1	940	8.0	0.44	0.9	1.7	0.09
15565447	9/24/02 16:30	4.3	890	7.2	0.45	1.3	1.6	0.11

CHAPTER 9 - 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 and others (2003). Sample analysis results for WY 2002 are given in table 14.

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; %, percent]

Station ID:	15389000	15389000	15356000	15515500	15515500
Date	6/6/02	6/26/02	5/22/02	5/14/02	5/29/02
	Weight %	Weight %	Weight %	Weight %	Weight %
NON-CLAYS:					
Quartz	33.2	35.9	33.6	39.3	30.2
ordered Microcline	1.7	0.7	2.9	0.6	1.1
intermediate Microcline	0.0	0.7	0.1	0.1	0.0
Sanidine	1.1	1.7	1.6	1.9	0.5
Orthoclase	0.0	0.0	0.0	0.0	0.0
Anorthoclase	3.5	3.6	9.2	9.7	9.5
Albite	1.1	1.9	6.4	8.3	6.3
Oligoclase	0.0	0.0	0.7	0.0	1.8
Andesine	0.0	0.0	3.9	4.0	6.2
Labradorite	0.0	0.0	4.8	5.1	3.4
Bytownite	0.0	0.0	1.5	2.3	1.1
Anorthite	0.0	0.0	0.0	0.0	0.0
Calcite	0.0	0.0	1.5	0.3	0.3
Mg-calcite	0.6	0.4	0.7	1.1	0.7
Dolomite	1.9	1.1	2.9	0.6	0.5
Amphibole	0.1	0.2	1.8	2.4	2.3
Pyroxene	0.0	0.0	1.1	1.1	1.8
Magnetite	0.0	0.0	0.0	0.0	0.0
Hematite	0.1	0.0	0.3	0.0	0.0
Total non-clays:	43.3	46.2	73.3	77.1	66.2
CLAYS:					
Goethite	0.0	0.0	0.3	0.2	0.3
disordered kaolinite	0.6	1.5	0.0	0.0	0.0
Ferruginous smectite	2.8	2.0	0.4	0.8	4.0
Illite + smectite	26.7	26.4	10.6	9.7	13.3
Chlorite	15.1	14.6	12.2	13.9	17.9
Total Clays:	45.1	44.4	23.1	24.5	35.1
Total:	88.4	90.7	96.4	101.6	101.3
Full Pattern degree of fit:	0.079	0.071	0.068	0.087	0.104
Clay region degree of fit:	0.035	0.037	0.039	0.037	0.045

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID:	15453500	15453500	15565447	15565447	15565447
Date	6/4/02	6/24/02	6/12/02	6/20/02	7/1/02
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %
NON-CLAYS:					
Quartz	31.7	30.8	38.6	37.6	31.6
ordered Microcline	3.1	2.0	2.2	0.0	1.4
intermediate Microcline	0.1	0.0	0.0	0.0	0.0
Sanidine	1.2	2.4	2.3	3.3	1.3
Orthoclase	0.0	0.0	0.0	0.2	0.0
Anorthoclase	10.4	10.0	9.8	9.3	8.1
Albite	6.3	4.8	6.4	10.1	3.5
Oligoclase	0.0	1.6	1.8	0.0	2.4
Andesine	4.8	0.0	0.0	0.4	4.2
Labradorite	3.8	7.0	5.6	5.1	4.1
Bytownite	1.9	0.8	0.0	4.2	0.0
Anorthite	0.9	0.4	0.2	0.6	1.2
Calcite	3.3	3.3	0.0	0.2	0.0
Mg-calcite	0.9	0.7	0.6	0.1	0.6
Dolomite	3.6	3.2	1.2	1.7	1.6
Amphibole	1.5	1.5	0.7	1.1	0.8
Pyroxene	1.0	0.8	0.8	1.1	0.8
Magnetite	0.0	0.0	0.0	0.0	0.0
Hematite	0.3	0.2	0.3	0.0	0.3
Total non-clays:	75.4	69.9	70.4	74.9	62.1
CLAYS:					
Goethite	0.6	0.2	0.1	0.0	0.0
disordered kaolinite	0.0	0.5	0.0	0.0	0.0
Ferruginous smectite	1.6	3.7	0.5	3.2	25.8
Illite + smectite	8.0	7.1	9.2	12.7	4.2
Chlorite	12.9	14.0	15.9	8.2	10.7
Total Clays:	22.5	25.4	25.6	24.0	40.7
Total:	97.9	95.4	96.0	98.9	102.8
Full Pattern degree of fit:	0.081	0.061	0.088	0.170	0.132
Clay region degree of fit:	0.040	0.040	0.046	0.057	0.072

