Geochemical and sedimentological evidence of paleoclimatic change in a late Holocene freeze core record from Walsh Lake, Northwest Territories

by

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Abstract

Climate warming in high-latitude northern environments has the potential to alter cycling of redox-sensitive elements such as arsenic (As) in lacustrine systems (MacDonald et al., 2005). The region around Yellowknife, Northwest Territories (NT), is impacted by widespread As contamination from historical gold mining and mineral processing (Jamieson, 2014). This thesis examines the past response of sediment geochemistry within Walsh Lake, NT, to paleoenvironmental changes in order to inform future mine remediation planning. Grain size, elemental geochemistry, and organic matter (OM) data preserved in an ~1100-year sedimentary freeze core record were analysed. Results suggest that (1) the cycling of trace metals (Cd, Cu, Pb, Sn, Zn) is tied to OM production and sequestration; (2) As sequestration depends on Fe and Mn (oxy)hydroxides; and (3) shifts in sediment geochemistry coincide with the Medieval Climate Anomaly and the Little Ice Age, suggesting that these climate events affected trace metal mobility in Walsh Lake.

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1. Introduction

High-latitude northern environments are warming at a rate roughly three times greater than the global average due to positive feedback mechanisms (Holland & Bitz, 2003; Bush & Lemmen, 2019). Northern climate warming is resulting in changes to regional hydrology and ecology. In particular, Arctic and subarctic lakes are being affected by the general patterns of increased precipitation, a change in the seasonality of precipitation from snow to rain, thawing of permafrost, longer ice-free seasons, and higher ecosystem productivity (Smol et al., 2005; Henry et al., 2012; DeBeer et al., 2016; Mullan et al., 2017; Bush & Lemmen, 2019). These climatic and associated environmental changes influence chemical cycling in northern lakes (MacDonald et al., 2005; Galloway et al., 2018; Miller et al., 2019, 2020; Palmer et al., 2019). For example, longer ice-free seasons and higher temperatures will result in higher lake productivity and thus higher oxygen demand. This may lead to the re-mobilization of redox-sensitive elements of potential environmental and health concern, such as arsenic (As), from sediment to surface waters (MacDonald et al., 2005; Gavel et al., 2018; Palmer et al., 2019).

Proxies in sediment cores can provide a record of a lake's past ecological conditions and the climate in which it existed. This information may reveal dominant climate cycles controlling the region, the response of contaminants to climate change, and the impacts of climate change on lake ecology. In northern environments, sediment accumulation rates are often low because of the short ice-free seasons and lower biological productivity relative to lower-latitude lakes: a single millimeter of sediment accumulation may archive several years of paleoenvironmental information (Crann et al., 2015). In these lakes, freeze coring is a useful method that can prevent homogenization of the often-unconsolidated uppermost sediments, particularly the sediment-water interface (SWI), which may be disturbed during conventional gravity-coring. As the uppermost interval of sediment accumulation may encapsulate the entirety of anthropogenic impact, it is critical that this interval be captured intact (Crusius & Anderson, 1991).

1.1 Objectives

The Yellowknife area, contaminated by 20th century gold mineral processing, is being actively explored in support of future mining activity. Modern-day baseline and pre-mining background levels for elements in lake sediments are needed to accurately differentiate the impacts of climate variability from those related to land-use changes and mining. Such information is important to mine operators in the development of sustainable mining and remediation planning. To accurately predict the effects of current and forecasted climate change on geochemical processes in high northern latitude lakes, an analogue approach may be used (Macdonald et al., 2005). This approach will provide insight into climate-related controls on contaminant mobility and fate in these environments

The primary objective of this thesis research is to develop a paleoclimate reconstruction based on analysis of an ~1100 year record preserved in sedimentary freeze core WAL19-2FT-HA (abbreviated to WAL19) collected from Walsh Lake, Northwest Territories (NT). New knowledge on how climate change has, and will, impact sedimentary geochemistry will be achieved through analysis and interpretation of grain size, elemental geochemistry, and organic matter (OM) data preserved in WAL19. The impact of mining activities in the area on sediment geochemistry will also be examined.

1.2 Legacy of gold mining

Gold mining has been an important industry in the NT since the opening of the Con (1938-2003) and Giant (1948-2005) mines. Gold ore deposits at the Giant Mine, and to a lesser extent at the Con Mine, were generally associated with As-bearing pyrite and arsenopyrite, which interfered with the gold mining process of cyanide extraction. To solve this issue, the ore was roasted, forming arsenic trioxide (As_2O_3) and sulfur dioxide (SO_2) as by-products (Hocking et al., 1978). This process was used at the Giant Mine — most of the refractory ore from the Con Mine was roasted at the Giant Mine — from 1948 to 1970 (Hocking et al., 1978) and resulted in the release of an estimated 20,000 tonnes of As_2O_3 through stack emissions into the surrounding environment (Hocking et al., 1978; Jamieson, 2014). The majority of emissions occurred during the first decade of mineral processing prior to the installation of emission mitigation measures in 1958 (Hocking et al., 1978).

Winds out of the southeast predominate in this region and have played an important role in the dispersal of airborne As, Sb, and Pb, derived from roaster stack emissions (Galloway et al., 2012, 2015, 2018; Palmer et al., 2015; Nasser et al., 2016; Pelletier et al., 2010; Jasiak et al., 2021). Concentrations of inorganic As in the upper sediments of Pocket Lake, immediately downwind from the former Giant Mine roaster stack, were found to exceed 30,000 ppm (Thienpont et al., 2016). Within 11 km downwind of the Giant Mine, Galloway et al. (2018) found As concentrations in excess of 10,000 ppm in near-surface lake sediments shown to contain As_2O_3. Lake sediments as far as ~20 km downwind of the mine still have levels of As up to 905 ppm (Nasser et al., 2020). Similarly, As, Sb, and SO_4 levels in surface waters are elevated in lakes up to 17.5 km downwind from the Giant Mine, relative to lakes that were further away (Palmer et al., 2015).

Antimony, Cu, Pb, and Zn have also been associated with mine tailings in the area (Jamieson, 2014). These elements have entered nearby water bodies (e.g., Yellowknife Bay, Frame Lake) from tailings and were remobilized into sediments at concentrations far exceeding Canadian Council of Ministers of the Environment (CCME) interim sediment quality guidelines (ISQG) and probable effect levels (PEL) (CCME, 1999; Andrade et al., 2010; Galloway et al., 2012; Galloway et al., 2015; Chételat et al., 2019; Menard et al., 2019). The pre-mining background levels of As in lake sediments of the Yellowknife area are established to be between 20 and 30 ppm due to elevated As in bedrock geology and derived surficial materials (Galloway et al., 2015, 2018).

Arsenic trioxide is one of the most bioaccessible and toxic forms of As (Plumlee & Morman, 2011). Levels of As and other metals have been measured in fish (Falk et al., 1973; de Rosemond et al., 2008; Chételat et al., 2019; GNWT, 2021), soils (Hutchinson et al., 1982; Risklogic, 2002; Golder Associates Ltd., 2005; St-Onge, 2007; Wrye, 2008; GNWT, 2021), and vegetation (Hutchinson et al., 1982; Koch et al., 1999; St-Onge, 2007) near Yellowknife and were found to be elevated relative to the rest of the country. Members of the Dene First Nation have documented illness and death of domestic animals, and in 1951 a child died from As poisoning near the mines (Sandlos & Keeling, 2016). Arsenic trioxide, despite being highly soluble, persists in lake sediments of the Yellowknife area (Galloway et al., 2018; Schuh et al., 2018, 2019; Van Den Berghe et al., 2018).

Because the former owners of the Giant Mine went into receivership, the cleanup of the Giant Mine site (estimated at close to $1 billion) is now the responsibility of the federal and territorial governments. The NT Mine Site Reclamation Policy (MSRP) was passed in 2002 to protect taxpayers from a reoccurrence of this situation. This legislation requires mining companies to submit a mine closure and reclamation plan prior to beginning operations within Canada, detailing the mine site's restoration at the end of operations (AANDC, 2002). Identifying a geochemical baseline and pre-mining background for establishment of remediation guidelines in this region is complicated by the legacy contamination from pre-2002 mining operations, as well as the natural geogenic background of metal(loid)s that are higher than national averages (Galloway et al., 2015).

1.3 Controls on sediment geochemistry

The speciation of As in lacustrine environments is controlled by pH and redox conditions, which affect the mobility and speciation of As and its association with Fe, Mn, OM, and sulphides (Martin & Pedersen, 2002; Smedley & Kinniburgh, 2002; Couture et al., 2010). Under oxidizing conditions, inorganic As sorbs onto Fe and Mn (oxy)hydroxides in the form of arsenate (As(V)); under reducing conditions, dissolution of these (oxy)hydroxide minerals releases inorganic arsenic as arsenite (As(III)) into sediment pore waters (Belzile & Tessier, 1990; Martin & Pedersen, 2002; Palmer et al., 2019). In this water-soluble and bioavailable form, it can then diffuse back to the surface waters or precipitate in the oxic surface sediments within As-bearing secondary minerals, including Fe and Mn (oxy)hydroxides (Van Den Berghe et al., 2018). In the presence of reduced sulfur, it may also precipitate as realgar (AsS) (Schuh et al., 2018). Two As peaks may therefore be observed in sediment cores: a primary peak from the time of deposition, and a secondary peak from remobilization (Martin & Pedersen, 2002; Andrade et al., 2010; Gavel et al., 2018; Schuh et al., 2018). As a result, the absolute concentration of As over time in these systems cannot be reliably measured using sediment geochemistry, but the general trends may be understood (MacDonald et al., 2005; Gregory, 2019).

Factors including lake circulation, temperature, biological productivity, and microbial activity must be considered when examining lacustrine redox conditions (Toevs et al., 2006). Input of OM to the lake bottom results in aerobic decomposition, eventually depleting the dissolved oxygen content at the SWI (Martin & Pedersen, 2002). Increased OM production and microbial activity are expected to occur due to climate warming. Greater OM loading would result in faster oxygen depletion during the summer, as well as under ice in the winter (Palmer et al., 2019; Gregory et al., 2021). In the subarctic, lakes may be covered by ice for up to half the year, which can also have an important influence on their geochemistry. If lake ice prevents oxygen input from the atmosphere or from inlets, anoxic conditions may develop as winter progresses (Palmer et al., 2021). This creates under-ice reducing conditions, which result in an increase in dissolved arsenite, Fe, and Mn in the water column; As may therefore be annually and perpetually remobilized from sediments due to seasonal changes in redox conditions (Palmer et al., 2019).

Organic matter is linked to As mobility in sediments (e.g., Wang & Mulligan, 2006), but its role may vary depending on the geochemical setting of the lake. Galloway et al. (2018) found that labile organic matter (S1) may act as a surface for microbial growth that mediates authigenic precipitation of As-bearing sulphide minerals. A positive correlation would therefore be expected between As and S1 in sediments. While Miller et al. (2019) found evidence to support this, they also noted instances in which increased OM resulted in competition for sorption onto mineral surfaces. A negative relationship between As and S1 was observed in lakes where As was hosted primarily by Fe and Mn (oxy)hydroxides in oxygenated conditions (Miller et al., 2019). Arsenic speciation and the interactions between As and OM may also be influenced by water depth, as fine-grained particles that tend to concentrate As and other elements generally accumulate in deeper areas (Blais & Kalff, 1995; Schuh et al., 2019).

1.4 Regional paleoclimate

Several paleoclimate reconstructions have been built for the Yellowknife area and are based on a variety of proxies. Pollen records from across northern Canada indicate that both summer and winter temperature and precipitation patterns were influenced by the Medieval Climate Anomaly (MCA; 1000 years before present [BP]) followed by the Little Ice Age (LIA; 500 BP) (Viau & Gajewski, 2008; Pisaric et al., 2009; Muise, 2013; Sulphur et al., 2016; Thienpont et al., 2016; Dalton et al., 2018; Macumber et al., 2018; Gregory et al., 2021; Hamilton et al., 2021). The onset of these influences is seen slightly earlier in northwestern Canada compared to the rest of the country (Viau & Gajewski, 2009). Pisaric et al. (2009) produced a reconstruction of summer precipitation for the Yellowknife region using twelve jack pine tree-ring chronologies. While this reconstruction is only robust from 1819 CE to present, it shows that Pacific sea-surface temperature exerts an important control on precipitation patterns in Yellowknife for this time period. In particular, June precipitation reflected changes in phase of the Pacific Decadal Oscillation (PDO) Index from 1679 to 2005. Muise (2013) identified similar trends using ten white spruce tree-ring chronologies.

Late Holocene paleoclimate in the NT has been reconstructed using proxies in sediment cores from subarctic lakes (e.g., Thienpont et al., 2016; Dalton et al., 2018; Gregory et al., 2021; Hamilton et al., 2021). The work of Thienpont et al. (2016) and Hamilton et al. (2021) took place at Pocket Lake, immediately adjacent to the former Giant Mine. Hamilton et al. (2021) used diatoms and sediment geochemistry to identify five major climatic periods between ca. 2800 cal

BP and present: the Iron Age Cold Epoch, Roman Warm Period, Dark Age Cold Period, MCA, and LIA. Similarly, Thienpont et al. (2016) used diatoms and sediment geochemistry to examine the effects of the Giant Mine on the lake biota, which were found to be extensive. Both studies, particularly Hamilton et al. (2021), observed downcore migration of mining-derived As and Sb. High-resolution studies by Dalton et al. (2018) and Gregory et al. (2021) used time-series analysis to identify the dominant climate cycles that influenced the climate of the region over the last ~3300 years. Both studies associated changes in sediment core proxies (diatoms, sediment geochemistry, and grain size) with the Suess and Gleissberg sunspot cycles and the PDO.

2. Study Site

Walsh Lake is an oligotrophic subarctic lake located approximately 12 km north of Yellowknife, NT (Figure 1). Water inflow is from nearby wetlands, lakes and ponds, the largest of which are Banting, Jackson, and Vee lakes. It has one outlet at its southernmost point, draining into the Yellowknife River, which then flows into Yellowknife Bay of Great Slave Lake. Walsh Lake's surface area is 877 ha and the average depth is 8.8 m (Hutchinson Environmental Sciences Limited, 2021), though depth at the coring location was 23.5 m. Moore et al. (1978) found that dissolved oxygen concentrations in the lake were near saturation at water depths of up to 15 m year-round. Elevations in the immediate vicinity of Walsh Lake range from 190 to 240 m ASL, while the lake itself is at 190 m ASL.

Walsh Lake lies within the Great Slave Lowlands High Boreal ecoregion in the Taiga Shield ecozone (Ecosystem Classification Group, 2008). Vegetation consists of open to dense forests of trembling aspen, balsam poplar, paper birch, jack pine, white spruce, and black spruce. Streams and rivers are generally shallow, and low-lying areas support marshes, fens, and peat bogs (Kerr & Wilson, 2000). The climate is sub-humid, with an average summer temperature of 11°C and average winter temperature of -21.5°C. Mean annual precipitation ranges from 200 to 375 mm, about equal parts snow and rain; the wettest period is June through to November (Ecosystem Classification Group, 2008).

During the Late Wisconsin glaciation, the Yellowknife region was covered by the Laurentide Ice Sheet. This persisted until about 11,000 years BP, and the area has been ice-free since about 10,000 BP (Dyke & Prest, 1987). Lake morphology in the region is strongly influenced by bedrock structure; many small, elongated lakes were formed by glacial scouring along faults and joints (Kerr & Wilson, 2000). Depressions between outcrops are filled by glaciolacustrine sediments from glacial Lake McConnell as well as till (Kerr & Wilson, 2000). Soils, where present, are shallow; about a third of the land is bare rock (Hocking et al., 1978; Kerr & Wilson, 2000).

Walsh Lake is situated within the Yellowknife Greenstone Belt in the southwest of the Slave Geological Province. The Yellowknife Greenstone Belt is composed of Archean metavolcanic and metasedimentary rocks intruded by younger granitoids (Kerr & Wilson, 2000). These include the mafic Kam Group (west of Walsh Lake) and the overlying felsic Banting Group (west, south, and east of Walsh Lake). Sedimentary formations include the Burwash Formation (east of the Banting Group) and the Walsh Formation (north of Walsh Lake), both of which are composed of greywacke and mudstone turbidites. North of Walsh Lake are conglomerates and sandstone of the Jackson Lake Formation (Jenner et al., 1981; Helmstaedt & Padgham, 1986; Cousens, 2000; Cousens et al., 2002). Arsenic concentrations in the bedrock (mean = 5 ppm) (Galloway et al., 2015) are naturally elevated compared to the global estimation of ~2.0 ppm (Wedepohl, 1995), and As in glacial till deposits around Yellowknife is usually found at concentrations of 5 to 30 ppm (Kerr, 2006). Natural (geogenic) background As concentrations in regional lake sediments has been estimated at 20 – 30 ppm by Galloway et al. (2015) based on a review of existing literature and a spatial survey of near-surface sediments for 196 lakes in the Yellowknife area and the surrounding regions. This estimate is greater than the CCME ISQG of 5.9 ppm and the PEL of 17 ppm (CCME, 1999).

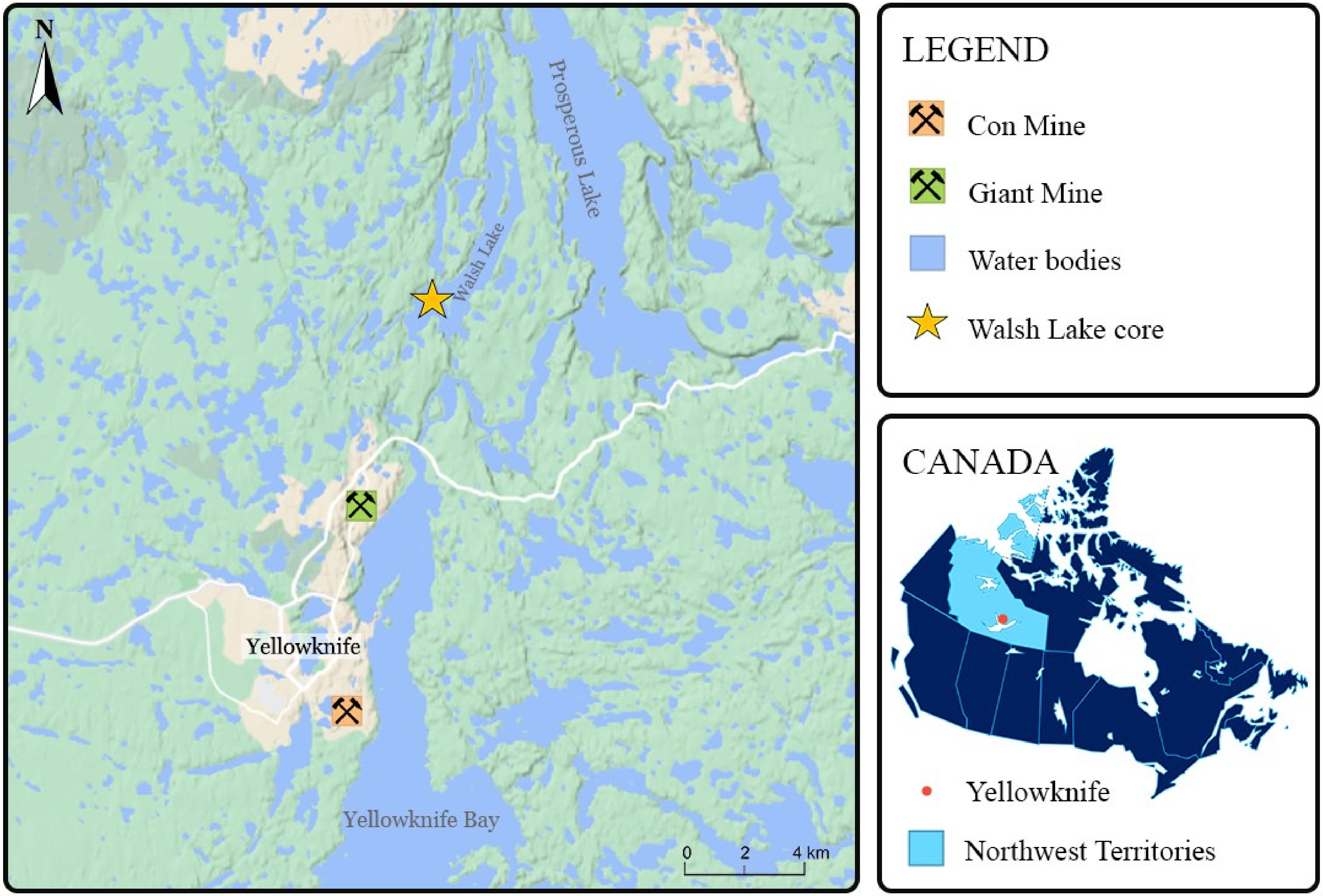

Figure 1. Map of the coring location (6939963N, 0638074E), Yellowknife, and major mine sites.

3. Methodology

3.1 Core collection and sub-sampling

The WAL19 sedimentary freeze core was collected from the southwestern end of Walsh Lake in March 2019 at 6939963N and 0638074E (NAD83) using a two-faced aluminum freeze corer lowered through a hole augured in the lake ice. The core was taken approximately 10 m from the Walsh Lake winter road at a water depth of 23.5 m. Five other freeze cores were collected from Walsh Lake and its Debauchery Bay for use in other research projects. After their collection, the cores were stored at sub-zero temperature and transported to a cold storage facility at Carleton University. One face (Face 1) of the two-faced WAL19 freeze core was sub-sampled in a cool room at 4°C and the other (Face 2) was sub-sampled at room temperature.

The WAL19 freeze core is 96 cm long. Face 1 is missing 6.3 cm at its top compared to Face 2. The SWI of Face 2 was therefore used as a zero-depth reference for all data. A thin (approximately 1 mm thick) white-coloured sediment horizon occurs at 89 cm in the core. This layer is interpreted to be the White River Ash eastern lobe (WRAe) tephra deposit, which was deposited in 1100 – 1117 cal BP (Jensen, et al., 2014) and which was observed in Pocket Lake, 6.5 km southwest of Walsh Lake (Patterson, et al., 2017). X-rays of the core show a denser layer corresponding to the WRAe deposit, as well as very fine laminae throughout most of the core (see **Appendix A**).

Face 1 of the WAL19 core was sub-sampled at mm-resolution using a sledge microtome as previously described in detail by Macumber et al. (2011). Grain size analysis was carried out on all 895 of the sub-samples obtained from this face. Face 2 of the core was sub-sampled at 0.5 cm-resolution using a ceramic knife. Of the 189 sub-samples, 38 were subjected to geochemical analysis (with four sets of triplicates), 100 to sequential programmed pyrolysis using HAWK, and 12 to radiocarbon dating.

3.2 Laboratory analyses

A Beckman Coulter LS 13 320 laser diffraction particle size analyzer with a universal liquid module was used to conduct grain size analysis of Face 1 sediments recovered from Walsh Lake. Prior to analysis, all sub-samples were pre-treated with 5 ml of 10% v/v hydrochloric acid (HCl) to remove carbonates, 5 ml of 10% v/v hydrogen peroxide (H_2O_2), and twice with 15 ml of 30% v/v H_2O_2, to remove OM. Between each treatment, samples were left in 70°C water baths overnight to react, then the solution was diluted, centrifuged, and decanted. During analysis, each sub-sample was loaded at 10% obscuration (± 3%) and analyzed in triplicate. An accuracy standard, Garnet15 (mean diameter = 15 µm) from Beckman Coulter, was used at the beginning of each month. Average relative percent error (RPE) was 2.19% (n = 3). Results comprise of down-core mm-scale grain size data that range from 0.375 to 2000 µm, spanning depths between 6.3 cm and 96 cm (see **Appendix B**). Particle size statistics were calculated and summarized using GRADISTAT v9.1 (Blott & Pye, 2001).

At Acme Analytical Laboratories (Bureau Veritas, Vancouver), geochemical analysis was carried out using inductively coupled plasma mass spectrometry (ICP-MS; **Appendix B**). First, sub-samples were dried at 60°C and screened to −180 µm (−80 mesh ASTM). They were then digested using a modified *aqua regia* treatment of HNO_3–HCl–H_2O (1:1:1) and analysed using ICP-MS (AQ250-EXT package). *Aqua regia* treatment was chosen instead of full (multi-acid) digestion as the latter uses high temperatures that result in the loss of As via volatilization (Parsons et al., 2019). Fifty samples were analyzed from depths between 12 cm and 91 cm: the limited material above 12 cm and below 91 cm was reserved for HAWK pyrolysis. Of the 50 samples analyzed, 38 were unique and 12 were triplicates (at four depth horizons). In addition, two pulp duplicates were run to ensure analytical precision; mean relative percent difference (RPD) for all elements of interest (those included in Table 2) is 5.19% (max = 41.67%, min = 0%, n = 92), and mean RPD for As is 0.82% (n = 2). Three standard reference materials (STD BVGEO01 $n = 1$, STD DS11 $n = 1$, and STD OREAS262 $n = 2$) were run to ensure analytical accuracy. Average RPE for all elements of interest is 7.30% (max = 24.62%, min = 1.90%, n = 184), while the average RPE for As is 4.24% (n = 4). On the two blanks that were analyzed, no elements were detectable other than 0.02 ppm of Pb (minimum method detection limit [MDL] = 0.01 ppm) in one run and 0.1 ppm of As (minimum MDL = 0.1 ppm) in the other. It should be noted that phosphorous may interfere with ICP-MS measurements of Hg, leading to inaccurate results; the preferred alternatives for Hg analysis (cold vapor atomic absorption spectrometry or thermal decomposition) were not used.

Sequential programmed pyrolysis using HAWK was completed at AGAT Laboratories (Calgary) to determine OM type and quantity (**Appendix B**). This method involves the heating of OM under an inert (helium) atmosphere to break it down into simpler, more easily identifiable components. During pyrolysis, the temperature is held at 300°C, causing S1 to volatilize. This fraction represents the labile OM that, in sediment, are derived primarily from autochthonous OM (Carrie et al., 2012). Temperature is then increased at a rate of 25°C per minute to 650°C, during which period S2 is volatilized. The kerogen-derived hydrocarbons of the S2 fraction are released by the thermal cracking of larger organic molecules. In sediment, S2 generally corresponds to the highly aliphatic biomacromolecule structure of algal cell walls and other aquatic OM (Sanei et al., 2005; Carrie et al., 2012). S3 is detected during pyrolysis between

300°C and 400°C; this is the CO_2 released from oxygen-containing organic molecules. The S3 fraction is usually derived from carbohydrates, lignins, and terrigenous plant matter (Carrie et al., 2012). Finally, the sum of all carbon released during pyrolysis and oxidation is the total organic carbon (TOC; wt. %) content. One hundred samples were analyzed with HAWK pyrolysis between depths of 0.5 cm and 96 cm.

3.3 Geochronology

The WAL19 freeze core was sub-sampled for accelerator mass spectrometry (AMS) ^{14}C dating of bulk organics (2 ml × 12 depth horizons) using a ceramic knife and stainless-steel instruments that were cleaned with isopropyl alcohol and distilled water after each sub-sample. Bulk sediment samples were submitted to the A. E. Lalonde AMS Laboratory at the University of Ottawa for radiocarbon dating, where they were pre-treated with an HCl acid wash to remove carbonate material (Crann et al. 2017; see Table 1). All radiocarbon dates were calibrated using Bayesian Age Calibration (Bacon) package v2.5.5 in RStudio (Blaauw & Christen, 2011). Dates from before 1950 CE (pre-bomb dates) were calibrated using the IntCal20 calibration curve (Reimer et al., 2020), while dates from after 1950 CE used the post-bomb NH1 calibration curve (Hua et al., 2013).

