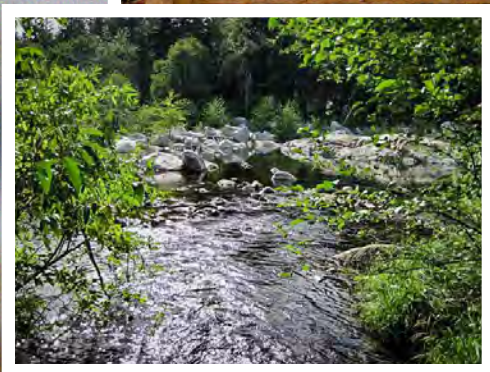
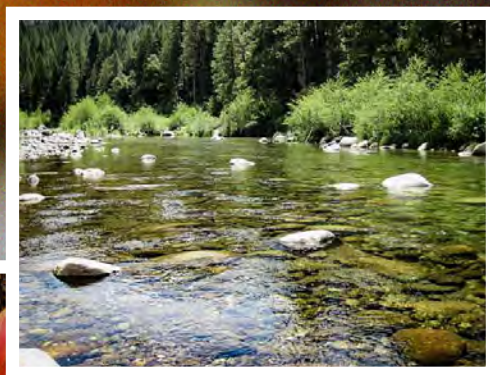
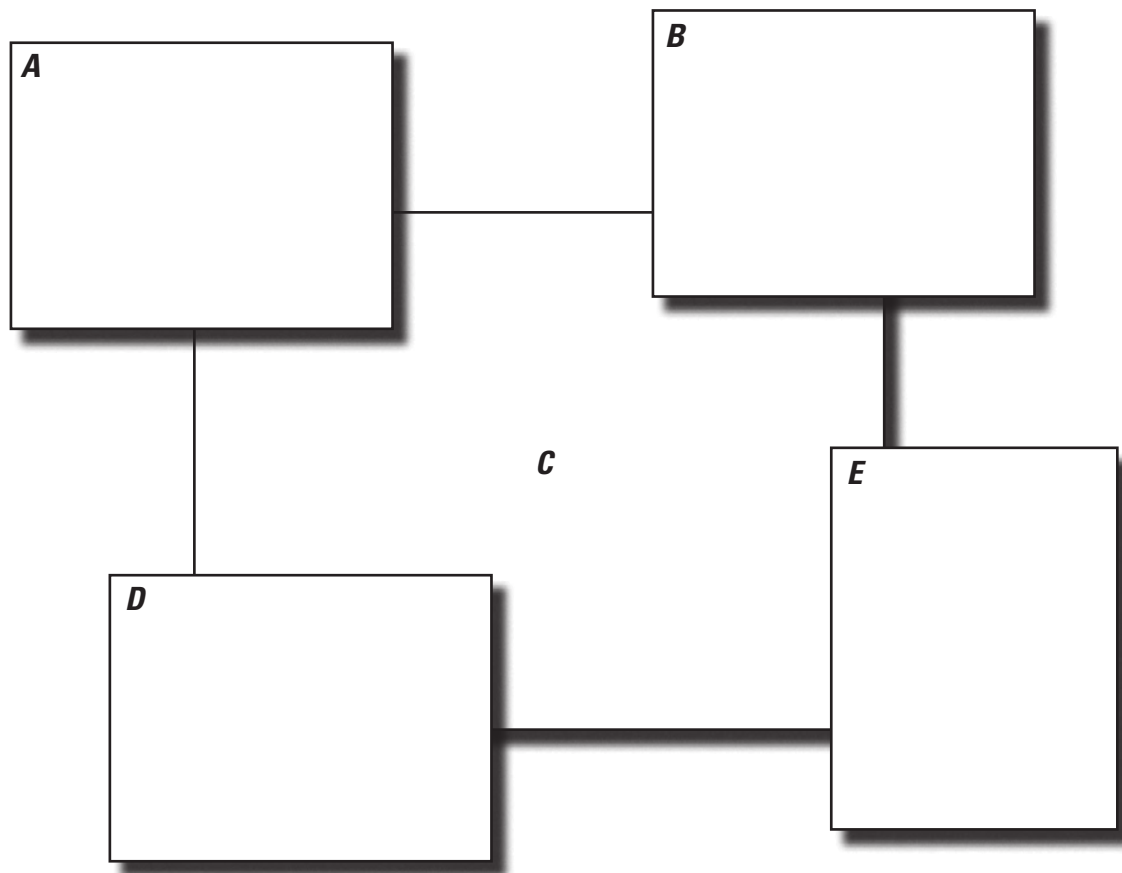


In cooperation with the California State Water Resources Control Board

Geochemical Data for Water, Streambed Sediment, and Fish Tissue from the Sierra Nevada Mercury Impairment Project, 2011–12



Data Series 1056



- Cover.** *A*, Photograph showing South Yuba River above Langs Crossing near Emigrant Gap. Photograph taken by Jacob Fleck, U.S. Geological Survey.
- B*, Photograph showing South Yuba River below Poorman Creek near Washington. Photograph taken by Jacob Fleck, U.S. Geological Survey.
- C*, Photograph showing Rainbow Trout. Photo taken by Darrell Slotton and Shaun Ayers, University of California, Davis.
- D*, Photograph showing South Yuba River above Langs Crossing near Emigrant Gap. Photograph taken by Jacob Fleck, U.S. Geological Survey.
- E*, Photograph showing South Yuba River above Langs Crossing near Emigrant Gap. Photograph taken by Jacob Fleck, U.S. Geological Survey.

Geochemical Data for Water, Streambed Sediment, and Fish Tissue from the Sierra Nevada Mercury Impairment Project, 2011–12

By Elizabeth B. Stumpner, Charles N. Alpers, Mark Marvin-DiPasquale,
Jennifer L. Agee, Evangelos Kakouros, Michelle R. Arias, Le H. Kieu,
David A. Roth, Darrell G. Slotton, and Jacob A. Fleck

In cooperation with the California State Water Resources Control Board

Data Series 1056

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

U.S. Department of the Interior

RYAN K. ZINKE, Secretary

U.S. Geological Survey

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U.S. Geological Survey, Reston, Virginia: 2018

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Contents

Abstract.....	1
Introduction.....	1
Purpose and Scope	2
Study Design.....	2
Methods.....	7
Sample Collection and Processing Methods.....	7
Surface Water	7
Bed Sediment	7
Fish Tissue.....	7
Analytical Methods and Quality Assurance.....	7
Water	8
Total Mercury	8
Methylmercury.....	8
Total Suspended Solids.....	9
Organic Carbon	9
Absorbance and Fluorescence Spectral Indicators.....	9
Total Particulate Carbon and Nitrogen.....	9
Nutrients.....	9
Alkalinity.....	9
Chlorophyll <i>a</i> and Pheophytin <i>a</i>	9
Anions	10
Suspended Sediment Concentration.....	10
Cations and Trace Elements.....	10
Bed Sediment	10
Total Mercury	10
Methylmercury.....	11
Reactive Mercury	11
Iron Species.....	11
Total Reduced Sulfur	11
Organic Content by Loss on Ignition.....	11
Bulk Density, Dry Weight, and Porosity.....	11
Sediment Grain Size	11
Trace Elements and Major Elements.....	12
Fish Tissue.....	12
Mercury.....	12
Selenium.....	13
Results	13
Water	13
Bed Sediment	13
Fish Tissue.....	13
References Cited.....	82
Appendix 1. Analytical Methods Used for Water, Sediment, and Fish Tissue.....	85
References Cited.....	87

Contents—Continued

Appendix 2. Quality-Assurance Data for Surface Water	89
References Cited.....	116
Appendix 3. Quality-Assurance Data for Sediment	117
Appendix 4. Quality-Assurance Data for Fish Tissue.....	131

Figures

1. Map showing location of Sierra Nevada Mercury Impairment Project sites for water, bed sediment, and fish. Discrete samples collected in 2011–12 across the Sierra Nevada foothills	3
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Tables

1. Location, date, and time of environmental water, sediment, and fish samples	4
2. Location, date, and time of water and sediment replicates and water blanks	6
3. Surface-water field measurements, laboratory alkalinity, and suspended sediment concentration.....	14
4. Surface-water concentrations of mercury, methylmercury, and total suspended solids	17
5. Surface-water concentrations of dissolved and particulate organic matter, particulate inorganic carbon, total particulate nitrogen, chlorophyll, and pheophytin.....	19
6. Absorbance spectral indicators of dissolved organic matter composition in surface water	20
7. Fluorescence spectral indicators of dissolved organic matter composition in surface water	22
8. Surface-water concentration of nitrogen species	24
9. Surface-water concentrations of phosphorus species, sulfate, and chloride	25
10A. Surface-water concentrations of selected cations and trace elements.....	26
10B. Surface-water concentrations of selected cations and trace elements.....	30
10C. Surface-water concentrations of selected cations and trace elements.....	34
10D. Surface-water concentrations of selected cations and trace elements.....	38
10E. Surface-water concentrations of selected cations and trace elements.....	42
11. Sediment data for concentrations of mercury, methylmercury, reactive mercury, iron species, and total reduced sulfur in sediment less than 2 millimeters in diameter	46
12. Sediment data for concentrations of total mercury, iron species, and total reduced sulfur in sediment less than 0.063 millimeters in diameter	48
13. Sediment data for grain-size distribution	50
14A. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter	51
14B. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter	53
14C. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter	55
14D. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter	57

Tables—Continued

14E.	Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter	59
15.	Mean and standard deviation of fish tissue mercury concentrations and total length by species and sampling location	61
16.	Fish length, weight, and mercury concentration in tissue for individual samples	62
17.	Selenium concentrations in fish tissue.....	79
1-1.	Analytical methods used for the determination of constituents in water by the U.S. Geological Survey National Water Quality Laboratory, National Research Program, and additional laboratories	85
1-2.	Analytical methods used for the determination of constituents in sediment and particulates by the U.S. Geological Survey National Water Quality Laboratory, National Research Program, and additional laboratories	86
1-3.	Analytical methods used for the determination of constituents in fish.....	86
2-1A.	Quality-assurance data for surface-water total mercury (filtered), standard reference material and matrix spike	89
2-1B.	Quality-assurance data for surface-water total mercury (filtered), equipment blanks.....	89
2-1C.	Quality-assurance data for surface-water total mercury (filtered), field replicates	89
2-2A.	Quality-assurance data for surface-water total mercury (particulate), standard reference material and matrix spike	90
2-2B.	Quality-assurance data for surface-water total mercury (particulate), equipment blanks.....	90
2-2C.	Quality-assurance data for surface-water total mercury (particulate), field replicates.....	90
2-3A.	Quality-assurance data for surface-water methylmercury (filtered), standard reference materials and matrix spikes	91
2-3B.	Quality-assurance data for surface-water methylmercury (filtered), equipment field blanks.....	91
2-3C.	Quality-assurance data for surface-water methylmercury (filtered), field replicates.....	91
2-4A.	Quality-assurance data for surface-water methylmercury (particulate), standard reference materials and matrix spikes	92
2-4B.	Quality-assurance data for surface-water methylmercury (particulate), equipment blanks.....	92
2-4C.	Quality-assurance data for surface-water methylmercury (particulate), field replicates.....	92
2-5.	Quality-assurance data for replicate analyses of surface-water total suspended solids	93
2-6A.	Quality-assurance data for surface-water dissolved organic carbon, standard reference materials, lab duplicates, and matrix spikes	94
2-6B.	Quality-assurance data for surface-water dissolved organic carbon, equipment blanks.....	95
2-6C.	Quality-assurance data for surface-water dissolved organic carbon, field replicates.....	95
2-7A.	Quality assurance data for surface-water absorbance spectral indicators, equipment blanks.....	95

Tables—Continued

2-7B.	Quality assurance data for surface-water absorbance spectral indicators, field replicates.....	96
2-8A.	Quality assurance data for surface-water fluorescence spectral indicators, equipment blanks.....	96
2-8B.	Quality assurance data for surface-water fluorescence spectral indicators, field replicates.....	97
2-8C.	Quality-assurance data for surface-water fluorescence spectral indicators, field replicates.....	97
2-9A.	Quality-assurance data for surface-water total particulate carbon and nitrogen, equipment blanks.....	98
2-9B.	Quality-assurance data for surface-water total particulate carbon and nitrogen, field replicates.....	98
2-10A.	Quality-assurance data for surface-water organic nitrogen plus ammonia (unfiltered), equipment blanks.....	98
2-10B.	Quality-assurance data for surface-water organic nitrogen plus ammonia (unfiltered), field replicates.....	98
2-11A.	Quality-assurance data for surface-water organic nitrogen plus ammonia (filtered), equipment blanks.....	99
2-11B.	Quality-assurance data for surface-water organic nitrogen plus ammonia (filtered), field replicates.....	99
2-12A.	Quality-assurance data for surface-water nitrate plus nitrite (filtered), equipment blanks.....	99
2-12B.	Quality-assurance data for surface-water nitrate plus nitrite (filtered), field replicates.....	99
2-13A.	Quality-assurance data for surface-water ammonia (filtered), equipment blanks.....	100
2-13B.	Quality-assurance data for surface-water ammonia (filtered), field replicates.....	100
2-14A.	Quality-assurance data for surface-water nitrite (filtered), equipment blanks.....	100
2-14B.	Quality-assurance data for surface-water nitrite (filtered), field replicates.....	100
2-15A.	Quality-assurance data for surface-water total phosphorus (unfiltered), equipment blanks.....	101
2-15B.	Quality-assurance data for surface-water total phosphorus (unfiltered), field replicates.....	101
2-16A.	Quality-assurance data for surface water total phosphorus (filtered), equipment blanks.....	101
2-16B.	Quality-assurance data for surface water total phosphorus (filtered), field replicates.....	101
2-17A.	Quality-assurance data for surface-water orthophosphate (filtered), equipment blanks.....	102
2-17B.	Quality-assurance data for surface-water orthophosphate (filtered), field replicates.....	102
2-18A.	Quality-assurance data for surface-water alkalinity, equipment blanks.....	102
2-18B.	Quality-assurance data for surface-water alkalinity, field replicates.....	103
2-19.	Quality-assurance data for chlorophyll and pheophytin, field replicates.....	103
2-20A.	Quality-assurance data for surface-water sulfate, field blanks.....	103
2-20B.	Quality-assurance data for surface-water sulfate, field replicates.....	103

Tables—Continued

2-21A.	Quality-assurance data for surface-water chloride, field blanks	104
2-21B.	Quality-assurance data for surface-water chloride, field replicates	104
2-22A.	Quality-assurance data for surface-water suspended sediment concentration, field blanks	104
2-22B.	Quality-assurance data for surface-water suspended sediment concentration, field replicates	105
2-23A.	The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	106
2-23B.	The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	107
2-23C.	The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	108
2-23D.	The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	109
2-23E.	The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	110
2-24A.	The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	111
2-24B.	The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	112
2-24C.	The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	113
2-24D.	The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	114
2-24E.	The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes	115
3-1A.	Quality-assurance data for total mercury in sediment, standard reference material and matrix spike	117
3-1B.	Quality-assurance data for total mercury in sediment, lab duplicates	117
3-2A.	Quality-assurance data for methylmercury in sediment, standard reference materials and matrix spikes	118
3-2B.	Quality-assurance data for methylmercury in sediment, lab duplicates	118
3-3A.	Quality-assurance data for reactive mercury in sediment, analytical blank	119
3-3B.	Quality-assurance data for reactive mercury in sediment, lab duplicates	119
3-4A.	Quality-assurance data for ferrous iron in sediment, matrix spike	119
3-4B.	Quality-assurance data for ferrous iron in sediment, lab duplicates	119

Tables—Continued

3–5A.	Quality-assurance data for crystalline ferric iron in sediment, matrix blank and matrix spike	120
3–5B.	Quality-assurance data for crystalline ferric iron in sediment, lab duplicates	120
3–6A.	Quality-assurance data for amorphous ferric iron in sediment, matrix blank and matrix spike	120
3–6B.	Quality-assurance data for amorphous ferric iron in sediment, lab duplicates	120
3–7A.	Quality-assurance data for total reduced sulfur in sediment, analytical blank and matrix spike	121
3–7B.	Quality-assurance data for total reduced sulfur in sediment, lab duplicates	121
3–8.	Quality-assurance data for loss on ignition in sediment, lab duplicates	121
3–9.	Quality-assurance data for percent dry weight	122
3–10.	Quality-assurance data for bulk density	122
3–11.	Quality-assurance data for porosity	123
3–12.	Quality-assurance data for less than 2 millimeters grain-size distribution determined by laser diffraction	123
3–13.	Data for grain-size distribution in sediment determined by laser diffraction; phi classification	124
3–14A.	The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	125
3–14B.	The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	125
3–14C.	The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	126
3–14D.	The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	126
3–14E.	The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	127
3–15A.	The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	127
3–15B.	The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	128
3–15C.	The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	128
3–15D.	The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	129
3–15E.	The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates	129

Tables—Continued

4-1A.	Quality assurance and quality control for mercury concentration in fish tissue: laboratory blanks, certified reference materials, and continued calibration verification	132
4-1B.	Quality assurance and quality control for mercury concentration in fish tissue, laboratory calibration standards and matrix spikes	132
4-1C.	Quality assurance and quality control for mercury concentration in fish tissue, lab replicates	133
4-2A.	Quality assurance and quality control for selenium concentration in fish tissue, standard reference materials and matrix blanks	133
4-2B.	Quality assurance and quality control for selenium concentration in fish tissue, lab replicates	133

Conversion Factors

International System of Units to U.S. customary units

Multiply	By	To obtain
Length		
millimeter (mm)	0.03937	inch (in.)
micrometer (μm)	3.937×10^{-5}	inch (in.)
nanometer (nm)	3.937×10^{-8}	inch (in.)
Mass		
kilogram (kg)	35.27	ounce, avoirdupois (oz)
gram (g)	0.03527	ounce, avoirdupois (oz)
milligram (mg)	3.527×10^{-5}	ounce, avoirdupois (oz)
microgram (μg)	3.527×10^{-8}	ounce, avoirdupois (oz)
nanogram (ng)	3.527×10^{-11}	ounce, avoirdupois (oz)
picogram (pg)	3.527×10^{-14}	ounce, avoirdupois (oz)
Volume		
liter (L)	33.81402	ounce, fluid (fl. oz)
milliliter (mL)	0.3381402	ounce, fluid (fl. oz)
Pressure		
Pascal		pounds per square inch

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as

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

Datum

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83), unless otherwise specified.

Supplemental Information

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius ($\mu\text{S}/\text{cm}$ at 25 °C). Concentrations of chemical constituents in water are given in either milligrams per liter (mg/L), micrograms per liter ($\mu\text{g}/\text{L}$), or nanograms per liter (ng/L).

Concentrations of chemical constituents in sediment and fish tissue are given in either milligrams per gram (mg/g), micrograms per gram ($\mu\text{g}/\text{g}$), nanograms per gram (ng/g), picograms per gram (pg/g), or micromoles per gram ($\mu\text{mol}/\text{g}$).

Acronyms, Abbreviations, and Chemical Notation

Acronyms and Abbreviations

%DEV	percent deviation (half of absolute difference divided by mean; see equation 3)
AES	atomic emission spectrometry
CAWSC	(U.S. Geological Survey) California Water Science Center
CVAA	cold vapor atomic absorption
CVAFS	cold vapor atomic fluorescence spectrophotometry
CWA	Clean Water Act
DDL	daily detection limit
DEV	deviation (half of absolute difference; see equation 2)
EPA	(U.S.) Environmental Protection Agency
fdom	fluorescent dissolved organic matter
FIMS	Flow Injection Mercury System
HDPE	high-density polyethylene
ICP	inductively coupled plasma
LDPSA	laser diffraction particle size analyzer
LOI	loss on ignition
LRL	laboratory reporting limit
MDL	method detection limit
MS	mass spectroscopy
NAD 27	North American Datum of 1927
NAD 83	North American Datum of 1983
NIST	National Institute of Standards and Technology

Acronyms and Abbreviations—Continued

NRCC	National Research Council of Canada
NWIS	National Water Information System
PETG	polyethylene terephthalate glycol-modified
PTFE	polytetrafluoroethylene (or Teflon [®])
QAQC	quality assurance quality control
RPD	relative percent difference (see equation 1)
SD	standard deviation
SRM	standard reference material
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	California State Water Resources Control Board
UCD	University of California, Davis
UCL	upper confidence level
USGS	U.S. Geological Survey
USGS-NRP-CB	U.S. Geological Survey National Research Program, Central Branch
USGS-NRP-WB	U.S. Geological Survey National Research Program, Western Branch
USGS NWQL	U.S. Geological Survey National Water Quality Laboratory

Chemical Notation

%MeHg	ratio of monomethyl mercury to total mercury, in percent
%MeHg-f	ratio of monomethyl mercury to total mercury in filtered water, in percent
%MeHg-p	ratio of monomethyl mercury to total mercury in suspended particulates, in percent
%MeHg-s	ratio of monomethyl mercury to total mercury in sediment, in percent
Al	aluminum
As	arsenic
B	boron
Ba	barium
Be	beryllium
Bi	bismuth
Ca	calcium
Cd	cadmium
Ce	cerium
Cl	chlorine
Co	cobalt

Chemical Notation—Continued

Cr	chromium
Cs	cesium
Cu	copper
DOC	dissolved organic carbon
Dy	dysprosium
Er	erbium
Eu	europium
Fe(II)	ferrous iron
Fe(III) _a	amorphous ferric iron
Fe(III) _c	crystalline ferric iron
Fe	iron
Ga	gallium
Gd	gadolinium
H ₂ O ₂	hydrogen peroxide
HCl	hydrochloric acid
Hg(0)	elemental mercury
Hg(II) _R	reactive mercury
Hg(II) _R -p	reactive mercury in suspended particulates
Hg(II) _R -s	reactive mercury in sediment
HgCl ₂	mercuric chloride
HNO ₃	nitric acid
Ho	holmium
K	potassium
La	lanthanum
Li	lithium
Lu	lutetium
MeHg	monomethyl mercury
MeHg-f	monomethyl mercury in filtered water
MeHg-p	monomethyl mercury in suspended particulates
MeHg-s	monomethyl mercury in sediment
Mg	magnesium
Mn	manganese
Mo	molybdenum
Na	sodium

Chemical Notation—Continued

Nd	neodymium
NH ₃	ammonia
NH ₄ ⁺	ammonium
Ni	nickel
NO ₂ ⁻	nitrite
NO ₃ ⁻	nitrate
P	phosphorus
Pb	lead
PIC	particulate inorganic carbon
POC	particulate organic carbon
Pr	praseodymium
Rb	rubidium
Re	rhenium
S	sulfur
Sb	antimony
Se	selenium
Sm	samarium
Sn	tin
Sr	strontium
SUVA	specific ultraviolet absorbance at 254 nanometers
Tb	terbium
TDN	total dissolved nitrogen
Te	tellurium
Th	thorium
THg	total mercury
THg-f	total mercury in filtered water
THg-p	total mercury in suspended particulates
THg-s	total mercury in sediment
Ti	titanium
Tl	thallium
Tm	thulium
TE/Cations	trace elements and cations
TOC	total organic carbon
TPN	total particulate nitrogen

Chemical Notation—Continued

TPCN	total particulate carbon and nitrogen
TRS	total reduced sulfur
TSS	total suspended solids
U	uranium
V	vanadium
W	tungsten
Y	yttrium
Yb	ytterbium
Zn	zinc
Zr	zirconium

Geochemical Data for Water, Streambed Sediment, and Fish Tissue from the Sierra Nevada Mercury Impairment Project, 2011–12

By Elizabeth B. Stumpner, Charles N. Alpers, Mark Marvin-DiPasquale, Jennifer L. Agee, Evangelos Kakouros, Michelle R. Arias, Le H. Kieu, David A. Roth, Darrell G. Slotton, and Jacob A. Fleck

Abstract

This report presents geochemical data for surface water, streambed sediment, and fish tissue samples collected during low-flow conditions in 20 to 24 Sierra Nevada streams during 2011 and 2012. The dataset is part of a larger study designed to assess the factors that control mercury concentrations in fish tissue and to develop a model that predicts mercury concentration in the tissue of selected fish species in Sierra Nevada streams. The ranges of total mercury concentration observed in different matrices of water and sediment from 24 locations were as follows: below detection to 0.86 nanograms per liter in filtered water, below detection to 4.06 nanograms per liter in suspended particulates (greater than 0.3 micrometer in diameter), 1.1 to 381 nanograms per gram in bed sediment less than 2 millimeters, and 28.1 to 1,410 nanograms per gram in bed sediment less than 0.063 millimeters. The ratio of monomethyl mercury to total mercury ranged as follows: below detection to 19.2 percent in filtered water, below detection to 51.7 percent in suspended particles (greater than 0.3 micrometer), and below detection to 7.6 percent in streambed sediment less than 2 millimeters. Fish from 3 species collected at 20 locations had the following range in total mercury concentration (all concentrations wet weight): 10 to 292 nanograms per gram in rainbow trout (293 fish, 19 locations), 13 to 386 nanograms per gram in brown trout (33 fish, 10 locations), and 159 nanograms per gram in hardhead (1 fish). Concentrations of selenium in fish (wet weight) ranged from 60 to 420 nanograms per gram in rainbow trout (66 fish, 19 locations) and from 180 to 240 nanograms per gram in brown trout (6 fish, 2 locations).

Introduction

Historical hydraulic and hard-rock gold mining in California, starting with the Gold Rush in the late 1840s and continuing into the mid-1900s, left an estimated 4.5 million kilograms of mercury (Hg) in the environment (Churchill, 2000). The legacy effects of mining and stamp milling include Hg contamination of several rivers draining the western slope of the northern Sierra Nevada (Hunerlach and others, 2004; Alpers and others, 2005a) and downstream water bodies such as the Sacramento–San Joaquin Delta (Davis and others, 2008) and San Francisco Bay (Hornberger and others, 1999).

Mercury is a trace element found in the Earth's crust, atmosphere, and natural water. Monomethyl mercury, hereafter methylmercury or MeHg, is a neurotoxin that is biomagnified in the food web and threatens wildlife and human health (Fitzgerald and others, 1998; U.S. Environmental Protection Agency, 2001). Water bodies are considered impaired by the State of California under the federal Clean Water Act (CWA) if concentrations of total Hg (THg) in unfiltered water exceed 50 nanograms per liter (ng/L; California Toxics Rule; U.S. Environmental Protection Agency, 2000) or if concentrations of MeHg in fish tissue exceed 0.3 microgram per gram ($\mu\text{g/g}$; wet weight), equivalent to 300 nanograms per gram (ng/g; U.S. Environmental Protection Agency, 2001). The California State Water Resources Control Board (SWRCB) is responsible for enforcing the CWA in California. Section 303(d) of the CWA requires identification of water bodies with impaired beneficial uses. In response to SWRCB requests for assistance, the U.S. Geological Survey (USGS), in cooperation with the SWRCB, undertook the present study to collect environmental Hg data and analyze the factors that control Hg concentrations in fish tissue in the Sierra Nevada. Predictions of Hg concentrations in fish tissue for 185 stream segments in the Sierra Nevada were made by Alpers and others (2016), based in part on data contained in this report.

Purpose and Scope

This report documents the methods and results of field investigations during 2011 and 2012 in the Sierra Nevada foothills for the collection of water, sediment, and fish samples from 24 locations ([fig. 1](#)). The dataset is part of a larger study designed to assess the factors that control mercury concentrations in fish tissue and to develop a model that predicts mercury concentration in the tissue of selected fish species in Sierra Nevada streams. The main body of this report begins with the “[Introduction](#),” followed by sections “[Purpose and Scope](#)” and “[Study Design](#).” Following a brief description of the study design, the methods of sample collection and processing for water, sediment, and fish are introduced and followed by descriptions of analytical methods for all sample types. Quality-assurance and quality-control results are also presented in the “[Methods](#)” section. Tables of data for water, sediment, and fish tissue samples are included and discussed briefly in the “[Results](#)” section.

Study Design

Sampling for this study took place in low-flow conditions during late summer and early autumn of 2011 and 2012. Water and sediment samples were collected from 24 sites, and fish were collected from 20 sites. Water and sediment samples were collected by USGS staff, and analyses were performed at USGS laboratories. Fish were collected by the University of California, Davis (UCD), with the exception of four sites where the California Department of Fish and Wildlife collected fish for the Surface Water Ambient Monitoring Program (SWAMP); information on SWAMP quality-assurance procedures are provided by Bonnema (2011). Fish analyses were completed by UCD staff and performed at a UCD laboratory. Three of the sites sampled in 2011 were resampled in 2012 to assess year-to-year variability. Sites were chosen based on location in the watershed and proximity to historical mining activities ([fig. 1](#)). Five field blanks and three field replicates were collected for water samples for quality assurance and quality control; three replicates were also collected for sediment samples. Site information for water, sediment, and fish collection is presented in [table 1](#). Site information for water and sediment replicates, and water blanks, is presented in [table 2](#).

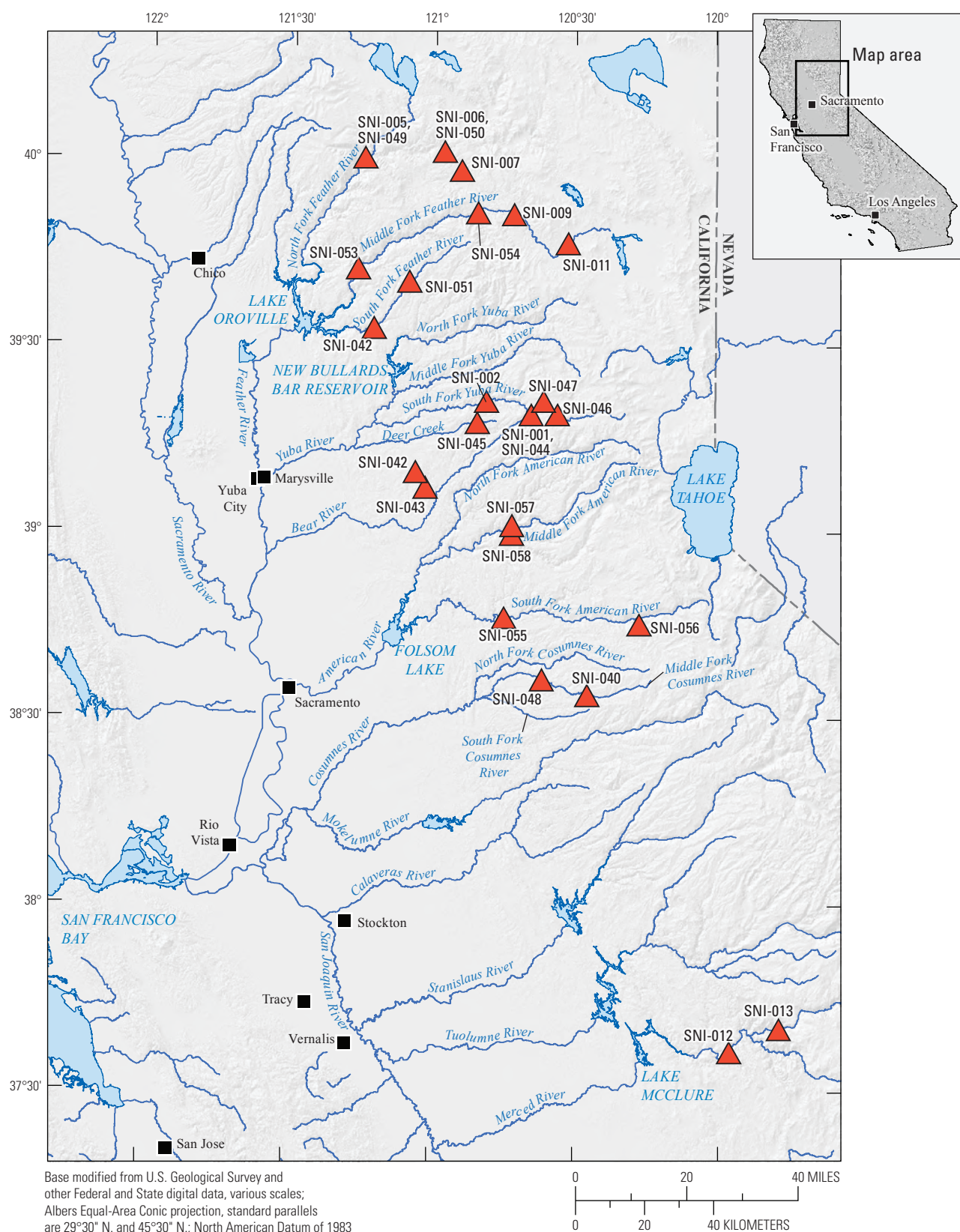


Figure 1. Location of Sierra Nevada Mercury Impairment Project sites for water, bed sediment, and fish. Discrete samples collected in 2011–12 across the Sierra Nevada foothills (red triangles).

Table 1. Location, date, and time of environmental water, sediment, and fish samples.

[A, at; AB and ABV, above; BL, below; C, Creek; CA and Ca, California; DMS, degree, minute, second; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; mi and MI, mile; mm/dd/yyyy; month/day/year; N., North; na, not applicable; NAD 27, North American Datum of 1927; NAD 83, North American Datum of 1983; NF, North Fork; NR, near; NWIS, National Water Information System; PDT, Pacific Daylight Time; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; trib., tributary; UC, University of California; USGS, U.S. Geological Survey; VLY, Valley]

Project ID	Site ID	USGS station name (NWIS)	Field station name	Date of water and sediment collection (mm/dd/yyyy)	Time of water and sediment collection (hh:mm)	Time datum	Date of fish collection UC Davis (mm/dd/yyyy)	Latitude (DMS)	Longitude (DMS)	Datum
SNI-001	391911120392201	S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	South Yuba below Spaulding	09/07/2011	15:20	PST	08/11/2011	39°19'11"	120°39'22"	NAD 83
SNI-002	392119120484901	S YUBA R BL POORMAN C NR WASHINGTON CA	South Yuba at Washington	09/07/2011	11:10	PST	na	39°21'19"	120°48'49"	NAD 83
SNI-005	11403050	BELDEN PH A BELDEN CA	Yellow Creek near Belden, CA	09/19/2011	15:40	PDT	08/23/2011	40°00'27"	121°14'59"	NAD 83
SNI-006	400129120580701	SPANISH C BL CLEAR C NR KEDDIE CA	Spanish Creek at Highway 70	09/20/2011	10:50	PDT	08/28/2011	40°01'29"	120°58'07"	NAD 83
SNI-007	395830120542501	SPANISH C NR EAST QUINCY CA	Spanish Creek at Oakland Camp Road (N. Feather trib.)	09/20/2011	16:00	PDT	na	39°58'30"	120°54'25"	NAD 83
SNI-009	11393000	MF FEATHER R A SLOAT CA	Middle Fork Feather River at Sloat, Ca	09/21/2011	12:30	PDT	na	39°51'25"	120°43'05"	NAD 27
SNI-011	394647120314501	MF FEATHER R NR DELLEKER CA	Middle Fork Feather River 3 mi upstream of Clio	09/22/2011	13:00	PDT	na	39°46'47"	120°31'45"	NAD 83
SNI-012	373637119573801	MERCED R AB BM1186 NR BRICEBURG CA	Merced near Briceburg	11/03/2011	11:00	PST	10/20/2011	37°36'37"	119°57'38"	NAD 27
SNI-013	374017119472301	MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	Merced near El Portal	11/02/2011	13:00	PDT	10/19/2011	37°40'17"	119°47'23"	NAD 27
SNI-040	383403120272101	MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	Middle Fork Cosumnes at PiPi	08/30/2012	14:30	PST	07/19/2012	38°34'03"	120°27'21"	NAD 83
SNI-042	390955121034101	WOLF C NR LA BARR MEADOWS CA	Wolf Creek at Alisson Road	09/06/2012	14:30	PST	07/22/2012	39°09'55"	121°03'41"	NAD 83
SNI-043	390722121013901	S WOLF C NR CHICAGO PARK CA	South Wolf Creek at Clover Valley Road	09/06/2012	16:00	PST	07/23/2012	39°07'22"	121°01'39"	NAD 83
SNI-044	391911120392201	S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	South Yuba below Spaulding	09/20/2012	11:30	PDT	08/08/2012	39°19'11"	120°39'22"	NAD 83
SNI-045	391754120504801	SF DEER C NR WASHINGTON CA	Deer Creek above Scotts Flat	09/25/2012	13:10	PST	07/24/2012	39°17'54"	120°50'48"	NAD 83

Table 1. Location, date, and time of environmental water, sediment, and fish samples.—Continued

[A, at; AB and ABV, above; BL, below; C, Creek; CA and Ca, California; DMS, degree, minute, second; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; mi and MI, mile; mm/dd/yyyy, month/day/year; N., North; na, not applicable; NAD 27, North American Datum of 1927; NAD 83, North American Datum of 1983; NF, North Fork; NR, near; NWIS, National Water Information System; PDT, Pacific Daylight Time; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; trib., tributary; UC, University of California; USGS, U.S. Geological Survey; VLY, Valley]

Project ID	Site ID	USGS station name (NWIS)	Field station name	Date of water and sediment collection (mm/dd/yyyy)	Time of water and sediment collection (hh:mm)	Time datum	Date of fish collection UC Davis (mm/dd/yyyy)	Latitude (DMS)	Longitude (DMS)	Datum
SNI-046	11414000	S YUBA R NR CISCO CA	SouthYuba above Lake Spaulding	09/25/2012	15:00	PDT	08/06/2012	39°19'17"	120°33'48"	NAD 27
SNI-047	392122120364501	FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	Fordyce Creek	10/01/2012	13:40	PST	08/22/2012	39°21'22"	120°36'45"	NAD 83
SNI-048	383632120365101	MF COSUMNES R NR OMO RANCH CA	Middle Fork Cosumnes at Rocky Bar	10/03/2012	12:00	PST	07/17/2012	38°36'32"	120°36'51"	NAD 83
SNI-049	11403050	BELDEN PH A BELDEN CA	Yellow Creek near Belden, CA	10/16/2012	14:50	PDT	10/02/2012	40°00'27"	121°14'59"	NAD 83
SNI-050	400129120580701	SPANISH C BL CLEAR C NR KEDDIE CA	Spanish Creek at Highway 70	10/16/2012	10:20	PDT	10/03/2012	40°01'29"	120°58'07"	NAD 83
SNI-051	394034121051801	SF FEATHER R NR LA PORTE CA	South Feather below Little Grass Valley Road	10/17/2012	12:00	PST	10/08/2012	39°40'34"	121°05'18"	NAD 83
SNI-052	393302121124501	SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	South Feather below Forbestown Reservoir	10/31/2012	11:10	PST	10/10/2012	39°33'02"	121°12'45"	NAD 83
SNI-053	394237121161801	MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	Middle Feather at Milsap Bar	10/31/2012	14:30	PST	10/16/2012	39°42'37"	121°16'18"	NAD 83
SNI-054	395141120504901	MF FEATHER R ABV BRAY C NR SLOAT CA	Middle Feather La Porte Road	11/07/2012	14:30	PST	10/15/2012	39°51'41"	120°50'49"	NAD 83
SNI-055	384634120445301	SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	South Fork American below Slab Creek Reservoir	11/14/2012	11:30	PST	11/04/2012	38°46'34"	120°44'53"	NAD 83
SNI-056	384526120162901	SILVER FORK OF AMERICAN R NR KYBURZ CA	Silver Fork of South Fork American	11/14/2012	15:00	PST	10/29/2012	38°45'26"	120°16'29"	NAD 83
SNI-057	390120120431601	NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	North Fork of Middle Fork American	11/15/2012	11:20	PST	11/13/2012	39°01'20"	120°43'16"	NAD 83
SNI-058	385957120432401	RUBICON R NR VOLCANOVILLE CA	Rubicon Road	11/15/2012	13:20	PST	11/06/2012	38°59'57"	120°43'24"	NAD 83

Table 2. Location, date, and time of water and sediment replicates and water blanks.

