Spatial and Temporal Patterns of Trace-Element Deposition in Bed Sediment from Clearwater Lake, Southeastern Missouri, 2002

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Abstract

The dam for Clearwater Lake was completed in 1948 and reservoir filling began at that time. Lead and zinc mining operations along the Viburnum Trend Subdistrict began in the Black River Basin in 1966. Arsenic, cadmium, cobalt, copper, lead, nickel, and zinc are the major trace elements associated with the sulfide minerals of this Mississippi Valley Type ore deposit. Clearwater Lake may be a sink where these mining-related trace elements accumulate and are stored.

Sediment cores were collected from six sites in Clearwater Lake to spatially and temporally characterize the concentration of trace elements in the bed sediment. The Clearwater Dam site core is the only core that is known, with certainty, to have penetrated to the pre-impoundment (pre-1948) surface. The core from Logan Creek probably penetrated the pre-mining (pre-1966) surface; the lower Black River core penetrated the pre-mining surface based on lead-210 isotopic analysis.

The non-parametric Spearman's rho correlation coefficient was computed for lead and zinc concentrations with core depth to determine the presence of temporal trends in lake bed-sediment samples at each coring site. Lead concentrations with depth indicated no trend occurred at the Webb Creek site (a basin where no mining occurs). Analyses of lead concentrations with depth at the other five coring sites indicated these five sites demonstrate significantly positive trends. Using zinc concentrations with depth was not a useful indicator to identify areas affected by mining.

The strongest correlation between lead concentrations and depth exists at the Logan Creek ($r_s = 0.92$) and Clearwater Dam ($r_s = 0.91$) sites. Samples from the Clearwater Dam site represent a composite for the fine sediments input into the lake from various tributaries. Age dating of the Clearwater Dam core by lead-210 isotopic methods indicates that the most abrupt increase in the lead concentration (from 43.9 to 77.9 milligrams per kilogram) occurred between 1965 and 1967. The mean lead concentrations of the 1967 and later samples (78.9 milligrams per kilogram) were twice the mean lead concentrations of the 1965 and earlier samples (37.4 milligrams per kilogram).

The threshold effects concentration was used to assess the potential effects of sediment trace-element concentrations on freshwater ecosystems and was exceeded for lead at all coring sites except Webb Creek and exceeded for zinc at the lower Black River, Marina, and Clearwater Dam sites. However, all lead and zinc concentrations were well below the probable effects concentration at all core sites. The only probable effects concentration exceedance occurred for nickel in 7 percent of samples at the Marina and Clearwater Dam coring sites.

Introduction

Ten lead and zinc mines, six of which currently (2008) are active in the Black River Basin, are located along the Viburnum Trend Subdistrict (Viburnum Trend). Arsenic (As), cadmium (Cd), cobalt (Co), copper (Cu), lead (Pb), nickel (Ni), and zinc (Zn) are the major trace elements (all are metals) associated with the sulfide minerals of these Mississippi Valley Type (MVT) ores (Lopaka Lee, U.S. Geological Survey, written commun., 2006) and, therefore, are referred to as MVT-related metals in this chapter. Galena (PbS) is the primary ore mineral in the Viburnum Trend, and sphalerite (ZnS) is the second most common ore mineral. Both are predominant in the thick carbonate sequence of the Upper Cambrian Bonneterre Formation. Mining operations began along the Viburnum Trend in 1960; however, mines in the Black River Basin did not begin operations until 1966 (C.M. Seeger, Missouri Department of Natural Resources, Divison of Geology and Land Survey, written commun., 2008).

Purpose and Scope

The purpose of this chapter is to characterize the spatial and temporal concentration of select trace elements, referred to as MVT-related metals, in bed-sediment samples collected during August 2002 from six sites in Clearwater Lake. The

focus of this study was on lead and zinc as they are the primary metals produced from the Viburnum Trend mines.

Clearwater Lake may be a sink where mining-related trace elements accumulate and are stored (Gale and others, 1976). Lake bed sediments can provide detailed chronostratigraphic histories of trace-element inputs in lakes and can be useful in assessing the effects of long-term activities, such as mining, within a basin. Understanding the transport and deposition of trace elements in an aquatic environment is important to the overall understanding of the effects of mining on the environment. This information can be used by Federal land managers to better assess potential risks to new areas being considered for future or expanded mine development.

Study Area and Black River Basin Description

The study area is Clearwater Lake, located in southeastern Missouri, which has a drainage area of approximately 898 square miles (mi^2) and a surface area of 1,600 acres (fig. 1). The dam was completed in 1948 as a flood control reservoir for the upper Black River and began filling at that time (Hauck and Harris, 2006).

Clearwater Lake actively receives stream sediment from the upper part of the Black River Basin, which is on the western flank of the St. Francois Mountains. Much of the area is within the boundaries of the Mark Twain National Forest (fig. 1) managed by the U.S. Department of Agriculture, Forest Service. The basin is predominantly uninhabited, hickory-oak forest with minor stands of conifers (91 percent) and pasture (7 percent) (Homer and others, 2007). The remaining 2 percent is a mixture of open water, wetlands, and urban. The basin includes scattered parcels of private property that contain either isolated homesteads or small communities. Most of the private property is concentrated along major roads or along stream valleys.

The upper Black River Basin lies within a large region of karst terrain that is characterized by the presence of caves, springs, sinkholes, and losing streams. Most of the springs in the basin are small, discharging 0.1 to 1.0 cubic foot per second (ft^3/s; Vineyard and Feder, 1974). Losing streams have been identified in the basin (Harvey, 1980), and include the upper part of Logan Creek. The upper Black River Basin is characterized by deep, narrow valleys and narrow, steep-sided ridges that resulted from deep dissection of the carbonate bedrock by surface and karst drainage. More than 300 feet (ft) of relief is common between the ridge tops and the adjacent valleys.

Methodology

Lake bed-sediment cores were collected during August 2002 from six sites in Clearwater Lake (fig. 2). Sampling sites represent a mix of riverine, lacustrine, and intermediate environments. The cores were collected using a universal head gravity corer with a 2.8-inch (in.) inside diameter polycarbonate core barrel. Two collection methods were used. In shallow water areas, the core barrel was fitted with aluminum extension rods and pushed by hand from a boat. In deep water areas, cores were collected by divers with self-contained underwater breathing apparatus (SCUBA) by hand pushing the core barrel into the sediments until refusal. Because the core barrel was hand pushed into the sediments, core refusal occurred before the pre-impoundment (pre-1948) surface was penetrated at all sites except the Clearwater Dam site. Based on the observation of root hairs at the bottom of the Clearwater Dam core sample, which was 1.77 ft long, the pre-impoundment soil surface was penetrated. The longest core sample was from Webb Creek (2.36 ft), a non-mining basin. This core did not penetrate the pre-1966 (pre-mining) lake bed surface. The upper Black River and Marina cores (both 2.00 ft) probably did not penetrate the pre-mining surface. The Logan Creek core (0.92 ft) probably reached the pre-mining surface. The lower Black River core (1.77 ft) also penetrated the pre-mining surface, based on isotopic age dating results.

After collection, both ends of the core tubes were capped with a polyethylene cover secured with electrical tape and transported to the University of Missouri—Rolla (now Missouri University of Science and Technology) geochemistry laboratory. Excess water was siphoned and the cores were allowed to air dry before longitudinally cutting in one-half. Air drying allowed the core sample to solidify before subsampling. One-half of the core was divided into 0.4-in. (1-centimeter) sections for geochemical analysis. The other one-half of the core was divided into 0.8-in. (2-centimeter) sections, and age dating was performed on the midpoint of each section.

Detailed geochemical analyses were performed on the less than 63 micrometer (μm) fraction using inductively coupled plasma mass spectrometry (ICP-MS) methods (Taggart, 2002). The results for 37 elements, including major and trace elements, are listed in table 1 (at the back of this chapter). A marine sediment consisting of a fine-grained, gray-brown, clayey mud with low carbonate content (MAG-1) was used as the standard reference material with known elemental concentrations, and sample duplicates were used to assess quality assurance. The core samples were divided into 11 groups to be loaded and analyzed by the ICP-MS, with at least 1 duplicate sample analyzed with each group. Two MAG-1 sediment samples were included with each ICP-MS analytical run to assess the accuracy of the analysis. If there were a small number of samples in a group, the ICP-MS run may have contained more than one sample. The ICP-MS analysis of the standard reference material yielded an average percent recovery of the known concentrations that ranged from 94.5 percent for nickel (Ni) to 108.1 percent for aluminum (Al) with a median recovery of 101.6 percent. These results are a measure of the method performance. Precision of the ICP-MS analysis was calculated as relative standard deviation (RSD). The RSD was determined by dividing the standard deviation of each specific element concentration for all the MAG-1 analysis by the mean concentration for the same sample set, then multiplying by 100

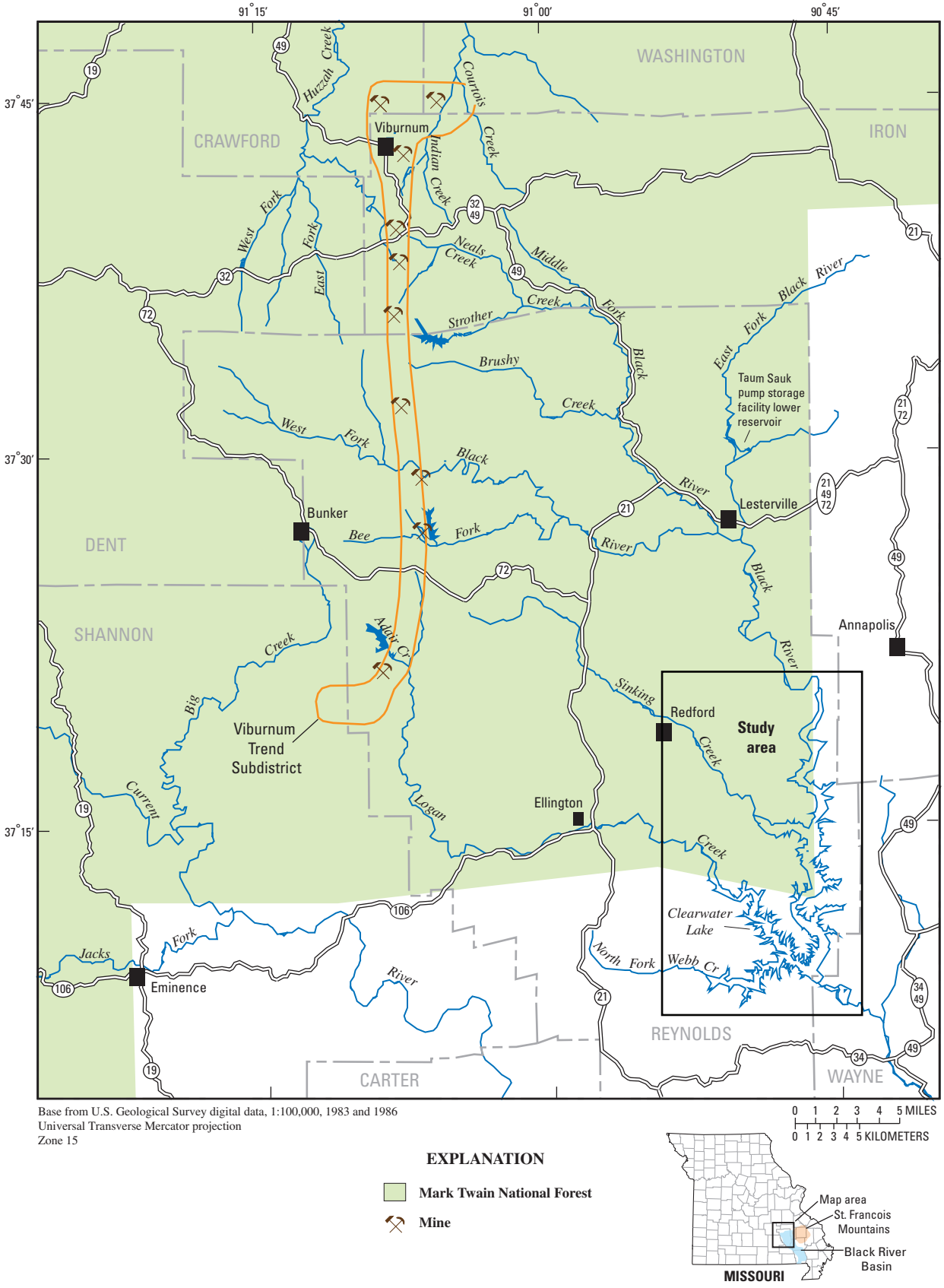
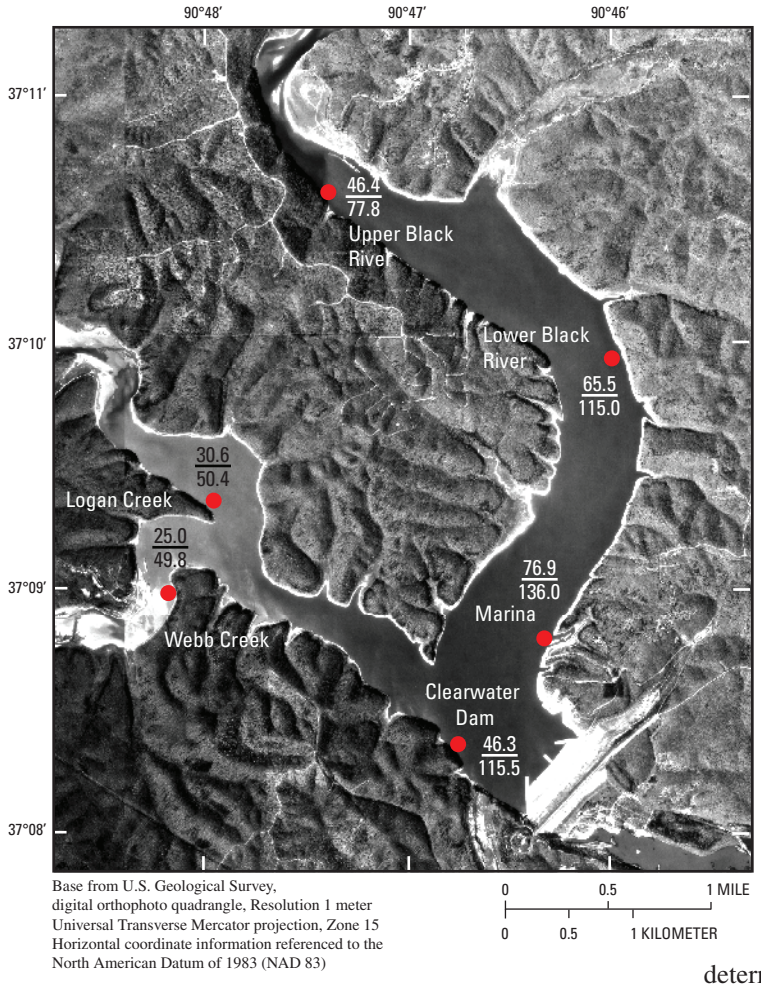


Figure 1. Study area and streams draining the Viburnum Trend Subdistrict into Clearwater Lake.



Base from U.S. Geological Survey, digital orthophoto quadrangle, Resolution 1 meter Universal Transverse Mercator projection, Zone 15 Horizontal coordinate information referenced to the North American Datum of 1983 (NAD 83)

EXPLANATION

Marina — **Lake bed-sediment coring site and name**

Median concentration in core samples, in milligrams per kilogram

30.6 / 50.4 — Lead / Zinc

Figure 2. Clearwater Lake bed-sediment coring sites.

percent. The RSD was less than 10 percent for most elements. However, Cd, molybdenum (Mo), niobium (Nb), and silver (Au) had a RSD greater than 10 percent, probably because of a lack of optimization of the procedure for these elements or the elemental concentrations in the MAG-1 sample were near the detection limit of the instrument.

Sediment cores from the lower Black River and Clearwater Dam sites were dated to assess trace-element deposition with time using lead-210 (^{210}Pb) and cesium-137 (^{137}Cs) isotopic methods (Zielinski and Budahn, 1998). Cesium-137 was used to assign a date marker to the core samples that are associated with the ^{137}Cs maximum concentration that occurred in 1964. Date markers also were assigned to the pre-impoundment surface (pre-1948) and the date of core collection (2002). Lead-210 dates were determined using the constant rate of supply model (Appleby and Oldfield, 1992). Variable mass accumulation rates were used to adjust ^{210}Pb dates to known date markers within the cores (J.R. Budahn, U.S. Geological Survey, written commun., 2007). Concentrations of ^{210}Pb, radium-226 (^{226}Ra), lead-214 (^{214}Pb), bismuth-214 (^{214}Bi), and ^{137}Cs were obtained using high precision gamma-ray spectrometry. Counts were made using a high-purity germanium semiconductor detector in the U.S. Geological Survey (USGS) mineralogic laboratory in Lakewood, Colorado.

The error for the ^{210}Pb dating is estimated to be on the order of plus or minus 5 percent (J.R. Budahn, U.S. Geological Survey, written commun., 2007). The largest dating errors were associated with the samples dated from the 1950s, which were estimated at plus or minus 3 years.

The non-parametric Spearman's rho correlation coefficient (r_s) (Helsel and Hirsch, 1992) was computed for lead and zinc concentrations to determine the presence of temporal trends in lake bed-sediment samples from each coring site. A level of significance (α-value) less than 0.05 caused the rejection of the null hypotheses that states no temporal trends exist. The "attained significance level" (p-value) is a probability value determined from the data (Helsel and Hirsch, 1992) that measures the "believability" of the null hypotheses. The larger the p-value, the weaker the evidence to reject the null hypothesis. Trends were determined to be significant if the probability (two-sided p-value) of rejecting the null hypothesis was less than or equal to 0.05. A positive trend is indicated by increasing trace-element concentrations in younger sediments (top of core) and a negative trend would be decreasing trace-element concentrations in younger sediments.

Spatial and Temporal Patterns of Trace-Element Deposition

Median concentrations of the select trace elements, referred to as MVT-related metals, excluding cadmium, in sediments from Clearwater Lake are shown in figure 3. The largest median concentrations for all MVT-related metals, except cobalt, were detected at the Marina site. The largest median cobalt concentration was at the Clearwater Dam site (table 1, at the back of this chapter).

Lead and zinc concentrations in bed sediment at background sites (sites not considered to be affected by mining) in southern Missouri ranged from 15 to 28 mg/kg lead and 43 to 140 mg/kg zinc (Petersen and others, 1998). Webb Creek is the only site with a median lead concentration that is within the range defined by the background sites (fig. 3). Median concentrations in samples from the other five sites exceeded the

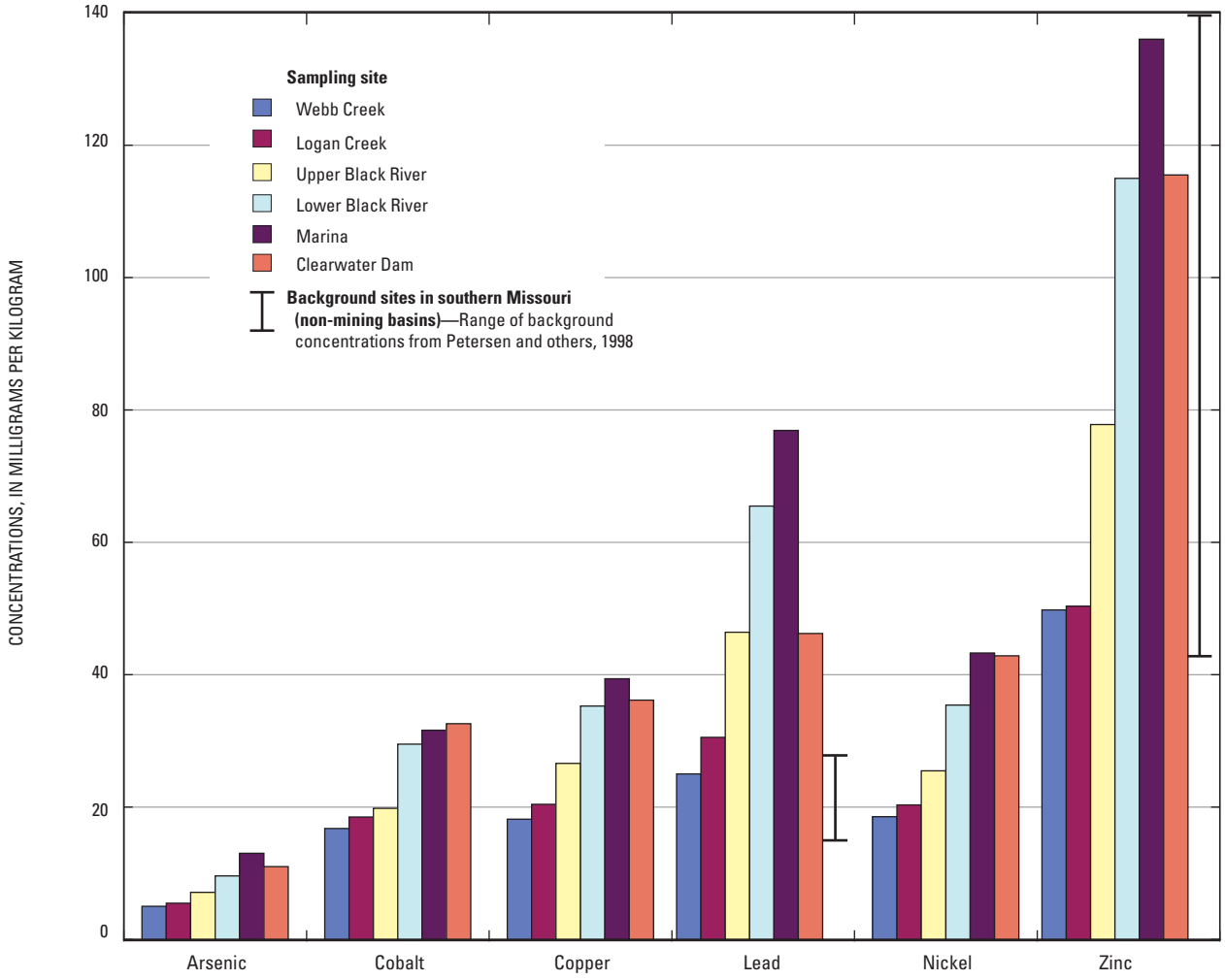


Figure 3. Median concentrations of Mississippi Valley Type-related metals in Clearwater Lake bed sediment and range of lead and zinc concentrations in non-mining basins in southern Missouri.

background lead concentration range. Although Webb Creek has the smallest median zinc concentration, the median zinc concentrations at all sites were within the background range.