The WRAe tephra layer, with a known deposition of 1100 – 1117 cal BP (Jensen et al., 2014; Patterson et al., 2017), was used to establish a freshwater reservoir effect (FRE) of about 350 ^{14}C years for WAL19. This was applied only to pre-bomb dates prior to calibration, as a pre-bomb FRE is not directly translatable to post-bomb (modern) sediments (Philippsen, 2013). Age-depth relationships were then modelled using Bacon v2.5.5 in RStudio (Blaauw & Christen, 2011). The default accumulation shape of 1.5 suggested by Blaauw and Christen (2011) was used, and an accumulation mean of 11.5 yr/cm (rounded to 10 yr/cm by Bacon) was calculated for WAL19. Compared to the normal range for boreal settings (20 yr/cm ±10) found by Crann et al. (2015), this is a relatively fast accumulation rate. Memory parameters were chosen based on the lakes example provided by Blaauw and Christen (2011): 20 (memory strength) and 0.1 (memory mean).

Table 1. Accelerator Mass Spectrometry radiocarbon dates for WAL19. Calibrated years before present (cal BP) is the calibrated age of the sample, measured in years before 1950 CE. Ages after 1950 CE are negative, so are given in calibrated years CE (cal CE) for ease of interpretation. Analyses completed at A. E. Lalonde AMS Laboratory, University of Ottawa.

Lab ID	Depth (cm)	Material	^{14}C yr BP	±	$F^{14}C$	±	cal BP*
UOC-11900	0-1	Bulk OM	> Modern	25	1.0518	0.0033	1956-1957 (5.5%) calCE 2006-2009 (89.9%) calCE
UOC-12993	4.5-5	Bulk OM	> Modern	35	1.0608	0.0039	1956-1957 (1.9%) calCE > 2005 (93.6%) calCE
UOC-11901	6-6.5	Bulk OM	> Modern	26	1.0655	0.0034	1956-1957 (2.5%) calCE 2003-2007 (87.5%) calCE 2008-2008 (3.8%) calCE 2009-… (1.7%) calCE
UOC-12994	9.5-10	Bulk OM	746	33	0.9113	0.0038	730-659 (95.4%)
UOC-11902	13.5-14	Bulk OM	558	25	0.9329	0.0029	637-593 (46.2%) 563-525 (49.2%)
UOC-11903	19-19.5	Bulk OM	509	25	0.9386	0.0029	552-506 (95.4%)
UOC-11904	38-38.5	Bulk OM	603	26	0.9277	0.0030	652-580 (72.9%) 572-545 (22.5%)
UOC-11905	57-57.5	Bulk OM	941	25	0.8895	0.0027	921-796 (95.4%)
UOC-12995	67.5-68	Bulk OM	1242	25	0.8568	0.0026	1265-1171 (69.3%) 1161-1079 (26.1%)
UOC-11906	76-76.5	Bulk OM	1364	27	0.8438	0.0028	1332-1262 (95.4%)
UOC-12996	88.5-89	Bulk OM	1526	26	0.8270	0.0026	1522-1456 (33.9%) 1443-1430 (2.8%) 1424-1349 (58.8%)
UOC-11907	94.5-95	Bulk OM	1652	25	0.8141	0.0025	1616-1521 (93.3%) 1455-1443 (1.6%) 1428-1424 (0.4%)

*Data were calibrated with the IntCal20 (pre-bomb) or the NH1 (post-bomb) calibration curves using the Bacon package v2.5.5 in RStudio (Blaauw & Christen, 2011; Hua et al., 2013; Reimer et al., 2020).

3.4 Data treatment and statistical analyses

Due to a shortage of material in the core, depths sampled for geochemical and HAWK analysis were staggered with an offset of 0.5 cm. Stratigraphic resolution also differed among the various analyses: HAWK pyrolysis, ICP-MS, and radiocarbon age-dating were analyzed at 0.5-cm resolution while grain size analysis was done at a 1-mm resolution. A 1-cm moving average was applied to the grain size data, allowing for all analyses to be incorporated into a 1-cm resolution environmental dataset spanning 42 depth horizons. Geochemical variables missing more than 25% of values (B, Te, Ge, Ta, In, Pd, Pt) were removed from the dataset and any remaining values below the MDL were set to half of the MDL (Reimann et al., 2008). Data were "opened" with a centered log-ratio transformation and then standardized (centred and scaled) (Reimann et al., 2008). The Shapiro-Wilk test was used to test for normal distribution (**Appendix C)**. About half of the variables were non-normally distributed; non-parametric statistics were therefore applied to the data.

Spearman's rank correlation was used to evaluate the relationship between the variables (see Figure 2 and **Appendix C**). Spearman's rank (r_s) ≥ 0.5 are positively correlated. Correlation coefficients were visualized using the "ggplot2" package in RStudio and *p*-values were obtained using JASP V0.16.1 (JASP Team, 2022). Variance inflation factors (VIF) were then calculated for all elements with the "usdm" package to identify highly collinear variables (VIF > 10). Variance inflation factors for all variables were infinity, showing that none varied independently. A principal component analysis (PCA; Pearson, 1901; Hotelling, 1933) was completed using the "vegan" package in RStudio to visualize the data (Figure 4). To identify individual stratigraphic zones based on shifts in the environmental data, a stratigraphically constrained hierarchical cluster analysis using Ward's linkage and Euclidean distance (CONISS; "rioja" package in

RStudio) was used. The samples were coloured by zone and plotted on the PCA (Figure 4). Spearman's rank correlation was used to evaluate the variables' relationships with one another within and between the different zones.

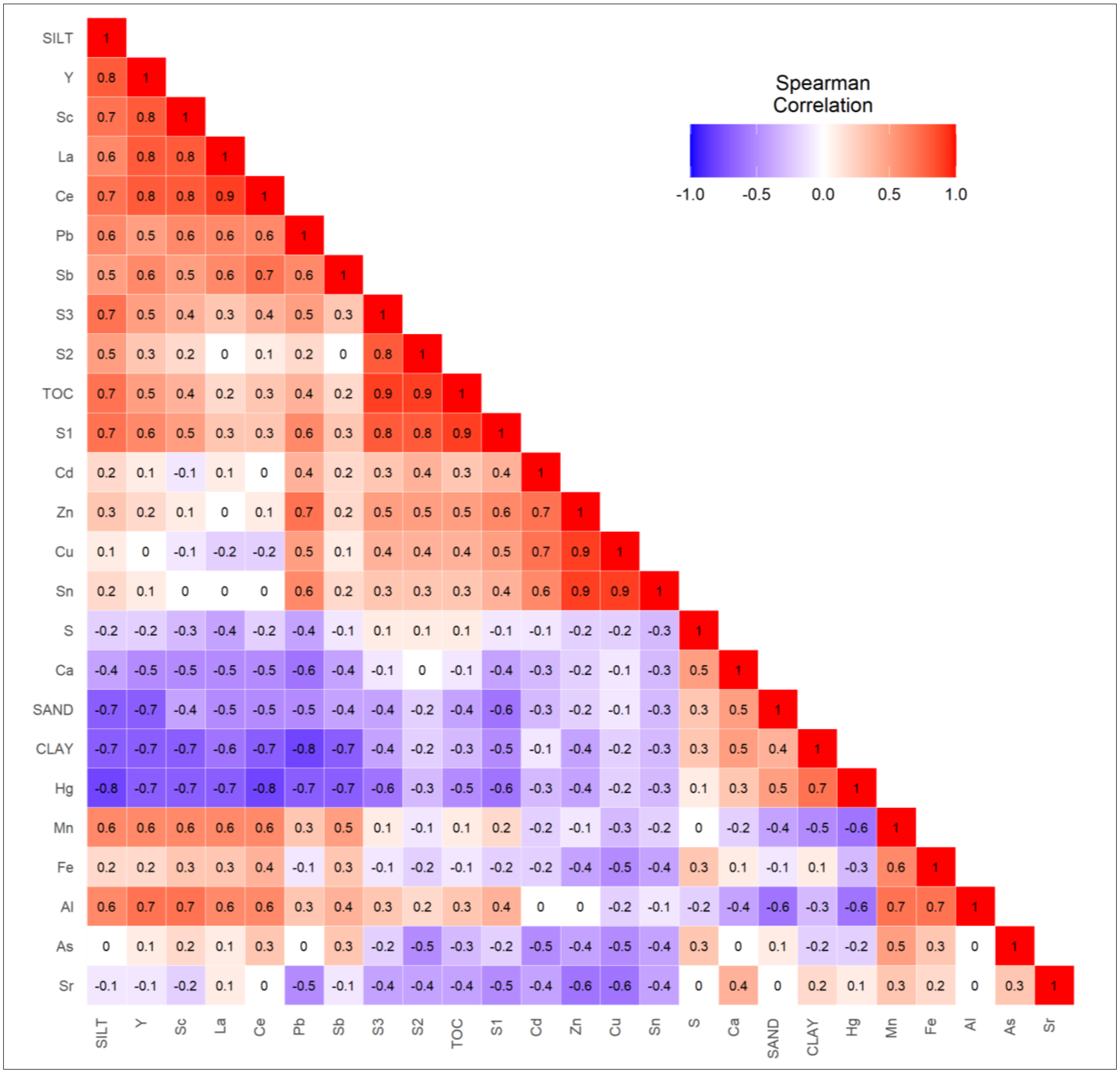

Figure 2. Spearman's rank correlation matrix for a subset of the environmental dataset. Variables with an $r_s > 0.5$ are considered to be correlated. For a correlation matrix using the complete dataset, see Figure C1.

4. Results

4.1 Age-depth model

The FRE-corrected age-depth model has a mean 95% confidence range of 158 years, with a minimum of 77 years at 6.5 cm and a maximum of 222 years at 27.5 cm. Basal (depth = 96 cm) age of the core is modelled as 752 CE, while the modelled age at the SWI (depth = 0 cm) is 2043 CE. An age reversal occurs between 9.5 and 19.5 cm based on two radiocarbon dates (Figure 3). Between 13.5 cm and 19.5 cm in the core, no laminae are present and the sediment appears disturbed. While this may be the cause of the reversal, sediment at 9.5 cm is clearly laminated yet this sample does not overlap with the age-depth model at all. The age reversal may then have been caused by the input of anomalously old carbon from the watershed, or by a combination of factors.

The accumulation rates estimated by the age-depth model range between 1.5 mm/yr and 4.2 mm/yr. From the base of the core to 60 cm depth (752 – 1300 CE), the average accumulation rate is 1.7 mm/yr and follows a gradually decreasing trend up-core. From 60 cm to 15 cm (1300 – 1930 CE), accumulation rate gradually increases, with an average value of 2.1 mm/yr. From 15 cm to 7 cm (1930 – 1996 CE) it increases to a maximum of 4.2 mm/yr, at which point the accumulation rate plateaus until the SWI.

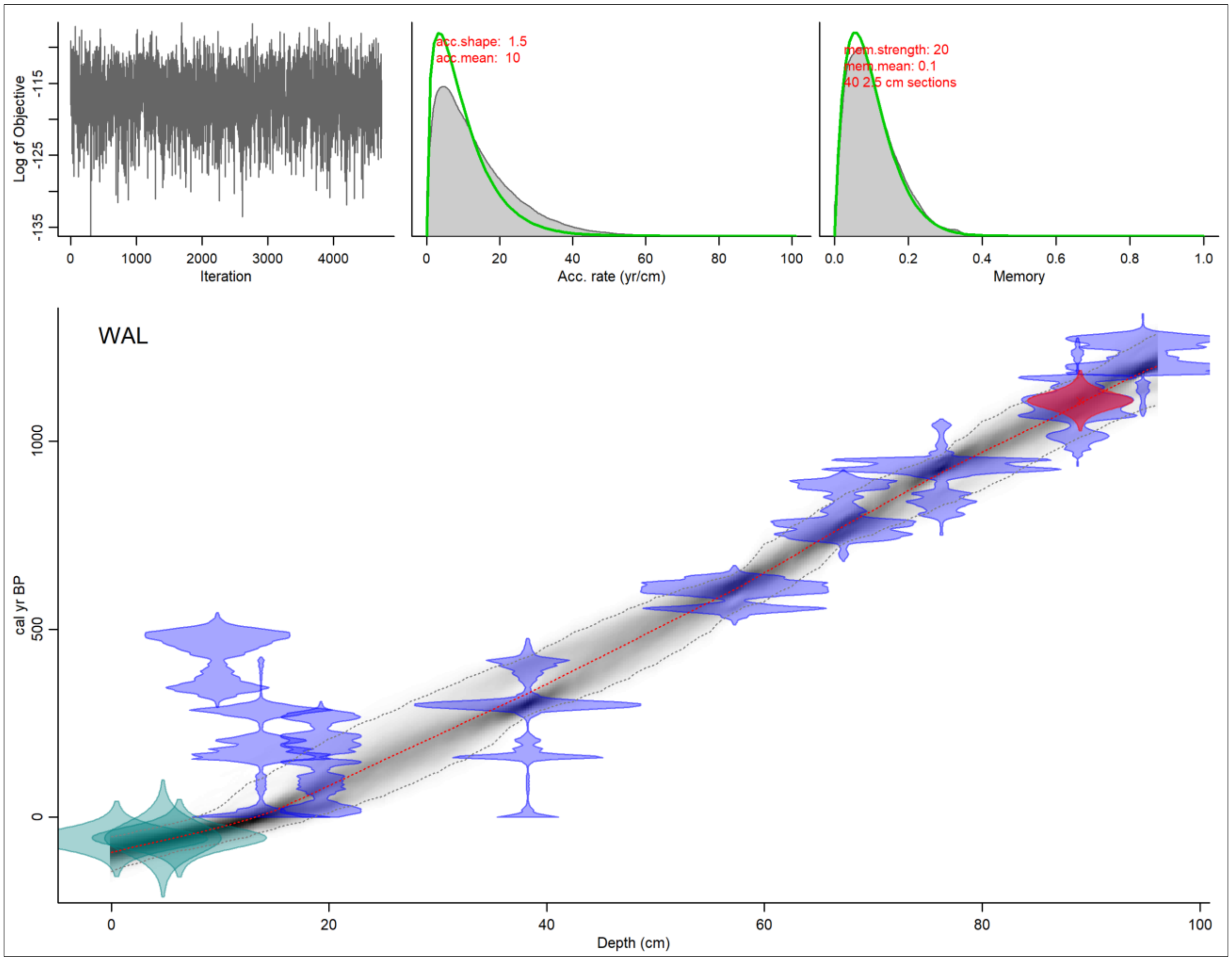

Figure 3. Age-depth model for WAL19. Mean age (cal yr BP) is shown by a red line and the 95% confidence intervals with grey. The White River Ash tephra layer (depth = 89 cm, mean age = 1108 cal BP) is plotted in red. A freshwater reservoir effect of 350 years was calculated and applied to the nine pre-bomb dates prior to calibration. Post-bomb dates are shown in green, and pre-bomb dates are shown in blue.

4.2 Sediment organic matter and textural characteristics

The sediment TOC (median = 6.67 wt. %, range 4.16 – 7.92 wt. %) is dominated by S2 (median = 2.74 wt. %, range 1.33 – 3.36 wt. %; **Appendix B**). S3 material has a median of 0.67 wt. % (range 0.45 – 0.80 wt. %), while S1 has a median of 0.53 wt. % (range 0.27 – 0.71 wt. %). All measures of productivity (S1, S2, S3, TOC) are highly correlated with one another ($r_s \geq 0.8$, $p < 0.001$; $n = 42$). Examination of the hydrogen index (HI; S2 normalized to TOC) and oxygen index (OI; S3 normalized to TOC) shows that HI/OI is always greater than two. This, along with the high S2 values, indicates that the OM preserved in WAL19 is primarily autochthonous (Carrie et al., 2012; Sanei et al., 2012).

Two cycles in productivity are evident in S1, S2, S3, and TOC, during which the values for each variable increase and then decrease. For all parameters, the upper and lower limits of these oscillations are consistent (see Figure 5). The first cycle occurs between 94.5 cm and 73.5 cm (769 – 1077 CE), and the second takes place between 63.5 cm and 17 cm (1239 – 1904 CE). From 17 cm to 7.5 cm (1904 – 1993 CE), these parameters are characterized by a more rapid decline compared to previous fluctuations, and to lower values. Throughout most of the core (94.5 cm – 17 cm), lake productivity (S2) oscillates between 2.50 wt. % and 3.36 wt. %; at 7.5 cm depth, S2 reaches its minimum of 1.3 wt. %. The rapid drop in OM parameters, particularly S2, corresponds to the increase in sedimentary As concentrations resulting from mining activities in the area (As:S2 $r_s = -0.5$, $p = 0.001$, $n = 42$). Above 7.5 cm, a slight recovery in these variables can be seen, but they remain below pre-mining levels. These patterns were not observed in HI and OI.

Grain size data was obtained in the form of sand, silt, and clay fractions (%) down-core (**Appendix B**). Overall, the sediment is classified between silt and sandy silt. Median values for silt, sand, and clay are 78.0%, 6.8%, and 14.7%, respectively. At 50 cm depth (1450 CE), there is a noticeable break in the grain size data; above this break, silt fractions are ~20% higher while sand and clay are lower, and variability in all three fractions is reduced (see Figure 6). Silt is negatively correlated with sand ($r_s = -0.7$, $p < 0.001$, $n = 42$) and clay ($r_s = -0.7$, $p < 0.001$, $n = 42$), and positively correlated with measures of OM (S1, S2, S3, TOC; $r_s \geq 0.5$, $p < 0.001$, $n = 42$).

4.3 Sediment geochemistry

Aqua regia is a partial digestion: most silicate and aluminosilicate minerals will not be fully dissolved with this pre-treatment. The geochemical results, particularly for lithophilic elements (e.g., Ti, Al, Rb), are therefore partial concentrations and are not near totals. Trends in Sb, Au, As, Cd, Cu, Sn, Pb, Zn, and Hg are of particular interest in the WAL19 core. Antimony concentrations between 90 cm and 16 cm are stable with median levels at 0.62 ppm (range 0.52 – 0.75 ppm). Between 16 cm and 12 cm depth (1917 – 1959 CE), Sb concentrations almost triple, increasing to 1.80 ppm. Gold follows a similar trend: below 16 cm, median Au concentration is 1.8 ppb (range 0.1 – 3.3 ppb), whereas above, it increases to 5.5 ppb. These increases are coincident with the rise in As concentrations and the onset of mining and mineral processing activities in the region.

Arsenic concentrations are relatively low and stable between 90 cm and 24 cm of the WAL19 core record, with median concentrations of 20.2 ppm (range 15.3 – 27.8 ppm). Between 24 cm and 12 cm depth (1815 – 1959 CE), As concentrations increase from 21.1 ppm to 67.4

ppm. While the upper part of this rise overlaps with the onset of mining and mineral processing in the area (1938 CE, modelled at ~14 cm depth), the beginning does not correspond to the start of mining activities. A more diffuse peak, however, is expected due to the post-depositional mobility of As vertically in the sediment column. All measured arsenic concentrations within the core exceed the CCME ISQG of 5.9 ppm; the PEL (17 ppm) is also frequently exceeded, particularly in the uppermost sediments (CCME, 1999). Throughout the WAL19 sedimentary record, As shows positive correlation with S ($r_s = 0.3$, $p = 0.051$, $n = 42$), Fe ($r_s = 0.3$, $p = 0.074$, $n = 42$), and Mn ($r_s = 0.5$, $p < 0.001$, $n = 42$), and negative correlation with lake productivity (S2 and HI), Cd, and Cu ($r_s = -0.5$, $p \leq 0.003$, $n = 42$).

Cadmium, Cu, Sn, Pb, and Zn all show positive correlation with one another ($r_s \geq 0.4$, $p < 0.001$, $n = 42$). Their profiles are remarkably similar, exhibiting several concurrent peaks at 81 cm, 69 cm, 56 cm, 44 cm, 40 cm, 36 cm, 26 cm, and 16 cm (see Figure 5). Throughout the core, Cd concentrations range between 0.15 and 0.32 ppm (median 0.23 ppm). Tin and Pb concentration ranges are 0.8 – 2.3 ppm (median 1.0 ppm) and 8.93 – 16.83 ppm (median 10.55 ppm), respectively. The median Cu concentration of 51.93 (range 34.61 – 161.84 ppm) is well above the CCME ISQG of 35.7 ppm, though Cu levels remain below the PEL throughout the entire core. Similarly, Zn concentrations (median 84.55 ppm, range 68 – 154.4 ppm) are sometimes greater than the CCME ISQG of 123 ppm (CCME, 1999). The Cd, Cu, Sn, Pb, and Zn group is positively correlated with Ag ($r_s \geq 0.5$, $p < 0.001$, $n = 42$) and OM parameters (S1, S2, S3, TOC; $r_s \geq 0.3$, $n = 42$) within the WAL19 sediments.

Mercury concentrations above 50 cm (ca. 1449 CE) are low and stable between 11 and 30 ppb (median 20 ppb). Below 50 cm depth, however, concentrations are higher and more variable. Four peaks occur at 90.5 cm, 79.5 cm, 69 cm, and 61 cm, with maximum Hg levels between 246 and 596 ppb (see Figure 5). Mercury shows a positive association with clay ($r_s = 0.7$, $p < 0.001$, $n = 42$), sand ($r_s = 0.5$, $p < 0.001$, $n = 42$), and Se ($r_s = 0.4$, $p = 0.004$, $n = 42$) and negative associations with silt ($r_s = -0.8$, $p < 0.001$, $n = 42$), OM (S1, S3, TOC; $r_s \leq -0.5$, $p < 0.001$, $n = 42$) and the lithogenic elements ($r_s \leq -0.6$, $p < 0.001$, $n = 42$).

4.4 Statistical analyses

A broken-stick model identified four influential principal components (PCs) in the PCA: PC1 (32.0% of variance explained), PC2 (18.0%), PC3 (10.0%), and PC4 (8.0%). Together, these PCs explain 67.9% of total variance in the data. A biplot of the first two PCs is shown in Figure 4 and variable loadings for each PC are provided in Table 2. A cut-off value was calculated as the loading of each variable if they all made an equal contribution to the PC. Any loading with an absolute value greater than the cut-off is considered an important contributor to that PC and is shown in red in Table 2. The CONISS analysis grouped environmental data into five clusters: zone 1 (14 – 12 cm / 1940 – 1959 CE), zone 2 (50 – 16 cm / 1449 – 1917 CE), zone 3 (65 – 52 cm / 1213 – 1421 CE), zone 4 (77 – 67 cm / 1023 – 1180 CE), and zone 5 (90.5 – 79.5 cm / 827 – 986 CE). The clusters are mapped onto the PCA biplot in Figure 4.

The first PC shows a positive association with silt and metals (Ce, Tb, Mg, La, Y, Al, Ca, Sc, Ni, etc.; see Table 2) and a negative association with Hg, clay, and sand. The second PC is positively associated with OM (S1, TOC, S3, S2, and HI), select trace metals (Zn, Cu, Sn, Pb, Cd, W), and silt. It is negatively associated with clay, sand, Fe, As, Ba, Zr, Ti, Sr, U, and Hf. The third PC is positively associated with OM (HI, S2, TOC, S3), clay, and V, Na, Bi, Fe, Ba, S, Al, K; it is negatively associated with Sb, As, Au, Pb, Ag and Sn. PC4 is positively associated with

Bi, Cd, V, Ag, Cu, Zn, Zr, Cr, Hf and negatively associated with As, S, Mn, OI, P, Sr, and Ca.

Site scores for the first four PCs are presented in Figure 6.

Table 2. Loadings of environmental variables in the first four PCs. Loadings with an absolute value greater than the cut-off value (calculated as the loading of each variable if they all made an equal contribution to the PC) are considered to be important contributors to that PC and are shown in red. Negative loadings imply a negative association between the variable and the principal component.

	PC1	PC2	PC3	PC4
Ce	0.2131	0.0313	-0.0577	-0.0960
Rb	0.2101	-0.0308	-0.0082	-0.0436
Mg	0.2076	-0.0745	0.1011	0.0069
La	0.2066	0.0216	-0.0653	-0.0097
Y	0.2066	0.0868	0.0210	-0.0248
Al	0.2032	0.0000	0.1426	0.0614
Cs	0.2017	-0.0488	-0.0200	-0.0987
Sc	0.1942	0.0558	-0.0618	-0.0869
Ni	0.1935	0.0426	-0.0341	0.0786
Co	0.1908	-0.0382	0.0349	-0.0734
Tl	0.1859	-0.0900	-0.0168	0.0228
K	0.1820	-0.1184	0.1369	0.0862
Ga	0.1817	0.0741	0.0395	0.0296
Th	0.1764	-0.0769	-0.1099	-0.1095
Mn	0.1752	-0.0430	0.0418	-0.1803
Ti	0.1742	-0.1616	-0.0128	0.0204
SILT	0.1713	0.1821	0.0320	-0.1195
Li	0.1677	0.1187	-0.0966	-0.0064
Nb	0.1650	0.1061	0.0628	-0.0687
Cr	0.1609	-0.0763	0.0600	0.1722
Sb	0.1371	-0.0865	-0.2426	-0.0287
Fe	0.1354	-0.1530	0.1748	0.0114
OI	0.1175	0.0915	0.1131	-0.2004
V	0.1155	-0.1078	0.2271	0.2469
Na	0.1079	0.0021	0.2102	0.1272
Be	0.1062	0.0177	-0.0741	-0.0086
Ba	0.1025	-0.1570	0.1677	0.1030
Bi	0.0995	-0.0354	0.1929	0.3126
Pb	0.0950	0.1846	-0.2023	0.1231
Zr	0.0921	-0.1582	0.0300	0.2005
As	0.0898	-0.1563	-0.2388	-0.1590
U	0.0834	-0.1715	0.0294	0.1181
Hf	0.0740	-0.1777	0.0049	0.1401

Table 2. Cont'd.