[ABV, above; BL, below; C, Creek; CA, California; DMS, degree minute second; hh:mm, hour:minute; ID, identification; MF, Middle Fork; mm/dd/yyyy, month/day/year; na, not applicable; NAD 83, North American Datum of 1983; NR, near; NWIS, National Water Information System; PDT, Pacific Daylight Time; PST, Pacific Standard Time; QA, quality assurance; QW, quality of water; R, River; S, South; USGS, U.S. Geological Survey; VLY, Valley]

Project ID	Site ID	USGS station name (NWIS)	Field station name	Date of water and sediment collection (mm/dd/yyyy)	Time datum	Time of water and sediment collection (hh:mm)	Type of quality assurance sample	Latitude (DMS)	Longitude (DMS)	Datum
SNI-003	392119120484901	S YUBA R BL POORMAN C NR WASHINGTON CA	South Yuba at Washington	09/07/2011	PST	11:15	replicate	39°21'19"	120°48'49"	NAD 83
SNI-041	383403120272101	MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	Middle Fork Cosumnes at PiPi	08/30/2012	PST	14:35	replicate	38°34'03"	120°27'21"	NAD 83
SNQ-054	395141120504901	MF FEATHER R ABV BRAY C NR SLOAT CA	Middle Feather La Porte Road	11/07/2010	PST	14:35	replicate	39°51'41"	120°50'49"	NAD 83
SNI-004	88888823	QW QA SITE FOR CHARLES ALPERS	Equipment blank	09/08/2011	PST	16:20	blank	na	na	na
SNI-010	88888823	QW QA SITE FOR CHARLES ALPERS	Equipment blank	09/21/2011	PDT	12:30	blank	na	na	na
SNI-015	88888823	QW QA SITE FOR CHARLES ALPERS	Equipment blank	11/03/2011	PST	14:00	blank	na	na	na
SNQ-002	88888823	QW QA SITE FOR CHARLES ALPERS	Equipment blank	09/20/2012	PDT	08:00	blank	na	na	na
SNQ-003	88888823	QW QA SITE FOR CHARLES ALPERS	Equipment blank	10/16/2012	PDT	22:00	blank	na	na	na

Methods

The following section includes the sample collection and processing methods, followed by a separate section describing analytical methods and quality assurance for surface water, bed sediment, and fish tissue.

Sample Collection and Processing Methods

Fish were collected on separate days from surface-water and bed-sediment samples to minimize disturbance at the site of field collection.

Surface Water

Water samples were collected in either Teflon containers or plastic containers lined with a fluoropolymer such as polytetrafluoroethylene (PTFE) and were processed using techniques described previously (Alpers and others, 2005b, 2008). Water was transferred to a Teflon-lined, stainless-steel churn within 24 hours of sample collection. Aliquots for THg, MeHg, dissolved organic carbon (DOC), and optical parameters related to carbon quality were filtered through pre-baked 0.3-micrometer (μm) glass-fiber filters (Advantec, Dublin, California). Aliquots for THg and MeHg were collected in polyethylene terephthalate glycol-modified (PETG) bottles (ThermoScientific, Waltham, Massachusetts), acidified to 0.5 percent by volume with ultrapure hydrochloric acid, and placed in the dark until analysis. One amber glass bottle was used to collect water for DOC and optical analyses. All other aliquots were filtered through 0.45- μm inline filters (Pall, Port Washington, New York) into high-density polyethylene (HDPE) containers. Aliquots for analysis of trace elements and cations (TE/Cations) were acidified to 0.1-percent concentration of ultrapure nitric acid.

Water-quality constituents measured in the field include temperature, pH, specific conductance, dissolved oxygen, and turbidity. All constituents were determined using a multiparameter YSI 6920 meter (YSI, Yellow Springs, Ohio) calibrated using procedures according to manufacturer recommendations and the USGS National Field Manual (Gibs and others, 2007).

Bed Sediment

Bed sediment was collected using an acid-rinsed polycarbonate core ring and a stiff acid-cleaned plastic sheet using techniques described previously (Marvin-DiPasquale and others, 2009). Sediment was sieved in the field to less than 2 millimeters (mm) and homogenized, then split into containers for analyses of Hg, dry weight, loss on ignition,

bulk density, porosity, iron species, and total reduced sulfur, and then placed on dry ice. Additional containers of less than 2-millimeter (mm) material were placed on wet ice for grain-size distribution analysis and for further sieving to less than 0.063-mm (63- μm) material in the laboratory for analysis of Hg and TE/Cations. Sediment sieving was done using stainless steel screens and deionized water. All water passing through a 0.063-mm sieve was retained, and the samples were dewatered using a centrifuge operated at 10,000 revolutions per minute.

Fish Tissue

Fish were collected by UCD with a backpack electroshocker and by angling to capture rainbow trout ($n = 237$), brown trout ($n = 33$), and hardhead ($n = 1$) from 20 sites. The fish were processed by the UCD laboratory as fresh (wet) samples. Fish sampling and preservation techniques were described previously by Saiki and others (2004).

Analytical Methods and Quality Assurance

Analytical methods used for water, sediment, and fish samples are listed in [appendix 1](#) as [tables 1–1](#), [1–2](#), and [1–3](#), respectively. For USGS-approved methods used by laboratories such as the USGS National Water Quality Laboratory (NWQL) in Denver, Colorado, the reader is referred to published sources for method information. This section provides more detailed information for research-based analytical methods that have recently been approved by the USGS, or that are not subject to formal approval.

Quality-assurance and quality-control (QAQC) results are presented in [appendixes 2](#) (water), [3](#) (sediment), and [4](#) (fish). Where available, QAQC results are given for standard reference materials, laboratory duplicates, matrix spikes, equipment blanks, and field replicates. Results of QAQC for water analyses are given in [appendix tables 2–1 through 2–24](#), for sediment analyses in [appendix tables 3–1 through 3–15](#), and for fish analyses in [appendix tables 4–1 and 4–2](#). For ambient concentrations greater than three times the method detection limit (MDL), data-quality objectives of the project were met when the mean value of equipment blanks was below the MDL, the relative percent difference (RPD) among field replicates and laboratory duplicates was less than 20 percent for water analytes, the percent deviation (%DEV) between field replicates and laboratory duplicates was less than 20 percent for suspended and bed sediment analytes, and standard reference material (SRM) and matrix-spike recoveries were within a threshold of ± 20 percent of expected concentrations. Values of RPD were computed using [equation 1](#):

$$RPD \text{ (in percent)} = \left[\frac{v1 - v2}{\frac{v1 + v2}{2}} \right] \times 100 \quad (1)$$

where

$v1$ and $v2$ are values being compared.

For ambient concentrations less than three times the MDL, greater variability for replicates is expected, with values of RPD up to 100 percent at the MDL, including [equations 2 and 3](#). Unless specified otherwise, data-quality objectives of this project were met for all analytes.

The deviation (DEV, half of absolute relative difference) was calculated using equation 2:

$$DEV = \text{absolute} \frac{\text{run 1} - \text{run 2}}{2} \quad (2)$$

The percent deviation (%DEV) was then calculated using equation 3:

$$\%DEV = [DEV / \text{mean}] \times 100 \quad (3)$$

and is the percentage of DEV relative to the mean value.

Water

Surface water was analyzed for total mercury, methylmercury, total suspended solids, organic carbon and nitrogen, absorbance and fluorescence spectral indicators, total particulate carbon and nitrogen, nutrients, alkalinity, chlorophyll *a* and pheophytin-*a*, anions, suspended sediment concentration, and cations and trace elements.

Total Mercury

Total mercury (THg) in water samples was determined for filtered and particulate fractions at the USGS National Research Program, Western Branch (USGS-NRP-WB) Biogeochemistry Laboratory in Menlo Park, Calif. Cold vapor atomic fluorescence spectrometry (CVAFS) methods using a modified version of U.S. Environmental Protection Agency (EPA) Method 1631 (U.S. Environmental Protection Agency, 2002a, b) were previously described by Olund and others (2004). The MDL for THg in water samples analyzed in 2011 using the Tekran Model 2600 is 0.04 ng/L; for water samples analyzed in 2012, the MDL is 0.06 ng/L. For particulate samples (on filters), the MDL for THg is 0.03 nanogram per filter, corresponding to a volumetric concentration of approximately 0.07 ng/L, depending on volume filtered and the mass of sediment deposited on the filter.

Quality-assurance data for surface-water total mercury (filtered; THg-f) are presented in [appendix table 2-1](#).

Calibration standards were prepared from a National Institute of Standards and Technology (NIST)-certified, commercially obtained mercuric chloride (HgCl_2) standard. Three of the five equipment blanks were below the MDL, and the other two were 0.09 (estimated) and 0.10 ng/L ([appendix table 2-1B](#)). Environmental sample concentrations ranged from less than the MDL to 0.86 ng/L. Two of the three replicate sample pairs had estimated concentrations between the MDL and the lower calibration standard. The RPD for these two pairs were 11 and 30 percent. A third replicate pair, with concentrations farther from the MDL, had a RPD of 1.7 percent, well within the acceptable range ([appendix table 2-1C](#)). All quality-assurance data for THg-f met the data-quality objectives of this project ([appendix table 2-1](#)).

Quality-assurance data for surface-water total mercury (particulate; THg-p) are presented in [appendix table 2-2](#). All three of the replicate pairs for THg-p included estimates between the MDL and the lowest calibration standard. Values of RPD for one of the three replicate pairs was less than 10 percent, but one of the pairs, the one with the lowest concentrations, had an RPD value of 70 percent ([appendix table 2-2C](#)). All other quality-assurance data for THg-p met the data-quality objectives of this project ([appendix table 2-2](#)).

Methylmercury

Monomethyl mercury (MeHg) in water samples was determined for filtered and particulate fractions by the USGS-NRP-WB Biogeochemistry Laboratory. The MeHg extraction and quantification was completed using a method developed by the Florida Department of Environmental Protection (2011, 2013). The potassium hydroxide/methanol extraction and CVAFS methods have been previously described by Marvin-DiPasquale and others (2011). The MDL for this method for filtered water is 4 picogram per liter (pg/L; or 0.004 ng/L). For particulate samples (on filters), the MDL for MeHg is 0.12 picogram per gram (pg/g), corresponding to approximately 8.2 pg per filter, or a volumetric concentration of approximately 0.004 ng/L, depending on volume filtered and the mass of sediment deposited on the filter. Two analytical runs were completed for all water samples. Calibration standards were prepared from a NIST-certified, commercially obtained MeHg standard. Quality-assurance data for filtered monomethyl mercury (MeHg-f) are presented in [appendix table 2-3](#). Quality-assurance data for MeHg-f met the data-quality objectives of this project with the exception of field replicate SNQ-054 ([appendix table 2-3C](#)), which had a 42-percent RPD from environmental sample SNI-054.

Quality-assurance data for particulate MeHg in water (MeHg-p) are presented in [appendix table 2-4](#). Quality-assurance data for MeHg-p met the data-quality objectives of this project with the exception of field replicates SNI-041 and SNQ-54, which had 25-percent RPDs from the environmental samples SNI-040 and SNI-54, respectively ([appendix table 2-4C](#)).

Total Suspended Solids

Total suspended solids (TSS) in water samples were determined by the USGS-NRP-WB Biogeochemistry Laboratory using the same 0.3- μm pore-diameter glass-fiber filters that were used to determine THg-p and MeHg-p concentrations. Twenty-seven laboratory duplicates of TSS measurements ([appendix table 2–5](#)) had a mean DEV and standard deviation of 0.09 ± 0.18 milligram per liter (mg/L). Values of %DEV for 18 of the 27 duplicate pairs for TSS analysis were less than 20%. Eight of the nine duplicate pairs with %DEV values above 20% had average TSS values less than 0.7 mg/L.

Organic Carbon

Dissolved organic carbon (DOC) was determined using high-temperature combustion and infrared detection on a total organic carbon analyzer (Model TOC-VCPH, Shimadzu Scientific Instruments, Columbia, Maryland) at the USGS Organic Matter Research Laboratory (OMRL) in Sacramento, Calif. (Stumpner and others, 2015). [Appendix table 2–6](#) presents quality-assurance data for matrix blanks, matrix spikes, and SRMs for DOC analyses. The MDL for DOC was 0.03 mg/L, and the laboratory reporting limit (LRL) was 0.3 mg/L. Quality-assurance data for DOC met the data-quality objectives of this project.

Absorbance and Fluorescence Spectral Indicators

Absorbance spectra were determined on a CARY-300 spectrophotometer (Agilent Technologies, Santa Clara, Calif.), and fluorescence matrices were determined on a Fluoromax-4 spectrofluorometer (Horiba Instruments, Edison, New Jersey) at the OMRL, previously described in Fleck and others (2014). The spectral correction procedures and measurements were within quality-assurance (QA) thresholds according to the daily water Raman peak area and laboratory reference material (Lipton, Unsweetened Black Tea, Purchase, N.Y.), as defined in Fleck and others (2014). [Appendix tables 2–7](#) and [2–8](#) present QA data for SRM data, equipment blanks, and field replicates. The SRMs in [appendix tables 2–7](#) and [2–8](#) are reported for absorbance and fluorescence, respectively; for absorbance wavelengths and fluorescence excitation-emission pairs, two SRMs were analyzed for each run date, and MDLs are reported for each absorbance wavelength and fluorescence excitation-emission pair. The daily detection limits (DDLs) associated with each absorbance sample are the five organic-free water blanks analyzed for that run date and calculated for each as three times the standard deviation (SD) plus the average. The DDLs associated with each fluorescence excitation-emission pair are based on one organic-free water blank. In cases where absorbance and fluorescence spectral indicators are ‘estimated’ values, relative percent difference was not calculated.

Total Particulate Carbon and Nitrogen

Analyses of total particulate carbon and nitrogen (TPCN) were done at the USGS NWQL in Denver, Colo., according to EPA Method 440 (Zimmermann and others, 1997). Constituents included particulate inorganic carbon (PIC), particulate organic carbon (POC), total organic carbon (TOC), and total particulate nitrogen (TPN). Collectively, this group of constituents is referred to as total particulate carbon and nitrogen (TPCN). Quality-assurance data for these constituents ([appendix table 2–9](#)) met the data-quality objectives of the project, with the exception of a replicate pair for TPN that had an RPD value greater than 20 percent.

Nutrients

Several forms of nitrogen and phosphorus were analyzed in surface-water samples at the USGS NWQL. Methods are listed in [appendix table 1–1](#). Organic nitrogen and ammonia were analyzed in unfiltered and filtered water. The following other nitrogen species were analyzed in filtered water only: nitrate plus nitrite, nitrite, and ammonia. Total phosphorus was analyzed in unfiltered and filtered water. Orthophosphate was analyzed in filtered water only. Quality-assurance data for nutrient analyses are provided in [appendix 2](#), as follows: unfiltered organic nitrogen plus ammonia ([appendix table 2–10](#)), filtered organic nitrogen plus ammonia ([appendix table 2–11](#)), filtered nitrate plus nitrite ([appendix table 2–12](#)), filtered ammonia ([appendix table 2–13](#)), filtered nitrite ([appendix table 2–14](#)), unfiltered total phosphorus ([appendix table 2–15](#)), filtered total phosphorus ([appendix table 2–16](#)), and orthophosphate ([appendix table 2–17](#)). Replicate RPD values for all nutrient constituents were less than 10 percent ([appendix tables 2–10 to 2–17](#)). Data for blanks and replicates for each of these constituents met the data-quality objectives of the project.

Alkalinity

Alkalinity of surface-water samples was determined by titration with sulfuric acid at the USGS NWQL. Quality-assurance data ([appendix table 2–18](#)) indicate low replicate RPD values (less than 1 percent). Alkalinity concentrations in equipment blanks were in the range of 2.7 to 4.6 mg/L as CaCO_3 ; the lowest alkalinity concentration for an environmental sample was 10 mg/L as CaCO_3 . Therefore, the quality-assurance data for alkalinity met the data-quality objectives of the project.

Chlorophyll *a* and Pheophytin *a*

Chlorophyll *a* and pheophytin *a* were analyzed by fluorescence at the USGS NWQL. Quality-assurance data for chlorophyll *a* and pheophytin *a* are presented in [appendix table 2–19](#). No blank filters were submitted to the NWQL for analysis. The RPD values for two replicates were less than 10 percent for both constituents, which met the data-quality objectives of the project.

Anions

Concentrations of sulfate and chloride were determined by ion chromatography at the USGS NWQL. Methods are listed in [appendix table 1–1](#). Quality-assurance data are presented in [appendix tables 2–20](#) (sulfate) and [2–21](#) (chloride). Concentrations in equipment blanks were at or near the MDL for both constituents, well below the observed levels in all environmental samples. The RPD values for three replicates were less than 15 percent for both constituents, meeting the data-quality objectives for the project.

Suspended Sediment Concentration

Suspended sediment concentration (SSC) and percent fines (less than 0.063 mm) were analyzed at the USGS Santa Cruz Sediment Laboratory. Quality-assurance data for SSC ([appendix table 2–22](#)) indicate poor results for replicates; two of the three replicates had RPD values of 67 percent. However, for both of these replicate pairs, the observed concentrations were 1 and 2 mg/L, close to the MDL (0.5 mg/L). Three equipment blanks were analyzed for SSC. Two blanks had SSC results less than the MDL, and the third was 1.0 mg/L. Environmental samples had low SSC because sampling was done at low-flow conditions; 20 of 27 analyses were 2 mg/L or less, and only 1 of 27 analyses was greater than 5 mg/L. Therefore, the low range of reported SSC values for environmental samples (2 mg/L and less) should be used with caution, as it likely contains a high uncertainty.

Cations and Trace Elements

Fifty-four cations and trace elements were analyzed in filtered water by inductively coupled plasma (ICP). Atomic emission spectroscopy (AES) methods were used for major elements and mass spectroscopy (MS) methods for minor and trace elements. The ICP analyses were performed at the USGS National Research Program, Central Branch (USGS-NRP-CB) laboratory in Boulder, Colo. The methods were previously described by Marvin-DiPasquale and others (2009). Quality-assurance data for ICP analyses in water, including MDLs, equipment blanks, replicates, SRMs, and matrix-spike recoveries, are given in [appendix table 2–23](#). [Appendix tables 2–23A–E](#) report QAQC data for samples collected during 2011, and [appendix tables 2–24A–E](#) report QAQC data for samples collected during 2012. The USGS-NRP-CB laboratory reports the mean concentration of triplicate analysis. When two or three samples were collected for analysis, the NWIS environmental database stores the mean concentration data of the first bottle, and the NWIS QAQC database contains mean concentration data of the second bottle and when applicable, the third bottle.

Analytical results for the first equipment blank of the 2012 sampling season (SNQ-001) indicated high concentrations of several cations and trace elements. The high

values observed could be the result of contamination of the deionized water used for the blank or inappropriate cleaning techniques of sampling equipment. As a result, data for SNQ-001 are not included in the QA tables ([appendix tables 2–1 to 2–4](#), [2–6 to 2–10](#), [2–24A–E](#)).

For the remaining five blanks (three from 2011 and two from 2012), the 80-percent upper confidence level for the 80th percentile concentration of the equipment blanks (80 UCL) was estimated for each analyte using the Excel[®] confidence function (Microsoft Office[®], 2010). The function requires the standard deviation of the mean of the five blanks and sample size. When blank concentrations were reported less than the MDL, the MDL was assigned as the sample concentration. The mean value of the blanks and confidence function were combined to determine the 80 UCL. Any environmental samples with concentrations less than the 80 UCL value were assigned a value-qualifier code of “V” in the database and tables, indicating that caution should be used in their interpretation. The UCL was not determined for cesium (Cs), erbium (Er), rhenium (Re), or vanadium (V) because the standard deviation of the mean was zero for these elements.

Bed Sediment

Bed sediment was analyzed for total mercury, methylmercury, reactive mercury, iron species, total reduced sulfur, organic content by loss on ignition, bulk density, dry weight, porosity, sediment grain size, and cations and trace elements.

Total Mercury

Total mercury in bed-sediment samples (THg-s) for sediment less than 2 mm and less than 0.063 mm was determined by the USGS-NRP-WB Biogeochemistry Laboratory. Subsamples for THg-s were analyzed following the USGS-approved method (Olund, 2004). Once thawed, approximately 0.25 grams (wet weight) of sediment was digested in aqua regia (2 milliliters [mL] concentrated hydrochloric acid and 6 mL nitric acid) for 24 hours. Bromine monochloride (5 percent weight per volume) was then added to each sample, which was subsequently heated to 50 °C in an oven overnight. Samples were then transferred to a pre-combusted glass container and analyzed on an automated mercury analyzer (Tekran Model 2600) according to EPA Method 1631, Revision E (U.S. Environmental Protection Agency, 2002a, b). The 2012 analytical run for THg for sediment less than 2 mm had one SRM with a percent recovery greater than the data-quality objectives of the project; other quality-assurance data for THg in sediment, which met the data-quality objectives of the project, are given in [appendix table 3–1](#).

Methylmercury

The concentration of MeHg in sediment samples (MeHg-s) was determined by the USGS-NRP-WB Biogeochemistry Laboratory. Extraction and quantification of MeHg-s was completed using a method developed by the Florida Department of Environmental Protection (2011, 2013). The potassium hydroxide/methanol extraction and CVAFS methods were described by Marvin-DiPasquale and others (2011). Quality-assurance data for MeHg in sediment, given in [appendix table 3-2](#), met the data-quality objectives of the project.

Reactive Mercury

Reactive mercury (Hg(II)_{R}) in bed sediment ($\text{Hg(II)}_{\text{R-s}}$) was determined by the USGS-NRP-WB Biogeochemistry Laboratory. The reactive mercury assay was previously described by Marvin-DiPasquale and Cox (2007). During the 15-minute reaction and N_2 purge step, Hg(II)_{R} was reduced to elemental Hg(0) , which was trapped on a gold-coated-sand trap per EPA Method 1631 (U.S. Environmental Protection Agency, 2002b). The Hg(0) was then thermally desorbed from the gold-coated-sand trap onto a second gold-coated-sand analytical trap, using argon as a carrier gas. The analyte was then thermally desorbed from the analytical trap and sent through a CVAFS detection system. The CVAFS detector (Brooks Rand Model III mercury analyzer) communicates to peak-integration software (Peak Simple, Chrom Tech, Inc., Apple Valley, Minnesota) to convert the analog signal output to an integrated peak-area value. Quality-assurance data for Hg(II)_{R} are given in [appendix table 3-3](#). Laboratory duplicates ranged from 0.005–1.47 ng/g DEV. Two of the %DEV values were greater than 20 percent.

Iron Species

Iron (Fe) speciation in sediment samples was determined by the USGS-NRP-WB Biogeochemistry Laboratory. Three Fe fractions were chemically extracted and assayed as described by Marvin-DiPasquale and others (2009): acid-extractable ferrous iron (Fe(II)), crystalline ferric iron ($\text{Fe(III)}_{\text{c}}$), and amorphous ferric iron ($\text{Fe(III)}_{\text{a}}$). The MDL for all Fe analysis was 0.01 mg/mL. Spectrophotometry, after a weak acid extraction, was used for the $\text{Fe(II)}_{\text{AE}}$ and $\text{Fe(III)}_{\text{c}}$ methods, whereas $\text{Fe(III)}_{\text{a}}$ required an additional reduction and spectrophotometric measurement. Quality-assurance data for $\text{Fe(II)}_{\text{AE}}$, $\text{Fe(III)}_{\text{c}}$, and $\text{Fe(III)}_{\text{a}}$, presented in [appendix tables 3-4 to 3-6](#), respectively, met the data-quality objectives of the project.

Total Reduced Sulfur

Total reduced sulfur (TRS) in sediment samples was determined by the USGS-NRP-WB Biogeochemistry Laboratory based on the heated acid/chromium distillation procedure by Fossing and Jørgensen (1989). The procedure was previously described by Marvin-DiPasquale and others

(2011). [Appendix table 3-7](#) presents quality-assurance data for TRS in sediment. All data met the data-quality objectives of the project with the exception of a %DEV value of 52 percent for a laboratory duplicate for a sample sieved to <2 mm, which is prone to more heterogeneity than the duplicate samples ($n = 4$) sieved to <0.063 mm.

Organic Content by Loss on Ignition

Loss on ignition (LOI), an indicator of organic content in sediment samples, was determined by the USGS-NRP-WB Biogeochemistry Laboratory in a method previously described by Marvin-DiPasquale and others (2009). [Appendix table 3-8](#) presents quality-assurance data for LOI in sediment. Values of DEV were less than 9 percent for all 18 replicate LOI analyses (12 sieved to less than 2 mm, 6 sieved to less than 0.063 mm), which met the data-quality objectives of the project.

Bulk Density, Dry Weight, and Porosity

Bulk density, dry weight, and porosity in sediment samples were determined by the USGS-NRP-WB Biogeochemistry Laboratory using methods previously described by Marvin-DiPasquale and others (2009). Quality-assurance data for dry weight, bulk density, and porosity are presented in [appendix tables 3-9 to 3-11](#), respectively. Values of DEV for laboratory replicates were less than 7 percent for each of these analytes, which met the data-quality objectives of the project.

Sediment Grain Size

Analyses of sediment grain-size distribution were performed at the USGS California Water Science Center (CAWSC) Hydrologic Research Laboratory. Bed-sediment material smaller than 2 mm was analyzed on a model LS 13 320 single-wavelength laser diffraction particle-size analyzer (LDPSA, Beckman-Coulter, Pasadena, Calif.). Prior to analysis, samples were dried at 55 °C and were split into representative aliquots using a Sieving Riffler (Quantachrome Instruments, Boynton Beach, Florida). Material that did not fit through a 1-mm sieve was excluded. Approximately 500 mg of sediment was placed in the LDPSA unit, which uses a 5 milliwatt laser diode with a wavelength of 750 nanometers. A dispersing agent was used to break up aggregated particles. The composite light-scattering pattern was measured by 126 detectors placed at angles up to approximately 35 degrees from the optical axis (Beckman Coulter, Inc., 2011). In the LDPSA, the composite scattering pattern was deconvolved to a set of individual numbers, one for each size classification, and the relative amplitude of each number is a measure of the relative volume of equivalent spherical particles of that size. This deconvolution is based on the Fraunhofer optical model, the instrument default, which assumes that the particle diameter is much larger than the wavelength of the light and that the refractive index of the particles is different than that of the transport medium, in this case, water (Beckman Coulter, Inc., 2011).

Each sample was run in duplicate, and the median grain-size (D50) values for the two runs were compared by RPD. If the RPD was greater than 10 percent, then additional aliquots were analyzed until a pair of analyses had D50 values that produced an RPD value of less than 10 percent. A total of 31 laboratory duplicates were analyzed (28 environmental samples and 3 field replicates), with a mean RPD for D50 (median grain size) of 3.8 ± 2.9 percent ([appendix table 3–12](#)). Of the 31 samples analyzed for grain-size distribution, 8 (or 27 percent) required analysis of more than two aliquots.

Raw data from the LDPSA were post-processed using MATLAB (The MathWorks, Inc., Natick, Mass.) to produce tabular data in 1/2-phi size bins and to compute the proportions of sand, silt, and clay in each sample ([appendix table 3–13](#)). The phi scale for sediment particles is defined in equation 4:

$$\phi = -\log(\text{base } 2) (\text{diameter in mm}) \quad (4)$$

such that a phi of 0 corresponds to 1 mm, a phi of 2 corresponds to 0.25 mm (1/4 mm), a phi of 4 is 0.0625 mm (1/16 mm), and a phi of 8 is approximately 0.004 mm (1/256 mm; Poppe and others, 2003).

Trace Elements and Major Elements

Fifty-four major and trace elements were analyzed in bed sediment less than 0.063 mm by ICP-AES (major elements) and ICP-MS (trace elements) at the USGS-NRP-CB laboratory in Boulder, Colo., according to methods previously described by Alpers and others (2005b). Quality-assurance data for ICP analyses in bed sediment, including data on SRMs and matrix-spike recovery and digest replicate data, are presented in [appendix tables 3–14](#) and [3–15](#). [Appendix tables 3–14A–E](#) report QAQC data for samples collected during 2011, and [appendix tables 3–15A–E](#) report QAQC data for samples collected during 2012.

The USGS-NRP-CB laboratory digests sediment samples in duplicate and completes analysis in triplicate. Here we report the mean concentration of triplicate analysis. When two mean concentrations were reported, the NWIS environmental database stores the mean concentration data of the first digestion, and the NWIS QAQC database contains the mean concentration data of the second digestion. The RPD values reported in [appendix tables 3–14](#) through [3–15](#) for digestion replicates compare the average concentrations determined for each of the two digestions.

Fish Tissue

Fish were analyzed for mercury and selenium. Analytical methods and QAQC results for these analytes are described below.

Mercury

Fish for analysis were thawed, weighed, and measured. Individuals within the human-health-relevant size ranges (greater than or equal to approximately 150 mm) were analyzed for fresh weight muscle mercury. Muscle samples were dissected subcutaneously from the dorsolateral (shoulder) region and weighed directly into digestion tubes.

Sample mercury was reduced to the molecular level in solution through digestion at 90 °C in a mixture of concentrated nitric and sulfuric acids, followed by a second stage of heated digestion with the addition of oxidizing potassium permanganate. Fully digested samples were analyzed for total mercury by standard cold vapor atomic absorption (CVAA) spectrophotometry, using a dedicated Perkin-Elmer Flow Injection Mercury System (FIMS) with an AS-90 autosampler. Quality assurance and quality control were employed throughout the analytical process as QAQC samples passed through the same digestion process and chemical addition as field samples. Routine QAQC included, for each batch of 20–60 samples, 8 aqueous mercury standards spanning the relevant range of concentrations. For each 20 analytical samples, the following QAQC samples were analyzed: 3 method blanks, 3 certified reference materials, 3 continuing calibration samples, 1 aqueous mercury laboratory calibration standard, 1 sample duplicate (another muscle sample dissected from the same fish), 1 sample duplicate spiked with mercury, and 1 spike duplicate. Results for THg from 27 analyses of two certified reference tissues—National Research Council of Canada (NRCC) DOLT-4 CRM dogfish liver, 2,580 ng/g mean dry weight, and NRCC DORM-3 CRM dogfish muscle, 382 ng/g mean dry weight—were within certified or recommended means, and ranges had a mean recovery of 99.3 percent with a standard deviation (SD) of 2.7 percent. Additionally, 54 within-run calibration samples were tested by repeatedly analyzing tissue-based samples and had a mean recovery of 98.5 percent with an SD of 1.8 percent. Eighteen laboratory calibration standards had a mean recovery of 105.6 percent with an SD of 1.8 percent. Recovery of mercury from 18 duplicate tissues spiked prior to digestion had a mean recovery of 98.0 percent with an SD of 1.3 percent. Method precision, determined by analyzing 18 duplicate pairs of fish tissue samples, varied from 0.1 to 6.9 RPD.

Recovery of mercury from 18 tissues spiked prior to digestion was 99.3 percent with an SD of 1.9 percent. Overall, these quality-control results were well within acceptable limits as specified by the UCD laboratory. Results from the fish mercury QAQC are presented in [appendix table 4–1](#).

Selenium

Fish tissue was analyzed for selenium (Se) at the USGS-NRP-WB Biogeochemistry Laboratory using hydride generation isotope dilution inductively coupled plasma mass spectrometry (HG-ID-ICP-MS) methods. Selenium analysis was completed on a subset of fish tissue from fish that had also been analyzed for Hg. An amendment with ^{82}Se enriched isotope in the form of Se^{6+} was used for the isotope dilution (U.S. Environmental Protection Agency, 2007). This method involved a multi-step wet digestion with a mixture of nitric acid (HNO_3) and hydrogen peroxide (H_2O_2 ; Elrick and Horowitz, 1985; Liber, 2012) and incubation with a pressure-steam sterilizer for 3 hours at 20 pounds per square inch and 125 °C. Digestates were subsequently reacted with concentrated hydrochloric acid (HCl) to reduce selenium to the most favorable Se^{4+} valence for hydride generation (Presser and Barnes, 1984). The solutions were then analyzed on a Perkin-Elmer (Elan DRC II) ICP-MS equipped with a flow injection system (FIAS-400). Polyatomic, isobaric, and background interferences were removed through the use of hydride generation and ^{82}Se enriched isotope spike. Quality-assurance data for Se in fish tissue are presented in [appendix table 4–2](#). The median Se concentration ($n = 6$) of the matrix blanks was 0.008 $\mu\text{g/g}$. Recovery of the standard reference materials, NIST2976 and DORM-2, ranged from 94.8 to 104.4 percent, well within the data-quality objectives of the study.

Results

The following section includes text and data tables describing surface water, bed sediment, and fish tissue results.

Water

Data for field measurements, laboratory alkalinity, and suspended sediment concentration are presented in [table 3](#). Data for THg, MeHg, and TSS are presented in [table 4](#). Concentrations of dissolved and particulate organic matter, particulate inorganic carbon, and total particulate nitrogen are presented in [table 5](#). Data for absorbance spectral indicators of dissolved organic matter composition are presented in [table 6](#); data for fluorescence spectral indicators are in [table 7](#). Concentrations of nitrogen species are presented in [table 8](#). Concentrations and phosphorus species and concentrations of selected anions are presented in [table 9](#). Concentrations of selected cations and trace elements from filtered water samples are presented in [tables 10A–E](#).

Concentrations of THg-f ranged from 0.04 to 0.86 ng/L ([table 4](#)). For THg-p, concentrations ranged from less than the MDL to 4.06 ng/L ([table 4](#)). Concentrations of MeHg-f ranged from less than the MDL to 0.044 ng/L ([table 4](#)). For MeHg-p, concentrations ranged from less than the MDL to 0.053 ng/L ([table 4](#)). The ratios of MeHg-f to THg-f (%MeHg-f) ranged

from less than the MDL to 19.2 percent ([table 4](#)). In suspended particulates, the ratios of MeHg-p to THg-p (%MeHg-p) ranged from less than the MDL to 51.7 percent ([table 4](#)).

Bed Sediment

Data for THg, MeHg, Fe species, and TRS in the less than 2-mm size fraction of sediment are presented in [table 11](#), together with dry weight, LOI, and bulk density data; similar data for the less than 0.063-mm size class of sediment are presented in [table 12](#). Summary statistics of laser diffraction analysis for sediment sizes less than 2 mm, including percent clay, silt, and sand, and mean and median grain size, are presented in [table 13](#). Detailed grain-size distribution data (in 1/2-phi intervals) obtained through laser diffraction analysis are available in [appendix table 3–13](#). For this report, percent clay was calculated as percentage (by weight) of bed-sediment material smaller than 0.004 millimeters, percent silt was calculated as percentage (by weight) of bed-sediment material smaller than 0.0625 mm but larger than 0.0004 mm, and percent sand was calculated as percentage (by weight) of bed-sediment material smaller than 2 mm but larger than 0.0625 mm. Summary statistics included in [table 13](#) were reported by the analytical instrument software but can be calculated using equations from Bunte and Abt (2001). Data for major elements and trace elements in the less than 0.063-mm sediment size class are presented in [table 14](#).

The results of the laser-scattering method (with dispersing agent) indicated a median sand content of 90.1 percent with a range from 64.1 to 96.9 percent ([table 13](#)).

Concentrations of THg in bed sediment from 24 sites ranged from 1.1 to 381 ng/g (dry weight) in material less than 2 mm and from 28.1 to 1,410 ng/g (dry weight) in material less than 0.063 mm. The ratios of MeHg-s to THg-s (percent MeHg-s) ranged from 0.04 to 7.6 percent in the less than 2-mm streambed sediment.

Fish Tissue

A summary of fish tissue THg concentration data by site and species is presented in [table 15](#). Data for THg concentration, total length, and weight of individual fish are given in [table 16](#). Data for Se in fish tissue are given in [table 17](#).

Fish from three species collected at 20 locations had the following range in total mercury concentrations (all concentrations wet weight): 10 to 292 ng/g in rainbow trout (*Oncorhynchus mykiss*; $n = 293$, 19 locations); 13 to 386 ng/g in brown trout (*Salmo trutta*; $n = 33$, 10 locations); and 159 ng/g in hardhead (*Mylopharodon conocephalus*; $n = 1$). Concentrations of selenium in fish (dry weight) ranged from 280 to 1,940 $\mu\text{g/g}$ in rainbow trout ($n = 66$, 19 locations), and from 870 to 1,140 $\mu\text{g/g}$ in brown trout ($n = 6$, 2 locations). The concentrations of selenium in fish converted to wet weight using average water content for axial fillet muscle tissue for each species (78.21 percent for rainbow trout and 77.48 percent for brown trout) ranged from 60 to 420 ng/g in rainbow trout and from 200 to 260 ng/g in brown trout.

Table 3. Surface-water field measurements, laboratory alkalinity, and suspended sediment concentration.