Concentrations of lead and zinc at different depths (with time) were plotted (fig. 4) and used to determine if temporal trends existed. No trend was indicated by lead concentrations (p-value = 0.14) at the Webb Creek site (non-mining basin) where median lead and zinc concentrations were smallest (fig. 3) and changed little with depth (fig. 4). Analyses of lead concentrations with depth at the other five sites have r_s ranging from 0.26 to 0.92 and p-values less than 0.05, indicating all have significantly positive trends (table 2). Zinc concentrations at all six sites, including the background non-mining Webb Creek site, have positive trends (r_s ranging from 0.40 to 0.94) and p-values less than 0.05. Because of the positive trend at the background Webb Creek site and all core sites have median zinc concentrations within the background concentration, zinc concentrations probably are not a useful indicator to identify areas affected by mining.

A strong correlation (r_s = 0.92) exists for lead and zinc concentrations at the Logan Creek site. As the depth decreases, the concentration of both lead and zinc increases (except for the most recent sample). Whereas the Logan Creek core did not penetrate to the pre-impoundment surface, the core probably reached the pre-mining lake bed surface. This conclusion is based on the small concentrations of the seven MVT-related metals in the oldest (deepest) layers of the Logan Creek core. These concentrations are similar to those detected in samples from the non-mining Webb Creek site (fig. 4).

Although lead concentrations with decreasing depth showed a positive trend at the upper Black River site, this site had the weakest correlation (r_s = 0.26; table 2) of the five sites that demonstrated a trend. The lower Black River site showed a slightly stronger correlation (r_s = 0.46) between lead concentrations with depth. Only the oldest section of the lower Black River core was age dated. Lead-210 analysis indicated the core barrel penetrated to the 1964 surface, which is before mining activity commenced in the Black River Basin part the Viburnum Trend.

Several possible explanations exist for the weak trend in lead concentrations with depth at the upper Black River site as compared to the lower Black River site. The lower Black River

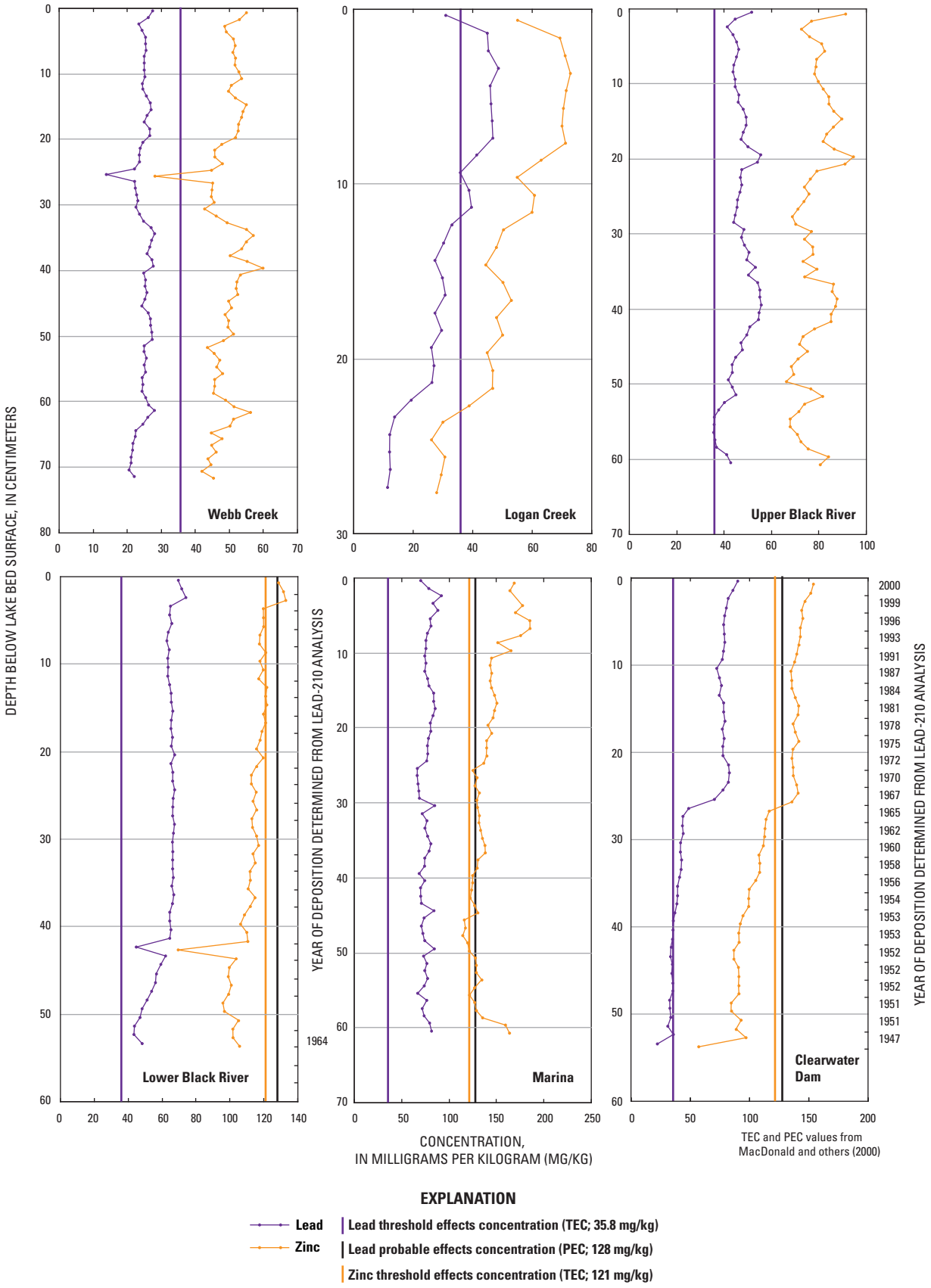


Figure 4. Lead and zinc concentrations in Clearwater Lake bed sediments, 2002.

Table 2. Results of trend tests on lead and zinc concentrations in bed-sediment core samples collected from Clearwater Lake, Missouri, August 2002.

Site	Constituent	Spearman's rho	Trend test at a 0.05 level of significance
Webb Creek	Lead	0.18	No trend
	Zinc	.40	Positive trend
Logan Creek	Lead	.92	Positive trend
	Zinc	.92	Positive trend
Upper Black River	Lead	.26	Positive trend
	Zinc	.42	Positive trend
Lower Black River	Lead	.46	Positive trend
	Zinc	.92	Positive trend
Marina	Lead	.33	Positive trend
	Zinc	.73	Positive trend
Clearwater Dam	Lead	.91	Positive trend
	Zinc	.94	Positive trend

site is farther into the lake than the upper Black River site and, consequently, is in a deeper, lower energy environment part of the lake. Lake-level fluctuations would have greater effect at the upper site, especially during low lake stages when this area becomes a riverine environment, resulting in more lake bed-sediment disturbance than at the lower site. These disturbances may have reworked the deposited sediments and obscured any chronological trends that may have been present. Also, the deeper, lower energy environment at the lower Black River site favored the accumulation of finer grained sediments (silt and clay size; less than 63 μm) as compared to the upper site. Because the material in the mine tailings ponds have been milled to primarily silt and clay size particles, these fine-grained, metal-rich particles have the potential to be transported farther into the lake where they would accumulate. Finally, the core from the upper Black River site likely did not penetrate the pre-mining lake bed surface to give a pre-mining baseline concentration for comparison. This conclusion is based on the lead and zinc concentrations at the upper Black River site, which are about twice the concentrations detected at the Webb Creek site.

A failure to penetrate the pre-mining lake bed surface also may explain the weak correlation ($r_s = 0.33$) between lead concentration and depth at the Marina site. Similar to the upper Black River site, lead concentrations at the Marina site were about twice the concentration at the Webb Creek site.

Analysis of pre-mining and mining concentrations in lake bed sediments from the Clearwater Dam site indicates a strong correlation between an increase in lead ($r_s = 0.91$) and zinc ($r_s = 0.94$) concentrations with a decrease in depth (fig. 4). Samples from this site represent a composite for the fine sediments input to the lake from the various tributaries. Age dating of the Clearwater Dam core indicates that the most abrupt increase in the lead concentration occurs in four consecutive 0.4-in. samples from 43.9 to 77.9 mg/kg (samples 25–28, table 1) that correspond to the period between 1965 and 1967. Zinc concentrations increased from 114 to 141 mg/kg (samples 25–28, table 1) during this same period. The mean lead concentrations of the 1967 and later samples (78.9 mg/kg) were twice the mean lead concentrations of the 1965 and earlier samples (37.4 mg/kg). Although probably not a reliable indicator of mining, an increase in mean zinc concentrations from 97 to 141 mg/kg occurred when comparing the 1965 and earlier samples with the 1967 and later samples. Although not plotted, concentrations of arsenic, cobalt, copper, and nickel lack the abrupt increase observed in lead and zinc concentrations, but generally increase with time; however, cadmium concentrations show the same abrupt increase between 1965 and 1967 (0.42 to 0.58 mg/kg; samples 25–28, table 1) as lead concentrations.

Available consensus-based sediment-quality guidelines (MacDonald and others, 2000) were used to assess the potential effects of trace-element concentrations on freshwater ecosystems (table 3). The threshold effects concentration (TEC) is the level below which adverse effects to sediment dwelling organisms are not expected to occur; the probable effects concentration (PEC) is the level above which adverse effects are likely to occur. Adverse effects may occasionally occur in the range of concentrations between the TEC and PEC values. The TEC for nickel (22.7 mg/kg) was exceeded at all sites, and the TEC for lead (35.8 mg/kg) was exceeded at all sites except Webb Creek, whereas the TEC for arsenic, copper, and zinc was exceeded at the lower Black River, Marina, and Clearwater Dam sites (fig. 4; table 4). All of the lead and zinc concentrations were well below the PEC at all sites. The only PEC exceedance was for nickel at 7 percent of samples at both the Marina and Clearwater Dam core sites (table 4).

Table 3. Sediment-quality guidelines for trace elements (Mississippi Valley Type-related metals).

[TEC, threshold effects concentration; mg/kg, milligrams per kilogram; PEC, probable effects concentration; --, not applicable]

Constituent	TEC[a] (mg/kg)	PEC[a] (mg/kg)
Arsenic	9.79	33.0
Cadmium	.99	4.98
Cobalt	--	--
Copper	31.6	149
Lead	35.8	128
Nickel	22.7	48.6
Zinc	121	459

[a] Concentrations from MacDonald and others (2000).

Table 4. Exceedance of sediment-quality guidelines for trace elements (Mississippi Valley Type-related metals) at the Clearwater Lake sites.

[TEC, threshold effects contamination; PEC, probable effects concentration; No, guideline not exceeded; shaded cell, guideline exceeded with numbers indicating the percentage of samples exceeding the guideline concentration; sediment-quality guidelines from MacDonald and others, 2000]

Site	Arsenic		Cadmium		Copper		Nickel		Lead		Zinc	
	TEC	PEC	TEC	PEC	TEC	PEC	TEC	PEC	TEC	PEC	TEC	PEC
Webb Creek	No	No	No	No	No	No	1	No	No	No	No	No
Logan Creek	No	No	No	No	4	No	32	No	36	No	No	No
Upper Black River	No	No	No	No	No	No	80	No	98	No	No	No
Lower Black River	32	No	No	No	94	No	100	No	100	No	9	No
Marina	100	No	2	No	100	No	100	7	100	No	93	No
Clearwater Dam	87	No	No	No	74	No	98	7	74	No	48	No

Summary

The dam for Clearwater Lake was completed in 1948 and reservoir filling began at that time. Mining operations along the lead and zinc ore body known as the Viburnum Trend Subdistrict began in the Black River Basin part of the subdistrict in 1966. Arsenic, cadmium, cobalt, copper, lead, nickel, and zinc are the major trace elements (all metals) associated with the sulfide minerals of this Mississippi Valley Type ore deposit. Clearwater Lake may be a sink where these mining-related trace metals accumulate and are stored.

Sediment cores were collected from six sites in Clearwater Lake during August 2002 to spatially and temporally characterize the concentration of trace elements in the bed sediment. The cores represent a mix of riverine, lacustrine, and intermediate environments, and elemental analyses were performed using inductively coupled plasma mass spectrometry methods. The Clearwater Dam site core is the only core that is known, with certainty, to have penetrated to the pre-impoundment (pre-1948) surface. The core from Logan Creek probably penetrated the pre-mining (pre-1966) surface; the lower Black River core penetrated the pre-mining surface based on lead-210 isotopic analysis.

The non-parametric Spearman's rho correlation coefficient was computed for lead and zinc concentrations with core depth to determine the presence of temporal trends in lakebed sediment samples from each coring site. Median lead and zinc concentrations were the least and changed little with depth at the Webb Creek site (a basin where no mining occurs) and no trend (p-value = 0.14) was indicated in lead concentrations. Analyses of lead concentrations with depth at the other five core sites indicated p-values less than 0.05 and correlation coefficients (r_s) ranging from 0.26 to 0.92, indicating these five sites had significantly positive trends. Median zinc concentrations at all six sites were within background concentrations for non-mining areas in southern Missouri; all six sites indicated significant positive trends, including the non-mining Webb Creek site. These two reasons indicate that zinc concentration probably was not a useful indicator to identify areas affected by mining.

The strongest correlation between lead concentrations and depth existed at the Logan Creek ($r_s = 0.92$) and Clearwater Dam ($r_s = 0.91$) sites. Based on the small concentrations of the seven select trace elements (Mississippi Valley Type-related metals) in the deepest and presumably oldest layers of the Logan Creek core that were similar to the concentrations present in Webb Creek samples, it is probable that the core reached the pre-mining lakebed surface, but not the pre-impoundment surface.

Samples from the Clearwater Dam site represent a composite for the fine sediments input into the lake from various tributaries. Age dating of the Clearwater Dam core by lead-210 isotopic methods shows that the most abrupt increase in the lead concentration (from 43.9 to 77.9 milligrams per kilogram) occurred in four consecutive 0.4-inch samples that correspond to the period between 1965 and 1967. The mean lead concentrations of the 1967 and later samples (78.9 milligrams per kilogram) were twice the mean lead concentrations of the 1965 and earlier samples (37.4 milligrams per kilogram).

The threshold effects concentration was used to assess the potential effects of sediment trace-element concentrations on freshwater ecosystems. The threshold effects concentration for nickel (22.7 milligrams per kilogram) was exceeded at all sites, and lead (35.8 milligrams per kilogram) was exceeded at all sites except Webb Creek, whereas the threshold effects concentrations for arsenic, copper, and zinc were exceeded at the lower Black River, Marina, and Clearwater Dam sites. All of the lead and zinc concentrations were well below the probable effects concentration at all sites. The only probable effects concentration exceedance was for nickel at 7 percent of samples at both the Marina and Clearwater Dam sites.