	PC1	PC2	PC3	PC4
Ag	0.0554	0.0352	-0.1960	0.2364
S1	0.0446	0.2862	0.0941	-0.0473
P	0.0421	0.1319	0.0993	-0.2016
W	0.0408	0.1593	-0.0229	-0.0737
S3	0.0332	0.2624	0.1593	-0.0920
Mo	0.0138	0.0237	0.1194	-0.0502
TOC	0.0123	0.2633	0.2142	-0.0509
Zn	-0.0016	0.2418	-0.1309	0.2042
Au	-0.0031	0.0117	-0.2262	-0.1341
Cd	-0.0065	0.1799	0.0053	0.2695
Sn	-0.0193	0.1976	-0.1786	0.2149
Sr	-0.0262	-0.1676	0.1050	-0.2262
S2	-0.0369	0.2480	0.2415	-0.0169
HI	-0.0427	0.1375	0.3325	-0.0370
Cu	-0.0571	0.2326	-0.0945	0.2075
S	-0.0802	-0.0448	0.1464	-0.1671
Re	-0.0846	-0.0727	0.0761	0.1270
Se	-0.1064	-0.0182	0.1226	0.0908
Ca	-0.1243	-0.0858	0.1217	-0.2412
SAND	-0.1434	-0.1436	-0.0685	-0.0337
CLAY	-0.1672	-0.1366	0.1992	0.0828
Hg	-0.1815	-0.1295	0.0055	0.0391

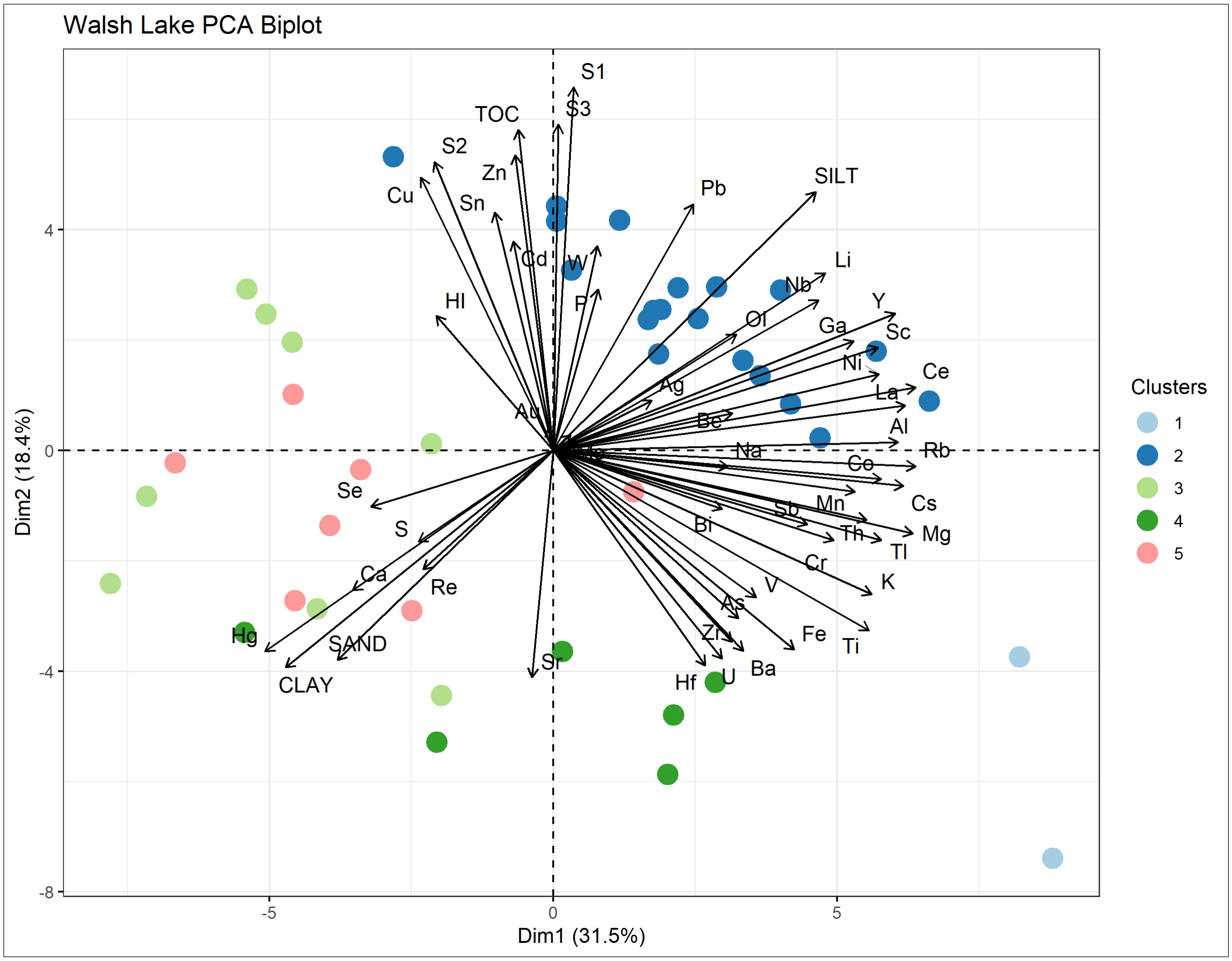

Figure 4. Biplot of PC1 and PC2. Depths are coloured according to cluster: light blue (zone 1; 1940 – 1959 CE), dark blue (zone 2; 1449 – 1917 CE), light green (zone 3; 1213 – 1421 CE), dark green (zone 4; 1023 – 1180 CE), and pink (zone 5; 827 – 986 CE).

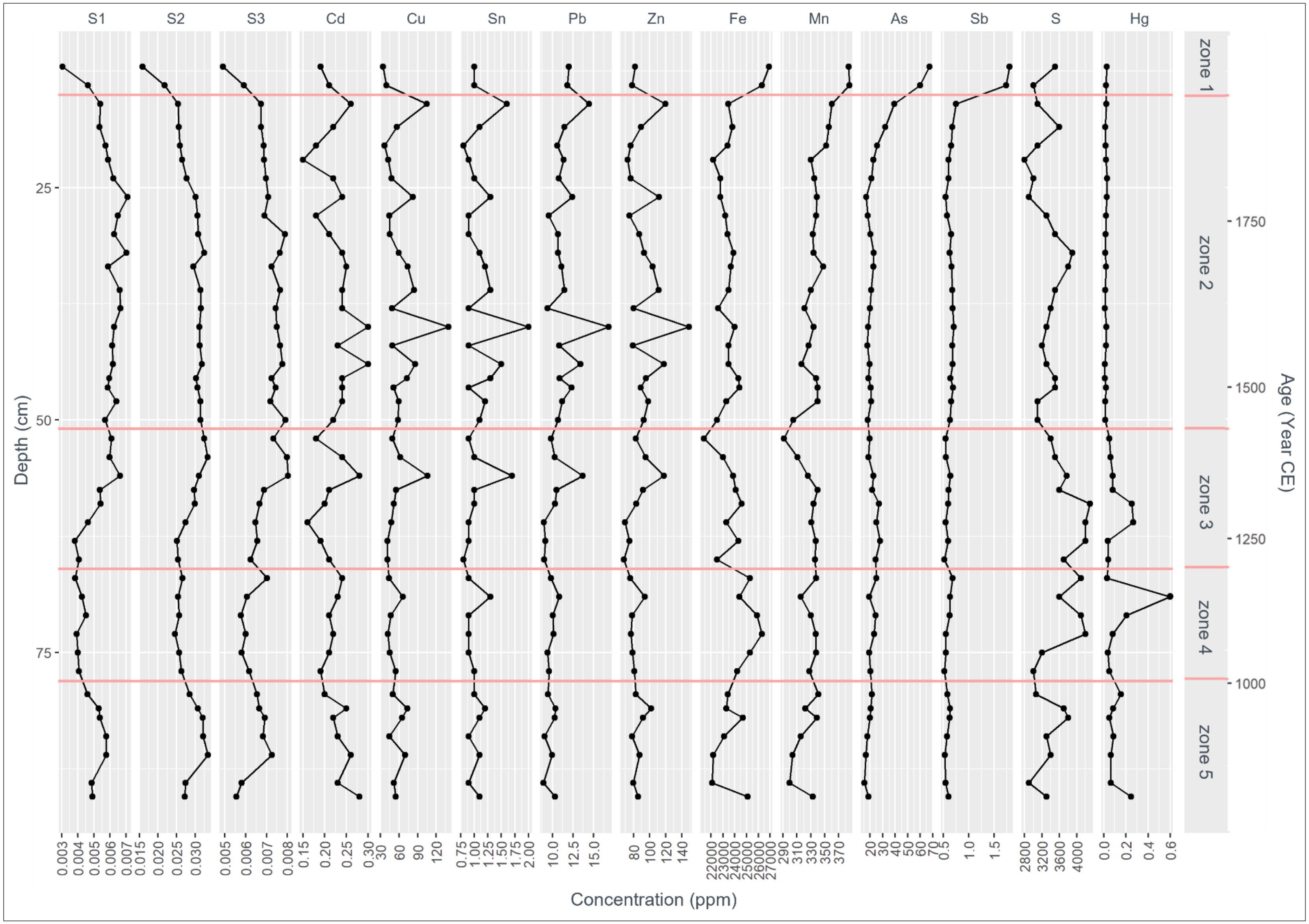

Figure 5. Key elements and OM parameters (ppm) plotted against depth (cm below SWI) and age (years CE). Red lines indicate the five stratigraphic zones as identified by the CONISS analysis.

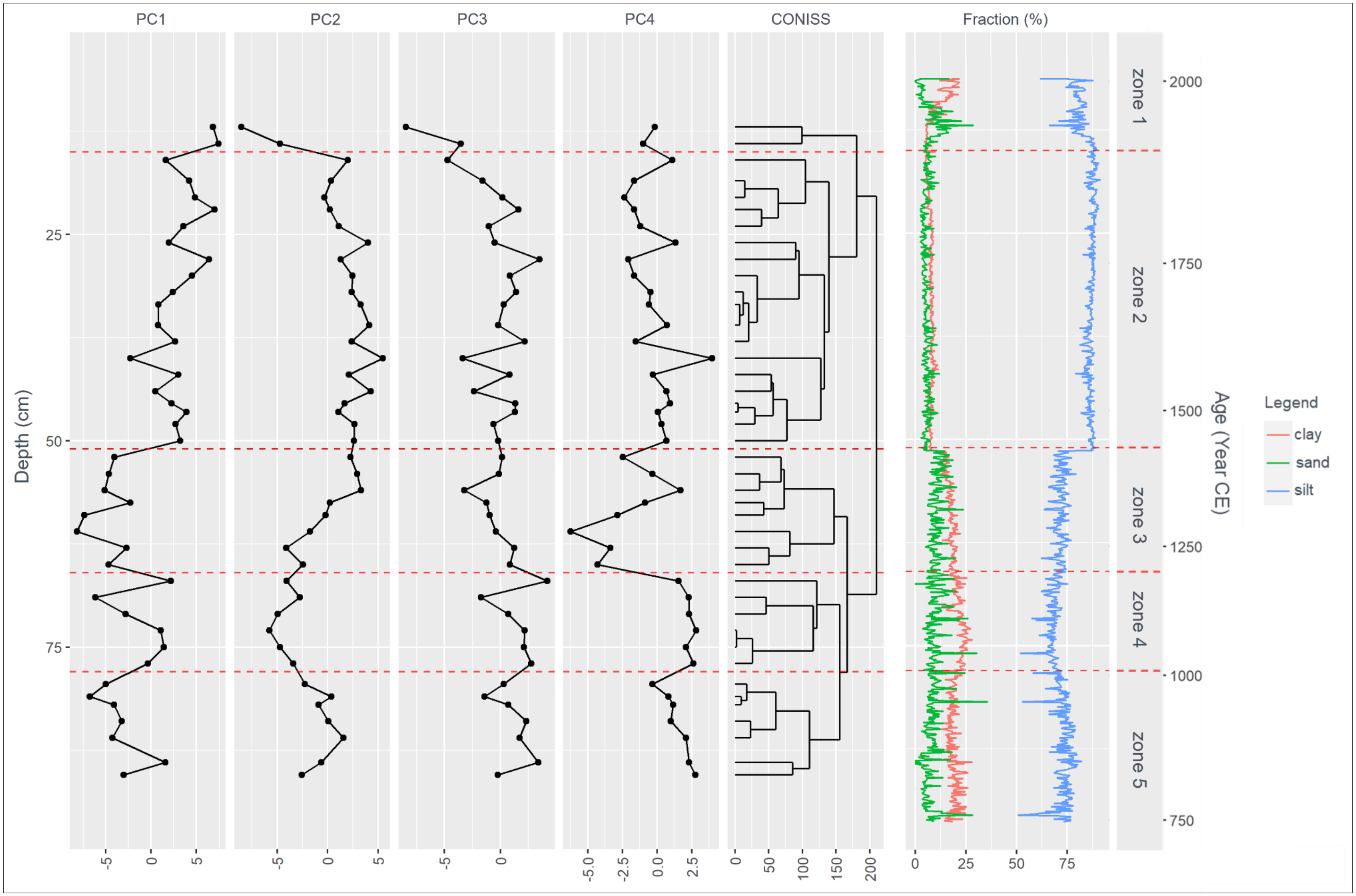

Figure 6. PCA site scores, CONISS dendrogram, and sediment grain size plotted against depth (cm below SWI) and age (years CE). Dashed red lines indicate the five stratigraphic zones delineated by the CONISS analysis.

5. Discussion

5.1 Sediment geochemistry

5.1.1 Trace metals and OM

Within lake sediments, trace metals may be adsorbed onto clay surfaces or Fe and Mn (oxy)hydroxides, incorporated into the lattices of primary (silicate) or secondary (carbonate, sulfate, oxide) minerals, or complexed with OM (Tessier et al., 1979). Iron and Mn (oxy)hydroxides and OM have been established as important factors in trace metal cycling within lake sediments (Tessier et al., 1979, 1985, 1996; Hart, 1982; Redman et al., 2002; Peng et al., 2009). In the case of Fe and Mn (oxy)hydroxides, trace metals may bind directly to their hydroxyl groups, or to the functional groups of OM, that are then adsorbed onto the surfaces of (oxy)hydroxides (Tessier et al., 1996). Organic matter, composed of humic and fulvic substances, may also react with trace metals through precipitation, co-precipitation, or flocculation. The solubility of the OM with which the trace metals react will in turn determine their mobility in the lake (Peng et al., 2009).

The co-varying group of trace metals in the WAL19 core (Cd, Cu, Sn, Pb, and Zn) are represented in the local bedrock's composition (Ridland, 1941; Coleman, 1953, 1957; Ootes, 2004), though their exact source is uncertain as analysis of sediment mineralogy was beyond the scope of this research. These metals are correlated with OM parameters (S1, S2, S3, and TOC), suggesting that they are stored in the sediment as complexes with OM. The PCA confirms this association in PCs 2 and 4. In all cases, correlation is highest with S1, suggesting that labile OM is important in the sequestration of trace metals in the sediment. Organic matter and the Cd, Cu, Sn, Pb, and Zn group show no relationship to S, Fe and Mn. It is therefore unlikely that sulfides or Fe and Mn (oxy)hydroxides play significant roles in the sequestration of this group of metals within the sediments.

5.1.2 Mining-derived contaminants

Median pre-mining (pre-1938 CE) background As concentration in WAL19 sediments corresponds well with the regional levels (~20 – 30 ppm) found by Galloway et al. (2015), but both median background (20.5 ppm; 813 – 1938 CE) and mine-impacted (63.8 ppm; 1938 – 1959 CE) sedimentary As concentrations exceed the CCME ISQG of 5.9 ppm and the PEL of 17 ppm (CCME, 1999). While geochemical data is not available between ~1960 CE and present, it is still clear that As in this core has migrated downwards in the sediment column since it was deposited: its increase towards the surface begins at 24 cm (1815 CE), even though roasting was only used from 1948 CE (modelled at ~13.5 cm in WAL19). When As in near-surface sediments is mobilized through the reductive dissolution of Fe and Mn (oxy)hydroxides, it may then migrate in the sediment porewater downcore to more reducing zones, where it is sequestered through co-precipitation and/or adsorption reactions involving authigenic sulphides (Couture et al., 2008; Schuh et al., 2018; Van Den Berghe et al., 2018; Miller et al., 2019). Other studies also have also shown the downcore migration of As in lake sediments (Andrade et al., 2010; Schuh et al., 2018, Hamilton et al., 2021).

Iron (oxy)hydroxide minerals are an important potential sink for As in sediments, with Al and Mn (oxy)hydroxides also playing important roles in certain environments (Martin & Pedersen, 2002; Smedley & Kinniburgh, 2002; Couture et al., 2010). Arsenic that has been released in reducing zones through reductive dissolution migrates upwards through the porewaters to the oxic zone where it may then be oxidized and scavenged by the (oxy)hydroxide minerals, sorbing to their surfaces (Belzile & Tessier, 1990; Couture et al., 2010). Arsenic is positively correlated to Fe ($r_s = 0.3$, $p = 0.074$, $n = 42$) and Mn ($r_s = 0.5$, $p < 0.001$, $n = 42$) in WAL19, which in turn are highly correlated with each other ($r_s = 0.6$, $p < 0.001$, $n = 42$). Some amount of As sequestration in the sediments is therefore likely the result of sorption onto Fe and Mn (oxy)hydroxide minerals.

Organic matter may facilitate or hinder the sequestration of As within lake sediments. Competitive behaviour between OM and As has been observed in numerous studies, with lower As retention in organic-rich matrices (Bowell, 1994; Redman et al., 2002; Bauer & Blodeau, 2006; Wang & Mulligan, 2006; Miller et al., 2019). Other mechanisms through which OM increases As mobility include complexation with As into aqueous species and changes to the redox potential (Wang & Mulligan, 2006). Alternatively, As uptake in the sediments may be aided by the presence of OM, which can serve as binding agents (Wang & Mulligan, 2006) or act as a substrate for microbes that mediate authigenic formation of As-sulphides (Galloway et al., 2018). In the WAL19 sediment core, As and OM (S2 and HI) show a negative correlation ($r_s = -0.5$, $p \leq 0.003$, $n = 42$) and a negative association in PCs 2 and 3 of the PCA. This result suggests competition between OM and As for sorption sites in the sediments. While past research has mostly shown As mobilization as a result of competition with OM, in this scenario As may be displacing the OM: the concurrent increase of As and decrease in OM towards the SWI show that As migrated downcore to sediments deposited prior to mining activities, and was then re-sorbed onto sediment particles, possibly displacing the OM that was already in the sediments. Under laboratory conditions, Redman et al. (2002) found that the introduction of As to a system in which OM had reached equilibrium on hematite showed similar results, with 90% of the As sorbing onto the hematite and displacing OM.

Other mining-associated metal(loid)s of importance in this system are Sb and Au. While these elements are present in local bedrock (Coleman, 1957; van Hees et al., 1999; Cousens, 2000; Cousens et al., 2002; Ootes et al., 2006) and would therefore be expected in the sediments, their increase corresponds approximately to the introduction of roasting in the gold extraction process at the Giant Mine in 1948. As Walsh Lake is upstream from the former mine, it is likely that these elements are present in the sediments as a result of aerial dispersion from the roasting stack: previous work shows that this was the primary mode of contamination of the land surrounding the former mine (Hocking et al., 1978; Kerr, 2006; Galloway et al., 2012, 2015, 2018; Parsons et al., 2012; Palmer et al., 2015; Jasiak et al., 2021). Antimony has been found to complex with Fe in shallow lake sediments, displaying similar redox mobility as As (Ren et al., 2019; Yao et al., 2021) while Fawcett et al. (2015) observed its preferential precipitation with and/or sorption to sulphides. Palmer et al. (2019) note that in four small lakes in the immediate vicinity of the former Giant Mine, Sb mobility between surface waters and sediments were controlled by factors other than Fe and Mn associated redox processes. Generally, Sb has shown lower post-depositional mobility than As in lake sediments of the Yellowknife region (Andrade et al., 2010; Fawcett & Jamieson, 2011; Fawcett et al., 2015). The increase in Sb in the WAL19 core occurs at 14 cm (1940 CE), broadly coeval with the initiation of roasting at the Giant Mine: it thus appears that there has been little to no vertical post-depositional migration of Sb in the sediments. Its potential upward migration within the WAL19 sediments, however, remains unknown as no geochemical data is available above 12 cm depth. Antimony shows no relationship with S, and only a weak positive correlation with As ($r_s = 0.3$, $p = 0.026$, $n = 42$) and Fe ($r_s = 0.3$, $p = 0.105$, $n = 42$), suggesting that sorption to Fe (oxy)hydroxides may be responsible for some storage of sedimentary Sb.

5.1.3 Mercury

Within greenstone belts, pathfinder elements such as Ag, Sb, As, Hg, and Se are often associated with the gold deposits (Behera et al., 2019). Mercury, Se, and clay show both positive correlation with each other ($r_s \geq 0.4$, $p \leq 0.004$, $n = 42$) and association in the negative direction of PC1. Mercury and Se may be of geogenic source resulting from weathering and erosion of the Yellowknife Bay Formation (Kam Group), which hosts the gold-bearing shear zones (Cousens, 2000). As they show no association with Ag, Sb, and As, however, it is likely that Hg and Se are stored in lacustrine sediment via different processes.

Mercury is often observed in association with clay: the greater surface area of clay provides more sorption sites for Hg (Sanei & Goodarzi, 2006). The strong correlation between Hg and clay seen in this core is therefore reasonable and expected. Lacustrine OM, particularly the labile S2 fraction, is also known to scavenge and concentrate Hg, acting as an important determinant in Hg sequestration (Sanei & Goodarzi, 2006; Sanei et al., 2012, 2014; Outridge et al., 2019). In the 20th and 21st centuries, warming in northern regions has resulted in greater autochthonous primary productivity within lakes, which has been linked to increases in sedimentary storage of Hg (Outridge et al., 2007, 2019; Stern et al., 2009; Jiang et al., 2011). The negative correlation of Hg with S1 ($r_s = -0.6$, $p < 0.001$, $n = 42$) and S2 ($r_s = -0.3$, $p = 0.027$, $n = 42$), and the apparently stable Hg levels between 50 cm and 12 cm depth, are thus unexpected and merit further investigation.

Mercury input to lakes may also be influenced by watershed disturbance, which reduces Hg retention in soils (Cooke et al., 2012; Drevnick et al., 2016; Domagalski et al., 2016). This could explain the association between Hg and sand: a greater input of sand-sized particles would be expected during periods of higher erosion. On the other hand, Hg concentrations are relatively stable from 50 cm to 12 cm depth, whereas sedimentation rates and sand-sized grains increase towards the SWI. Terrestrial OM (S3 fraction) may also be a source of Hg to lakes (Cooke et al., 2012; Sanei et al., 2014), however the clear negative association between S3 and Hg ($r_s = -0.5$, $p < 0.001$, $n = 42$) eliminates this possibility for WAL19 sediments.

5.2 Principal Components Analysis

The positive direction of PC1 is representative of allochthonous sediment input from the surrounding catchment as a result of bedrock weathering and erosion. The most important elements of this PC include rare earth elements (Ce, La, Y, Sc), Rb, Mg, Al, and Cs, all of which are associated with local bedrock geology (Cousens, 2000; Cousens et al., 2002, Ootes 2004; Ootes et al., 2006). Moreover, Al and Rb have been shown to function as stable lithogenic reference elements within lake sediments (Boës et al., 2011). In the WAL19 core, these elements are positively associated with silt. The negative axis of PC1 groups together Hg, sand, and clay, although this relationship is not yet well-understood. Elemental concentrations are not near totals as *aqua regia* digestion was used. For this reason, Al and Ti are disregarded in further discussion, and other trends suggested by this PC should be verified against an ICP-MS analysis that has used full (four-acid) digestion in future research. Instead, further discussion of allochthonous sediment input will be based on trends in grain sizes.

The second PC shows the positive relationship between OM and select trace metals discussed previously. Also in the positive direction is silt, implying that either these metals are present in silt size or trace metals are sorbing onto OM-coated silt particles. The latter is more likely, given the strong positive correlation of all OM parameters with silt ($r_s \geq 0.5$, $p < 0.001$,

$n = 42$). The third PC is positively associated with OM (HI, S2, TOC, and S3), clay, Na, Fe, S, Al, and K. The negative direction groups together Sb, As, Au, Pb, Ag, and Sn: these elements are mining-related contaminants but may also be present naturally, particularly in mineralized zones (Behera et al., 2019). Site scores for PC3 remain relatively stable around zero for most of the core but decline rapidly to their minimum towards the top of the core. For this reason, it is probable that the negative axis of PC3 represents specifically mine-related contamination of the lake sediments.

5.3 Paleoclimate significance

The CONISS analysis divided the data into five zones reflecting shifts in lake sediment geochemistry, OM type and quantity, and grain size. Zone 5 (ca. 827 – 986 CE) is defined by decreasing silt, increasing clay, and an increase in PC2. Sediment input during this time, then, may have been low and OM production and sequestration was rising. This is expected of systems in which the watershed is vegetated, limiting erosion, and the lake is biologically productive: climatic conditions may have been relatively warmer or drier. In zone 4 (ca. 1023 – 1180 CE), these trends are reversed with an increase in silt input, a decrease in clay, and a decrease in PC2: increased erosion and sediment input with decreased lake productivity. The transition between zone 5 and zone 4 approximately lines up with the onset of the MCA, which took place between ca. 950 – 1250 CE. While the MCA has been associated with warming in the region (Viau & Gajewski, 2008; Upiter et al., 2014; Sulphur et al., 2016; Dalton et al., 2018), other research closer to Yellowknife has provided evidence of more stable conditions (Hamilton et al., 2021). Research in the western arctic has even noted regional cooling during this period (Jomelli et al., 2016). The WAL19 data also suggest a cooling climate and decreased lake productivity at this time (zone 4; ca. 1023 – 1180 CE): the low production and sequestration of autochthonous OM

(S2) may be due to shorter growing seasons and longer periods of lake ice cover, while the decreased silt input and increased clay input may be the result of longer periods of lake ice cover. Other organic matter parameters (e.g., S3) remain low and relatively unchanged during this interval. Alternatively, a change in hydrology towards wetter conditions may have caused greater runoff and allochthonous sediment input, diluting measures of autochthonous OM.

Zone 3 covers ca. 1213 – 1421 CE, during which time clay input decreased while sand input and PC2 both increased. This appears to be a transitional zone between the MCA and the LIA. The LIA (ca. 1450 – 1700 CE) aligns well with the beginning of zone 2 (ca. 1449 – 1917 CE). In this zone, grain size distribution is stable with high silt input and PC2 is high and relatively stable, indicating both greater allochthonous sediment input and sequestration of OM/trace metals. Temperature reconstructions based on chironomids and pollen (Viau & Gajewski, 2009; Upiter et al., 2014) indicate that this was a period of cooling in the NT. Macumber et al. (2018) have shown a coarsening of the sediment during this time interval and related this result to higher-energy spring melts resulting from increased winter precipitation. The high silt input observed here is expected under these cooler conditions; the relatively high OM sequestration, however, is not. As zone 2 extends beyond the end of the LIA without a noticeable change in the principal components, the cooling event may not have had a significant impact on the organic productivity of the study region.

The topmost zone (zone 1) begins at 1940 CE, coincident with the opening of the Con Mine (1938) and just prior to the opening of the Giant Mine (1948). This zone is defined by anthropogenic activities. Associated with zone 1 is an increase in sand and a decrease in silt, signalling input from a source other than the silt-producing bedrock weathering and erosional processes. The more intense erosion may have been tied to local deforestation and development, which is supported by the rapid increase in sedimentation rates beginning in 1930 CE. Over this period, PCs 2 and 3 decrease to their respective minima, showing the rise in mine-related contaminants and associated loss of OM in the sedimentary record. Downcore migration of As and a decline in sedimentary OM (due to competition with the migrated As for binding sites) may explain why the transition from zone 2 to zone 1 occurred before roasting was implemented at the Giant Mine.

6. Conclusions

Climate warming in high-latitude northern environments has the potential to significantly impact chemical cycling in lacustrine environments (MacDonald et al., 2005). For example, an increase in lake productivity, and thus in oxygen demand, could lead to more pronounced and prolonged reducing conditions at the SWI and re-mobilization of redox-sensitive As from sediment to surface waters (Martin & Pedersen, 2002). This is of particular concern in the Yellowknife area, where gold mining has caused widespread environmental contamination. Present and future mining operations are required to remediate to a pre-mining background level or present-day baseline level, but legacy contamination may remobilize under a changing climate, and thus alter the baseline. This thesis examined the past response of Walsh Lake, NT, to changes in environmental conditions using proxies (HAWK pyrolysis, grain-size, and geochemistry) from a sedimentary freeze core. Results indicated that (1) the cycling of Cd, Cu, Sn, Pb, and Zn is tied to OM mobility; (2) As sequestration depends on Fe and Mn (oxy)hydroxides and is thus sensitive to redox conditions within the sediment column; and (3) major shifts in sediment proxies coincide with known regional climatic events (the LIA and the MCA).

The co-occurrence of Cd, Cu, Sn, Pb, and Zn with OM in the sediments recovered in the WAL19 freeze core suggests that the dominant form of trace metal sequestration may be through sorption to OM. Primary productivity in this region is projected to increase over the coming years (Smol et al., 2005; Henry et al., 2012). Consequentially, greater OM input to the lake bottom may be expected. In early and/or late summer months, oxidizing conditions prevail during seasonal overturn in stratified lakes. During those months, a possible effect of increased OM input is that there will be significant trace metal uptake into the sediments and a decrease in metals within the lake water. Conversely, under-ice anoxia may develop over the winter months and result in prolonged periods of reducing conditions in the water column and shallow sediments (Palmer et al., 2019). This may drive the seasonal release of redox-sensitive elements (e.g., As) from sediments into the overlying water column in the winter, allowing for their perpetual cycling.