[A, at; AB and ABV, above; Alk, alkalinity; BL and BLW, below; BP, barometric pressure; C and CRK, Creek; CA, California; CaCO₃, calcium carbonate; DO, dissolved oxygen; FNU, Formazin nephelometric unit; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake, MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; mmHg, millimeter of mercury; nd, not determined; NF, North Fork; NR, near; PDT, Pacific Daylight Time; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; SpC, specific conductance at 25 degrees Celcius (°C); SS, suspended sediment; SSC, suspended sediment concentration; Temp, temperature; Turb, turbidity; VLY, Valley; WA, Washington; µS/cm, microsiemen per centimeter; <, less than]

Station name	Station ID	Project ID	Latitude	Longitude	Date (mm/dd/yyyy)	Time (hh:mm)	Time datum	Parameters (parameter code)			
								Temp (00010) (°C)	BP (00025) (mmHg)	DO (00300) (mg/L)	pH (00400)
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	39.35528	−120.81361	09/07/2011	11:10	PST	18.4	703.9	8.9	7.8
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	39.31972	−120.65611	09/07/2011	15:20	PST	11.1	nd	11.4	6.1
BELDEN PH A BELDEN CA	11403050	SNI-005	40.00750	−121.24972	09/19/2011	15:40	PDT	13.4	705.4	10.5	8.1
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	40.02472	−120.96861	09/20/2011	10:50	PDT	16.0	685.0	9.5	8.2
SPANISH CREEK NR EAST QUINCY CA	395830120542501	SNI-007	39.97500	−120.90694	09/20/2011	16:00	PDT	17.2	675.0	9.9	7.6
MF FEATHER R A SLOAT CA	11393000	SNI-009	39.85694	−120.56806	09/21/2011	12:30	PDT	16.0	660.0	9.7	7.1
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	39.77972	−120.52917	09/22/2011	13:00	PDT	15.3	649.0	9.4	8.0
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	37.67139	−119.78972	11/02/2011	13:00	PDT	9.2	nd	nd	7.0
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	37.61028	−119.96056	11/03/2011	11:00	PST	10.6	725.0	11.5	7.3
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	38.56750	−120.45583	08/30/2012	14:30	PST	16.8	665.2	8.7	8.0
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	39.16528	−121.06139	09/06/2012	14:30	PST	15.7	708.7	nd	7.6
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	39.12278	−121.02750	09/06/2012	16:00	PST	20.1	717.8	11.3	7.9
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	39.31972	−120.65611	09/20/2012	11:30	PDT	nd	nd	nd	nd
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	39.29833	−120.84667	09/25/2012	13:10	PST	15.7	666.0	9.3	7.3
S YUBA R NR CISCO CA	11414000	SNI-046	39.32139	−120.56333	09/25/2012	15:00	PDT	15.8	625.2	8.6	6.8
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	39.35611	−120.61250	10/01/2012	13:40	PST	16.6	638.0	8.9	6.8
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	38.60889	−120.61417	10/03/2012	12:00	PST	15.8	711.6	9.4	7.5
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	11403050	SNI-049	40.02472	−120.46861	10/16/2012	10:20	PDT	12.7	688.2	10.1	7.9
BELDEN PH A BELDEN CA	400129120580701	SNI-050	40.00750	−121.23167	10/16/2012	14:50	PDT	12.5	700.0	9.9	7.8
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	39.67611	−121.08833	10/17/2012	12:00	PST	16.3	642.0	8.9	7.2
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	39.55056	−121.21250	10/31/2012	11:10	PST	12.4	718.2	10.0	7.1
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	39.71028	−121.27167	10/31/2012	14:30	PST	9.6	719.8	11.1	8.1
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	39.86139	−120.84694	11/07/2012	14:30	PST	nd	nd	nd	nd
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	38.77611	−120.74806	11/14/2012	11:30	PST	9.1	732.7	10.5	7.3
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	38.75722	−120.27472	11/14/2012	15:00	PST	2.1	648.6	11.3	7.2
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	39.02222	−120.72111	11/15/2012	11:20	PST	7.4	731.1	10.9	7.8
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	38.99917	−120.72333	11/15/2012	13:20	PST	8.9	732.7	10.7	7.7

Table 3. Surface-water field measurements, laboratory alkalinity, and suspended sediment concentration.—Continued

[A, at; AB and ABV, above; Alk, alkalinity; BL and BLW, below; BP, barometric pressure; C and CRK, Creek; CA, California; CaCO₃, calcium carbonate; DO, dissolved oxygen; FNU, Formazin nephelometric unit; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake, MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; mmHg, millimeter of mercury; nd, not determined; NF, North Fork; NR, near; PDT, Pacific Daylight Time; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; SpC, specific conductance at 25 degrees Celcius (°C); SS, suspended sediment; SSC, suspended sediment concentration; Temp, temperature; Turb, turbidity; VLY, Valley; WA, Washington; µS/cm, microsiemen per centimeter; <, less than]

Station name	Station ID	Project ID	Latitude	Longitude	Date (mm/dd/yyyy)	Time (hh:mm)	Time datum	Parameters (parameter code)		
								SpC (00095) (µS/cm)	Turb (63680) (FNU)	Alk (29801) (mg/L CaCO ₃)
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	39.35528	-120.81361	09/07/2011	11:10	PST	140	<1.0	36
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	39.31972	-120.65611	09/07/2011	15:20	PST	88	<1.0	11
BELDEN PH A BELDEN CA	11403050	SNI-005	40.00750	-121.24972	09/19/2011	15:40	PDT	136	<1.0	69
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	40.02472	-120.96861	09/20/2011	10:50	PDT	159	1.6	74
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	39.97500	-120.90694	09/20/2011	16:00	PDT	153	2.2	71
MF FEATHER R A SLOAT CA	11393000	SNI-009	39.85694	-120.56806	09/21/2011	12:30	PDT	147	<1.0	65
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	39.77972	-120.52917	09/22/2011	13:00	PDT	127	3.2	54
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	37.67139	-119.78972	11/02/2011	13:00	PDT	41	nd	18
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	37.61028	-119.96056	11/03/2011	11:00	PST	64	nd	18
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	38.56750	-120.45583	08/30/2012	14:30	PST	44	<1.0	23
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	39.16528	-121.06139	09/06/2012	14:30	PST	52	nd	27
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	39.12278	-121.02750	09/06/2012	16:00	PST	103	4.9	45
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	39.31972	-120.65611	09/20/2012	11:30	PDT	nd	nd	17
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	39.29833	-120.84667	09/25/2012	13:10	PST	29	<1.0	13
S YUBA R NR CISCO CA	11414000	SNI-046	39.32139	-120.56333	09/25/2012	15:00	PDT	38	<1.0	15
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	39.35611	-120.61250	10/01/2012	13:40	PST	16	<1.0	10
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	38.60889	-120.61417	10/03/2012	12:00	PST	62	<1.0	32
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	11403050	SNI-049	40.02472	-120.46861	10/16/2012	10:20	PDT	192	<1.0	93
BELDEN PH A BELDEN CA	400129120580701	SNI-050	40.00750	-121.23167	10/16/2012	14:50	PDT	142	<1.0	77
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	39.67611	-121.08833	10/17/2012	12:00	PST	29	<1.0	16
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	39.55056	-121.21250	10/31/2012	11:10	PST	40	<1.0	21
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	39.71028	-121.27167	10/31/2012	14:30	PST	134	<1.0	64
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	39.86139	-120.84694	11/07/2012	14:30	PST	nd	nd	72
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	38.77611	-120.74806	11/14/2012	11:30	PST	35	<1.0	14
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	38.75722	-120.27472	11/14/2012	15:00	PST	42	<1.0	17
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	39.02222	-120.72111	11/15/2012	11:20	PST	71	0.2	32
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	38.99917	-120.72333	11/15/2012	13:20	PST	58	0.0	22

Table 3. Surface-water field measurements, laboratory alkalinity, and suspended sediment concentration.—Continued

[A, at; AB and ABV, above; Alk, alkalinity; BL and BLW, below; BP, barometric pressure; C and CRK, Creek; CA, California; CaCO₃, calcium carbonate; DO, dissolved oxygen; FNU, Formazin nephelometric unit; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake, MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; mmHg, millimeter of mercury; nd, not determined; NF, North Fork; NR, near; PDT, Pacific Daylight Time; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; SpC, specific conductance at 25 degrees Celcius (°C); SS, suspended sediment; SSC, suspended sediment concentration; Temp, temperature; Turb, turbidity; VLY, Valley; WA, Washington; µS/cm, microsiemen per centimeter; <, less than]

Station name	Station ID	Project ID	Latitude	Longitude	Date (mm/dd/yyyy)	Time (hh:mm)	Time datum	Parameters	
								80154 SSC (mg/L)	70331 SS <0.063 mm (percentage)
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	39.35528	−120.81361	09/07/2011	11:10	PST	1	33
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	39.31972	−120.65611	09/07/2011	15:20	PST	1	86
BELDEN PH A BELDEN CA	11403050	SNI-005	40.00750	−121.24972	09/19/2011	15:40	PDT	1	90
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	40.02472	−120.96861	09/20/2011	10:50	PDT	2	80
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	39.97500	−120.90694	09/20/2011	16:00	PDT	2	60
MF FEATHER R A SLOAT CA	11393000	SNI-009	39.85694	−120.56806	09/21/2011	12:30	PDT	1	100
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	39.77972	−120.52917	09/22/2011	13:00	PDT	4	84
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	37.67139	−119.78972	11/02/2011	13:00	PDT	2	70
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	37.61028	−119.96056	11/03/2011	11:00	PST	2	68
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	38.56750	−120.45583	08/30/2012	14:30	PST	2	80
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	39.16528	−121.06139	09/06/2012	14:30	PST	12	94
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	39.12278	−121.02750	09/06/2012	16:00	PST	4	92
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	39.31972	−120.65611	09/20/2012	11:30	PDT	2	95
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	39.29833	−120.84667	09/25/2012	13:10	PST	3	64
S YUBA R NR CISCO CA	11414000	SNI-046	39.32139	−120.56333	09/25/2012	15:00	PDT	2	52
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	39.35611	−120.61250	10/01/2012	13:40	PST	1	100
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	38.60889	−120.61417	10/03/2012	12:00	PST	5	98
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	11403050	SNI-049	40.02472	−120.46861	10/16/2012	10:20	PDT	<0.5	75
BELDEN PH A BELDEN CA	400129120580701	SNI-050	40.00750	−121.23167	10/16/2012	14:50	PDT	<0.5	100
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	39.67611	−121.08833	10/17/2012	12:00	PST	3	90
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	39.55056	−121.21250	10/31/2012	11:10	PST	1	83
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	39.71028	−121.27167	10/31/2012	14:30	PST	3	94
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	39.86139	−120.84694	11/07/2012	14:30	PST	2	74
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	38.77611	−120.74806	11/14/2012	11:30	PST	2	78
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	38.75722	−120.27472	11/14/2012	15:00	PST	<0.5	100
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	39.02222	−120.72111	11/15/2012	11:20	PST	1	10
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	38.99917	−120.72333	11/15/2012	13:20	PST	<0.5	nd

Table 4. Surface-water concentrations of mercury, methylmercury, and total suspended solids.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** (Me/T)-f, ratio of methylmercury to total mercury in filtered samples; (Me/T)-p, ratio of methylmercury to total mercury in particulate samples; A, at; AB and ABV, above; BL and BLW, below; CA, California; C and CRK, Creek; E, estimated value (between method detection limit [MDL] and lowest standard; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MeHg-f, filtered methylmercury; MeHg-p, particulate methylmercury; MF, Middle Fork; MI, mile; mg/L, milligram per liter; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; ng/L, nanogram per liter; NR, near; pg, picogram; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg-f, filtered total mercury; THg-p, particulate total mercury; TSS, total suspended solids; VLY, Valley; VOL, volume; WA, Washington; <, less than; —, not applicable]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters (parameter code)		
					THg-f (50287) (ng/L)	THg-p (62976) (ng/L)	MeHg-f (50285) (ng/L)
Method detection limit					0.04 (2011), 0.06 (2012)	0.04 (2011), 0.06 (2012)	0.004 ng/L
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	E0.50	E0.20	0.028
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	0.69	E0.33	0.032
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	<MDL	E0.10	E0.005
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	E0.25	E0.21	0.039
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	E0.17	E0.21	0.024
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	E0.47	E0.27	0.044
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	E0.26	E0.20	0.021
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	E0.06	E0.08	0.012
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	E0.22	<MDL	0.011
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	E0.20	E0.06	0.037
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.85	4.06	0.034
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	E0.48	0.69	0.042
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	E0.31	E0.13	E0.006
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	E0.28	E0.20	0.016
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	E0.21	E0.08	0.018
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	E0.31	E0.33	0.007
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	E0.17	<MDL	0.021
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.33	E0.10	0.026
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	E0.09	<MDL	E0.006
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	E0.16	<MDL	<0.01
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	E0.15	E0.09	<MDL
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	E0.28	E0.53	0.012
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.59	E0.15	0.032
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	E0.38	E0.05	0.007
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	E0.35	<MDL	0.015
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	E0.28	E0.05	0.008
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	E0.23	<MDL	<0.01

Table 4. Surface-water concentrations of mercury, methylmercury, and total suspended solids.—Continued

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** (Me/T)-f, ratio of methylmercury to total mercury in filtered samples; (Me/T)-p, ratio of methylmercury to total mercury in particulate samples; A, at; AB and ABV, above; BL and BLW, below; CA, California; C and CRK, Creek; E, estimated value (between method detection limit [MDL] and lowest standard; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MeHg-f, filtered methylmercury; MeHg-p, particulate methylmercury; MF, Middle Fork; MI, mile; mg/L, milligram per liter; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; ng/L, nanogram per liter; NR, near; pg, picogram; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg-f, filtered total mercury; THg-p, particulate total mercury; TSS, total suspended solids; VLY, Valley; VOL, volume; WA, Washington; <, less than; —, not applicable]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters (parameter code)			
					MeHg-p (62977) (ng/L)	(Me/T)-f (—) (percent)	(Me/T)-p (—) (percent)	TSS ¹ (00530) (mg/L)
Method detection limit					0.12 pg/filter, 0.004 ng/L	nd	nd	0.1
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	0.012	5.5	3.9	0.3
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	E0.005	4.7	2.6	0.5
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	E0.004	10.8	4.0	1.0
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.019	15.5	9.4	3.0
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.014	14.2	5.2	2.0
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.013	9.3	5.2	1.9
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.011	8.2	10.5	3.8
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	0.007	19.2	51.7	0.5
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	E0.005	5.1	28.2	0.3
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	0.007	18.2	21.5	0.4
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.053	3.9	1.1	8.1
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	NO VOL	8.7	1.8	2.3
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	E0.004	1.9	3.8	0.4
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	E0.2	5.6	nd	2.1
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	0.008	8.7	10.2	0.5
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	E0.006	2.4	1.9	0.5
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	0.006	12.5	19.3	0.2
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.009	8.1	8.2	1.5
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	0.005	6.2	nd	1.0
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	E0.005	0.8	nd	nd
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	0.006	2.5	11	0.8
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	0.010	4.3	2.2	3.8
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	E0.009	5.5	5.7	1.1
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	<0.005	1.8	nd	1.6
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	<0.005	4.3	nd	0.2
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	<0.005	2.7	nd	0.4
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	<0.005	nd	nd	<0.1

¹ TSS is presented here as the mean value of the THg-p TSS and the MeHg-p TSS.

Table 5. Surface-water concentrations of dissolved and particulate organic matter, particulate inorganic carbon, total particulate nitrogen, chlorophyll, and pheophytin.

[Dissolved organic carbon (DOC) and total dissolved nitrogen (TDN) were measured at the U.S. Geological Survey (USGS) California Water Science Center; all other parameters were measured at the USGS National Water Quality Laboratory. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Chl, chlorophyll *a*; CRK, Creek; E, estimated value (between method detection limit [MDL] and lowest standard); hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; NR, near; Pheo, pheophytin *a*; PH, Powerhouse; PIC, particulate inorganic carbon; POC, particulate organic carbon; R, River; RD, Road; S, South; SF, South Fork; TPC, total particulate carbon; TPN, total particulate nitrogen; VLY, Valley; WA, Washington; µg/L, microgram per liter; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters (parameter code)						
					DOC (00681) (mg/L)	Chl (70953) (µg/L)	Pheo (62360) (µg/L)	PIC (00688) (mg/L)	POC (00689) (mg/L)	TPC (00694) (mg/L)	TPN (49570) (mg/L)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	1.0	<0.1	0.31	<0.03	<0.12	<0.05	<0.017
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	0.59	E0.1	0.24	<0.03	<0.12	<0.05	0.019
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	0.45	nd	nd	<0.03	0.14	0.14	<0.017
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.85	nd	nd	<0.03	0.22	0.22	<0.017
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.73	nd	nd	<0.03	0.13	0.13	<0.017
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	1.6	nd	nd	<0.03	0.16	0.16	0.023
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	3.3	nd	nd	<0.03	0.33	0.33	0.026
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	0.82	nd	nd	<0.03	<0.1	0.06	<0.017
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	0.67	nd	nd	<0.03	<0.1	0.10	<0.017
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	0.62	nd	nd	nd	nd	nd	nd
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	1.3	nd	nd	nd	nd	nd	nd
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	1.5	nd	nd	nd	nd	nd	nd
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	1.1	nd	nd	<0.03	0.12	0.12	<0.017
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	1.3	nd	nd	<0.03	0.23	0.23	0.062
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	1.1	nd	nd	0.031	<0.05	<0.05	0.086
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	1.4	nd	nd	<0.03	0.14	0.14	<0.017
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	0.75	nd	nd	nd	nd	nd	nd
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	1.1	nd	nd	<0.03	0.13	0.13	0.046
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.57	nd	nd	<0.03	0.10	0.10	0.037
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	1.1	nd	nd	<0.03	0.18	0.18	0.021
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	0.80	0.63	0.48	<0.03	<0.05	<0.05	0.050
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	1.1	0.87	1.3	<0.03	0.22	0.22	0.062
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	1.7	0.48	0.78	<0.03	0.11	0.13	0.046
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	1.3	1.1	1.1	<0.03	1.7	1.7	0.045
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	1.3	E0.13	E0.12	<0.03	0.15	0.15	0.060
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	0.52	<0.1	E0.16	<0.03	<0.05	<0.05	0.025
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	0.57	<0.1	0.21	<0.03	0.11	0.11	0.052

Table 6. Absorbance spectral indicators of dissolved organic matter composition in surface water.

[All analyses performed at U.S. Geological Survey California Water Science Center. **Abbreviations:** A, at; A_{xxx}, absorbance at xxx nanometer (nm); AB and ABV, above; AU, absorbance units normalized to a 1-centimeter pathlength; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated value (between method detection limit [MDL] and lowest standard); hh:mm, hour:minute; HWY, Highway; ID, identification; L mg⁻¹m⁻¹, liter per milligram per meter; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; S_{ag}, spectral slope for given range of wavelengths; SF, South Fork; SUVA₂₅₄, specific absorbance at 254 nm; VLY, Valley; WA, Washington; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters (parameter code)				
					A ₂₅₄ (50624) (AU)	A ₂₈₀ (32296) (AU)	A ₃₇₀ (32297) (AU)	A ₄₁₂ (32298) (AU)	A ₄₄₀ (32299) (AU)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	0.036	0.027	E0.007	E0.003	E0.002
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	E0.014	E0.011	E0.003	E0.001	E0.001
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	0.016	E0.012	E0.003	E0.002	E0.001
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.031	0.024	E0.007	E0.004	E0.003
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.028	0.022	E0.007	E0.004	E0.002
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.055	0.041	0.011	E0.006	E0.004
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.098	0.071	0.017	0.009	E0.006
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	0.020	0.015	E0.004	E0.002	E0.001
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	0.021	0.016	E0.005	E0.003	E0.002
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	0.017	0.013	E0.002	E0.001	E0.001
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.037	0.029	E0.009	E0.005	E0.004
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	0.071	0.056	0.018	0.010	E0.006
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	0.041	0.031	E0.009	E0.005	E0.003
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	0.032	0.023	E0.004	E0.003	E0.002
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	0.024	0.018	E0.005	E0.002	E0.001
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	0.026	0.017	E0.003	E0.002	E0.001
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	0.022	0.017	E0.006	E0.003	E0.002
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	0.031	0.025	E0.008	E0.004	E0.002
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.017	0.014	E0.003	E0.002	E0.001
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	E0.015	E0.01	E0.002	E0.0007	<0.0003
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	0.018	0.013	E0.004	E0.001	E0.001
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	0.041	0.032	E0.008	E0.004	E0.003
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.052	0.039	E0.009	E0.005	E0.002
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	0.038	0.028	E0.006	E0.003	E0.002
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	0.035	0.026	E0.006	E0.003	E0.003
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	0.016	0.013	E0.004	E0.002	E0.001
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	E0.014	E0.010	E0.003	E0.001	<0.0003

Table 6. Absorbance spectral indicators of dissolved organic matter composition in surface water.—Continued

[All analyses performed at U.S. Geological Survey California Water Science Center. **Abbreviations:** A, at; A_{xxx}, absorbance at xxx nanometer (nm); AB and ABV, above; AU, absorbance units normalized to a 1-centimeter pathlength; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated value (between method detection limit [MDL] and lowest standard); hh:mm, hour:minute; HWY, Highway; ID, identification; L mg⁻¹m⁻¹, liter per milligram per meter; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; S_{ag}, spectral slope for given range of wavelengths; SF, South Fork; SUVA₂₅₄, specific absorbance at 254 nm; VLY, Valley; WA, Washington; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters				
					63162	32300	32301	32302	32303
					SUVA ₂₅₄ (L mg ⁻¹ m ⁻¹)	S _{ag275-290}	S _{ag290-350}	S _{ag350-400}	S _{ag412-676}
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	3.5	0.015	E0.015	<0.016	<0.012
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	2.4	E0.015	<0.015	<0.014	<0.012
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	3.5	E0.014	<0.014	<0.015	<0.010
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	3.6	0.013	E0.012	E0.014	<0.012
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	3.8	0.012	E0.012	<0.015	<0.012
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	3.5	0.015	E0.015	E0.016	<0.012
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	2.9	0.018	0.016	0.016	<0.012
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	2.5	E0.014	<0.014	<0.014	<0.012
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	3.1	E0.014	<0.014	<0.014	<0.009
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	2.8	E0.013	<0.015	<0.013	<0.004
Wolf C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	2.9	0.013	E0.014	E0.011	<0.008
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	4.8	0.012	0.012	0.015	<0.011
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	3.8	0.013	E0.013	E0.014	<0.012
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	2.5	0.019	<0.018	<0.020	<0.014
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	2.3	E0.016	<0.015	<0.018	<0.018
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	1.9	E0.023	<0.020	<0.013	<0.009
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	3.0	E0.012	<0.014	<0.015	<0.010
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	2.9	0.013	E0.013	<0.015	<0.018
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	3.0	E0.014	<0.014	<0.014	<0.017
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	1.4	<0.026	<0.019	<0.021	<0.048
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	2.3	E0.017	<0.015	<0.017	<0.007
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	3.6	0.013	E0.014	E0.018	<0.011
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	3.1	0.016	E0.015	E0.017	<0.020
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	2.9	0.016	E0.015	<0.017	<0.010
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	2.8	0.016	E0.016	<0.016	<0.009
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	3.2	E0.012	<0.013	<0.015	<0.010
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	2.4	<0.016	<0.015	<0.016	<0.020

Table 7. Fluorescence spectral indicators of dissolved organic matter composition in surface water.

[All analyses performed at the U.S. Geological Survey California Water Science Center. Peaks A, C, M, D, and B from Coble and others (1990), Coble (1996), and Stedmon and others (2003); peak N from Coble and others (1998); fdom from Downing and others (2009). **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated value (between method detection limit (MDL) and lowest standard); fdom, fluorescence of dissolved organic matter; FI, fluorescence index, from Cory and McKnight (2005); hh:mm, hour:minute; HIX, humic index, from Ohno (2002); HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; RU, Raman units, definitions of peaks at excitation-emission (ex-em) pairs are based on Stedmon and others (2003); S, South; SF, South Fork; VLY, Valley; WA, Washington; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters				
					32304	32332	32309	32307	32305
					peak A ex-260em450 (RU)	peak C ex-340em440 (RU)	peak M ex-300em390 (RU)	peak D ex-390em510 (RU)	peak B ex-275em304 (RU)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	0.21	0.12	0.09	0.05	<0.2
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	0.08	0.04	E0.03	0.02	<0.2
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	0.10	0.05	0.04	0.03	E0.04
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.18	0.09	0.08	0.05	E0.15
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.15	0.08	0.07	0.04	E0.09
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.36	0.18	0.15	0.08	E0.04
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.67	0.33	0.31	0.14	E0.06
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	0.11	0.07	0.05	0.03	<0.2
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	0.10	0.06	0.05	0.03	E0.05
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	0.07	0.04	E0.03	0.02	<0.2
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.19	0.12	0.10	0.04	E0.04
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	0.30	0.16	0.13	0.07	<0.2
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	0.20	0.11	0.08	0.04	<0.2
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	0.14	0.07	0.06	0.02	<0.2
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	0.10	0.05	0.04	0.02	E0.02
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	0.10	0.05	0.04	0.02	<0.2
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	0.07	0.05	E0.03	0.02	<0.2
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	0.15	0.08	0.07	0.04	E0.04
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.08	0.04	E0.03	0.02	E0.1
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	0.06	0.03	E0.03	0.01	E0.06
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	0.07	0.04	E0.03	0.01	E0.04
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	0.15	0.08	0.06	0.03	E0.04
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.29	0.15	0.12	0.06	<0.2
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	0.17	0.09	0.07	0.03	<0.2
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	0.13	0.07	0.06	0.03	E0.03
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	0.05	0.03	E0.02	0.02	<0.2
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	0.05	0.03	E0.03	0.02	<0.2

Table 7. Fluorescence spectral indicators of dissolved organic matter composition in surface water.—Continued

[All analyses performed at the U.S. Geological Survey California Water Science Center. Peaks A, C, M, D, and B from Coble and others (1990), Coble (1996), and Stedmon and others (2003); peak N from Coble and others (1998); fdom from Downing and others (2009). **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated value (between method detection limit (MDL) and lowest standard); fdom, fluorescence of dissolved organic matter; FI, fluorescence index, from Cory and McKnight (2005); hh:mm, hour:minute; HIX, humic index, from Ohno (2002); HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; RU, Raman units, definitions of peaks at excitation-emission (ex-em) pairs are based on Stedmon and others (2003); S, South; SF, South Fork; VLY, Valley; WA, Washington; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters				
					32311	32310	32333	32312	32313
					peak T ex275em340 (RU)	peak N ex280em370 (RU)	fdom ex370em460 (RU)	FI	HIX
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	E0.04	0.05	0.09	1.6	0.88
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	E0.03	E0.03	0.04	1.8	0.79
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	E0.03	E0.03	0.04	1.5	0.78
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.09	0.08	0.08	1.6	0.74
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	E0.06	0.06	0.07	1.6	0.77
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.08	0.12	0.14	1.6	0.86
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.18	0.23	0.25	1.6	0.86
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	E0.02	E0.04	0.05	1.5	0.84
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	E0.03	E0.04	0.05	1.5	0.82
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	E0.03	E0.03	0.03	1.6	0.79
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.10	0.10	0.09	1.9	0.76
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	0.09	0.11	0.13	1.6	0.85
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	E0.05	0.07	0.08	1.5	0.87
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	E0.05	0.06	0.05	1.6	0.80
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	E0.05	E0.05	0.04	1.6	0.76
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	E0.04	E0.04	0.03	1.4	0.75
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	E0.04	E0.04	0.04	1.6	0.79
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	E0.07	0.06	0.07	1.7	0.79
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	E0.06	E0.04	0.04	1.5	0.65
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	E0.06	E0.04	0.02	1.5	0.60
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	E0.04	E0.04	0.03	1.6	0.69
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	E0.04	0.06	0.06	1.6	0.81
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.08	0.10	0.12	1.5	0.86
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	E0.04	0.06	0.07	1.6	0.83
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	E0.05	E0.05	0.06	1.5	0.81
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	E0.02	E0.02	0.03	1.6	0.78
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	E0.02	E0.02	0.03	1.6	0.85

Table 8. Surface-water concentration of nitrogen species.

[All analyses performed at U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; f-, filtered; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; N, nitrogen; nd, not determined; NF, North Fork; NH₃, ammonia; NH₄⁺, ammonium; NO₂⁻, nitrite; NO₃⁻, nitrate; Norg, organic nitrogen; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; u-, unfiltered; VLY, Valley; WA, Washington; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time (hh:mm)	Parameters (parameter code)				
					NH ₃ +Norg, f- (00623) (mg/L as N)	NH ₃ +Norg, u- (00625) (mg/L as N)	NO ₂ ⁻ , f- (00613) (mg/L as N)	NH ₃ +NH ₄ ⁺ , f- (00608) (mg/L as N)	NO ₃ ⁻ +NO ₂ ⁻ , f- (00631) (mg/L as N)
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	<0.05	0.06	<0.001	0.02	0.02
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	<0.05	0.07	0.003	<0.01	0.07
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	<0.05	<0.05	<0.001	<0.01	<0.02
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.16	0.15	<0.001	<0.01	0.03
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.07	0.05	<0.001	<0.01	0.10
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.14	0.12	<0.001	<0.01	<0.02
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.29	0.29	<0.001	<0.01	0.021
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	<0.07	0.07	<0.001	0.01	<0.04
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	0.09	<0.07	<0.001	<0.01	0.11
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	<0.07	<0.07	<0.001	<0.01	<0.04
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.13	0.16	0.001	<0.01	0.53
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	0.11	0.17	0.002	<0.01	0.05
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	0.07	0.10	0.001	<0.01	0.11
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	<0.07	0.14	<0.001	0.01	<0.04
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	0.09	0.13	<0.001	<0.01	<0.04
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	<0.07	<0.07	<0.001	<0.01	0.04
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	nd	nd	nd	nd	nd
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.09	0.11	<0.001	<0.01	<0.04
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	<0.07	<0.07	<0.001	<0.01	<0.04
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	0.09	<0.07	<0.001	<0.01	<0.04
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	<0.07	<0.07	<0.001	<0.01	<0.04
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	<0.07	0.10	0.001	<0.01	<0.04
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.13	0.11	<0.001	<0.01	<0.04
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	0.09	0.10	<0.001	<0.01	0.05
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	0.11	0.08	<0.001	<0.01	0.08
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	<0.07	<0.07	<0.001	<0.01	<0.04
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	<0.07	<0.07	<0.001	<0.01	<0.04

Table 9. Surface-water concentrations of phosphorus species, sulfate, and chloride.

[All analyses performed at U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cl⁻, chloride; f-orthoP, filtered ortho-phosphate; f-TP, filtered total phosphorus; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; R, River; RD, Road; S, South; SF, South Fork; SO₄²⁻, sulfate; u-TP, unfiltered total phosphorus; VLY, Valley; WA, Washington; < less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Parameters (parameter code)				
					u-TP (00665) (mg/L)	f-TP (00666) (mg/L)	f-orthoP (00671) (mg/L sd P)	SO ₄ ²⁻ (00945) (mg/L)	Cl ⁻ (00940) (mg/L)
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	<0.004	<0.003	0.005	4.6	1.0
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	0.004	<0.003	<0.004	0.70	0.67
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	0.013	0.009	0.016	1.1	0.70
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	0.009	<0.003	0.004	3.4	2.6
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	0.008	0.003	0.006	3.6	2.7
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	0.023	0.013	0.015	3.3	1.0
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	0.022	0.011	0.008	2.3	1.4
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	0.005	<0.003	0.005	0.57	1.6
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	<0.004	<0.003	0.004	3.1	2.7
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	0.011	0.008	0.010	1.4	0.52
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	0.22	0.195	0.19	4.2	3.6
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	0.014	0.007	0.004	2.3	3.4
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	<0.004	<0.003	<0.004	1.6	1.7
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	0.005	0.003	<0.004	1.2	4.2
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	0.005	<0.003	<0.004	1.16	0.63
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	<0.004	<0.003	0.011	0.37	0.21
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	nd	nd	nd	1.9	0.97
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	0.005	<0.003	<0.004	4.8	5.4
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	0.015	0.01	0.01504	1.3	0.88
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	<0.004	<0.003	<0.004	0.11	0.58
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	0.005	<0.003	<0.004	0.90	0.77
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	0.013	0.006	0.006	6.8	2.5
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	0.017	0.013	0.011	4.8	1.7
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	0.020	<0.003	<0.004	0.71	2.7
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	0.006	<0.003	0.004	0.35	3.3
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	0.006	<0.003	0.006	4.5	0.87
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	>0.004	<0.003	0.004	1.7	4.6

Table 10A. Surface-water concentrations of selected cations and trace elements.

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.) VLY, Valley; WA, Washington; µg/L, microgram per liter; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Al (01106)		As (01000)		B (01020)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.042	—	0.0039	—	0.86	—
2012 MDL						0.52	—	0.013	—	0.32	—
UCL 80 (mean+UCL 80)						0.62	—	0.010	—	1.6	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	8.9	—	0.13	—	1.8	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	8.3	—	0.59	—	6.0	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	8.5	—	0.60	—	5.7	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	2.2	—	0.30	—	43	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	1.4	—	0.43	—	39	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	1.6	—	0.38	—	39	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	3.1	—	0.83	—	10	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	5.2	—	0.60	—	7.8	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	5.2	—	0.32	—	6.6	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	5.0	—	0.28	—	6.2	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	5.3	—	0.08	—	2.3	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	4.6	—	0.03	—	1.7	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	27	—	0.87	—	17	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	13	—	0.33	—	13	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	6.0	—	0.18	—	3.5	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	5.7	—	0.26	—	3.6	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	9.9	—	0.21	—	5.9	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	21	—	0.16	—	1.2	V
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	3.5	—	0.07	—	2.5	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	1.9	—	0.35	—	59	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	1.4	—	0.53	—	110	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	4.1	—	0.06	—	2.7	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	2.5	—	0.19	—	8.0	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	12	—	1.2	—	35	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	7.9	—	0.80	—	15	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	8.2	—	0.74	—	15	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	7.0	—	0.21	—	3.6	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	6.5	—	0.33	—	20	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	2.9	—	0.31	—	3.3	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	2.2	—	0.26	—	4.6	—

Table 10A. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.) VLY, Valley; WA, Washington; µg/L, microgram per liter; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Ba (01005)		Be (01010)		Bi (01015)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0037	—	0.0010	—	0.0031	—
2012 MDL						0.0044	—	0.0021	—	0.0012	—
UCL 80 (mean+UCL 80)						16	—	0.0076	—	0.0090	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	4.9	V	0.007	V	0.015	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	17	—	0.007	V	0.0099	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	17	—	0.008	V	0.0073	V
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	8.5	V	0.009	—	0.0003	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	23	—	0.009	—	0.0059	V
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	21	—	0.009	—	0.0031	<
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	18	—	0.009	—	0.0031	<
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	22	—	0.010	—	0.012	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	30	—	0.007	V	0.018	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	7.5	V	0.007	V	0.0031	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	16	—	0.002	V	0.012	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	17	—	0.002	V	0.0018	V
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	77	—	0.002	V	0.0012	<
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	41	—	0.002	V	0.0012	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	49	—	0.002	V	0.0012	<
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	30	—	0.002	V	0.0018	V
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	31	—	0.002	V	0.0012	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	4.1	V	0.002	V	0.0033	V
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	34	—	0.002	V	0.0017	V
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	9.4	V	0.002	V	0.0017	V
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	24	—	0.002	V	0.0017	V
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	30	—	0.002	V	0.0022	V
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	19	—	0.002	V	0.041	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	26	—	0.002	V	0.013	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	28	—	0.002	V	0.033	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	32	—	0.002	V	0.0028	V
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	27	—	0.003	V	0.0096	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	24	—	0.002	V	0.0037	V
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	22	—	0.002	V	0.021	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	34	—	0.002	V	0.0074	V

Table 10A. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.) VLY, Valley; WA, Washington; µg/L, microgram per liter; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Ca (00915)		Cd (01025)	
						(mg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0078	—	0.00058	—
2012 MDL						0.0033	—	0.00023	—
UCL 80 (mean+UCL 80)						0.013	—	0.0014	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	2.6	—	0.0007	V
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	8.3	—	0.0055	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	8.4	—	0.0064	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	13	—	0.00058	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	15	—	0.0023	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	14	—	0.00095	V
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	17	—	0.00058	<
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	11	—	0.00058	<
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	7.7	—	0.00058	<
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	3.5	—	0.00058	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	4.2	—	0.0046	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	4.2	—	0.0017	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	7.4	—	0.079	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	9.7	—	0.0023	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	5.0	—	0.00083	V
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	3.5	—	0.00023	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	2.1	—	0.00023	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	1.9	—	0.0028	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	5.7	—	0.00023	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	14	—	0.0011	V
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	19	—	0.0023	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	2.9	—	0.00023	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	3.9	—	0.0016	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	17	—	0.091	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	18	—	0.00023	<
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	18	—	0.00023	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	3.1	—	0.00076	V
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	3.3	—	0.0074	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	8.9	—	0.040	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	6.2	—	0.0053	—

Table 10A. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.) VLY, Valley; WA, Washington; µg/L, microgram per liter; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Ce (01110)		Co (01035)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.00015	—	0.00057	—
2012 MDL						0.00020	—	0.0010	—
UCL 80 (mean+UCL 80)						0.00020	—	0.042	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.011	—	0.040	V
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.010	—	0.025	V
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0098	—	0.021	V
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0024	—	0.066	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.011	—	0.40	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.013	—	0.41	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.010	—	0.38	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.021	—	0.055	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0073	—	0.062	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0098	—	0.0074	V
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0068	—	0.11	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0059	—	0.070	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.026	—	0.13	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.025	—	0.036	V
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.011	—	0.035	V
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0092	—	0.012	V
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.020	—	0.027	V
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.026	—	0.038	V
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0069	—	0.020	V
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0027	—	0.076	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.011	—	0.17	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0019	—	0.015	V
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0040	—	0.075	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0060	—	0.047	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.015	—	0.042	V
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.017	—	0.037	V
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.024	—	0.035	V
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.014	—	0.013	V
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0025	—	0.015	V
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0036	—	0.0079	V

Table 10B. Surface-water concentrations of selected cations and trace elements.

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Gd, gadolinium; Ho, holmium; HWY, Highway; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; na, not applicable; NF, North Fork; NR, near; PH, Powerhouse; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Cr (01030)		Cs (01115)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.050	—	0.00089	—
2012 MDL						0.044	—	0.00085	—
UCL 80 (mean+UCL 80)						0.049	—	na	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.050	<	0.0009	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.24	—	0.0009	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.26	—	0.0009	<
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.24	—	0.032	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.23	—	0.0009	<
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.20	—	0.0009	<
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.17	—	0.0059	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.050	<	0.0009	<
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.050	<	0.021	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.050	<	0.058	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.044	<	0.0009	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.044	<	0.0009	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.21	—	0.0009	<
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.16	—	0.0009	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.21	—	0.0009	<
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.066	—	0.0009	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.69	—	0.0027	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.20	—	0.0009	<
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.19	—	0.0009	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.23	—	0.040	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.21	—	0.20	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.73	—	0.0009	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.89	—	0.0015	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.99	—	0.048	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.43	—	0.0043	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.19	—	0.0050	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	1.2	—	0.0009	<
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.22	—	0.027	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.37	—	0.0009	<
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.044	<	0.0016	—

Table 10B. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Gd, gadolinium; Ho, holmium; HWY, Highway; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; na, not applicable; NF, North Fork; NR, near; PH, Powerhouse; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Cu (01040)		Dy (82331)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0078	—	0.00011	—
2012 MDL						0.0091	—	0.00045	—
UCL 80 (mean+UCL 80)						0.22	—	0.00034	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.45	—	0.0028	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.47	—	0.0037	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.45	—	0.0034	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.17	V	0.0008	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.29	—	0.0020	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.22	V	0.0015	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.38	—	0.0017	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.58	—	0.0026	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.22	V	0.0012	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.084	V	0.0013	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.14	V	0.0011	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.13	V	0.0012	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	1.1	—	0.0084	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.61	—	0.0040	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.44	—	0.0028	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.34	—	0.0013	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.25	—	0.0023	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.28	—	0.0017	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.20	V	0.0006	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.21	V	0.0007	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.34	—	0.0010	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.15	V	0.0005	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.35	—	0.0010	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	2.1	—	0.0018	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.46	—	0.0018	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.44	—	0.0025	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.34	—	0.0031	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.18	V	0.0015	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.21	V	0.0017	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.33	—	0.0015	—

Table 10B. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Gd, gadolinium; Ho, holmium; HWY, Highway; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; na, not applicable; NF, North Fork; NR, near; PH, Powerhouse; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Er (50573)		Eu (50574)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.000091	—	0.000029	—
2012 MDL						0.00028	—	0.00010	—
UCL 80 (mean+UCL 80)						na	—	0.00011	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0021	—	0.00053	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0019	—	0.00079	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0020	—	0.00091	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0008	—	0.00030	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0009	—	0.00063	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0010	—	0.00043	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0013	—	0.00043	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0016	—	0.00064	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0009	—	0.00032	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0006	—	0.00044	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0011	—	0.00016	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0009	—	0.00060	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.0057	—	0.0024	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.0018	—	0.00085	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0019	—	0.00084	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0014	—	0.00010	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0021	—	0.00010	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0017	—	0.00058	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0006	—	0.00010	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0006	—	0.00010	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0012	—	0.00010	<
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0003	—	0.00010	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0007	—	0.00010	<
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0012	—	0.00011	V
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0014	—	0.00021	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0016	—	0.00013	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0018	—	0.00047	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0018	—	0.00019	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0011	—	0.00055	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0010	—	0.00045	—

Table 10B. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Gd, gadolinium; Ho, holmium; HWY, Highway; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; na, not applicable; NF, North Fork; NR, near; PH, Powerhouse; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Gd (50575)		Ho (50577)		K (00935)	
						(µg/L)	Q/R	(µg/L)	Q/R	(mg/L)	Q/R
2011 MDL						0.000066	—	0.000019	—	0.0026	—
2012 MDL						0.000077	—	0.000047	—	0.0054	—
UCL 80 (mean+UCL 80)						0.000089	—	0.000038	—	0.0046	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0022	—	0.00059	—	0.21	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0048	—	0.00070	—	0.32	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0044	—	0.00072	—	0.34	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0009	—	0.00025	—	1.0	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0019	—	0.00039	—	0.64	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0020	—	0.00045	—	0.62	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0019	—	0.00039	—	1.0	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0032	—	0.00060	—	1.4	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0011	—	0.00026	—	0.77	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0012	—	0.00033	—	0.73	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0019	—	0.00035	—	0.77	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0018	—	0.00022	—	0.77	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.037	—	0.0021	—	1.1	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.0038	—	0.00077	—	0.58	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0023	—	0.00041	—	0.29	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0013	—	0.00034	—	0.28	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0022	—	0.00036	—	0.47	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0033	—	0.00037	—	0.25	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0012	—	0.00023	—	0.77	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0010	—	0.00025	—	1.2	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0029	—	0.00041	—	0.98	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.00036	—	0.00005	<	0.26	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.00093	—	0.00019	—	0.31	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0024	—	0.00036	—	0.87	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0026	—	0.00065	—	1.1	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0028	—	0.00055	—	1.1	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0042	—	0.00058	—	0.48	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0016	—	0.00057	—	0.76	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0019	—	0.00031	—	0.34	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0023	—	0.00040	—	1.1	—

Table 10C. Surface-water concentrations of selected cations and trace elements.