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Table

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Webb Creek (Latitude 37° 08’ 56” Longitude 090° 48’ 18”)															
1	38,800	0.54	4.7	421	1.6	0.16	0.24	2,060	77.3	2.6	38.9	18.2	19.2	8.4	19,000
2	38,100	.56	3.9	406	1.5	.15	.24	2,010	78.4	2.5	41.0	15.6	18.3	8.3	16,000
3	36,000	.49	3.7	408	1.4	.14	.20	1,840	76.7	2.4	38.0	15.8	17.1	7.8	16,000
4	36,200	.49	4.3	405	1.5	.14	.22	1,740	74.9	2.4	44.7	16.5	18.4	7.9	18,000
5	37,200	.53	4.5	409	1.4	.14	.22	1,810	78.4	2.4	44.3	17.0	18.9	8.2	18,000
6	36,000	.46	3.8	397	1.5	.15	.24	1,910	79.0	2.4	41.7	16.4	18.6	7.8	17,000
7	36,700	.49	3.7	402	1.6	.14	.23	1,920	79.1	2.4	43.6	16.9	19.2	7.9	17,000
8	36,500	.51	3.8	393	1.4	.15	.23	2,000	78.0	2.4	42.4	16.1	17.8	7.9	16,000
9	36,400	.52	4.6	403	1.4	.14	.23	2,070	79.8	2.4	42.5	19.0	18.9	8.1	18,000
10	36,700	.58	5.1	401	1.6	.15	.25	2,260	85.0	2.4	43.0	20.4	19.6	8.2	18,000
11	38,800	.61	5.5	430	1.6	.16	.24	2,250	86.4	2.6	45.7	19.3	19.9	8.6	20,000
12	37,400	.55	4.7	418	1.5	.15	.22	2,140	81.6	2.5	44.7	17.2	17.8	8.3	18,000
13	37,100	.52	4.4	410	1.5	.14	.21	2,050	83.3	2.4	40.3	17.5	17.8	8.1	18,000
14	38,300	.57	4.2	419	1.6	.14	.22	1,990	84.7	2.6	41.8	18.5	18.1	8.4	17,000
15	40,200	.62	5.2	434	1.7	.17	.23	2,040	87.4	2.8	45.8	22.5	19.6	8.8	18,000
16	39,100	.60	5.2	430	1.6	.16	.22	2,070	87.3	2.7	46.5	19.4	19.6	8.7	19,000
17	39,300	.60	4.7	433	1.6	.16	.22	2,180	88.1	2.6	47.1	18.0	21.0	8.8	19,000
18	39,500	.55	4.3	440	1.5	.15	.22	2,020	85.3	2.6	42.1	17.0	19.0	8.7	18,000
19	38,700	.58	4.8	422	1.5	.15	.22	2,120	81.8	2.6	43.2	19.0	19.5	8.5	18,000
20	38,000	.54	4.7	423	1.6	.14	.21	2,140	81.8	2.6	42.9	18.0	20.7	8.4	18,000
21	35,700	.55	4.2	402	1.4	.14	.22	2,120	77.8	2.3	40.0	17.4	18.3	7.9	18,000
22	34,200	.50	3.7	393	1.4	.15	.20	2,100	78.4	2.2	38.2	16.5	16.7	7.6	17,000
23	34,100	.49	3.7	395	1.4	.12	.21	2,140	78.2	2.2	39.1	15.8	17.3	7.6	17,000
24	33,200	.46	3.7	391	1.3	.14	.22	2,020	75.0	2.1	39.1	17.2	24.6	7.3	16,000
25	33,900	.48	3.6	395	1.4	.12	.22	2,100	72.5	2.1	37.1	16.6	16.4	7.5	16,000
26	20,400	.28	2.0	250	.7	< .1	.13	1,280	45.3	1.3	24.7	10.0	12.9	4.5	9,900
27	33,500	.51	3.7	394	1.4	.12	.20	2,000	75.8	2.2	39.4	18.0	16.9	7.4	16,000
28	33,100	.51	4.3	386	1.2	.12	.20	2,160	75.7	2.1	48.2	18.6	17.1	7.3	16,000
29	31,400	.54	6.6	394	1.4	.12	.22	2,470	79.4	2.0	37.8	22.3	18.4	7.0	16,000
30	31,400	.52	7.0	398	1.4	.11	.25	2,420	82.2	2.0	40.6	23.2	18.2	7.1	16,000
31	30,600	.44	6.2	381	1.3	.10	.23	2,240	71.6	2.0	34.6	19.9	16.8	6.9	15,000
32	33,100	.56	6.7	405	1.5	.10	.26	2,500	79.8	2.1	39.7	20.6	17.6	7.3	17,000
33	36,200	.54	6.0	410	1.6	.11	.22	2,240	79.6	2.4	41.3	18.4	18.4	8.1	17,000
34	40,400	.61	6.2	431	1.7	.13	.24	2,340	86.4	2.7	43.3	18.9	19.6	8.7	19,000
35	41,700	.61	6.5	442	1.8	.13	.22	2,120	85.4	2.8	46.2	19.8	20.9	9.2	20,000
36	41,200	.61	6.2	437	1.6	.13	.23	1,990	84.4	2.7	48.9	18.9	20.3	9.0	19,000
37	39,900	.67	6.0	443	1.5	.12	.22	2,020	86.1	2.6	43.6	17.9	19.9	8.7	18,000
38	38,500	.60	5.7	432	1.6	.12	.21	1,930	84.5	2.5	43.6	16.4	18.8	8.4	18,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Webb Creek (Latitude 37° 08′ 56” Longitude 090° 48′ 18”)—Continued															
39	41,400	0.67	6.4	448	1.6	0.13	0.22	2,090	83.9	2.8	45.7	18.4	20.9	9.0	19,000
40	44,300	.69	6.4	475	1.7	.14	.21	2,010	83.6	3.0	51.4	18.2	23.2	9.6	20,000
41	41,900	.67	5.8	453	1.7	.12	.20	2,040	74.6	2.8	39.5	16.9	19.3	9.1	18,000
42	38,800	.61	5.6	430	1.6	.12	.22	2,220	73.2	2.6	38.4	17.4	19.6	8.6	18,000
43	38,000	.60	5.6	422	1.4	.11	.24	2,130	70.3	2.5	41.1	17.3	18.0	8.5	17,000
44	37,400	.62	5.4	417	1.4	.11	.24	2,240	72.1	2.4	43.1	17.0	19.0	8.4	17,000
45	36,200	.61	5.3	410	1.4	.11	.24	2,300	71.9	2.3	38.2	16.3	18.0	8.1	17,000
46	35,600	.58	5.0	408	1.4	.10	.22	2,280	70.9	2.3	36.9	15.3	18.8	7.9	16,000
47	35,000	.55	5.0	404	1.4	.10	.23	2,130	70.5	2.3	36.8	15.4	17.9	7.7	16,000
48	35,900	.56	5.1	412	1.3	.10	.24	2,090	68.7	2.3	41.4	16.1	18.1	7.7	17,000
49	35,600	.55	4.8	400	1.4	.10	.24	1,970	71.4	2.3	38.0	15.8	18.5	7.7	16,000
50	37,000	.57	5.0	409	1.4	.10	.23	1,980	73.3	2.4	38.4	16.4	18.8	8.0	16,000
51	35,400	.54	5.3	409	1.2	.16	.23	1,860	83.2	2.4	32.8	15.5	17.6	7.3	15,000
52	32,500	.45	5.2	390	1.2	.14	.20	1,960	84.4	2.2	32.6	13.7	15.4	7.2	16,000
53	34,100	.48	4.6	408	1.2	.14	.21	2,060	81.8	2.3	32.6	14.6	16.2	7.2	16,000
54	35,200	.46	4.8	408	1.1	.14	.22	2,110	82.5	2.4	33.2	15.0	16.6	7.4	16,000
55	34,700	.44	4.8	407	1.4	.14	.22	1,910	83.5	2.4	32.3	14.3	16.9	7.3	15,000
56	35,100	.45	5.3	415	1.4	.15	.22	2,040	85.7	2.4	37.9	14.5	17.4	7.4	15,000
57	35,200	.46	4.4	413	1.3	.14	.21	2,080	82.4	2.3	34.1	14.3	16.7	7.0	15,000
58	34,800	.47	5.0	404	1.4	.15	.22	2,100	86.1	2.3	37.0	13.6	16.8	7.3	15,000
59	34,600	.52	5.1	398	1.3	.14	.20	2,010	83.5	2.3	34.3	13.9	16.3	7.2	15,000
60	37,600	.48	5.3	426	1.4	.15	.22	2,010	86.4	2.5	38.4	15.8	16.8	7.6	16,000
61	39,400	.57	6.0	431	1.5	.16	.21	1,890	85.2	2.6	35.9	17.2	17.6	8.3	17,000
62	41,600	.60	6.7	429	1.4	.18	.24	1,820	90.2	2.9	39.0	18.0	18.8	8.9	17,000
63	38,600	.57	5.6	426	1.4	.17	.22	1,730	88.8	2.7	34.7	15.0	17.4	8.2	16,000
64	38,800	.55	5.6	440	1.4	.16	.23	1,900	86.5	2.7	36.8	14.7	18.1	8.0	16,000
65	34,400	.46	5.2	412	1.3	.15	.21	1,910	83.1	2.3	31.3	14.6	18.2	7.1	15,000
66	35,000	.43	4.5	415	1.2	.15	.20	2,150	88.4	2.3	34.7	15.8	16.4	7.2	14,000
67	35,000	.49	5.0	403	1.4	.14	.18	2,050	90.8	2.4	34.8	14.5	18.4	7.2	15,000
68	35,000	.49	5.0	414	1.2	.15	.19	2,370	91.5	2.4	37.0	14.4	16.2	7.3	15,000
69	35,200	.49	4.6	416	1.3	.15	.23	2,050	93.6	2.3	37.1	14.0	15.6	7.6	15,000
70	36,300	.48	5.0	429	1.2	.14	.18	2,080	85.4	2.4	32.9	16.0	16.2	7.3	15,000
71	35,200	.49	4.9	418	1.3	.14	.17	2,000	81.7	2.3	30.5	16.2	15.8	7.0	14,000
72	36,600	.50	4.5	421	1.4	.15	.10	2,070	85.8	2.4	34.4	14.2	17.2	7.6	15,000
Maximum	44,300	0.69	7.0	475	1.8	0.18	0.26	2,500	93.6	3.0	51.4	23.2	24.6	9.6	20,000
Minimum	20,400	.28	2.0	250	.7	.10	.10	1,280	45.3	1.3	24.7	10.0	12.9	4.5	9,900
Mean	36,457	.54	5.0	413	1.4	.14	.22	2,062	80.7	2.4	39.4	16.9	18.2	7.9	16,693
Median	36,250	.54	5.0	411	1.4	.14	.22	2,060	82.0	2.4	39.1	16.8	18.2	7.9	17,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Logan Creek (Latitude 37° 09′ 21” Longitude 090° 48′ 07”)															
1	42,700	0.64	6.8	382	1.5	0.18	0.24	2,100	72.0	2.8	49.6	18.0	23.2	9.2	19,000
2	45,000	.63	6.4	366	2.0	.20	.35	2,320	83.6	3.1	57.2	21.6	25.3	9.7	20,000
3	45,300	.64	6.6	370	1.8	.22	.37	2,320	75.3	3.2	64.7	22.6	25.5	9.8	21,000
4	44,300	.70	7.0	366	1.8	.21	.36	2,460	81.4	3.1	60.8	23.1	61.6	9.5	21,000
5	45,600	.67	6.9	383	1.8	.20	.36	2,300	76.2	3.2	46.0	23.2	25.1	9.9	23,000
6	45,000	.67	7.4	385	2.0	.20	.36	2,330	76.0	3.2	44.2	24.0	24.8	9.9	22,000
7	44,200	.65	7.2	377	1.8	.22	.36	2,320	82.9	3.2	44.6	23.4	25.0	9.7	22,000
8	45,300	.68	7.4	381	1.8	.21	.35	2,400	83.7	3.2	48.8	24.2	24.8	9.9	22,000
9	39,600	.60	6.7	329	1.7	.18	.31	2,160	68.9	2.8	41.6	20.5	25.2	8.5	19,000
10	35,700	.54	6.0	293	1.4	.16	.26	2,130	60.4	2.5	37.5	19.7	20.6	7.9	17,000
11	40,000	.59	6.9	326	1.6	.18	.30	2,080	67.1	2.9	41.4	21.2	22.0	8.8	19,000
12	40,500	.61	7.4	344	1.6	.18	.28	2,260	68.2	2.9	40.9	21.5	22.6	8.8	20,000
13	35,700	.52	5.4	312	1.4	.16	.25	2,040	68.0	2.4	36.5	18.6	20.9	7.7	16,000
14	34,100	.52	5.1	299	1.4	.15	.23	1,770	60.0	2.3	36.7	18.4	20.0	7.3	16,000
15	31,900	.46	5.3	286	1.3	.13	.21	1,740	55.6	2.2	34.7	17.5	18.1	6.9	16,000
16	35,900	.52	5.6	321	1.5	.15	.25	1,910	63.3	2.4	38.4	18.7	19.1	7.8	17,000
17	38,100	.53	6.1	332	1.6	.16	.26	1,950	64.2	2.6	39.4	19.9	23.5	8.2	18,000
18	33,700	.47	5.3	297	1.3	.14	.23	1,740	60.4	2.3	37.8	17.6	17.6	7.1	16,000
19	35,900	.50	5.0	316	1.5	.15	.24	1,840	63.6	2.5	39.4	18.2	19.4	7.7	17,000
20	32,900	.52	5.0	291	1.2	.14	.21	1,700	60.4	2.2	36.9	17.6	17.2	7.1	15,000
21	33,900	.47	5.1	293	1.4	.14	.22	1,700	57.4	2.3	38.7	16.8	20.2	7.4	15,000
22	34,100	.46	5.2	306	1.3	.14	.21	1,680	57.9	2.3	35.1	16.4	17.5	7.3	16,000
23	32,400	.48	4.3	306	1.2	.16	.15	1,570	55.5	2.2	41.6	13.9	16.7	6.9	13,000
24	25,300	.38	3.6	226	.9	.10	.11	1,190	44.4	1.6	34.2	11.7	14.4	5.4	10,000
25	23,800	.35	3.0	209	.9	.09	.07	1,050	41.9	1.5	29.4	10.1	17.2	5.2	9,300
26	27,700	.41	3.3	251	1.0	.10	.07	1,250	47.5	1.8	33.3	11.4	14.2	5.8	11,000
27	28,600	.36	3.3	257	.9	.11	.10	1,260	47.5	1.8	32.9	11.0	13.9	6.0	10,000
28	26,000	.41	4.2	243	.9	.10	.07	1,180	51.9	1.7	33.9	11.4	15.6	5.6	12,000
Maximum	45,600	0.70	7.4	385	2.0	0.22	0.37	2,460	83.7	3.2	64.7	24.2	61.6	9.9	23,000
Minimum	23,800	.35	3.0	209	.88	.09	.07	1,050	41.9	1.5	29.4	10.1	13.9	5.2	9,300
Mean	36,543	.54	5.6	316	1.4	.16	.24	1,884	64.1	2.5	41.3	18.3	21.8	7.9	16,868
Median	35,800	.52	5.5	314	1.5	.16	.25	1,930	63.5	2.5	39.1	18.5	20.4	7.8	17,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Upper Black River (Latitude 37° 10′ 38″ Longitude 090° 47′ 28″)															
1	44,900	0.67	8.6	369	2.1	0.21	0.49	3,560	95.3	2.9	43.4	23.5	31.3	9.7	22,000
2	40,200	.56	6.4	349	1.7	.19	.44	3,340	88.8	2.5	41.3	18.4	26.3	8.6	18,000
3	37,600	.52	6.5	345	1.7	.18	.44	3,280	83.6	2.3	41.0	19.2	24.8	8.0	18,000
4	39,800	.55	6.8	355	1.9	.19	.46	3,190	89.4	2.4	40.0	19.2	26.8	8.5	19,000
5	41,500	.56	7.0	375	2.0	.19	.47	3,420	91.3	2.6	41.0	20.4	27.2	8.9	20,000
6	42,200	.58	7.1	368	1.9	.20	.50	3,430	92.4	2.6	41.7	20.8	27.4	9.0	20,000
7	41,400	.57	6.8	368	2.0	.20	.47	3,450	91.6	2.5	42.7	19.4	27.3	8.8	20,000
8	41,400	.52	6.7	356	1.9	.19	.45	3,320	89.3	2.5	43.4	19.9	26.6	8.8	19,000
9	41,000	.53	6.8	346	2.0	.19	.46	3,480	92.3	2.4	43.6	20.6	28.3	8.7	19,000
10	41,000	.59	7.6	341	1.9	.20	.44	3,450	94.0	2.5	44.0	22.5	27.8	8.9	19,000
11	42,200	.64	7.9	350	2.2	.20	.45	3,310	97.4	2.6	43.5	22.9	28.8	8.9	20,000
12	43,800	.64	8.1	360	2.1	.21	.46	3,350	101.0	2.7	47.5	24.2	29.9	9.6	21,000
13	43,900	.60	7.6	368	2.1	.21	.48	3,490	93.4	2.7	45.1	23.0	28.6	9.3	20,000
14	43,200	.60	7.2	362	2.1	.20	.52	3,640	90.9	2.6	43.7	21.6	27.8	9.1	20,000
15	43,500	.60	7.6	356	2.0	.20	.51	3,890	92.1	2.6	41.7	22.7	27.9	9.2	20,000
16	42,500	.60	7.4	354	1.8	.19	.49	3,740	91.2	2.6	43.4	21.7	27.9	8.9	20,000
17	42,400	.64	7.2	355	1.9	.19	.47	3,930	92.8	2.6	42.4	21.5	27.6	9.0	20,000
18	41,700	.54	6.5	345	1.9	.20	.49	4,630	90.4	2.5	44.6	20.0	26.6	8.6	18,000
19	41,900	.56	7.2	344	2.1	.20	.49	5,010	90.6	2.5	44.5	22.7	27.6	8.8	19,000
20	44,300	.60	7.8	351	2.1	.21	.51	4,610	95.3	2.8	47.8	24.0	29.4	9.6	20,000
21	41,600	.67	8.8	370	1.9	.21	.50	3,740	92.9	2.8	45.7	23.5	29.0	9.2	19,000
22	37,800	.54	7.2	356	1.9	.18	.46	5,010	85.4	2.6	40.1	19.8	25.7	8.4	18,000
23	38,200	.57	7.2	359	1.8	.17	.46	4,660	83.6	2.5	38.2	20.3	25.5	8.3	18,000
24	37,100	.58	7.2	359	1.7	.17	.45	4,200	83.9	2.4	38.9	19.8	25.3	8.0	17,000
25	38,100	.55	7.4	361	1.6	.16	.47	5,360	87.8	2.5	41.4	21.7	25.8	8.3	18,000
26	38,200	.54	7.2	358	1.9	.17	.45	4,400	87.8	2.6	39.9	18.5	26.6	8.6	18,000
27	37,700	.57	7.0	369	1.7	.17	.45	2,770	83.4	2.4	39.0	18.7	25.5	8.2	17,000
28	37,500	.57	6.7	364	1.7	.17	.41	2,620	84.0	2.4	40.8	17.8	25.1	8.1	17,000
29	37,800	.56	6.7	369	1.7	.16	.42	2,530	84.0	2.4	36.4	17.9	24.7	8.2	17,000
30	40,100	.57	7.1	377	1.6	.17	.47	2,720	87.0	2.6	40.2	19.0	25.8	8.6	18,000
31	39,500	.59	7.0	371	1.8	.17	.46	2,770	84.1	2.6	44.7	18.6	26.1	8.4	18,000
32	41,200	.59	7.1	378	1.8	.17	.49	2,800	92.6	2.7	46.2	20.0	25.6	8.7	18,000
33	41,600	.60	6.7	376	1.9	.18	.48	2,760	88.0	2.6	60.1	18.6	27.0	8.8	18,000
34	40,200	.58	6.2	393	1.8	.16	.49	2,650	85.1	2.6	42.4	17.3	25.6	8.4	17,000
35	42,800	.57	7.0	386	1.9	.18	.50	2,940	88.4	2.8	66.5	20.3	27.1	9.0	19,000
36	40,000	.52	6.8	364	1.9	.17	.43	2,750	88.3	2.6	69.7	18.6	26.7	8.4	18,000
37	44,600	.61	8.0	383	2.0	.19	.51	3,040	91.9	3.0	46.3	20.8	27.8	9.4	20,000
38	46,600	.61	7.9	397	2.0	.20	.54	3,090	98.6	3.1	52.1	21.8	29.0	9.6	20,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Upper Black River (Latitude 37° 10’ 38” Longitude 090° 47’ 28”)—Continued															
39	46,700	0.62	7.9	386	2.0	0.20	0.56	3,440	93.0	3.2	48.7	22.0	28.9	10.0	21,000
40	47,000	.67	7.9	381	2.0	.20	.56	3,500	91.6	3.2	54.6	22.3	28.8	9.7	21,000
41	46,900	.63	8.0	388	1.9	.22	.54	2,960	91.1	3.2	44.3	22.4	28.7	9.6	21,000
42	46,200	.62	7.6	392	2.3	.20	.53	3,060	91.0	3.1	46.0	22.2	27.7	9.9	21,000
43	43,500	.57	7.1	390	1.9	.18	.54	3,010	85.0	2.9	42.0	19.8	26.4	9.4	19,000
44	42,000	.57	7.1	382	1.7	.18	.51	2,750	92.1	2.7	38.5	18.9	25.6	8.8	18,000
45	41,400	.61	6.8	380	1.7	.17	.47	2,820	85.1	2.6	38.2	18.2	25.1	8.8	18,000
46	42,500	.56	6.7	380	1.9	.18	.51	3,090	88.7	2.8	41.7	18.6	26.4	8.9	19,000
47	41,700	.57	7.0	383	1.8	.17	.50	3,200	87.1	2.7	38.8	17.8	25.6	8.5	18,000
48	40,700	.55	6.3	382	1.8	.18	.49	2,960	85.3	2.6	39.0	17.1	24.8	8.4	17,000
49	40,400	.57	6.4	383	1.8	.17	.48	2,900	92.4	2.5	37.8	17.8	24.4	8.6	17,000
50	38,400	.62	6.4	366	1.7	.16	.44	3,420	81.2	2.4	36.5	16.1	23.2	8.0	16,000
51	41,900	.67	7.7	374	1.6	.18	.48	3,570	73.9	2.6	41.2	17.8	26.6	9.0	18,000
52	43,800	.71	7.7	385	2.0	.18	.49	3,660	73.0	2.8	42.9	19.4	28.0	9.4	19,000
53	41,000	.67	7.3	380	1.7	.16	.47	3,840	74.1	2.6	40.6	19.2	26.3	8.9	18,000
54	40,600	.67	7.1	392	1.7	.16	.47	3,110	72.0	2.5	39.8	19.4	25.4	8.7	18,000
55	39,500	.65	6.9	386	1.6	.15	.45	2,840	73.1	2.4	39.2	16.6	25.2	8.5	16,000
56	39,000	.63	6.5	382	1.6	.15	.44	3,040	72.8	2.4	38.3	14.7	24.9	8.3	16,000
57	40,200	.67	7.2	382	1.5	.15	.44	3,210	72.6	2.5	40.7	16.7	25.0	8.7	17,000
58	41,200	.69	7.1	399	1.8	.17	.47	2,640	76.9	2.6	40.6	19.4	27.1	9.0	18,000
59	42,600	.68	7.4	400	1.7	.18	.48	2,800	76.5	2.7	40.5	20.0	26.4	9.4	18,000
60	46,600	.72	7.4	405	1.9	.19	.53	3,230	83.9	3.0	47.3	18.4	29.1	10.0	20,000
61	43,500	.71	6.9	385	1.7	.18	.51	3,290	73.2	2.8	44.8	18.0	28.3	9.6	19,000
Maximum	47,000	0.72	8.8	405	2.3	0.22	0.56	5,360	101.0	3.2	69.7	24.2	31.3	10.0	22,000
Minimum	37,100	.52	6.2	341	1.5	.15	.41	2,530	72.0	2.3	36.4	14.7	23.2	8.0	16,000
Mean	41,611	.60	7.2	372	1.9	.18	.48	3,388	87.0	2.6	43.6	19.9	26.8	8.9	18,689
Median	41,500	.59	7.1	371	1.9	.18	.48	3,290	88.4	2.6	42.0	19.8	26.6	8.8	18,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Lower Black River (Latitude 37° 09’ 54” Longitude 090° 45’ 58”)															
1	61,400	0.82	13.0	428	2.9	0.25	0.62	3,920	93.3	4.4	55.8	32.5	39.9	14.0	33,000
2	62,900	.84	11.0	419	2.7	.27	.63	3,320	94.8	4.4	57.3	32.6	42.7	14.0	30,000
3	64,100	.92	12.0	412	2.7	.27	.58	2,870	94.6	4.5	51.8	34.7	40.1	14.0	31,000
4	58,800	.71	10.0	422	2.3	.25	.60	2,820	93.2	4.0	55.1	30.4	37.2	13.0	29,000
5	59,200	.74	10.0	417	2.6	.25	.60	2,840	93.3	4.0	52.1	30.5	36.5	13.0	29,000
6	58,800	.76	11.0	421	2.2	.25	.58	2,870	93.3	4.0	50.1	30.7	36.5	13.0	30,000
7	57,600	.73	9.4	409	2.4	.24	.60	2,940	93.3	3.9	52.0	29.2	35.8	12.0	28,000
8	58,300	.76	9.9	417	2.4	.24	.60	3,100	93.2	3.9	62.6	29.1	36.4	12.0	29,000
9	60,100	.74	10.0	412	2.5	.25	.62	3,030	94.8	4.0	54.4	30.2	37.6	13.0	30,000
10	58,000	.71	9.6	408	2.5	.24	.59	3,010	94.6	3.9	49.3	29.5	37.4	12.0	29,000
11	59,300	.74	9.8	410	2.4	.25	.62	3,110	94.6	4.0	57.4	30.0	37.3	12.0	29,000
12	58,800	.70	9.7	409	2.5	.24	.61	3,010	93.8	3.9	56.8	30.0	35.4	12.0	28,000
13	60,200	.64	9.7	407	2.5	.25	.62	3,120	94.7	4.0	50.1	30.6	37.5	13.0	29,000
14	60,300	.66	9.9	411	2.7	.25	.61	3,160	96.8	4.0	48.2	31.0	37.0	13.0	30,000
15	60,000	.76	9.8	404	2.3	.25	.62	3,120	94.8	4.0	54.9	31.0	36.6	13.0	29,000
16	58,700	.76	9.9	404	2.6	.25	.60	3,060	94.5	3.9	56.9	30.9	35.7	12.0	29,000
17	59,200	.73	9.6	405	2.5	.24	.60	3,090	93.0	3.9	47.4	30.8	36.4	12.0	28,000
18	58,600	.79	9.6	412	2.4	.23	.58	3,040	92.6	3.8	47.1	29.3	35.9	12.0	28,000
19	58,700	.76	9.7	405	2.3	.24	.57	3,030	95.5	3.8	49.8	31.9	35.7	12.0	28,000
20	58,100	.68	9.4	411	2.3	.24	.59	3,060	93.8	3.8	49.1	30.9	35.6	12.0	28,000
21	60,300	.80	10.0	412	2.4	.24	.61	3,100	95.2	4.0	55.2	31.0	36.7	13.0	29,000
22	58,200	.77	9.8	413	2.5	.23	.57	3,000	92.6	3.8	49.6	30.1	35.5	12.0	28,000
23	55,900	.75	9.9	420	2.5	.28	.59	2,880	93.2	4.0	48.1	29.8	35.4	12.0	27,000
24	56,200	.72	10.0	422	2.5	.27	.59	2,950	93.4	4.0	48.0	29.3	34.8	12.0	28,000
25	58,700	.80	9.6	423	2.5	.28	.61	2,960	96.7	4.2	52.6	30.0	35.2	13.0	28,000
26	57,500	.76	9.6	426	2.5	.28	.61	2,940	94.1	4.2	53.0	29.3	35.0	13.0	28,000
27	57,500	.72	9.4	428	2.3	.28	.61	2,890	95.8	4.1	51.6	29.9	35.3	13.0	28,000
28	57,400	.73	9.6	430	2.7	.27	.60	2,900	95.4	4.1	50.6	29.3	35.0	13.0	28,000
29	57,500	.79	9.4	415	2.6	.28	.62	2,880	97.2	4.1	52.1	28.8	35.1	13.0	28,000
30	58,100	.76	9.5	425	2.6	.28	.62	2,860	96.3	4.2	55.2	29.5	34.9	13.0	29,000
31	58,800	.80	9.1	424	2.5	.27	.61	2,890	92.3	4.2	55.7	29.7	35.0	13.0	28,000
32	58,600	.80	9.7	429	2.6	.28	.62	2,900	92.0	4.2	54.6	29.6	34.8	13.0	29,000
33	58,800	.83	9.6	420	2.6	.27	.62	2,820	91.3	4.2	53.2	29.6	35.6	13.0	28,000
34	57,500	.83	9.0	421	2.6	.27	.60	2,840	93.0	4.2	52.9	29.1	35.4	13.0	27,000
35	57,700	.84	9.2	422	2.5	.27	.60	2,780	91.3	4.2	53.4	29.0	35.2	13.0	27,000
36	57,600	.83	9.3	425	2.5	.27	.59	2,840	90.8	4.3	56.8	29.4	34.6	13.0	28,000
37	59,400	.87	9.4	426	2.6	.28	.60	2,840	91.9	4.4	52.9	30.4	35.1	13.0	29,000
38	58,500	.81	9.6	428	2.5	.27	.58	2,810	90.8	4.3	52.3	29.2	34.6	13.0	28,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Lower Black River (Latitude 37° 09’ 54” Longitude 090° 45’ 58”)—Continued															
39	57,600	0.84	9.1	425	2.4	0.27	0.58	2,750	91.5	4.2	53.4	28.3	33.3	13.0	28,000
40	57,000	.82	9.1	428	2.4	.27	.58	2,740	91.2	4.1	54.6	28.0	33.3	12.0	27,000
41	57,500	.84	8.8	414	2.5	.28	.58	2,700	89.7	4.2	51.3	28.0	33.3	13.0	28,000
42	57,900	.86	9.3	419	2.3	.28	.57	2,720	90.9	4.2	52.2	28.6	34.0	13.0	28,000
43	45,200	.63	6.6	367	1.8	.20	.36	2,270	79.1	3.2	53.9	21.3	25.1	9.7	20,000
44	55,600	.80	9.1	420	2.5	.27	.57	2,710	91.4	4.0	53.7	28.0	32.4	12.0	26,000
45	53,400	.79	9.9	408	2.3	.26	.54	2,780	81.2	3.8	50.5	29.8	31.8	12.0	25,000
46	52,800	.81	9.3	417	2.3	.26	.56	2,830	81.8	3.6	50.8	27.0	31.0	12.0	24,000
47	54,200	.79	8.4	413	2.4	.25	.56	2,790	89.4	3.8	52.1	25.5	33.0	12.0	24,000
48	54,000	.79	9.1	422	2.3	.26	.54	2,740	91.5	3.8	53.4	25.5	32.8	12.0	25,000
49	54,300	.82	9.2	418	2.2	.26	.50	2,770	90.6	3.8	51.3	26.3	31.6	12.0	25,000
50	54,700	.84	8.5	431	2.4	.26	.53	2,760	91.1	3.9	51.5	25.2	31.8	12.0	26,000
51	56,900	.85	9.4	437	2.4	.24	.55	2,970	91.2	4.0	50.2	26.4	35.4	13.0	27,000
52	56,100	.83	9.4	430	2.4	.24	.54	2,940	91.6	3.9	49.5	25.9	33.6	13.0	26,000
53	57,600	.81	9.5	431	2.4	.25	.53	2,940	93.7	4.1	53.0	27.3	33.6	13.0	26,000
54	57,600	.80	9.0	416	2.3	.25	.55	3,260	91.0	4.1	50.5	25.3	33.4	13.0	25,000
Maximum	64,100	0.92	13.0	437	2.9	0.28	0.63	3,920	97.2	4.5	62.6	34.7	42.7	14.0	33,000
Minimum	45,200	.63	6.6	367	1.8	.20	.36	2,270	79.1	3.2	47.1	21.3	25.1	9.7	20,000
Mean	57,735	.78	9.6	418	2.5	.26	.58	2,931	92.5	4.0	52.6	29.2	35.1	12.6	27,759
Median	58,050	.79	9.6	419	2.5	.26	.60	2,895	93.2	4.0	52.3	29.5	35.3	13.0	28,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Marina (Latitude 37° 08′ 27” Longitude 090° 46′ 14”)															
1	63,000	1.50	13.0	482	2.4	0.30	0.82	12,000	96.7	4.6	53.6	28.9	42.8	15.0	30,000
2	65,800	1.80	13.0	470	2.7	.27	.68	5,850	105.0	5.5	55.1	33.5	41.2	16.0	35,000
3	67,600	19.20	14.0	467	2.9	.36	.38	7,380	114.0	5.6	65.3	33.8	72.0	17.0	39,000
4	67,600	1.80	12.0	449	2.8	.29	1.70	7,460	109.0	5.7	62.0	33.1	47.9	17.0	35,000
5	69,900	1.70	13.0	444	2.9	.30	.71	5,050	111.0	6.0	72.1	34.6	46.3	17.0	37,000
6	73,100	.82	14.0	437	2.8	.30	.67	4,180	104.0	5.6	64.6	34.3	43.8	17.0	36,000
7	70,000	.70	14.0	425	2.9	.30	.65	5,980	104.0	5.5	73.1	33.4	42.8	16.0	36,000
8	68,900	.63	14.0	424	2.8	.29	.70	5,180	104.0	5.4	59.4	34.0	40.6	16.0	35,000
9	67,800	.58	14.0	417	2.7	.30	.61	5,470	103.0	5.3	57.2	32.1	41.2	16.0	35,000
10	67,100	.57	13.0	422	2.8	.30	.77	5,330	105.0	5.2	57.4	32.1	39.6	16.0	35,000
11	66,300	.54	13.0	410	2.8	.30	.62	3,420	103.0	5.2	60.0	31.3	37.9	15.0	34,000
12	67,500	.56	13.0	420	2.8	.30	.65	3,570	101.0	5.3	57.0	32.0	38.3	16.0	35,000
13	67,700	.56	14.0	419	2.7	.31	.67	3,500	98.7	5.2	55.0	32.8	40.1	16.0	35,000
14	69,200	.56	14.0	442	3.0	.32	.66	3,490	103.0	5.2	56.0	32.5	41.5	16.0	36,000
15	69,000	.56	14.0	423	2.8	.33	.66	3,330	104.0	5.3	60.0	33.7	40.0	16.0	36,000
16	71,100	.57	14.0	430	2.8	.32	.65	3,280	104.0	5.5	60.8	35.2	42.6	16.0	36,000
17	72,200	.57	14.0	434	2.9	.32	.68	3,230	105.0	5.6	58.9	36.0	42.8	17.0	37,000
18	71,300	.57	14.0	436	2.9	.33	.64	3,350	106.0	5.6	59.7	35.2	40.7	16.0	36,000
19	71,200	.58	14.0	431	2.9	.33	.63	3,220	106.0	5.6	61.9	35.5	40.8	16.0	36,000
20	70,400	.54	14.0	451	2.8	.32	.63	3,180	101.0	5.4	58.9	35.8	40.3	16.0	36,000
21	71,900	.54	14.0	436	2.8	.33	.63	3,080	103.0	5.5	59.0	35.2	41.6	16.0	36,000
22	69,500	.55	14.0	446	2.8	.31	.64	3,070	99.4	5.4	56.8	33.5	41.2	16.0	35,000
23	68,900	.53	13.0	425	2.8	.31	.64	3,010	99.1	5.3	59.2	32.8	39.2	16.0	35,000
24	69,600	.54	13.0	439	2.7	.32	.64	3,060	99.2	5.4	62.8	33.1	39.3	17.0	35,000
25	68,800	.52	13.0	424	2.8	.31	.56	2,940	98.3	5.3	56.6	31.8	39.4	16.0	35,000
26	62,100	.95	12.0	428	2.6	.29	.58	2,910	99.1	5.0	49.8	28.8	36.1	15.0	32,000
27	63,600	1.00	13.0	418	2.8	.30	.61	2,890	96.8	5.1	51.6	29.4	36.6	15.0	32,000
28	63,700	.92	12.0	426	2.7	.29	.59	2,960	98.2	5.1	54.1	29.3	36.3	15.0	32,000
29	66,100	1.10	13.0	430	2.8	.29	.47	2,900	95.4	5.2	52.7	30.4	40.2	15.0	33,000
30	65,400	.94	13.0	437	2.9	.30	.58	2,980	100.0	5.2	52.8	30.5	36.9	15.0	33,000
31	65,200	.93	13.0	419	2.8	.29	.60	2,900	97.3	5.2	53.5	30.2	37.7	16.0	33,000
32	67,000	.92	14.0	435	2.7	.29	.61	2,960	103.0	5.2	56.2	31.7	38.9	16.0	34,000
33	68,600	.95	14.0	427	3.0	.31	.40	2,970	104.0	5.3	56.1	32.4	40.4	16.0	33,000
34	69,500	.96	14.0	446	3.0	.31	.61	2,900	106.0	5.4	57.5	32.1	39.0	16.0	34,000
35	69,200	1.00	14.0	444	2.8	.31	.58	2,790	108.0	5.6	56.3	33.0	39.8	16.0	34,000
36	70,200	1.00	14.0	475	3.1	.31	.60	2,820	112.0	5.5	59.2	32.2	41.2	16.0	34,000
37	71,300	1.00	14.0	441	2.9	.32	.53	2,850	109.0	5.7	63.0	31.2	41.6	17.0	34,000
38	70,800	.95	14.0	463	2.8	.31	.54	2,890	104.0	5.4	56.1	31.5	38.0	16.0	33,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Marina (Latitude 37° 08’ 27” Longitude 090° 46’ 14”)—Continued															
39	70,000	0.92	14.0	431	2.8	0.32	0.54	2,870	106.0	5.4	56.7	32.0	38.0	16.0	34,000
40	69,800	.91	13.0	450	2.8	.31	.52	2,840	105.0	5.2	56.4	28.6	36.2	16.0	32,000
41	69,900	.92	13.0	435	2.8	.30	.44	2,790	104.0	5.3	57.3	29.2	38.6	16.0	33,000
42	70,200	.92	13.0	451	2.7	.30	.52	2,770	108.0	5.4	55.8	29.1	37.0	16.0	32,000
43	68,700	.92	13.0	442	2.8	.31	.51	2,620	106.0	5.3	56.0	29.8	37.1	16.0	33,000
44	69,400	.92	13.0	450	2.8	.30	.54	2,860	106.0	5.3	58.2	29.2	37.2	16.0	33,000
45	67,600	1.20	12.0	417	2.7	.30	.62	3,040	103.0	5.0	58.3	28.2	38.2	16.0	33,000
46	61,900	.90	12.0	417	2.7	.28	.54	2,910	101.0	4.7	53.3	26.6	35.1	14.0	30,000
47	62,700	.94	12.0	406	2.7	.29	.59	3,000	101.0	4.8	57.5	26.6	36.4	15.0	31,000
48	61,800	.82	12.0	409	2.8	.28	.57	3,020	97.5	4.6	53.8	27.1	34.9	14.0	30,000
49	65,900	.87	13.0	408	2.7	.30	.59	2,900	101.0	4.9	57.7	27.3	37.0	15.0	32,000
50	66,000	.87	13.0	413	2.8	.30	.60	2,880	103.0	5.0	55.9	27.4	36.1	15.0	32,000
51	66,900	.92	13.0	407	2.8	.26	.62	2,920	85.1	5.0	61.1	29.8	40.3	16.0	33,000
52	66,000	.94	13.0	407	2.9	.26	.62	2,900	87.2	5.0	60.6	29.2	38.9	16.0	33,000
53	66,100	.97	13.0	410	2.9	.26	.63	2,850	84.1	5.1	57.1	30.5	38.6	16.0	33,000
54	68,300	1.00	14.0	423	2.8	.27	.62	2,910	88.5	5.3	59.5	30.8	40.0	16.0	34,000
55	64,200	.98	13.0	416	2.9	.26	.59	2,760	85.8	5.0	57.0	30.2	50.8	16.0	32,000
56	61,300	.91	12.0	395	2.6	.25	.58	2,840	82.0	4.7	54.6	28.5	36.6	15.0	30,000
57	65,000	.98	12.0	409	2.8	.27	.61	2,940	89.0	5.0	57.6	29.2	38.2	16.0	32,000
58	66,000	.96	12.0	411	2.9	.27	.63	3,040	89.6	5.0	59.0	29.2	38.6	16.0	31,000
59	66,100	.97	12.0	400	2.9	.28	.64	3,080	90.1	5.1	60.9	28.2	38.5	16.0	31,000
60	70,000	1.00	14.0	409	3.0	.29	.67	3,130	91.1	5.4	66.8	31.6	42.8	17.0	35,000
61	72,800	1.10	15.0	416	3.2	.29	.63	3,180	91.1	5.8	66.0	36.1	45.0	18.0	37,000
Maximum	73,100	19.20	15.0	482	3.2	0.36	1.70	12,000	114.0	6.0	73.1	36.1	72.0	18.0	39,000
Minimum	61,300	.52	12.0	395	2.4	.25	.38	2,620	82.0	4.6	49.8	26.6	34.9	14.0	30,000
Mean	67,782	1.18	13.3	430	2.8	.30	.62	3,564	100.4	5.3	58.3	31.4	40.3	15.9	33,820
Median	68,300	.92	13.0	427	2.8	.30	.62	3,000	103.0	5.3	57.5	31.6	39.4	16.0	34,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Clearwater Dam (Latitude 37° 08’ 19” Longitude 090° 46’ 47”)															
1	77,100	1.00	13.0	433	3.1	0.31	0.60	2,950	99.4	6.0	69.3	39.0	43.3	17.0	39,000
2	78,100	1.00	12.0	432	3.2	.30	.60	3,360	100.0	6.1	80.5	37.4	45.8	18.0	39,000
3	78,800	1.00	12.0	438	3.2	.31	.56	3,160	100.0	6.0	66.2	37.0	42.7	18.0	40,000
4	76,500	.96	12.0	438	3.3	.28	.56	3,130	99.6	6.0	66.9	37.4	41.3	17.0	40,000
5	77,600	.95	11.0	435	3.1	.26	.56	3,250	101.0	6.0	74.4	36.7	43.6	17.0	40,000
6	77,700	.98	11.0	432	3.2	.28	.56	3,230	100.0	5.9	82.1	36.5	42.3	17.0	39,000
7	77,100	.95	11.0	437	3.2	.24	.58	3,300	100.0	5.9	66.0	35.6	41.6	17.0	40,000
8	76,200	.96	11.0	437	3.2	.24	.56	3,310	101.0	5.9	64.6	35.7	40.3	17.0	39,000
9	74,100	.94	11.0	430	3.0	.26	.56	3,210	99.4	5.8	66.8	35.9	39.6	17.0	38,000
10	75,000	.96	11.0	440	3.0	.28	.53	3,160	101.0	5.9	69.2	37.4	40.9	17.0	38,000
11	74,300	1.10	12.0	446	3.1	.29	.54	3,130	99.6	5.7	66.1	38.6	41.3	17.0	37,000
12	75,200	1.00	11.0	447	3.1	.30	.54	3,200	101.0	5.8	65.9	34.8	40.2	17.0	38,000
13	75,900	1.00	11.0	450	3.2	.30	.52	3,210	102.0	5.9	64.1	34.9	39.9	17.0	39,000
14	77,600	1.00	17.0	452	3.2	.27	.55	3,360	102.0	6.0	67.1	35.4	40.5	17.0	38,000
15	79,200	1.10	12.0	458	3.4	.31	.54	3,440	105.0	6.0	67.5	37.7	41.7	18.0	40,000
16	77,400	1.00	11.0	450	3.1	.29	.53	3,360	103.0	6.0	66.9	36.7	41.1	18.0	39,000
17	76,000	.93	11.0	445	3.3	.26	.54	3,330	104.0	5.9	64.8	35.6	40.2	17.0	38,000
18	76,400	.99	11.0	447	3.1	.29	.54	3,340	103.0	6.0	66.6	36.1	40.9	18.0	38,000
19	77,400	1.00	11.0	457	3.2	.31	.54	3,300	104.0	6.1	65.8	36.8	46.3	18.0	38,000
20	76,000	1.00	11.0	450	3.2	.31	.54	3,160	103.0	6.0	65.6	35.6	40.7	17.0	38,000
21	76,100	1.10	10.0	451	3.2	.30	.55	3,280	104.0	5.9	65.8	34.8	41.0	17.0	37,000
22	75,000	.99	10.0	454	3.2	.31	.58	4,210	100.0	5.9	66.2	36.1	41.3	17.0	38,000
23	76,500	.99	11.0	457	3.2	.31	.59	3,440	101.0	5.8	64.4	35.3	40.8	17.0	38,000
24	76,700	1.00	11.0	458	3.1	.32	.59	3,340	103.0	6.0	65.5	34.7	41.5	17.0	37,000
25	78,900	1.10	12.0	466	3.2	.31	.58	3,390	104.0	6.1	67.0	35.2	43.0	18.0	38,000
26	76,600	1.00	11.0	468	3.3	.30	.56	3,490	105.0	5.9	68.3	33.8	41.1	18.0	38,000
27	72,500	.96	13.0	466	3.0	.30	.47	3,180	105.0	5.5	59.3	32.3	36.4	16.0	34,000
28	71,500	.98	13.0	469	3.0	.30	.42	2,930	105.0	5.5	59.2	32.4	35.9	16.0	34,000
29	71,300	.98	13.0	472	2.8	.28	.42	3,680	103.0	5.5	58.9	31.2	35.5	16.0	34,000
30	70,000	.92	12.0	467	3.0	.30	.42	2,960	102.0	5.5	62.0	32.8	35.7	16.0	33,000
31	70,200	1.00	12.0	464	2.7	.31	.41	2,840	96.6	5.4	63.5	32.2	35.6	16.0	33,000
32	67,800	.94	12.0	461	2.9	.30	.40	2,890	96.2	5.2	66.7	31.5	35.1	15.0	32,000
33	68,100	.96	11.0	470	2.9	.29	.40	2,910	95.8	5.2	61.7	31.2	34.3	15.0	31,000
34	68,100	.96	11.0	475	2.8	.30	.41	2,920	97.0	5.2	68.0	31.4	35.2	15.0	31,000
35	66,900	.98	11.0	470	2.7	.29	.39	2,760	97.4	5.1	60.0	31.5	34.6	15.0	30,000
36	65,000	.88	10.0	470	2.5	.29	.38	2,720	95.6	4.9	56.7	29.1	32.3	14.0	30,000
37	64,900	.86	10.0	476	2.6	.28	.38	2,840	95.9	4.9	58.0	29.6	32.0	14.0	30,000
38	64,800	.88	11.0	483	2.8	.28	.38	2,900	95.9	4.9	57.4	30.3	32.4	14.0	30,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples, 2002.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Cadmium	Calcium	Cerium	Cesium	Chromium	Cobalt	Copper	Gallium	Iron
RSD (percent)	**3.99**	**9.92**	**6.64**	**2.58**	**3.87**	**5.27**	**11.26**	**3.52**	**6.28**	**3.09**	**2.72**	**2.65**	**2.84**	**2.14**	**2.87**
Clearwater Dam (Latitude 37° 08’ 19” Longitude 090° 46’ 47”)—Continued															
39	62,300	0.89	9.9	467	2.6	0.26	0.36	2,980	95.2	4.6	55.4	31.0	31.4	14.0	28,000
40	60,600	.87	9.9	465	2.4	.26	.36	3,210	93.2	4.5	52.3	29.8	30.7	14.0	28,000
41	60,200	.92	9.9	458	2.4	.26	.34	3,360	92.8	4.6	55.6	29.9	31.2	13.0	28,000
42	60,400	.86	9.7	462	2.4	.25	.35	3,240	91.1	4.5	50.4	28.9	32.3	13.0	28,000
43	58,200	.82	9.6	464	2.4	.26	.33	2,850	89.4	4.2	50.6	27.2	29.9	13.0	26,000
44	58,300	.82	9.1	459	2.3	.24	.34	2,700	88.2	4.3	50.4	28.4	30.7	13.0	26,000
45	60,500	.87	9.9	472	2.3	.26	.33	2,700	90.2	4.5	52.9	29.6	31.4	13.0	27,000
46	60,800	.90	10.0	473	2.5	.26	.34	2,770	91.3	4.5	53.9	29.2	30.9	13.0	27,000
47	61,300	.86	10.0	477	2.6	.26	.36	2,800	91.8	4.5	54.6	30.3	30.7	14.0	28,000
48	61,200	.86	9.7	479	2.5	.26	.35	2,810	92.8	4.5	53.3	28.6	31.4	14.0	28,000
49	56,000	.84	9.2	469	2.3	.24	.32	2,620	90.0	4.1	50.2	28.3	29.6	13.0	25,000
50	58,100	.82	9.4	474	2.4	.24	.31	2,610	91.3	4.3	49.4	28.9	30.1	13.0	26,000
51	60,700	.90	11.0	511	2.4	.25	.35	3,030	89.3	4.6	50.0	31.7	31.4	14.0	28,000
52	61,600	1.50	10.0	518	2.3	.25	.31	2,800	90.0	4.7	48.2	29.3	31.2	14.0	27,000
53	60,700	.89	9.8	511	2.3	.24	.38	2,790	87.9	4.5	49.8	27.8	33.7	14.0	26,000
54	37,600	.60	6.4	388	1.5	.15	.25	2,420	60.8	2.6	32.0	17.7	19.6	8.3	16,000
Maximum	79,200	1.50	17.0	518	3.4	0.32	0.60	4,210	105.0	6.1	82.1	39.0	46.3	18.0	40,000
Minimum	37,600	.60	6.4	388	1.5	.15	.25	2,420	60.8	2.6	32.0	17.7	19.6	8.3	16,000
Mean	69,500	.95	10.9	459	2.9	.28	.46	3,097	97.3	5.3	61.2	32.8	36.7	15.6	33,426
Median	72,000	.96	11.0	460	3.0	.28	.45	3,160	99.6	5.5	64.3	32.6	36.2	16.0	34,000