Arsenic concentrations within mine-impacted sediments in WAL19 have a median value of 63.8 ppm. While geochemical data is only available for sediments deposited prior to 1960 CE, it is expected that significant quantities of As are stored in the uppermost sediments of Walsh Lake; regardless, all sedimentary As levels in the WAL19 core are above the CCME ISQG of 5.9 ppm and PEL of 17 ppm (CCME, 2002). Arsenic has an affinity for sorption to Fe and Mn (oxy)hydroxides under oxidizing conditions and is released under reducing conditions. The projected increase in productivity of northern lakes and the associated increase in oxygen demand will likely result in more prolonged intervals of reducing conditions at the SWI in lakes that are thermally stratified in summer months and/or under ice in winter months (Martin & Pedersen, 2002; Smol et al., 2005; Palmer et al., 2019). Prolonged reducing conditions will remobilize As from the sediment into the surface waters, posing a risk to the local ecosystem and to people benefiting from ecosystem services, and confounding mining companies' restoration baselines.

The PCA groups lithogenic elements with silt in PC1, OM parameters with trace metals in PC2, and contaminants characteristic of mineralized zones or mining activity in PC3. While PC1 explains the most variance in the data, future work should verify the trends observed here as total elemental concentrations were not obtained with *aqua regia* digestion. The CONISS analysis divides the data into five zones, which may align with the MCA (zone 4), a transitional period (zone 3), the LIA (zone 2), and a period of anthropogenic impact (zone 1).

6.1 Future Research

Future work should use the mm-scale grain size dataset for end-member mixing and time-series analyses to better understand the larger-scale climate cycles governing the climate of the Yellowknife region. A high-resolution record of regional climate cycles would serve as an important tool to which temporal trends in lake geochemistry and OM could be compared. While such records already exist for the Yellowknife area (e.g., Thienpont et al., 2016; Hamilton et al., 2021), these were both based on sediment cores from Pocket Lake, impacted by legacy mining activities and occurring near a shear zone. A similar record from Walsh Lake, which is further away from the Giant and Con Mines and significantly larger, therefore provides a relevant comparison.

This research could also be expanded upon by analyzing sediment geochemistry in the upper 12 cm of sediment in Walsh Lake to better understand the more recent impact of airborne contamination from mining on the lake. Furthermore, sediment samples from the same depth horizons as the HAWK samples have been set aside for analysis of Hg via thermal decomposition, a more accurate method of analyzing Hg than ICP-MS techniques, which could provide insight to the negative relationship between Hg and autochthonous OM found here. Finally, conclusions drawn by this research could be validated through comparison to other freeze cores obtained from Debauchery Bay in Walsh Lake and from other lakes in the region.

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Appendix A: Core images

Images of the freeze core WAL19-2FT-HA, faces 1 and 2 (next page). The zero-depth reference horizon is indicated by a green dashed line, and the WRAe tephra layer is shown with a red arrow. Note that the scale is present as a size reference only and does not reflect actual down-core depths used in this thesis.

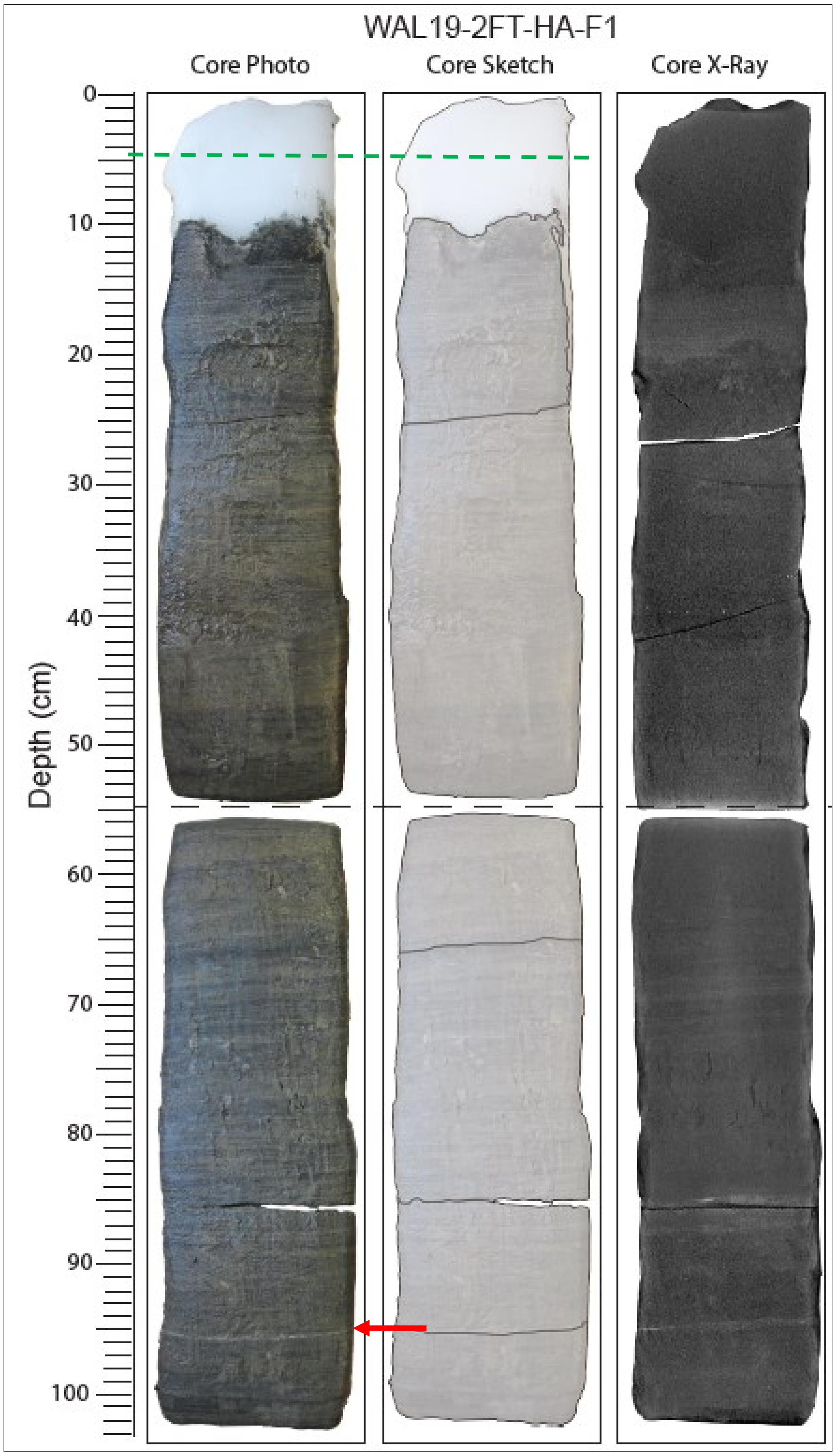

Figure A1. Core catalogue for WAL19-2FT-HA, face 1.

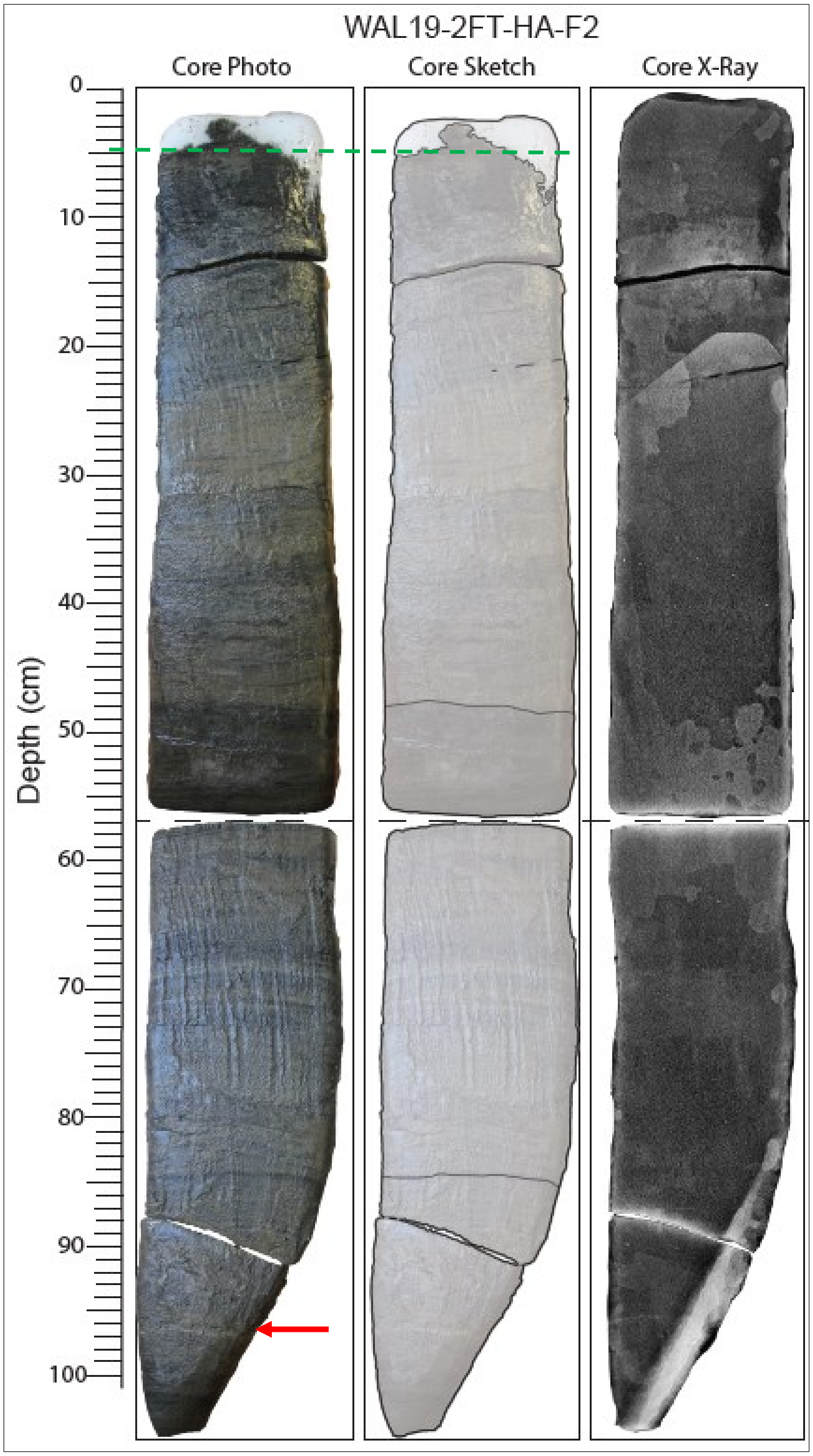

Figure A2. Core catalogue for WAL19-2FT-HA, face 2.

Appendix B: Environmental data

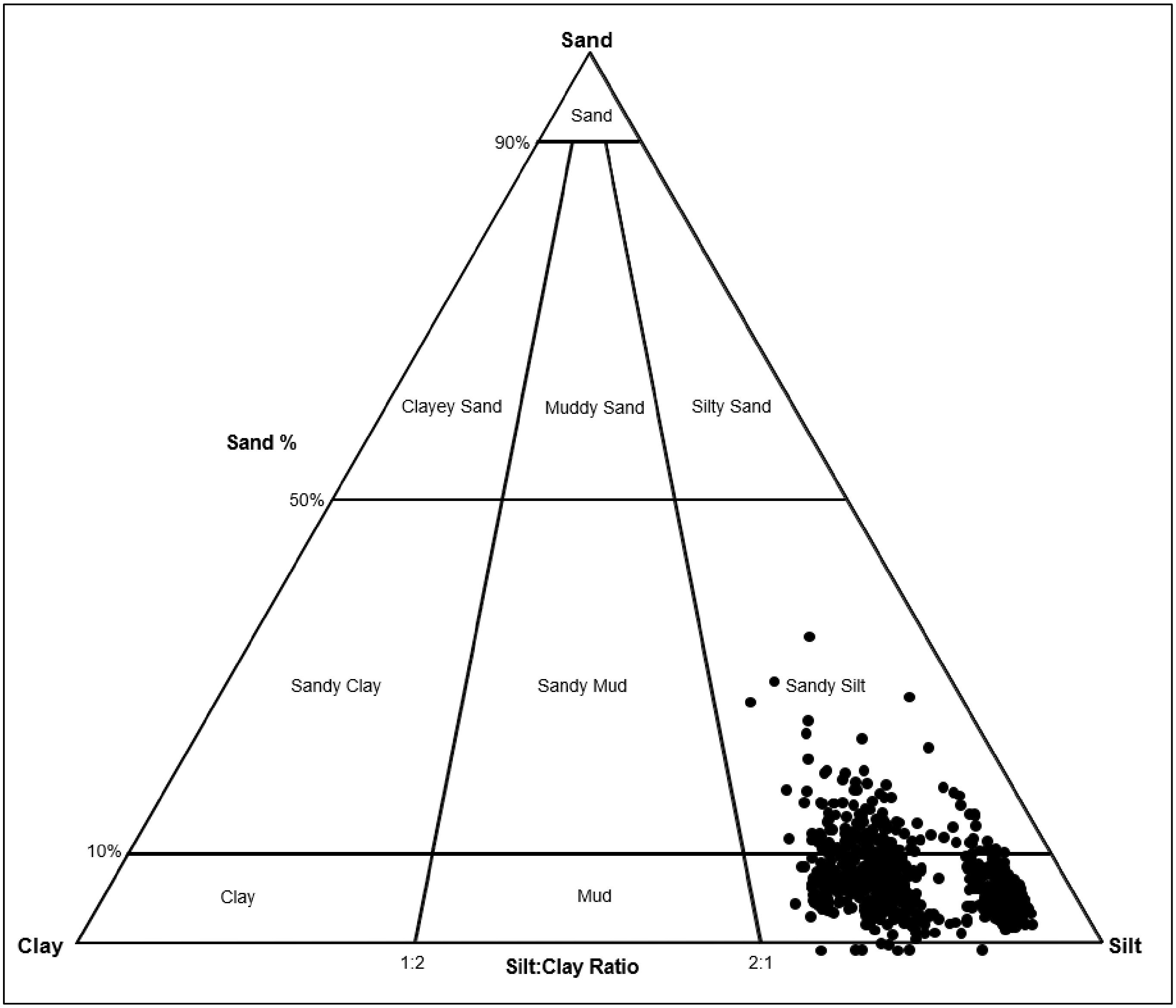

Figure B1. Grain size data (*n* = 830) summarized in a sand-silt-clay diagram. Grain sizes in the Walsh Lake freeze core consist solely of silt and sandy silt.

Table B1. Grain size data as output from GRADISTAT. No samples included gravel.