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; Na, sodium; Nd, neodymium; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						La (01180)		Li (01130)		Lu (62844)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.00008	—	0.0070	—	0.000036	—
2012 MDL						0.00003	—	0.017	—	0.000050	—
UCL 80 (mean+UCL 80)						0.00025	—	0.014	—	0.000046	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.011	—	0.13	—	0.00044	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0094	—	0.39	—	0.00024	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0090	—	0.40	—	0.00030	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0025	—	1.5	—	0.00013	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0066	—	0.92	—	0.00016	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0072	—	0.73	—	0.00017	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0062	—	0.48	—	0.00024	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.012	—	0.36	—	0.00027	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0077	—	1.8	—	0.00041	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.011	—	1.9	—	0.00017	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0059	—	0.12	—	0.00020	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0061	—	0.11	—	0.00018	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.018	—	0.38	—	0.0010	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.014	—	0.50	—	0.00027	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.011	—	0.15	—	0.00038	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0072	—	0.18	—	0.00019	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.013	—	0.16	—	0.00051	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.019	—	0.10	—	0.00019	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0061	—	0.21	—	0.00014	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0024	—	1.9	—	0.00013	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0062	—	6.4	—	0.00019	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0018	—	0.045	—	0.00006	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0037	—	0.47	—	0.00015	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0043	—	2.3	—	0.00021	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0099	—	0.46	—	0.00034	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.010	—	0.47	—	0.00032	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.023	—	0.94	—	0.00042	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.014	—	5.0	—	0.00045	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0060	—	0.32	—	0.00028	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0091	—	0.53	—	0.00021	—

Table 10C. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; Na, sodium; Nd, neodymium; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Mg (00925)		Mn (01056)		Mo (01060)	
						(mg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0037	—	0.0021	—	0.083	—
2012 MDL						0.0007	—	0.0060	—	0.044	—
UCL 80 (mean+UCL 80)						0.0036	—	0.19	—	0.091	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.34	—	6.3	—	0.37	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	3.3	—	2.1	—	0.95	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	3.2	—	2.1	—	0.80	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	6.1	—	0.59	—	0.13	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	7.0	—	9.7	—	0.11	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	6.8	—	30	—	0.11	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	3.6	—	6.3	—	0.93	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	3.6	—	3.7	—	0.71	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	1.5	—	1.6	—	0.89	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.49	—	0.58	—	0.88	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	1.3	—	1.8	—	0.16	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	1.2	—	1.6	—	0.18	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	2.0	—	9.7	—	0.40	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	4.5	—	4.1	—	0.23	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.56	—	4.9	—	0.35	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.57	—	3.7	—	0.51	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.42	—	4.0	—	0.84	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.30	—	7.6	—	0.08	V
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	1.5	—	1.4	—	0.22	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	7.2	—	0.67	—	0.17	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	8.3	—	6.1	—	0.25	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.99	—	8.1	—	0.08	V
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	1.5	—	28	—	0.04	V
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	4.5	—	1.7	—	0.57	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	4.7	—	6.4	—	0.92	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	4.7	—	6.3	—	0.92	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.90	—	2.2	—	0.15	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	1.0	—	1.9	—	0.27	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	2.2	—	0.62	—	0.15	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	1.2	—	0.35	—	0.21	—

Table 10C. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; Na, sodium; Nd, neodymium; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Na (00930)		Nd (50579)		Ni (01065)	
						(mg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0025	—	0.00021	—	0.0056	—
2012 MDL						0.016	—	0.00032	—	0.0025	—
UCL 80 (mean+UCL 80)						0.017	—	0.00029	—	0.51	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	1.1	—	0.014	—	0.089	V
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	2.4	—	0.013	—	0.56	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	2.4	—	0.012	—	0.56	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	4.0	—	0.0037	—	0.65	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	5.7	—	0.0091	—	1.3	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	5.4	—	0.0092	—	1.7	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	4.3	—	0.0076	—	0.31	V
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	5.0	—	0.014	—	0.25	V
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	3.2	—	0.0072	—	0.21	V
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	2.2	—	0.0074	—	0.05	V
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	2.7	—	0.0080	—	0.76	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	2.7	—	0.0081	—	0.35	V
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	4.3	—	0.027	—	2.5	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	3.8	—	0.018	—	0.87	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	2.1	—	0.012	—	1.1	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	1.3	—	0.0072	—	0.57	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	4.3	—	0.014	—	0.96	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.71	—	0.019	—	0.70	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	2.5	—	0.0060	—	0.52	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	5.1	—	0.0041	—	0.73	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	9.8	—	0.0083	—	1.3	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	1.3	—	0.0019	—	1.2	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	2.0	—	0.0038	—	3.1	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	5.1	—	0.0063	—	2.7	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	5.9	—	0.012	—	0.98	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	5.9	—	0.011	—	0.43	V
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	2.0	—	0.022	—	1.6	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	2.8	—	0.015	—	0.51	V
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	2.0	—	0.0060	—	0.87	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	2.7	—	0.011	—	0.28	V

Table 10C. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; Na, sodium; Nd, neodymium; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						P (01072)		Pb (01049)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.58	—	0.0030	—
2012 MDL						0.64	—	0.0033	—
UCL 80 (mean+UCL 80)						0.76	—	0.0042	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.58	<	0.044	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	2.3	—	0.059	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	1.7	—	0.036	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	8.5	—	0.0030	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	1.2	—	0.0032	V
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.78	—	0.0030	<
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	14	—	0.0063	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	9.9	—	0.032	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	4.3	—	0.030	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.58	<	0.0044	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	8.7	—	0.0033	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	7.8	—	0.0033	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	190	—	0.049	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	5.1	—	0.017	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.64	<	0.0089	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	1.4	—	0.0038	V
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	1.9	—	0.0094	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	2.1	—	0.0058	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	2.2	—	0.0033	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	13	—	0.0033	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	2.0	—	0.0033	<
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	1.3	—	0.0033	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	1.5	—	0.0093	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	4.6	—	0.15	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	12	—	0.0068	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	12	—	0.0056	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.82	—	0.0042	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	3.0	—	0.0033	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	3.5	—	0.0042	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	1.3	—	0.0033	<

Table 10D. Surface-water concentrations of selected cations and trace elements.

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; SiO₂, silica; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Pr (50582)		Rb (01135)		Re (50583)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.000047	—	0.0029	—	0.0001	—
2012 MDL						0.00010	—	0.0035	—	0.0001	—
UCL 80 (mean+UCL 80)						0.000081	—	0.0066	—	na	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0031	—	0.50	—	0.0002	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0027	—	0.58	—	0.0008	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0026	—	0.63	—	0.0008	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.00068	—	2.4	—	0.0003	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0018	—	0.54	—	0.0013	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0018	—	0.49	—	0.0011	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0016	—	1.3	—	0.0007	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0032	—	1.7	—	0.0005	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0016	—	1.3	—	0.0007	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0022	—	1.4	—	0.0002	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0016	—	1.2	—	0.0001	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0015	—	1.2	—	0.0001	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.0057	—	1.4	—	0.0009	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.0037	—	0.40	—	0.0011	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0027	—	0.64	—	0.0005	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0018	—	0.58	—	0.0003	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0033	—	1.2	—	0.0004	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0049	—	0.68	—	0.0002	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0012	—	1.3	—	0.0002	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.00082	—	2.7	—	0.0002	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0017	—	1.5	—	0.0017	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.00021	—	0.61	—	0.0002	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.00074	—	0.53	—	0.00014	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0014	—	0.95	—	0.0015	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0025	—	1.0	—	0.0010	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0015	—	1.2	—	0.0001	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0051	—	0.93	—	0.0003	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0033	—	1.6	—	0.0001	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0016	—	0.49	—	0.0007	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0019	—	1.8	—	0.0004	—

Table 10D. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; SiO₂, silica; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						S (50932)		Sb (01095)		Se (01145)	
						(mg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.063	—	0.0054	—	0.056	—
2012 MDL						0.057	—	0.036	—	0.055	—
UCL 80 (mean+UCL 80)						0.062	—	0.028	—	0.056	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.29	—	0.015	V	0.056	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	1.8	—	0.053	—	0.056	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	1.7	—	0.044	—	0.077	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.55	—	0.029	—	0.056	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	1.5	—	0.059	—	0.077	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	1.4	—	0.053	—	0.083	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	1.4	—	0.044	—	0.075	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	1.0	—	0.027	V	0.056	<
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	1.2	—	0.026	V	0.058	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.27	—	0.015	V	0.056	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.55	—	0.036	<	0.055	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.49	—	0.036	<	0.055	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	1.8	—	0.044	—	0.055	<
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	1.0	—	0.052	—	0.055	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.66	—	0.036	<	0.055	<
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.46	—	0.036	<	0.055	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.49	—	0.061	—	0.055	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.16	—	0.036	<	0.055	<
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.59	—	0.036	<	0.055	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.67	—	0.036	<	0.055	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	2.1	—	0.10	—	0.055	<
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.12	—	0.036	<	0.055	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.43	—	0.036	<	0.055	<
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	2.9	—	0.036	<	0.063	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	2.0	—	0.036	<	0.055	<
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.49	—	0.036	<	0.055	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.31	—	0.036	<	0.055	<
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.16	—	0.036	<	0.055	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	1.9	—	0.036	<	0.055	<
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.76	—	0.036	<	0.055	<

Table 10D. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; SiO₂, silica; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						SiO ₂ (00955)		Sm (82323)		Sn (01100)	
						(mg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0032	—	0.000067	—	0.027	—
2012 MDL						0.023	—	0.00061	—	0.040	—
UCL 80 (mean+UCL 80)						0.28	—	0.00044	—	0.044	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	7.1	—	0.0025	—	0.027	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	13	—	0.0038	—	0.027	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	13	—	0.0033	—	0.027	<
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	24	—	0.0010	—	0.027	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	14	—	0.0025	—	0.027	<
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	16	—	0.0020	—	0.027	<
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	15	—	0.0017	—	0.027	<
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	12	—	0.0031	—	0.027	<
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	14	—	0.0013	—	0.027	<
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	12	—	0.0011	—	0.027	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	17	—	0.0012	—	0.040	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	17	—	0.0011	—	0.040	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	12	—	0.0071	—	0.061	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	13	—	0.0042	—	0.040	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	7.5	—	0.0008	—	0.040	<
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	7.7	—	0.0006	<	0.040	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	5.4	—	0.0032	—	0.050	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	6.2	—	0.0033	—	0.040	<
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	14	—	0.0012	—	0.040	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	24	—	0.0007	—	0.040	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	14	—	0.0028	—	0.040	<
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	8.3	—	0.0006	<	0.040	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	10	—	0.0006	<	0.040	<
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	13	—	0.0018	—	0.040	<
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	15	—	0.0027	—	0.040	<
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	17	—	0.0011	—	0.040	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	7.8	—	0.0033	—	0.040	<
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	12	—	0.0029	—	0.040	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	11	—	0.0014	—	0.040	<
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	12	—	0.0019	—	0.040	<

Table 10D. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; mg/L, milligram per liter; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; SiO₂, silica; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); VLY, Valley; WA, Washington; µg/L, microgram per liter; —, no data; <, less than]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)			
						Sr (01080)		Tb (50586)	
						(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.011	—	0.000013	—
2012 MDL						0.017	—	0.000055	—
UCL 80 (mean+UCL 80)						0.24	—	0.000042	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	20	—	0.00041	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	54	—	0.00062	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	54	—	0.00056	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	75	—	0.00017	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	76	—	0.00028	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	70	—	0.00031	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	95	—	0.00028	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	130	—	0.00047	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	55	—	0.00019	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	36	—	0.00022	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	59	—	0.00015	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	58	—	0.00016	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	39	—	0.0012	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	54	—	0.00086	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	33	—	0.00030	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	27	—	0.00022	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	18	—	0.00033	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	16	—	0.00043	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	57	—	0.00022	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	80	—	0.00014	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	90	—	0.00022	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	36	—	0.000055	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	36	—	0.00012	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	85	—	0.00021	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	100	—	0.00035	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	58	—	0.00016	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	32	—	0.00044	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	42	—	0.00029	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	64	—	0.00024	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	56	—	0.00036	—

Table 10E. Surface-water concentrations of selected cations and trace elements.

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Te (50585)		Th (82365)		Ti (01150)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0015	—	0.00014	—	0.31	—
2012 MDL						0.0014	—	0.00021	—	0.24	—
UCL 80 (mean+UCL 80)						0.0020	—	0.00063	—	0.31	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0015	<	0.0015	—	0.31	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0024	—	0.0019	—	0.31	<
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0015	<	0.00048	V	0.31	<
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0015	<	0.00014	<	0.31	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0015	<	0.0013	—	0.31	<
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0015	<	0.00039	V	0.31	<
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0015	<	0.0011	—	0.31	<
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0015	<	0.0018	—	0.31	<
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0015	<	0.0026	—	0.31	<
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0015	<	0.0013	—	0.31	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0014	<	0.0018	—	0.24	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0014	<	0.00050	V	0.24	<
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.0014	<	0.0014	—	0.30	V
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.0014	<	0.0018	—	0.24	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0014	<	0.0015	—	0.24	<
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0014	<	0.00047	V	0.24	<
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0014	<	0.0017	—	0.24	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0014	<	0.0013	—	0.32	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0014	<	0.00021	<	0.24	<
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0014	<	0.00038	V	0.24	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0037	—	0.00085	—	0.24	<
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0014	<	0.00060	V	0.24	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0014	<	0.00053	V	0.24	<
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0014	<	0.00062	V	1.0	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0014	<	0.0015	—	0.24	<
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0014	<	0.00050	V	0.24	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0014	<	0.0030	—	0.24	<
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0014	<	0.0021	—	0.24	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0030	—	0.00042	V	0.24	<
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0015	V	0.00037	V	0.24	<

Table 10E. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Tl (01057)		Tm (50587)		U (22703)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.00039	—	0.000019	—	0.00026	—
2012 MDL						0.00046	—	0.000057	—	0.00021	—
UCL 80 (mean+UCL 80)						0.00051	—	0.000046	—	0.00043	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0016	—	0.00032	—	0.047	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0022	—	0.00030	—	0.062	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0023	—	0.00027	—	0.064	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0012	—	0.00009	—	0.18	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0026	—	0.00016	—	0.052	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0020	—	0.00012	—	0.036	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0016	—	0.00019	—	0.62	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0017	—	0.00027	—	0.63	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0030	—	0.00027	—	0.26	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0027	—	0.00018	—	0.36	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0024	—	0.00014	—	0.0048	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0021	—	0.00024	—	0.0054	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.0011	—	0.00099	—	0.010	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.00078	—	0.00047	—	0.0050	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0013	—	0.00030	—	0.042	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0012	—	0.00023	—	0.056	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0022	—	0.00040	—	0.053	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0024	—	0.00020	—	0.023	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0022	—	0.00018	—	0.015	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0011	—	0.00012	—	0.21	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0014	—	0.00018	—	0.072	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0024	—	0.00006	—	0.0016	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0014	—	0.00012	—	0.0036	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0065	—	0.00023	—	0.28	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0016	—	0.00028	—	0.56	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0021	—	0.00024	—	0.0054	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0015	—	0.00037	—	0.10	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0012	—	0.00041	—	0.12	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.00065	—	0.00019	—	0.040	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0020	—	0.00030	—	0.010	—

Table 10E. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						V (01085)		W (01155)		Y (01201)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.0029	—	0.0025	—	0.000094	—
2012 MDL						0.023	—	0.0064	—	0.000079	—
UCL 80 (mean+UCL 80)						na	—	0.53	—	0.00027	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.11	—	0.017	V	0.018	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.25	—	0.055	V	0.022	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.25	—	0.057	V	0.022	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	2.0	—	0.0066	V	0.0090	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.69	—	0.0047	V	0.012	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.59	—	0.0048	V	0.013	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	1.2	—	0.27	V	0.012	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	1.4	—	0.12	V	0.018	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.35	—	0.075	V	0.0089	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.29	—	0.073	V	0.0083	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.59	—	0.0095	V	0.0090	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.59	—	0.0064	<	0.0090	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.45	—	0.62	—	0.068	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.55	—	0.0064	<	0.021	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.11	—	0.011	V	0.016	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.11	—	0.028	V	0.010	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.23	—	0.086	V	0.013	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.16	—	0.012	V	0.017	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.49	—	0.0064	<	0.0060	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	2.3	—	0.24	V	0.0088	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.68	—	0.0070	V	0.014	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.15	—	0.012	V	0.0027	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.10	—	0.023	V	0.0061	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.63	—	0.078	V	0.012	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.89	—	0.22	V	0.017	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.59	—	0.0064	<	0.0090	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.24	—	0.0082	V	0.022	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.34	—	0.023	V	0.015	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.21	—	0.0064	<	0.012	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.54	—	0.019	V	0.013	—

Table 10E. Surface-water concentrations of selected cations and trace elements.—Continued

[The 2011 samples are the average of two runs' raw results. Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; hh:mm, hour:minute; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; na, not available; NF, North Fork; NR, near; PH, Powerhouse; PST, Pacific Standard Time; Q/R, qualifier or remark code; R, River (station name); RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; UCL 80, upper confidence limit, 80th percentile, of blanks. (See text for explanation of "V" code.); V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter]

Station name	Station ID	Project ID	Date (mm/dd/yyyy)	Time PST (hh:mm)	Replicate	Parameters (parameter code)					
						Yb (01194)		Zn (01090)		Zr (01160)	
						(µg/L)	Q/R	(µg/L)	Q/R	(µg/L)	Q/R
2011 MDL						0.00006	—	0.050	—	0.00094	—
2012 MDL						0.00022	—	0.081	—	0.0050	—
UCL 80 (mean+UCL 80)						0.00017	—	2.8	—	0.0040	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-001	09/07/2011	15:20	—	0.0024	—	0.40	V	0.031	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-002	09/07/2011	11:10	R1	0.0018	—	1.8	V	0.015	—
S YUBA R BLW POORMAN CRK NR WA	392119120484901	SNI-003	09/07/2011	11:15	R2	0.0017	—	1.6	V	0.012	—
BELDEN PH A BELDEN CA	11403050	SNI-005	09/19/2011	15:40	—	0.0006	—	0.17	V	0.007	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-006	09/20/2011	10:50	—	0.0012	—	0.31	V	0.011	—
SPANISH CREEK NR EAST QUINCEY CA	395830120542501	SNI-007	09/20/2011	16:00	—	0.0013	—	0.14	V	0.006	—
MF FEATHER R A SLOAT CA	11393000	SNI-009	09/21/2011	12:30	—	0.0014	—	0.11	V	0.017	—
MF FEATHER R NR DELLEKER CA	394647120314501	SNI-011	09/22/2011	13:00	—	0.0020	—	0.10	V	0.026	—
MERCED R AB BM1186 NR BRICEBURG CA	373637119573801	SNI-012	11/03/2011	11:00	—	0.0019	—	0.34	V	0.010	—
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	374017119472301	SNI-013	11/02/2011	13:00	—	0.0008	—	0.11	V	0.0028	V
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-040	08/30/2012	14:30	R1	0.0011	—	0.90	V	0.044	—
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	383403120272101	SNI-041	08/30/2012	14:35	R2	0.0010	—	0.43	V	0.033	—
WOLF C NR LA BARR MEADOWS CA	390955121034101	SNI-042	09/06/2012	14:30	—	0.0058	—	20	—	0.17	—
S WOLF C NR CHICAGO PARK CA	390722121013901	SNI-043	09/06/2012	16:00	—	0.0019	—	8.3	—	0.12	—
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	391911120392201	SNI-044	09/20/2012	11:30	—	0.0017	—	6.9	—	0.12	—
SF DEER C NR WASHINGTON CA	391754120504801	SNI-045	09/25/2012	13:10	—	0.0014	—	4.5	—	0.066	—
S YUBA R NR CISCO CA	11414000	SNI-046	09/25/2012	15:00	—	0.0025	—	3.6	—	0.056	—
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	392122120364501	SNI-047	10/01/2012	13:40	—	0.0017	—	0.49	V	0.059	—
MF CONSUMES R NR OMO RANCH CA	383632120365101	SNI-048	10/03/2012	12:00	—	0.0004	—	2.4	V	0.029	—
BELDEN PH A BELDEN CA	11403050	SNI-049	10/16/2012	14:50	—	0.0013	—	0.30	V	0.042	—
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	400129120580701	SNI-050	10/16/2012	10:20	—	0.0010	—	0.37	V	0.057	—
SF FEATHER R NR LA PORTE CA	394034121051801	SNI-051	10/17/2012	12:00	—	0.0002	<	2.3	V	0.038	—
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	393302121124501	SNI-052	10/31/2012	11:10	—	0.0006	—	3.6	—	0.034	—
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	394237121161801	SNI-053	10/31/2012	14:30	—	0.0008	—	15	—	0.046	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNI-054	11/07/2012	14:30	R1	0.0018	—	2.0	V	0.12	—
MF FEATHER R ABV BRAY C NR SLOAT CA	395141120504901	SNQ-054	11/07/2012	14:35	R2	0.0010	—	0.43	V	0.11	—
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	384634120445301	SNI-055	11/14/2012	11:30	—	0.0025	—	1.8	V	0.81	—
SILVER FORK OF AMERICAN R NR KYBURZ CA	384526120162901	SNI-056	11/14/2012	15:00	—	0.0022	—	2.4	V	0.070	—
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	390120120431601	SNI-057	11/15/2012	11:20	—	0.0010	—	5.7	—	0.049	—
RUBICON R NR VOLCANOVILLE CA	385957120432401	SNI-058	11/15/2012	13:20	—	0.0011	—	3.4	—	0.042	—

Table 11. Sediment data for concentrations of mercury, methylmercury, reactive mercury, iron species, and total reduced sulfur in sediment less than 2 millimeters in diameter.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated; Fe(II), ferrous iron; Fe(III)_a, poorly crystalline ferric iron; Fe(III)_c, crystalline ferric iron; g/cm³, gram per cubic centimeter; Hg(II)_R, reactive inorganic mercury; HWY, Highway; ID, identification; LK, Lake; LOI, loss on ignition; MDL, method detection limit; MeHg, methylmercury; MF, Middle Fork; mg/g, milligram per gram; MI, mile; mL PW/cm³, milliliter porewater per cubic centimeter; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg, total mercury; TRS, total reduced sulfur; VLY, Valley; WA, Washington; wt, weight; μM, micromoles; —, no data]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Parameters (parameter code)					
				Bulk density (51339) (g/cm ³) wet wt	Percent LOI (51335)	MeHg (51351) (ng/g) dry wt	Porosity (51343) (mL PW/cm ³) wet wt	Percent dry wt (51331)	Fe(II) (52676) (mg/g) dry wt
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1.79	0.7	0.07	0.52	71.0	0.10
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1.94	0.6	0.31	0.43	78.1	0.23
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1.80	1.8	0.18	0.53	70.2	0.53
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1.80	1.9	0.31	0.49	72.9	0.87
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1.80	1.9	0.16	0.51	71.8	0.88
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1.77	1.6	0.27	0.51	71.4	1.56
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1.85	0.9	0.07	0.47	74.5	1.03
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1.70	1.9	0.66	0.54	68.5	1.11
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1.80	0.7	0.11	0.51	71.9	0.45
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	1.90	0.7	0.10	0.45	76.2	0.24
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	1.79	3.3	0.40	0.49	72.5	0.53
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	1.77	2.9	1.00	0.52	70.7	0.21
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	1.75	0.7	E0.022	0.44	74.8	0.08
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	1.63	5.1	0.14	0.60	63.4	0.09
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	1.72	1.2	E0.044	0.53	69.0	0.23
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	1.88	0.8	0.07	0.45	75.9	0.13
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1.83	0.9	0.04	0.49	73.3	0.30
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1.85	1.5	0.03	0.50	73.1	0.24
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1.81	0.8	0.12	0.47	74.2	0.27
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1.50	7.1	0.12	0.67	55.0	0.10
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1.85	1.8	0.06	0.48	74.3	0.16
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1.87	0.7	0.08	0.48	74.6	0.53
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	1.68	1.2	0.30	0.56	66.6	0.70
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1.81	1.2	0.15	0.49	73.2	0.56
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1.79	0.6	<0.05	0.48	73.4	0.13
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1.83	1.0	0.10	0.44	75.8	0.08
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1.88	0.7	<0.05	0.46	75.3	0.35

Table 11. Sediment data for concentrations of mercury, methylmercury, reactive mercury, iron species, and total reduced sulfur in sediment less than 2 millimeters in diameter.—Continued

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; E, estimated; Fe(II), ferrous iron; Fe(III)_a, poorly crystalline ferric iron; Fe(III)_c, crystalline ferric iron; g/cm³, gram per cubic centimeter; Hg(II)_R, reactive inorganic mercury; HWY, Highway; ID, identification; LK, Lake; LOI, loss on ignition; MDL, method detection limit; MeHg, methylmercury; MF, Middle Fork; mg/g, milligram per gram; MI, mile; mL PW/cm³, milliliter porewater per cubic centimeter; mm/dd/yyyy, month/day/year; nd, not determined; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg, total mercury; TRS, total reduced sulfur; VLY, Valley; WA, Washington; wt, weight; μM, micromoles; —, no data]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Parameters (parameter code)						
				Fe(III) _a (52677)	Fe(III) _c (52678)	TRS (52771)	THg (51347)	Hg(II) _R (52671)	Hg(II) _R (—)	MeHg (—)
				(mg/g) dry wt	(mg/g) dry wt	(μmol/g) dry wt	(ng/g) dry wt	(ng/g) dry wt	(percent of THg)	(percent of THg)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	0.24	4.46	0.27	E6.4	0.52	8.08	1.02
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	0.15	8.54	0.61	178	0.18	0.10	0.17
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	0.46	6.57	3.52	10.5	0.09	0.86	1.73
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	0.42	11.7	0.58	21.6	0.18	0.83	1.45
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	0.40	11.1	E0.19	22.4	0.22	0.99	0.73
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	0.23	4.90	1.01	26.6	0.08	0.30	1.03
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	0.18	3.63	0.39	160	<MDL	nd	0.04
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	0.30	2.86	2.46	9.0	0.04	0.48	7.32
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	0.09	0.89	0.60	E1.4	0.04	2.55	7.55
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	0.13	3.29	0.58	E2.4	0.04	1.63	4.04
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	0.31	43.2	0.65	52.9	0.97	1.83	0.76
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	0.43	21.4	4.68	381	2.82	0.74	0.26
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	0.20	9.12	0.79	E8.0	0.20	2.45	0.28
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	0.62	16.0	0.55	19.4	0.16	0.85	0.71
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	0.26	4.55	0.59	E3.5	0.93	26.7	1.26
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	0.24	4.88	0.21	9.1	0.24	2.67	0.74
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	0.21	3.48	E0.18	E3.7	0.11	2.99	1.04
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	0.34	7.42	2.56	E7.4	0.13	1.79	0.42
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	0.30	11.2	0.32	13.7	0.15	1.12	0.89
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	0.62	25.4	0.29	31.2	0.25	0.81	0.39
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	0.48	10.3	0.27	E4.6	0.35	7.63	1.30
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	0.23	6.59	0.82	9.1	0.10	1.07	0.84
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	0.28	6.79	0.99	26.4	0.07	0.26	1.16
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	0.28	4.85	1.18	E4.5	0.16	3.46	3.25
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	0.24	5.22	E0.06	E1.1	0.08	7.37	nd
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	0.11	9.07	1.00	21.5	0.60	2.79	0.46
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	0.14	3.63	5.00	E1.3	0.05	E1.3	nd

Table 12. Sediment data for concentrations of total mercury, iron species, and total reduced sulfur in sediment less than 0.063 millimeters in diameter.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Fe(II), ferrous iron; Fe(III)_{po}, poorly crystalline ferric iron; Fe(III)_{cr}, crystalline ferric iron; g/cm³, gram per cubic centimeter; HWY, Highway; ID, identification; LK, Lake; LOI, loss on ignition; MF, Middle Fork; mg/g, milligram per gram; MI, mile; mL PW/cm³, milliliter porewater per cubic centimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg, total mercury; TRS, total reduced sulfur; VLY, Valley; WA, Washington; wt, weight; μ mol/g, micromole per gram]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Parameters (parameter code)			
				Bulk density (51340) (g/cm ³) wet wt	Percent LOI (51336)	Porosity (51344) (mL PW/cm ³) wet wt	Percent dry wt (51332)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1.28	17.6	0.74	42.23
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1.37	7.7	0.72	47.35
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1.30	13.7	0.66	49.03
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1.43	7.5	0.59	58.70
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1.52	6.7	0.64	57.95
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1.50	7.2	0.67	55.57
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1.34	11.0	0.63	53.08
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1.30	12.6	0.61	52.79
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1.29	13.7	0.73	43.73
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	8/30/2012	1.15	23.6	0.74	35.83
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	1.42	11.3	0.67	52.63
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	1.37	13.7	0.65	52.54
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	1.17	19.8	0.78	32.81
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	1.47	9.5	0.60	58.89
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	1.26	15.0	0.71	44.07
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	1.19	19.7	0.77	35.58
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1.22	16.2	0.75	38.54
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1.27	15.6	0.70	44.61
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1.43	8.9	0.65	54.75
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1.25	26.3	0.69	45.03
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1.41	8.5	0.62	55.86
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1.41	4.5	0.62	55.97
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	1.39	9.6	0.67	51.96
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1.38	11.2	0.63	54.06
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1.10	17.8	0.74	32.65
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1.44	5.5	0.66	54.39
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1.26	10.0	0.73	41.53

Table 12. Sediment data for concentrations of total mercury, iron species, and total reduced sulfur in sediment less than 0.063 millimeters in diameter.—Continued

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Fe(II), ferrous iron; Fe(III)_a, poorly crystalline ferric iron; Fe(III)_c, crystalline ferric iron; g/cm³, gram per cubic centimeter; HWY, Highway; ID, identification; LK, Lake; LOI, loss on ignition; MF, Middle Fork; mg/g, milligram per gram; MI, mile; mL PW/cm³, milliliter porewater per cubic centimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; THg, total mercury; TRS, total reduced sulfur; VLY, Valley; WA, Washington; wt, weight; μ mol/g, micromole per gram]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Parameters (parameter code)				
				THg (51348) (ng/g) dry wt	Fe(II) (52679) (mg/g) dry wt	Fe(III) _a (52680) (mg/g) dry wt	Fe(III) _c (52681) (mg/g) dry wt	TRS (52772) (μ mol/g) dry wt
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	197	0.58	1.77	21.0	1.04
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1,260	0.70	1.64	19.0	1.13
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	41.4	0.42	0.99	16.2	0.99
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	70.2	0.25	0.83	19.5	1.16
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	61.9	0.25	1.24	20.8	1.28
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	105	0.42	0.77	13.6	0.73
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	43.4	0.43	0.93	11.2	1.01
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	64.7	1.38	0.48	12.1	1.04
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	47.4	1.68	0.76	14.2	1.15
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	98.8	1.62	5.15	15.2	0.79
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	1,410	0.73	7.54	41.9	1.35
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	215	0.60	6.63	37.5	0.57
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	178	0.91	18.2	22.8	0.83
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	49.9	0.25	2.86	18.3	1.09
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	70.3	0.57	8.65	15.1	1.31
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	306	0.67	9.72	13.7	0.75
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	94.7	3.03	3.77	12.6	1.01
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	45.3	0.59	5.97	15.1	1.00
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	71.4	2.52	3.00	16.1	1.82
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	165	0.52	4.70	26.5	0.35
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	55.1	0.31	11.4	18.6	0.30
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	51.0	2.05	3.17	10.3	2.02
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	217	3.17	2.25	11.1	2.13
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	66.4	0.51	3.13	17.1	1.36
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	58.8	0.61	7.14	12.4	0.31
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	210	0.51	1.55	16.8	1.11
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	E28.1	4.65	1.25	3.30	0.73

Table 13. Sediment data for grain-size distribution.

[Percent clay, percent silt, percent sand, D50, and mean grain size determined by Coulter analysis in U.S. Geological Survey California Water Science Center; Coulter analyses done with dispersing agent. **Abbreviations:** A, at; AB, above; ABV, above; BLW, below; C, Creek; CA, California; CRK, Creek; D50, median diameter of the particle-size distribution; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; <, less than]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Percent clay ¹	Percent silt ²	Percent sand ³	D50, grain size (mm)	Mean grain size (mm)	Percent <0.063 mm by Coulter
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1.06	5.52	93.42	0.55	0.64	6.58
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1.36	6.65	91.99	0.53	0.63	8.01
S YUBA R BLW POORMAN CRK NR WA	SNS-003	392119120484901	09/07/2011	1.87	7.93	90.20	0.64	0.69	9.80
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	5.28	18.44	76.27	0.47	0.59	23.73
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1.56	11.70	86.74	0.39	0.46	13.26
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	2.34	12.82	84.84	0.28	0.38	15.16
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	3.81	15.63	80.56	0.38	0.49	8.71
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	2.17	12.25	85.58	0.48	0.57	14.42
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1.39	12.68	85.94	0.25	0.32	15.53
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	0.49	2.64	96.87	0.39	0.43	3.13
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	1.15	7.14	91.71	0.62	0.69	8.29
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	1.63	9.08	89.30	0.43	0.48	10.70
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3.26	12.24	84.50	0.37	0.51	15.50
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2.29	12.50	85.21	0.86	0.86	14.79
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	1.63	8.63	89.74	0.44	0.52	10.26
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	1.01	6.33	92.66	0.47	0.56	7.34
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	1.41	6.07	92.52	0.60	0.63	7.48
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	0.86	4.28	94.86	0.61	0.63	5.14
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1.96	9.15	88.89	0.72	0.76	11.11
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1.92	10.65	87.43	0.68	0.76	14.32
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	2.80	32.85	64.35	0.10	0.23	35.65
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	5.24	30.67	64.09	0.20	0.46	35.91
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	0.75	4.34	94.91	0.40	0.44	5.09
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	0.94	7.06	92.00	0.30	0.36	8.00
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1.85	16.05	82.10	0.31	0.47	7.90
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1.31	5.28	93.40	0.66	0.70	6.60
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1.51	9.75	88.74	0.56	0.64	11.26
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1.06	6.79	92.15	0.65	0.70	7.85

¹Calculation of percent clay; clay is defined by material less than 0.004 mm (Wentworth, 1922).

²Calculation of percent silt; silt is defined by material less than 0.063 mm and greater than or equal to 0.004 mm (Wentworth, 1922).

³Calculation of percent sand; sand is defined by material less than 2 mm and greater than or equal to 0.063 mm (Wentworth, 1922).