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID:	15356000	15515500	15565447	15453500	15515500
Date	7/10/02	7/16/02	7/16/02	7/18/02	7/29/02
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %
NON-CLAYS:					
Quartz	15.6	28.0	25.7	16.4	27.3
ordered Microcline	1.8	0.8	0.4	2.4	0.1
Intermediate Microcline	0.2	0.8	0.0	0.1	0.1
Sanidine	1.4	0.6	1.4	1.9	0.6
Orthoclase	0.0	0.0	0.0	0.0	2.5
Anorthoclase	7.0	9.0	7.7	8.2	10.0
Albite	5.8	6.3	4.4	6.4	6.6
Oligoclase	3.8	0.1	3.2	1.1	0.0
Andesine	3.7	5.3	3.4	2.8	4.2
Labradorite	4.6	6.7	3.6	5.6	7.2
Bytownite	0.0	1.4	0.0	0.0	1.2
Anorthite	0.7	0.0	0.0	0.7	0.0
Calcite	10.5	0.3	1.2	11.1	0.8
Mg-calcite	0.6	1.2	1.4	0.6	0.6
Dolomite	5.2	1.1	1.8	4.2	0.6
Amphibole	1.8	1.3	1.6	1.5	1.4
Pyroxene	0.9	1.3	0.4	1.1	1.7
Magnetite	0.0	0.0	0.0	0.0	0.0
Hematite	0.4	0.2	0.2	0.5	0.2
Total non-clays:	64.1	64.3	56.4	64.5	65.2
CLAYS:					
Goethite	0.0	0.0	0.0	0.0	0.0
disordered kaolinite	1.4	0.0	0.0	0.0	0.0
Ferruginous smectite	13.4	11.6	11.3	9.8	6.9
Illite + smectite	2.7	9.7	10.8	7.5	12.3
Chlorite	11.2	16.6	20.4	19.2	19.8
Total Clays:	28.7	37.8	42.5	36.5	39.0
Total:	92.8	102.1	98.9	101.0	104.3
Full Pattern region degree of fit:	0.074	0.099	0.096	0.094	0.121
Clay region degree of fit:	0.043	0.043	0.044	0.054	0.048

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID:	15453500	15356000	15356000	15565447	15565447
Date	7/30/02	8/1/02	8/1/02	8/8/02	8/8/02
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %
NON-CLAYS:					
Quartz	17.0	19.8	19.8	19.3	19.4
ordered Microcline	2.0	3.4	3.2	0.3	1.0
Intermediate Microcline	0.0	0.9	0.9	0.5	0.0
Sanidine	1.5	1.4	1.8	1.7	1.0
Orthoclase	0.0	0.0	0.0	0.0	0.0
Anorthoclase	9.0	12.0	9.1	7.5	8.8
Albite	5.5	6.5	6.6	4.0	5.2
Oligoclase	2.0	1.9	3.2	4.2	1.1
Andesine	1.4	0.9	0.0	0.0	3.8
Labradorite	6.1	8.2	10.1	6.9	4.5
Bytownite	1.0	1.9	2.0	0.9	0.6
Anorthite	0.0	0.6	0.0	0.0	0.0
Calcite	9.0	8.7	9.2	3.4	3.6
Mg-calcite	0.7	0.7	0.5	1.1	1.1
Dolomite	4.4	4.9	5.4	2.1	2.0
Amphibole	1.2	2.0	2.3	2.4	1.1
Pyroxene	0.8	1.2	1.5	1.2	1.3
Magnetite	0.0	0.0	0.0	0.0	0.0
Hematite	0.4	0.4	0.5	0.1	0.2
Total non-clays:	62.1	75.3	76.1	55.6	55.0
CLAYS:					
Goethite	0.0	0.0	0.1	0.0	0.1
disordered kaolinite	1.9	0.4	0.0	0.0	0.0
Ferruginous smectite	8.2	5.1	6.2	6.8	6.7
Illite + smectite	6.7	5.6	1.9	13.0	12.0
Chlorite	18.0	11.8	12.3	15.5	17.8
Total Clays:	34.8	22.8	20.5	35.3	36.5
Total:	96.9	98.1	96.6	90.8	91.5
Full Pattern region degree of fit:	0.068	0.078	0.094	0.082	0.076
Clay region degree of fit:	0.036	0.041	0.053	0.039	0.036