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	29.3%	35.5%	10.1%	7.3%	87.7%	12.3%
2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	20.2%	27.4%	16.1%	11.7%	80.5%	19.5%
3	0.0%	0.0%	0.0%	0.1%	0.6%	0.7%	7.2%	16.1%	21.2%	18.0%	14.8%	77.4%	21.9%
7	0.0%	0.0%	0.0%	2.5%	2.3%	4.8%	8.7%	16.9%	21.1%	16.3%	12.8%	75.8%	19.5%
8	0.0%	0.0%	0.0%	0.4%	0.9%	1.3%	7.8%	17.9%	23.9%	18.6%	12.3%	80.6%	18.2%
9	0.0%	0.0%	0.0%	1.0%	3.0%	3.9%	8.3%	15.2%	18.7%	17.4%	14.7%	74.3%	21.8%
10	0.0%	0.0%	0.0%	0.8%	2.2%	3.0%	11.5%	22.1%	23.3%	16.2%	9.8%	83.0%	14.0%
12	0.0%	0.0%	0.0%	1.5%	3.5%	5.0%	16.3%	23.7%	22.0%	14.1%	7.8%	83.9%	11.1%
13	0.0%	0.0%	0.0%	0.9%	2.3%	3.1%	12.4%	22.4%	23.2%	16.0%	9.6%	83.5%	13.4%
14	0.0%	0.0%	0.0%	1.1%	2.3%	3.4%	7.9%	15.3%	21.9%	19.7%	13.3%	78.1%	18.5%
15	0.0%	0.0%	0.0%	0.9%	2.5%	3.3%	9.3%	18.8%	22.8%	17.6%	11.5%	79.9%	16.7%
16	0.0%	0.0%	0.0%	0.1%	2.6%	2.7%	9.8%	18.2%	21.9%	17.5%	12.1%	79.4%	17.8%
17	0.0%	0.0%	0.0%	0.9%	2.3%	3.2%	10.1%	18.6%	21.3%	17.3%	12.1%	79.5%	17.3%
18	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%	8.7%	16.8%	19.8%	18.4%	14.6%	78.2%	21.3%
19	0.0%	0.0%	0.0%	0.4%	2.5%	2.9%	10.1%	19.6%	22.5%	17.0%	11.3%	80.6%	16.5%
20	0.0%	0.0%	0.0%	1.1%	2.2%	3.3%	8.7%	18.8%	22.7%	16.3%	11.9%	78.4%	18.3%
21	0.0%	0.0%	0.0%	0.6%	3.5%	4.1%	13.6%	20.9%	21.6%	15.0%	9.7%	80.9%	15.0%
22	0.0%	0.0%	0.0%	0.4%	1.4%	1.9%	9.4%	20.0%	23.4%	17.0%	11.3%	81.1%	17.0%
24	0.0%	0.0%	0.0%	0.0%	3.5%	3.5%	14.2%	23.6%	20.1%	15.9%	7.8%	81.6%	14.8%
25	0.0%	0.0%	0.0%	0.9%	2.9%	3.8%	9.5%	22.1%	24.0%	14.8%	10.0%	80.5%	15.8%
26	0.0%	0.0%	0.0%	0.7%	3.4%	4.1%	12.4%	17.8%	22.6%	16.9%	10.6%	80.4%	15.5%
27	0.0%	0.0%	0.0%	1.3%	7.3%	8.6%	23.3%	22.4%	20.3%	11.4%	5.9%	83.3%	8.1%
28	0.0%	0.0%	0.0%	0.7%	2.5%	3.2%	14.4%	22.4%	24.0%	15.2%	8.4%	84.6%	12.2%
29	0.0%	0.0%	0.0%	0.8%	2.7%	3.5%	14.8%	21.7%	23.7%	15.7%	8.6%	84.4%	12.1%
31	0.0%	0.0%	0.0%	1.7%	7.4%	9.1%	21.3%	21.5%	20.3%	12.1%	6.5%	81.8%	9.1%
32	0.0%	0.0%	0.0%	1.2%	7.8%	9.0%	21.0%	23.0%	21.9%	11.7%	5.7%	83.3%	7.7%
33	0.0%	0.0%	0.0%	0.3%	1.6%	1.9%	10.1%	22.0%	26.3%	17.1%	9.2%	84.7%	13.4%
34	0.0%	0.0%	0.0%	1.5%	8.9%	10.4%	21.6%	21.2%	20.6%	11.8%	6.0%	81.3%	8.3%
35	0.0%	0.0%	0.0%	3.0%	9.6%	12.7%	24.9%	21.0%	18.7%	10.7%	5.2%	80.5%	6.8%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
37	0.0%	0.0%	0.1%	4.3%	8.8%	13.1%	17.5%	19.0%	19.7%	12.3%	7.6%	76.1%	10.7%
38	0.0%	0.0%	0.0%	3.2%	15.3%	18.5%	26.0%	18.2%	16.0%	9.4%	5.0%	74.6%	6.9%
39	0.0%	0.0%	0.0%	1.1%	5.7%	6.8%	16.7%	21.7%	23.2%	13.8%	7.5%	83.0%	10.2%
40	0.0%	0.0%	0.0%	1.7%	10.5%	12.2%	21.1%	21.4%	21.0%	11.3%	5.5%	80.4%	7.4%
41	0.0%	0.0%	0.0%	1.4%	12.6%	14.0%	23.5%	18.0%	17.7%	11.8%	6.8%	77.8%	8.2%
42	0.0%	0.0%	0.0%	1.8%	4.6%	6.4%	13.0%	16.8%	21.6%	16.0%	10.6%	78.0%	15.6%
43	0.0%	0.0%	0.1%	3.4%	5.2%	8.6%	17.5%	24.6%	23.6%	12.2%	5.8%	83.8%	7.7%
44	0.0%	0.0%	0.0%	1.9%	7.4%	9.3%	21.3%	21.8%	20.8%	11.8%	6.4%	82.1%	8.5%
45	0.0%	0.0%	0.0%	3.3%	9.6%	12.9%	21.6%	18.9%	18.6%	11.5%	6.9%	77.5%	9.6%
46	0.0%	0.0%	0.0%	2.2%	6.3%	8.5%	22.0%	21.9%	21.2%	11.5%	6.1%	82.8%	8.7%
47	0.0%	0.0%	0.0%	1.2%	8.2%	9.4%	21.2%	22.1%	20.5%	11.2%	6.4%	81.4%	9.2%
48	0.0%	0.0%	0.0%	0.8%	4.3%	5.0%	16.8%	22.4%	23.4%	13.7%	7.7%	84.2%	10.8%
49	0.0%	0.0%	0.0%	4.3%	13.5%	17.9%	24.9%	19.9%	17.8%	8.9%	4.4%	75.9%	6.2%
50	0.0%	1.4%	0.9%	5.6%	15.1%	23.0%	22.3%	19.3%	16.1%	8.7%	4.6%	70.9%	6.1%
51	0.0%	0.0%	0.0%	2.7%	7.9%	10.6%	18.6%	21.7%	21.3%	12.6%	6.6%	80.7%	8.7%
52	0.0%	0.0%	0.0%	3.4%	8.6%	12.0%	21.9%	22.6%	19.7%	11.0%	5.4%	80.6%	7.3%
53	0.0%	0.0%	0.0%	1.6%	4.1%	5.7%	15.8%	27.2%	24.4%	12.1%	6.2%	85.8%	8.5%
54	0.0%	0.0%	0.0%	2.2%	9.3%	11.4%	23.2%	26.5%	20.0%	8.6%	4.2%	82.5%	6.0%
55	0.0%	1.4%	0.6%	5.4%	21.3%	28.8%	25.5%	17.6%	12.9%	6.6%	3.6%	66.1%	5.1%
56	0.0%	0.0%	0.0%	3.3%	10.8%	14.1%	22.9%	26.3%	18.6%	8.0%	4.1%	80.0%	5.9%
57	0.0%	0.0%	0.0%	2.1%	8.2%	10.3%	22.0%	29.1%	20.1%	8.2%	4.2%	83.6%	6.1%
58	0.0%	0.0%	0.0%	3.1%	12.3%	15.4%	25.3%	24.5%	17.3%	7.7%	4.0%	78.7%	5.9%
59	0.0%	0.2%	0.2%	5.0%	12.2%	17.6%	22.7%	24.2%	18.0%	7.8%	3.9%	76.7%	5.8%
60	0.0%	0.0%	0.0%	2.4%	8.5%	10.8%	22.5%	29.8%	19.7%	7.6%	3.8%	83.5%	5.7%
61	0.0%	0.0%	0.0%	2.9%	12.5%	15.4%	25.8%	24.7%	17.5%	7.6%	3.7%	79.2%	5.3%
62	0.0%	0.0%	0.0%	3.5%	11.7%	15.2%	25.5%	25.7%	17.1%	7.3%	3.8%	79.4%	5.4%
64	0.0%	0.0%	0.0%	4.2%	12.3%	16.5%	19.9%	25.6%	19.0%	8.4%	4.4%	77.3%	6.2%
66	0.0%	0.0%	0.0%	2.6%	8.6%	11.2%	22.0%	27.7%	20.5%	8.5%	4.1%	82.8%	6.0%
67	0.0%	0.0%	0.0%	3.3%	8.1%	11.4%	21.5%	29.7%	20.1%	7.9%	3.8%	83.0%	5.6%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
68	0.0%	0.0%	0.1%	4.8%	7.5%	12.4%	21.2%	28.5%	20.2%	8.3%	3.8%	82.0%	5.6%
69	0.0%	0.0%	0.0%	2.4%	5.1%	7.5%	17.7%	33.5%	23.1%	8.3%	3.8%	86.5%	6.1%
70	0.0%	0.0%	0.0%	2.2%	5.3%	7.5%	19.4%	32.9%	22.1%	8.2%	3.9%	86.4%	6.1%
71	0.0%	0.0%	0.0%	1.5%	3.7%	5.2%	18.7%	30.7%	24.4%	10.0%	4.3%	88.1%	6.7%
72	0.0%	0.0%	0.0%	1.2%	6.4%	7.6%	24.6%	31.2%	19.7%	7.7%	3.7%	86.8%	5.5%
74	0.0%	0.0%	0.1%	3.3%	3.8%	7.2%	20.3%	33.9%	21.3%	8.0%	3.7%	87.2%	5.6%
75	0.0%	0.0%	0.0%	2.7%	8.3%	11.0%	28.9%	29.1%	16.7%	6.6%	3.0%	84.3%	4.7%
76	0.0%	0.0%	0.0%	2.4%	5.3%	7.7%	23.6%	31.6%	19.6%	7.9%	3.8%	86.5%	5.7%
77	0.0%	0.0%	0.0%	1.8%	4.0%	5.8%	22.0%	33.6%	20.9%	8.1%	3.8%	88.4%	5.8%
78	0.0%	0.0%	0.0%	1.5%	3.6%	5.1%	18.0%	34.6%	22.9%	8.7%	4.2%	88.4%	6.5%
79	0.0%	0.0%	0.0%	2.4%	5.1%	7.5%	19.8%	32.3%	22.0%	8.5%	3.8%	86.4%	6.0%
80	0.0%	0.0%	0.0%	2.4%	1.6%	4.1%	8.4%	32.7%	29.0%	12.3%	5.3%	87.8%	8.2%
81	0.0%	0.0%	0.0%	2.1%	3.3%	5.4%	14.8%	34.1%	24.8%	10.4%	4.3%	88.4%	6.2%
82	0.0%	0.0%	0.0%	1.6%	3.4%	4.9%	18.0%	36.1%	22.8%	8.3%	3.8%	89.1%	6.0%
83	0.0%	0.0%	0.0%	1.6%	4.5%	6.1%	18.2%	34.0%	22.9%	8.8%	3.9%	87.7%	6.2%
84	0.0%	0.0%	0.0%	1.4%	3.5%	4.9%	18.6%	37.1%	22.6%	7.7%	3.4%	89.4%	5.7%
86	0.0%	0.0%	0.0%	2.1%	3.4%	5.5%	20.1%	36.4%	21.1%	7.5%	3.6%	88.7%	5.8%
87	0.0%	0.0%	0.0%	1.2%	3.1%	4.3%	10.1%	29.0%	27.7%	12.8%	6.2%	85.9%	9.8%
88	0.0%	0.0%	0.0%	1.9%	5.3%	7.2%	20.4%	35.9%	20.5%	7.0%	3.4%	87.3%	5.5%
89	0.0%	0.0%	0.0%	1.7%	4.6%	6.3%	20.3%	35.2%	21.4%	7.7%	3.5%	88.0%	5.6%
90	0.0%	0.0%	0.0%	2.4%	4.3%	6.8%	15.6%	35.6%	23.0%	8.3%	4.1%	86.7%	6.5%
91	0.0%	0.0%	0.0%	1.8%	3.9%	5.7%	18.3%	36.4%	21.9%	7.9%	3.9%	88.3%	6.0%
92	0.0%	0.0%	0.0%	1.4%	4.1%	5.5%	20.2%	37.1%	21.0%	7.2%	3.5%	89.0%	5.5%
93	0.0%	0.0%	0.1%	4.1%	5.9%	10.0%	21.3%	34.3%	19.1%	6.8%	3.3%	84.8%	5.2%
94	0.0%	0.0%	0.0%	2.3%	4.4%	6.8%	19.8%	32.6%	21.8%	9.0%	4.1%	87.2%	6.0%
95	0.0%	0.0%	0.0%	1.8%	4.5%	6.2%	21.4%	36.2%	20.6%	7.2%	3.3%	88.6%	5.2%
97	0.0%	0.0%	0.0%	2.0%	4.8%	6.8%	21.8%	35.9%	19.9%	6.9%	3.4%	87.9%	5.4%
99	0.0%	0.0%	0.0%	2.7%	5.3%	8.0%	24.5%	32.5%	19.3%	7.3%	3.3%	86.9%	5.1%
100	0.0%	0.0%	0.1%	3.5%	3.9%	7.4%	22.9%	35.8%	19.1%	6.7%	3.1%	87.7%	4.9%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
101	0.0%	0.0%	0.0%	1.3%	2.8%	4.1%	19.4%	38.5%	21.6%	7.4%	3.5%	90.4%	5.5%
102	0.0%	0.0%	0.0%	2.4%	4.6%	7.0%	22.4%	35.2%	20.1%	7.0%	3.2%	88.0%	5.0%
103	0.0%	0.0%	0.0%	1.4%	3.2%	4.6%	19.7%	38.4%	21.2%	7.2%	3.5%	90.0%	5.4%
104	0.0%	0.0%	0.0%	1.6%	4.2%	5.8%	21.5%	37.0%	20.1%	7.0%	3.5%	89.0%	5.2%
105	0.0%	0.0%	0.0%	1.4%	3.8%	5.2%	21.1%	36.7%	20.7%	7.3%	3.5%	89.3%	5.5%
106	0.0%	0.0%	0.0%	1.1%	3.2%	4.3%	19.1%	35.1%	22.4%	8.8%	4.2%	89.5%	6.2%
107	0.0%	0.0%	0.0%	1.2%	3.7%	4.9%	21.7%	37.2%	20.2%	7.1%	3.5%	89.7%	5.4%
108	0.0%	0.0%	0.0%	2.1%	4.3%	6.4%	21.2%	33.3%	21.4%	8.4%	3.7%	88.0%	5.6%
109	0.0%	0.0%	0.0%	1.4%	2.7%	4.1%	14.0%	38.2%	25.4%	8.1%	3.7%	89.4%	6.4%
110	0.0%	0.0%	0.0%	1.5%	3.1%	4.6%	17.3%	29.2%	23.6%	12.9%	5.7%	88.8%	6.6%
111	0.0%	0.0%	0.0%	2.2%	4.7%	7.0%	20.8%	27.8%	21.5%	11.9%	5.1%	87.1%	5.9%
112	0.0%	0.0%	0.0%	2.9%	7.0%	9.9%	24.1%	26.1%	18.9%	10.4%	4.8%	84.3%	5.7%
113	0.0%	0.0%	0.0%	1.3%	3.8%	5.2%	18.4%	28.5%	23.1%	12.9%	5.6%	88.4%	6.4%
114	0.0%	0.0%	0.0%	2.1%	5.9%	8.0%	20.7%	26.8%	21.3%	12.1%	5.2%	86.0%	6.0%
115	0.0%	0.0%	0.0%	1.0%	4.3%	5.3%	21.4%	28.6%	21.7%	11.9%	5.2%	88.8%	5.9%
116	0.0%	0.0%	0.0%	1.6%	4.6%	6.2%	21.8%	28.7%	21.6%	11.3%	4.8%	88.1%	5.6%
117	0.0%	0.0%	0.0%	2.5%	4.4%	6.9%	21.8%	28.5%	21.2%	11.1%	4.8%	87.3%	5.7%
118	0.0%	0.3%	0.9%	4.1%	4.0%	9.4%	17.8%	28.3%	22.4%	11.5%	4.8%	84.7%	5.9%
119	0.0%	0.0%	0.0%	2.6%	5.8%	8.4%	21.8%	27.6%	20.9%	10.9%	4.6%	85.8%	5.8%
120	0.0%	0.0%	0.0%	1.9%	5.3%	7.2%	20.2%	27.8%	21.9%	12.0%	5.3%	87.4%	5.5%
121	0.0%	0.0%	0.0%	1.0%	1.9%	2.9%	15.4%	31.0%	25.7%	13.4%	5.6%	91.2%	5.9%
122	0.0%	0.0%	0.0%	1.0%	3.1%	4.1%	16.3%	29.0%	25.0%	13.6%	5.8%	89.8%	6.2%
123	0.0%	0.0%	0.0%	1.2%	3.3%	4.5%	18.8%	29.2%	23.1%	12.5%	5.5%	89.1%	6.4%
124	0.0%	0.0%	0.0%	2.9%	5.6%	8.6%	22.0%	28.3%	20.8%	10.4%	4.4%	85.9%	5.5%
125	0.0%	0.0%	0.0%	3.5%	8.0%	11.6%	24.5%	26.1%	18.7%	9.8%	4.2%	83.2%	5.2%
126	0.0%	0.0%	0.0%	2.1%	4.0%	6.1%	18.1%	28.5%	23.1%	12.6%	5.3%	87.6%	6.3%
128	0.0%	0.0%	0.0%	3.1%	4.2%	7.3%	17.1%	27.9%	22.9%	12.3%	5.6%	85.9%	6.8%
129	0.0%	0.0%	0.0%	3.1%	6.6%	9.7%	20.2%	26.5%	21.0%	11.5%	5.0%	84.3%	6.0%
130	0.0%	0.0%	0.2%	3.4%	3.3%	7.0%	15.7%	26.3%	23.7%	13.5%	6.2%	85.4%	7.6%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
131	0.0%	0.0%	0.1%	2.9%	2.9%	5.9%	16.7%	29.8%	23.9%	12.3%	5.2%	87.9%	6.1%
132	0.0%	0.0%	0.0%	3.3%	5.9%	9.3%	24.1%	26.8%	19.7%	10.2%	4.4%	85.3%	5.5%
133	0.0%	0.0%	0.0%	1.2%	2.9%	4.1%	19.4%	30.1%	23.0%	12.0%	5.2%	89.7%	6.2%
134	0.0%	0.0%	0.0%	1.6%	2.9%	4.4%	17.5%	29.5%	24.0%	12.8%	5.4%	89.2%	6.4%
135	0.0%	0.0%	0.0%	1.6%	2.5%	4.0%	14.5%	29.1%	25.5%	13.8%	5.9%	88.9%	7.1%
136	0.0%	0.0%	0.0%	1.7%	2.4%	4.1%	15.2%	29.7%	25.4%	13.4%	5.6%	89.2%	6.6%
137	0.0%	0.0%	0.0%	1.2%	2.7%	3.9%	16.3%	28.9%	24.8%	13.5%	5.8%	89.4%	6.8%
143	0.0%	0.0%	0.0%	2.8%	3.5%	6.3%	18.7%	27.9%	22.8%	12.2%	5.5%	87.1%	6.6%
144	0.0%	0.0%	0.0%	1.8%	3.9%	5.7%	15.4%	27.2%	24.3%	13.8%	6.3%	87.0%	7.3%
145	0.0%	0.0%	0.0%	2.2%	2.8%	5.0%	14.0%	28.9%	26.2%	13.6%	5.5%	88.2%	6.7%
146	0.0%	0.0%	0.0%	3.3%	5.0%	8.3%	19.8%	27.9%	22.1%	11.2%	4.7%	85.7%	6.0%
147	0.0%	0.0%	0.0%	1.9%	5.8%	7.7%	22.8%	28.1%	20.7%	10.6%	4.5%	86.7%	5.6%
148	0.0%	0.0%	0.0%	1.6%	3.4%	5.0%	18.1%	30.3%	24.1%	11.6%	4.7%	88.8%	6.2%
149	0.0%	0.0%	0.0%	2.7%	4.2%	6.9%	19.3%	29.9%	22.9%	10.7%	4.4%	87.2%	5.9%
150	0.0%	0.0%	0.0%	2.0%	3.1%	5.1%	14.5%	28.3%	26.5%	12.9%	5.3%	87.5%	7.4%
151	0.0%	0.0%	0.0%	1.1%	3.2%	4.3%	16.7%	30.6%	24.8%	12.3%	5.1%	89.5%	6.2%
152	0.0%	0.0%	0.0%	0.7%	2.5%	3.2%	12.9%	30.8%	27.3%	13.6%	5.6%	90.1%	6.7%
153	0.0%	0.0%	0.0%	0.9%	2.3%	3.2%	12.4%	31.3%	27.7%	13.4%	5.3%	90.2%	6.6%
154	0.0%	0.0%	0.0%	1.4%	3.3%	4.8%	17.9%	40.5%	20.6%	6.8%	3.6%	89.5%	5.8%
155	0.0%	0.0%	0.0%	1.9%	3.0%	4.8%	19.8%	41.5%	18.9%	6.0%	3.4%	89.6%	5.5%
156	0.0%	0.0%	0.0%	1.0%	1.8%	2.9%	13.4%	42.4%	23.1%	7.5%	4.1%	90.5%	6.6%
157	0.0%	0.0%	0.0%	0.9%	1.7%	2.6%	11.7%	30.1%	27.3%	14.4%	6.3%	89.7%	7.8%
158	0.0%	0.0%	0.0%	0.8%	2.0%	2.8%	11.2%	26.9%	27.7%	16.1%	7.0%	88.8%	8.4%
159	0.0%	0.0%	0.0%	1.0%	2.3%	3.3%	11.2%	28.6%	27.2%	15.2%	6.6%	88.8%	7.8%
160	0.0%	0.0%	0.0%	0.9%	1.9%	2.8%	12.0%	28.8%	27.2%	15.2%	6.4%	89.7%	7.5%
161	0.0%	0.0%	0.0%	1.0%	2.7%	3.8%	11.3%	26.0%	26.6%	16.3%	7.5%	87.7%	8.5%
162	0.0%	0.0%	0.0%	2.8%	3.8%	6.7%	13.0%	25.4%	24.9%	15.4%	7.0%	85.7%	7.6%
164	0.0%	0.0%	0.0%	0.7%	1.9%	2.6%	11.1%	27.2%	27.8%	16.3%	7.0%	89.4%	8.1%
165	0.0%	0.0%	0.0%	1.3%	3.3%	4.5%	11.8%	27.0%	27.2%	15.5%	6.4%	88.0%	7.5%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
166	0.0%	0.0%	0.0%	1.1%	1.8%	2.9%	9.7%	27.7%	28.4%	16.4%	6.9%	89.1%	8.0%
167	0.0%	0.0%	0.0%	2.0%	3.1%	5.0%	11.8%	25.9%	26.3%	15.8%	7.0%	86.9%	8.1%
168	0.0%	0.0%	0.0%	1.3%	2.4%	3.8%	11.4%	27.6%	27.0%	15.9%	6.8%	88.6%	7.6%
169	0.0%	0.0%	0.0%	1.6%	3.1%	4.7%	13.3%	28.2%	25.8%	14.4%	6.2%	88.0%	7.3%
170	0.0%	0.0%	0.0%	1.4%	2.8%	4.2%	14.2%	28.4%	25.4%	14.2%	6.2%	88.3%	7.4%
171	0.0%	0.0%	0.0%	1.0%	1.9%	3.0%	8.7%	25.3%	28.9%	17.9%	7.7%	88.4%	8.6%
172	0.0%	0.0%	0.0%	1.3%	2.2%	3.5%	10.7%	26.5%	27.3%	16.6%	7.2%	88.4%	8.1%
173	0.0%	0.0%	0.0%	1.5%	2.2%	3.7%	12.0%	27.9%	26.6%	15.4%	6.6%	88.5%	7.8%
174	0.0%	0.0%	0.0%	2.0%	2.4%	4.4%	12.4%	27.5%	26.2%	15.2%	6.6%	87.9%	7.7%
175	0.0%	0.0%	0.0%	1.1%	3.1%	4.2%	16.8%	30.1%	23.8%	12.6%	5.7%	89.1%	6.6%
176	0.0%	0.0%	0.0%	1.1%	2.5%	3.6%	10.7%	27.7%	29.3%	14.9%	5.9%	88.6%	7.9%
177	0.0%	0.0%	0.0%	1.6%	2.6%	4.2%	10.0%	25.3%	29.3%	16.3%	6.5%	87.5%	8.3%
178	0.0%	0.0%	0.0%	2.6%	4.7%	7.4%	12.9%	25.6%	26.8%	14.0%	5.7%	85.0%	7.6%
179	0.0%	0.0%	0.0%	1.6%	3.3%	4.9%	15.0%	30.0%	25.6%	12.6%	5.2%	88.4%	6.7%
180	0.0%	0.0%	0.0%	3.4%	5.9%	9.4%	13.6%	26.0%	25.8%	13.1%	5.2%	83.7%	6.9%
181	0.0%	0.0%	0.0%	1.1%	2.4%	3.6%	8.3%	26.1%	30.6%	16.2%	6.5%	87.8%	8.7%
182	0.0%	0.0%	0.0%	1.6%	3.8%	5.5%	10.4%	25.3%	28.6%	15.7%	6.3%	86.3%	8.2%
183	0.0%	0.0%	0.0%	1.0%	2.6%	3.6%	11.1%	27.4%	28.6%	15.0%	6.2%	88.3%	8.2%
184	0.0%	0.0%	0.0%	0.9%	2.0%	2.9%	8.4%	26.8%	30.0%	16.1%	6.9%	88.2%	8.9%
185	0.0%	0.0%	0.0%	1.0%	2.1%	3.1%	9.1%	26.3%	30.7%	15.8%	6.3%	88.2%	8.7%
186	0.0%	0.0%	0.0%	1.8%	3.0%	4.8%	10.3%	26.0%	28.6%	15.5%	6.4%	86.9%	8.4%
187	0.0%	0.0%	0.0%	1.8%	2.5%	4.3%	9.5%	26.9%	29.5%	15.3%	6.3%	87.5%	8.3%
188	0.0%	0.0%	0.0%	2.1%	3.4%	5.5%	10.4%	25.3%	28.4%	15.2%	6.6%	85.9%	8.5%
189	0.0%	0.0%	0.0%	1.6%	3.0%	4.6%	12.9%	27.9%	27.4%	13.9%	5.7%	87.7%	7.7%
190	0.0%	0.0%	0.0%	0.9%	1.5%	2.3%	8.8%	27.0%	30.7%	15.8%	6.5%	88.8%	8.8%
191	0.0%	0.0%	0.0%	1.6%	3.8%	5.4%	13.9%	27.0%	26.2%	13.8%	5.9%	86.8%	7.8%
193	0.0%	0.0%	0.0%	1.8%	2.8%	4.6%	10.7%	26.5%	28.2%	15.0%	6.5%	87.0%	8.4%
194	0.0%	0.0%	0.0%	1.7%	2.3%	4.1%	12.2%	27.3%	27.3%	14.5%	6.3%	87.6%	8.4%
195	0.0%	0.0%	0.0%	1.3%	2.0%	3.3%	10.4%	27.0%	28.4%	15.2%	6.8%	87.8%	8.8%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
196	0.0%	0.0%	0.0%	1.0%	1.6%	2.6%	9.6%	27.6%	29.2%	15.5%	6.8%	88.7%	8.8%
199	0.0%	0.0%	0.0%	1.3%	2.8%	4.1%	11.6%	25.9%	27.9%	15.0%	6.6%	87.1%	8.9%
200	0.0%	0.0%	0.0%	1.7%	2.5%	4.2%	11.2%	27.7%	27.9%	14.6%	6.3%	87.7%	8.1%
201	0.0%	0.0%	0.0%	2.2%	3.4%	5.6%	14.1%	26.9%	25.4%	14.1%	6.3%	86.7%	7.7%
202	0.0%	0.0%	0.0%	1.7%	3.2%	4.9%	14.6%	28.0%	25.9%	13.4%	5.7%	87.6%	7.4%
203	0.0%	0.0%	0.0%	1.0%	2.0%	3.0%	9.7%	28.5%	28.9%	15.2%	6.5%	88.8%	8.2%
204	0.0%	0.0%	0.0%	3.1%	4.7%	7.9%	17.0%	27.4%	23.9%	11.9%	5.0%	85.2%	6.9%
205	0.0%	0.0%	0.0%	2.3%	3.8%	6.1%	12.9%	28.2%	26.4%	13.1%	5.6%	86.2%	7.7%
206	0.0%	0.0%	0.0%	2.0%	2.3%	4.3%	12.0%	29.3%	27.7%	13.2%	5.8%	88.0%	7.8%
207	0.0%	0.0%	0.0%	1.7%	3.6%	5.3%	17.0%	28.7%	23.6%	12.9%	6.0%	88.1%	6.6%
208	0.0%	0.0%	0.0%	1.2%	3.5%	4.6%	13.1%	26.9%	26.4%	14.8%	6.7%	87.8%	7.5%
209	0.0%	0.0%	0.0%	1.3%	2.0%	3.3%	9.9%	27.0%	28.4%	15.9%	7.2%	88.4%	8.3%
210	0.0%	0.0%	0.0%	1.9%	4.4%	6.4%	15.6%	27.3%	24.6%	13.0%	5.7%	86.3%	7.4%
211	0.0%	0.0%	0.0%	0.9%	1.8%	2.7%	10.7%	27.4%	28.6%	15.7%	6.6%	89.0%	8.3%
212	0.0%	0.0%	0.1%	4.1%	5.4%	9.5%	12.1%	25.8%	26.3%	13.0%	5.6%	82.7%	7.7%
213	0.0%	0.0%	0.0%	1.3%	2.2%	3.5%	10.0%	27.3%	29.3%	14.9%	6.3%	88.0%	8.5%
214	0.0%	0.0%	0.0%	1.8%	5.3%	7.1%	19.0%	27.6%	22.5%	11.7%	5.3%	86.2%	6.7%
215	0.0%	0.0%	0.0%	2.1%	3.5%	5.5%	10.8%	27.1%	27.8%	14.0%	6.2%	85.9%	8.6%
216	0.0%	0.0%	0.0%	1.3%	2.5%	3.8%	12.9%	30.6%	27.6%	12.5%	5.2%	88.8%	7.4%
217	0.0%	0.0%	0.0%	1.0%	2.2%	3.3%	10.0%	28.5%	29.3%	14.1%	6.2%	88.1%	8.6%
218	0.0%	0.0%	0.0%	1.6%	2.3%	3.8%	9.3%	27.7%	29.7%	14.5%	6.3%	87.4%	8.7%
219	0.0%	0.0%	0.0%	1.4%	2.8%	4.1%	12.0%	29.4%	28.1%	13.3%	5.5%	88.2%	7.7%
220	0.0%	0.0%	0.0%	1.2%	3.1%	4.3%	10.8%	28.4%	29.5%	13.7%	5.4%	87.7%	8.0%
221	0.0%	0.0%	0.0%	1.5%	3.2%	4.7%	10.6%	26.8%	29.0%	14.7%	6.1%	87.1%	8.2%
222	0.0%	0.0%	0.0%	1.5%	3.4%	4.9%	14.9%	29.2%	25.7%	12.7%	5.4%	87.9%	7.2%
223	0.0%	0.0%	0.0%	1.6%	3.7%	5.3%	16.0%	30.5%	25.3%	11.7%	4.8%	88.1%	6.6%
224	0.0%	0.0%	0.0%	1.9%	4.0%	5.9%	14.4%	30.1%	26.0%	11.9%	4.9%	87.2%	6.9%
225	0.0%	0.0%	0.0%	1.7%	2.6%	4.3%	11.6%	28.0%	28.2%	14.1%	5.9%	87.8%	7.9%