Table 14A. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)				
					Al (03926) (percentage)	As (03933) (µg/g)	B (52789) (µg/g)	Ba (03921) (µg/g)	Be (03938) (µg/g)
2011 MDL					0.0020	0.072	2.3	0.31	0.055
2012 MDL					0.0030	0.10	1.8	0.056	0.0049
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	7.1	35	35	740	1.5
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	8.0	63	39	3,230	2.2
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	7.9	15	42	676	1.2
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	7.5	14	40	678	1.3
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	8.4	16	35	738	1.4
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	8.6	17	14	686	1.2
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	7.7	7.2	16	627	0.90
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	7.9	15	31	1,200	1.8
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	4.4	16	10	461	1.0
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	7.5	2.5	11	657	1.6
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	11	57	12	475	1.0
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	8.8	13	43	517	1.2
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	5.6	37	26	604	1.9
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	8.3	11	33	671	1.6
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	7.5	24	16	669	1.7
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	7.3	25	96	546	1.8
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	8.2	3.7	16	620	1.7
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	6.9	13	40	630	1.1
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	7.3	19	51	665	1.6
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	7.9	58	14	803	1.4
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	7.9	18	8.2	501	0.71
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	7.5	11	26	545	1.2
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	7.8	12	17	589	1.0
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	9.7	55	16	681	1.5
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	7.1	16	14	738	1.5
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	7.7	18	50	990	2.1
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	8.1	5.6	39	1,020	1.6

Table 14A. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.—Continued

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; BL and BLW, below; C and CRK, Creek; Ca, calcium; CA, California; Cd, cadmium; Ce, cerium; Co, cobalt; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)				
					Bi (52790) (µg/g)	Ca (03954) (percentage)	Cd (03925) (µg/g)	Ce (52791) (µg/g)	Co (03950) (µg/g)
2011 MDL					0.080	0.018	0.0073	0.015	0.0073
2012 MDL					0.054	0.079	0.011	0.0054	8.6
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	0.54	2.4	1.5	56	37
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	0.47	0.93	1.4	71	36
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	0.22	2.3	0.64	39	39
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	0.25	1.4	0.50	49	38
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	0.25	1.4	0.36	50	55
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	0.40	2.4	0.47	42	26
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	0.17	2.0	0.24	34	21
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	0.35	1.7	0.79	84	18
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	0.45	1.5	0.26	85	12
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	0.79	2.5	0.38	70	36
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	0.48	1.2	1.9	33	40
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	0.23	0.76	0.41	41	28
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	0.42	1.8	0.32	56	39
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	0.24	0.92	0.41	67	27
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	0.36	2.5	0.32	50	26
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	0.45	2.5	0.32	45	41
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	0.78	2.8	0.31	85	26
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	0.24	2.1	0.52	39	37
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	0.42	1.5	0.42	55	31
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	0.29	2.2	1.2	39	35
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	0.19	4.0	0.41	26	54
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	0.27	2.2	0.39	41	33
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	0.38	2.6	0.47	41	25
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	0.54	2.0	0.29	58	27
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	0.49	2.5	0.54	57	21
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	0.36	0.38	0.46	73	17
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	0.35	2.3	0.36	76	20

Table 14B. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dig, digestions, reported values are average concentration from multiple digestions; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; HWY, Highway; ID, identification; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Parameters (parameter code)					
				Dig (n)	Cr (03949) (µg/g)	Cs (52792) (µg/g)	Cu (03927) (µg/g)	Dy (52793) (µg/g)	Er (52794) (µg/g)
2011 MDL					0.53	0.025	0.15	0.0022	0.0016
2012 MDL					0.37	0.038	0.34	0.0018	0.0014
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	130	3.5	130	3.9	2.2
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	390	3.3	95	4.8	2.8
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	430	5.2	120	4.3	2.8
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	430	3.2	69	3.7	2.2
SPANISH CREEK NR EAST QUINCY CA	SNS-007	395830120542501	09/20/2011	1	420	3.2	69	3.7	2.2
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	110	2.3	76	3.3	1.9
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	47	3.5	56	2.7	1.6
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	67	6.6	56	4.5	2.6
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	22	8.0	25	4.1	2.1
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	74	1.8	49	4.7	2.6
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	350	1.8	130	4.1	2.7
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	150	4.1	97	4.3	2.6
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	72	3.1	120	4.5	2.7
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	88	3.4	55	4.5	2.7
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	65	2.5	62	3.6	2.1
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	68	2.8	99	3.1	1.9
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	100	2.3	120	4.7	2.6
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	380	4.5	100	4.3	2.7
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	330	5.5	61	3.9	2.3
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	420	2.8	270	4.1	2.5
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	320	1.4	110	5.1	3.3
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	250	2.8	70	3.5	2.0
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	110	2.2	74	3.6	2.2
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	110	3.0	150	3.6	2.1
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	59	3.3	40	3.3	1.8
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	100	2.8	41	3.4	1.9
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	100	2.7	61	4.3	2.4

Table 14B. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.—Continued

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Cr, chromium; Cs, cesium; Cu, copper; Dig, digestions, reported values are average concentration from multiple digestions; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; HWY, Highway; ID, identification; K, potassium; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)				
					Eu (52795) (µg/g)	Fe (03930) (percentage)	Ga (52796) (µg/g)	Gd (52797) (µg/g)	Ho (52798) (µg/g)
2011 MDL					0.0011	0.0030	0.0072	0.0024	0.00047
2012 MDL					0.0009	0.0070	0.0080	0.0026	0.00046
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	1.2	5.4	18	4.4	0.75
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	1.3	4.9	20	5.2	0.95
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	1.3	5.2	18	4.5	0.94
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	1.2	5.1	19	3.9	0.72
SPANISH CREEK NR EAST QUINCY CA	SNS-007	395830120542501	09/20/2011	1	1.2	6.1	21	3.9	0.73
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	1.0	4.8	20	3.5	0.67
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	0.8	4.6	19	3.0	0.54
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	1.3	4.6	20	5.3	0.91
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	1.0	4.6	13	4.8	0.74
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	1.8	5.8	20	5.6	0.89
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	1.1	9.1	22	4.0	0.85
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	1.2	7.2	20	4.2	0.87
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	1.4	6.9	12	5.2	0.89
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	1.4	6.0	23	4.7	0.89
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	1.1	5.7	18	4.0	0.71
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	1.0	5.6	16	3.5	0.63
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	1.7	5.5	19	5.7	0.88
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	1.2	5.9	17	4.5	0.90
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	1.2	5.5	19	4.4	0.79
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	1.3	7.5	19	4.5	0.83
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	1.4	9.5	17	4.9	1.1
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	1.1	6.1	16	3.7	0.68
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	1.1	5.7	17	3.9	0.74
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	1.2	5.9	22	4.0	0.71
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	1.1	4.7	18	4.1	0.64
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	1.1	4.5	22	4.2	0.63
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	1.4	5.1	20	5.3	0.86

Table 14C. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; n, number; Na, sodium; Nd, neodymium; nd, not determined; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)				
					La (52799) (µg/g)	Li (03939) (µg/g)	Lu (52800) (µg/g)	Mg (03932) (percentage)	Mn (03951) (µg/g)
2011 MDL					0.0076	0.31	0.00046	0.022	1.1
2012 MDL					0.0033	0.15	0.00042	0.0023	0.76
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	28	28	0.33	1.5	8,620
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	35	26	0.43	1.6	1,280
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	18	38	0.43	2.9	2,250
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	24	30	0.33	1.4	1,480
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	24	32	0.33	1.5	2,220
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	19	18	0.30	1.6	1,560
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	16	23	0.24	1.2	2,330
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	44	44	0.37	1.3	1,070
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	48	45	0.31	0.9	1,030
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	37	13	0.30	1.4	1,110
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	15	13	0.30	1.4	2,792
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	19	32	0.38	0.83	1,850
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	32	13	0.30	1.4	7,427
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	32	27	0.39	0.86	1,520
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	26	13	0.30	1.4	2,428
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	24	13	0.30	1.4	4,150
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	42	25	0.37	1.9	1,050
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	20	34	0.40	3.2	1,700
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	27	34	0.34	1.7	1,410
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	18	21	0.34	1.3	9,170
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	14	21	0.48	3.8	6,610
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	20	23	0.29	2.8	1,160
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	20	16	0.34	1.7	1,050
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	29	30	0.28	1.5	1,240
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	30	35	0.29	1.2	3,290
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	37	28	0.30	0.95	853
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	40	30	0.35	1.9	967

Table 14C. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.—Continued

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; La, lanthanum; Li, lithium; LK, Lake; Lu, lutetium; MDL, method detection limit; MF, Middle Fork; Mg, magnesium; MI, mile; mm/dd/yyyy, month/day/year; Mn, manganese; Mo, molybdenum; n, number; Na, sodium; Nd, neodymium; nd, not determined; NF, North Fork; Ni, nickel; NR, near; P, phosphorus; Pb, lead; PH, Powerhouse; R, River; RD, Road; S, South; SF, South Fork; VLY, Valley; WA, Washington; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)					
					Mo (03947) (µg/g)	Na (03943) (percentage)	Nd (52801) (µg/g)	Ni (03937) (µg/g)	P (03946) (µg/g)	Pb (03952) (µg/g)
2011 MDL					0.33	0.031	0.011	0.069	5.9	0.05
2012 MDL					0.26	0.069	0.0038	9.1	7.4	0.16
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	18	0.82	27	80	1,540	149
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	5.1	0.59	33	221	898	223
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	2.0	0.92	21	306	1,120	23
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	1.0	0.59	23	236	746	25
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	2.2	0.57	23	244	754	28
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	2.0	1.4	19	46	954	166
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	3.1	1.2	17	25	1,180	44
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	2.3	1.1	37	41	1,160	31
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	4.6	0.44	35	15	2,040	77
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	2.1	1.0	35	60	3,580	65
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	2.0	0.59	17	144	1,350	65
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	2.0	0.53	20	96	1,160	22
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	6.5	0.59	31	57	1,820	52
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	2.7	0.56	30	49	836	28
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	5.0	1.3	25	31	1,530	49
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	4.1	1.2	22	30	1,440	119
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	1.7	1.2	38	52	1,990	43
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	1.6	0.82	22	310	1,430	13
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	1.5	0.54	26	224	884	24
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	1.5	0.69	21	54	2,680	511
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	1.5	1.0	18	332	978	8.2
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	1.0	1.3	20	177	970	30
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	0.9	1.3	20	42	1,120	43
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	1.8	0.91	27	54	1,070	28
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	3.2	1.5	28	34	1,990	40
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	1.9	0.57	32	49	729	33
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	1.2	1.0	36	45	1,450	29

Table 14D. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; Q, remark code; R, River; Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; VLY, Valley; WA, Washington; —, not applicable; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)					
					Pr (52802)	Rb (52803)	Re (52804)		S (03945)	
					(µg/g)	(µg/g)	(µg/g)	(Q)	(percentage)	(Q)
2011 MDL					0.0021	0.04	0.001		0.09	
2012 MDL					0.0012	0.20	0.001		0.04	
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	7.0	65	0.004	—	0.15	<
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	8.6	110	0.001	—	0.09	<
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	5.0	39	0.002	—	0.09	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	5.9	59	0.001	<	0.08	<
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	5.7	58	0.001	<	0.09	<
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	4.8	39	0.001	<	0.08	<
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	4.3	51	0.001	<	0.15	<
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	9.9	110	0.001	<	0.09	<
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	9.7	69	0.001	<	0.11	<
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	8.8	28	0.010	—	0.24	<
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	4.0	31	0.010	—	0.06	<
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	5.0	48	0.001	<	0.08	<
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	7.8	49	0.001	—	0.23	<
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	7.7	49	0.001	<	0.01	<
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	6.3	34	0.001	—	0.14	<
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	5.5	38	0.001	<	0.13	<
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	9.8	53	0.001	<	0.10	<
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	5.1	38	0.001	<	0.12	<
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	6.7	70	0.001	<	0.06	<
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	4.9	39	0.001	<	0.07	<
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	4.1	19	0.001	<	0.04	<
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	5.0	54	0.001	—	0.06	<
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	5.0	35	0.001	<	0.08	<
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	6.6	55	0.001	<	0.04	<
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	6.8	41	0.001	<	0.14	<
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	8.6	110	0.001	<	0.05	<
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	9.4	89	0.001	<	0.05	<

Table 14D. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.—Continued

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; NF, North Fork; NR, near; PH, Powerhouse; Pr, praseodymium; Q, remark code; R, River; Rb, rubidium; RD, Road; Re, rhenium; S, South (station name); S, sulfur; Sb, antimony; Se, selenium; SF, South Fork; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; VLY, Valley; WA, Washington; —, not applicable; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)						
					Sb (03929)	Se (03928)		Sm (52805)	Sn (03931)	Sr (03944)	Tb (52806)
					(µg/g)	(µg/g)	(Q)	(µg/g)	(µg/g)	(µg/g)	(µg/g)
2011 MDL					0.032	0.52	—	0.0030	0.16	0.16	0.00046
2012 MDL					0.22	0.40	—	0.0042	1.3	0.13	0.00041
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	1.8	1.3	—	5.2	120	356	0.66
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	4.8	1.6	—	6.1	140	120	0.81
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	1.2	1.6	—	4.5	18	185	0.73
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	1.6	0.63	—	4.6	7.9	121	0.62
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	1.6	0.58	—	4.6	6.8	128	0.62
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	2.5	0.46	—	3.8	400	299	0.55
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	0.77	0.46	<	3.5	91	309	0.46
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	0.95	1.0	—	6.7	27	224	0.83
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	0.65	0.48	<	6.2	78	135	0.72
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	0.54	0.43	—	6.8	32	348	0.80
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	1.6	0.53	—	3.9	17	89	0.66
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	2.4	0.79	—	4.4	6.5	92	0.68
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	1.1	2.0	—	6.1	15	292	0.77
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	1.2	0.55	—	5.8	8.9	133	0.77
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	1.0	1.0	—	4.9	16	375	0.62
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	1.8	0.49	—	4.2	89	371	0.53
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	0.51	0.56	—	7.0	21	333	0.81
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	1.1	1.3	—	4.6	3.8	186	0.71
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	2.2	0.70	—	5.3	7.2	113	0.68
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	1.8	0.51	—	4.6	8.4	245	0.68
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	0.47	0.60	—	4.3	4.3	147	0.82
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	1.0	0.40	<	4.3	47	195	0.59
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	1.1	0.60	—	4.3	10	317	0.62
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	1.0	0.68	—	4.9	10	238	0.61
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	1.0	0.35	<	5.2	66	459	0.57
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	0.65	0.72	—	5.8	8.6	113	0.63
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	0.75	0.38	<	6.6	26	305	0.79

Table 14E. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; nd, not determined; NF, North Fork; NR, near; PH, Powerhouse; Q, remark code; R, River; RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; —, not applicable; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)					
					Te (52807)		Th (52808)	Ti (03948)	Tl (03940)	Tm (52809)
					(µg/g)	(Q)	(µg/g)	(percentage)	(µg/g)	(µg/g)
2011 MDL					0.022	—	0.0067	0.00017	0.0049	0.00072
2012 MDL					0.029	—	0.0045	0.00091	0.0094	0.00035
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	0.093	—	10	0.40	0.66	0.31
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	0.11	—	13	0.38	0.75	0.41
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	0.047	—	4.9	0.50	0.30	0.40
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	0.061	—	6.9	0.52	0.39	0.30
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	0.044	—	6.6	0.53	0.39	0.32
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	0.050	—	7.4	0.37	0.27	0.29
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	0.046	—	5.5	0.39	0.26	0.23
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	0.041	—	24	0.43	0.71	0.37
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	0.023	—	31	0.27	0.57	0.29
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	0.035	—	6.7	0.61	0.25	0.34
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	0.25	—	4.9	0.62	0.23	0.37
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	0.040	—	5.3	0.61	0.35	0.37
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	0.062	—	7.6	0.34	0.45	0.35
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	0.029	<	8.3	0.62	0.40	0.37
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	0.040	—	7.3	0.42	0.43	0.30
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	0.040	—	6.5	0.33	0.38	0.26
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	0.025	<	11	0.73	0.34	0.36
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	0.044	—	4.6	0.50	0.27	0.37
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	0.060	—	7.4	0.54	0.47	0.33
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	0.064	—	4.0	0.65	0.37	0.34
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	0.026	<	2.2	0.72	0.19	0.47
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	0.042	—	7.6	0.52	0.30	0.27
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	0.023	<	6.0	0.44	0.21	0.32
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	0.025	<	9.0	0.70	0.41	0.28
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	0.026	<	11	0.44	0.42	0.26
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	0.042	—	14	0.40	0.74	0.28
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	0.032	—	14	0.51	0.52	0.34

Table 14E. Data for trace elements and major elements in sediment less than 0.063 millimeter in diameter.—Continued

[All analyses completed at the U.S. Geological Survey National Research Program, Central Branch, Boulder, Colorado. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C and CRK, Creek; CA, California; Dig, digestions, reported values are average concentration from multiple digestions; HWY, Highway; ID, identification; LK, Lake; MDL, method detection limit; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; n, number; nd, not determined; NF, North Fork; NR, near; PH, Powerhouse; Q, remark code; R, River; RD, Road; S, South; SF, South Fork; Te, tellurium; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; VLY, Valley; W, tungsten; WA, Washington; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; —, not applicable; <, less than; µg/g, microgram per gram]

Station name	Project ID	Station ID	Date (mm/dd/yyyy)	Dig (n)	Parameters (parameter code)						
					U (03936) (µg/g)	V (03924) (µg/g)	W (52810) (µg/g)	Y (52811) (µg/g)	Yb (52812) (µg/g)	Zn (03942) (µg/g)	Zr (52813) (µg/g)
2011 MDL					0.0032	0.11	0.050	0.0076	0.0011	0.26	0.07
2012 MDL					0.0042	0.06	0.094	0.0052	0.0016	0.71	0.02
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-001	391911120392201	09/07/2011	1	22	170	9.4	21	2.2	280	200
S YUBA R BLW POORMAN CRK NR WA	SNS-002	392119120484901	09/07/2011	1	4.6	130	2.3	27	3.0	320	300
BELDEN PH A BELDEN CA	SNS-005	11403050	09/19/2011	1	2.9	220	0.93	25	2.8	120	230
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-006	400129120580701	09/20/2011	1	2.5	200	1.4	20	2.2	120	270
SPANISH CREEK NR EAST QUINCEY CA	SNS-007	395830120542501	09/20/2011	1	2.4	220	1.3	19	2.3	120	260
MF FEATHER R A SLOAT CA	SNS-009	11393000	09/21/2011	1	3.7	170	2.8	18	2.0	110	200
MF FEATHER R NR DELLEKER CA	SNS-011	394647120314501	09/22/2011	1	10	160	4.3	15	1.6	130	150
MERCED R AB BM1186 NR BRICEBURG CA	SNS-012	373637119573801	11/03/2011	1	19	120	2.2	25	2.4	140	300
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNS-013	374017119472301	11/02/2011	1	58	98	1.1	22	2.0	98	40
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNS-040	383403120272101	08/30/2012	2	4.2	170	0.83	25	2.2	110	85
WOLF C NR LA BARR MEADOWS CA	SNS-042	390955121034101	09/06/2012	2	1.9	270	18	23	2.6	230	120
S WOLF C NR CHICAGO PARK CA	SNS-043	390722121013901	09/06/2012	3	1.8	240	1.2	23	2.6	110	140
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP	SNS-044	391911120392201	09/20/2012	2	15	150	6.9	27	2.4	270	96
SF DEER C NR WASHINGTON CA	SNS-045	391754120504801	09/25/2012	3	4.4	180	2.1	24	2.6	170	180
S YUBA R NR CISCO CA	SNS-046	11414000	09/25/2012	2	10	170	16	21	2.0	240	97
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNS-047	392122120364501	10/01/2012	2	5.8	170	2.0	18	1.8	180	56
MF CONSUMES R NR OMO RANCH CA	SNS-048	383632120365101	10/03/2012	1	4.8	160	1.2	25	2.4	100	84
BELDEN PH A BELDEN CA	SNS-049	11403050	10/16/2012	1	3.1	210	0.89	26	2.6	120	110
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNS-050	400129120580701	10/16/2012	1	2.3	160	1.5	21	2.3	120	130
SF FEATHER R NR LA PORTE CA	SNS-051	394034121051801	10/17/2012	1	1.5	240	1.1	22	2.2	640	87
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNS-052	393302121124501	10/31/2012	1	1.2	270	1.4	29	3.1	120	60
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNS-053	394237121161801	10/31/2012	1	2.2	180	1.4	18	2.0	100	97
MF FEATHER R ABV BRAY C NR SLOAT CA	SNS-054	395141120504901	11/07/2012	2	3.0	180	2.4	21	1.9	106	100
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNS-055	384634120445301	11/14/2012	1	7.9	170	1.2	19	1.9	150	82
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNS-056	384526120162901	11/14/2012	1	17	140	2.3	19	1.8	120	90
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNS-057	390120120431601	11/15/2012	1	3.5	120	1.5	17	1.9	110	170
RUBICON R NR VOLCANOVILLE CA	SNS-058	385957120432401	11/15/2012	1	4.5	160	1.8	24	2.3	100	87

Table 15. Mean and standard deviation of fish tissue mercury concentrations and total length by species and sampling location.

[All analyses done at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; C, Creek; CA, California; Hg, mercury; HWY, Highway; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; N, number of individual fish; na, not applicable; NF, North Fork; NR, near; PH, Powerhouse; R, River; RD, Road; S, South; S.D., standard deviation; SF, South Fork; VLY, Valley; ww, wet weight; µg/g, microgram per gram]

Station name	Date (mm/dd/yyyy)	Species	N	Mean Hg (µg/g ww)	S.D. Hg (µg/g ww)	Mean total length (mm)	S.D. length (mm)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	08/12/2011	Rainbow trout	13	62	18	193	23
BELDEN PH A BELDEN CA	08/24/2011	Rainbow trout	13	19	6	204	43
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	08/29/2011	Brown trout	1	45	na	199	na
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	08/29/2011	Hardhead	1	159	na	369	na
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	08/29/2011	Rainbow trout	14	53	14	263	51
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	10/20/2011	Rainbow trout	10	48	15	266	72
MERCED R AB BM1186 NR BRICEBURG CA ¹	10/21/2011	Rainbow trout	12	49	17	296	78
MF CONSUMES R NR OMO RANCH CA	07/18/2012	Rainbow trout	15	107	42	190	32
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	07/20/2012	Rainbow trout	15	97	24	174	23
WOLF C NR LA BARR MEADOWS CA	07/23/2012	Rainbow trout	7	211	46	150	8
WOLF C NR LA BARR MEADOWS CA	07/23/2012	Brown trout	8	262	63	210	35
S WOLF C NR CHICAGO PARK CA	07/24/2012	Rainbow trout	14	117	35	178	23
S WOLF C NR CHICAGO PARK CA	07/24/2012	Brown trout	1	107	na	177	na
SF DEER C NR WASHINGTON CA	07/25/2012	Rainbow trout	14	57	24	169	36
SF DEER C NR WASHINGTON CA	07/25/2012	Brown trout	1	75	na	302	na
S YUBA R NR CISCO CA	08/07/2012	Brown trout	14	64	15	226	52
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	08/09/2012	Rainbow trout	15	57	14	190	24
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	08/09/2012	Brown trout	1	47	na	216	na
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	08/23/2012	Rainbow trout	9	72	23	181	29
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	08/23/2012	Brown trout	2	52	16	211	55
BELDEN PH A BELDEN CA	10/03/2012	Rainbow trout	15	18	4	175	35
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	10/04/2012	Rainbow trout	15	60	15	233	45
SF FEATHER R NR LA PORTE CA	10/09/2012	Rainbow trout	12	26	13	206	30
SF FEATHER R NR LA PORTE CA	10/09/2012	Brown trout	2	22	12	247	54
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	10/11/2012	Rainbow trout	14	66	18	172	19
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	10/11/2012	Brown trout	2	63	15	174	32
MF FEATHER R ABV BRAY C NR SLOAT CA	10/16/2012	Rainbow trout	15	99	26	256	47
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	10/17/2012	Rainbow trout	15	68	20	225	49
SILVER FORK OF AMERICAN R NR KYBURZ CA ²	10/30/2012	Rainbow trout	15	14	7	280	21
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	11/05/2012	Rainbow trout	14	90	27	219	31
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	11/05/2012	Brown trout	1	69	na	232	na
RUBICON R NR VOLCANOVILLE CA	11/07/2012	Rainbow trout	12	42	16	259	52
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	11/14/2012	Rainbow trout	15	76	17	190	29

¹Includes eleven fish collected above Briceburg on 10/21/2011 and one fish collected below Briceburg on 10/20/2011.

²Apparently mostly planted fish (from hatchery).

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-1-SYBSP-RBT-180/47-081211	RBT	180	47	47
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-2-SYBSP-RBT-222/103-081211	RBT	222	103	93
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-3-SYBSP-RBT-198/72-081211	RBT	198	72	56
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-4-SYBSP-RBT-174/48-081211	RBT	174	48	51
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-5-SYBSP-RBT-230/115-081211	RBT	230	115	81
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-6-SYBSP-RBT-215/92-081211	RBT	215	92	77
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-7-SYBSP-RBT-190/57-081211	RBT	190	57	80
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-8-SYBSP-RBT-217/90-081211	RBT	217	90	47
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-9-SYBSP-RBT-179/61-081211	RBT	179	61	32
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-10-SYBSP-RBT-158/38-081211	RBT	158	38	46
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-11-SYBSP-RBT-188/69-081211	RBT	188	69	67
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-12-SYBSP-RBT-158/40-081211	RBT	158	40	49
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-13-SYBSP-RBT-202/70-081211	RBT	202	70	75
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-14-NFYEL-RBT-140/28-082411	RBT	140	28	13
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-15-NFYEL-RBT-218/101-082411	RBT	218	101	22
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-16-NFYEL-RBT-255/153-082412	RBT	255	153	24
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-17-NFYEL-RBT-249/142-082411	RBT	249	142	17
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-18-NFYEL-RBT-278/215-082411	RBT	278	215	31

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-19-NFYEL-RBT-159/36-082411	RBT	159	36	14
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-20-NFYEL-RBT-201/80-082411	RBT	201	80	18
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-21-NFYEL-RBT-200/77-082411	RBT	200	77	14
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-22-NFYEL-RBT-223/102-082411	RBT	223	102	26
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-23-NFYEL-RBT-227/120-082411	RBT	227	120	17
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-24-NFYEL-RBT-162/40-082411	RBT	162	40	11
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-25-NFYEL-RBT-165/42-082411	RBT	165	42	11
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-26-NFYEL-RBT-170/51-082411	RBT	170	51	26
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-27-NFSPA-BRN-199/78-082911	BRN	199	78	45
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-28-NFSPA-HHD-369/415-082911	HHD	369	415	159
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-29-NFSPA-RBT-208/82-082911	RBT	208	82	31
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-30-NFSPA-RBT-213/101-082911	RBT	213	101	67
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-31-NFSPA-RBT-215/100-082911	RBT	215	100	39
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-32-NFSPA-RBT-216/99-082911	RBT	216	99	58
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-33-NFSPA-RBT-236/128-082911	RBT	236	128	54
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-34-NFSPA-RBT-234/125-082911	RBT	234	125	36
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-35-NFSPA-RBT-256/149-082911	RBT	256	149	43
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-36-NFSPA-RBT-237/140-082911	RBT	237	140	44
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-37-NFSPA-RBT-290/255-082911	RBT	290	255	70

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-38-NFSPA-RBT-245/151-082911	RBT	245	151	44
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-39-NFSPA-RBT-307/262-082911	RBT	307	262	69
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-40-NFSPA-RBT-320/315-082911	RBT	320	315	58
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-41-NFSPA-RBT-346/422-082911	RBT	346	422	77
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-42-NFSPA-RBT-352/458-082911	RBT	352	458	60
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-53-MERBR-RBT-371/395-102011	RBT	371	395	60
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-54-MERBR-RBT-237/120-102111	RBT	237	120	42
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-55-MERBR-RBT-215/95-102111	RBT	215	95	45
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-56-MERBR-RBT-230/130-102111	RBT	230	130	43
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-57-MERBR-RBT-223/125-102111	RBT	223	125	47
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-58-MERBR-RBT-235/145-102111	RBT	235	145	35
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-59-MERBR-RBT-247/135-102111	RBT	247	135	43
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-60-MERBR-RBT-261/163-102111	RBT	261	163	32
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-61-MERBR-RBT-286/237-102111	RBT	386	237	40
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-62-MERBR-RBT-342/388-102111	RBT	342	388	45
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-63-MERBR-RBT-404/530-102111	RBT	404	530	96

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-64-MERBR-RBT-406/602-102111	RBT	406	602	63
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-43-MEREP-RBT-192/55-102011	RBT	192	55	45
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-44-MEREP-RBT-193/68-102011	RBT	193	68	46
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-45-MEREP-RBT-194/73-102011	RBT	194	73	53
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-46-MEREP-RBT-212/85-102011	RBT	212	85	41
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-47-MEREP-RBT-264/180-102011	RBT	264	180	43
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-48-MEREP-RBT-268/185-102011	RBT	268	185	46
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-49-MEREP-RBT-286/225-102011	RBT	286	225	37
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-50-MEREP-RBT-294/245-102011	RBT	294	245	24
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-51-MEREP-RBT-360/445-102011	RBT	360	445	63
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-52-MEREP-RBT-398/640-102011	RBT	398	640	80
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-80-MCPIP-RBT-131/19-072012	RBT	131	19	54
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-81-MCPIP-RBT-136/21-072012	RBT	136	21	82
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-82-MCPIP-RBT-147/27-072012	RBT	147	27	75
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-83-MCPIP-RBT-161/38-072012	RBT	161	38	75
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-84-MCPIP-RBT-162/35-072012	RBT	162	35	78

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-85-MCPIP-RBT-170/47-072012	RBT	170	47	74
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-86-MCPIP-RBT-176/51-072012	RBT	176	51	147
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-87-MCPIP-RBT-178/52-072012	RBT	178	52	108
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-88-MCPIP-RBT-181/53-072012	RBT	181	53	83
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-89-MCPIP-RBT-184/58-072012	RBT	184	58	117
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-90-MCPIP-RBT-187/64-072012	RBT	187	64	108
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-91-MCPIP-RBT-192/68-072012	RBT	192	68	114
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-92-MCPIP-RBT-194/66-072012	RBT	194	66	117
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-93-MCPIP-RBT-200/74-072012	RBT	200	74	118
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-94-MCPIP-RBT-211/84-072012	RBT	211	84	98
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-95-WOLF-RBT-140/25-072312	RBT	140	25	292
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-96-WOLF-RBT-141/27-072312	RBT	141	27	194
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-97-WOLF-RBT-149/31-072312	RBT	149	31	186
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-98-WOLF-RBT-151/30-072312	RBT	151	30	151
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-99-WOLF-RBT-153/36-072312	RBT	153	36	199
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-100-WOLF-RBT-155/34-072312	RBT	155	34	206
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-101-WOLF-RBT-162/42-072312	RBT	162	42	250
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-102-WOLF-BRN-172/41-072312	BRN	172	41	180
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-103-WOLF-BRN-177/51-072312	BRN	177	51	198
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-104-WOLF-BRN-188/66-072312	BRN	188	66	295

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-105-WOLF-BRN-201/69-072312	BRN	201	69	241
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-106-WOLF-BRN-213/85-072312	BRN	213	85	274
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-107-WOLF-BRN-217/108-072312	BRN	217	108	275
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-108-WOLF-BRN-236/115-072312	BRN	236	115	251
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-109-WOLF-BRN-278/214-072312	BRN	278	214	386
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-110-SWOLF-RBT-142/27-072412	RBT	142	27	96
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-111-SWOLF-RBT-154/38-072412	RBT	154	38	110
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-112-SWOLF-RBT-152/47-072412	RBT	152	47	142
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-113-SWOLF-RBT-158/43-072412	RBT	158	43	123
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-114-SWOLF-RBT-163/51-072412	RBT	163	51	132
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-115-SWOLF-RBT-174/54-072412	RBT	174	54	102
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-116-SWOLF-RBT-178/59-072412	RBT	178	59	110
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-117-SWOLF-RBT-179/61-072412	RBT	179	61	97
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-118-SWOLF-RBT-183/56-072412	RBT	183	56	102
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-119-SWOLF-RBT-189/67-072412	RBT	189	67	106
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-120-SWOLF-RBT-198/78-072412	RBT	198	78	101
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-121-SWOLF-RBT-200/79-072412	RBT	200	79	78
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-122-SWOLF-RBT-205/93-072412	RBT	205	93	224
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-123-SWOLF-RBT-221/107-072412	RBT	221	107	122
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-124-SWOLF-BRN-177/50-072412	BRN	177	50	107
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-154-SYBSP-RBT-154/35-080912	RBT	154	35	52
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-155-SYBSP-RBT-158/44-080912	RBT	158	44	47
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-156-SYBSP-RBT-173/45-080912	RBT	173	45	50
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-157-SYBSP-RBT-174/50-080912	RBT	174	50	44
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-158-SYBSP-RBT-175/51-080912	RBT	175	51	82

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-159-SYBSP-RBT-180/50-080912	RBT	180	50	85
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-160-SYBSP-RBT-186/66-080912	RBT	186	66	61
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-161-SYBSP-RBT-188/67-080912	RBT	188	67	51
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-162-SYBSP-RBT-192/64-080912	RBT	192	64	51
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-163-SYBSP-RBT-194/66-080912	RBT	194	66	40
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-164-SYBSP-RBT-200/75-080912	RBT	200	75	44
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-165-SYBSP-RBT-203/76-080912	RBT	203	76	56
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-166-SYBSP-RBT-212/87-080912	RBT	212	87	69
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-167-SYBSP-RBT-224/109-080912	RBT	224	109	51
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-168-SYBSP-RBT-243/145-080912	RBT	243	145	74
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-169-SYBSP-BRN-216/105-080912	BRN	216	105	47
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-126-SDEER-RBT-138/24-072512	RBT	138	24	37
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-127-SDEER-RBT-142/27-072512	RBT	142	27	36
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-128-SDEER-RBT-143/27-072512	RBT	143	27	49
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-129-SDEER-RBT-144/26-072512	RBT	144	26	40
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-130-SDEER-RBT-152/36-072512	RBT	152	36	44
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-131-SDEER-RBT-155/39-072512	RBT	155	39	67
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-132-SDEER-RBT-157/36-072512	RBT	157	36	55
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-133-SDEER-RBT-166/51-072512	RBT	166	51	44

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-134-SDEER-RBT-177/53-072512	RBT	177	53	45
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-135-SDEER-RBT-183/62-072512	RBT	183	62	48
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-136-SDEER-RBT-222/121-072512	RBT	222	121	109
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-137-SDEER-RBT-226/115-072512	RBT	226	115	86
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-138-SDEER-RBT-237/164-072512	RBT	237	164	100
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-139-SDEER-BRN-302/297-072512	BRN	302	297	75
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-140-SYASP-BRN-140/24-080712	BRN	140	24	42
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-141-SYASP-BRN-152/29-080712	BRN	152	29	57
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-142-SYASP-BRN-167/39-080712	BRN	167	39	48
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-143-SYASP-BRN-168/44-080712	BRN	168	44	49
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-144-SYASP-BRN-225/116-080712	BRN	225	116	55
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-145-SYASP-BRN-227/117-080712	BRN	227	117	64
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-146-SYASP-BRN-231/125-080712	BRN	231	125	55
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-147-SYASP-BRN-239/144-080712	BRN	239	144	66
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-148-SYASP-BRN-242/152-080712	BRN	242	152	76
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-149-SYASP-BRN-244/146-080712	BRN	244	146	77
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-150-SYASP-BRN-247/155-080712	BRN	247	155	59
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-151-SYASP-BRN-272/228-080712	BRN	272	228	79
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-152-SYASP-BRN-294/271-080712	BRN	294	271	86
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-153-SYASP-BRN-315/324-080712	BRN	315	324	90
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-170-FORDY-RBT-138/24-082312	RBT	138	24	48
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-171-FORDY-RBT-150/28-082312	RBT	150	28	51
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-172-FORDY-RBT-151/26-082312	RBT	151	26	55
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-174-FORDY-RBT-182/56-082312	RBT	182	56	60
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-175-FORDY-RBT-192/66-082312	RBT	192	66	91

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-176-FORDY-RBT-197/70-082312	RBT	197	70	95
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-177-FORDY-RBT-217/98-082312	RBT	217	98	102
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-178-FORDY-RBT-220/97-082312	RBT	220	97	99
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-179-FORDY-BRN-172/44-082312	BRN	172	44	41
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-179-FORDY-BRN-250/131-082312	BRN	250	131	63
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-65-MCROC-RBT-143/32-071812	RBT	143	32	93
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-66-MCROC-RBT-146/33-071812	RBT	146	33	99
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-67-MCROC-RBT-159/44-071812	RBT	159	44	103
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-68-MCROC-RBT-162/43-071812	RBT	162	43	77
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-69-MCROC-RBT-163/41-071812	RBT	163	41	98
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-70-MCROC-RBT-175/63-071812	RBT	175	63	105
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-71-MCROC-RBT-182/61-071812	RBT	182	61	107
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-72-MCROC-RBT-185/59-071812	RBT	185	59	78
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-73-MCROC-RBT-203/86-071812	RBT	203	86	118
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-74-MCROC-RBT-207/87-071812	RBT	207	87	81
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-75-MCROC-RBT-210/92-071812	RBT	210	92	76
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-76-MCROC-RBT-213/95-071812	RBT	213	95	75
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-77-MCROC-RBT-226/105-071812	RBT	226	105	242
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-78-MCROC-RBT-236/137-071812	RBT	236	137	102
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-79-MCROC-RBT-241/143-071812	RBT	241	143	149
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-181-NFYEL-RBT-128/19-100312	RBT	128	19	16
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-182-NFYEL-RBT-146/32-100312	RBT	146	32	15
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-183-NFYEL-RBT-147/33-100312	RBT	147	33	10
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-184-NFYEL-RBT-148/28-100312	RBT	148	28	14
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-186-NFYEL-RBT-152/29-100312	RBT	152	29	17

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-187-NFYEL-RBT-159/38-100312	RBT	159	38	20
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-188-NFYEL-RBT-172/44-100312	RBT	172	44	17
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-189-NFYEL-RBT-173/49-100312	RBT	173	49	16
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-190-NFYEL-RBT-174/51-100312	RBT	174	51	14
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-191-NFYEL-RBT-181/53-100312	RBT	181	53	22
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-192-NFYEL-RBT-206/83-100312	RBT	206	83	25
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-193-NFYEL-RBT-217/117-100312	RBT	217	117	21
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-194-NFYEL-RBT-223/111-100312	RBT	223	111	18
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-195-NFYEL-RBT-253/179-100312	RBT	253	179	20
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-196-NFSPA-RBT-181/51-100412	RBT	181	51	76
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-197-NFSPA-RBT-203/80-100412	RBT	203	80	71
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-198-NFSPA-RBT-212/77-100412	RBT	212	77	45
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-199-NFSPA-RBT-213/81-100412	RBT	213	81	64
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-200-NFSPA-RBT-214/88-100412	RBT	214	88	39
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-201-NFSPA-RBT-215/85-100412	RBT	215	85	62
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-202-NFSPA-RBT-216/92-100412	RBT	216	92	63
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-203-NFSPA-RBT-217/90-100412	RBT	217	90	75
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-204-NFSPA-RBT-221/92-100412	RBT	221	92	69
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-205-NFSPA-RBT-223/98-100412	RBT	223	98	67
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-206-NFSPA-RBT-221/103-100412	RBT	221	103	66

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-207-NFSPA-RBT-227/107-100412	RBT	227	107	40
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-208-NFSPA-RBT-258/165-100412	RBT	258	165	78
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-209-NFSPA-RBT-321/306-100412	RBT	321	306	35
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-210-NFSPA-RBT-352/445-100412	RBT	352	445	44
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-211-SFABV-RBT-147/29-100912	RBT	147	29	18
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-212-SFABV-RBT-172/48-100912	RBT	172	48	16
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-213-SFABV-RBT-185/61-100912	RBT	185	61	24
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-214-SFABV-RBT-192/67-100912	RBT	192	67	18
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-215-SFABV-RBT-197/74-100912	RBT	197	74	61
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-216-SFABV-RBT-212/87-100912	RBT	212	87	17
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-217-SFABV-RBT-215/94-100912	RBT	215	94	22
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-218-SFABV-RBT-217/107-100912	RBT	217	107	25
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-219-SFABV-RBT-219/100-100912	RBT	219	100	29
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-220-SFABV-RBT-223/106-100912	RBT	223	106	19
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-221-SFABV-RBT-246/144-100912	RBT	246	144	23
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-222-SFABV-RBT-250/156-100912	RBT	250	156	40
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-224-SFABV-BRN-208/84-100912	BRN	208	84	13
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-225-SFABV-BRN-285/226-100912	BRN	285	226	30
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-225-SFBLW-RBT-148/28-101112	RBT	148	28	42
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-226-SFBLW-RBT-151/30-101112	RBT	151	30	53
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-227-SFBLW-RBT-153/33-101112	RBT	153	33	50
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-228-SFBLW-RBT-157/32-101112	RBT	157	32	68

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-229-SFBLW-RBT-161/36-101112	RBT	161	36	52
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-230-SFBLW-RBT-167/39-101112	RBT	167	39	50
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-231-SFBLW-RBT-169/52-101112	RBT	169	52	52
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-232-SFBLW-RBT-170/47-101112	RBT	170	47	76
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-233-SFBLW-RBT-170/48-101112	RBT	170	48	63
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-234-SFBLW-RBT-171/50-101112	RBT	171	50	67
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-235-SFBLW-RBT-188/69-101112	RBT	188	69	59
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-236-SFBLW-RBT-193/65-101112	RBT	193	65	99
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-237-SFBLW-RBT-204/85-101112	RBT	204	85	86
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-238-SFBLW-RBT-207/87-101112	RBT	207	87	99
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-239-SFBLW-BRN-151/34-101112	BRN	151	34	52
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-240-SFBLW-BRN-196/73-101112	BRN	196	73	73
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-256-MFMIL-RBT-153/31-101712	RBT	153	31	59
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-257-MFMIL-RBT-156/35-101712	RBT	156	35	70
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-258-MFMIL-RBT-171/46-101712	RBT	171	46	67
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-259-MFMIL-RBT-191/63-101712	RBT	191	63	58

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-260-MFMIL-RBT-196/66-101712	RBT	196	66	65
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-261-MFMIL-RBT-200/78-101712	RBT	200	78	74
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-262-MFMIL-RBT-203/65-101712	RBT	203	65	53
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-263-MFMIL-RBT-213/83-101712	RBT	213	83	53
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-264-MFMIL-RBT-236/116-101712	RBT	236	116	76
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-265-MFMIL-RBT-244/127-101712	RBT	244	127	52
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-266-MFMIL-RBT-270/190-101712	RBT	270	190	64
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-267-MFMIL-RBT-273/207-101712	RBT	273	207	131
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-268-MFMIL-RBT-283/208-101712	RBT	283	208	84
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-269-MFMIL-RBT-292/216-101712	RBT	292	216	63
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-270-MFMIL-RBT-294/218-101712	RBT	294	218	55
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-241-MFLPT-RBT-188/49-101612	RBT	188	49	104
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-242-MFLPT-RBT-202/67-101612	RBT	202	67	98
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-243-MFLPT-RBT-209/87-101612	RBT	209	87	152
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-244-MFLPT-RBT-217/77-101612	RBT	217	77	127
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-245-MFLPT-RBT-225/92-101612	RBT	225	92	99