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Webb Creek (Latitude 37° 08’ 56” Longitude 090° 48’ 18”)															
1	36.9	27.4	22.0	2,250	1,080	1.1	19.4	8.8	420	11,300	53.7	6.3	<0.02	2,770	49.0
2	37.8	26.3	21.9	2,120	435	1.4	19.9	10.0	400	11,200	53.3	6.4	<.02	2,780	49.0
3	37.6	23.4	20.6	1,970	682	1.2	17.8	8.6	370	11,200	51.2	5.7	<.02	2,900	49.2
4	37.7	24.5	20.7	1,960	922	1.9	22.2	8.2	390	11,300	51.2	5.9	<.02	2,850	48.9
5	37.9	25.4	21.1	2,020	969	1.2	19.3	10.0	400	11,400	52.2	6.0	<.02	2,900	49.6
6	38.4	25.5	21.1	2,050	735	1.2	19.0	8.8	360	11,100	50.9	5.9	<.02	2,860	48.4
7	38.1	25.6	21.1	2,040	706	1.4	20.1	9.4	370	11,300	51.6	6.1	<.02	2,860	49.1
8	37.7	25.0	20.8	2,060	547	1.6	21.0	10.0	370	11,000	50.5	5.9	<.02	2,770	47.2
9	38.3	25.0	21.1	2,040	886	1.2	18.8	10.0	390	10,900	51.3	6.1	<.02	2,690	48.3
10	41.4	25.0	21.3	2,110	1,190	1.7	21.9	11.0	450	10,600	50.9	6.3	<.02	2,400	46.1
11	41.4	25.2	22.4	2,200	1,670	1.6	21.3	12.0	480	11,100	54.4	6.6	<.02	2,500	48.0
12	39.3	24.5	21.6	2,090	1,270	1.7	21.7	8.8	420	11,100	52.9	6.3	<.02	2,570	47.8
13	39.6	24.6	20.8	2,040	1,090	1.2	19.2	7.5	400	10,700	52.0	6.1	<.02	2,540	47.2
14	41.2	25.7	22.0	2,090	940	1.3	19.6	10.0	410	11,200	53.9	6.5	<.02	2,590	47.9
15	42.5	26.9	23.1	2,230	1,190	1.7	22.4	10.0	460	11,200	56.6	7.0	<.02	2,500	48.8
16	43.3	27.0	22.7	2,160	1,350	1.6	21.7	9.7	450	11,100	54.7	6.8	<.02	2,520	48.4
17	42.6	25.9	22.3	2,120	1,770	1.4	20.9	10.0	440	11,100	55.3	6.8	<.02	2,500	49.0
18	41.4	25.0	22.4	2,090	1,450	1.6	20.2	8.5	420	11,400	56.6	6.7	<.02	2,610	50.0
19	39.2	26.6	22.0	2,100	1,340	1.6	21.2	11.0	430	10,900	53.9	6.5	<.02	2,550	48.5
20	39.0	26.7	21.8	2,090	1,290	1.6	20.9	11.0	420	11,000	53.4	6.4	<.02	2,590	49.1
21	37.6	24.6	20.1	1,930	1,280	1.2	18.0	11.0	390	10,500	49.5	5.8	<.02	2,540	47.2
22	37.7	23.9	19.3	1,840	1,340	1.3	17.7	8.2	370	10,400	49.0	5.6	<.02	2,500	46.0
23	37.9	23.6	19.3	1,860	1,350	1.3	17.7	5.0	380	10,500	49.1	5.6	<.02	2,520	46.7
24	36.5	23.7	18.2	1,800	1,120	1.5	19.5	5.2	360	10,200	47.6	5.4	<.02	2,560	46.7
25	34.8	22.2	18.7	1,800	1,120	1.1	17.3	5.7	370	10,400	47.9	5.5	<.02	2,640	47.4
26	22.3	14.0	11.5	1,120	651	1.0	11.6	< 2	220	6,270	28.8	3.3	<.02	1,540	29.7
27	37.1	22.2	18.8	1,840	877	1.2	17.4	9.6	360	10,400	48.3	5.5	<.02	2,580	47.5
28	37.4	22.4	18.4	1,830	888	2.2	22.1	9.2	370	10,000	46.7	5.4	<.02	2,450	45.9
29	40.4	22.7	18.1	1,910	770	1.4	17.5	7.1	380	9,620	43.2	5.3	.68	2,340	43.4
30	40.8	23.2	18.1	1,900	654	1.7	18.7	6.8	380	9,640	43.9	5.3	.59	2,320	44.0
31	36.6	22.5	17.5	1,800	676	1.4	16.8	4.0	380	9,500	42.8	5.1	.39	2,240	42.0
32	41.5	23.7	18.5	1,960	855	1.8	19.8	8.2	410	9,870	45.1	5.5	.50	2,280	43.5
33	39.5	24.8	20.5	2,040	1,020	1.3	18.7	10.0	400	10,800	50.6	6.1	.64	2,530	47.6
34	42.2	27.2	22.8	2,210	1,300	1.6	20.6	13.0	450	11,600	56.1	6.9	.73	2,610	50.0
35	41.6	28.1	23.7	2,220	1,230	1.6	22.0	13.0	450	11,800	57.8	7.1	.67	2,640	50.2
36	41.1	27.3	23.1	2,150	1,030	2.0	22.5	14.0	440	11,600	57.0	7.0	.75	2,640	49.8
37	42.0	26.7	22.4	2,070	1,020	1.5	20.4	17.0	430	11,700	56.1	6.8	.85	2,720	51.3
38	41.5	25.8	21.8	1,990	1,000	1.3	18.4	12.0	420	11,600	54.1	6.7	.65	2,720	50.4