226	0.0%	0.0%	0.0%	1.1%	2.4%	3.5%	10.6%	28.7%	28.4%	14.1%	6.3%	88.1%	8.4%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
227	0.0%	0.0%	0.0%	1.8%	2.7%	4.4%	13.6%	29.9%	26.5%	12.7%	5.5%	88.2%	7.4%
228	0.0%	0.0%	0.0%	1.7%	3.4%	5.1%	12.7%	28.9%	27.2%	12.8%	5.5%	87.1%	7.8%
229	0.0%	0.0%	0.0%	1.2%	3.5%	4.7%	15.1%	29.7%	25.5%	12.4%	5.3%	88.1%	7.2%
230	0.0%	0.0%	0.0%	2.1%	3.8%	5.9%	12.8%	29.1%	27.0%	12.6%	5.3%	86.8%	7.3%
231	0.0%	0.0%	0.0%	1.3%	2.7%	4.0%	12.3%	30.3%	27.6%	12.8%	5.5%	88.5%	7.5%
232	0.0%	0.0%	0.0%	1.2%	2.7%	3.8%	12.9%	30.6%	27.2%	12.7%	5.4%	88.7%	7.5%
233	0.0%	0.0%	0.0%	1.2%	2.4%	3.6%	11.6%	27.7%	28.0%	14.3%	6.3%	87.9%	8.6%
234	0.0%	0.0%	0.0%	1.0%	2.6%	3.6%	9.7%	27.6%	29.6%	14.8%	6.2%	88.0%	8.5%
235	0.0%	0.0%	0.0%	1.0%	2.6%	3.5%	12.0%	29.5%	28.1%	13.3%	5.8%	88.6%	7.9%
236	0.0%	0.0%	0.0%	1.3%	2.3%	3.6%	10.7%	28.0%	28.5%	14.2%	6.4%	87.9%	8.5%
237	0.0%	0.0%	0.0%	1.3%	2.5%	3.9%	12.1%	29.6%	28.2%	12.9%	5.5%	88.3%	7.9%
238	0.0%	0.0%	0.0%	1.7%	3.6%	5.4%	13.9%	30.1%	26.6%	12.2%	4.8%	87.7%	6.9%
239	0.0%	0.0%	0.0%	1.1%	4.0%	5.0%	14.4%	27.1%	26.4%	13.3%	5.9%	87.1%	7.8%
241	0.0%	0.0%	0.0%	0.9%	3.0%	4.0%	13.0%	29.0%	27.0%	13.2%	5.8%	88.1%	8.0%
242	0.0%	0.0%	0.0%	1.2%	3.4%	4.6%	16.6%	30.2%	25.2%	11.5%	4.9%	88.4%	7.0%
243	0.0%	0.0%	0.0%	1.2%	3.4%	4.6%	13.0%	27.8%	27.2%	13.7%	5.9%	87.6%	7.8%
244	0.0%	0.0%	0.0%	1.6%	4.0%	5.6%	12.5%	28.3%	27.5%	12.6%	5.5%	86.5%	7.9%
245	0.0%	0.0%	0.0%	1.7%	5.7%	7.4%	16.2%	27.6%	24.7%	11.8%	5.1%	85.4%	7.2%
246	0.0%	0.0%	0.0%	0.9%	2.8%	3.7%	11.7%	26.6%	27.7%	14.9%	6.7%	87.5%	8.8%
247	0.0%	0.0%	0.0%	1.2%	3.3%	4.5%	14.0%	28.8%	26.8%	12.9%	5.4%	87.9%	7.5%
248	0.0%	0.0%	0.0%	1.1%	3.7%	4.8%	14.8%	29.9%	26.4%	11.9%	5.0%	88.0%	7.2%
249	0.0%	0.0%	0.0%	2.0%	3.7%	5.7%	15.2%	31.8%	25.9%	11.1%	4.3%	88.2%	6.0%
251	0.0%	0.0%	0.0%	1.2%	4.7%	6.0%	11.9%	22.4%	24.9%	17.1%	8.7%	84.9%	9.1%
252	0.0%	0.0%	0.0%	1.7%	4.1%	5.8%	14.4%	25.7%	24.9%	14.9%	6.7%	86.6%	7.6%
253	0.0%	0.0%	0.0%	3.2%	5.8%	9.0%	17.8%	25.1%	21.9%	13.1%	6.0%	83.9%	7.2%
254	0.0%	0.0%	0.0%	0.8%	3.8%	4.7%	15.7%	28.0%	24.3%	13.7%	6.5%	88.2%	7.2%
255	0.0%	0.0%	0.0%	0.6%	3.1%	3.7%	12.6%	24.6%	25.6%	16.9%	8.4%	88.1%	8.2%
256	0.0%	0.0%	0.0%	1.3%	3.7%	5.0%	12.1%	24.6%	25.7%	16.5%	7.9%	86.8%	8.2%
257	0.0%	0.0%	0.0%	1.1%	4.5%	5.6%	13.3%	23.9%	25.0%	16.0%	7.6%	85.8%	8.6%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
258	0.0%	0.0%	0.0%	1.0%	4.1%	5.1%	14.7%	25.5%	24.9%	15.1%	6.9%	87.1%	7.9%
259	0.0%	0.0%	0.0%	1.5%	4.0%	5.5%	17.1%	26.2%	23.5%	14.0%	6.3%	87.1%	7.3%
260	0.0%	0.0%	0.0%	1.0%	4.0%	5.0%	15.3%	26.3%	24.6%	14.6%	6.6%	87.4%	7.6%
261	0.0%	0.0%	0.0%	1.4%	3.8%	5.2%	13.4%	26.2%	25.6%	15.4%	6.7%	87.3%	7.5%
262	0.0%	0.0%	0.0%	0.9%	2.8%	3.7%	10.5%	24.0%	27.5%	17.2%	7.9%	87.1%	9.2%
263	0.0%	0.0%	0.0%	1.1%	3.6%	4.7%	11.1%	23.0%	26.2%	17.6%	8.3%	86.1%	9.1%
264	0.0%	0.0%	0.0%	0.8%	2.7%	3.5%	11.1%	24.0%	27.1%	17.5%	7.8%	87.5%	9.1%
265	0.0%	0.0%	0.0%	1.1%	3.6%	4.7%	11.4%	24.0%	26.7%	17.3%	7.6%	87.0%	8.4%
266	0.0%	0.0%	0.0%	0.9%	4.2%	5.1%	14.4%	24.4%	25.0%	16.0%	7.1%	87.0%	8.0%
267	0.0%	0.0%	0.0%	1.3%	3.6%	4.9%	16.5%	26.4%	24.0%	14.4%	6.5%	87.7%	7.3%
268	0.0%	0.0%	0.0%	1.6%	3.9%	5.5%	12.8%	25.7%	24.9%	15.3%	7.4%	86.0%	8.5%
269	0.0%	0.0%	0.0%	1.4%	4.1%	5.5%	16.3%	26.3%	23.8%	14.3%	6.5%	87.1%	7.4%
270	0.0%	0.0%	0.0%	0.9%	3.9%	4.8%	14.3%	26.4%	24.9%	15.0%	6.8%	87.4%	7.8%
271	0.0%	0.0%	0.0%	0.8%	3.5%	4.3%	12.8%	24.8%	25.7%	16.2%	7.6%	87.1%	8.6%
272	0.0%	0.0%	0.0%	1.7%	4.3%	6.1%	14.2%	25.5%	24.8%	14.9%	6.7%	86.1%	7.8%
273	0.0%	0.0%	0.0%	2.8%	3.7%	6.5%	16.0%	25.6%	23.6%	14.2%	6.5%	85.9%	7.6%
274	0.0%	0.0%	0.0%	1.7%	5.6%	7.4%	13.4%	22.4%	23.7%	16.4%	8.0%	83.8%	8.8%
276	0.0%	0.0%	0.0%	1.1%	4.6%	5.7%	14.3%	23.6%	24.4%	16.4%	7.5%	86.1%	8.2%
277	0.0%	0.0%	0.0%	1.8%	5.1%	7.0%	15.1%	23.4%	24.0%	15.4%	7.1%	85.0%	8.0%
278	0.0%	0.0%	0.0%	1.1%	3.9%	4.9%	15.8%	25.2%	24.2%	15.2%	6.9%	87.3%	7.8%
279	0.0%	0.0%	0.0%	1.6%	3.8%	5.4%	15.7%	26.6%	24.2%	14.3%	6.4%	87.2%	7.4%
280	0.0%	0.0%	0.0%	1.2%	4.5%	5.7%	15.3%	25.3%	24.2%	15.0%	6.8%	86.6%	7.7%
281	0.0%	0.0%	0.0%	1.1%	3.3%	4.4%	12.9%	24.0%	25.2%	16.5%	7.9%	86.6%	9.0%
282	0.0%	0.0%	0.0%	1.4%	3.9%	5.3%	15.6%	26.1%	24.5%	14.7%	6.5%	87.2%	7.4%
283	0.0%	0.0%	0.0%	0.7%	3.7%	4.5%	12.4%	23.5%	25.7%	17.2%	7.9%	86.7%	8.9%
284	0.0%	0.0%	0.0%	1.0%	4.2%	5.2%	13.3%	24.0%	24.8%	16.2%	7.8%	86.2%	8.7%
285	0.0%	0.0%	0.0%	0.8%	3.6%	4.5%	13.7%	24.2%	25.1%	16.2%	7.7%	86.8%	8.7%
286	0.0%	0.0%	0.0%	1.2%	4.1%	5.2%	15.2%	25.1%	24.4%	15.2%	7.0%	86.8%	7.9%
288	0.0%	0.0%	0.0%	1.1%	4.0%	5.1%	14.9%	25.5%	24.7%	15.3%	6.8%	87.3%	7.6%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
289	0.0%	0.0%	0.0%	1.0%	4.3%	5.3%	14.7%	24.9%	24.4%	15.8%	7.2%	87.0%	7.7%
290	0.0%	0.0%	0.0%	1.0%	3.4%	4.4%	15.5%	26.8%	24.3%	14.7%	6.8%	88.0%	7.5%
291	0.0%	0.0%	0.0%	0.9%	4.6%	5.5%	14.7%	24.1%	24.0%	16.0%	7.5%	86.3%	8.2%
292	0.0%	0.0%	0.0%	1.4%	5.8%	7.2%	16.2%	23.7%	23.0%	15.1%	7.1%	85.1%	7.7%
294	0.0%	0.0%	0.0%	1.0%	4.3%	5.3%	13.0%	22.9%	25.0%	16.9%	8.1%	85.8%	8.8%
295	0.0%	0.0%	0.0%	1.2%	4.0%	5.2%	16.3%	25.3%	23.6%	14.9%	6.9%	86.9%	7.9%
296	0.0%	0.0%	0.0%	0.9%	3.0%	3.9%	10.4%	24.4%	26.3%	17.4%	8.3%	86.8%	9.2%
297	0.0%	0.0%	0.0%	1.3%	3.0%	4.3%	12.2%	25.8%	25.7%	15.9%	7.5%	87.1%	8.6%
298	0.0%	0.0%	0.0%	1.1%	2.6%	3.7%	11.5%	25.0%	25.7%	16.8%	8.1%	87.1%	9.2%
299	0.0%	0.0%	0.0%	1.7%	4.7%	6.4%	16.3%	24.8%	22.4%	14.4%	7.2%	85.1%	8.5%
300	0.0%	0.0%	0.0%	1.3%	3.0%	4.3%	12.2%	24.8%	25.6%	16.5%	7.8%	86.9%	8.8%
301	0.0%	0.0%	0.0%	3.5%	6.7%	10.3%	13.8%	22.5%	22.7%	14.9%	7.4%	81.3%	8.4%
302	0.0%	0.0%	0.0%	0.7%	4.0%	4.7%	14.2%	25.0%	24.6%	15.6%	7.5%	87.0%	8.4%
303	0.0%	0.0%	0.0%	1.9%	4.6%	6.5%	15.0%	24.8%	23.7%	14.7%	7.0%	85.1%	8.4%
304	0.0%	0.0%	0.0%	1.2%	3.3%	4.5%	11.5%	22.4%	24.9%	17.9%	8.8%	85.4%	10.0%
305	0.0%	0.0%	0.1%	3.8%	5.3%	9.2%	17.2%	24.1%	22.0%	13.5%	6.4%	83.2%	7.6%
306	0.0%	0.0%	0.0%	1.7%	4.7%	6.4%	14.1%	24.1%	24.4%	15.4%	7.2%	85.2%	8.3%
307	0.0%	0.0%	0.0%	0.9%	3.4%	4.4%	11.0%	22.7%	26.6%	17.9%	8.3%	86.6%	9.0%
308	0.0%	0.0%	0.0%	1.2%	3.5%	4.7%	12.2%	23.0%	25.9%	17.0%	8.0%	86.1%	9.1%
309	0.0%	0.0%	0.0%	1.0%	3.9%	5.0%	11.6%	21.8%	25.5%	17.9%	8.5%	85.3%	9.7%
310	0.0%	0.0%	0.0%	1.2%	4.2%	5.3%	12.8%	23.5%	24.4%	16.4%	8.1%	85.3%	9.4%
311	0.0%	0.0%	0.0%	0.9%	4.7%	5.6%	12.8%	21.9%	24.8%	17.2%	8.4%	85.1%	9.3%
312	0.0%	0.0%	0.0%	3.1%	5.4%	8.5%	14.4%	23.3%	23.5%	14.7%	7.1%	83.0%	8.5%
313	0.0%	0.0%	0.0%	2.0%	6.0%	8.0%	12.9%	22.5%	24.6%	15.9%	7.4%	83.4%	8.7%
314	0.0%	0.0%	0.0%	0.8%	4.4%	5.2%	12.3%	22.8%	25.4%	17.1%	8.0%	85.6%	9.2%
315	0.0%	0.0%	0.0%	1.0%	4.3%	5.3%	13.3%	23.3%	24.8%	16.5%	7.9%	85.8%	8.9%
316	0.0%	0.0%	0.0%	1.1%	4.4%	5.5%	15.0%	24.8%	23.9%	15.4%	7.2%	86.4%	8.2%
317	0.0%	0.0%	0.0%	1.2%	3.6%	4.7%	14.9%	26.3%	24.8%	15.1%	6.8%	87.8%	7.5%
318	0.0%	0.0%	0.0%	1.5%	4.1%	5.6%	13.5%	25.2%	25.1%	15.5%	7.1%	86.3%	8.1%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
319	0.0%	0.0%	0.0%	1.7%	5.5%	7.2%	15.3%	23.1%	23.7%	15.2%	7.2%	84.5%	8.3%
320	0.0%	0.0%	0.0%	1.5%	6.5%	8.0%	13.5%	21.8%	24.0%	16.4%	7.7%	83.4%	8.6%
321	0.0%	0.0%	0.0%	3.3%	7.6%	10.8%	16.5%	21.9%	22.1%	14.1%	6.7%	81.2%	8.0%
322	0.0%	0.0%	0.0%	1.1%	5.4%	6.5%	13.5%	22.9%	24.4%	16.4%	7.7%	84.8%	8.8%
323	0.0%	0.0%	0.0%	1.5%	5.0%	6.5%	15.1%	24.4%	24.6%	15.0%	6.7%	85.8%	7.7%
325	0.0%	0.0%	0.0%	1.0%	4.3%	5.3%	16.1%	24.5%	24.6%	15.3%	6.7%	87.1%	7.6%
326	0.0%	0.0%	0.0%	1.0%	3.1%	4.1%	12.6%	25.0%	26.2%	16.4%	7.4%	87.6%	8.3%
328	0.0%	0.0%	0.0%	1.2%	4.2%	5.3%	13.5%	30.9%	27.1%	11.0%	4.9%	87.2%	7.4%
329	0.0%	0.0%	0.0%	1.9%	6.1%	8.0%	11.9%	22.7%	26.5%	14.4%	7.0%	82.4%	9.6%
330	0.0%	0.0%	0.0%	1.2%	3.9%	5.1%	12.5%	25.3%	27.8%	14.6%	6.3%	86.5%	8.4%
331	0.0%	0.0%	0.0%	1.2%	2.9%	4.1%	12.4%	28.5%	28.7%	13.3%	5.5%	88.3%	7.6%
332	0.0%	0.0%	0.0%	1.2%	4.3%	5.6%	15.0%	29.3%	25.9%	11.9%	5.2%	87.3%	7.2%
333	0.0%	0.0%	0.0%	0.8%	3.0%	3.8%	11.3%	29.3%	28.7%	12.8%	5.8%	88.0%	8.2%
334	0.0%	0.0%	0.0%	0.9%	2.9%	3.8%	11.5%	28.0%	28.6%	13.7%	6.1%	87.9%	8.3%
335	0.0%	0.0%	0.0%	1.2%	2.9%	4.1%	11.8%	26.4%	28.4%	14.5%	6.3%	87.4%	8.5%
337	0.0%	0.0%	0.0%	2.4%	4.4%	6.8%	11.8%	25.3%	27.2%	13.6%	6.4%	84.2%	9.0%
338	0.0%	0.0%	0.0%	1.7%	5.0%	6.7%	15.2%	24.3%	24.5%	14.9%	6.6%	85.5%	7.8%
340	0.0%	0.0%	0.0%	0.9%	2.7%	3.5%	10.2%	22.9%	27.5%	18.4%	8.2%	87.1%	9.3%
341	0.0%	0.0%	0.0%	1.0%	4.1%	5.1%	11.7%	21.5%	25.0%	17.8%	8.9%	84.8%	10.1%
342	0.0%	0.0%	0.0%	1.5%	3.9%	5.5%	13.0%	25.7%	26.2%	15.4%	6.5%	86.8%	7.7%
343	0.0%	0.0%	0.0%	1.7%	4.3%	6.0%	11.3%	22.4%	25.8%	17.3%	8.0%	84.9%	9.0%
344	0.0%	0.0%	0.0%	2.3%	2.6%	4.9%	8.3%	23.3%	27.8%	18.0%	8.3%	85.7%	9.4%
345	0.0%	0.0%	0.0%	0.8%	2.4%	3.2%	11.2%	24.9%	27.8%	16.8%	7.3%	88.0%	8.7%
346	0.0%	0.0%	0.0%	1.9%	2.7%	4.6%	8.6%	20.4%	26.4%	19.3%	9.7%	84.3%	11.1%
349	0.0%	0.0%	0.0%	1.3%	5.6%	6.9%	14.1%	21.5%	22.9%	16.4%	8.5%	83.4%	9.7%
350	0.0%	0.0%	0.0%	1.8%	3.9%	5.7%	12.9%	24.7%	24.9%	15.9%	7.5%	86.0%	8.4%
351	0.0%	0.0%	0.0%	1.6%	3.3%	4.9%	8.2%	19.6%	26.2%	19.6%	10.1%	83.7%	11.5%
352	0.0%	0.0%	0.0%	2.9%	3.3%	6.3%	12.8%	24.1%	24.5%	15.9%	7.7%	85.0%	8.7%
353	0.0%	0.0%	0.0%	2.5%	6.8%	9.3%	17.4%	24.6%	23.3%	12.7%	5.5%	83.5%	7.2%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
354	0.0%	0.0%	0.0%	1.7%	5.1%	6.8%	12.7%	22.8%	25.3%	15.5%	7.5%	83.8%	9.4%
355	0.0%	0.0%	0.0%	1.7%	4.9%	6.7%	16.6%	25.6%	23.2%	13.8%	6.5%	85.7%	7.6%
356	0.0%	0.0%	0.1%	5.6%	6.3%	12.1%	12.0%	22.2%	23.9%	13.7%	7.1%	79.0%	8.9%
357	0.0%	0.0%	0.0%	2.3%	4.6%	6.8%	11.2%	27.0%	28.2%	12.9%	5.6%	84.9%	8.3%
358	0.0%	0.0%	0.0%	0.7%	3.9%	4.6%	12.5%	28.2%	27.9%	13.2%	5.6%	87.4%	8.0%
359	0.0%	0.0%	0.0%	1.0%	3.5%	4.5%	11.5%	25.3%	27.5%	14.9%	7.1%	86.3%	9.2%
360	0.0%	0.0%	0.0%	3.8%	5.8%	9.7%	13.5%	25.9%	25.2%	12.0%	5.9%	82.4%	7.9%
361	0.0%	0.0%	0.0%	1.3%	3.0%	4.3%	11.1%	27.1%	27.3%	14.1%	6.7%	86.4%	9.3%
362	0.0%	0.0%	0.0%	0.8%	3.2%	4.0%	13.6%	28.1%	26.8%	13.5%	6.1%	88.1%	7.9%
363	0.0%	0.0%	0.0%	2.9%	3.8%	6.8%	14.0%	27.3%	25.8%	12.6%	5.8%	85.3%	7.9%
364	0.0%	0.0%	0.0%	0.9%	4.6%	5.5%	14.5%	25.6%	26.2%	13.4%	6.2%	86.0%	8.5%
365	0.0%	0.0%	0.0%	0.9%	3.5%	4.4%	12.1%	25.4%	27.6%	14.9%	6.9%	86.9%	8.6%
366	0.0%	0.0%	0.0%	0.9%	4.5%	5.4%	16.5%	25.1%	24.2%	13.7%	6.7%	86.3%	8.3%
367	0.0%	0.0%	0.0%	1.8%	5.6%	7.4%	11.0%	23.2%	26.8%	14.6%	7.3%	83.0%	9.6%
368	0.0%	0.0%	0.0%	1.6%	5.0%	6.6%	14.5%	26.7%	26.0%	12.7%	5.8%	85.6%	7.8%
369	0.0%	0.0%	0.0%	1.3%	5.8%	7.2%	17.1%	28.1%	24.5%	11.2%	5.0%	85.9%	7.0%
370	0.0%	0.0%	0.0%	1.6%	3.5%	5.1%	11.8%	27.6%	28.2%	13.5%	5.8%	86.9%	8.0%
371	0.0%	0.0%	0.0%	1.7%	3.7%	5.4%	10.7%	26.8%	28.3%	13.5%	6.3%	85.6%	9.0%
372	0.0%	0.0%	0.0%	1.4%	5.7%	7.2%	15.2%	26.6%	25.4%	12.5%	5.6%	85.3%	7.5%
373	0.0%	0.0%	0.0%	1.1%	5.3%	6.4%	14.6%	27.0%	26.0%	12.8%	5.6%	86.0%	7.5%
374	0.0%	0.0%	0.0%	1.6%	5.5%	7.1%	14.2%	27.2%	26.2%	12.5%	5.5%	85.5%	7.4%
375	0.0%	0.0%	0.0%	1.4%	6.2%	7.6%	17.7%	27.2%	23.3%	11.8%	5.4%	85.4%	6.9%
376	0.0%	0.0%	0.0%	1.1%	4.5%	5.5%	16.7%	27.2%	24.7%	13.0%	5.6%	87.3%	7.2%
377	0.0%	0.0%	0.0%	1.1%	3.1%	4.2%	14.1%	30.0%	26.5%	12.3%	5.5%	88.4%	7.4%
378	0.0%	0.0%	0.0%	1.1%	6.0%	7.0%	17.6%	28.4%	24.7%	11.0%	4.7%	86.3%	6.7%
379	0.0%	0.0%	0.0%	1.1%	4.0%	5.1%	12.9%	27.8%	27.1%	12.9%	6.0%	86.7%	8.2%
380	0.0%	0.0%	0.0%	1.7%	5.3%	6.9%	17.2%	28.2%	24.7%	11.4%	4.9%	86.3%	6.7%
381	0.0%	0.0%	0.0%	1.7%	5.5%	7.3%	16.5%	30.0%	24.5%	10.6%	4.6%	86.3%	6.5%
383	0.0%	0.0%	0.0%	1.8%	5.3%	7.1%	16.4%	29.3%	24.9%	10.8%	4.6%	86.1%	6.8%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
384	0.0%	0.0%	0.0%	1.0%	4.2%	5.2%	13.7%	30.0%	26.7%	11.9%	5.2%	87.6%	7.3%
385	0.0%	0.0%	0.0%	1.3%	7.1%	8.4%	19.1%	27.3%	22.3%	10.8%	5.2%	84.6%	7.0%
386	0.0%	0.0%	0.0%	1.5%	5.6%	7.1%	14.8%	28.1%	25.6%	11.4%	5.3%	85.2%	7.7%
387	0.0%	0.0%	0.0%	3.0%	6.5%	9.5%	17.6%	29.2%	23.3%	9.9%	4.3%	84.2%	6.2%
388	0.0%	0.0%	0.0%	1.3%	6.2%	7.5%	17.9%	27.1%	24.2%	11.7%	4.9%	85.8%	6.7%
389	0.0%	0.0%	0.0%	1.2%	3.3%	4.5%	15.0%	29.1%	26.3%	12.6%	5.2%	88.3%	7.2%
390	0.0%	0.0%	0.0%	2.0%	7.3%	9.3%	24.6%	27.3%	19.9%	9.3%	4.0%	85.0%	5.6%
391	0.0%	0.0%	0.0%	1.7%	5.3%	7.0%	20.6%	28.1%	22.9%	10.7%	4.4%	86.7%	6.3%
392	0.0%	0.0%	0.0%	1.5%	4.7%	6.2%	15.2%	27.1%	25.8%	12.9%	5.5%	86.5%	7.3%
393	0.0%	0.0%	0.0%	1.6%	4.8%	6.4%	14.1%	26.6%	26.7%	12.8%	5.5%	85.7%	7.9%
394	0.0%	0.0%	0.0%	1.1%	5.2%	6.3%	16.0%	25.7%	25.2%	13.1%	5.8%	85.8%	7.9%
395	0.0%	0.0%	0.0%	1.2%	3.7%	4.9%	14.2%	25.7%	25.9%	13.9%	6.5%	86.3%	8.8%
396	0.0%	0.0%	0.0%	1.2%	4.9%	6.1%	15.8%	26.7%	25.3%	13.0%	5.7%	86.4%	7.5%
397	0.0%	0.0%	0.0%	1.7%	5.4%	7.0%	12.5%	24.2%	26.3%	14.4%	6.6%	84.0%	8.9%
398	0.0%	0.0%	0.0%	1.4%	4.6%	5.9%	15.6%	27.9%	25.3%	12.4%	5.4%	86.7%	7.4%
399	0.0%	0.0%	0.0%	2.3%	3.5%	5.8%	12.9%	29.0%	26.9%	12.6%	5.4%	86.6%	7.5%
400	0.0%	0.0%	0.0%	2.7%	6.6%	9.3%	23.1%	27.2%	20.6%	9.6%	4.2%	84.8%	5.9%
401	0.0%	0.0%	0.0%	1.0%	5.2%	6.3%	17.4%	27.6%	24.4%	12.0%	5.2%	86.6%	7.2%
402	0.0%	0.0%	0.0%	0.9%	2.6%	3.6%	12.8%	28.6%	27.8%	13.6%	5.8%	88.5%	7.9%
403	0.0%	0.0%	0.0%	0.8%	2.8%	3.6%	11.0%	24.2%	26.4%	16.3%	8.2%	86.1%	10.3%
404	0.0%	0.0%	0.0%	2.7%	8.5%	11.2%	18.5%	24.4%	22.2%	11.5%	5.1%	81.7%	7.0%
405	0.0%	0.0%	0.0%	2.0%	7.4%	9.4%	17.4%	25.6%	23.3%	11.9%	5.3%	83.5%	7.1%
406	0.0%	0.0%	0.0%	1.4%	2.8%	4.2%	12.1%	29.3%	28.3%	13.2%	5.4%	88.3%	7.5%
407	0.0%	0.0%	0.0%	1.1%	3.1%	4.1%	14.3%	28.0%	27.3%	13.0%	5.5%	88.0%	7.8%
408	0.0%	0.0%	0.0%	0.9%	4.4%	5.3%	14.3%	26.9%	26.9%	13.4%	5.7%	87.2%	7.5%
409	0.0%	0.0%	0.0%	0.9%	5.5%	6.4%	14.9%	25.3%	25.5%	13.9%	6.2%	85.8%	7.8%
410	0.0%	0.0%	0.0%	2.2%	6.8%	9.0%	19.8%	28.1%	22.4%	10.4%	4.3%	84.9%	6.1%
411	0.0%	0.0%	0.0%	2.1%	6.1%	8.2%	20.4%	27.2%	22.7%	10.7%	4.4%	85.4%	6.4%
412	0.0%	0.0%	0.0%	1.5%	4.1%	5.6%	12.8%	32.2%	27.4%	9.8%	4.8%	87.0%	7.4%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
413	0.0%	0.0%	0.0%	1.5%	6.0%	7.5%	18.2%	28.4%	23.5%	11.2%	4.7%	86.1%	6.5%
414	0.0%	0.0%	0.0%	0.9%	4.0%	4.9%	15.1%	28.1%	26.0%	13.1%	5.6%	87.9%	7.2%
415	0.0%	0.0%	0.0%	0.9%	6.1%	7.0%	17.2%	26.1%	24.0%	12.9%	5.8%	85.8%	7.1%
416	0.0%	0.0%	0.0%	1.5%	4.8%	6.2%	14.1%	27.5%	26.0%	12.9%	5.6%	86.0%	7.7%
417	0.0%	0.0%	0.0%	1.0%	4.3%	5.2%	14.6%	26.3%	25.0%	14.2%	6.6%	86.8%	8.0%
418	0.0%	0.0%	0.0%	1.4%	5.6%	7.0%	15.5%	26.8%	25.4%	12.5%	5.4%	85.6%	7.4%
419	0.0%	0.0%	0.0%	1.8%	6.4%	8.2%	14.6%	27.1%	25.1%	12.3%	5.5%	84.6%	7.2%
420	0.0%	0.0%	0.0%	1.9%	5.1%	7.0%	16.7%	28.6%	25.1%	11.3%	4.7%	86.3%	6.7%
421	0.0%	0.0%	0.0%	1.4%	4.9%	6.3%	17.2%	29.5%	24.9%	11.0%	4.5%	87.1%	6.6%
422	0.0%	0.0%	0.0%	1.2%	4.3%	5.5%	16.1%	30.0%	25.9%	11.0%	4.6%	87.6%	6.8%
423	0.0%	0.0%	0.0%	1.0%	4.0%	5.0%	14.6%	30.0%	26.2%	11.7%	5.2%	87.6%	7.3%
424	0.0%	0.0%	0.0%	1.2%	4.3%	5.6%	12.0%	29.3%	28.0%	12.1%	5.2%	86.7%	7.7%
425	0.0%	0.0%	0.0%	1.1%	4.4%	5.5%	16.8%	30.9%	24.9%	10.4%	4.6%	87.7%	6.9%
426	0.0%	0.0%	0.0%	1.3%	5.0%	6.3%	18.4%	29.9%	23.9%	10.2%	4.5%	87.0%	6.7%
427	0.0%	0.0%	0.0%	0.9%	3.1%	4.1%	12.7%	31.7%	28.2%	11.0%	4.8%	88.3%	7.6%
429	0.0%	0.0%	0.0%	0.8%	2.7%	3.5%	12.5%	29.4%	26.9%	13.0%	6.0%	88.0%	8.6%
430	0.0%	0.0%	0.0%	1.1%	3.8%	4.9%	14.4%	32.4%	25.5%	10.6%	5.0%	87.8%	7.3%
431	0.0%	0.0%	0.0%	1.5%	3.3%	4.8%	10.5%	33.8%	28.1%	10.3%	4.9%	87.6%	7.6%
433	0.0%	0.0%	0.0%	1.3%	2.7%	4.0%	10.1%	31.6%	28.0%	12.1%	5.9%	87.8%	8.3%
434	0.0%	0.0%	0.0%	0.9%	2.0%	2.9%	9.8%	32.4%	28.7%	12.1%	5.8%	88.8%	8.3%
435	0.0%	0.0%	0.0%	1.4%	3.9%	5.4%	12.7%	30.9%	26.8%	11.4%	5.2%	87.0%	7.6%
436	0.0%	0.0%	0.0%	1.7%	5.1%	6.8%	14.4%	29.6%	25.0%	11.2%	5.2%	85.5%	7.8%
437	0.0%	0.0%	0.0%	1.7%	4.2%	5.9%	13.4%	29.5%	26.0%	12.2%	5.6%	86.7%	7.4%
438	0.0%	0.0%	0.0%	2.4%	5.0%	7.4%	13.4%	30.9%	25.7%	10.7%	4.9%	85.5%	7.1%
439	0.0%	0.0%	0.0%	1.1%	3.6%	4.8%	13.7%	31.5%	26.0%	11.1%	5.4%	87.7%	7.5%