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID:	15515500	15515500	15453500	15453500	15356000
Date	8/2102	8/22/02	8/23/02	8/24/02	8/28/02
Mineral	Weight %	Weight %	Weight %	Weight %	Weight %
NON-CLAYS:					
Quartz	35.4	38.1	26.1	26.8	27.9
ordered Microcline	0.0	1.2	2.3	2.5	2.5
Intermediate Microcline	0.0	0.0	0.6	0.0	0.0
Sanidine	1.1	0.4	0.9	2.0	2.4
Orthoclase	0.0	0.0	0.0	0.0	0.0
Anorthoclase	8.6	9.0	8.5	8.7	9.4
Albite	6.7	7.2	6.2	5.8	6.0
Oligoclase	1.7	0.0	0.0	1.2	3.4
Andesine	4.0	6.0	2.4	0.0	0.0
Labradorite	4.7	5.2	4.6	6.4	7.8
Bytownite	2.4	1.5	1.6	0.6	1.1
Anorthite	0.0	0.4	0.0	0.0	0.1
Calcite	0.2	0.5	5.2	5.5	5.9
Mg-calcite	1.0	1.0	0.6	0.8	0.8
Dolomite	0.8	0.7	3.9	4.0	4.0
Amphibole	1.6	1.4	1.1	1.3	0.9
Pyroxene	1.2	1.2	1.1	0.7	1.0
Magnetite	0.0	0.0	0.0	0.0	0.1
Hematite	0.2	0.2	0.4	0.4	0.6
Total non-clays:	69.7	73.9	65.5	66.8	74.0
CLAYS:					
Goethite	0.0	0.0	0.1	0.0	0.0
disordered kaolinite	0.0	0.0	0.0	0.6	1.3
Ferruginous smectite	4.9	3.1	4.4	4.6	5.1
Illite + smectite	8.9	7.0	12.0	12.4	5.2
Chlorite	15.3	13.5	12.8	12.8	11.1
Total Clays:	29.1	23.6	29.2	30.4	22.7
Total:	98.8	97.5	94.7	97.2	96.7
Full Pattern region degree of fit:	0.082	0.097	0.062	0.074	-
Clay region degree of fit:	0.051	0.040	0.035	0.039	-

Table 14. Sediment mineralogy data from fixed-station sampling sites in the Yukon River Basin-continued

Station ID:	15515500	15453500	15565447
Date	8/30/02	9/5/02	9/24/02
Mineral	Weight %	Weight %	Weight %
NON-CLAYS:			
Quartz	37.8	26.1	26.7
ordered Microcline	1.2	2.2	2.0
Intermediate Microcline	0.0	0.4	0.3
Sanidine	0.4	0.8	1.3
Orthoclase	0.0	0.0	0.0
Anorthoclase	8.1	7.4	8.0
Albite	6.9	6.4	6.6
Oligoclase	0.0	0.0	0.0
Andesine	8.9	4.9	5.1
Labradorite	3.1	2.2	2.4
Bytownite	1.8	2.2	1.4
Anorthite	0.3	0.0	0.0
Calcite	0.5	5.2	5.5
Mg-calcite	0.9	0.6	0.7
Dolomite	0.7	3.9	4.0
Amphibole	1.4	1.2	1.2
Pyroxene	1.2	1.2	1.0
Magnetite	0.0	0.0	0.0
Hematite	0.1	0.4	0.4
Total non-clays:	73.3	65.2	66.6
CLAYS:			
Goethite	0.0	0.1	0.0
disordered kaolinite	0.0	0.0	0.9
Ferruginous smectite	4.4	4.5	4.1
Illite + smectite	6.7	10.9	11.1
Chlorite	13.2	12.9	12.4
Total Clays:	24.4	28.3	28.5
Total:	97.7	93.5	95.0
Full Pattern region degree of fit:	-	-	-
Clay region degree of fit:	-	-	-

CHAPTER 10 - Sediment Concentration and Percent Organic Matter (OM)

by **Paul F. Schuster and Michael M. Reddy**

A description of sample collection and processing of samples for suspended sediment concentration and percent OM in the sediment is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 15.