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-246-MFLPT-RBT-226/94-101612	RBT	226	94	70
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-247-MFLPT-RBT-242/115-101612	RBT	242	115	80
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-248-MFLPT-RBT-255/132-101612	RBT	255	132	74
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-249-MFLPT-RBT-258/141-101612	RBT	258	141	80
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-250-MFLPT-RBT-267/167-101612	RBT	267	167	76
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-251-MFLPT-RBT-282/193-101612	RBT	282	193	83
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-252-MFLPT-RBT-288/206-101612	RBT	288	206	110
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-253-MFLPT-RBT-312/286-101612	RBT	312	286	147
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-254-MFLPT-RBT-324/303-101612	RBT	324	303	82
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-255-MFLPT-RBT-349/337-101612	RBT	349	337	102
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-287-SAMOS-RBT-176/26-110512	RBT	176	26	57
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-288-SAMOS-RBT-187/29-110512	RBT	187	29	71
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-289-SAMOS-RBT-198/52-110512	RBT	198	52	92
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-290-SAMOS-RBT-202/50-110512	RBT	202	50	83
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-291-SAMOS-RBT-211/60-110512	RBT	211	60	59
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-292-SAMOS-RBT-214/76-110512	RBT	214	76	94

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-293-SAMOS-RBT-216/67-110512	RBT	216	67	115
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-294-SAMOS-RBT-223/77-110512	RBT	223	77	93
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-295-SAMOS-RBT-240/96-110512	RBT	240	96	85
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-296-SAMOS-RBT-242/104-110512	RBT	242	104	70
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-297-SAMOS-RBT-256/124-110512	RBT	256	124	148
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-298-SAMOS-RBT-258/129-110512	RBT	258	129	136
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-299-SAMOS-RBT-271/167-110512	RBT	271	167	71
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-300-SAMOS-BRN-232/78-110512	BRN	232	78	69
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-271-SASIL-RBT-250/126-103012	RBT	250	126	13
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-272-SASIL-RBT-254/150-103012	RBT	254	150	11
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-273-SASIL-RBT-258/136-103012	RBT	258	136	11
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-274-SASIL-RBT-262/149-103012	RBT	262	149	14
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-275-SASIL-RBT-270/165-103012	RBT	270	165	12
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-276-SASIL-RBT-272/163-103012	RBT	272	163	12
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-277-SASIL-RBT-273/160-103012	RBT	273	160	13
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-278-SASIL-RBT-275/159-103012	RBT	275	159	12

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-279-SASIL-RBT-278/181-103012	RBT	278	181	11
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-280-SASIL-RBT-285/167-103012	RBT	285	167	12
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-281-SASIL-RBT-292/239-103012	RBT	292	239	10
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-282-SASIL-RBT-295/242-103012	RBT	295	242	11
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-283-SASIL-RBT-302/224-103012	RBT	302	224	38
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-284-SASIL-RBT-312/270-103012	RBT	312	270	12
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-285-SASIL-RBT-318/273-103012	RBT	318	273	11
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-313-MANFK-RBT-144/23-111412	RBT	144	23	52
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-314-MANFK-RBT-147/22-111412	RBT	147	22	61
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-315-MANFK-RBT-156/23-111412	RBT	156	23	91
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-316-MANFK-RBT-160/32-111412	RBT	160	32	58
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-317-MANFK-RBT-173/45-111412	RBT	173	45	57
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-318-MANFK-RBT-187/61-111412	RBT	187	61	64
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-319-MANFK-RBT-188/56-111412	RBT	188	56	88
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-320-MANFK-RBT-193/58-111412	RBT	193	58	87
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-321-MANFK-RBT-196/72-111412	RBT	196	72	82

Table 16. Fish length, weight, and mercury concentration in tissue for individual samples.—Continued

[All analyses performed at University of California, Davis. **Abbreviations:** A, at; AB and ABV, above; BL and BLW, below; BRN, brown trout; C, Creek; CA, California; g, gram; HHD, hardhead; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm, millimeter; mm/dd/yyyy, month/day/year; NF, North Fork; ng/g, nanogram per gram; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; SF, South Fork; VLY, Valley; ww, wet weight]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameters (parameter code)		
						Total length (72273) (mm)	Weight (91104) (g)	Mercury (52685) (ng/g ww)
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-322-MANFK-RBT-206/79-111412	RBT	206	79	68
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-323-MANFK-RBT-207/78-111412	RBT	207	78	87
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-324-MANFK-RBT-209/77-111412	RBT	209	77	82
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-325-MANFK-RBT-216/82-111412	RBT	216	82	113
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-326-MANFK-RBT-225/92-111412	RBT	225	92	80
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-327-MANFK-RBT-239/117-111412	RBT	239	117	62
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-301-MARUB-RBT-205/46-110712	RBT	205	46	29
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-302-MARUB-RBT-216/61-110712	RBT	216	61	29
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-303-MARUB-RBT-220/75-110712	RBT	220	75	37
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-304-MARUB-RBT-223/66-110712	RBT	223	66	39
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-305-MARUB-RBT-230/67-110712	RBT	230	67	30
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-306-MARUB-RBT-238/77-110712	RBT	238	77	29
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-307-MARUB-RBT-241/87-110712	RBT	241	87	39
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-308-MARUB-RBT-247/100-110712	RBT	247	100	38
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-309-MARUB-RBT-286/166-110712	RBT	286	166	40
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-310-MARUB-RBT-308/224-110712	RBT	308	224	51
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-311-MARUB-RBT-323/272-110712	RBT	323	272	61
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-312-MARUB-RBT-373/487-110712	RBT	373	487	82

Table 17. Selenium concentrations in fish tissue.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB, above; ABV, above; BLW, below; BRN, brown trout; C, Creek; CA, California; dw, dry weight; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; Se, selenium, SF, South Fork; VLY, Valley; µg/g, microgram per gram]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameter (parameter code)
						Se (49254) (µg/g dw)
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-2-SYBSP-RBT-222/103-081211	RBT	1.46
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-3-SYBSP-RBT-198/72-081211	RBT	1.94
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-001	391911120392201	08/11/2011	SN11-11-SYBSP-RBT-188/69-081211	RBT	1.74
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-16-NFYEL-RBT-255/153-082412	RBT	1.20
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-21-NFYEL-RBT-200/77-082411	RBT	1.01
BELDEN PH A BELDEN CA	SNI-005	11403050	08/23/2011	SN11-22-NFYEL-RBT-223/102-082411	RBT	1.13
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-36-NFSPA-RBT-237/140-082911	RBT	0.94
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-37-NFSPA-RBT-290/255-082911	RBT	0.88
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-006	400129120580701	08/28/2011	SN11-41-NFSPA-RBT-346/422-082911	RBT	0.93
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-47-MEREP-RBT-264/180-102011	RBT	0.54
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-49-MEREP-RBT-286/225-102011	RBT	1.01
MERCED R AB HWY 140 BRIDGE NR EL PORTAL CA	SNI-013	374017119472301	10/19/2011	SN11-51-MEREP-RBT-360/445-102011	RBT	0.66
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-59-MERBR-RBT-247/135-102111	RBT	0.69
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-62-MERBR-RBT-342/388-102111	RBT	1.00
MERCED R AB BM1186 NR BRICEBURG CA	SNI-012	373637119573801	10/20/2011	SN11-63-MERBR-RBT-404/530-102111	RBT	1.20
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-72-MCROC-RBT-185/59-071812	RBT	0.35
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-75-MCROC-RBT-210/92-071812	RBT	0.28
MF CONSUMES R NR OMO RANCH CA	SNI-048	383632120365101	07/17/2012	SN12-78-MCROC-RBT-236/137-071812	RBT	0.34
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-87-MCPIP-RBT-178/52-072012	RBT	0.37
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-90-MCPIP-RBT-187/64-072012	RBT	0.40
MF COSUMNES R NR PIPI VLY NR OMO RANCH CA	SNI-040	383403120272101	07/19/2012	SN12-93-MCPIP-RBT-200/74-072012	RBT	0.44
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-99-WOLF-RBT-153/36-072312	RBT	0.78
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-100-WOLF-RBT-155/34-072312	RBT	1.14
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-101-WOLF-RBT-162/42-072312	RBT	0.93
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-105-WOLF-BRN-201/69-072312	RBT	1.14
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-107-WOLF-BRN-217/108-072312	BRN	0.97
WOLF C NR LA BARR MEADOWS CA	SNI-042	390955121034101	07/22/2012	SN12-109-WOLF-BRN-278/214-072312	BRN	1.05

Table 17. Selenium concentrations in fish tissue.—Continued

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB, above; ABV, above; BLW, below; BRN, brown trout; C, Creek; CA, California; dw, dry weight; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; Se, selenium, SF, South Fork; VLY, Valley; µg/g, microgram per gram]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameter (parameter code)
						Se (49254) (µg/g dw)
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-116-SWOLF-RBT-178/59-072412	BRN	0.77
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-120-SWOLF-RBT-198/78-072412	RBT	0.71
S WOLF C NR CHICAGO PARK CA	SNI-043	390722121013901	07/23/2012	SN12-123-SWOLF-RBT-221/107-072412	RBT	0.82
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-135-SDEER-RBT-183/62-072512	RBT	1.29
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-136-SDEER-RBT-222/121-072512	RBT	1.25
SF DEER C NR WASHINGTON CA	SNI-045	391754120504801	07/24/2012	SN12-138-SDEER-RBT-237/164-072512	RBT	1.11
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-146-SYASP-BRN-231/125-080712	BRN	0.87
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-149-SYASP-BRN-244/146-080712	BRN	0.97
S YUBA R NR CISCO CA	SNI-046	11414000	08/06/2012	SN12-152-SYASP-BRN-294/271-080712	BRN	0.98
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-161-SYBSP-RBT-188/67-080912	RBT	1.86
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-164-SYBSP-RBT-200/75-080912	RBT	1.55
S YUBA R AB LANGS CROSSING NR EMIGRANT GAP CA	SNI-044	391911120392201	08/08/2012	SN12-167-SYBSP-RBT-224/109-080912	RBT	1.40
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-174-FORDY-RBT-182/56-082312	RBT	1.14
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-176-FORDY-RBT-197/70-082312	RBT	0.93
FORDYCE C AB LK SPAULDING NR EMIGRANT GAP CA	SNI-047	392122120364501	08/22/2012	SN12-178-FORDY-RBT-220/97-082312	RBT	1.12
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-188-NFYEL-RBT-172/44-100312	RBT	1.10
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-191-NFYEL-RBT-181/53-100312	RBT	1.17
BELDEN PH A BELDEN CA	SNI-049	11403050	10/02/2012	SN12-194-NFYEL-RBT-223/111-100312	RBT	1.09
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-203-NFSPA-RBT-217/90-100412	RBT	0.75
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-206-NFSPA-RBT-221/103-100412	RBT	0.67
SPANISH CREEK BLW CLEAR C NR KEDDIE CA	SNI-050	400129120580701	10/03/2012	SN12-209-NFSPA-RBT-321/306-100412	RBT	0.74
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-216-SFABV-RBT-212/87-100912	RBT	0.76
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-219-SFABV-RBT-219/100-100912	RBT	0.78
SF FEATHER R NR LA PORTE CA	SNI-051	394034121051801	10/08/2012	SN12-222-SFABV-RBT-250/156-100912	RBT	0.64
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-231-SFBLW-RBT-169/52-101112	RBT	0.83
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-235-SFBLW-RBT-188/69-101112	RBT	0.85
SF FEATHER R 0.15 MI BL FORBESTOWN DAM CA	SNI-052	393302121124501	10/10/2012	SN12-237-SFBLW-RBT-204/85-101112	RBT	1.24

Table 17. Selenium concentrations in fish tissue.—Continued

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. **Abbreviations:** A, at; AB, above; ABV, above; BLW, below; BRN, brown trout; C, Creek; CA, California; dw, dry weight; HWY, Highway; ID, identification; LK, Lake; MF, Middle Fork; MI, mile; mm/dd/yyyy, month/day/year; NF, North Fork; NR, near; PH, Powerhouse; R, River; RBT, rainbow trout, RD, Road; S, South; Se, selenium, SF, South Fork; VLY, Valley; µg/g, microgram per gram]

Station name	Project ID	Site ID	Date (mm/dd/yyyy)	Sample ID	Species	Parameter (parameter code)
						Se (49254) (µg/g dw)
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-241-MFLPT-RBT-188/49-101612	RBT	0.67
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-248-MFLPT-RBT-255/132-101612	RBT	0.66
MF FEATHER R ABV BRAY C NR SLOAT CA	SNI-054	395141120504901	10/15/2012	SN12-254-MFLPT-RBT-324/303-101612	RBT	0.55
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-259-MFMIL-RBT-191/63-101712	RBT	1.10
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-264-MFMIL-RBT-236/116-101712	RBT	0.87
MF FEATHER R A MILSAP BAR NR BRUSH CREEK CA	SNI-053	394237121161801	10/16/2012	SN12-269-MFMIL-RBT-292/216-101712	RBT	0.85
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-271-SASIL-RBT-250/126-103012	RBT	1.00
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-279-SASIL-RBT-278/181-103012	RBT	1.01
SILVER FORK OF AMERICAN R NR KYBURZ CA	SNI-056	384526120162901	10/29/2012	SN12-284-SASIL-RBT-312/270-103012	RBT	1.01
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-288-SAMOS-RBT-187/29-110512	RBT	0.44
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-293-SAMOS-RBT-216/67-110512	RBT	0.42
SF AMERICAN R A MOSQUITO RD NR PLACERVILLE CA	SNI-055	384634120445301	11/04/2012	SN12-298-SAMOS-RBT-258/129-110512	RBT	0.43
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-318-MANFK-RBT-187/61-111412	RBT	1.27
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-322-MANFK-RBT-206/79-111412	RBT	1.45
NF OF MF AMERICAN R NR MICHIGAN BLUFF CA	SNI-057	390120120431601	11/13/2012	SN12-326-MANFK-RBT-225/92-111412	RBT	1.43
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-301-MARUB-RBT-205/46-110712	RBT	0.42
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-306-MARUB-RBT-238/77-110712	RBT	0.38
RUBICON R NR VOLCANOVILLE CA	SNI-058	385957120432401	11/06/2012	SN12-311-MARUB-RBT-323/272-110712	RBT	0.46

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Appendix 1. Analytical Methods Used for Water, Sediment, and Fish Tissue

Table 1–1. Analytical methods used for the determination of constituents in water by the U.S. Geological Survey (USGS) National Water Quality Laboratory (NWQL), National Research Program (NRP), and additional laboratories.

[Full citation in reference list. **Abbreviations:** AES, atomic emission spectrometry; CA, California; CAWSC, California Water Science Center; CB, Central Branch; CO, Colorado; EPA, U.S. Environmental Protection Agency; FDEP, Florida Department of Environmental Protection; ICP, inductively coupled plasma; MS, mass spectrometry; WB, Western Branch]

Analyte(s)	Analytical method(s)	USGS laboratory	Citation(s)
Total mercury (THg)	Cold vapor atomic fluorescence spectrometry (CVAFS)	NRP-WB, Menlo Park, CA	EPA Method 1631, Revision E (EPA, 2002b)
Methylmercury (MeHg)	Atomic fluorescence after ethylation	NRP-WB, Menlo Park, CA	FDEP (2011), FDEP (2013)
Reactive mercury (Hg(II) _R)	Atomic fluorescence after reaction with tin dichloride (SnCl ₂)	NRP-WB, Menlo Park, CA	Marvin-DiPasquale and Cox (2007)
Dissolved organic carbon (DOC)	High temperature combustion and infrared detection	CAWSC, Sacramento, CA	Stumpner and others (2015)
Total dissolved nitrogen (TDN)	High temperature combustion and infrared detection	CAWSC, Sacramento, CA	Bird and others (2003)
Total particulate carbon and nitrogen (TPCN)	High temperature combustion	NWQL	EPA Method 440.0, Zimmermann and others (1997)
Organic nitrogen and ammonia	Colorimetric, phosphomolybdate-blue procedure	NWQL	Fishman and Friedman (1989), Patton and Truitt (1992)
Ammonia and ammonium	Colorimetric after alicylatehypochlorite	NWQL	Fishman (1993)
Nitrate and nitrite	Diazotization after reduction	NWQL	Fishman (1993)
Nitrite	Colorimetric after diazotization	NWQL	Fishman (1993)
Total phosphorus	Colorimetric after Kjeldahl digestion	NWQL	Patton and Truitt (1992)
Orthophosphate	Colorimetric, phosphomolybdate-blue procedure	NWQL	Fishman (1993), Patton and Truitt (1992)
Alkalinity	Titration	NWQL	Fishman and Friedman (1989)
Chlorophyll <i>a</i> and pheophytin <i>a</i>	Fluorescence	NWQL	EPA Method 445.0, Arar and Collins (1997)
Chloride	Ion-exchange chromatographic	NWQL	Fishman and Friedman (1989)
Sulfate	Ion-exchange chromatographic	NWQL	Fishman and Friedman (1989)
Suspended sediment (SSC)	Gravimetry	CAWSC, Santa Cruz, CA	Guy (1969), Matthes and others (1992)
Cations and trace elements	ICP-AES and ICP-MS	NRP-CB, Boulder, CO	Fishman and Friedman (1989), Garbarino and Taylor (1996), Mitko and Bebek (1999, 2000)

Table 1–2. Analytical methods used for the determination of constituents in sediment and particulates by the U.S. Geological Survey (USGS) National Water Quality Laboratory (NWQL), National Research Program (NRP), and additional laboratories.

[AES, atomic emission spectrometry; CA, California; CAWSC, California Water Science Center; CB, Central Branch; CO, Colorado; ICP, inductively coupled plasma; MS, mass spectrometry; WB, Western Branch; °C, degree Celsius]

Analyte(s)	Analytical methods	USGS Laboratory	Citation(s)
Total mercury (THg)	Atomic fluorescence	NRP-WB, Menlo Park, CA	Olund and others (2004)
Methylmercury (MeHg)	Atomic fluorescence after ethylation	NRP-WB, Menlo Park, CA	De Wild and others (2002)
Reactive mercury (Hg(II) _R)	Atomic fluorescence after reaction with tin dichloride (SnCl ₂)	NRP-WB, Menlo Park, CA	Marvin-DiPasquale and Cox (2007)
Major elements and trace elements	ICP-AES and ICP-MS	NRP-CB, Boulder, CO	Fishman and Friedman (1989), Garbarino and Taylor (1996), Mitko and Bebek (1999, 2000)
Ferrous iron (Fe(II))	Spectrophotometry after weak acid extraction	NRP-WB, Menlo Park, CA	Lovley and Phillips (1986)
Crystalline ferric iron (Fe(III) _c)	Spectrophotometry after weak acid extraction	NRP-WB, Menlo Park, CA	Roden and Zachara (1996)
Amorphous ferric iron (Fe(III) _a)	Following Fe(II) method, reduction and spectrophotometry	NRP-WB, Menlo Park, CA	Lovley and Phillips (1986)
Total reduced sulfur (TRS)	Heated acid and chromium distillation	NRP-WB, Menlo Park, CA	Fossing and Jørgensen (1989)
Bulk density	Weight: volume ratio	NRP-WB, Menlo Park, CA	American Public Health Association (1981a)
Dry weight	Drying at 105 °C	NRP-WB, Menlo Park, CA	American Public Health Association (1981b)
Porosity	Drying at 105 °C	NRP-WB, Menlo Park, CA	American Public Health Association (1981a)
Loss on ignition (LOI)	Drying at 500 °C	NRP-WB, Menlo Park, CA	American Public Health Association (1981b)
Grain-size distribution	Sieving	NRP-WB, Menlo Park, CA	Matthes and others (1992)
Grain-size distribution	Laser scattering	CAWSC, Sacramento, CA	Eschel and others (2004)

Table 1–3. Analytical methods used for the determination of constituents in fish.

[CA, California; EPA, U.S. Environmental Protection Agency; ICP, inductively coupled plasma; MS, mass spectrometry; NRP, National Research Program; UCD, University of California, Davis; USGS, U.S. Geological Survey; WB, Western Branch]

Analyte(s)	Analytical methods	Laboratory	Citation(s)
Total mercury (THg)	Atomic absorption	UCD, Davis, CA	EPA (2002a)
Selenium (Se)	ICP-MS	USGS NRP-WB, Menlo Park, CA	Elrick and Horowitz (1985), EPA Method 6800 (EPA, 2007), Liber (2012), Presser and Barnes (1984)

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Appendix 2. Quality-Assurance Data for Surface Water

Table 2-1A. Quality-assurance data for surface-water total mercury (filtered), standard reference material and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.04 nanogram per liter (ng/L; 2011); 0.06 ng/L (2012). **Abbreviations:** Dup, duplicate; MB, matrix blank; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; nd, not determined; RPD, relative percent difference; SRM, standard reference material; <, less than]

Analytical batch number	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (ng/L)	SRM percent recovery	Dup percent difference	MS percent recovery	MSD percent recovery	MSD RPD (percentage)
owHgT20120323	09/07/2011	11/02/2011	nd	113.1	nd	96.3	nd	nd
owHgT20120323	09/07/2011	11/02/2011	<MDL	nd	nd	97.1	nd	nd
owHgT20130105	08/30/2012	11/15/2012	nd	112.0	nd	93.4	nd	nd
owHgT20130105	08/30/2012	11/15/2012	<MDL	112.0	nd	89.6	nd	nd
owHgT20130105	08/30/2012	11/15/2012	nd	nd	nd	88.3	nd	nd

Table 2-1B. Quality-assurance data for surface-water total mercury (filtered), equipment blanks.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.04 nanogram per liter (ng/L; 2011); 0.06 ng/L (2012). **Abbreviations:** E, estimated; ID, identification; mm/dd/yyyy, month, day, year; THg, total mercury; <, less than]

Date (mm/dd/yyyy)	Project ID	THg (ng/L)
09/08/2011	SNI-004	0.10
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	E0.09

Table 2-1C. Quality-assurance data for surface-water total mercury (filtered), field replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.04 nanogram per liter (ng/L; 2011); 0.06 ng/L (2012). **Abbreviations:** E, estimated; env, environmental; ID, identification; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference; THg, total mercury; <, less than]

Date (mm/dd/yyyy)	Project ID	THg rep (ng/L)	THg env (ng/L)	THg RPD (percent)
09/07/2011	SNI-003	E0.37	E0.50	30
08/30/2012	SNI-041	E0.18	E0.20	11
11/07/2012	SNQ-054	0.60	0.59	1.7

Table 2–2A. Quality-assurance data for surface-water total mercury (particulate), standard reference material and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.07 nanogram per liter (ng/L). **Abbreviations:** MB, matrix blank; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; nd, not determined; RPD, relative percent difference; SRM, standard reference material; <, less than]

Analytical batch number	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (ng/L)	SRM percent recovery	Duplicate percent difference	MS percent recovery	MSD percent recovery	MSD RPD (percentage)
pTHg20120627	09/07/2011	11/02/2011	<MDL	91.39	nd	nd	nd	nd
pTHg20130109	08/30/2012	11/15/2012	9.03	85.07	nd	nd	nd	nd
pTHg20130114	08/30/2012	11/15/2012	<MDL	87.45	nd	nd	nd	nd
pTHg20130117	08/30/2012	11/15/2012	3.35	84.65	nd	nd	nd	nd
pTHg20130117	08/30/2012	11/15/2012	<MDL	83.98	nd	nd	nd	nd

Table 2–2B. Quality-assurance data for surface-water total mercury (particulate), equipment blanks.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.07 nanogram per liter (ng/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; THg-p, total mercury (particulate); <, less than]

Date (mm/dd/yyyy)	Project ID	THg-p (ng/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–2C. Quality-assurance data for surface-water total mercury (particulate), field replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.07 nanogram per liter (ng/L). **Abbreviations:** E, estimated value - concentration between MDL and lowest calibration standard; env, environmental; ID, identification; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference; THg-p, total mercury (particulate); <, less than]

Date (mm/dd/yyyy)	Project ID	THg-p rep (ng/L)	THg-p env (ng/L)	THg-p RPD (percent)
09/07/2011	SNI-003	E0.28	E0.20	33
08/30/2012	SNI-041	0.12	E0.058	70
11/07/2012	SNQ-054	E0.14	E0.15	6.9

Table 2–3A. Quality-assurance data for surface-water methylmercury (filtered), standard reference materials and matrix spikes.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.004 nanogram per liter (ng/L). **Abbreviations:** MB, matrix blank; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; nd, not determined; RPD, relative percent difference; SRM, standard reference material; <, less than]

Analytical batch number	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (ng/L)	SRM percent recovery	Duplicate percent difference	MS percent recovery	MSD percent recovery	MSD RPD (percentage)
owMeHg20120301	09/07/2011	11/02/2011	0.004	106.5	nd	106.5	nd	nd
owMeHg20120301	09/07/2011	11/02/2011	0.005	99.2	nd	nd	nd	nd
owMeHg20120228	09/07/2011	11/02/2011	0.005	107.8	nd	nd	nd	nd
owMeHg20130213	08/30/2012	11/15/2012	0.008	110.5	nd	99.2	nd	nd
owMeHg20130116	08/30/2012	11/15/2012	0.004	nd	nd	107.8	nd	nd
owMeHg20130306	08/30/2012	11/15/2012	nd	nd	nd	110.5	nd	nd

Table 2–3B. Quality-assurance data for surface-water methylmercury (filtered), equipment field blanks.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.004 nanogram per liter (ng/L). **Abbreviations:** ID, identification; MeHg, methylmercury; <, less than]

Date (mm/dd/yyyy)	Project ID	MeHg (ng/L)
09/08/2011	SNI-004	< MDL
09/21/2011	SNI-010	< MDL
11/03/2011	SNI-015	0.006
09/20/2012	SNQ-002	< MDL
10/16/2012	SNQ-003	< MDL

Table 2–3C. Quality-assurance data for surface-water methylmercury (filtered), field replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.004 nanogram per liter (ng/L). **Abbreviations:** env, environmental; ID, identification; MeHg, methylmercury; rep, replicate; RPD, relative percent difference; <, less than]

Date (mm/dd/yyyy)	Project ID	MeHg-f rep (ng/L)	MeHg env (ng/L)	MeHg RPD (percentage)
09/07/2011	SNI-003	0.027	0.028	3.6
08/30/2012	SNI-041	0.042	0.037	13
11/07/2012	SNQ-054	0.021	0.032	42

Table 2-4A. Quality-assurance data for surface-water methylmercury (particulate), standard reference materials and matrix spikes.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.12 picogram/gram (pg/g), corresponding to a volumetric concentration of approximately 0.004 nanogram per liter (ng/L).

Abbreviations: MB, matrix blank; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; nd, not determined; RPD, relative percent difference; SRM, standard reference material; <, less than]

Analytical batch number	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (ng/L)	SRM percent recovery	Duplicate percent difference	MS percent recovery	MSD percent recovery	MSD RPD (percentage)
pMeHg20120622	09/07/2011	11/02/2011	<MDL	107	nd	nd	nd	nd
pMeHg20120622	09/07/2011	11/02/2011	<MDL	nd	nd	nd	nd	nd
pMeHg20120626	09/07/2011	11/02/2011	<MDL	102	nd	nd	nd	nd
pMeHg20130227	08/30/2012	11/15/2012	<MDL	113	4.03	nd	nd	nd
pMeHg20130227	08/30/2012	11/15/2012	<MDL	99.2	nd	nd	nd	nd
pMeHg20130227	08/30/2012	11/15/2012	<MDL	98.1	nd	nd	nd	nd

Table 2-4B. Quality-assurance data for surface-water methylmercury (particulate), equipment blanks.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.12 picogram per gram (pg/g), corresponding to a volumetric concentration of approximately 0.004 nanogram per liter (ng/L).

Abbreviations: ID, identification; MeHg-p, particulate methylmercury; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	MeHg-p (ng/L)
09/08/2011	SNI-004	<0.004
09/21/2011	SNI-010	<0.004
11/03/2011	SNI-015	<0.004
09/20/2012	SNQ-002	<0.004
10/16/2012	SNQ-003	<0.004

Table 2-4C. Quality-assurance data for surface-water methylmercury (particulate), field replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch, Menlo Park, California. Method detection limit (MDL) = 0.12 picogram per gram (pg/g), corresponding to a volumetric concentration of approximately 0.004 nanogram per liter (ng/L).

Abbreviations: env, environmental; ID, identification; MeHg-p, particulate methylmercury; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference; <, less than]

Date (mm/dd/yyyy)	Project ID	MeHg-p rep (ng/L)	MeHg-p env (ng/L)	MeHg-p RPD (percentage)
09/07/2011	SNI-003	0.011	0.012	8.7
08/30/2012	SNI-041	0.009	0.007	25
11/07/2012	SNQ-054	0.007	0.009	25

Table 2-5. Quality-assurance data for replicate analyses of surface-water total suspended solids.

[N=2. **Abbreviations:** AVG, average concentration of pair; DEV, deviation, equal to half of absolute difference; ID, identification; mg/L, milligram per liter; %DEV, DEV expressed as a percentage of AVG]

Batch code	Sample ID	AVG (mg/L)	DEV (mg/L)	%DEV
TSS20120416	SNI-001	0.43	0.11	26
TSS20120416	SNI-002	0.33	0.03	10
TSS20120416	SNI-003	0.41	0.04	9.4
TSS20120416	SNI-005	0.97	0.03	2.8
TSS20120416	SNI-006	2.84	0.21	7.2
TSS20120416	SNI-007	2.33	0.37	16
TSS20120416	SNI-009	1.78	0.08	4.6
TSS20120416	SNI-011	3.00	0.80	27
TSS20120416	SNI-013	0.29	0.21	71
TSS20120416	SNI-012	0.17	0.09	56
TSS20130107	SNI-040	0.32	0.08	26
TSS20130107	SNI-041	0.68	0.03	4.1
TSS20130107	SNI-042	8.70	0.56	6.4
TSS20130107	SNI-044	0.35	0.02	5.8
TSS20130107	SNI-045	2.31	0.20	8.8
TSS20130107	SNI-046	0.49	0.00	0.2
TSS20130107	SNI-047	0.53	0.01	2.3
TSS20130107	SNI-048	0.25	0.06	25
TSS20130107	SNI-049	0.90	0.10	11
TSS20130107	SNI-050	1.53	0.07	4.3
TSS20130107	SNI-052	0.64	0.15	23
TSS20130107	SNI-054	1.08	0.00	0.3
TSS20130107	SNQ-054	0.98	0.02	2.4
TSS20130107	SNI-053	3.49	0.26	7.5
TSS20130107	SNI-055	1.49	0.09	5.8
TSS20130107	SNI-056	0.14	0.10	73
TSS20130107	SNI-057	0.22	0.19	85

Table 2–6A. Quality-assurance data for surface-water dissolved organic carbon (DOC), standard reference materials, lab duplicates, and matrix spikes.

[Laboratory reporting limit (LRL) for DOC is 0.3 milligram per liter (mg/L). **Abbreviations:** dup, duplicate; ID, identification; KHP, potassium hydrogen phthalate; mm/dd/yyyy, month/day/year; MS, matrix spike; n, number of analyses; nd, not determined; RPD, relative percent difference; RSD, relative standard deviation; SRM, standard reference material; <, less than]

Analytical batch ID (mm/dd/yyyy)	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	Laboratory blank (n)	Average laboratory blank (mg/L)	KHP SRM (n)	Average KHP SRM percent recovery	KHP percent RSD	Caffeine SRM (n)	Average caffeine SRM percent recovery	Caffeine percent RSD
09/19/2012	08/30/2012	09/06/2012	22	<LRL	10	97.0	1.7	4	101	3.4
10/02/2012	09/20/2012	09/25/2012	18	<LRL	8	98.3	0.75	4	104	2.2
10/18/2012	10/01/2012	10/03/2012	18	<LRL	8	105	2.3	4	112	3.8
11/01/2012	10/16/2012	10/31/2012	18	<LRL	8	97.9	5.1	4	127	3.8
11/30/2012	11/07/2012	11/15/2012	22	<LRL	10	97.0	2.3	4	98.9	2.7
09/12/2011	09/07/2011	09/08/2011	18	<LRL	8	93.2	2.7	4	105	2.6
09/22/2011	09/19/2011	09/20/2011	14	<LRL	6	98.2	3.4	3	102	2.2
10/04/2011	09/20/2011	09/21/2011	10	<LRL	4	92.1	7.1	2	97.7	0.68
11/29/2011	11/02/2013	11/03/2011	14	<LRL	6	97.7	1.7	3	102	1.7

Analytical batch ID (mm/dd/yyyy)	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	Laboratory duplicate (n)	Average laboratory duplicate percent recovery	Laboratory duplicate percent RSD	Matrix spike (n)	Average MS percent recovery	MS percent RSD
09/19/2012	08/30/2012	09/06/2012	6	98.8	36	6.0	92.7	2.4
10/02/2012	09/20/2012	09/25/2012	5	104	3.9	4.0	104.9	4.5
10/18/2012	10/01/2012	10/03/2012	5	101	3.4	4.0	100.3	6.9
11/01/2012	10/16/2012	10/31/2012	5	105	6.7	4.0	100.7	1.9
11/30/2012	11/07/2012	11/15/2012	6	101	11	6.0	87.0	12.7
09/12/2011	09/07/2011	09/08/2011	5	99.4	3.3	4.0	96.4	25.4
09/22/2011	09/19/2011	09/20/2011	4	101	3.0	4.0	107.1	4.0
10/04/2011	09/20/2011	09/21/2011	2	105	5.1	2.0	96.5	7.3
11/29/2011	11/02/2013	11/03/2011	4	101	3.6	4.0	109.6	1.5

Table 2-6B. Quality-assurance data for surface-water dissolved organic carbon (DOC), equipment blanks.

[Laboratory reporting limit (LRL) for DOC is 0.3 milligram per liter (mg/L).
Abbreviations: E, estimated; ID, identification; mm/dd/yyyy, month/day/year]

Date (mm/dd/yyyy)	Project ID	DOC (mg/L)
09/08/2011	SNI-004	E0.12
09/21/2011	SNI-010	E0.11
09/20/2012	SNQ-002	E0.10
10/16/2012	SNQ-003	0.44

Table 2-6C. Quality-assurance data for surface-water dissolved organic carbon (DOC), field replicates.

[Laboratory reporting limit (LRL) for DOC is 0.3 milligram per liter (mg/L).
Abbreviations: env, environmental sample; ID, identification; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent deviation]

Date (mm/dd/yyyy)	Project ID	DOC rep (mg/L)	DOC env (mg/L)	DOC RPD (percentage)
09/07/2011	SNI-003	0.51	0.59	15
08/30/2012	SNI-041	0.60	0.62	3.3
11/07/2012	SNQ-054	1.7	1.7	0.0

Table 2-7A. Quality assurance data for surface-water absorbance spectral indicators, equipment blanks.

[All analyses performed at the U.S. Geological Survey California Water Science Center. Method detection limit (MDL) for A_{254} is 0.008 absorbance units (AU), A_{280} is 0.006 AU, A_{370} is 0.005 AU, A_{412} is 0.004 AU, and A_{440} is 0.004 AU. **Abbreviations:** A_{xxx} , absorbance at xxx nanometer (nm); ID, identification; $L\ mg^{-1}m^{-1}$, liter per milligram per meter; mm/dd/yyyy, month/day/year; na, not applicable; $S_{agxxx-xxx}$, spectral slope ratio between xxx nm and xxx nm; SUVA, specific ultraviolet absorbance; <, less than]

Date (mm/dd/yyyy)	Project ID	A_{254} (AU)	A_{280} (AU)	A_{370} (AU)	A_{412} (AU)	A_{440} (AU)	SUVA ₂₅₄ ($L\ mg^{-1}m^{-1}$)	$S_{ag275-290}$	$S_{ag290-350}$	$S_{ag350-400}$	$S_{ag412-676}$
09/08/2011	SNI-004	<MDL	<MDL	<MDL	<MDL	<MDL	na	na	na	na	na
09/21/2011	SNI-010	<MDL	<MDL	<MDL	<MDL	<MDL	na	na	na	na	na
11/03/2011	SNI-015	<MDL	<MDL	<MDL	<MDL	<MDL	na	na	na	na	na
09/20/2012	SNQ-002	<MDL	<MDL	<MDL	<MDL	<MDL	na	na	na	na	na
10/16/2012	SNQ-003	<MDL	<MDL	<MDL	<MDL	<MDL	na	na	na	na	na

Table 2–8B. Quality assurance data for surface-water fluorescence spectral indicators, field replicates.

[All analyses performed at the U.S. Geological Survey California Water Science Center. Definitions of peaks at excitation-emission pairs are based on Stedmon and others (2003).

Abbreviations: ex###em###, excitation at ### nanometer (nm)-emission at ### nm; E, estimated; fdom, fluorescence of dissolved organic matter; FI, fluorescence index, from Cory and McKnight (2005); HIX, humic index, from Ohno (2002); ID, identification; MDL, method detection limit; mm/dd/yyyy, month/day/year; nd, not determined; RU, Raman units; RPD, relative percent difference; <, less than]

Date (mm/dd/yyyy)	Project ID	peak A ex260em450 (RU)	peak C ex340em440 (RU)	peak M ex300em390 (RU)	peak D ex390em510 (RU)	peak B ex275em304 (RU)	peak T ex275em340 (RU)	peak N ex280em370 (RU)	fdom ex370em460 (RU)	FI	HIX
09/07/2011	SNI-003	0.07	0.04	E0.03	0.02	<MDL	E0.0301	E0.0275	E0.0329	1.6	0.8
08/30/2012	SNI-041	0.07	0.04	E0.03	0.02	E0.02	E0.03	E0.03	0.030	1.5	0.8
11/07/2012	SNQ-054	0.3	0.2	0.1	0.06	<MDL	E0.06	0.1	0.1	1.6	0.9

Date (mm/dd/yyyy)	Project ID	peak A ex260em450 (RPD)	peak C ex340em440 (RPD)	peak M ex300em390 (RPD)	peak D ex390em510 (RPD)	peak B ex275em304 (RPD)	peak T ex275em340 (RPD)	peak N ex280em370 (RPD)	fdom ex370em460 (RPD)	FI (RPD)	HIX (RPD)
09/07/2011	¹ SNI-003	5.4	3.3	3.3	3.4	0.7	nd	nd	4.6	8.8	0.3
08/30/2012	² SNI-041	4.7	0.2	nd	0.2	nd	nd	nd	0.6	4.2	1.2
11/07/2012	³ SNQ-054	2.3	3.1	0.4	1.5	6.7	39	10	0.5	7.8	2.8

¹Compared with sample SNI-002.

²Compared with sample SNI-040.

³Compared with sample SNI-054.

Table 2–8C. Quality-assurance data for surface-water fluorescence spectral indicators, field replicates.

[All analyses performed at the U.S. Geological Survey California Water Science Center. Definitions of peaks at excitation-emission pairs are based on Stedmon and others (2003).