440	0.0%	0.0%	0.0%	1.2%	4.5%	5.7%	13.7%	31.4%	26.0%	10.7%	5.1%	87.0%	7.4%
441	0.0%	0.0%	0.0%	1.1%	3.8%	4.8%	12.5%	32.0%	26.6%	11.1%	5.4%	87.5%	7.7%
442	0.0%	0.0%	0.0%	1.2%	4.6%	5.8%	12.2%	31.2%	26.7%	11.1%	5.3%	86.5%	7.7%
444	0.0%	0.0%	0.0%	1.0%	3.6%	4.6%	11.8%	32.8%	27.4%	11.0%	4.9%	87.9%	7.4%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
445	0.0%	0.0%	0.0%	1.5%	4.3%	5.8%	15.5%	32.7%	25.0%	9.9%	4.4%	87.5%	6.7%
446	0.0%	0.0%	0.0%	0.8%	2.2%	3.1%	11.0%	33.9%	28.0%	11.0%	5.2%	89.1%	7.9%
447	0.0%	0.0%	0.0%	1.4%	4.5%	5.9%	14.1%	31.5%	25.6%	10.4%	5.1%	86.7%	7.4%
448	0.0%	0.0%	0.0%	0.7%	3.5%	4.2%	10.2%	30.2%	28.3%	13.2%	5.8%	87.6%	8.2%
449	0.0%	0.0%	0.0%	1.2%	4.3%	5.5%	14.4%	31.4%	25.9%	11.1%	4.7%	87.5%	7.0%
450	0.0%	0.0%	0.0%	5.0%	9.6%	14.6%	12.6%	18.2%	19.9%	11.4%	8.5%	70.6%	14.8%
451	0.0%	0.0%	0.0%	2.8%	11.5%	14.3%	17.0%	21.2%	18.9%	9.8%	7.0%	74.0%	11.7%
452	0.0%	0.0%	0.0%	2.7%	6.4%	9.1%	10.4%	20.8%	21.7%	12.9%	9.7%	75.5%	15.4%
454	0.0%	0.0%	0.0%	4.7%	9.4%	14.2%	13.1%	18.3%	19.0%	11.4%	9.2%	71.1%	14.7%
455	0.0%	0.0%	0.0%	6.0%	10.8%	16.9%	12.7%	16.3%	18.1%	11.9%	9.3%	68.3%	14.8%
456	0.0%	0.0%	0.3%	5.9%	9.3%	15.5%	11.4%	19.2%	19.1%	11.3%	9.0%	70.1%	14.5%
457	0.0%	0.0%	0.0%	2.1%	7.0%	9.2%	11.9%	18.6%	20.4%	12.8%	10.3%	74.1%	16.7%
458	0.0%	0.0%	0.0%	2.3%	6.6%	8.9%	10.7%	21.8%	24.2%	12.2%	8.2%	77.2%	13.9%
460	0.0%	0.0%	0.0%	4.7%	7.6%	12.3%	10.8%	18.3%	20.7%	12.4%	9.7%	71.9%	15.8%
461	0.0%	0.0%	0.0%	5.8%	12.9%	18.7%	14.4%	18.1%	18.0%	10.6%	7.7%	68.8%	12.5%
462	0.0%	0.0%	0.0%	4.2%	10.3%	14.5%	16.1%	19.4%	17.8%	10.4%	8.2%	71.9%	13.5%
463	0.0%	0.0%	0.0%	4.2%	9.5%	13.7%	12.7%	18.4%	18.8%	11.6%	9.5%	71.0%	15.3%
464	0.0%	0.0%	0.0%	2.5%	5.2%	7.7%	8.9%	20.4%	22.1%	13.2%	10.5%	75.2%	17.1%
465	0.0%	0.0%	0.0%	3.9%	10.0%	13.9%	13.0%	18.0%	18.9%	11.6%	9.4%	70.9%	15.2%
466	0.0%	0.0%	0.0%	3.3%	8.1%	11.4%	12.2%	21.5%	21.0%	11.5%	8.6%	74.8%	13.8%
467	0.0%	0.0%	0.4%	5.0%	7.8%	13.2%	13.1%	20.8%	19.6%	11.2%	8.5%	73.3%	13.5%
468	0.0%	0.0%	0.2%	6.8%	10.8%	17.7%	14.2%	16.7%	17.8%	11.2%	8.8%	68.6%	13.6%
469	0.0%	0.0%	0.4%	6.4%	9.1%	15.9%	10.9%	16.8%	19.1%	12.0%	9.8%	68.6%	15.5%
470	0.0%	0.0%	0.0%	4.5%	8.3%	12.8%	10.7%	18.8%	19.9%	12.2%	9.8%	71.5%	15.7%
471	0.0%	0.0%	0.0%	3.4%	11.0%	14.4%	15.2%	19.5%	18.8%	10.5%	8.2%	72.3%	13.3%
472	0.0%	0.0%	0.0%	2.3%	5.8%	8.2%	10.9%	22.0%	22.5%	12.3%	9.3%	77.0%	14.8%
473	0.0%	0.0%	1.1%	6.0%	7.7%	14.8%	10.2%	18.0%	20.1%	11.9%	9.6%	69.7%	15.5%
474	0.0%	0.0%	0.0%	3.4%	9.1%	12.4%	14.4%	21.7%	20.3%	11.0%	7.9%	75.3%	12.3%
475	0.0%	0.0%	0.0%	2.2%	5.0%	7.2%	9.4%	19.3%	22.9%	13.6%	10.8%	75.9%	16.9%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
476	0.0%	0.0%	0.0%	3.7%	8.0%	11.8%	12.7%	17.0%	19.3%	13.1%	10.3%	72.4%	15.8%
477	0.0%	0.0%	0.0%	2.6%	8.5%	11.2%	15.4%	21.2%	19.8%	10.8%	8.2%	75.4%	13.4%
478	0.0%	0.0%	0.0%	1.9%	6.2%	8.1%	12.6%	27.2%	21.9%	10.0%	7.5%	79.3%	12.6%
479	0.0%	0.0%	0.0%	3.2%	6.8%	10.1%	12.4%	16.4%	20.6%	14.6%	10.2%	74.2%	15.8%
480	0.0%	0.0%	0.0%	5.4%	9.7%	15.2%	11.5%	12.6%	16.9%	15.8%	11.4%	68.2%	16.6%
481	0.0%	0.0%	0.1%	6.7%	12.1%	18.8%	14.5%	12.8%	15.8%	13.9%	9.8%	66.8%	14.4%
482	0.0%	0.0%	0.0%	2.5%	7.9%	10.4%	12.7%	14.3%	19.4%	16.1%	11.0%	73.6%	16.0%
483	0.0%	0.0%	0.0%	2.2%	9.4%	11.6%	14.1%	13.8%	17.9%	15.8%	10.9%	72.5%	15.9%
484	0.0%	0.0%	0.0%	1.7%	8.8%	10.5%	15.9%	15.4%	18.0%	14.9%	10.2%	74.5%	15.0%
485	0.0%	0.0%	0.0%	2.4%	9.0%	11.4%	14.5%	15.4%	18.6%	15.1%	10.1%	73.7%	14.9%
487	0.0%	0.0%	0.0%	4.9%	8.2%	13.2%	13.5%	13.7%	15.3%	15.0%	11.9%	69.5%	17.3%
488	0.0%	0.0%	0.0%	2.4%	7.1%	9.5%	12.5%	15.0%	18.9%	16.0%	11.3%	73.7%	16.8%
489	0.0%	0.0%	0.0%	1.5%	5.4%	6.9%	10.6%	13.8%	19.0%	17.6%	12.9%	73.9%	19.2%
490	0.0%	0.0%	0.0%	2.0%	5.5%	7.5%	10.2%	14.7%	21.1%	17.4%	11.5%	75.0%	17.5%
492	0.0%	0.0%	0.1%	5.3%	9.8%	15.3%	13.7%	12.5%	14.9%	15.0%	11.7%	67.8%	16.9%
493	0.0%	0.0%	0.0%	5.7%	12.4%	18.1%	14.2%	12.3%	14.2%	14.2%	11.0%	66.0%	15.9%
494	0.0%	0.0%	0.1%	7.5%	12.8%	20.4%	14.5%	13.5%	14.9%	13.3%	9.5%	65.8%	13.9%
495	0.0%	0.0%	0.0%	2.4%	7.8%	10.2%	13.9%	15.5%	17.8%	15.5%	10.9%	73.6%	16.2%
496	0.0%	0.0%	0.1%	5.5%	8.8%	14.4%	12.3%	13.1%	16.1%	15.2%	11.4%	68.1%	17.4%
497	0.0%	0.0%	0.0%	2.6%	7.3%	9.9%	13.2%	14.0%	16.9%	15.8%	12.0%	71.9%	18.2%
498	0.0%	0.0%	0.0%	2.0%	6.8%	8.9%	12.6%	13.6%	16.3%	16.3%	12.9%	71.7%	19.4%
499	0.0%	0.0%	0.0%	4.8%	8.7%	13.6%	13.1%	13.5%	16.8%	15.5%	11.0%	70.0%	16.4%
500	0.0%	0.0%	0.0%	3.7%	6.3%	10.0%	11.1%	16.2%	20.0%	16.4%	10.7%	74.4%	15.6%
502	0.0%	0.0%	0.0%	1.9%	5.2%	7.1%	11.1%	16.6%	20.3%	16.6%	11.3%	75.9%	17.1%
503	0.0%	0.0%	0.0%	2.6%	6.5%	9.1%	13.5%	14.3%	16.8%	15.9%	12.1%	72.6%	18.3%
504	0.0%	0.0%	0.0%	2.2%	9.0%	11.2%	15.2%	15.1%	16.9%	14.8%	10.6%	72.6%	16.2%
505	0.0%	0.0%	0.0%	3.9%	7.3%	11.2%	12.5%	14.3%	16.7%	15.5%	11.8%	70.8%	18.0%
506	0.0%	0.0%	0.0%	3.8%	7.6%	11.4%	12.4%	16.2%	19.4%	15.4%	10.1%	73.5%	15.1%
507	0.0%	0.0%	0.0%	3.1%	8.3%	11.5%	13.4%	14.8%	18.1%	15.4%	10.7%	72.4%	16.1%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
508	0.0%	0.0%	0.0%	2.5%	6.1%	8.6%	10.9%	15.5%	19.9%	16.4%	11.4%	74.3%	17.1%
509	0.0%	0.0%	0.0%	1.4%	5.0%	6.4%	9.8%	14.5%	19.6%	17.4%	12.8%	74.0%	19.5%
510	0.0%	0.0%	0.0%	4.1%	7.5%	11.7%	10.8%	13.6%	18.1%	16.3%	11.7%	70.5%	17.8%
511	0.0%	0.0%	0.8%	7.5%	8.4%	16.7%	12.2%	12.3%	14.4%	14.8%	11.9%	65.6%	17.7%
512	0.0%	0.0%	0.1%	5.4%	7.7%	13.1%	11.0%	12.6%	15.9%	16.0%	12.6%	68.1%	18.8%
513	0.0%	0.0%	0.3%	4.1%	6.3%	10.7%	11.3%	14.9%	18.8%	16.2%	11.3%	72.6%	16.7%
514	0.0%	0.0%	0.0%	1.9%	4.6%	6.5%	9.6%	14.7%	20.0%	17.9%	12.7%	74.9%	18.6%
515	0.0%	0.0%	0.0%	1.1%	5.3%	6.3%	11.2%	15.0%	19.7%	17.5%	12.2%	75.6%	18.1%
516	0.0%	0.0%	0.0%	1.7%	4.5%	6.2%	10.5%	15.9%	21.0%	17.7%	11.8%	77.0%	16.9%
518	0.0%	0.0%	0.0%	3.3%	7.3%	10.6%	11.1%	14.1%	18.5%	17.1%	11.9%	72.7%	16.7%
519	0.0%	0.0%	0.0%	2.8%	7.6%	10.4%	11.3%	14.3%	18.6%	16.7%	11.7%	72.7%	16.9%
520	0.0%	0.0%	1.0%	7.3%	8.4%	16.7%	11.8%	11.8%	13.7%	14.9%	12.4%	64.7%	18.6%
521	0.0%	0.8%	1.3%	8.8%	13.1%	24.0%	14.2%	13.4%	15.3%	12.6%	8.4%	63.8%	12.2%
522	0.0%	0.0%	0.0%	4.0%	6.6%	10.7%	10.8%	15.0%	19.7%	16.6%	11.1%	73.2%	16.2%
524	0.0%	0.0%	0.0%	3.2%	6.6%	9.8%	10.7%	14.0%	18.5%	17.5%	12.2%	73.0%	17.2%
525	0.0%	0.0%	0.0%	4.2%	6.7%	11.0%	11.6%	13.5%	17.1%	16.2%	12.2%	70.7%	18.3%
526	0.0%	0.0%	0.0%	1.7%	4.5%	6.2%	10.0%	15.3%	20.1%	17.6%	12.5%	75.6%	18.2%
527	0.0%	0.0%	0.0%	2.4%	6.3%	8.7%	11.7%	14.3%	19.1%	16.9%	11.8%	73.9%	17.4%
528	0.0%	0.0%	0.0%	2.5%	5.0%	7.6%	8.4%	11.4%	17.6%	19.3%	14.8%	71.4%	21.0%
529	0.0%	0.0%	0.0%	2.1%	5.6%	7.8%	10.3%	13.8%	19.2%	18.1%	12.7%	74.1%	18.1%
530	0.0%	0.0%	0.1%	3.7%	6.2%	9.9%	11.0%	13.5%	18.2%	17.0%	12.3%	72.0%	18.1%
531	0.0%	0.0%	0.0%	4.3%	8.5%	12.9%	12.1%	12.3%	17.3%	16.6%	11.8%	70.1%	17.0%
532	0.0%	0.0%	0.0%	2.5%	5.7%	8.2%	11.0%	13.9%	18.1%	17.2%	12.8%	73.1%	18.7%
533	0.0%	0.0%	0.1%	4.9%	9.4%	14.4%	13.6%	12.2%	14.7%	15.4%	12.2%	68.2%	17.4%
534	0.0%	0.0%	0.0%	2.6%	5.0%	7.6%	10.1%	16.8%	20.8%	16.9%	11.2%	75.9%	16.5%
535	0.0%	0.0%	0.0%	2.9%	5.5%	8.4%	10.5%	14.9%	19.5%	17.1%	12.0%	73.9%	17.7%
536	0.0%	0.0%	0.0%	4.2%	7.3%	11.5%	10.3%	13.4%	18.4%	16.8%	11.9%	70.9%	17.6%
537	0.0%	0.0%	0.0%	4.8%	9.3%	14.1%	12.1%	13.2%	16.4%	15.3%	11.7%	68.5%	17.3%
538	0.0%	0.0%	0.0%	2.5%	5.5%	8.0%	10.3%	12.7%	16.6%	17.4%	14.2%	71.2%	20.8%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
539	0.0%	0.0%	0.0%	2.2%	6.5%	8.6%	12.3%	13.5%	15.7%	16.8%	13.7%	71.9%	19.4%
540	0.0%	0.0%	0.0%	3.5%	5.6%	9.2%	9.0%	12.5%	17.1%	17.6%	13.9%	70.0%	20.8%
541	0.0%	0.0%	0.2%	4.2%	5.8%	10.1%	9.1%	12.8%	17.2%	17.4%	13.5%	70.0%	19.9%
542	0.0%	0.0%	0.0%	3.5%	6.3%	9.9%	10.2%	12.3%	16.3%	17.2%	13.8%	69.8%	20.3%
543	0.0%	0.0%	0.5%	7.4%	8.8%	16.7%	10.9%	11.3%	13.8%	15.7%	13.0%	64.8%	18.6%
544	0.0%	0.0%	0.2%	5.6%	7.3%	13.1%	9.7%	11.8%	16.1%	17.2%	13.4%	68.3%	18.6%
545	0.0%	0.0%	0.0%	2.1%	5.0%	7.1%	9.9%	12.1%	16.1%	18.5%	15.2%	71.8%	21.1%
546	0.0%	0.0%	0.0%	3.9%	8.1%	12.0%	12.3%	12.1%	14.9%	16.0%	13.3%	68.6%	19.4%
547	0.0%	0.0%	0.0%	4.6%	8.0%	12.6%	11.7%	12.5%	15.3%	16.0%	12.9%	68.4%	19.0%
548	0.0%	0.0%	0.0%	3.7%	8.0%	11.7%	12.1%	11.4%	14.2%	16.7%	14.0%	68.4%	19.9%
549	0.0%	0.0%	0.1%	5.0%	8.1%	13.2%	11.6%	13.6%	16.6%	16.1%	11.9%	69.8%	17.0%
550	0.0%	0.0%	0.0%	3.0%	4.4%	7.5%	6.9%	11.4%	17.6%	18.8%	15.5%	70.2%	22.3%
551	0.0%	0.0%	0.0%	1.6%	4.5%	6.1%	9.9%	15.7%	20.9%	17.3%	12.0%	75.6%	18.3%
552	0.0%	0.0%	0.0%	2.0%	8.5%	10.5%	15.2%	14.6%	17.1%	14.8%	11.0%	72.7%	16.8%
553	0.0%	0.0%	0.0%	3.0%	9.3%	12.2%	14.8%	13.7%	16.4%	14.3%	11.1%	70.3%	17.4%
554	0.0%	0.0%	0.0%	2.2%	6.5%	8.7%	12.8%	14.4%	17.8%	15.9%	12.2%	73.1%	18.2%
555	0.0%	0.0%	0.0%	2.6%	8.6%	11.2%	13.1%	15.2%	17.9%	14.7%	11.1%	71.9%	16.9%
556	0.0%	0.0%	0.0%	2.9%	5.1%	7.9%	9.7%	17.3%	21.9%	15.7%	10.8%	75.5%	16.6%
557	0.0%	0.0%	0.0%	2.8%	6.3%	9.1%	11.9%	16.7%	19.6%	15.0%	10.9%	74.1%	16.8%
558	0.0%	0.0%	0.0%	2.2%	7.2%	9.4%	17.5%	21.3%	18.3%	11.6%	8.4%	77.0%	13.6%
559	0.0%	0.0%	0.0%	2.2%	4.6%	6.8%	8.9%	16.1%	20.8%	16.2%	12.1%	74.2%	19.0%
560	0.0%	0.0%	0.0%	3.4%	7.0%	10.4%	11.4%	15.0%	18.6%	15.1%	11.7%	71.8%	17.8%
561	0.0%	0.0%	0.0%	3.6%	6.6%	10.2%	10.1%	14.8%	19.0%	15.8%	12.0%	71.7%	18.1%
562	0.0%	0.0%	0.5%	7.2%	8.7%	16.4%	11.2%	14.1%	16.3%	14.0%	11.2%	66.8%	16.8%
563	0.0%	0.0%	0.0%	3.5%	6.8%	10.3%	12.5%	15.1%	17.7%	14.8%	11.7%	71.8%	17.8%
564	0.0%	0.0%	0.0%	1.9%	5.3%	7.2%	11.4%	17.7%	20.5%	14.9%	10.8%	75.3%	17.5%
566	0.0%	0.0%	0.0%	1.5%	3.6%	5.0%	7.7%	15.9%	20.9%	16.5%	13.2%	74.2%	20.8%
567	0.0%	0.0%	0.0%	2.8%	4.5%	7.3%	8.2%	14.5%	20.2%	16.5%	12.8%	72.3%	20.4%
568	0.0%	0.0%	0.0%	2.5%	5.6%	8.1%	10.8%	14.8%	17.8%	15.4%	12.9%	71.7%	20.2%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
569	0.0%	0.0%	0.0%	4.2%	6.6%	10.8%	10.3%	15.5%	18.4%	15.0%	11.6%	70.8%	18.4%
570	0.0%	0.0%	0.0%	2.2%	5.0%	7.2%	9.8%	15.2%	18.7%	16.0%	13.0%	72.7%	20.1%
571	0.0%	0.0%	0.0%	2.6%	5.5%	8.0%	10.2%	15.1%	17.8%	15.6%	12.8%	71.5%	20.5%
572	0.0%	0.0%	0.0%	3.0%	6.4%	9.5%	11.0%	16.1%	17.8%	14.6%	11.9%	71.3%	19.3%
574	0.0%	0.0%	0.0%	2.7%	6.1%	8.8%	10.4%	15.7%	18.3%	15.1%	12.4%	71.9%	19.3%
575	0.0%	0.0%	0.0%	3.7%	9.2%	13.0%	12.6%	14.7%	16.2%	14.0%	11.5%	68.9%	18.1%
576	0.0%	0.0%	0.0%	3.5%	8.8%	12.3%	12.6%	13.2%	16.1%	14.7%	12.1%	68.7%	19.0%
577	0.0%	0.0%	0.0%	2.1%	6.8%	8.9%	11.8%	15.0%	19.0%	15.8%	11.6%	73.3%	17.8%
579	0.0%	0.0%	0.0%	4.3%	8.0%	12.4%	10.8%	12.3%	16.5%	15.8%	12.7%	68.1%	19.6%
580	0.0%	0.0%	0.5%	10.3%	9.3%	20.1%	8.7%	11.3%	15.7%	14.8%	11.6%	62.1%	17.8%
581	0.0%	0.0%	0.0%	4.5%	8.2%	12.7%	11.7%	12.4%	15.8%	15.3%	12.7%	67.9%	19.4%
582	0.0%	0.0%	0.0%	2.5%	6.4%	8.8%	11.8%	13.5%	16.9%	15.9%	13.1%	71.2%	20.0%
583	0.0%	0.0%	0.0%	2.4%	5.4%	7.8%	10.5%	13.4%	18.0%	16.7%	13.2%	71.8%	20.4%
584	0.0%	0.0%	0.6%	3.2%	4.2%	8.0%	8.5%	15.2%	21.3%	17.1%	11.9%	74.0%	18.0%
585	0.0%	0.0%	0.0%	1.8%	5.4%	7.2%	12.4%	14.9%	17.5%	15.7%	12.6%	73.2%	19.6%
586	0.0%	0.0%	0.1%	4.3%	8.0%	12.3%	12.7%	13.0%	16.5%	15.3%	12.0%	69.7%	18.0%
587	0.0%	0.0%	0.0%	3.3%	8.7%	12.1%	12.8%	13.4%	17.2%	15.3%	11.6%	70.3%	17.6%
588	0.0%	0.0%	0.0%	2.6%	8.0%	10.7%	13.1%	14.2%	17.6%	15.3%	11.5%	71.7%	17.6%
589	0.0%	0.0%	0.0%	2.3%	6.9%	9.2%	12.2%	15.6%	19.6%	15.6%	11.0%	73.9%	16.9%
590	0.0%	0.0%	0.0%	2.5%	5.9%	8.4%	10.8%	15.6%	19.7%	15.8%	11.6%	73.5%	18.1%
592	0.0%	0.0%	0.0%	2.5%	5.2%	7.8%	10.7%	14.7%	19.1%	16.7%	12.5%	73.7%	18.6%
593	0.0%	0.0%	0.0%	2.7%	5.9%	8.6%	11.4%	16.4%	20.3%	15.5%	10.9%	74.5%	16.9%
594	0.0%	0.0%	0.0%	4.2%	8.2%	12.4%	11.1%	12.4%	16.6%	15.8%	12.6%	68.5%	19.0%
595	0.0%	0.0%	0.0%	1.7%	4.3%	6.0%	8.6%	13.3%	19.1%	17.6%	13.9%	72.6%	21.5%
596	0.0%	0.0%	0.0%	1.8%	4.1%	5.9%	8.3%	14.6%	20.8%	17.6%	12.9%	74.3%	19.8%
597	0.0%	0.0%	0.0%	1.9%	4.9%	6.8%	9.5%	14.6%	19.1%	16.7%	12.9%	72.8%	20.4%
598	0.0%	0.0%	0.0%	3.6%	8.9%	12.4%	12.4%	13.6%	17.5%	15.0%	11.3%	69.9%	17.6%
599	0.0%	0.0%	0.0%	4.8%	8.2%	13.0%	10.9%	12.7%	17.5%	15.5%	12.0%	68.6%	18.5%
600	0.0%	0.0%	0.1%	6.3%	9.7%	16.1%	15.8%	14.5%	15.0%	12.8%	10.0%	68.1%	15.8%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
601	0.0%	0.0%	0.1%	4.5%	6.4%	11.0%	10.1%	12.9%	18.3%	16.4%	12.4%	70.2%	18.8%
602	0.0%	0.0%	0.0%	1.8%	4.7%	6.5%	8.7%	13.3%	18.5%	17.4%	13.7%	71.7%	21.8%
603	0.0%	0.0%	0.0%	2.5%	5.5%	8.0%	11.3%	12.6%	17.5%	17.7%	13.4%	72.6%	19.4%
604	0.0%	0.0%	0.0%	1.1%	4.6%	5.6%	9.0%	10.1%	15.7%	17.8%	16.3%	68.9%	25.5%
605	0.0%	0.7%	0.6%	7.9%	10.1%	19.4%	13.0%	12.4%	15.3%	13.2%	10.3%	64.2%	16.4%
606	0.0%	0.0%	0.1%	5.3%	6.9%	12.3%	10.9%	13.2%	16.8%	15.0%	12.3%	68.2%	19.5%
608	0.0%	0.0%	0.0%	1.8%	5.0%	6.8%	8.7%	12.6%	17.6%	17.3%	14.6%	70.8%	22.4%
609	0.0%	0.0%	0.1%	3.2%	6.1%	9.4%	11.2%	13.3%	17.2%	15.6%	12.9%	70.2%	20.5%
610	0.0%	0.0%	0.0%	1.6%	6.2%	7.8%	11.8%	13.7%	17.7%	16.0%	12.9%	72.1%	20.1%
611	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	13.6%	20.9%	20.2%	16.6%	75.2%	24.8%
612	0.0%	0.0%	0.4%	7.0%	7.3%	14.8%	10.1%	10.4%	13.7%	16.7%	14.4%	65.2%	20.0%
613	0.0%	0.0%	0.0%	3.7%	6.7%	10.4%	10.6%	11.9%	15.2%	17.1%	14.2%	69.0%	20.6%
614	0.0%	0.0%	0.0%	2.6%	5.1%	7.8%	8.5%	11.5%	19.9%	18.3%	13.4%	71.6%	20.6%
615	0.0%	0.0%	0.0%	1.5%	3.9%	5.3%	7.7%	11.0%	15.8%	19.7%	16.7%	71.0%	23.7%
616	0.0%	0.0%	0.0%	1.7%	5.5%	7.2%	9.9%	11.1%	15.5%	18.9%	15.4%	70.9%	21.9%
617	0.0%	0.0%	0.0%	4.2%	9.2%	13.4%	14.5%	12.0%	13.8%	15.3%	12.6%	68.2%	18.4%
618	0.0%	0.0%	0.0%	5.1%	8.0%	13.2%	11.5%	11.8%	14.6%	16.3%	13.3%	67.5%	19.2%
619	0.0%	0.0%	2.2%	7.7%	6.8%	16.8%	7.1%	9.1%	14.1%	18.2%	14.9%	63.3%	19.9%
620	0.0%	0.0%	0.1%	7.5%	12.8%	20.4%	14.4%	10.4%	11.4%	13.8%	12.1%	62.2%	17.4%
621	0.0%	0.0%	0.0%	2.4%	5.2%	7.6%	8.9%	10.9%	16.5%	19.6%	15.2%	71.2%	21.2%
622	0.0%	0.0%	0.0%	5.1%	8.7%	13.9%	12.9%	11.2%	13.7%	16.2%	13.3%	67.3%	18.9%
623	0.0%	0.0%	0.1%	6.3%	9.0%	15.4%	12.6%	11.5%	13.1%	15.2%	13.1%	65.6%	19.1%
624	0.0%	0.0%	0.2%	7.1%	9.3%	16.6%	10.7%	10.5%	12.7%	15.6%	14.1%	63.6%	19.8%
625	0.0%	0.0%	0.4%	6.5%	7.6%	14.5%	10.0%	10.9%	14.1%	16.3%	13.8%	65.1%	20.4%
626	0.0%	0.0%	0.1%	4.6%	7.0%	11.7%	10.5%	11.3%	15.0%	16.9%	13.9%	67.6%	20.7%
627	0.0%	0.0%	0.0%	2.5%	5.4%	7.9%	9.5%	11.5%	16.2%	17.9%	14.7%	69.7%	22.3%
628	0.0%	0.0%	0.0%	3.3%	7.2%	10.6%	10.7%	11.4%	15.5%	17.1%	13.9%	68.5%	20.9%
630	0.0%	0.0%	0.0%	3.3%	5.3%	8.7%	8.4%	10.9%	16.3%	19.0%	15.2%	69.8%	21.5%
631	0.0%	0.0%	0.0%	3.5%	4.3%	7.8%	6.5%	9.6%	14.6%	19.5%	17.4%	67.6%	24.6%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
632	0.0%	0.0%	0.2%	4.3%	6.8%	11.3%	11.9%	11.2%	13.1%	16.3%	14.6%	67.2%	21.6%
633	0.0%	0.0%	0.0%	1.8%	5.4%	7.2%	10.2%	12.1%	15.3%	17.4%	15.2%	70.2%	22.6%
634	0.0%	0.0%	0.0%	2.2%	4.5%	6.7%	9.6%	12.0%	14.8%	17.7%	15.9%	70.0%	23.3%
635	0.0%	0.0%	0.0%	1.9%	5.1%	7.0%	11.1%	11.9%	14.4%	17.5%	15.5%	70.3%	22.6%
636	0.0%	0.0%	0.0%	5.7%	9.4%	15.1%	14.6%	12.3%	12.3%	14.8%	12.8%	66.8%	18.1%
637	0.0%	0.0%	0.2%	6.7%	8.7%	15.6%	10.8%	10.7%	12.6%	16.2%	14.4%	64.7%	19.7%
638	0.0%	0.0%	0.1%	7.5%	9.7%	17.3%	15.9%	16.0%	14.3%	12.7%	10.5%	69.4%	13.3%
639	0.0%	0.0%	0.0%	2.6%	4.4%	7.0%	9.7%	14.7%	18.4%	18.6%	13.9%	75.4%	17.6%
639	0.0%	0.2%	0.7%	8.1%	10.2%	19.1%	13.1%	13.3%	14.1%	14.2%	10.8%	65.6%	15.3%
640	0.0%	0.4%	0.6%	3.6%	5.3%	9.9%	10.7%	14.3%	16.3%	17.2%	13.9%	72.4%	17.6%
642	0.0%	0.7%	0.4%	4.0%	7.3%	12.4%	13.2%	15.0%	16.1%	16.0%	11.8%	72.0%	15.5%
642	0.0%	0.0%	0.0%	2.4%	3.8%	6.2%	8.2%	13.5%	18.6%	20.4%	15.0%	75.8%	18.0%
642	0.0%	0.0%	0.0%	0.6%	1.6%	2.2%	6.6%	12.5%	17.8%	21.3%	17.9%	76.0%	21.8%
643	0.0%	0.3%	1.1%	5.5%	5.8%	12.7%	9.5%	13.1%	16.9%	18.1%	13.4%	70.9%	16.4%
644	0.0%	0.0%	1.8%	6.5%	4.7%	13.0%	5.6%	8.7%	15.7%	19.7%	15.6%	65.3%	21.7%
645	0.0%	0.0%	0.0%	3.3%	5.0%	8.3%	7.1%	10.4%	16.7%	19.5%	15.5%	69.2%	22.5%
646	0.0%	0.0%	0.1%	4.6%	7.1%	11.8%	9.2%	10.4%	14.7%	17.8%	14.8%	67.0%	21.2%