Table 15. Suspended sediment concentrations and percent organic matter in sediment from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; mg/L, milligram per liter; OM, Organic Matter; NA, not available; <, less than]

Station ID	Date	Sediment concentration (mg/L)	Percent OM in sediment
15356000	3/21/2002	0.67	91.4
15356000	5/22/2002	170	11.9
15356000	6/11/2002	167	10.9
15356000	7/10/2002	285	15.3
15356000	8/01/2002	759	6.7
15356000	8/28/2002	179	11.1
15356000	9/25/2002	38	9.3
15389000	3/11/2002	0.50	NA
15389000	6/6/2002	23	67.7
15389000	6/18/2002	21	84.8
15389000	6/26/2002	40	43.0
15389000	8/13/2002	15	42.5
15389000	8/26/2002	21	32.0
15389000	9/27/2002	3	98.0
15453500	3/19/2002	4	20.8
15453500	6/3/2002	122	15.0
15453500	6/24/2002	75	12.7
15453500	7/18/2002	305	10.1
15453500	7/30/2002	309	7.0
15453500	8/23/2002	264	9.8
15453500	9/4/2002	112	14.9
15515500	3/22/2002	4	54.3
15515500	5/14/2002	1,150	4.0
15515500	5/29/2002	640	8.6
15515500	7/16/2002	1,187	11.3
15515500	7/29/2002	1,823	9.8
15515500	8/21/2002	1,318	3.4
15515500	8/30/2002	553	4.8
15565447	4/2/2002	<0.1	NA
15565447	6/12/2002	66	15.8
15565447	6/20/2002	64	17.5
15565447	7/1/2002	104	9.9
15565447	7/16/2002	219	9.5
15565447	8/8/2002	357	8.1
15565447	9/24/2002	131	12.5

CHAPTER 11 - Particulate Carbon (PC) and Particulate Nitrogen (PN)

by **Paul F. Schuster and Michael M. Reddy**

A description of sample collection and processing of samples for PC and PN concentrations is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 16.

Table 16. Particulate carbon and particulate nitrogen concentrations from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; PC, particulate carbon; PN, particulate nitrogen; mg/L, milligram per liter; Concentrations averaged from duplicate samples]

Station ID	Date	PC (mg/L)	PN (mg/L)
15356000	3/21/2002	0.08	0.01
15356000	5/22/2002	8.19	0.47
15356000	6/11/2002	6.38	0.24
15356000	7/10/2002	11.40	0.12
15356000	8/1/2002	27.55	0.56
15356000	8/28/2002	10.16	0.32
15356000	9/25/2002	0.82	0.03
15389000	3/11/2002	0.14	0.01
15389000	6/06/2002	1.59	0.28
15389000	6/18/2002	3.15	0.26
15389000	6/26/2002	3.24	0.26
15389000	8/13/2002	0.98	0.07
15389000	8/26/2002	1.14	0.09
15389000	9/27/2002	0.33	0.02
15453500	3/19/2002	0.00	0.00
15453500	6/03/2002	9.83	0.23
15453500	6/24/2002	7.04	0.16
15453500	7/18/2002	8.58	0.38
15453500	7/30/2002	3.96	0.20
15453500	8/23/2002	9.15	0.31
15453500	9/4/2002	0.42	0.03
15515500	3/22/2002	0.22	0.01
15515500	5/14/2002	14.75	0.83
15515500	5/29/2002	7.64	0.47
15515500	7/16/2002	12.67	0.51
15515500	7/29/2002	13.55	0.42
15515500	8/21/2002	10.18	0.57
15515500	8/30/2002	5.04	0.29
15565447	4/2/2002	0.49	0.03
15565447	6/12/2002	2.31	0.18
15565447	6/20/2002	4.37	0.24
15565447	7/1/2002	5.89	0.24
15565447	7/16/2002	2.20	0.12
15565447	8/8/2002	117.40	10.87
15565447	9/24/2002	9.81	0.51

CHAPTER 12 - Isotopic Analysis of Suspended Particulate Organic Matter (POM)

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 POM is given in Schuster and others (2003). Sample analysis results for WY 2002 are given in table 17.

Table 17. Suspended sediment isotopic data from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; C, carbon; N, nitrogen; SD, standard deviation; Avg, average; %, percent; δ, delta; --, no data]