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Webb Creek (Latitude 37° 08′ 56” Longitude 090° 48′ 18”)—Continued															
39	41.0	27.2	23.7	2,180	1,190	1.9	21.4	14.0	470	11,900	58.4	7.1	0.68	2,720	51.0
40	41.1	27.7	25.2	2,250	1,170	2.4	25.1	15.0	500	12,500	62.3	7.6	.78	2,800	53.2
41	36.9	24.8	23.2	2,100	1,280	1.6	20.0	17.0	470	12,200	59.0	7.0	.84	2,770	52.0
42	35.8	25.5	21.8	2,120	1,190	1.5	19.6	15.0	430	11,500	54.8	6.5	.75	2,680	49.6
43	34.0	25.3	21.5	2,120	981	1.8	20.2	15.0	400	11,100	53.9	6.4	.77	2,580	48.8
44	35.6	25.8	21.2	2,140	901	1.9	21.5	16.0	410	11,100	52.9	6.4	.82	2,610	48.8
45	34.8	25.3	20.3	2,100	980	1.3	18.0	16.0	390	10,900	50.9	6.1	.78	2,590	48.6
46	35.6	24.4	20.3	2,070	777	1.4	17.7	14.0	380	10,800	50.5	6.1	.67	2,560	48.2
47	34.9	26.2	19.9	1,920	999	1.4	17.5	15.0	360	10,900	50.0	5.9	.77	2,660	48.2
48	33.5	26.8	19.6	1,880	958	1.7	19.7	15.0	360	11,100	51.2	6.0	.74	2,720	49.3
49	35.0	26.8	20.2	1,860	834	1.2	17.6	15.0	350	11,000	50.3	6.0	.74	2,630	48.8
50	35.5	27.2	21.0	1,920	757	1.4	18.1	17.0	360	11,200	51.9	6.2	.83	2,660	49.9
51	35.5	27.2	18.3	1,870	680	.9	16.7	9.9	360	10,500	50.1	6.0	.68	2,620	44.1
52	36.8	25.0	17.1	1,820	1,190	.8	15.3	5.2	360	10,400	46.5	5.4	.42	2,640	41.7
53	35.6	25.0	17.7	1,870	1,100	.8	15.9	5.2	350	10,600	47.8	5.5	.39	2,720	43.1
54	35.4	25.6	18.7	1,980	887	.9	16.6	4.7	350	10,800	49.8	5.5	.37	2,780	44.4
55	36.4	25.0	18.4	1,950	825	.7	16.0	4.6	330	10,900	49.7	5.8	.39	2,770	44.2
56	37.8	25.5	17.9	2,010	764	.8	16.4	5.8	350	11,000	48.8	5.6	.37	2,750	45.1
57	36.0	24.4	18.0	1,960	736	.8	16.3	4.8	350	10,800	48.8	5.5	.34	2,700	45.3
58	37.1	24.6	18.4	2,040	744	.9	16.4	5.2	360	10,500	48.0	5.7	.41	2,720	42.4
59	36.3	24.4	18.8	2,010	682	.8	15.6	6.2	350	10,600	47.0	5.6	.46	2,710	42.0
60	37.6	25.5	18.9	2,020	931	.8	17.6	6.1	380	11,000	51.6	6.1	.37	2,750	44.9
61	36.4	26.3	20.0	2,060	681	.9	18.2	7.8	410	11,300	54.6	6.2	.48	2,670	44.4
62	38.7	28.1	22.1	2,220	558	1.1	20.1	8.2	440	11,200	56.8	6.9	.51	2,600	44.5
63	38.0	26.0	20.8	2,030	729	.8	18.1	7.8	390	11,200	52.6	6.5	.46	2,750	43.7
64	37.4	24.7	20.1	1,980	851	.9	17.3	6.6	400	11,500	54.1	6.2	.43	2,800	47.1
65	36.5	22.6	18.3	1,760	944	.8	15.8	5.4	340	10,700	47.8	5.6	.31	2,750	43.4
66	38.6	22.4	18.2	1,790	815	1.0	15.9	3.4	330	11,000	47.3	5.6	.28	2,820	43.1
67	39.2	21.8	18.2	1,830	1,010	.9	15.5	4.9	380	10,300	47.9	5.6	.33	2,520	41.4
68	39.8	21.6	18.4	1,750	1,340	.9	16.8	5.7	380	10,500	47.8	5.9	.39	2,520	42.0
69	38.2	21.1	18.9	1,720	1,350	.8	16.0	5.6	360	10,700	48.7	5.7	.36	2,650	43.0
70	37.4	21.1	17.8	1,710	1,290	.8	16.6	4.8	360	11,000	48.2	5.4	.33	2,730	44.4
71	35.3	20.6	17.7	1,720	1,320	.8	16.0	5.0	350	10,700	47.3	5.5	.34	2,690	41.8
72	37.8	22.0	18.0	1,830	1,230	.8	16.6	5.7	360	11,000	49.4	5.8	.36	2,710	44.1
Maximum	43.3	28.1	25.2	2,250	1,770	2.4	25.1	17.0	500	12,500	62.3	7.6	0.85	2,900	53.2
Minimum	22.3	14.0	11.5	1,120	435	.7	11.6	3.4	220	6,270	28.8	3.3	.28	1,540	29.7
Mean	37.9	24.8	20.2	1,982	1,005	1.3	18.7	9.4	391	10,874	51.0	6.0	.55	2,625	46.6
Median	37.8	25.0	20.3	2,015	981	1.3	18.6	8.8	380	11,000	50.9	6.0	.51	2,640	47.5

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Logan Creek (Latitude 37° 09′ 21″ Longitude 090° 48′ 07″)															
1	35.6	30.9	22.8	2,280	1,120	1.6	23.9	16.0	450	10,500	52.2	7.2	0.45	2,450	41.4
2	38.1	44.9	25.1	2,610	771	2.5	29.8	16.0	480	10,400	54.8	7.8	.42	2,190	39.6
3	36.8	45.1	25.1	2,650	944	4.3	36.4	17.0	480	10,400	55.6	8.2	.45	2,190	39.7
4	37.1	48.5	25.3	2,690	757	3.5	33.9	18.0	470	10,200	54.5	7.9	.43	2,130	39.1
5	37.3	45.8	25.4	2,660	1,220	1.4	24.6	18.0	520	10,600	56.0	8.2	.47	2,180	40.8
6	37.2	46.1	26.0	2,620	1,260	1.4	25.6	17.0	540	10,500	55.8	8.2	.41	2,190	40.4
7	37.9	46.4	25.5	2,620	1,260	1.5	24.9	17.0	500	10,300	55.1	7.9	.44	2,140	39.8
8	38.2	46.7	25.7	2,680	1,310	1.8	26.9	18.0	500	10,400	55.9	8.2	.46	2,120	40.4
9	33.8	41.3	22.8	2,360	1,150	1.2	21.7	14.0	450	8,980	47.9	7.1	.36	1,800	34.6
10	29.2	35.8	20.8	2,220	1,010	1.2	20.9	14.0	410	7,820	42.3	6.2	.34	1,520	29.9
11	32.5	38.8	22.9	2,340	1,090	1.5	23.1	15.0	460	8,810	48.5	7.3	.37	1,680	33.3
12	33.0	39.5	22.8	2,400	1,470	1.4	22.6	14.0	490	9,090	49.8	7.2	.37	1,760	34.6
13	30.7	33.1	20.3	2,020	1,390	1.1	19.3	12.0	400	8,380	43.2	6.3	.32	1,760	32.2
14	29.6	30.3	19.5	1,860	1,320	1.1	19.3	12.0	370	7,980	41.4	5.9	.30	1,680	30.8
15	28.0	27.1	18.1	1,730	1,630	1.2	18.3	11.0	370	7,500	38.4	5.5	.25	1,570	29.0
16	31.6	29.7	20.3	1,940	1,610	1.3	20.5	12.0	380	8,500	43.9	6.3	.27	1,810	32.6
17	31.6	30.8	20.8	2,020	1,630	1.2	21.0	14.0	420	8,860	46.2	6.5	.32	1,810	33.4
18	30.3	27.2	19.2	1,800	1,340	1.2	18.9	11.0	370	7,830	40.4	5.8	.29	1,650	30.5
19	31.2	29.5	20.4	1,910	1,290	1.3	20.2	10.0	390	8,420	43.7	6.3	.26	1,750	32.4
20	27.6	26.0	18.9	1,750	1,080	1.3	19.1	12.0	370	7,580	39.5	5.6	.28	1,570	29.0
21	28.6	26.9	18.8	1,780	959	1.0	19.0	11.0	370	7,650	40.2	5.7	.27	1,550	29.1
22	28.6	26.3	19.2	1,810	1,070	1.1	18.4	11.0	380	7,920	41.4	5.8	.26	1,640	30.2
23	28.6	19.3	18.3	1,630	568	1.1	16.8	11.0	340	8,300	40.3	5.5	.28	1,910	32.4
24	22.3	13.7	14.3	1,260	312	1.5	16.3	8.6	280	6,020	29.5	4.4	.23	1,280	23.6
25	21.1	12.0	13.2	1,160	212	.9	13.0	6.9	260	5,540	26.8	3.8	.16	1,230	21.8
26	23.8	12.2	15.1	1,330	198	1.1	15.0	8.2	300	6,830	32.0	4.6	.19	1,570	26.7
27	24.0	12.3	15.6	1,370	165	1.0	14.8	7.3	290	7,040	33.3	4.5	.18	1,650	27.3
28	23.6	11.4	14.6	1,250	399	1.2	15.2	7.9	300	6,360	30.6	4.3	.18	1,460	25.5
Maximum	38.2	48.5	26.0	2,690	1,630	4.3	36.4	18.0	540	10,600	56.0	8.2	0.47	2,450	41.4
Minimum	21.1	11.4	13.2	1,160	165	.9	13.0	6.9	260	5,540	26.8	3.8	.16	1,230	21.8
Mean	31.0	31.3	20.6	2,027	1,019	1.5	21.4	12.9	405	8,525	44.3	6.4	.32	1,794	32.9
Median	31.0	30.6	20.4	1,980	1,105	1.3	20.4	12.0	395	8,400	43.5	6.3	.31	1,755	32.4