Abbreviations: ex###em###, excitation at ### nanometer (nm)-emission at ### nm; E, estimated; fdom, fluorescence of dissolved organic matter; FI, fluorescence index, from Cory and McKnight (2005); HIX, humic index, from Ohno (2002); ID, identification; MDL, method detection limit; mm/dd/yyyy, month/day/year; RU, Raman units; RPD, relative percent difference; <, less than]

Date (mm/dd/yyyy)	Project ID	peak A ex260em450 (RU)	peak C ex340em440 (RU)	peak M ex300em390 (RU)	peak D ex390em510 (RU)	peak B ex275em304 (RU)	peak T ex275em340 (RU)	peak N ex280em370 (RU)	fdom ex370em460 (RU)	FI	HIX
09/07/2011	SNI-003	0.07	0.04	E0.03	0.02	<MDL	E0.0301	E0.0275	E0.0329	1.6	0.8
11/07/2012	SNQ-054	0.3	0.2	0.1	0.06	<MDL	E0.06	0.1	0.1	1.6	0.9

Date (mm/dd/yyyy)	Project ID	peak A ex260em450 (RPD)	peak C ex340em440 (RPD)	peak M ex300em390 (RPD)	peak D ex390em510 (RPD)	peak B ex275em304 (RPD)	peak T ex275em340 (RPD)	peak N ex280em370 (RPD)	fdom ex370em460 (RPD)	FI (RPD)	HIX (RPD)
09/07/2011	SNI-003	5.4	3.3	3.3	3.4	0.7	41	15	4.6	8.8	0.3
11/07/2012	SNQ-054	2.3	3.1	0.4	1.5	6.7	39	10	0.5	7.8	2.8

Table 2–9A. Quality-assurance data for surface-water total particulate carbon and nitrogen, equipment blanks.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) was 0.03 milligram per liter (mg/L) for particulate inorganic carbon (PIC), 0.05 to 0.12 mg/L for particulate organic carbon (POC), 0.05 mg/L for total particulate carbon (TPC), and 0.017 mg/L for total particulate nitrogen (TPN). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	PIC (mg/L)	POC (mg/L)	TPC (mg/L)	TPN (mg/L)
09/08/2011	SNI-004	<0.03	<0.12	<0.05	<0.017
09/21/2011	SNI-010	<0.03	<0.12	<0.05	<0.017

Table 2–9B. Quality-assurance data for surface-water total particulate carbon and nitrogen, field replicates.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) was 0.03 milligram per liter (mg/L) for particulate inorganic carbon (PIC), 0.05 to 0.12 mg/L for particulate organic carbon (POC), 0.05 mg/L for total particulate carbon (TPC), and 0.017 mg/L for total particulate nitrogen (TPN). **Abbreviations:** ID, identification; lt, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; nd, not determined; rep., replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	PIC rep (mg/L)	POC rep (mg/L)	TPC rep (mg/L)	TPN rep (mg/L)	PIC RPD (percentage)	POC RPD (percentage)	TPC RPD (percentage)	TPN RPD (percentage)
09/07/2011	¹ SNI-003	<0.03	<0.12	<0.05	<0.017	0, lt	0, lt	0, lt	nd
11/07/2012	² SNQ-054	<0.03	0.12	0.13	0.12	0, lt	8.7	0	86

¹Compared with sample SNI-002.

²Compared with sample SNI-054.

Table 2–10A. Quality-assurance data for surface-water organic nitrogen plus ammonia (unfiltered), equipment blanks.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.07 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than; +, plus]

Date (mm/dd/yyyy)	Project ID	Organic nitrogen + ammonia (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–10B. Quality-assurance data for surface-water organic nitrogen plus ammonia (unfiltered), field replicates.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.07 milligram per liter (mg/L). **Abbreviations:** ID, identification; lt, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; nd, not determined; Rep, replicate]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	¹ SNI-003	<0.05	0, lt
08/30/2012	² SNI-041	nd	nd
11/07/2012	³ SNQ-054	0.12	8.7

¹Compared with sample SNI-002.

²Compared with sample SNI-040.

³Compared with sample SNI-054.

Table 2–11A. Quality-assurance data for surface-water organic nitrogen plus ammonia (filtered), equipment blanks.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.07 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than; +, plus]

Date (mm/dd/yyyy)	Project ID	Organic nitrogen + ammonia (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–11B. Quality-assurance data for surface-water organic nitrogen plus ammonia (filtered), field replicates.

[All analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.07 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	SNI-003	<0.07	0, It
08/30/2012	SNI-041	<0.07	0, It
11/07/2012	SNQ-054	0.14	7.4

Table 2–12A. Quality-assurance data for surface-water nitrate plus nitrite (filtered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.04 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than; +, plus]

Date (mm/dd/yyyy)	Project ID	Nitrate + Nitrite (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	0.06

Table 2–12B. Quality-assurance data for surface-water nitrate plus nitrite (filtered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.04 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	SNI-003	0.024	4.3
08/30/2012	SNI-041	<0.04	0, It
11/07/2012	SNQ-054	<0.04	0, It

Table 2–13A. Quality-assurance data for surface-water ammonia (filtered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.01 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Ammonia (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–14A. Quality-assurance data for surface-water nitrite (filtered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.001 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Nitrite (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–13B. Quality-assurance data for surface-water ammonia (filtered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.01 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; nd, not determined; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	SNI-003	<0.01	nd
08/30/2012	SNI-041	<0.01	0, It
11/07/2012	SNQ-054	<0.01	0, It

Table 2–14B. Quality-assurance data for surface-water nitrite (filtered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.001 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	SNI-003	<0.001	0, It
08/30/2012	SNI-041	<0.001	0, It
11/07/2012	SNQ-054	<0.001	0, It

Table 2–15A. Quality-assurance data for surface-water total phosphorus (unfiltered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.004 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Total phosphorus (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–16A. Quality-assurance data for surface water total phosphorus (filtered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.003 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Total phosphorus (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–15B. Quality-assurance data for surface-water total phosphorus (unfiltered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.004 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; nd, not determined; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	RPD (percentage)
09/07/2011	SNI-003	<0.004	0, It
08/30/2012	SNI-041	nd	nd
11/07/2012	SNQ-054	0.017	0.0

Table 2–16B. Quality-assurance data for surface water total phosphorus (filtered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.003 milligram per liter (mg/L). **Abbreviations:** ID, identification; It, both replicate and environmental sample less than (<) MDL; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Rep (mg/L)	Env (mg/L)	RPD (percentage)
09/07/2011	SNI-003	<0.003	<0.003	0, It
08/30/2012	SNI-041	0.008	0.008	0.0
11/07/2012	SNQ-054	0.013	0.013	0.0

Table 2–17A. Quality-assurance data for surface-water orthophosphate (filtered), equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.004 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	ortho phosphate (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–18A. Quality-assurance data for surface-water alkalinity, equipment blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. **Abbreviations:** CaCO₃, calcium carbonate; ID, identification; mg/L, milligram per liter; mm/dd/yyyy, month/day/year]

Station ID	Date (mm/dd/yyyy)	Alkalinity (mg/L as CaCO ₃)
SNI-010	09/21/2011	4.0
SNI-015	11/03/2011	2.7
SNQ-002	09/20/2012	3.4
SNQ-003	10/16/2012	4.6

Table 2–17B. Quality-assurance data for surface-water orthophosphate (filtered), field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.004 milligram per liter (mg/L). **Abbreviations:** env, environmental sample; ID, identification; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	ortho phosphate rep (mg/L)	ortho phosphate env (mg/L)	RPD (percentage)
09/07/2011	SNI-003	0.005	0.005	0.0
08/30/2012	SNI-041	0.010	0.010	0.0
11/07/2012	SNQ-054	0.011	0.011	0.0

Table 2–18B. Quality-assurance data for surface-water alkalinity, field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. **Abbreviations:** CaCO₃, calcium carbonate; env, environmental sample; ID, identification; mg/L, milligram per liter; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference]

Station ID	Project ID	Date (mm/dd/yyyy)	Alkalinity rep (mg/L as CaCO ₃)	Alkalinity env (mg/L as CaCO ₃)	Alkalinity RPD (percentage)
392119120484901	SNI-003	09/07/2011	36.0	36.0	0.0
383403120272101	SNI-041	08/30/2012	23.2	23.1	0.4
395141120504901	SNQ-054	11/07/2012	72.0	72.2	0.3

Table 2–19. Quality-assurance data for chlorophyll and pheophytin, field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. **Abbreviations:** Chl, chlorophyll *a*; env, environmental sample; ID, identification; mg/L, milligram per liter; Pheo, pheophytin *a*; rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Chl rep (mg/L)	Chl env (mg/L)	Chl RPD (percentage)	Pheo rep (mg/L)	Pheo env (mg/L)	Pheo RPD (percentage)
09/07/2011	SNI-003	E0.11	E0.1	9.5	0.25	0.24	4.1
11/07/2012	SNQ-054	0.51	0.48	6.1	0.83	0.78	6.2

Table 2–20A. Quality-assurance data for surface-water sulfate, field blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.09 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Sulfate (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	0.18
10/16/2012	SNQ-003	<MDL

Table 2–20B. Quality-assurance data for surface-water sulfate, field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.09 milligram per liter (mg/L). **Abbreviations:** env, environmental sample; ID, identification; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Sulfate rep (mg/L)	Sulfate env (mg/L)	Sulfate RPD (percentage)
09/07/2011	SNI-003	5.3	4.6	14.1
08/30/2012	SNI-041	1.3	1.4	7.4
11/07/2012	SNQ-054	4.8	4.8	0.0

Table 2–21A. Quality-assurance data for surface-water chloride, field blanks.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.06 milligram per liter (mg/L). **Abbreviations:** ID, identification; mm/dd/yyyy, month/day/year; <, less than]

Date (mm/dd/yyyy)	Project ID	Chloride (mg/L)
09/08/2011	SNI-004	<MDL
09/21/2011	SNI-010	<MDL
11/03/2011	SNI-015	<MDL
09/20/2012	SNQ-002	<MDL
10/16/2012	SNQ-003	<MDL

Table 2–22A. Quality-assurance data for surface-water suspended sediment concentration, field blanks.

[Analyses completed at the U.S. Geological Survey Santa Cruz Sediment Laboratory. **Abbreviations:** ID, identification; mg/L, milligram per liter; mm, millimeter; mm/dd/yyyy, month/day/year; na, not applicable; SSC, suspended sediment concentration; <, less than]

Project ID	Date (mm/dd/yyyy)	SSC (mg/L)	Percentage <0.063 mm
SNI-010	09/21/2011	<0.5	na
SNQ-001	08/30/2012	1.0	100
SNQ-002	09/20/2012	<0.5	na

Table 2–21B. Quality-assurance data for surface-water chloride, field replicates.

[Analyses completed at the U.S. Geological Survey National Water Quality Laboratory, Denver, Colorado. Method detection limit (MDL) is 0.06 milligram per liter (mg/L). **Abbreviations:** env, environmental sample; ID, identification; mm/dd/yyyy, month/day/year; Rep, replicate; RPD, relative percent difference]

Date (mm/dd/yyyy)	Project ID	Chloride rep (mg/L)	Chloride env (mg/L)	Chloride RPD (percentage)
09/07/2011	SNI-003	0.97	1.0	3.6
08/30/2012	SNI-041	0.47	0.52	11.2
11/07/2012	SNQ-054	1.6	1.7	5.8

Table 2–22B. Quality-assurance data for surface-water suspended sediment concentration (SSC), field replicates.

[Analyses completed at the U.S. Geological Survey Santa Cruz Sediment Laboratory. **Abbreviations:** env, environmental sample; ID, identification; mg/L, milligram per liter; mm, millimeter; mm/dd/yyyy, month/day/year; rep, replicate; RPD, relative percent difference; <, less than]

Station ID	Project ID	Date (mm/dd/yyyy)	SSC rep (mg/L)	SSC env (mg/L)	SSC RPD (percentage)	Percentage <0.063 mm rep	Percentage <0.063 mm env	<0.063 mm RPD (percentage)
392119120484901	SNI-003	09/07/2011	<0.5	1	nd	na	33	na
383403120272101	SNI-041	08/30/2012	1	2	67	89	80	11
395141120504901	SNQ-054	11/07/2012	1	2	67	100	74	30

Table 2–23A. The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; Ca, calcium; Cd, cadmium; Ce, cerium; Co, cobalt; Cr, chromium; mg/L, milligram per liter; n, number; N, total number; nd, not determined; SRM, standard reference material; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

		Al (µg/L)	As (µg/L)	B (µg/L)	Ba (µg/L)	Be (µg/L)	Bi (µg/L)	Ca (mg/L)	Cd (µg/L)	Ce (µg/L)	Co (µg/L)	Cr (µg/L)
Method detection limit		0.042	0.0039	0.86	0.0037	0.0010	0.0031	0.0078	0.0006	0.0002	0.0006	0.050
Equipment blanks (n)		3	3	3	3	3	3	3	3	3	3	3
Equipment blanks (mean concentration)		<MDL	<MDL	<MDL	0.01	0.01	<MDL	<MDL	0.0002	0.0007	0.04	<MDL
Equipment blanks (median concentration)		<MDL	<MDL	<MDL	0.01	0.01	<MDL	<MDL	<MDL	<MDL	0.02	<MDL
Replicates (n)		1	1	1	1	1	1	1	1	1	1	1
Replicates (median relative percent difference)		1.6	1.8	5.1	2.3	10.1	31.2	0.4	15.0	2.5	19.2	5.3
Standard reference (n)		39	51	81	51	51	12	78	51	16	51	51
Standard reference materials (median percent recovery)		94.5	97.8	100.0	99.9	98.4	98.7	101.1	99.6	101.2	98.5	99.6
Matrix spikes (n)		0	2	0	0	2	0	2	2	0	0	0
Matrix spikes (median percent recovery)		nd	97.7	nd	nd	107.2	nd	101.6	111.9	nd	nd	nd
Average recovery for SRM		N										
NBSD_10 (percentage)	12	87	91	—	103	93	99	—	97	—	98	99
PPREE_100 (percentage)	8	—	—	—	—	—	—	—	—	105	—	—
SCREE_100 (percentage)	8	—	—	—	—	—	—	—	—	98	—	—
USGS T135 (percentage)	12	—	103	—	99	101	—	—	100	—	100	100
USGS T173 (percentage)	¹ 12/16	100	99	100	99	99	—	101	100	—	100	101
USGS T175 (percentage)	² 12/8	96	100	97	101	102	—	102	103	—	100	103
USGS T187 (percentage)	14	—	—	102	—	—	—	102	—	—	—	—
USGS T195 (percentage)	16	—	—	106	—	—	—	102	—	—	—	—
USGS T197 (percentage)	16	—	—	97	—	—	—	99	—	—	—	—
USGS T159 (percentage)	8	—	—	101	—	—	—	101	—	—	—	—
³ Environment Canada PT97-TE06 (percentage)	—	95	97	98	98	96	—	—	98	—	95	95

¹N = 16 for boron and calcium; N = 12 for other elements.

²N = 8 for boron and calcium; N = 12 for other elements.

³The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–23B. The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; K, potassium; La, lanthanum; mg/L, milligram per liter; n, number; N, total number; nd, not determined; SRM, standard reference material; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

	Cs (µg/L)	Cu (µg/L)	Dy (µg/L)	Er (µg/L)	Eu (µg/L)	Fe (µg/L)	Ga (µg/L)	Gd (µg/L)	Ho (µg/L)	K (mg/L)	La (µg/L)
Method detection limit	0.0009	0.0078	0.0001	0.0001	0.00003	0.59	—	0.0001	0.00002	0.0026	0.0001
Equipment blanks (n)	3	3	3	3	3	3	3	3	3	3	3
Equipment blanks (mean concentration)	<MDL	0.03	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.0013	<MDL	<MDL
Equipment blanks (median concentration)	<MDL	0.03	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.0013	<MDL	0.01
Replicates (n)	1	1	1	1	1	1	1	1	1	1	1
Replicates (median relative percent difference)	0.0	4.4	8.5	3.0	15.1	4.9	7.7	3.1	6.0	4.8	1.1
Standard reference (n)	12	75	16	16	16	16	3	16	16	96	16
Standard reference materials (median percent recovery)	nd	100.9	98.9	99.2	98.3	100.6	63.0	99.8	99.8	99.8	99.2
Matrix spikes (n)	0	2	0	0	0	0	0	0	0	0	0
Matrix spikes (median percent recovery)	nd	109.1	nd	nd	nd	nd	nd	nd	nd	nd	nd
Average recovery for SRM	N										
NBSD_10 (percentage)	0	—	103	—	—	—	—	—	—	—	—
PPREE_100 (percentage)	8	—	—	101	100	100	—	—	100	103	102
SCREE_100 (percentage)	8	—	—	97	98	96	—	—	99	97	97
USGS T135 (percentage)	0	—	100	—	—	—	—	—	—	96	—
USGS T173 (percentage)	24	—	99	—	—	—	—	—	—	104	—
USGS T175 (percentage)	0	—	104	—	—	—	—	—	—	91	—
USGS T187 (percentage)	0	—	—	—	—	—	—	—	—	99	—
USGS T195 (percentage)	0	—	—	—	—	—	—	—	—	86	—
USGS T197 (percentage)	0	—	100	—	—	—	101	—	—	103	—
USGS T159 (percentage)	0	—	—	—	—	—	—	—	—	119	—
¹ Environment Canada PT97-TE06 (percentage)	—	—	99	—	—	—	63	—	—	—	—

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–23C. The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Li, lithium; Lu, lutetium; Mg, magnesium; mg/L, milligram per liter; Mn, manganese; Mo, molybdenum; n, number; N, total number; Na, sodium; Nd, neodymium; nd, not determined; Ni, nickel; P, phosphorus; Pb, lead; SRM, standard reference material; µg/L, microgram per liter; —, no data; <MDL, less than maximum detection limit]

	Li (µg/L)	Lu (µg/L)	Mg (mg/L)	Mn (µg/L)	Mo (µg/L)	Na (mg/L)	Nd (µg/L)	Ni (µg/L)	P (µg/L)	Pb (µg/L)	
Method detection limit	0.0070	0.00003	0.0037	0.0021	0.0825	0.0025	0.0002	0.0056	0.579	0.0030	
Equipment blanks (n)	3	3	3	3	3	3	3	3	3	3	
Equipment blanks (mean concentration)	<MDL	<MDL	0.06	0.08	<MDL	<MDL	0.01	0.58	<MDL	<MDL	
Equipment blanks (median concentration)	<MDL	<MDL	0.04	0.08	<MDL	<MDL	0.02	0.58	<MDL	<MDL	
Replicates (n)	1	1	1	1	1	1	1	1	1	1	
Replicates (median relative percent difference)	24.8	1.6	1.1	17.4	0.7	6.5	0.8	29.5	47.3	2.2	
Standard reference (n)	53	19	78	81	53	71	19	53	0	53	
Standard reference materials (median percent recovery)	101.0	100.1	99.7	101.0	98.4	99.3	101.6	100.2	nd	104.0	
Matrix spikes (n)	0	0	2	2	0	2	0	0	0	2	
Matrix spikes (median percent recovery)	nd	nd	100.9	103.9	nd	92.6	nd	nd	nd	128.4	
Average recovery for SRM	N										
NBSD_10 (percentage)	12	104	—	—	—	100	—	—	101	—	110
PPREE_100 (percentage)	0	—	101	—	—	—	—	103	—	—	—
SCREE_100 (percentage)	0	—	99	—	—	—	—	100	—	—	—
USGS T135 (percentage)	12	100	—	—	—	100	—	—	100	—	100
USGS T173 (percentage)	¹ 16/12	102	—	100	100	94	100	—	99	—	104
USGS T175 (percentage)	² 0/0	101	—	100	102	100	97	—	103	—	104
USGS T187 (percentage)	14	—	—	101	102	—	100	—	—	—	—
USGS T195 (percentage)	16	—	—	99	101	—	95	—	—	—	—
USGS T197 (percentage)	16	—	—	99	100	—	101	—	—	—	—
USGS T159 (percentage)	8	—	—	100	102	—	103	—	—	—	—
³ Environment Canada PT97-TE06 (percentage)	—	98	—	—	99	—	—	—	98	—	102

¹N = 16 for boron and calcium; N = 12 for other elements.

²N = 8 for boron and calcium; N = 12 for other elements.

³The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–23D. The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** mg/L, milligram per liter; n, number; N, total number; nd, not determined; Pr, praseodymium; Rb, rubidium; Re, rhenium; S, sulfur; Sb, antimony; Se, selenium; Sm, samarium; Sn, tin; Sr, strontium; SRM, standard reference material; Tb, terbium; Te, tellurium; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

		Pr (µg/L)	Rb (µg/L)	Re (µg/L)	S (mg/L)	Sb (µg/L)	Se (µg/L)	Sm (µg/L)	Sn (µg/L)	Sr (µg/L)	Tb (µg/L)	Te (µg/L)
Method detection limit		0.00005	0.0029	0.0001	0.0631	0.0054	0.0559	0.0001	0.0273	0.0105	0.00001	0.0015
Equipment blanks (n)		3	3	3	3	3	3	3	3	3	3	3
Equipment blanks (mean concentration)		0.003	<MDL	0.06	<MDL	0.06	0.31	<MDL	<MDL	<MDL	<MDL	<MDL
Equipment blanks (median concentration)		0.003	<MDL	0.06	<MDL	0.06	0.34	<MDL	<MDL	<MDL	<MDL	<MDL
Replicates (n)		1	1	1	1	1	1	1	1	1	1	1
Replicates (median relative percent difference)		7.8	8.2	6.0	18.3	150.4	0.7	13.6	0.0	0.2	10.2	891.7
Standard reference (n)		16	15	0	0	53	53	16	0	53	16	12
Standard reference materials (median percent recovery)		nd	103.7	nd	nd	97.1	99.8	nd	nd	101.5	nd	nd
Matrix spikes (n)		0	0	0	0	0	0	0	0	0	0	0
Matrix spikes (median percent recovery)		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Average recovery for SRM	N											
NBSD_10 (percentage)	12	—	90	—	—	98	86	—	—	99	—	97
PPREE_100 (percentage)	8	103	—	—	—	—	—	103	—	—	103	—
SCREE_100 (percentage)	8	98	—	—	—	—	—	101	—	—	100	—
USGS T135 (percentage)	12	—	—	—	—	100	102	—	—	101	—	—
USGS T173 (percentage)	¹ 16/12	—	—	—	—	97	84	—	—	100	—	—
USGS T175 (percentage)	² 8/12	—	—	—	—	101	93	—	—	98	—	—
USGS T187 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T195 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T197 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T159 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
³ Environment Canada PT97-TE06 (percentage)	—	—	104	—	—	97	100	—	—	101	—	—

¹N = 16 for boron and calcium; N = 12 for other elements.

²N = 8 for boron and calcium; N = 12 for other elements.

³The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–23E. The 2011 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; N, total number; nd, not determined; SRM, standard reference material; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; W, tungsten; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter; —, no data; <MDL, less than maximum detection limit]

	Th (µg/L)	Ti (µg/L)	Tl (µg/L)	Tm (µg/L)	U (µg/L)	V (µg/L)	W (µg/L)	Y (µg/L)	Yb (µg/L)	Zn (µg/L)	Zr (µg/L)
Method detection limit	0.0001	0.31	0.0004	0.00002	0.0003	0.0029	0.0025	0.0001	0.0001	0.0505	0.0009
Equipment blanks (n)	3	3	3	3	3	3	3	3	3	3	3
Equipment blanks (mean concentration)	<MDL	0.31	<MDL	<MDL	0.0004	<MDL	<MDL	<MDL	<MDL	0.39	<MDL
Equipment blanks (median concentration)	<MDL	0.31	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.46	<MDL
Replicates (n)	1	1	1	1	1	1	1	1	1	1	1
Replicates (median relative percent difference)	118.0	0.0	4.3	8.5	4.2	1.3	3.5	0.2	2.8	10.1	0.0
Standard reference (n)	0	3	39	16	24	48	0	0	16	51	0
Standard reference materials (median percent recovery)	nd	83.4	102.3	101.5	99.0	97.9	nd	nd	102.1	101.6	nd
Matrix spikes (n)	0	0	0	0	0	0	0	0	0	2	0
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	93.9	nd
Average recovery for SRM	N										
NBSD_10 (percentage)	12	—	—	107	—	—	95	—	—	98	—
PPREE_100 (percentage)	8	—	—	—	102	—	—	—	104	—	—
SCREE_100 (percentage)	8	—	—	—	101	—	—	—	100	—	—
USGS T135 (percentage)	12	—	—	—	—	100	—	—	—	104	—
USGS T173 (percentage)	12	—	—	100	—	99	99	—	—	99	—
USGS T175 (percentage)	12	—	—	102	—	100	97	—	—	107	—
USGS T187 (percentage)	0	—	—	—	—	—	—	—	—	—	—
USGS T195 (percentage)	0	—	—	—	—	—	—	—	—	—	—
USGS T197 (percentage)	0	—	—	—	—	—	—	—	—	—	—
USGS T159 (percentage)	0	—	—	—	—	—	—	—	—	—	—
¹ Environment Canada PT97-TE06 (percentage)	—	—	83	101	—	98	—	nd	—	99	—

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2-24A. The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; Ca, calcium; Cd, cadmium; Ce, cerium; Co, cobalt; Cr, chromium; mg/L, milligram per liter; n, number; N, total number; nd, not determined; SRM, standard reference material; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

		Al (µg/L)	As (µg/L)	B (µg/L)	Ba (µg/L)	Be (µg/L)	Bi (µg/L)	Ca (mg/L)	Cd (µg/L)	Ce (µg/L)	Co (µg/L)	Cr (µg/L)
Method detection limit		0.52	0.013	0.32	0.0044	0.0021	0.0012	0.0033	0.0002	0.0002	0.0010	0.044
Equipment blanks (n)		2	2	2	2	2	2	2	2	2	2	2
Equipment blanks (median concentration)		<MDL	<MDL	<MDL	0.06	0.0025	<MDL	<MDL	<MDL	<MDL	0.02	0.05
Replicates (n)		2	2	2	2	2	2	2	2	2	2	2
Replicates (median relative percent difference)		11.8	47.7	15.6	8.8	0.0	155.0	0.8	45.8	15.3	28.8	40.4
Standard reference (n)		39	39	81	39	39	12	81	39	16	39	39
Standard reference materials (median percent recovery)		103.2	97.5	103.8	99.7	97.9	99.3	100.2	97.4	99.5	97.9	100.1
Matrix spikes (n)		0	2	0	0	2	0	2	2	0	0	0
Matrix spikes (median percent recovery)		nd	87.9	nd	nd	102.1	nd	102.7	100.0	nd	nd	nd
Average recovery for SRM		N										
NBSD_10 (percentage)	12	108	92	—	101	96	99	—	91	—	99	107
PPREE_100 (percentage)	8	—	—	—	—	—	—	—	—	99	—	—
SCREE_100 (percentage)	8	—	—	—	—	—	—	—	—	100	—	—
USGS T135 (percentage)	12	—	102	—	99	100	—	—	100	—	100	100
USGS T173 (percentage)	¹ 12/16	106	101	100	101	101	—	100	101	—	100	101
USGS T175 (percentage)	² 12/8	105	101	99	102	103	—	99	103	—	101	102
USGS T187 (percentage)	14	—	—	101	—	—	—	100	—	—	—	—
USGS T195 (percentage)	16	—	—	117	—	—	—	101	—	—	—	—
USGS T197 (percentage)	16	—	—	106	—	—	—	100	—	—	—	—
USGS T159 (percentage)	8	—	—	106	—	—	—	101	—	—	—	—
³ Environment Canada PT97-TE06 (percentage)	—	94	91	98	96	90	—	—	93	—	90	91

¹N = 16 for boron and calcium; N = 12 for other elements.

²N = 8 for boron and calcium; N = 12 for other elements.

³The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–24B. The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; K, potassium; La, lanthanum; mg/L, milligram per liter; n, number; N, total number; nd, not determined; SRM, standard reference material; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

		Cs (µg/L)	Cu (µg/L)	Dy (µg/L)	Er (µg/L)	Eu (µg/L)	Fe (µg/L)	Ga (µg/L)	Gd (µg/L)	Ho (µg/L)	K (mg/L)	La (µg/L)
Method detection limit		0.0009	0.0091	0.0005	0.0003	0.0001	1.0000	—	0.0001	0.00004	0.0054	0.00003
Equipment blanks (n)		2	2	2	2	2	2	2	2	2	2	2
Equipment blanks (median concentration)		<MDL	0.04	<MDL	<MDL	<MDL	4.25	0.00002	<MDL	0.0032	<MDL	0.01
Replicates (n)		2	2	2	2	2	2	2	2	2	2	2
Replicates (median relative percent difference)		3.6	9.7	19.6	11.4	333.5	7.7	3.2	33.3	1.1	2.2	5.0
Standard reference (n)		0	59	16	16	16	13	3	16	16	86	16
Standard reference materials (median percent recovery)		nd	99.9	99.8	103.1	100.5	100.3	85.0	100.5	100.0	102.0	99.5
Matrix spikes (n)		2	2	0	0	0	0	0	0	0	0	0
Matrix spikes (median percent recovery)		96.2	96.2	nd	nd	nd	nd	nd	nd	nd	nd	nd
Average recovery for SRM		N										
NBSD_10 (percentage)	12	—	103	—	—	—	—	—	—	—	—	—
PPREE_100 (percentage)	8	—	—	100	99	100	—	—	99	99	—	99
SCREE_100 (percentage)	8	—	—	100	107	101	—	—	102	101	—	100
USGS T135 (percentage)	12	—	100	—	—	—	—	—	—	—	—	—
USGS T173 (percentage)	24	—	100	—	—	—	—	—	—	—	107	—
USGS T175 (percentage)	12	—	102	—	—	—	—	—	—	—	87	—
USGS T187 (percentage)	14	—	—	—	—	—	—	—	—	—	98	—
USGS T195 (percentage)	16	—	—	—	—	—	—	—	—	—	85	—
USGS T197 (percentage)	16	—	—	—	—	—	100	—	—	—	109	—
USGS T159 (percentage)	8	—	—	—	—	—	—	—	—	—	126	—
¹ Environment Canada PT97-TE06 (percentage)	3	—	94	—	—	—	—	85	—	—	—	—

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–24C. The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Li, lithium; Lu, lutetium; Mg, magnesium; mg/L, milligram per liter; Mn, manganese; Mo, molybdenum; n, number; N, total number; Na, sodium; Nd, neodymium; nd, not determined; Ni, nickel; P, phosphorus; Pb, lead; SRM, standard reference material; µg/L, microgram per liter; —, no data; <MDL, less than maximum detection limit]

		Li (µg/L)	Lu (µg/L)	Mg (mg/L)	Mn (µg/L)	Mo (µg/L)	Na (mg/L)	Nd (µg/L)	Ni (µg/L)	P (µg/L)	Pb (µg/L)
Method detection limit		0.0166	0.0001	0.0007	0.0060	0.0437	0.0157	0.0003	0.0025	0.6351	0.0033
Equipment blanks (n)		2	2	2	2	2	2	2	2	2	2
Equipment blanks (median concentration)		<MDL	0.001	0.12	0.06	<MDL	<MDL	0.34	0.61	<MDL	<MDL
Replicates (n)		2	2	2	2	2	2	2	2	2	2
Replicates (median relative percent difference)		6.2	2.8	6.8	6.2	0.6	2.2	76.8	6.9	10.0	9.5
Standard reference (n)		51	16	144	147	48	144	16	51	0	51
Standard reference materials (median percent recovery)		97.9	98.7	98.9	100.0	101.1	101.2	100.2	99.8	nd	101.3
Matrix spikes (n)		0	0	2	2	0	2	0	0	0	2
Matrix spikes (median percent recovery)		nd	nd	100.5	102.1	nd	97.2	nd	nd	nd	99.5
Average recovery for SRM		N									
NBSD_10 (percentage)	12	105	—	—	—	100	—	—	101	—	106
PPREE_100 (percentage)	8	—	100	—	—	—	—	99	—	—	—
SCREE_100 (percentage)	8	—	98	—	—	—	—	102	—	—	—
USGS T135 (percentage)	12	91	—	—	—	100	—	—	100	—	100
USGS T173 (percentage)	12	102	—	99	99	98	100	—	99	—	102
USGS T175 (percentage)	12	100	—	98	100	106	98	—	104	—	102
USGS T187 (percentage)	14	—	—	98	99	—	101	—	—	—	—
USGS T195 (percentage)	16	—	—	98	100	—	99	—	—	—	—
USGS T197 (percentage)	16	—	—	100	100	—	102	—	—	—	—
USGS T159 (percentage)	8	—	—	100	102	—	108	—	—	—	—
¹ Environment Canada PT97-TE06 (percentage)	—	91	—	—	99	—	—	—	94	—	96

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–24D. The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** mg/L, milligram per liter; n, number; N, total number; nd, not determined; Pr, praseodymium; Rb, rubidium; Re, rhenium; S, sulfur; Sb, antimony; Se, selenium; Sm, samarium; Sn, tin; Sr, strontium; SRM, standard reference material; Tb, terbium; Te, tellurium; —, no data; µg/L, microgram per liter; <MDL, less than maximum detection limit]

		Pr (µg/L)	Rb (µg/L)	Re (µg/L)	S (mg/L)	Sb (µg/L)	Se (µg/L)	Sm (µg/L)	Sn (µg/L)	Sr (µg/L)	Tb (µg/L)	Te (µg/L)
Method detection limit		0.0001	0.0035	0.0001	0.0575	0.0363	0.0552	0.0006	0.0402	0.0172	0.0001	0.0014
Equipment blanks (n)		2	2	2	2	2	2	2	2	2	2	2
Equipment blanks (median concentration)		0.0013	<MDL	0.06	0.01	0.06	0.28	<MDL	0.03	0.04	<MDL	<MDL
Replicates (n)		2	2	2	2	2	2	2	2	2	2	2
Replicates (median relative percent difference)		1.8	13.0	6.1	0.0	0.0	0.2	11.1	0.0	0.6	3.1	4,155.4
Standard reference (n)		16	15	0	0	51	51	16	0	51	16	12
Standard reference materials (median percent recovery)		99.3	81.1	nd	nd	99.0	94.1	100.9	nd	99.9	101.2	93.0
Matrix spikes (n)		0	0	0	0	0	0	0	0	0	0	0
Matrix spikes (median percent recovery)		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Average recovery for SRM		N										
NBSD_10 (percentage)	12	—	81	—	—	98	92	—	—	98	—	93
PPREE_100 (percentage)	8	99	—	—	—	—	—	98	—	—	100	—
SCREE_100 (percentage)	8	100	—	—	—	—	—	104	—	—	103	—
USGS T135 (percentage)	12	—	—	—	—	100	105	—	—	100	—	—
USGS T173 (percentage)	12	—	—	—	—	98	81	—	—	100	—	—
USGS T175 (percentage)	12	—	—	—	—	107	94	—	—	98	—	—
USGS T187 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T195 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T197 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T159 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
¹ Environment Canada PT97-TE06 (percentage)	—	—	—	—	—	92	97	—	—	103	—	—

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

Table 2–24E. The 2012 quality-assurance data for selected cations and trace elements in surface water, surface-water replicates, standard reference material, equipment blanks, and matrix spikes.

[Analyses completed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; N, total number; nd, not determined; SRM, standard reference material; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; W, tungsten; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/L, microgram per liter; —, no data; <MDL, less than maximum detection limit]

		Th (µg/L)	Ti (µg/L)	Tl (µg/L)	Tm (µg/L)	U (µg/L)	V (µg/L)	W (µg/L)	Y (µg/L)	Yb (µg/L)	Zn (µg/L)	Zr (µg/L)
Method detection limit		0.0002	0.2855	0.0005	0.0001	0.0002	0.0228	0.0064	0.00008	0.0002	0.0810	0.0050
Equipment blanks (n)		2	2	2	2	2	2	2	2	2	2	2
Equipment blanks (median concentration)		<MDL	<MDL	<MDL	<MDL	<MDL	0.0029	<MDL	0.00012	<MDL	1.09	<MDL
Replicates (n)		2	2	2	2	2	2	2	2	2	2	2
Replicates (median relative percent difference)		72.1	0.0	26.8	34.4	6.8	1.9	520.5	3.6	6.8	43.0	13.7
Standard reference (n)		0	3	39	16	27	48	0	0	16	53	0
Standard reference materials (median percent recovery)		nd	81.4	95.9	nd	94.5	nd	nd	nd	nd	99.5	nd
Matrix spikes (n)		0	0	0	0	0	0	0	0	0	2	0
Matrix spikes (median percent recovery)		nd	nd	nd	nd	nd	nd	nd	nd	nd	85.2	nd
Average recovery for SRM		N										
NBSD_10 (percentage)	12	—	—	104	—	—	96	—	—	—	97	—
PPREE_100 (percentage)	8	—	—	—	99	—	—	—	—	99	—	—
SCREE_100 (percentage)	8	—	—	—	100	—	—	—	—	105	—	—
USGS T135 (percentage)	12	—	—	—	—	—	100	—	—	—	103	—
USGS T173 (percentage)	12	—	—	100	—	100	100	—	—	—	99	—
USGS T175 (percentage)	12	—	—	100	—	100	98	—	—	—	106	—
USGS T187 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T195 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T197 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
USGS T159 (percentage)	0	—	—	—	—	—	—	—	—	—	—	—
¹ Environment Canada PT97-TE06 (percentage)	—	—	81	96	—	94	—	nd	—	—	100	—

¹The SRM diluted by 10X then corrected for dilution; result is average of 3 analyses.

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Appendix 3. Quality-Assurance Data for Sediment

Table 3-1A. Quality-assurance data for total mercury in sediment, standard reference material and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.07 nanogram per liter (ng/L). **Abbreviations:** mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; nd, not determined; ng/L, nanogram per liter; SRM, standard reference material; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	Analytical blank (ng/L)	SRM percent recovery	MS percent recovery
sHgT20120307	<2 mm	09/07/2011	11/02/2011	nd	nd	110.4
sHgT20120307	<2 mm	09/07/2011	11/02/2011	<MDL	108.7	57.1
sHgT20120816	<0.063 mm	09/07/2011	11/02/2011	1.33	97.8	102.1
sHgT20130402	<2 mm	08/30/2012	11/15/2012	0.80	127.9	95.3
sHgT20130402	<2 mm	08/30/2012	11/15/2012	1.42	92.7	96.8
sHgT20130328	<0.063 mm	08/30/2012	11/15/2012	<MDL	92.7	101.8
sHgT20130328	<0.063 mm	08/30/2012	11/15/2012	1.04	101.0	103.6

Table 3-1B. Quality-assurance data for total mercury in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.5 nanogram per liter (ng/L). **Abbreviations:** AVG, average; DEV, half of absolute relative difference; dup, duplicate; env, environmental; mm, millimeter; ng/g, nanogram per gram; %DEV, DEV expressed as a percentage of AVG; <, less than]

Analytical batch number	Project ID	Size fraction	AVG env (ng/g)	DEV dup (ng/g)	%DEV
sHgT20120307	SNS-007	<2 mm	46.8	24.4	52.1
sHgT20120307	SNS-012	<2 mm	8.94	0.09	1.0
sHgT20120816	SNS-005	<0.063 mm	39.6	1.87	4.7
sHgT20130328	SNS-045	<2 mm	48.9	1.07	2.2
sHgT20130328	SNS-055	<2 mm	67.5	1.11	1.7
sHgT20130328	SNS-045	<0.063 mm	48.9	1.07	2.2
sHgT20130328	SNS-055	<0.063 mm	67.5	1.11	1.7

Table 3–2A. Quality-assurance data for methylmercury in sediment, standard reference materials and matrix spikes.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.07 nanogram per liter (ng/L). **Abbreviations:** mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; nd, not determined; RPD, relative percent difference; SRM, standard reference material; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	Analytical blank (ng/L)	SRM percent recovery	MS percent recovery	MSD percent recovery	MSD RPD (percentage)
SMeHg20120314	nd	09/07/2011	11/02/2011	<MDL	108.8	nd	nd	nd
SMeHg20120314	nd	09/07/2011	11/02/2011	<MDL	118.2	nd	nd	nd
SMeHg20130312	<2 mm	08/30/2012	11/15/2012	<MDL	nd	103.4	108.2	4.5
SMeHg20130312	nd	08/30/2012	11/15/2012	<MDL	nd	nd	nd	nd
sMeHg20130318	<2 mm	08/30/2012	11/15/2012	<MDL	nd	101.7	105.3	3.5
sMeHg20130318	nd	08/30/2012	11/15/2012	<MDL	nd	nd	nd	nd

Table 3–2B. Quality-assurance data for methylmercury in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.5 nanogram per liter (ng/L). **Abbreviations:** AVG, average; DEV, half of absolute relative difference; dup, duplicate; env, environmental; ID, identification; mm, millimeter; ng/g, nanogram per gram; %DEV, DEV expressed as a percentage of AVG; <, less than]

Analytical batch number	Project ID	Size fraction	AVG env (ng/g)	DEV dup (ng/g)	%DEV
SMeHg20130312	SNS-042	<2 mm	0.41	0.01	2.03
SMeHg20130312	SNS-054	<2 mm	0.33	0.03	8.47

Table 3-3A. Quality-assurance data for reactive mercury in sediment, analytical blank.