Station ID	Date	Avg %C	SD %C	Avg %N	SD %N	C:N	Avg $\delta^{13}C$	SD $\delta^{13}C$	Avg $\delta^{15}N$	SD $\delta^{15}N$
15356000	5/22/2002	0.81	--	0.12	--	7.88	-24.96	--	6.58	--
15356000	6/11/2002	0.41	--	0.05	--	9.57	-25.80	--	5.30	--
15356000	7/10/2002	0.36	--	0.03	--	14.00	-26.07	--	7.08	--
15356000	8/1/2002	0.58	--	0.04	--	16.92	-26.10	--	3.83	--
15356000	8/21/2002	0.74	--	0.19	--	4.54	-22.28	--	6.62	--
15356000	8/28/2002	0.68	--	0.12	--	6.61	-23.81	--	6.40	--
15565447	4/2/2002	0.48	--	0.07	--	8.00	-28.40	--	8.02	--
15453500	6/4/2002	1.03	--	0.08	--	15.02	-26.53	--	6.79	--
15453500	6/24/2002	0.42	--	0.04	--	12.25	-26.80	--	9.35	--
15453500	7/18/2002	0.89	--	0.09	--	11.54	-25.70	--	5.81	--
15453500	7/30/2002	2.16	--	0.61	--	4.13	-20.65	--	5.17	--
15453500	8/23/2002	2.03	--	0.54	--	4.39	-20.85	--	5.36	--
15453500	9/4/2002	0.31	--	0.03	--	12.06	-26.54	--	3.26	--
15515500	3/22/2002	1.63	--	0.41	--	4.64	-22.18	--	5.37	--
15515500	5/14/2002	0.58	0.01	0.05	0.00	13.42	-27.07	0.01	3.99	0.15
15515500	5/28/2002	1.49	--	0.16	--	10.86	-25.18	--	3.44	--
15515500	7/16/2002	0.36	0.01	0.04	0.01	11.83	-25.80	0.52	2.59	1.68
15515500	7/29/2002	0.35	0.01	0.03	0.00	13.42	-27.24	1.00	3.75	1.54
15515500	8/21/2002	0.34	--	0.03	--	13.22	-27.44	--	-0.82	--
15515500	8/30/2002	0.61	--	0.12	--	5.93	-22.29	--	3.78	--
15389000	3/11/2002	1.48	--	0.39	--	4.43	-21.84	--	5.55	--
15389000	3/19/2002	0.91	--	0.25	--	4.25	-20.91	--	5.22	--
15389000	6/6/2002	0.79	--	0.11	--	8.38	-26.08	--	4.14	--
15389000	6/18/2002	0.56	--	0.07	--	9.33	-25.72	--	2.81	--
15389000	6/26/2002	1.00	--	0.11	--	10.61	-26.38	--	3.91	--
15389000	8/13/2002	0.48	--	0.04	--	14.00	-28.19	--	4.32	--

CHAPTER 13 - 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 and others (2003). Sample analysis results for WY 2002 are given in table 18.

Table 18. Uranium concentration and $^{234}U/^{238}U$ isotopic activity ratio analyses from fixed-station sampling sites in the Yukon River Basin

[Station ID, refer to table 1 for description and figure 1 for location; µg/L; microgram per liter; U, Uranium; -- not available]

Station ID	Date and time	U (µg/L)	$^{234}U/^{238}U$ activity ratio (±1 sigma uncertainty)
15389000	03/11/02 1730	0.91	2.422±0.010
15389000	08/29/02 1230	0.30	1.949±0.066
15389000	09/27/02 1200	0.49	1.968±0.023
15389000	08/13/02 1430	0.26	2.051±0.020
15389000	06/26/02 1310	0.28	1.901±0.018
15389000	06/18/02 1430	0.24	1.932±0.037
15389000	08/26/02 1400	0.30	1.956±0.014
15389000	06/06/02 1500	0.30	1.902±0.015
15515500	03/22/02 1810	0.84	1.343±0.010
15515500	05/14/02 1500	0.69	1.309±0.016
15515500	05/29/02 1550	0.90	1.171±0.019
15515500	07/16/02 1430	0.80	1.193±0.008
15515500	07/29/02 1310	0.80	1.177±0.009
15515500	08/21/02 1330	0.67	1.214±0.006
15515500	08/30/02 1540	0.78	1.222±0.016
15356000	03/21/02 1020	1.14	1.380±0.006
15356000	09/25/02 1000	0.93	1.435±0.007
15356000	06/01/02 1410	0.75	1.455±0.019
15356000	05/22/02 --	0.72	1.465±0.028
15356000	08/01/02 1150	0.83	1.416±0.007
15356000	08/28/02 1340	0.81	1.413±0.012
15565447	07/01/02 1900	0.59	1.396±0.027
15565447	07/16/02 1130	0.78	1.384±0.010
15565447	09/24/02 1630	0.74	1.396±0.006
15565447	04/02/02 1810	0.88	1.397±0.016
15565447	08/08/02 1420	0.83	1.366±0.029
15453500	03/19/02 1930	1.08	1.428±0.013
15453500	06/04/02 1630	0.64	1.462±0.009
15453500	07/30/02 1510	0.86	1.416±0.014
15453500	06/24/02 1330	0.68	1.501±0.012
15453500	07/18/02 1400	0.75	1.466±0.020
15453500	08/23/02 1440	0.64	1.507±0.013
15453500	09/04/02 1450	0.74	1.453±0.012

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