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Upper Black River (Latitude 37° 10’ 38” Longitude 090° 47’ 28”)															
1	40.2	51.7	23.7	3,300	832	0.9	29.0	8.1	530	13,000	56.7	8.0	0.65	2,810	49.2
2	37.2	44.9	20.2	2,820	414	1.2	26.0	5.8	430	12,500	51.7	6.9	.52	3,060	49.2
3	35.4	41.4	18.8	2,640	701	1.4	25.6	5.5	400	12,400	49.2	6.2	.48	3,080	48.2
4	37.4	43.9	20.0	2,680	667	1.0	24.6	6.0	420	12,700	51.1	6.9	.50	3,120	49.9
5	38.8	45.3	21.4	2,880	739	.9	25.2	5.7	480	13,100	52.8	7.4	.50	3,260	50.9
6	39.0	46.2	21.7	2,940	783	.9	25.6	6.0	460	13,300	53.5	7.3	.58	3,140	51.5
7	38.6	45.3	21.2	2,970	584	1.1	25.9	6.0	460	13,300	53.0	7.4	.52	3,170	51.3
8	38.2	44.3	21.3	2,950	627	1.3	26.6	4.5	440	13,300	52.6	7.1	.41	3,160	49.7
9	39.0	44.0	21.4	3,080	579	1.1	26.9	6.0	450	13,200	51.4	7.0	.52	3,070	48.1
10	39.5	44.8	21.7	3,040	703	1.4	28.1	5.7	470	12,400	51.5	7.4	.49	2,780	46.0
11	39.4	44.8	22.0	2,940	739	1.6	29.1	8.2	500	12,400	52.8	7.5	.62	2,660	46.1
12	41.9	46.4	23.6	3,120	824	1.5	31.2	7.4	540	12,700	53.9	8.0	.58	2,780	47.1
13	39.5	46.0	22.2	3,060	761	1.2	29.4	6.9	500	13,100	53.7	7.6	.54	3,020	49.1
14	38.1	48.2	22.4	3,240	655	1.2	27.6	7.1	470	13,300	53.9	7.6	.57	3,100	50.0
15	38.4	49.4	22.2	3,360	642	1.1	27.6	5.8	480	13,500	54.3	7.4	.45	3,050	50.1
16	38.4	49.5	22.2	3,390	676	1.2	28.1	6.2	470	13,100	52.9	7.3	.49	3,120	49.7
17	38.5	48.3	22.0	3,420	699	.9	27.3	6.8	480	13,100	52.6	7.2	.55	3,080	50.2
18	37.6	47.2	20.5	3,780	502	1.4	28.4	4.8	440	12,900	51.9	7.1	.43	2,990	48.6
19	37.8	50.0	21.6	3,970	677	1.5	29.2	4.8	460	12,900	52.3	7.2	.41	2,860	47.4
20	39.8	55.5	22.4	3,860	955	1.6	32.6	5.6	530	13,100	54.5	7.8	.48	2,850	49.1
21	40.0	54.4	22.1	3,200	942	1.1	29.5	7.6	490	11,900	53.6	7.9	.71	2,710	47.7
22	37.1	47.5	19.8	4,080	861	1.1	25.5	4.7	430	11,500	49.8	6.6	.46	2,840	45.9
23	36.1	46.9	19.3	3,710	658	1.0	24.5	5.9	420	11,700	49.9	6.7	.50	2,840	46.9
24	35.9	47.6	19.0	3,450	596	1.2	24.9	4.9	410	11,500	49.9	6.4	.44	2,980	48.0
25	37.4	46.9	19.8	4,100	724	.9	24.8	4.2	420	11,800	49.2	6.7	.38	2,900	47.5
26	38.0	45.6	19.9	3,600	972	1.0	23.4	4.6	420	11,400	50.2	6.9	.39	2,860	46.2
27	36.2	45.6	19.4	2,500	714	1.0	24.1	5.1	410	12,100	49.4	6.6	.42	3,030	48.2
28	36.4	44.7	19.2	2,400	581	1.3	24.3	5.4	410	11,800	49.2	6.6	.43	3,010	47.9
29	36.4	44.3	19.3	2,430	526	.8	23.1	3.9	400	12,000	49.4	6.5	.33	3,080	47.3
30	37.5	48.4	20.5	2,670	614	1.0	23.8	6.5	440	12,200	51.7	7.0	.47	3,090	48.7
31	36.3	47.6	19.9	2,630	566	1.6	26.5	9.3	420	12,400	50.9	6.7	.61	3,110	47.9
32	37.6	48.9	20.3	2,720	630	1.5	28.1	6.8	450	12,400	52.9	7.2	.48	3,040	48.6
33	37.8	50.5	20.3	2,630	610	1.5	33.2	6.4	440	12,400	52.1	7.0	.45	3,090	48.8
34	36.7	49.7	19.3	2,480	494	1.2	25.0	5.8	410	13,000	51.8	6.9	.43	3,370	50.8
35	38.2	53.4	21.3	2,840	631	3.8	38.7	6.3	470	12,800	53.7	7.3	.44	3,140	49.3
36	36.0	50.2	19.5	2,720	610	4.0	40.0	5.0	440	11,900	49.4	6.4	.38	2,840	45.0
37	39.3	54.2	21.9	3,070	606	1.2	27.5	7.0	490	13,100	55.3	7.6	.53	3,000	48.7
38	39.8	55.2	22.4	3,130	622	1.2	28.6	6.9	500	13,100	56.4	7.9	.45	3,000	50.1

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Upper Black River (Latitude 37° 10′ 38″ Longitude 090° 47′ 28″)															
39	40.2	55.3	23.8	3,470	701	1.2	28.0	7.4	510	13,000	57.7	8.2	0.50	2,970	48.8
40	39.4	55.7	23.9	3,590	661	1.0	28.4	7.8	500	12,600	57.3	8.2	.48	2,900	48.3
41	39.7	55.0	23.4	3,250	713	1.1	27.3	8.4	510	12,400	58.3	8.1	.58	2,950	48.3
42	39.6	54.5	23.5	3,220	786	1.2	27.0	8.2	510	12,900	58.3	8.0	.54	3,010	49.5
43	37.1	50.9	21.2	3,020	601	1.0	24.6	7.1	460	12,800	55.1	7.5	.46	3,180	49.0
44	37.1	49.8	21.1	2,890	562	.8	21.9	7.6	430	12,600	53.5	7.1	.51	3,280	49.2
45	37.0	47.4	20.4	2,910	585	.7	21.2	7.5	430	12,500	53.2	7.1	.45	3,280	49.9
46	38.4	47.9	20.8	3,060	633	1.0	23.6	7.6	450	12,400	55.2	7.3	.51	3,150	49.8
47	38.3	45.2	20.4	3,030	636	.9	22.2	7.4	440	12,900	53.5	7.0	.53	3,220	49.7
48	37.0	43.5	20.6	2,880	583	.8	21.4	7.6	420	12,800	52.5	6.8	.54	3,310	49.8
49	37.5	43.7	20.2	2,900	540	.7	21.4	7.5	410	13,000	52.1	6.9	.53	3,350	49.7
50	35.4	41.9	19.7	3,160	518	.7	20.2	9.0	400	12,200	48.8	6.7	.58	3,170	47.1
51	35.9	43.6	21.3	3,110	590	1.2	22.2	13.0	440	12,800	53.8	7.2	.88	3,050	53.6
52	36.3	45.2	22.2	3,260	616	1.3	24.3	14.0	460	13,200	56.7	7.8	.94	3,080	55.4
53	36.2	40.2	20.8	3,210	654	1.4	23.0	13.0	420	13,000	54.4	7.0	.81	3,180	55.2
54	35.6	37.9	20.4	2,690	588	1.3	21.6	12.0	390	13,500	55.0	7.0	.74	3,430	57.4
55	35.6	35.9	19.7	2,520	541	1.1	20.7	15.0	370	13,500	53.2	6.6	.98	3,470	56.6
56	36.2	35.9	19.2	2,610	489	1.1	19.6	14.0	370	13,300	52.5	6.5	.85	3,400	56.2
57	35.8	35.7	20.0	2,770	565	1.3	21.2	14.0	390	13,400	54.0	6.8	.79	3,320	56.5
58	37.8	36.4	20.8	2,470	661	1.3	22.7	14.0	390	13,700	56.0	7.3	.83	3,480	58.3
59	37.5	36.9	21.4	2,590	821	1.3	23.3	14.0	420	13,800	57.7	7.5	.83	3,430	57.8
60	41.1	40.8	23.3	3,020	994	1.2	24.7	15.0	450	14,200	61.9	8.4	.81	3,240	58.4
61	36.1	42.9	22.1	2,930	712	1.3	24.6	13.0	420	13,300	57.5	7.6	.80	3,110	56.1
Maximum	41.9	55.7	23.9	4,100	994	4.0	40.0	15.0	540	14,200	61.9	8.4	0.98	3,480	58.4
Minimum	35.4	35.7	18.8	2,400	414	.7	19.6	3.9	370	11,400	48.8	6.2	.33	2,660	45.0
Mean	37.8	46.6	21.1	3,055	663	1.2	26.0	7.8	447	12,756	53.3	7.2	.56	3,083	50.1
Median	37.6	46.4	21.1	3,020	636	1.2	25.5	6.9	440	12,900	53.0	7.2	.51	3,080	49.2

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Lower Black River (Latitude 37° 09’ 54” Longitude 090° 45’ 58”)															
1	46.3	69.7	32.2	4,380	2,250	1.4	38.7	18.0	780	14,000	72.4	11.2	0.12	2,280	50.5
2	45.6	71.6	33.1	4,280	970	1.7	40.3	18.0	730	14,100	73.1	11.2	.12	2,330	50.8
3	46.5	74.0	33.4	4,150	904	2.0	42.2	16.0	750	14,200	74.1	11.6	.06	2,200	48.7
4	45.6	65.2	30.6	3,740	975	2.3	40.5	15.0	680	14,200	68.7	10.5	<.02	2,550	50.7
5	45.8	64.8	30.2	3,700	1,060	1.6	37.9	17.0	690	14,200	69.1	10.4	.05	2,580	50.8
6	45.5	65.9	30.7	3,710	1,100	1.5	36.6	18.0	700	14,200	68.6	10.5	.08	2,530	50.4
7	45.3	63.8	29.7	3,610	1,120	1.8	37.1	16.0	640	14,200	67.4	10.3	.04	2,600	50.6
8	45.8	62.9	29.4	3,670	1,140	2.5	40.1	18.0	650	14,500	68.4	10.4	.10	2,670	51.3
9	46.6	64.4	30.4	3,780	1,110	1.4	36.8	18.0	670	14,600	69.8	10.6	.10	2,660	51.6
10	46.0	63.4	30.0	3,680	1,100	1.4	35.0	16.0	650	14,200	68.1	10.3	.04	2,590	50.8
11	46.4	64.0	30.7	3,720	1,080	1.9	38.1	18.0	670	14,500	68.9	10.6	.09	2,580	50.7
12	45.5	63.3	30.2	3,740	1,080	2.0	38.0	16.0	640	14,300	68.1	10.4	.02	2,610	49.9
13	46.1	64.8	30.5	3,810	1,060	1.4	36.5	16.0	650	14,500	69.7	10.8	.02	2,550	50.4
14	47.3	65.7	30.6	3,850	1,030	1.4	36.7	14.0	660	14,700	70.3	10.7	<.02	2,600	51.0
15	45.4	65.6	30.5	3,780	952	1.6	37.8	15.0	650	14,500	69.2	10.7	.02	2,550	50.4
16	45.9	66.5	30.7	3,760	934	1.8	39.1	18.0	640	14,200	67.8	10.5	.04	2,550	49.7
17	45.3	65.5	30.4	3,660	908	1.4	36.4	15.0	640	14,500	68.4	10.5	.03	2,590	50.8
18	44.8	65.5	29.8	3,670	880	1.3	35.5	15.0	650	14,800	67.6	10.6	<.02	2,710	50.9
19	45.6	66.5	30.1	3,670	954	1.7	37.0	16.0	650	14,700	68.0	10.5	.02	2,640	50.2
20	45.0	65.4	29.6	3,600	951	2.1	38.8	15.0	630	14,600	67.4	10.5	.02	2,590	51.5
21	45.7	67.4	30.9	3,710	951	1.4	36.7	18.0	720	14,500	69.2	10.8	.09	2,690	50.5
22	44.6	65.3	29.7	3,610	940	1.4	35.8	16.0	680	14,500	67.1	10.3	.05	2,740	49.7
23	44.4	66.4	30.2	3,560	938	1.8	35.3	15.0	630	13,600	69.2	10.4	.52	2,430	49.4
24	45.1	66.4	30.6	3,670	998	2.0	35.5	15.0	620	13,500	68.8	10.4	.46	2,440	49.2
25	45.6	67.6	31.6	3,780	1,090	1.5	35.3	17.0	630	13,800	70.7	10.8	.50	2,440	49.2
26	45.2	66.7	31.4	3,750	1,080	1.5	34.1	17.0	610	13,700	70.8	10.6	.50	2,480	49.5
27	45.7	66.8	31.2	3,710	981	2.0	36.8	15.0	600	13,700	70.8	10.7	.46	2,420	49.9
28	45.5	66.4	31.1	3,690	1,030	1.9	36.1	16.0	580	13,600	69.5	10.5	.48	2,480	49.6
29	46.4	67.4	31.9	3,750	991	1.4	34.3	16.0	590	13,500	69.4	10.5	.48	2,460	49.1
30	45.6	67.0	31.7	3,700	1,020	1.5	34.8	16.0	590	13,700	70.6	10.7	.46	2,430	50.1
31	43.7	66.2	31.9	3,730	996	1.8	36.1	18.0	610	13,900	71.3	10.7	.50	2,470	49.2
32	43.3	66.4	31.6	3,680	997	1.7	35.7	17.0	600	14,000	70.8	10.6	.47	2,430	49.2
33	43.1	66.4	31.6	3,650	940	1.5	34.0	18.0	600	13,800	70.7	10.7	.48	2,380	49.0
34	43.7	66.4	32.0	3,610	936	1.4	33.5	19.0	580	13,900	69.9	10.5	.49	2,460	49.6
35	43.3	66.6	31.6	3,630	936	1.6	34.7	18.0	580	13,700	71.0	10.4	.51	2,420	49.1
36	42.7	65.8	31.8	3,690	973	1.9	36.1	18.0	580	13,700	71.6	10.6	.50	2,420	49.5
37	43.1	67.3	32.2	3,710	1,030	1.6	34.8	19.0	590	13,700	73.1	10.7	.50	2,290	49.0
38	42.8	66.3	31.8	3,650	1,030	1.6	33.8	18.0	580	13,500	71.8	10.6	.50	2,330	48.9

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Lower Black River (Latitude 37° 09′ 54″ Longitude 090° 45′ 58″)—Continued															
39	43.4	64.7	31.3	3,560	972	1.6	33.5	19.0	570	13,600	71.4	10.4	0.51	2,390	49.7
40	43.3	64.8	31.1	3,560	945	1.8	33.4	18.0	550	13,500	70.2	10.3	.50	2,400	49.2
41	42.0	65.5	31.8	3,600	975	1.6	32.2	20.0	570	13,300	70.2	10.5	.55	2,330	47.6
42	42.6	64.8	31.7	3,600	1,010	1.5	32.7	19.0	580	13,500	71.1	10.5	.51	2,340	48.3
43	36.6	45.1	25.3	2,570	781	2.5	29.4	16.0	470	10,300	54.9	7.7	.44	2,140	40.1
44	42.7	62.2	30.0	3,410	953	1.9	32.5	18.0	540	13,300	68.6	10.0	.50	2,420	48.3
45	41.0	59.2	28.7	3,300	951	1.6	29.7	19.0	520	13,000	65.7	9.6	.49	2,440	47.5
46	40.8	56.8	27.9	3,240	944	1.5	29.2	18.0	510	13,400	65.6	9.5	.48	2,560	49.2
47	42.6	55.9	28.6	3,340	946	1.7	30.8	18.0	520	13,700	67.2	9.7	.50	2,560	49.3
48	43.4	54.0	28.8	3,320	982	1.7	30.9	19.0	530	13,700	67.3	9.6	.51	2,590	49.5
49	42.8	51.1	28.3	3,360	1,030	1.4	29.4	19.0	510	13,700	67.3	9.6	.52	2,600	49.2
50	43.6	48.2	28.7	3,300	963	1.5	30.6	21.0	520	14,200	69.0	9.6	.53	2,640	50.8
51	45.0	47.2	29.2	3,680	1,030	1.4	31.7	18.0	550	14,400	73.1	10.4	1.10	2,690	57.7
52	45.4	43.9	29.2	3,630	979	1.4	30.4	18.0	550	14,400	72.0	10.3	1.00	2,760	57.2
53	46.3	43.2	29.3	3,650	917	1.5	31.5	16.0	550	14,600	73.3	10.6	.95	2,690	56.5
54	44.6	48.3	29.2	3,820	824	1.4	32.1	16.0	540	14,400	72.6	10.4	.96	2,640	56.1
Maximum	47.3	74.0	33.4	4,380	2,250	2.5	42.2	21.0	780	14,800	74.1	11.6	1.10	2,760	57.7
Minimum	36.6	43.2	25.3	2,570	781	1.3	29.2	14.0	470	10,300	54.9	7.7	.02	2,140	40.1
Mean	44.5	62.8	30.5	3,651	1,011	1.7	35.0	17.1	611	13,944	69.5	10.4	.37	2,507	50.1
Median	45.2	65.5	30.6	3,675	977	1.6	35.4	18.0	605	14,000	69.5	10.5	.48	2,540	49.7

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Marina (Latitude 37° 08’ 27” Longitude 090° 46’ 14”)															
1	42.8	70.8	36.6	4,780	1,430	2.8	40.0	11.0	3,600	11,700	69.1	10.7	0.81	3,590	62.7
2	44.7	79.1	39.1	4,900	1,350	2.2	44.8	17.0	1,700	12,100	79.6	12.2	.66	1,860	51.5
3	49.0	92.4	39.6	5,690	1,420	2.7	51.2	19.0	1,900	12,300	82.5	12.9	.58	1,920	69.2
4	46.3	83.8	39.0	4,900	1,490	2.4	47.4	17.0	2,200	12,200	82.2	12.6	.48	1,720	57.0
5	46.4	88.5	40.7	4,770	1,580	2.9	53.5	18.0	1,700	12,200	86.5	13.0	.46	1,350	49.6
6	45.0	81.0	41.8	5,060	1,740	2.5	49.9	18.0	1,200	12,700	81.2	13.1	.65	2,090	48.0
7	45.2	81.4	39.9	4,800	1,720	2.5	53.8	17.0	2,100	12,300	81.2	12.7	.62	1,500	47.4
8	44.8	77.6	38.3	4,760	1,960	2.2	45.6	17.0	1,600	12,400	79.7	12.4	.57	1,540	48.0
9	45.0	76.6	37.4	4,680	1,700	2.0	44.1	17.0	1,800	12,200	79.1	12.4	.52	1,450	46.4
10	44.9	76.6	37.1	4,670	1,700	2.2	44.3	16.0	1,700	12,200	78.8	12.2	.49	1,520	48.4
11	45.2	75.2	36.6	4,510	1,550	1.9	43.9	17.0	800	11,900	78.2	12.1	.50	1,410	46.0
12	43.3	76.1	36.7	4,450	1,620	2.2	45.1	17.0	850	12,000	81.1	12.4	.47	1,400	47.5
13	43.0	74.7	36.6	4,350	1,540	2.0	43.9	17.0	860	11,900	80.7	12.2	.47	1,390	46.8
14	43.8	77.4	37.2	4,420	1,520	2.0	44.2	17.0	800	12,100	81.8	12.6	.47	1,430	49.1
15	44.3	79.4	38.0	4,490	1,470	2.3	47.0	18.0	820	12,300	83.4	12.8	.45	1,380	47.8
16	44.8	84.0	38.6	4,530	1,460	2.3	47.8	18.0	810	12,400	85.1	13.1	.43	1,350	48.2
17	44.5	84.2	39.1	4,520	1,430	2.1	47.1	18.0	840	12,500	86.5	13.0	.46	1,330	49.0
18	45.6	85.6	39.0	4,530	1,380	2.2	47.1	17.0	790	12,600	86.1	13.3	.44	1,350	49.5
19	45.4	83.3	39.0	4,470	1,420	2.3	48.1	18.0	800	12,600	85.9	13.1	.45	1,340	49.4
20	44.0	80.5	38.3	4,390	1,530	2.2	46.4	21.0	770	12,600	85.2	12.9	.54	1,360	49.8
21	43.8	81.4	38.4	4,360	1,560	2.1	46.2	18.0	790	12,500	85.4	13.1	.46	1,330	50.2
22	42.2	78.8	37.8	4,220	1,460	2.2	45.1	18.0	760	12,600	84.7	12.7	.45	1,380	50.6
23	42.0	77.8	37.4	4,140	1,500	2.2	45.8	17.0	760	12,200	84.4	12.8	.45	1,320	49.0
24	42.1	77.9	37.9	4,230	1,670	2.4	47.7	17.0	760	12,400	84.9	12.7	.44	1,360	49.9
25	42.2	77.0	37.1	4,110	1,600	1.9	43.8	17.0	740	12,100	83.4	12.7	.43	1,330	48.2
26	42.5	66.6	37.5	4,360	1,270	1.8	39.5	17.0	680	11,700	76.2	11.3	.53	1,530	45.1
27	41.6	66.5	38.0	4,390	1,310	1.8	40.4	17.0	670	11,800	77.7	11.6	.51	1,470	45.0
28	41.6	67.3	37.7	4,320	1,280	1.9	40.7	17.0	680	11,700	78.7	12.0	.48	1,440	46.1
29	41.2	68.2	38.3	4,360	1,340	2.0	41.3	18.0	690	11,900	80.0	12.0	.50	1,400	46.2
30	43.2	69.4	38.2	4,340	1,380	1.8	41.3	17.0	690	12,000	80.6	12.1	.50	1,430	46.9
31	42.2	84.8	37.8	4,260	1,370	1.9	41.1	18.0	690	11,900	80.1	12.0	.48	1,380	46.1
32	44.8	71.8	37.5	4,400	1,640	2.2	43.0	17.0	730	12,200	79.6	12.1	.49	1,470	46.6
33	44.8	77.2	38.6	4,410	1,780	2.0	43.3	17.0	710	12,300	81.9	12.6	.49	1,410	47.1
34	44.4	75.2	40.0	4,460	1,800	2.1	44.1	18.0	730	12,700	83.1	12.8	.48	1,450	48.8
35	45.3	77.9	40.0	4,420	1,870	2.1	43.6	18.0	740	12,900	85.1	12.9	.48	1,450	48.9
36	45.9	81.2	40.6	4,470	1,560	2.0	44.4	18.0	760	13,300	85.8	13.2	.48	1,520	51.1
37	45.6	79.4	40.2	4,470	1,800	2.1	45.9	18.0	750	12,800	86.0	13.2	.50	1,360	48.9
38	44.7	74.7	40.1	4,440	1,900	2.1	42.1	18.0	710	12,200	83.4	12.8	.48	1,360	48.5