[All analyses completed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** DDL, daily detection limit; mm/dd/yyyy, month/day/year; ng, nanogram; <, less than]

Analytical batch number	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	Analytical blank (ng)
sHgR20120412	09/07/2011	11/02/2011	0.01
sHgR20120412	09/07/2011	11/02/2011	0.01
sHgR20120412	09/07/2011	11/02/2011	0.02
sHgR20120412	09/07/2011	11/02/2011	0.01
sHgR20130219	08/30/2012	11/15/2012	<DDL
sHgR20130219	08/30/2012	11/15/2012	0.03
sHgR20130219	08/30/2012	11/15/2012	<DDL
sHgR20130219	08/30/2012	11/15/2012	<DDL

Table 3-3B. Quality-assurance data for reactive mercury in sediment, lab duplicates.

[All analyses completed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** AVG, average; DDL, daily detection limit; DEV, half of absolute difference; ID, identification; mm, millimeter; ng/g, nanogram per gram; %DEV, DEV expressed as a percentage of AVG; mm, millimeter; nd, not determined; <, less than]

Batch code	Sample ID	Fraction	AVG (ng/g)	DEV (ng/g)	%DEV
sHgR20120412	SNS-002	<2 mm	0.28	0.10	35.4
sHgR20120412	SNS-003	<2 mm	1.78	1.47	82.5
sHgR20120412	SNS-007	<2 mm	0.22	0.02	9.4
sHgR20120412	SNS-011	<2 mm	<DDL	nd	nd
sHgR20130219	SNS-040	<2 mm	0.04	0.00	10.9
sHgR20130219	SNS-049	<2 mm	0.12	0.01	10.2

Table 3-4A. Quality-assurance data for ferrous iron in sediment, matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 milligram per milliliter (mg/mL). **Abbreviations:** AB, analytical blank; mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; nd, not determined; µg/mL, microgram per milliliter; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	AB (µg/mL)	MS percent recovery
sFe20120524	<2 mm	09/07/2011	11/02/2011	nd	106.3
sFe20120524	<2 mm	09/07/2011	11/02/2011	0.26	100.1
sFe20120829	<0.063 mm	09/07/2011	11/02/2011	0.24	91.5
sFe20130327	<0.063 mm	08/30/2012	11/15/2012	0.28	93.7
sFe20130325	<2 mm	08/30/2012	11/15/2012	0.04	94.3

Table 3-4B. Quality-assurance data for ferrous iron in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 microgram per milliliter (µg/mL). **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; µg/mL, microgram per milliliter; %DEV, DEV expressed as a percentage of AVG; <, less than]

Batch code	Sample ID	Fraction	AVG (µg/mL)	DEV (µg/mL)	%DEV
sFe20120524	SNS-009	<2 mm	1.49	0.07	4.4
sFe20120829	SNS-011	<0.063 mm	0.45	0.02	4.1
sFe20130327	SNS-057	<0.063 mm	0.55	0.04	7.3
sFe20130325	SNS-044	<2 mm	0.09	0.01	13.1

Table 3–5A. Quality-assurance data for crystalline ferric iron in sediment, matrix blank and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 microgram per milliliter (µg/mL). **Abbreviations:** MB, matrix blank; mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; nd, not determined; µg/mL, microgram per milliliter; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (µg/mL)	MS percent recovery
sFe20120524	<2 mm	09/07/2011	11/02/2011	nd	130.0
sFe20120524	<2 mm	09/07/2011	11/02/2011	<MDL	99.5
sFe20120829	<0.063 mm	09/07/2011	11/02/2011	<MDL	86.0
sFe20130327	<0.063 mm	08/30/2012	11/15/2012	<MDL	99.0
sFe20130325	<2 mm	08/30/2012	11/15/2012	5.42	95.1

Table 3–5B. Quality-assurance data for crystalline ferric iron in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 milligram per milliliter (mg/mL). **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; µg/mL, microgram per milliliter; %DEV, DEV expressed as a percentage of AVG; <, less than]

Batch code	Sample ID	Fraction	AVG (µg/mL)	DEV (µg/mL)	%DEV
sFe20120524	SNS-009	<2 mm	5.31	0.41	7.7
sFe20120829	SNS-11	<0.063 mm	12.44	1.23	9.9
sFe20130327	SNS-057	<0.063 mm	16.97	0.14	0.8
sFe20130325	SNS-044	<2 mm	7.92	1.20	15.1
sTRS20130521	SNS-043	<2 mm	3.63	1.05	29.0

Table 3–6A. Quality-assurance data for amorphous ferric iron in sediment, matrix blank and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 microgram per milliliter (µg/mL). **Abbreviations:** MB, matrix blank; mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; µg/mL, microgram per milliliter; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	MB (µg/mL)	MS percent recovery
sFe20120524	<2 mm	09/07/2011	11/02/2011	0.48	130.0
sFe20120829	<0.063 mm	09/07/2011	11/02/2011	0.43	99.5
sFe20130327	<0.063 mm	08/30/2012	11/15/2012	0.51	86.0
sFe20130325	<2 mm	08/30/2012	11/15/2012	0.72	99.0

Table 3–6B. Quality-assurance data for amorphous ferric iron in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 milligram per milliliter (mg/mL). **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; µg/mL, microgram per milliliter; %DEV, DEV expressed as a percentage of AVG; <, less than]

Batch code	Sample ID	Fraction	AVG (µg/mL)	DEV (µg/mL)	%DEV
sFe20120524	SNS-009	<2 mm	0.20	0.03	14.2
sFe20120829	SNS-11	<0.063 mm	1.03	0.10	9.6
sFe20130327	SNS-057	<0.063 mm	1.43	0.12	8.4
sFe20130325	SNS-044	<2 mm	0.20	0.01	3.1

Table 3–7A. Quality-assurance data for total reduced sulfur in sediment, analytical blank and matrix spike.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.01 micromole per milliliter ($\mu\text{mol/mL}$). **Abbreviations:** AB, analytical blank; mm, millimeter; mm/dd/yyyy, month/day/year; MS, matrix spike; nd, not determined; $\mu\text{mol/mL}$, micromol per milliliter; —, no data; <, less than]

Analytical batch number	Size fraction	Collection date start (mm/dd/yyyy)	Collection date end (mm/dd/yyyy)	AB ($\mu\text{mol/mL}$)	MS percent recovery
sTRS20130613	<0.063 mm	09/07/2011	11/2/2011	0.06	100.7
sTRS20130614	—	09/07/2011	11/02/2011	0.06	nd
sTRS20130522	<0.063 mm	08/30/2012	11/15/2012	nd	118.4

Table 3–7B. Quality-assurance data for total reduced sulfur in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. Method detection limit (MDL) = 0.2 micromole of sulfide per wet gram of sediment. **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; $\mu\text{mol/g}$, micromole per gram; %DEV, DEV expressed as a percentage of AVG; <, less than]

Batch code	Sample ID	Fraction	AVG ($\mu\text{mol/g}$)	DEV ($\mu\text{mol/g}$)	%DEV
sTRS20120703	SNS-002	<2 mm	1.27	0.66	52.2
sTRS20130613	SNS-003	<0.063 mm	8.26	0.10	1.2
sTRS20130517	SNS-050	<0.063 mm	2.95	0.37	12.6
sTRS20130614	SNS-057	<0.063 mm	0.95	0.08	8.5
sTRS20130517	SNS-040	<0.063 mm	2.27	0.05	2.3

Table 3–8. Quality-assurance data for loss on ignition in sediment, lab duplicates.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; %DEV, DEV expressed as a percentage of AVG; %d.w., percentage of dry weight]

Batch code	Sample ID	Fraction	AVG (%d.w.)	DEV (%d.w.)	%DEV
sLOI20120125	SNS-001	<2 mm	0.70	0.02	3.0
sLOI20120125	SNS-002	<2 mm	0.71	0.06	8.4
sLOI20120125	SNS-003	<2 mm	0.87	0.02	2.0
sLOI20120125	SNS-005	<2 mm	1.73	0.06	3.2
sLOI20120125	SNS-006	<2 mm	1.94	0.02	0.8
sLOI20120125	SNS-007	<2 mm	1.96	0.05	2.4
sLOI20120125	SNS-009	<2 mm	1.62	0.02	1.3
sLOI20120125	SNS-011	<2 mm	0.95	0.03	3.2
sLOI20120125	SNS-013	<2 mm	0.66	0.00	0.1
sLOI20120125	SNS-012	<2 mm	1.99	0.07	3.3
sLOI20130311	SNS-047	<2 mm	0.83	0.07	8.5
sLOI20130311	SNS-057	<2 mm	0.96	0.02	1.9
sLOI20120831	SNS-003	<0.063 mm	7.10	0.03	0.4
sLOI20120831	SNS-005	<0.063 mm	14.00	0.33	2.3
sLOI20120831	SNS-007	<0.063 mm	6.62	0.06	0.9
sLOI20120831	SNS-011	<0.063 mm	11.37	0.41	3.6
sLOI20130319	SNS-042	<0.063 mm	11.19	0.10	0.9
sLOI20130319	SNS-057	<0.063 mm	5.36	0.17	3.2

Table 3–9. Quality-assurance data for percent dry weight.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mm, millimeter; %DEV, DEV expressed as a percentage of AVG; %w.w., percentage of wet weight]

Batch code	Sample ID	Fraction	AVG (%w.w.)	DEV (%w.w.)	%DEV
sDW20120125	SNS-001	<2 mm	73.37	2.36	3.2
sDW20120125	SNS-002	<2 mm	77.17	0.89	1.6
sDW20120125	SNS-003	<2 mm	74.20	0.23	0.3
sDW20120125	SNS-005	<2 mm	70.64	0.42	0.6
sDW20120125	SNS-006	<2 mm	72.72	0.13	0.2
sDW20120125	SNS-007	<2 mm	72.06	0.27	0.4
sDW20120125	SNS-009	<2 mm	70.30	1.06	1.5
sDW20120125	SNS-011	<2 mm	73.47	1.00	1.4
sDW20120125	SNS-013	<2 mm	72.38	0.49	0.7
sDW20120125	SNS-012	<2 mm	67.34	1.19	1.8
sDW20130311	SNS-047	<2 mm	75.36	0.56	0.8
sDW20130311	SNS-057	<2 mm	76.05	0.24	0.3
sDW20120831	SNS-003	<0.063 mm	48.84	0.68	1.4
sDW20120831	SNS-005	<0.063 mm	48.71	0.32	0.7
sDW20120831	SNS-007	<0.063 mm	57.92	0.03	0.1
sDW20120831	SNS-011	<0.063 mm	53.02	0.06	0.1
sDW20130319	SNS-042	<0.063 mm	52.93	0.30	0.6
sDW20130319	SNS-057	<0.063 mm	54.80	0.41	0.8

Table 3–10. Quality-assurance data for bulk density.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** AVG, average; DEV, half of absolute difference; g/cm³, gram per cubic centimeter; ID, identification; mm, millimeter; %DEV, DEV expressed as a percentage of AVG]

Batch code	Sample ID	Fraction	AVG (g/cm ³)	DEV (g/cm ³)	%DEV
sBD20120125	SNS-001	<2 mm	1.84	0.05	2.7
sBD20120125	SNS-002	<2 mm	1.92	0.02	1.2
sBD20120125	SNS-003	<2 mm	1.89	0.02	1.1
sBD20120125	SNS-005	<2 mm	1.81	0.01	0.8
sBD20120125	SNS-006	<2 mm	1.80	0.00	0.2
sBD20120125	SNS-007	<2 mm	1.81	0.01	0.8
sBD20120125	SNS-009	<2 mm	1.76	0.01	0.8
sBD20120125	SNS-011	<2 mm	1.81	0.04	2.0
sBD20120125	SNS-013	<2 mm	1.80	0.00	0.0
sBD20120125	SNS-012	<2 mm	1.68	0.02	1.4
sBD20130311	SNS-047	<2 mm	1.86	0.02	0.9
sBD20130311	SNS-057	<2 mm	1.87	0.04	2.0
sBD20120831	SNS-003	<0.063 mm	1.39	0.01	0.7
sBD20120831	SNS-005	<0.063 mm	1.30	0.00	0.1
sBD20120831	SNS-007	<0.063 mm	1.52	0.01	0.5
sBD20120831	SNS-011	<0.063 mm	1.34	0.01	0.5
sBD20130319	SNS-042	<0.063 mm	1.42	0.00	0.2
sBD20130319	SNS-057	<0.063 mm	1.45	0.01	0.5

Table 3–11. Quality-assurance data for porosity.

[All analyses performed at U.S. Geological Survey National Research Program, Western Branch. **Abbreviations:** AVG, average; DEV, half of absolute difference; ID, identification; mL of PW/cm³, milliliter of pore water per cubic centimeter (wet weight); mm, millimeter; %DEV, DEV expressed as a percentage of AVG]

Batch code	Sample ID	Fraction	AVG (mL of PW/cm ³)	DEV (mL of PW/cm ³)	%DEV
sPOR20120125	SNS-001	<2 mm	0.49	0.03	6.2
sPOR20120125	SNS-002	<2 mm	0.44	0.01	2.7
sPOR20120125	SNS-003	<2 mm	0.49	0.00	0.2
sPOR20120125	SNS-005	<2 mm	0.53	0.00	0.6
sPOR20120125	SNS-006	<2 mm	0.49	0.00	0.7
sPOR20120125	SNS-007	<2 mm	0.51	0.00	0.2
sPOR20120125	SNS-009	<2 mm	0.52	0.01	2.8
sPOR20120125	SNS-011	<2 mm	0.48	0.01	1.8
sPOR20120125	SNS-013	<2 mm	0.50	0.01	1.8
sPOR20120125	SNS-012	<2 mm	0.55	0.01	2.3
sPOR20130311	SNS-047	<2 mm	0.46	0.01	1.4
sPOR20130311	SNS-057	<2 mm	0.45	0.00	1.0
sPOR20120831	SNS-003	<0.063 mm	0.71	0.00	0.7
sPOR20120831	SNS-005	<0.063 mm	0.67	0.00	0.7
sPOR20120831	SNS-007	<0.063 mm	0.64	0.00	0.6
sPOR20120831	SNS-011	<0.063 mm	0.63	0.00	0.4
sPOR20130319	SNS-042	<0.063 mm	0.67	0.00	0.4
sPOR20130319	SNS-057	<0.063 mm	0.66	0.00	0.5

Table 3–12. Quality-assurance data for less than 2 millimeters grain-size distribution determined by laser diffraction.

[D50, median grain size; ID, identification; RPD, relative percent difference]

Site ID	D50 RPD
SNS-001	4.1
SNS-002	7.0
SNS-003	5.7
SNS-005	8.0
SNS-006	5.0
SNS-007	8.6
SNS-009	4.5
SNS-011	0.1
SNS-012	6.6
SNS-013	0.3
SNS-040	0.8
SNS-041	6.9
SNS-042	4.5
SNS-043	0.8
SNS-044	8.4
SNS-045	5.0
SNS-046	2.0
SNS-047	0.0
SNS-048	5.2
SNS-049	0.2
SNS-050	2.7
SNS-051	5.4
SNS-052	7.4
SNS-053	0.2
SNS-054	0.9
SNS-055	5.7
SNS-056	1.4
SNS-057	4.7
SNS-058	1.1

Table 3–13. Data for grain-size distribution in sediment determined by laser diffraction; phi classification.

[All analyses completed at the U.S. Geological Survey California Water Science Center. The phi (ϕ) scale for sediment particles is defined as $\phi = -\log(\text{base } 2)(d \text{ in millimeter [mm]})$ such that a phi of 0 corresponds to 1 mm, a phi of 2 corresponds to 0.25 mm (1/4 mm), phi of 4 is 0.0625 mm (1/16 mm), and phi of 8 is approximately 0.004 mm (1/256 mm). Values in phi columns indicate percentage of sediment sample (by volume) in 1/2-phi size bin smaller than indicated phi size]

SITE ID	-1 ϕ	-0.5 ϕ	0 ϕ	0.5 ϕ	1 ϕ	1.5 ϕ	2 ϕ	2.5 ϕ	3 ϕ	3.5 ϕ	4 ϕ	4.5 ϕ	5 ϕ	5.5 ϕ	6 ϕ	6.5 ϕ	7 ϕ	7.5 ϕ	8 ϕ	8.5 ϕ	9 ϕ	9.5 ϕ	10 ϕ	10.5 ϕ	11 ϕ
SNS-001	7.8	11.6	16.4	18.7	15.8	10.6	6.1	3.1	1.8	1.4	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0
SNS-002	8.0	11.5	15.6	17.6	15.7	11.2	6.5	3.1	1.6	1.1	1.0	1.0	1.0	0.9	0.9	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.0
SNS-003	8.0	14.8	21.0	19.5	13.0	6.8	3.8	1.6	0.9	0.8	0.9	1.0	1.1	1.1	1.1	1.1	0.9	0.7	0.5	0.3	0.3	0.3	0.3	0.2	0.1
SNS-005	11.3	12.9	13.1	11.0	7.1	4.6	4.7	4.2	3.7	3.6	3.3	2.8	2.6	2.3	2.0	2.0	1.8	1.6	1.2	1.0	0.9	0.8	0.8	0.5	0.1
SNS-006	2.6	6.3	12.1	16.8	16.1	11.8	8.2	5.5	4.0	3.4	2.7	2.1	1.8	1.5	1.2	1.0	0.8	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.0
SNS-007	1.8	4.7	9.2	12.6	13.2	13.2	12.5	9.0	5.3	3.4	2.4	2.0	1.8	1.7	1.6	1.4	1.1	0.9	0.6	0.5	0.4	0.3	0.3	0.2	0.0
SNS-009	0.4	3.6	10.2	16.5	18.1	15.8	12.0	7.3	4.1	2.6	1.9	1.4	1.2	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.0
SNS-011	7.2	11.7	15.1	14.3	10.6	8.1	7.0	5.0	3.6	3.0	2.5	2.1	1.9	1.6	1.3	1.1	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.2	0.1
SNS-012	0.3	3.6	9.2	14.3	15.6	14.0	11.5	7.9	5.4	4.2	3.3	2.6	2.0	1.5	1.2	0.9	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.0
SNS-013	0.1	3.0	11.1	19.8	22.6	18.7	12.2	5.8	2.4	1.2	0.8	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
SNS-040	11.1	14.8	17.8	15.6	10.0	6.7	5.8	4.4	3.1	2.4	1.9	1.4	1.1	0.8	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.0
SNS-041	13.6	18.3	20.0	15.7	9.1	5.2	4.0	2.8	2.0	1.7	1.4	1.1	1.0	0.8	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.0
SNS-042	1.8	6.7	14.2	19.3	17.8	12.8	8.0	4.2	2.4	2.1	1.9	1.6	1.5	1.2	1.0	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.1	0.0
SNS-043	7.3	7.8	11.5	14.1	13.6	10.9	8.2	5.3	3.4	2.7	2.3	1.9	1.7	1.5	1.3	1.2	1.1	0.9	0.7	0.6	0.5	0.5	0.5	0.3	0.1
SNS-044	21.1	18.8	15.1	7.8	4.1	2.7	2.9	2.8	2.5	2.7	3.0	2.7	2.5	2.1	1.8	1.6	1.3	1.1	0.8	0.6	0.5	0.5	0.5	0.3	0.1
SNS-045	4.0	8.5	14.3	16.9	15.0	11.9	8.7	5.1	3.0	2.3	1.8	1.5	1.3	1.1	0.9	0.8	0.7	0.5	0.4	0.3	0.3	0.3	0.2	0.1	0.0
SNS-046	5.4	9.3	14.5	17.3	15.5	11.9	8.4	5.0	3.1	2.2	1.7	1.3	1.0	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0
SNS-047	3.6	12.2	22.7	23.6	14.3	6.9	3.9	2.2	1.6	1.4	1.3	1.0	0.9	0.8	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.0
SNS-048	1.6	12.0	24.8	25.5	15.3	7.3	4.0	2.1	1.3	1.0	0.9	0.8	0.7	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.0
SNS-049	14.3	17.8	19.0	14.3	7.6	4.3	3.9	3.1	2.5	2.2	1.8	1.6	1.4	1.1	1.0	0.9	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.0
SNS-050	14.4	13.9	16.1	13.3	8.9	5.4	4.6	3.6	3.1	2.6	2.2	1.7	1.5	1.3	1.2	1.2	1.0	0.8	0.5	0.4	0.3	0.3	0.3	0.2	0.1
SNS-051	2.3	2.2	3.8	5.3	4.4	5.2	8.8	10.1	10.9	11.3	9.8	7.4	5.3	3.7	2.6	1.9	1.3	0.9	0.6	0.5	0.5	0.5	0.4	0.3	0.1
SNS-052	8.0	10.1	10.4	8.4	5.6	4.5	5.0	4.3	3.7	4.0	4.4	4.5	4.8	4.5	4.1	3.5	2.8	2.0	1.4	1.0	0.8	0.8	0.7	0.5	0.1
SNS-053	0.1	2.6	10.9	20.9	24.7	18.9	10.4	3.9	1.6	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.0
SNS-054	0.1	2.8	8.4	14.2	16.5	15.8	14.0	10.2	6.2	3.6	2.2	1.4	1.0	0.7	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0
SNS-055	6.7	9.2	12.4	12.7	9.7	7.5	7.3	6.5	5.6	5.0	4.2	3.2	2.4	1.8	1.4	1.1	0.8	0.6	0.4	0.3	0.3	0.3	0.2	0.2	0.0
SNS-056	6.4	16.3	22.9	20.1	12.5	6.5	4.0	2.2	1.4	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.0
SNS-057	8.7	13.0	16.9	16.8	12.4	8.1	5.8	3.5	2.0	1.5	1.3	1.3	1.4	1.4	1.4	1.2	1.0	0.7	0.4	0.3	0.2	0.2	0.2	0.1	0.0
SNS-058	8.5	14.6	21.7	20.2	11.8	5.9	3.8	2.4	1.7	1.5	1.3	1.2	1.1	0.9	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.0

Table 3–14A. The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; Ca, calcium; Cd, cadmium; Ce, cerium; Co, cobalt; n, number; nd, not determined; Wt%, weight percent; µg/g, microgram per gram]

	Al (Wt%)	As (µg/g)	B (µg/g)	Ba (µg/g)	Be (µg/g)	Bi (µg/g)	Ca (Wt%)	Cd (µg/g)	Ce (µg/g)	Co (µg/g)
Standard reference (n)	9	9	3	9	3	3	9	7	9	9
Standard reference materials (median percent recovery)	92.7	90.4	102.9	94.6	89.4	102.0	98.2	103.3	91.0	98.5
Matrix spikes (n)	nd	2	nd	nd	2	nd	nd	2	nd	nd
Matrix spikes (median percent recovery)	nd	101.9	nd	nd	104.9	nd	nd	109.0	nd	nd
Digest replicates (n)	10	10	10	10	10	10	10	10	10	10
Digest replicates (relative percent difference)	4.9	3.7	6.6	2.9	3.9	15.0	1.9	4.7	4.7	3.0

Table 3–14B. The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; K, potassium; n, number; nd, not determined; Wt%, weight percent; µg/g, microgram per gram]

	Cr (µg/g)	Cs (µg/g)	Cu (µg/g)	Dy (µg/g)	Er (µg/g)	Eu (µg/g)	Fe (Wt%)	Ga (µg/g)	Gd (µg/g)	Ho (µg/g)	K (Wt%)
Standard reference (n)	9	9	3	3	3	3	9	3	3	3	9
Standard reference materials (median percent recovery)	101.1	85.8	98.1	72.9	71.7	85.2	94.0	97.5	74.4	72.2	96.2
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	10	10	10	10	10	10	10	10	10	10	10
Digest replicates (relative percent difference)	7.6	3.9	2.4	5.7	7.0	3.6	3.3	1.4	3.7	4.7	3.1

Table 3–14C. The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** La, lanthanum; Li, lithium; Lu, lutetium; Mg, magnesium; Mn, manganese; Mo, molybdenum; n, number; Na, sodium; Nd, neodymium; nd, not determined; Ni, nickel; P, phosphorus; Pb, lead; Wt%, weight percent; µg/g, microgram per gram]

	La (µg/g)	Li (µg/g)	Lu (µg/g)	Mg (Wt%)	Mn (µg/g)	Mo (µg/g)	Na (Wt%)	Nd (µg/g)	Ni (µg/g)	P (µg/g)	Pb (µg/g)
Standard reference (n)	3	3	3	6	6	3	6	3	6	3	3
Standard reference materials (median percent recovery)	86.0	100.5	74.0	95.8	102.2	108.9	92.3	93.0	103.5	98.4	105.6
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	10	10	10	10	10	10	10	10	10	10	10
Digest replicates (relative percent difference)	4.2	1.8	5.0	2.1	0.7	9.8	2.6	4.5	2.3	2.5	2.7

Table 3–14D. The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; nd, not determined; Pr, praseodymium; Rb, rubidium; Re, rhenium; S, sulfur; Sb, antimony; Se, selenium; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; Wt%, weight percent; µg/g, microgram per gram]

	Pr (µg/g)	Rb (µg/g)	Re (µg/g)	S (Wt%)	Sb (µg/g)	Se (µg/g)	Sm (µg/g)	Sn (µg/g)	Sr (µg/g)	Tb (µg/g)
Standard reference (n)	3	3	0	0	9	0	3	3	3	3
Standard reference materials (median percent recovery)	92.0	98.0	nd	nd	111.1	nd	89.7	111.1	95.1	73.6
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	10	10	4	nd	10	10	10	10	10	10
Digest replicates (relative percent difference)	4.4	4.0	36.5	nd	2.3	23.3	5.3	5.3	4.7	4.0

Table 3–14E. The 2011 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; nd, not determined; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; W, tungsten; Wt%, weight percent; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/g, microgram per gram]

	Th (µg/g)	Ti (Wt%)	Tl (µg/g)	Tm (µg/g)	U (µg/g)	V (µg/g)	W (µg/g)	Y (µg/g)	Yb (µg/g)	Zn (µg/g)	Zr (µg/g)
Standard reference (n)	9	9	3	3	9	9	3	3	9	9	3
Standard reference materials (median percent recovery)	98.9	90.6	106.2	65.8	100.3	96.0	101.6	71.6	79.8	96.2	102.2
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	2	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	97.20	nd
Digest replicates (n)	10	10	10	10	10	10	10	10	10	10	10
Digest replicates (relative percent difference)	3.9	0.7	2.1	8.2	2.6	3.0	4.6	5.4	7.9	2.9	9.3

Table 3–15A. The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Al, aluminum; As, arsenic; B, boron; Ba, barium; Be, beryllium; Bi, bismuth; Ca, calcium; Cd, cadmium; Ce, cerium; Co, cobalt; n, number; nd, not determined; Wt%, weight percent; µg/g, microgram per gram]

	Al (Wt%)	As (µg/g)	B (µg/g)	Ba (µg/g)	Be (µg/g)	Bi (µg/g)	Ca (Wt%)	Cd (µg/g)	Ce (µg/g)	Co (µg/g)
Standard reference (n)	7	7	4	7	4	4	7	5	7	7
Standard reference materials (median percent recovery)	87.6	91.5	101.3	90.1	89.4	120.2	96.3	98.6	94.8	101.5
Matrix spikes (n)	nd	3	nd	nd	3	nd	nd	3	nd	nd
Matrix spikes (median percent recovery)	nd	80.6	nd	nd	96.2	nd	nd	102.5	nd	nd
Digest replicates (n)	12	9	12	12	9	12	12	9	12	12
Digest replicates (relative percent difference)	4.8	8.0	6.0	2.2	3.9	12.8	5.7	15.2	6.5	11.4

Table 3–15B. The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** Cr, chromium; Cs, cesium; Cu, copper; Dy, dysprosium; Er, erbium; Eu, europium; Fe, iron; Ga, gallium; Gd, gadolinium; Ho, holmium; K, potassium; n, number; nd, not determined; Wt%, weight percent; µg/g, microgram per gram]

	Cr (µg/g)	Cs (µg/g)	Cu (µg/g)	Dy (µg/g)	Er (µg/g)	Eu (µg/g)	Fe (Wt%)	Ga (µg/g)	Gd (µg/g)	Ho (µg/g)	K (Wt%)
Standard reference (n)	7	7	4	4	4	4	7	4	4	4	7
Standard reference materials (median percent recovery)	100.3	84.5	101.6	77.5	77.0	87.9	101.7	97.3	78.0	74.2	93.1
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	12	12	9	12	10	12	12	12	12	12	12
Digest replicates (relative percent difference)	4.5	10.8	8.5	7.2	7.0	7.4	5.6	11.4	5.3	4.8	4.6

Table 3–15C. The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** La, lanthanum; Li, lithium; Lu, lutetium; Mg, magnesium; Mn, manganese; Mo, molybdenum; n, number; Na, sodium; Nd, neodymium; nd, not determined; Ni, nickel; P, phosphorus; Pb, lead; Wt%, weight percent; µg/g, microgram per gram]

	La (µg/g)	Li (µg/g)	Lu (µg/g)	Mg (Wt%)	Mn (µg/g)	Mo (µg/g)	Na (Wt%)	Nd (µg/g)	Ni (µg/g)	P (µg/g)	Pb (µg/g)
Standard reference (n)	4	4	4	7	7	4	7	4	7	4	7
Standard reference materials (median percent recovery)	91.2	101.0	76.8	98.4	100.0	114.4	91.3	97.1	100.5	102.9	101.6
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	12	12	12	12	12	12	12	12	12	12	9
Digest replicates (relative percent difference)	5.0	7.5	5.5	11.3	4.7	18.6	6.6	6.3	7.2	7.2	5.1

Table 3–15D. The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; na, not applicable; nd, not determined; Pr, praseodymium; Rb, rubidium; Re, rhenium; S, sulfur; Sb, antimony; Se, selenium; Sm, samarium; Sn, tin; Sr, strontium; Tb, terbium; Wt%, weight percent; µg/g, microgram per gram]

	Pr (µg/g)	Rb (µg/g)	Re (µg/g)	S (Wt%)	Sb (µg/g)	Se (µg/g)	Sm (µg/g)	Sn (µg/g)	Sr (µg/g)	Tb (µg/g)
Standard reference (n)	4	4	0	0	7	0	4	4	4	4
Standard reference materials (median percent recovery)	97.2	90.4	na	na	117.2	na	95.6	104.2	94.7	77.0
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Digest replicates (n)	12	12	2	nd	12	9	12	12	12	12
Digest replicates (relative percent difference)	8.0	6.5	18.3	nd	13.8	30.8	6.4	20.5	5.1	5.0

Table 3–15E. The 2012 quality-assurance data for trace elements and major elements in sediment less than 0.063 millimeters in diameter, standard reference material, matrix spikes, and digest replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Central Branch. **Abbreviations:** n, number; nd, not determined; Th, thorium; Ti, titanium; Tl, thallium; Tm, thulium; U, uranium; V, vanadium; W, tungsten; Wt%, weight percent; Y, yttrium; Yb, ytterbium; Zn, zinc; Zr, zirconium; µg/g, microgram per gram]

	Th (µg/g)	Ti (Wt%)	Tl (µg/g)	Tm (µg/g)	U (µg/g)	V (µg/g)	W (µg/g)	Y (µg/g)	Yb (µg/g)	Zn (µg/g)	Zr (µg/g)
Standard reference (n)	7	7	4	4	7	7	4	4	7	7	4
Standard reference materials (median percent recovery)	99.0	102.5	105.6	81.7	100.1	101.7	93.6	76.3	82.0	96.4	58.3
Matrix spikes (n)	nd	nd	nd	nd	nd	nd	nd	nd	nd	3	nd
Matrix spikes (median percent recovery)	nd	nd	nd	nd	nd	nd	nd	nd	nd	78.6	nd
Digest replicates (n)	12	12	12	12	12	12	12	12	12	9	12
Digest replicates (relative percent difference)	4.8	5.6	3.7	4.8	9.3	4.8	11.4	4.1	4.2	8.0	4.6

Appendix 4. Quality-Assurance Data for Fish Tissue

Table 4–1A. Quality assurance and quality control for mercury concentration in fish tissue: laboratory blanks, certified reference materials, and continued calibration verification.

[All analyses performed at University of California, Davis. **Abbreviations:** CCV, continued calibration verification; CRM, certified reference material; dw, dry weight; LB, laboratory blank; mm/dd/yyyy, month/day/year; n, number; N, total number; ng/g, nanogram per gram; SD, standard deviation; —, not applicable; <, less than]

Analytical batch	Range of collection dates (mm/dd/yyyy)	LB (n)	LB (ng/g dw) (mean)	LB SD	CRM (n)	CRM percent recovery (mean)	CRM SD (percentage)	CCV (n)	CCV percent recovery (mean)	CCV SD (percentage)
01SN11	08/11/2011–10/20/2011	9	<0.30	0.55	9	100.3	3.8	9	98.3	1.6
07SB11	10/20/2011	3	<0.20	0.09	3	98.9	2.7	3	97.8	0.5
01SN12	07/17/2012–07/23/2012	9	<0.30	0.52	9	105.1	2.3	9	99.4	3.2
02SN12	07/24/2012–08/22/2012	9	0.03	0.37	9	96.3	3.3	9	98.9	3.1
03SN12	10/02/2012–10/10/2012	9	<0.26	0.30	9	96.3	4.1	9	97.9	2.4
04SN12	10/15/2012–11/04/2012	9	0.24	0.30	9	98.5	1.5	9	97.6	1.4
05SN12	11/06/2012–11/13/2012	6	<0.05	0.47	6	100.0	1.4	6	99.3	0.7

Table 4–1B. Quality assurance and quality control for mercury concentration in fish tissue, laboratory calibration standards and matrix spikes.

[All analyses performed at University of California, Davis. **Abbreviations:** LCS, laboratory calibration standard; mm/dd/yyyy, month/day/year; MS, matrix spike; MSD, matrix spike duplicate; n, number; N, total number; na, not available; SD, standard deviation; —, not applicable]

Analytical batch	Range of collection dates (mm/dd/yyyy)	LCS (n)	LCS percent recovery (mean)	LCS SD (percentage)	MS (n)	MS percent recovery (mean)	MS SD (percentage)	MSD (n)	MSD percent recovery (mean)	MSD SD (percentage)
01SN11	08/11/2011–10/20/2011	3	106.3	2.7	3	99.6	0.8	3	99.4	0.3
07SB11	10/20/2011	1	107.6	na	1	105.1	na	1	97.2	na
01SN12	7/17/2012–7/23/2012	3	106.4	2.6	3	99.4	1.8	3	98.9	0.9
02SN12	7/24/2012–08/22/2012	3	105.1	1.4	3	97.5	1.7	3	97.3	1.4
03SN12	10/02/2012–10/10/2012	3	104.5	1.8	3	96.3	1.6	3	96.9	0.2
04SN12	10/15/2012–11/04/2012	3	105.2	1.1	3	96.7	0.9	3	98.1	2.0
05SN12	11/06/2012–11/13/2012	2	103.8	1.4	2	100.7	4.8	2	98.2	3.0

Table 4-1C. Quality assurance and quality control for mercury concentration in fish tissue, lab replicates.

[All analyses performed at University of California, Davis. **Abbreviations:** ENV, environmental sample; ID, identification; mm/dd/yyyy, month/day/year; n, number of replicate pairs; ng/g, nanogram per gram; REP, replicate; RPD, relative percent difference; ww, wet weight]

Project ID	Analytical batch	Date (mm/dd/yyyy)	ENV (ng/g ww)	REP (ng/g ww)	RPD (percentage)
SN11-20-NFYEL-RBT-201/80-082411	01SN11	08/24/2011	18.3	18.1	1.1
SN11-40-NFSPA-RBT-320/315-082911	01SN11	08/29/2011	57.6	58.0	0.7
SN11-60-MERBR-RBT-261/163-102111	01SN11	10/21/2011	32.7	30.5	6.9
SB11-05-ALSL4-409-TOSM-Hg4-101111	07SB11	10/11/2011	367.9	357.5	2.9
SN12-84-MCPIP-RBT-162/35-072012	01SN12	07/20/2012	77.9	79.5	2.1
SN12-104-WOLF-BRN-188/66-072312	01SN12	07/23/2012	295.0	295.4	0.1
SN12-124-SWOLF-BRN-177/50-072412	01SN12	07/24/2012	106.8	104.9	1.8
SN12-144-SYASP-BRN-225/116-080712	02SN12	08/07/2012	55.0	53.2	3.2
SN12-164-SYBSP-RBT-200/75-080912	02SN12	08/09/2012	44.2	44.6	0.9
SN12-179-FORDY-BRN-250/131-082312	02SN12	08/23/2012	62.9	62.5	0.6
SN12-200-NFSPA-RBT-214/88-100412	03SN12	10/04/2012	39.0	38.5	1.4
SN12-220-SFABV-RBT-223/106-100912	03SN12	10/09/2012	19.4	20.1	3.4
SN12-240-SFBLW-BRN-196/73-101112	03SN12	10/11/2012	73.2	76.5	4.5
SN12-260-MFMIL-RBT-196/66-101712	04SN12	10/17/2012	64.9	65.5	0.9
SN12-280-SASIL-RBT-285/167-103012	04SN12	10/30/2012	12.0	11.6	2.9
SN12-300-SAMOS-BRN-232/78-110512	04SN12	11/05/2012	68.8	67.5	1.9
SN12-320-MANFK-RBT-193/58-111412	05SN12	11/14/2012	87.1	88.1	1.0
SN12-335-HPOND-LMB-264/243-080812	05SN12	08/08/2012	700.9	730.1	4.1

Table 4-2A. Quality assurance and quality control for selenium concentration in fish tissue, standard reference materials and matrix blanks.

[All analyses performed at U.S. Geological Survey National Research Program, Menlo Park, California. **Abbreviations:** dw, dry weight; MB, matrix blank; N, total number; Se, selenium; SRM, standard reference material; µg/g, microgram per gram]

Analytical batch number	MB Se (µg/g dw)	SRM percent recovery
20140416	0.044	98.5
20140416	0.019	98.9
20140423	0.008	104.4
20140423	0.008	100.0
20140425	0.006	99.3
20140425	0.007	94.8

Table 4-2B. Quality assurance and quality control for selenium concentration in fish tissue, lab replicates.

[All analyses performed at U.S. Geological Survey National Research Program, Menlo Park, California. **Abbreviations:** dw, dry weight; ENV, environmental; ID, identification; REP, replicate; RPD, relative percent difference; Se, selenium; µg/g, microgram per gram]

Date (mm/dd/yyyy)	Project ID	Se REP (µg/g dw)	Se ENV (µg/g dw)	Se RPD
10/19/2011	SNI-013	1.02	1.01	0.47
07/22/2012	SNI-042	0.93	0.93	0.38
08/22/2012	SNI-047	0.94	0.93	1.81
10/10/2012	SNI-052	1.26	1.24	1.27
11/13/2012	SNI-057	1.47	1.45	1.17

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