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Marina (Latitude 37° 08′ 27” Longitude 090° 46′ 14”)—Continued															
39	45.2	74.6	39.2	4,380	2,060	2.1	42.3	17.0	720	12,200	84.2	12.5	0.44	1,320	47.3
40	44.6	69.4	38.2	4,210	1,840	2.0	40.4	17.0	700	12,200	82.2	12.3	.46	1,400	48.2
41	44.7	74.7	38.6	4,100	1,800	2.0	40.4	18.0	720	12,400	84.4	12.6	.47	1,380	48.3
42	45.3	70.6	38.6	4,140	1,290	2.1	40.0	18.0	720	12,400	84.3	12.5	.49	1,400	49.4
43	45.1	70.4	39.1	4,080	1,480	2.1	40.0	18.0	730	12,400	85.2	12.4	.48	1,400	49.3
44	44.5	71.0	38.3	4,090	1,770	1.9	40.6	18.0	740	12,500	85.8	12.3	.49	1,390	49.7
45	44.8	84.5	36.3	4,110	1,470	1.7	39.5	16.0	680	12,400	82.0	12.1	.42	1,420	49.0
46	43.9	74.4	35.1	4,280	1,240	1.9	37.0	16.0	650	12,100	74.3	11.0	.46	1,590	44.2
47	44.4	71.0	35.7	4,280	1,280	2.1	39.4	16.0	660	12,100	75.7	11.3	.48	1,550	44.5
48	42.9	72.5	34.6	4,170	1,380	1.7	36.7	14.0	640	11,900	74.3	11.1	.42	1,530	44.5
49	45.1	74.7	35.4	4,260	1,750	1.8	38.6	17.0	680	12,100	76.8	11.5	.51	1,510	44.8
50	45.4	85.3	36.6	4,280	1,720	1.8	39.4	17.0	700	12,300	78.5	11.6	.49	1,500	45.3
51	42.4	73.4	36.4	4,170	1,590	1.9	39.8	20.0	710	12,300	78.0	12.1	1.00	1,420	45.1
52	42.5	76.9	36.5	4,170	1,540	2.0	42.5	18.0	720	12,300	78.7	12.2	.87	1,430	45.6
53	41.1	75.2	37.2	4,200	1,560	1.9	39.7	18.0	710	12,200	78.4	12.4	.95	1,390	45.8
54	43.4	78.1	38.2	4,270	1,630	2.0	40.2	20.0	740	12,600	82.0	12.6	1.00	1,430	46.8
55	41.6	73.8	37.5	4,090	1,610	1.9	38.9	18.0	700	12,200	78.4	12.0	.88	1,430	46.1
56	39.8	67.6	34.9	3,900	1,690	1.8	36.4	18.0	660	11,600	74.8	11.5	.90	1,380	43.7
57	43.4	76.9	36.7	4,160	1,620	1.9	38.5	19.0	680	12,400	78.6	12.1	.96	1,520	46.9
58	43.6	71.8	36.6	4,200	1,640	1.8	39.6	19.0	660	12,700	80.3	12.2	.99	1,560	48.0
59	44.2	74.1	37.1	4,220	1,590	2.0	40.2	20.0	670	12,400	80.0	12.7	.96	1,430	46.8
60	43.9	79.8	40.3	4,560	1,490	2.5	47.1	20.0	850	12,500	82.0	13.4	1.00	1,320	46.8
61	44.0	82.1	41.6	4,600	1,780	2.4	46.4	19.0	1,200	12,500	85.0	13.8	.99	1,210	46.6
Maximum	49.0	92.4	41.8	5,690	2,060	2.9	53.8	21.0	3,600	13,300	86.5	13.8	1.00	3,590	69.2
Minimum	39.8	66.5	34.6	3,900	1,240	1.7	36.4	11.0	640	11,600	69.1	10.7	.42	1,210	43.7
Mean	44.0	76.8	38.0	4,406	1,572	2.1	43.2	17.6	940	12,280	81.3	12.4	.58	1,485	48.3
Median	44.4	76.9	38.0	4,360	1,560	2.1	43.3	18.0	740	12,300	81.8	12.4	.49	1,420	48.0

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Clearwater Dam (Latitude 37° 08′ 19” Longitude 090° 46′ 47”)															
1	47.6	89.8	45.4	5,220	1,260	3.0	51.0	23.0	920	13,200	89.0	14.4	0.37	1,220	45.5
2	48.3	85.6	45.0	5,290	1,490	4.5	56.3	22.0	900	13,400	89.3	14.5	.32	1,270	46.3
3	47.8	82.0	44.6	5,100	1,440	2.1	47.1	23.0	920	13,400	89.1	14.1	.36	1,310	46.9
4	48.2	80.3	44.4	4,990	1,600	2.5	47.1	21.0	900	13,200	88.7	14.2	.35	1,330	46.1
5	48.4	79.0	44.2	5,070	1,580	3.4	50.8	21.0	900	13,400	89.3	14.2	.34	1,340	46.2
6	49.1	78.3	45.2	5,030	1,520	4.6	55.0	23.0	900	13,200	88.3	14.0	.40	1,330	46.7
7	49.7	78.6	44.2	5,120	1,580	2.0	45.9	23.0	890	13,300	88.4	14.3	.38	1,360	46.4
8	49.0	79.1	44.4	5,070	1,540	1.9	45.1	21.0	870	13,300	88.2	14.1	.32	1,350	46.1
9	47.8	78.3	44.1	4,980	1,500	2.6	46.9	21.0	850	12,900	86.5	13.9	.35	1,320	45.6
10	48.2	77.1	43.8	4,980	1,500	3.0	47.9	20.0	850	12,900	87.9	13.9	.31	1,340	46.2
11	46.4	72.6	43.0	4,790	1,460	2.5	45.2	24.0	830	13,200	87.0	13.8	.43	1,480	47.8
12	47.3	74.9	44.2	4,970	1,460	2.4	44.7	23.0	850	13,400	89.1	14.0	.40	1,470	46.4
13	51.1	76.2	45.0	5,070	1,470	2.3	44.8	24.0	830	13,200	89.3	13.9	.43	1,370	46.3
14	49.1	74.9	45.4	5,160	1,500	2.5	46.9	24.0	860	13,400	90.8	14.5	.41	1,380	47.4
15	50.1	78.0	45.6	5,280	1,640	2.3	46.3	26.0	860	13,600	91.4	14.5	.42	1,390	47.9
16	49.4	78.3	45.8	5,200	1,560	2.4	45.4	23.0	850	13,400	90.5	14.6	.38	1,380	47.2
17	49.2	79.7	45.4	5,200	1,520	2.3	44.9	19.0	810	13,300	89.1	14.1	.26	1,390	46.6
18	50.5	77.0	45.5	5,140	1,520	2.5	45.6	22.0	830	13,400	89.7	14.5	.37	1,400	47.4
19	51.3	78.9	45.4	5,120	1,530	2.5	45.7	24.0	860	13,500	91.4	14.3	.41	1,410	48.1
20	49.1	77.8	45.1	5,090	1,470	2.3	44.5	24.0	820	13,200	89.5	14.2	.44	1,400	47.1
21	49.4	77.9	45.0	5,080	1,420	2.2	43.4	25.0	810	13,200	89.4	14.5	.49	1,450	47.4
22	48.4	82.2	45.2	5,140	1,430	2.7	45.4	23.0	820	13,300	89.8	14.0	.40	1,470	47.2
23	48.6	82.9	44.5	5,160	1,420	2.2	42.7	23.0	820	13,500	89.7	14.2	.37	1,500	47.8
24	49.6	82.4	44.9	5,170	1,450	2.4	44.1	23.0	830	13,700	90.7	14.2	.43	1,480	47.1
25	50.4	77.9	45.3	5,200	1,590	2.5	44.8	24.0	880	14,000	93.5	14.5	.45	1,460	48.9
26	51.0	70.6	44.6	5,210	1,710	2.4	44.6	23.0	840	14,000	91.6	14.3	.45	1,570	48.4
27	51.8	48.6	40.1	4,770	1,590	2.0	39.3	20.0	780	13,500	86.4	13.0	.69	1,690	47.5
28	52.1	43.9	40.0	4,620	1,710	2.2	39.2	20.0	780	13,800	87.1	13.1	.66	1,730	47.7
29	51.4	43.8	39.7	4,620	1,860	2.0	38.5	22.0	770	13,600	86.6	12.9	.67	1,740	47.5
30	51.4	43.9	39.0	4,600	2,180	2.2	40.3	20.0	760	13,800	86.1	13.1	.60	1,760	47.2
31	47.3	42.0	39.4	4,520	1,950	2.1	40.7	22.0	760	13,300	84.0	12.9	.68	1,710	46.2
32	46.7	41.8	38.8	4,370	2,240	3.3	43.0	22.0	740	13,500	82.5	12.5	.62	1,760	46.1
33	48.4	42.8	38.7	4,370	2,250	2.7	40.7	21.0	740	13,600	82.9	12.3	.61	1,820	47.0
34	47.8	42.6	38.6	4,390	2,150	3.4	43.2	22.0	740	13,400	83.4	12.5	.62	1,790	49.9
35	47.9	41.2	37.5	4,190	2,300	2.0	36.9	22.0	710	13,300	81.6	12.4	.61	1,820	46.9
36	47.3	39.4	36.8	4,070	2,370	2.0	36.2	20.0	700	13,100	80.2	11.8	.60	1,880	46.5
37	47.1	39.2	36.6	4,070	2,670	2.4	37.6	20.0	680	13,200	80.4	11.6	.58	1,900	47.0
38	47.8	38.6	36.0	3,990	2,730	2.3	36.7	21.0	690	13,400	80.7	11.6	.60	1,970	47.8

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Lanthanum	Lead	Lithium	Magnesium	Manganese	Molybdenum	Nickel	Niobium	Phosphorous	Potassium	Rubidium	Scandium	Silver	Sodium	Strontium
RSD (percent)	**6.64**	**3.83**	**2.48**	**2.70**	**2.52**	**10.69**	**3.35**	**23.19**	**2.84**	**2.86**	**2.65**	**3.57**	**41.48**	**2.44**	**3.74**
Clearwater Dam (Latitude 37° 08′ 19” Longitude 090° 46′ 47”)—Continued															
39	46.0	37.0	34.7	3,770	3,480	1.9	34.8	21.0	660	13,100	76.1	11.1	0.60	2,070	47.2
40	45.2	35.9	33.8	3,660	3,790	1.7	32.6	21.0	670	13,000	74.5	10.7	.59	2,110	47.6
41	44.8	35.2	33.6	3,640	4,140	2.4	35.0	23.0	670	12,700	73.6	10.9	.67	2,040	46.5
42	44.1	35.4	33.8	3,600	4,140	2.0	33.5	20.0	670	12,800	74.0	10.8	.57	2,040	46.4
43	43.7	33.9	31.8	3,420	3,900	1.6	30.7	19.0	640	13,000	72.3	10.3	.54	2,160	47.2
44	43.1	33.5	32.0	3,450	4,020	2.0	32.8	19.0	630	12,900	71.6	10.4	.53	2,160	46.5
45	44.2	34.7	32.8	3,580	3,970	2.0	33.7	20.0	660	13,200	74.4	10.6	.58	2,100	46.8
46	44.5	34.5	33.7	3,580	4,590	2.1	34.0	20.0	680	13,100	75.6	10.9	.61	2,080	46.9
47	44.8	35.1	33.6	3,610	5,040	1.8	33.4	20.0	680	13,000	75.1	10.9	.57	2,060	47.0
48	44.7	35.3	33.3	3,590	5,130	1.8	33.3	19.0	680	13,100	74.7	10.8	.53	2,040	46.6
49	43.7	32.9	31.5	3,310	4,400	1.8	31.4	21.0	640	12,900	71.2	10.0	.59	2,220	46.5
50	44.2	32.8	31.7	3,300	4,540	1.8	31.4	24.0	660	12,900	72.7	10.4	.57	2,170	46.4
51	42.7	33.6	33.8	3,570	5,280	1.8	33.3	20.0	690	13,300	78.5	11.3	1.00	2,060	51.9
52	42.4	31.3	34.6	3,580	3,970	1.9	32.3	18.0	690	13,000	80.3	11.4	1.10	2,010	50.4
53	42.2	35.6	33.1	3,560	2,470	1.6	32.9	18.0	690	14,100	79.3	11.3	1.10	2,140	52.7
54	30.3	22.3	20.3	2,150	1,420	1.2	19.3	12.0	420	10,700	51.4	6.5	.70	2,220	43.7
Maximum	52.1	89.8	45.8	5,290	5,280	4.6	56.3	26.0	920	14,100	93.5	14.6	1.10	2,220	52.7
Minimum	30.3	22.3	20.3	2,150	1,260	1.2	19.3	12.0	420	10,700	51.4	6.5	.26	1,220	43.7
Mean	47.3	57.4	39.7	4,459	2,397	2.3	40.7	21.5	770	13,256	83.4	12.7	.53	1,693	47.2
Median	47.9	46.3	40.1	4,695	1,675	2.3	42.9	21.5	780	13,300	86.6	13.1	.53	1,700	47.0

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Webb Creek (Latitude 37° 08’ 56” Longitude 090° 48’ 18”)								
1	0.5	9.6	3,000	2.7	55.6	29.1	55.0	--
2	.5	9.8	3,200	2.8	55.2	30.6	53.0	
3	.5	9.8	3,100	2.6	50.3	27.8	48.9	--
4	.5	9.5	3,000	2.5	51.0	28.5	49.3	
5	.5	9.8	3,300	2.5	52.8	30.1	51.2	--
6	.5	9.6	3,200	2.6	51.9	30.1	51.8	
7	.5	9.7	3,300	2.7	52.3	30.4	51.1	--
8	.5	9.7	3,200	2.6	51.6	29.4	51.9	
9	.5	9.9	3,300	2.8	54.0	32.9	51.7	--
10	.5	10.4	3,400	3.1	56.7	32.7	52.9	
11	.5	10.7	3,600	3.2	59.2	33.2	53.7	--
12	.5	9.9	3,200	2.9	56.2	31.8	50.6	
13	.5	10.0	3,100	2.9	54.8	31.5	49.8	--
14	.5	10.5	3,400	3.1	56.4	32.3	51.9	
15	.6	10.6	3,500	3.6	61.0	33.7	55.1	--
16	.6	10.8	3,400	3.4	57.8	34.1	54.1	
17	.6	10.8	3,500	3.5	58.0	35.1	53.6	--
18	.6	10.5	3,400	3.4	57.9	33.2	52.9	
19	.5	10.1	3,400	3.2	55.7	31.3	52.6	--
20	.5	10.0	3,500	3.1	56.5	31.6	51.8	
21	.5	9.6	3,200	2.9	52.5	30.7	47.8	--
22	.5	9.6	3,000	2.8	50.2	29.8	45.7	
23	.5	9.6	2,900	2.8	51.3	30.3	45.7	--
24	.5	9.1	3,000	2.7	47.9	29.7	48.0	
25	.5	9.0	3,000	2.7	48.9	30.0	44.8	--
26	.3	5.6	1,900	1.8	28.3	19.0	28.3	
27	.5	9.4	3,100	2.8	48.8	30.1	45.1	--
28	.5	9.6	3,000	2.9	48.8	30.9	45.0	
29	.5	8.9	3,100	2.8	50.5	33.4	44.8	--
30	.5	9.3	3,300	3.0	50.3	33.5	45.6	
31	.5	8.0	2,900	2.8	49.3	30.1	42.8	--
32	.5	8.9	3,000	2.8	51.2	35.2	46.1	
33	.5	9.6	3,200	2.7	53.7	31.7	49.5	--
34	.6	10.6	3,600	2.9	60.2	34.2	55.0	
35	.6	10.5	3,600	2.9	61.4	33.3	57.0	--
36	.6	10.4	3,500	3.0	60.6	32.9	55.1	
37	.6	10.4	3,700	3.0	59.2	34.0	53.6	--
38	.6	10.2	3,600	3.0	57.2	35.1	50.2	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Webb Creek (Latitude 37° 08’ 56” Longitude 090° 48’ 18”)—Continued								
39	0.6	10.2	3,700	3.1	61.0	33.9	55.2	--
40	.6	10.4	3,900	3.3	64.4	35.3	60.0	
41	.6	9.4	3,500	3.0	60.1	32.5	53.3	--
42	.5	9.2	3,400	2.8	56.2	31.4	52.2	
43	.5	8.9	3,200	2.6	55.2	30.0	52.1	--
44	.5	9.4	3,500	2.7	54.5	31.2	52.4	
45	.5	9.1	3,600	2.8	53.0	30.7	49.8	--
46	.5	9.0	3,500	2.8	52.9	30.1	50.7	
47	.5	9.1	3,400	2.5	50.2	28.3	48.9	--
48	.5	8.9	3,300	2.4	50.7	28.7	49.8	
49	.5	9.2	3,400	2.5	50.6	29.1	49.7	--
50	.5	9.2	3,700	2.6	53.0	30.0	51.2	
51	.5	9.0	4,100	2.6	50.0	29.3	48.2	--
52	.5	9.1	4,100	2.4	47.7	27.7	43.6	
53	.5	9.1	4,100	2.5	47.6	29.1	45.5	--
54	.5	9.2	4,100	2.5	48.1	28.9	47.2	
55	.5	9.2	4,100	2.4	49.1	28.9	46.4	--
56	.5	9.5	4,100	2.5	50.7	30.0	48.1	
57	.5	9.3	4,100	2.7	48.3	29.3	45.7	--
58	.5	9.6	4,100	2.7	49.8	28.8	45.7	
59	.5	9.5	4,100	2.7	48.8	29.2	45.4	--
60	.5	9.3	4,100	2.4	52.6	29.4	49.1	
61	.5	9.5	4,100	2.6	54.8	30.6	51.4	--
62	.6	9.8	4,100	3.0	60.3	31.9	56.3	
63	.5	9.8	4,100	2.9	55.9	31.6	51.2	--
64	.5	9.7	4,100	2.8	53.8	31.2	50.3	
65	.5	9.3	4,100	2.6	49.6	30.0	44.7	--
66	.5	9.7	4,100	2.7	49.3	29.8	47.8	
67	.5	10.0	4,100	3.0	50.4	31.1	44.7	--
68	.5	10.1	4,100	3.1	50.8	31.7	46.2	
69	.5	9.9	4,100	2.9	49.8	36.0	43.7	--
70	.5	9.7	4,100	2.5	49.4	30.1	44.5	
71	.5	9.1	4,100	2.7	47.1	28.4	42.0	--
72	.5	9.7	4,100	2.8	51.6	30.0	45.3	
Maximum	0.6	10.8	4,100	3.6	64.4	36.0	60.0	
Minimum	.3	5.6	1,900	1.8	28.3	19.0	28.3	
Mean	.5	9.6	3,540	2.8	53.0	30.9	49.3	
Median	.5	9.6	3,500	2.8	52.4	30.6	49.8	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Logan Creek (Latitude 37° 09’ 21” Longitude 090° 48’ 07”)								
1	0.5	9.2	3,100	2.6	57.1	29.9	55.0	--
2	.6	9.7	3,100	2.3	62.7	31.1	69.4	
3	.6	9.6	3,300	2.4	63.8	31.7	71.1	--
4	.6	9.6	3,500	2.4	63.1	31.5	72.9	
5	.6	9.8	3,500	2.5	65.3	32.3	71.5	--
6	.6	9.6	3,400	2.5	64.4	31.8	70.4	
7	.6	9.9	3,400	2.6	63.6	31.1	70.0	--
8	.6	9.9	4,000	2.6	65.8	32.2	71.2	
9	.5	8.8	3,200	2.4	57.4	29.1	63.0	--
10	.5	7.7	2,700	2.2	51.7	26.0	55.0	
11	.5	8.5	2,800	2.3	58.2	28.4	60.7	--
12	.5	8.6	2,900	2.4	57.8	28.5	60.1	
13	.5	8.0	2,700	2.2	49.7	26.3	50.5	--
14	.4	7.9	2,700	2.2	48.1	25.4	48.0	
15	.4	7.2	2,500	2.0	44.7	23.9	44.4	--
16	.5	8.2	2,800	2.1	50.5	26.3	50.2	
17	.5	8.2	2,800	2.2	53.6	27.5	53.1	--
18	.4	7.8	2,700	2.1	47.3	25.5	47.8	
19	.5	8.2	2,900	2.2	50.7	26.7	50.0	--
20	.4	7.4	2,600	2.0	46.6	24.5	44.9	
21	.4	7.4	2,400	2.0	47.0	24.1	46.7	--
22	.4	7.4	2,400	2.1	46.9	24.6	46.8	
23	.4	7.6	2,600	2.3	47.8	24.7	38.8	--
24	.3	6.0	2,100	2.0	36.7	20.3	30.0	
25	.3	5.5	1,900	1.9	34.2	18.9	26.0	--
26	.3	6.5	2,200	2.2	37.8	21.1	30.6	
27	.3	6.4	2,000	2.0	39.5	21.3	29.4	--
28	.3	6.2	2,200	2.2	36.9	21.0	27.9	
Maximum	0.6	9.9	4,000	2.6	65.8	32.3	72.9	
Minimum	.3	5.5	1,900	1.9	34.2	18.9	26.0	
Mean	.5	8.1	2,800	2.2	51.7	26.6	52.0	
Median	.5	8.1	2,750	2.2	50.6	26.3	50.4	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	5.74	6.48	8.58	6.62	2.62	3.28	2.58	--
Upper Black River (Latitude 37° 10′ 38″ Longitude 090° 47′ 28″)								
1	0.5	10.1	4,100	2.8	63.5	37.4	91.4	--
2	.5	9.0	4,000	2.3	52.2	33.4	77.0	
3	.4	8.6	4,000	2.2	48.3	35.4	72.8	--
4	.5	9.4	4,100	2.4	51.2	33.7	76.2	
5	.5	9.5	4,100	2.5	54.9	34.8	81.3	--
6	.5	9.7	4,100	2.6	55.4	35.3	82.5	
7	.5	9.4	4,100	2.4	54.8	34.7	79.4	--
8	.5	9.2	4,000	2.3	53.6	34.2	79.0	
9	.5	9.4	4,100	2.5	53.6	38.4	78.4	--
10	.5	9.5	4,100	2.7	55.3	35.1	79.9	
11	.5	9.6	4,100	2.8	58.2	36.4	82.0	--
12	.6	10.0	4,100	2.9	61.2	37.7	84.6	
13	.5	9.6	4,100	2.6	57.1	35.8	84.5	--
14	.5	9.5	4,100	2.5	56.5	35.7	86.7	
15	.5	9.5	4,100	2.5	56.1	35.7	89.8	--
16	.5	9.7	4,100	2.6	56.1	34.5	86.4	
17	.5	9.7	4,100	2.6	54.4	35.2	83.5	--
18	.5	9.2	4,000	2.5	53.2	34.2	82.1	
19	.5	9.2	4,000	2.5	54.7	34.6	86.5	--
20	.5	9.8	4,100	2.7	58.0	36.5	94.8	
21	.5	9.4	4,100	2.7	57.9	38.0	91.3	--
22	.5	8.9	4,000	2.3	52.0	33.3	79.4	
23	.5	8.9	4,000	2.3	50.1	33.7	76.6	--
24	.5	8.7	4,000	2.4	48.4	33.4	74.1	
25	.5	8.9	4,000	2.4	51.3	34.5	75.8	--
26	.5	9.4	4,100	2.5	53.4	34.6	73.7	
27	.4	9.0	4,100	2.4	50.0	34.3	71.2	--
28	.4	9.0	4,100	2.4	49.6	33.7	69.0	
29	.5	9.0	4,000	2.4	50.1	33.1	70.4	--
30	.5	9.4	4,100	2.5	52.1	35.2	77.1	
31	.5	9.3	4,100	2.4	51.3	33.0	74.2	--
32	.5	9.3	4,000	2.4	53.8	34.2	77.5	
33	.5	9.4	4,000	2.3	50.9	34.5	77.8	--
34	.5	9.0	4,000	2.3	51.6	33.8	73.5	
35	.5	9.4	4,000	2.3	54.9	34.7	79.2	--
36	.5	8.9	4,000	2.2	51.1	32.5	74.2	
37	.5	9.9	4,000	2.4	58.1	36.8	86.4	--
38	.5	10.0	4,000	2.4	59.7	37.1	85.8	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Upper Black River (Latitude 37° 10′ 38″ Longitude 090° 47′ 28″)								
39	0.5	10.2	4,100	2.4	61.6	37.0	87.9	--
40	.6	10.0	4,100	2.5	59.5	37.5	87.2	
41	.6	10.1	4,100	2.4	61.8	36.7	85.3	--
42	.6	10.1	4,100	2.4	60.4	36.4	85.5	
43	.5	9.3	4,000	2.3	55.6	34.2	78.3	--
44	.5	9.4	4,100	2.4	53.3	33.8	73.4	
45	.5	9.2	4,100	2.5	52.4	33.7	71.8	--
46	.5	9.5	4,100	2.4	55.4	35.1	75.2	
47	.5	9.5	4,100	2.5	50.9	34.6	71.2	--
48	.5	9.3	4,100	2.4	51.3	33.4	68.6	
49	.5	9.3	4,100	2.4	51.5	33.7	69.6	--
50	.4	9.0	4,100	2.6	49.0	33.5	66.6	
51	.5	9.1	3,200	2.4	54.9	34.4	76.9	--
52	.5	9.3	3,400	2.6	58.2	36.6	81.6	
53	.5	9.1	3,200	2.6	53.8	35.8	74.0	--
54	.5	9.1	3,300	2.5	52.5	34.9	71.6	
55	.5	8.8	3,100	2.4	50.1	34.1	68.0	--
56	.5	9.1	3,100	2.4	49.7	32.6	67.9	
57	.5	8.9	3,200	2.6	52.0	34.2	70.9	--
58	.5	9.4	3,400	2.5	53.1	35.6	72.7	
59	.5	9.3	3,100	2.5	54.8	36.3	75.5	--
60	.6	10.2	3,300	2.5	61.9	39.5	84.0	
61	.5	9.4	3,200	2.5	58.2	36.1	80.9	--
Maximum	0.6	10.2	4,100	2.9	63.5	39.5	94.8	
Minimum	.4	8.6	3,100	2.2	48.3	32.5	66.6	
Mean	.5	9.4	3,913	2.5	54.4	35.1	78.5	
Median	.5	9.4	4,100	2.4	53.8	34.7	77.8	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Lower Black River (Latitude 37° 09’ 54” Longitude 090° 45’ 58”)								
1	0.7	11.5	3,700	2.7	86.7	43.4	129	--
2	.7	11.4	3,700	2.8	87.4	43.5	132	
3	.7	11.5	3,400	2.9	90.6	43.7	133	--
4	.7	11.2	3,300	2.8	81.3	42.5	120	
5	.7	11.3	3,400	2.6	80.9	42.2	120	--
6	.7	11.3	3,600	2.8	80.9	42.1	120	
7	.7	11.1	3,500	2.8	79.4	41.5	118	--
8	.7	11.2	3,500	2.6	79.4	41.6	117	
9	.7	11.2	3,600	2.6	81.5	42.3	121	--
10	.7	11.2	3,600	2.6	79.2	41.7	118	
11	.7	11.3	3,600	2.7	81.0	42.3	120	--
12	.7	11.1	3,400	2.5	80.6	41.3	117	
13	.7	11.2	3,400	2.6	82.0	42.4	122	--
14	.7	11.4	3,400	2.6	82.6	42.4	121	
15	.7	11.1	3,400	2.6	83.6	42.1	122	--
16	.7	11.3	3,400	2.6	81.9	41.7	120	
17	.7	11.1	3,500	2.7	80.7	41.6	121	--
18	.7	11.0	3,500	2.7	80.6	41.1	119	
19	.7	11.2	3,800	2.8	81.2	41.4	118	--
20	.7	11.0	3,500	2.7	80.6	41.5	116	
21	.7	11.3	3,500	2.7	82.3	42.5	120	--
22	.7	10.9	3,200	2.7	80.0	41.6	116	
23	.7	11.0	3,300	2.8	79.1	41.4	113	--
24	.7	11.0	3,200	2.8	79.4	41.6	113	
25	.7	11.5	3,400	2.8	81.3	42.2	116	--
26	.7	11.4	3,400	2.7	80.8	41.7	114	
27	.7	11.3	3,500	2.8	81.3	42.2	116	--
28	.7	11.4	3,500	2.8	79.0	41.7	113	
29	.7	11.4	3,600	2.8	80.3	41.9	114	--
30	.7	11.6	3,700	2.8	81.8	42.3	116	
31	.7	11.1	3,400	2.6	82.6	41.6	117	--
32	.7	11.1	3,200	2.6	80.6	40.8	114	
33	.7	11.1	3,400	2.7	82.0	41.2	115	--
34	.7	11.4	3,400	2.7	82.1	41.5	112	
35	.7	11.1	3,700	2.8	81.2	41.3	112	--
36	.7	11.1	3,300	2.7	82.0	40.9	111	
37	.7	11.2	3,500	2.8	83.8	41.8	115	--
38	.7	11.0	3,400	2.8	83.4	41.2	112	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Lower Black River (Latitude 37° 09’ 54” Longitude 090° 45’ 58”)—Continued								
39	0.7	11.2	3,500	2.8	80.7	41.1	109	--
40	.7	11.2	3,500	2.8	79.7	40.2	107	
41	.7	11.0	3,600	2.7	80.9	40.6	110	--
42	.7	11.1	3,700	2.7	80.6	40.6	111	
43	.6	9.5	3,100	2.3	62.9	30.6	69.5	
44	.7	10.8	3,400	2.6	76.5	39.1	104	
45	.7	10.4	3,400	2.6	73.4	38.6	99.9	
46	.6	10.5	3,400	2.6	71.8	38.5	99.2	
47	.6	10.6	3,800	2.6	74.0	39.4	101	--
48	.7	10.6	3,500	2.7	73.6	39.7	99.6	
49	.7	10.9	4,000	2.7	73.1	39.3	96.4	--
50	.6	10.7	3,800	2.7	74.6	40.2	97.0	
51	.7	11.2	3,900	2.8	79.0	46.6	105	--
52	.7	11.2	3,800	2.8	77.2	48.9	102	
53	.7	11.2	3,700	2.8	78.3	45.5	102	1964
54	.7	11.1	3,400	2.7	79.2	44.5	106	
Maximum	0.7	11.6	4,000	2.9	90.6	48.9	133	
Minimum	.6	9.5	3,100	2.3	62.9	30.6	69.5	
Mean	.7	11.1	3,506	2.7	80.0	41.6	113	
Median	.7	11.2	3,500	2.7	80.7	41.6	115	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Marina (Latitude 37° 08′ 27″ Longitude 090° 46′ 14″)								
1	0.7	12.5	3,800	3.0	89.1	45.4	169	--
2	.8	12.5	4,100	3.0	99.6	51.7	165	
3	.8	12.7	4,200	3.5	105.0	54.4	232	--
4	.8	12.6	4,100	3.5	104.0	53.8	178	
5	.9	13.2	4,200	3.4	109.0	57.1	171	--
6	.8	12.7	4,200	3.3	105.0	53.0	186	
7	.8	12.7	4,200	3.2	102.0	54.6	186	--
8	.8	12.6	4,200	3.2	100.0	53.5	176	
9	.8	12.6	4,100	3.1	98.2	53.6	152	--
10	.8	12.6	4,100	3.0	97.4	52.7	166	
11	.8	12.6	4,200	3.1	97.5	52.4	145	--
12	.8	12.4	4,100	3.1	98.3	53.9	144	
13	.8	12.6	4,100	3.0	98.5	53.5	145	--
14	.8	12.8	4,200	3.1	100.0	54.3	144	
15	.9	13.1	4,200	3.2	102.0	55.2	145	--
16	.9	13.2	4,200	3.3	105.0	55.5	148	
17	.9	13.0	4,200	3.3	106.0	57.1	151	--
18	.9	13.7	4,200	3.4	105.0	56.5	148	
19	.9	13.4	4,200	3.4	104.0	56.2	147	--
20	.9	13.3	4,200	3.3	104.0	56.1	142	
21	.9	13.3	4,200	3.4	106.0	57.2	145	--
22	.9	12.9	4,200	3.3	103.0	55.3	140	
23	.9	13.0	4,200	3.3	102.0	55.6	140	--
24	.9	13.0	4,200	3.4	103.0	55.8	140	
25	.9	13.0	4,100	3.4	101.0	54.9	137	--
26	.8	11.3	4,000	2.8	91.7	48.6	126	
27	.8	11.5	4,000	2.8	94.5	49.5	130	--
28	.8	11.7	4,100	2.9	96.0	50.0	128	
29	.8	11.7	4,100	2.9	96.2	51.1	132	--
30	.8	12.3	4,100	3.1	97.5	52.2	130	
31	.8	12.1	4,100	3.0	97.0	52.4	131	--
32	.8	12.3	4,100	3.0	96.6	52.5	132	
33	.9	12.5	4,100	3.3	99.1	52.1	132	--
34	.9	12.5	4,100	3.3	102.0	53.1	134	
35	.9	12.7	4,200	3.4	102.0	54.5	136	--
36	.9	12.9	4,200	3.6	103.0	55.9	139	
37	.9	13.1	4,200	3.5	104.0	55.6	139	--
38	.9	13.0	4,200	3.4	102.0	52.3	131	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Marina (Latitude 37° 08’ 27” Longitude 090° 46’ 14”)—Continued								
39	0.9	12.9	4,100	3.4	103.0	51.7	130	--
40	.9	12.7	4,200	3.3	101.0	50.6	126	
41	.9	12.7	4,200	3.4	101.0	51.0	126	--
42	.9	13.1	4,200	3.5	101.0	51.4	124	
43	.9	12.8	4,200	3.5	101.0	51.5	123	--
44	.9	12.8	4,200	3.4	100.0	53.5	127	
45	.8	12.4	4,100	3.2	96.2	52.2	131	--
46	.8	11.4	4,100	3.1	89.2	46.5	116	
47	.8	11.6	4,200	3.0	91.3	47.8	118	--
48	.8	11.4	4,100	2.9	89.2	46.8	115	
49	.8	12.0	4,100	2.9	93.4	49.1	120	--
50	.8	12.0	4,100	3.0	95.3	49.4	122	
51	.8	11.6	3,500	2.8	98.9	44.0	128	--
52	.8	11.7	3,600	2.9	99.4	45.1	129	
53	.8	11.5	3,600	3.0	101.0	47.0	129	--
54	.8	11.9	3,900	3.0	103.0	49.0	135	
55	.8	11.5	3,800	3.0	99.2	45.1	127	--
56	.8	10.9	3,500	2.8	93.3	43.0	122	
57	.8	11.9	3,600	3.0	97.1	45.8	127	--
58	.8	12.0	3,800	3.0	98.8	46.4	129	
59	.8	12.2	3,800	3.1	102.0	45.5	136	--
60	.9	12.3	3,900	3.2	109.0	46.9	160	
61	.9	12.4	3,700	3.3	111.0	48.0	164	--
Maximum	0.9	13.7	4,200	3.6	111.0	57.2	232	
Minimum	.7	10.9	3,500	2.8	89.1	43.0	115	
Mean	.8	12.4	4,064	3.2	100.0	51.6	141	
Median	.8	12.6	4,100	3.2	101.0	52.3	136	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	5.74	6.48	8.58	6.62	2.62	3.28	2.58	--
Clearwater Dam (Latitude 37° 08’ 19” Longitude 090° 46’ 47”)								
1	0.9	13.1	4,000	3.3	115.0	45.3	154	2000
2	.9	13.1	3,900	3.2	114.0	46.2	152	
3	.9	13.0	4,100	3.1	113.0	46.4	147	1999
4	.9	13.0	4,100	3.1	112.0	45.3	144	
5	.9	13.2	4,200	3.1	112.0	46.9	145	1996
6	.9	13.1	4,300	3.1	112.0	46.4	143	
7	.9	13.2	4,000	3.1	111.0	46.2	143	1993
8	.9	13.2	3,900	3.1	112.0	45.5	142	
9	.9	13.1	3,900	3.1	111.0	45.0	140	1991
10	.9	13.2	4,000	3.2	113.0	44.6	138	
11	.9	13.1	4,000	3.2	110.0	44.2	135	1987
12	.9	13.1	4,000	3.3	112.0	45.1	136	
13	.9	13.5	4,400	3.4	113.0	45.3	136	1984
14	.9	13.5	4,200	3.4	115.0	46.8	139	
15	.9	13.9	4,200	3.5	118.0	46.8	142	1981
16	1.0	13.7	4,200	3.4	117.0	47.0	141	
17	.9	13.5	4,100	3.4	113.0	45.2	137	1978
18	1.0	13.6	4,100	3.4	116.0	45.6	139	
19	1.0	14.0	4,300	3.6	116.0	47.0	142	1975
20	1.0	13.7	4,200	3.5	115.0	46.9	137	
21	.9	13.8	4,600	3.6	113.0	47.2	136	1972
22	1.0	13.4	4,000	3.2	113.0	45.4	137	
23	1.0	13.6	4,000	3.2	113.0	45.3	137	1970
24	1.0	13.7	4,000	3.5	114.0	46.1	140	
25	1.0	13.7	4,100	3.5	116.0	47.8	141	1967
26	1.0	13.6	4,200	3.4	113.0	47.2	136	
27	.9	12.6	4,000	3.2	104.0	51.4	117	1965
28	.9	12.7	4,200	3.3	105.0	51.2	114	
29	.9	12.6	4,300	3.2	103.0	51.5	113	1962
30	.9	12.9	4,300	3.3	104.0	50.9	113	
31	.9	12.3	4,100	3.2	103.0	50.3	112	1960
32	.9	12.2	4,100	3.1	100.0	48.6	108	
33	.9	12.0	3,800	3.1	98.4	48.9	109	1958
34	.9	12.3	4,100	3.2	101.0	49.5	109	
35	.9	12.2	4,200	3.2	98.2	48.7	105	1956
36	.8	12.0	3,800	3.0	94.5	50.9	100	
37	.8	11.9	3,800	3.0	93.6	47.0	99.6	1954
38	.8	11.9	4,200	3.1	94.6	47.7	99.7	

Table 1. Quantitative elemental analyses of less than 63-micrometer fraction and lead-210 date of Clearwater Lake bed-sediment samples.—Continued

[All concentrations in milligrams per kilogram; RSD, relative standard deviation; °, degrees; ’, minutes; ”, seconds; <, less than; shaded cells exceed threshold effects concentration; --, no data]

Depth below lakebed surface, (centimeters)	Thallium	Thorium	Titanium	Uranium	Vanadium	Yttrium	Zinc	Lead-210 date
RSD (percent)	**5.74**	**6.48**	**8.58**	**6.62**	**2.62**	**3.28**	**2.58**	**--**
Clearwater Dam (Latitude 37° 08’ 19” Longitude 090° 46’ 47”)—Continued								
39	.8	11.8	4,200	3.0	89.7	46.0	94.6	1953
40	.7	11.5	4,100	3.0	87.3	46.3	92.3	
41	.8	11.6	4,400	3.2	86.9	46.0	91.4	1953
42	.8	11.2	4,000	2.9	87.2	43.3	91.3	
43	.7	11.1	3,600	2.9	83.8	47.4	87.3	1952
44	.7	11.0	3,600	2.8	82.5	42.9	87.0	
45	.7	11.3	4,000	3.0	85.7	48.2	90.6	1952
46	.8	11.4	4,000	3.0	87.1	45.4	91.4	
47	.8	11.2	3,800	3.1	87.2	45.0	91.2	1952
48	.8	11.4	3,700	3.0	86.3	45.0	90.9	
49	.7	11.0	3,700	3.1	81.3	42.3	84.8	1951
50	.7	11.0	3,900	3.0	83.1	43.6	84.7	
51	.8	11.3	4,100	3.0	91.1	45.6	93.2	1951
52	.8	11.3	3,800	3.3	90.7	44.6	88.6	
53	.8	11.3	3,800	3.2	89.6	45.7	97.1	1947
54	.5	7.9	2,800	2.5	54.1	29.8	57.3	
Maximum	1.0	14.0	4,600	3.6	118.0	51.5	154	
Minimum	.5	7.9	2,800	2.5	54.1	29.8	57.3	
Mean	.9	12.5	4,026	3.2	101.9	46.3	118	
Median	.9	12.8	4,050	3.2	104.5	46.2	116	