647	0.0%	0.0%	0.0%	2.7%	4.3%	7.0%	7.0%	10.8%	16.0%	19.4%	16.3%	69.5%	23.5%
648	0.0%	0.0%	0.0%	3.2%	5.3%	8.5%	8.5%	10.8%	14.8%	18.5%	15.9%	68.5%	23.0%
649	0.0%	0.0%	0.0%	3.5%	5.0%	8.5%	7.4%	9.9%	14.5%	19.1%	16.7%	67.7%	23.8%
650	0.0%	0.0%	0.0%	2.1%	3.4%	5.5%	6.2%	10.5%	16.8%	21.2%	16.9%	71.5%	23.0%
651	0.0%	0.0%	0.0%	3.6%	6.3%	9.9%	10.6%	11.0%	14.9%	18.2%	14.6%	69.3%	20.8%
652	0.0%	0.0%	0.0%	2.7%	5.6%	8.2%	7.7%	10.1%	15.3%	19.5%	16.3%	68.8%	23.0%
653	0.0%	0.0%	0.6%	12.8%	12.7%	26.1%	10.8%	9.5%	12.6%	13.6%	11.0%	57.6%	16.4%
654	0.0%	0.0%	0.0%	3.4%	4.6%	8.0%	7.5%	10.5%	16.2%	19.8%	15.9%	70.0%	22.0%
655	0.0%	0.6%	2.6%	10.8%	7.7%	21.7%	8.0%	9.0%	12.9%	16.3%	13.4%	59.7%	18.6%
656	0.0%	0.0%	0.1%	4.3%	6.2%	10.6%	7.9%	10.8%	16.1%	18.7%	15.0%	68.5%	20.9%
657	0.0%	0.0%	0.0%	3.7%	4.8%	8.5%	7.8%	10.4%	15.4%	19.2%	16.1%	68.9%	22.6%
658	0.0%	0.0%	0.0%	2.1%	3.3%	5.3%	6.9%	10.9%	16.3%	19.1%	16.7%	69.8%	24.9%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
659	0.0%	0.0%	0.0%	1.8%	4.1%	6.0%	7.1%	11.1%	16.7%	18.4%	15.8%	69.1%	24.9%
660	0.0%	0.0%	0.4%	6.6%	6.3%	13.2%	7.3%	9.7%	16.7%	17.4%	14.0%	65.0%	21.7%
661	0.0%	0.0%	0.0%	3.1%	5.5%	8.5%	8.4%	10.4%	14.7%	18.2%	16.0%	67.7%	23.7%
662	0.0%	0.0%	0.0%	2.4%	3.5%	5.9%	6.7%	10.2%	15.5%	19.7%	17.3%	69.4%	24.7%
663	0.0%	0.0%	0.0%	2.7%	4.4%	7.1%	6.8%	10.1%	14.8%	18.7%	17.0%	67.4%	25.5%
664	0.0%	0.0%	0.0%	2.3%	4.0%	6.3%	6.9%	10.5%	15.8%	18.4%	16.3%	67.9%	25.8%
665	0.0%	0.0%	0.0%	1.2%	2.6%	3.8%	6.5%	9.9%	14.8%	19.5%	18.2%	68.9%	27.3%
666	0.0%	0.0%	0.0%	2.1%	3.8%	6.0%	6.8%	10.9%	15.9%	18.7%	16.5%	68.7%	25.3%
667	0.0%	0.0%	0.0%	4.0%	5.8%	9.9%	9.7%	10.8%	13.1%	17.3%	16.0%	66.9%	23.2%
668	0.0%	0.0%	0.1%	4.4%	5.0%	9.5%	5.9%	9.2%	14.6%	18.9%	16.9%	65.5%	25.0%
669	0.0%	0.0%	0.1%	3.6%	4.5%	8.1%	7.6%	10.4%	14.6%	17.9%	16.4%	66.9%	25.0%
670	0.0%	0.0%	0.0%	2.7%	3.4%	6.2%	6.4%	10.5%	15.8%	19.3%	17.0%	69.1%	24.7%
671	0.0%	0.0%	0.0%	2.1%	3.5%	5.6%	5.6%	9.3%	15.6%	20.0%	17.8%	68.3%	26.0%
672	0.0%	0.0%	0.4%	7.1%	10.5%	18.1%	12.6%	10.3%	11.2%	13.8%	13.4%	61.3%	20.6%
673	0.0%	0.0%	0.6%	8.1%	8.1%	16.8%	9.9%	10.1%	12.5%	15.4%	13.9%	61.8%	21.5%
674	0.0%	0.0%	0.0%	4.2%	5.5%	9.7%	7.6%	10.1%	14.7%	19.0%	16.0%	67.5%	22.8%
675	0.0%	0.0%	0.0%	2.5%	4.1%	6.7%	6.9%	11.0%	16.0%	18.9%	16.3%	69.0%	24.3%
676	0.0%	0.0%	0.1%	4.4%	5.0%	9.4%	7.3%	10.8%	15.0%	17.1%	15.0%	65.2%	25.4%
678	0.0%	0.0%	0.0%	1.1%	3.6%	4.7%	6.6%	10.7%	15.9%	19.3%	17.1%	69.5%	25.8%
679	0.0%	0.0%	0.0%	2.2%	3.1%	5.2%	5.4%	9.6%	14.9%	18.9%	17.8%	66.6%	28.1%
680	0.0%	0.0%	0.0%	3.6%	3.7%	7.3%	6.7%	10.3%	16.0%	19.0%	16.3%	68.3%	24.5%
681	0.0%	0.0%	0.0%	3.8%	4.7%	8.5%	7.9%	11.0%	15.2%	18.0%	15.9%	68.0%	23.4%
682	0.0%	0.0%	0.0%	2.9%	3.4%	6.3%	6.2%	10.5%	15.4%	18.8%	17.1%	68.0%	25.7%
684	0.0%	0.0%	0.0%	4.1%	4.8%	9.0%	7.8%	10.8%	14.9%	17.7%	15.7%	66.9%	24.1%
685	0.0%	0.0%	0.1%	4.2%	4.7%	9.0%	7.1%	10.9%	15.6%	18.4%	15.7%	67.7%	23.4%
686	0.0%	0.0%	0.1%	5.7%	4.7%	10.4%	6.8%	10.1%	14.2%	18.1%	16.4%	65.7%	23.9%
687	0.0%	0.0%	0.2%	6.3%	5.8%	12.3%	7.6%	11.0%	14.8%	17.1%	14.9%	65.5%	22.3%
688	0.0%	0.0%	0.4%	5.4%	6.1%	11.9%	8.7%	10.9%	14.6%	17.3%	14.7%	66.2%	21.9%
689	0.0%	0.0%	0.0%	2.3%	4.0%	6.3%	7.0%	11.0%	15.4%	18.2%	16.6%	68.2%	25.5%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
690	0.0%	0.0%	0.0%	3.7%	4.2%	7.9%	6.7%	11.4%	16.3%	17.4%	15.6%	67.4%	24.7%
691	0.0%	0.0%	0.0%	1.8%	3.2%	5.1%	6.4%	10.9%	15.7%	18.9%	17.1%	69.0%	25.9%
692	0.0%	0.0%	0.5%	6.3%	5.6%	12.4%	7.5%	10.7%	14.6%	17.1%	15.1%	64.8%	22.7%
693	0.0%	0.0%	0.3%	5.7%	5.5%	11.5%	7.7%	10.8%	15.3%	17.3%	15.1%	66.2%	22.4%
694	0.0%	0.0%	0.0%	3.3%	5.1%	8.4%	7.4%	11.5%	16.9%	17.3%	15.2%	68.2%	23.4%
695	0.0%	4.5%	5.1%	12.3%	8.7%	30.5%	8.0%	8.4%	11.4%	12.8%	11.3%	51.9%	17.5%
696	0.0%	0.0%	0.2%	5.2%	7.1%	12.5%	8.9%	10.8%	14.1%	16.0%	14.9%	64.7%	22.8%
698	0.0%	0.0%	0.0%	3.2%	5.6%	8.9%	7.9%	11.1%	15.6%	17.4%	15.5%	67.4%	23.7%
699	0.0%	0.0%	0.0%	3.2%	5.3%	8.5%	8.2%	11.0%	15.4%	17.7%	15.9%	68.2%	23.3%
701	0.00%	0.00%	0.03%	3.32%	3.62%	7.0%	6.52%	11.56%	18.46%	19.27%	14.88%	70.7%	22.34%
703	0.00%	0.00%	0.02%	4.64%	5.57%	10.2%	7.19%	10.81%	16.96%	18.35%	14.52%	67.8%	21.94%
704	0.00%	0.00%	0.01%	3.37%	5.83%	9.2%	8.41%	10.95%	15.85%	17.68%	14.97%	67.9%	22.94%
705	0.00%	0.00%	0.13%	5.66%	6.49%	12.3%	7.97%	10.76%	15.80%	17.66%	14.35%	66.5%	21.19%
706	0.00%	0.00%	0.33%	7.04%	6.39%	13.8%	8.59%	11.32%	15.37%	16.61%	13.93%	65.8%	20.42%
707	0.00%	0.00%	0.00%	2.80%	4.55%	7.4%	7.80%	11.38%	16.52%	17.57%	15.40%	68.7%	23.98%
708	0.00%	0.00%	0.00%	1.89%	3.66%	5.6%	6.74%	9.88%	15.85%	20.13%	17.23%	69.8%	24.62%
709	0.00%	0.00%	0.00%	3.00%	3.43%	6.4%	6.23%	11.32%	17.53%	18.44%	15.64%	69.2%	24.40%
710	0.00%	0.00%	0.01%	2.87%	4.00%	6.9%	6.80%	11.32%	17.56%	18.03%	15.32%	69.0%	24.10%
711	0.00%	0.00%	0.17%	4.45%	4.54%	9.2%	7.41%	11.75%	17.18%	17.76%	14.65%	68.8%	22.08%
712	0.00%	0.00%	0.26%	5.30%	4.19%	9.7%	6.88%	11.19%	16.85%	17.86%	14.98%	67.8%	22.50%
713	0.00%	0.00%	0.02%	4.39%	4.82%	9.2%	6.80%	10.99%	17.15%	18.30%	14.97%	68.2%	22.54%
714	0.00%	0.00%	0.00%	2.78%	4.57%	7.4%	7.99%	11.77%	17.24%	18.00%	14.89%	69.9%	22.75%
715	0.00%	0.00%	0.00%	1.44%	2.96%	4.4%	6.44%	11.23%	17.50%	19.11%	16.37%	70.7%	24.95%
716	0.00%	0.00%	0.07%	5.45%	8.30%	13.8%	13.63%	18.06%	18.83%	12.93%	8.91%	72.4%	13.82%
717	0.00%	0.00%	0.10%	3.03%	3.96%	7.1%	7.83%	13.95%	20.61%	16.86%	12.80%	72.0%	20.87%
718	0.00%	0.00%	0.31%	4.40%	6.25%	11.0%	9.07%	14.09%	16.89%	15.21%	12.97%	68.2%	20.83%
719	0.00%	0.86%	3.11%	12.08%	8.62%	24.7%	7.91%	11.47%	14.67%	12.79%	11.24%	58.1%	17.25%
720	0.00%	0.00%	0.00%	1.94%	4.54%	6.5%	7.74%	13.21%	20.53%	17.05%	13.14%	71.7%	21.85%
722	0.00%	0.00%	0.00%	1.83%	4.77%	6.6%	8.07%	14.15%	18.16%	15.94%	13.96%	70.3%	23.12%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
723	0.00%	0.00%	0.03%	3.59%	4.57%	8.2%	8.21%	15.22%	20.41%	16.32%	12.17%	72.3%	19.49%
724	0.00%	0.00%	0.16%	4.43%	5.23%	9.8%	8.16%	14.49%	18.04%	15.46%	12.95%	69.1%	21.09%
725	0.00%	0.00%	0.02%	2.87%	4.44%	7.3%	8.21%	15.93%	20.05%	16.57%	12.45%	73.2%	19.46%
726	0.00%	0.00%	0.12%	4.73%	5.96%	10.8%	8.82%	15.16%	17.81%	14.87%	12.20%	68.9%	20.33%
727	0.00%	0.00%	0.07%	5.06%	4.60%	9.7%	7.30%	26.54%	22.70%	10.55%	8.24%	75.3%	14.95%
728	0.00%	0.00%	0.97%	6.04%	5.74%	12.8%	9.31%	15.59%	18.80%	14.69%	11.12%	69.5%	17.73%
733	0.00%	0.00%	0.01%	3.24%	4.97%	8.2%	9.71%	14.36%	18.12%	16.12%	13.07%	71.4%	20.41%
736	0.00%	0.00%	0.06%	4.13%	6.18%	10.4%	9.42%	14.91%	20.55%	15.90%	11.29%	72.1%	17.55%
737	0.00%	0.00%	0.09%	7.27%	7.29%	14.7%	9.39%	14.63%	19.09%	14.73%	10.86%	68.7%	16.64%
738	0.00%	0.48%	2.14%	8.88%	8.68%	20.2%	11.08%	13.81%	16.35%	12.99%	9.97%	64.2%	15.63%
739	0.00%	0.00%	0.01%	3.23%	4.85%	8.1%	9.00%	14.20%	17.94%	17.26%	13.37%	71.8%	20.16%
740	0.00%	0.00%	0.00%	2.46%	6.55%	9.0%	11.22%	14.92%	16.90%	15.00%	12.66%	70.7%	20.30%
741	0.00%	0.00%	0.01%	2.65%	3.89%	6.5%	8.43%	16.85%	20.99%	16.32%	12.03%	74.6%	18.83%
742	0.00%	0.00%	0.21%	5.27%	6.22%	11.7%	9.74%	16.97%	20.33%	14.68%	10.41%	72.1%	16.16%
743	0.00%	0.00%	0.07%	4.17%	4.34%	8.6%	8.26%	21.87%	24.00%	12.91%	9.16%	76.2%	15.21%
744	0.00%	0.00%	0.04%	4.68%	6.41%	11.1%	10.08%	16.24%	19.38%	14.28%	10.97%	71.0%	17.91%
745	0.00%	0.00%	0.00%	2.55%	4.51%	7.1%	9.19%	18.60%	22.61%	14.72%	10.60%	75.7%	17.22%
746	0.00%	0.00%	0.00%	2.32%	5.24%	7.6%	10.33%	17.68%	20.60%	14.49%	11.13%	74.2%	18.21%
747	0.00%	0.00%	0.00%	2.57%	4.47%	7.0%	9.38%	18.06%	20.05%	14.76%	11.51%	73.8%	19.19%
748	0.00%	0.00%	0.00%	1.86%	4.18%	6.0%	9.79%	19.12%	21.44%	14.38%	11.01%	75.7%	18.21%
749	0.00%	0.00%	0.02%	2.98%	6.10%	9.1%	11.39%	19.14%	19.99%	13.38%	10.24%	74.1%	16.77%
750	0.00%	0.00%	0.00%	1.77%	4.65%	6.4%	9.56%	14.39%	17.82%	16.91%	13.77%	72.4%	21.13%
751	0.00%	0.00%	0.08%	4.51%	6.24%	10.8%	9.20%	13.30%	17.24%	17.08%	12.77%	69.6%	19.56%
752	0.00%	0.00%	0.00%	1.79%	4.86%	6.7%	10.63%	15.05%	18.97%	17.36%	12.36%	74.4%	18.98%
754	0.00%	1.17%	6.92%	16.10%	11.52%	35.7%	13.27%	10.47%	11.39%	10.43%	7.32%	52.9%	11.40%
755	0.00%	0.00%	0.01%	3.08%	5.61%	8.7%	10.50%	15.31%	18.59%	15.93%	12.01%	72.3%	18.95%
756	0.00%	0.00%	0.02%	3.55%	5.24%	8.8%	9.17%	14.22%	18.95%	17.19%	12.70%	72.2%	18.96%
757	0.00%	0.00%	0.00%	2.00%	4.34%	6.3%	9.31%	16.77%	21.17%	17.49%	11.77%	76.5%	17.15%
758	0.00%	0.00%	0.00%	1.54%	4.19%	5.7%	9.34%	15.32%	19.08%	17.10%	12.87%	73.7%	20.56%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
759	0.00%	0.00%	0.00%	2.04%	4.12%	6.2%	10.26%	16.97%	20.91%	17.34%	11.31%	76.8%	17.05%
760	0.00%	0.00%	0.00%	2.62%	5.66%	8.3%	12.16%	14.65%	15.12%	14.92%	13.33%	70.2%	21.53%
761	0.00%	0.00%	0.01%	3.10%	4.94%	8.1%	9.50%	15.49%	19.88%	17.60%	11.91%	74.4%	17.58%
762	0.00%	0.00%	0.07%	4.51%	5.06%	9.6%	9.24%	15.89%	20.74%	17.58%	11.15%	74.6%	15.76%
763	0.00%	0.00%	0.00%	2.41%	4.84%	7.3%	9.96%	16.47%	21.35%	17.59%	11.04%	76.4%	16.34%
764	0.00%	0.00%	0.00%	1.91%	3.93%	5.8%	9.10%	14.11%	18.86%	18.60%	13.67%	74.3%	19.82%
765	0.00%	0.00%	0.06%	4.98%	8.79%	13.8%	13.31%	12.40%	13.28%	14.22%	12.87%	66.1%	20.09%
766	0.00%	0.00%	0.00%	1.66%	4.12%	5.8%	9.29%	14.89%	21.14%	18.71%	12.28%	76.3%	17.91%
767	0.00%	0.00%	0.00%	2.68%	5.19%	7.9%	9.65%	15.04%	20.02%	17.89%	12.07%	74.7%	17.45%
769	0.00%	0.00%	0.03%	4.56%	7.42%	12.0%	10.52%	11.87%	14.29%	15.20%	14.25%	66.1%	21.87%
770	0.00%	0.00%	0.02%	3.45%	5.26%	8.7%	9.03%	14.85%	20.71%	18.10%	11.82%	74.5%	16.76%
771	0.00%	0.00%	0.03%	4.41%	6.56%	11.0%	10.28%	14.15%	20.08%	17.28%	11.16%	72.9%	16.06%
772	0.00%	0.00%	0.17%	5.29%	6.37%	11.8%	9.89%	13.98%	18.19%	16.53%	11.96%	70.5%	17.63%
773	0.00%	0.00%	0.00%	2.09%	4.71%	6.8%	9.22%	15.32%	21.58%	18.09%	11.73%	75.9%	17.25%
774	0.00%	0.00%	0.05%	4.54%	5.21%	9.8%	9.23%	15.68%	20.76%	17.32%	11.14%	74.1%	16.06%
775	0.00%	0.00%	0.01%	2.68%	3.93%	6.6%	7.47%	14.58%	20.91%	19.45%	13.01%	75.4%	17.97%
776	0.00%	0.00%	0.00%	2.01%	6.40%	8.4%	10.89%	14.12%	19.25%	17.66%	12.05%	74.0%	17.62%
777	0.00%	0.00%	0.01%	3.38%	5.54%	8.9%	10.38%	14.99%	20.39%	17.57%	11.39%	74.7%	16.35%
778	0.00%	0.00%	0.01%	3.17%	6.15%	9.3%	11.20%	14.21%	17.74%	16.36%	12.29%	71.8%	18.88%
779	0.00%	0.00%	0.00%	1.54%	2.69%	4.2%	7.45%	14.99%	22.67%	19.95%	12.73%	77.8%	17.96%
780	0.00%	0.00%	0.19%	6.12%	7.61%	13.9%	11.18%	15.60%	19.26%	15.50%	9.98%	71.5%	14.56%
781	0.00%	0.00%	0.00%	1.89%	4.25%	6.1%	8.93%	15.93%	21.24%	18.38%	12.14%	76.6%	17.23%
782	0.00%	0.00%	0.00%	1.95%	3.96%	5.9%	8.91%	15.42%	20.94%	18.29%	12.48%	76.0%	18.06%
783	0.00%	0.00%	0.00%	0.95%	3.33%	4.3%	9.13%	17.24%	22.23%	18.51%	11.80%	78.9%	16.80%
784	0.00%	0.00%	0.00%	1.49%	3.82%	5.3%	8.74%	15.87%	22.96%	19.06%	11.56%	78.2%	16.50%
785	0.00%	0.00%	0.00%	1.57%	4.13%	5.7%	8.52%	14.54%	18.96%	17.94%	13.70%	73.7%	20.64%
786	0.00%	0.00%	0.10%	4.53%	6.86%	11.5%	11.96%	15.35%	17.94%	15.77%	11.18%	72.2%	16.31%
787	0.00%	0.00%	0.33%	5.17%	6.92%	12.4%	11.07%	17.15%	20.90%	16.09%	9.41%	74.6%	12.95%
788	0.00%	0.00%	0.00%	1.30%	3.88%	5.2%	9.17%	17.31%	23.07%	18.26%	11.27%	79.1%	15.73%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
789	0.00%	0.00%	0.00%	1.64%	3.62%	5.3%	8.87%	15.85%	22.17%	18.71%	12.04%	77.6%	17.10%
790	0.00%	0.00%	0.00%	0.85%	2.21%	3.1%	6.97%	15.71%	23.44%	19.61%	12.79%	78.5%	18.42%
791	0.00%	0.00%	0.00%	1.54%	4.13%	5.7%	9.98%	14.97%	21.05%	18.05%	12.22%	76.3%	18.07%
792	0.00%	0.00%	0.00%	1.56%	3.28%	4.8%	8.04%	13.00%	19.19%	17.85%	14.40%	72.5%	22.68%
793	0.00%	0.00%	0.07%	4.46%	5.86%	10.4%	9.88%	15.13%	20.42%	17.01%	11.02%	73.5%	16.16%
794	0.00%	0.00%	0.01%	3.60%	6.53%	10.1%	11.00%	16.16%	20.60%	16.50%	10.55%	74.8%	15.05%
795	0.00%	0.00%	0.00%	2.18%	3.57%	5.7%	8.93%	15.95%	22.46%	18.45%	11.68%	77.5%	16.78%
796	0.00%	0.00%	0.00%	1.61%	4.25%	5.9%	9.88%	16.99%	22.52%	17.70%	11.13%	78.2%	15.94%
797	0.00%	0.00%	0.00%	1.91%	4.09%	6.0%	10.16%	16.53%	22.45%	17.97%	11.05%	78.2%	15.84%
798	0.00%	0.00%	0.02%	3.08%	5.30%	8.4%	10.43%	14.10%	17.40%	16.31%	13.03%	71.3%	20.32%
799	0.00%	0.00%	0.00%	3.29%	6.46%	9.8%	11.38%	14.96%	18.97%	17.22%	11.45%	74.0%	16.27%
800	0.00%	0.00%	0.01%	2.83%	5.60%	8.4%	9.23%	15.27%	20.52%	18.07%	12.07%	75.2%	16.39%
801	0.00%	0.00%	0.01%	3.26%	6.66%	9.9%	12.87%	14.66%	16.88%	15.27%	11.93%	71.6%	18.46%
803	0.00%	0.00%	0.01%	3.55%	6.23%	9.8%	11.14%	15.53%	20.37%	16.83%	10.77%	74.6%	15.57%
804	0.00%	0.00%	0.01%	2.88%	5.77%	8.7%	12.34%	15.34%	19.59%	16.61%	11.16%	75.0%	16.29%
805	0.00%	0.00%	0.00%	3.28%	7.15%	10.4%	13.36%	14.86%	17.12%	15.54%	11.36%	72.3%	17.32%
806	0.00%	0.00%	0.01%	3.35%	6.96%	10.3%	12.75%	14.24%	15.80%	14.78%	12.44%	70.0%	19.68%
807	0.00%	0.00%	0.00%	1.56%	6.76%	8.3%	12.74%	16.10%	19.95%	16.51%	10.89%	76.2%	15.48%
808	0.00%	0.00%	0.04%	3.80%	7.19%	11.0%	10.71%	12.54%	15.18%	14.93%	13.75%	67.1%	21.85%
809	0.00%	0.00%	0.00%	1.74%	4.40%	6.1%	10.48%	16.69%	22.06%	17.63%	11.07%	77.9%	15.93%
810	0.00%	0.00%	0.00%	2.37%	5.13%	7.5%	9.73%	15.64%	22.13%	17.79%	11.10%	76.4%	16.11%
811	0.00%	0.00%	0.01%	3.03%	5.84%	8.9%	10.94%	13.63%	17.12%	15.49%	12.96%	70.1%	20.99%
812	0.00%	0.00%	1.21%	6.05%	7.36%	14.6%	10.95%	13.44%	18.84%	16.28%	10.62%	70.1%	15.26%
813	0.00%	0.00%	0.00%	2.12%	4.11%	6.2%	9.28%	15.56%	21.71%	18.30%	11.90%	76.8%	17.01%
814	0.00%	0.00%	0.03%	3.76%	6.57%	10.4%	10.57%	14.15%	19.69%	17.45%	11.46%	73.3%	16.33%
815	0.00%	0.00%	0.05%	6.67%	11.53%	18.3%	16.51%	13.69%	13.95%	12.34%	9.78%	66.3%	15.49%
816	0.00%	0.00%	0.00%	1.10%	1.76%	2.9%	4.93%	15.50%	24.66%	21.15%	13.09%	79.3%	17.79%
817	0.00%	0.00%	0.00%	1.07%	2.03%	3.1%	5.25%	15.35%	24.77%	20.94%	12.86%	79.2%	17.73%
818	0.00%	0.00%	0.00%	1.05%	1.46%	2.5%	4.64%	15.40%	25.33%	21.49%	13.04%	79.9%	17.59%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
819	0.00%	0.00%	0.00%	1.38%	2.18%	3.6%	5.45%	12.29%	21.62%	21.77%	14.74%	75.9%	20.57%
820	0.00%	0.00%	0.00%	1.88%	5.06%	6.9%	9.86%	15.48%	20.92%	18.15%	11.96%	76.4%	16.69%
821	0.00%	0.00%	0.00%	0.74%	1.12%	1.9%	2.98%	12.52%	23.87%	23.39%	15.25%	78.0%	20.15%
823	0.00%	0.00%	0.00%	1.12%	3.50%	4.6%	8.09%	15.25%	21.63%	19.94%	13.25%	78.2%	17.21%
824	0.00%	0.00%	0.05%	5.54%	11.83%	17.4%	17.61%	14.04%	14.83%	13.85%	9.76%	70.1%	12.49%
825	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%	2.26%	12.23%	24.30%	24.32%	16.33%	79.4%	20.56%
826	0.00%	0.00%	0.00%	0.52%	1.51%	2.0%	6.15%	17.45%	25.00%	20.73%	12.72%	82.1%	15.91%
827	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%	0.00%	4.58%	20.16%	27.53%	19.60%	71.9%	28.13%
828	0.00%	0.00%	0.00%	0.27%	2.71%	3.0%	5.36%	13.73%	22.73%	20.77%	14.35%	76.9%	20.07%
829	0.00%	0.00%	0.00%	0.00%	0.07%	0.1%	1.97%	11.18%	23.54%	22.81%	16.39%	75.9%	24.04%
830	0.00%	0.00%	0.00%	0.35%	1.69%	2.0%	5.36%	16.14%	24.88%	20.63%	13.15%	80.2%	17.79%
831	0.00%	0.00%	0.01%	2.56%	4.05%	6.6%	8.75%	16.79%	21.90%	17.98%	11.61%	77.0%	16.33%
832	0.00%	0.00%	0.00%	1.55%	2.46%	4.0%	7.48%	17.12%	23.75%	19.32%	11.95%	79.6%	16.37%
833	0.00%	0.00%	0.00%	1.20%	1.99%	3.2%	7.40%	17.03%	23.47%	19.10%	12.14%	79.1%	17.67%
834	0.00%	0.00%	0.00%	1.35%	2.58%	3.9%	6.61%	14.66%	22.24%	20.19%	13.43%	77.1%	18.94%
835	0.00%	0.00%	0.00%	1.20%	3.11%	4.3%	7.29%	14.68%	20.75%	19.19%	13.79%	75.7%	19.98%
836	0.00%	0.00%	0.01%	2.97%	4.82%	7.8%	8.66%	15.41%	20.96%	17.99%	11.99%	75.0%	17.19%
837	0.00%	0.00%	0.01%	2.89%	5.22%	8.1%	8.41%	13.78%	19.09%	17.90%	13.29%	72.5%	19.40%
838	0.00%	0.00%	0.30%	4.79%	6.38%	11.5%	9.38%	12.97%	17.69%	16.99%	12.65%	69.7%	18.85%
839	0.00%	0.00%	0.00%	1.95%	3.15%	5.1%	7.27%	12.53%	16.96%	17.53%	15.66%	69.9%	24.97%
840	0.00%	0.00%	0.00%	2.10%	3.29%	5.4%	6.79%	11.66%	16.34%	17.60%	16.19%	68.6%	26.02%
842	0.00%	0.00%	0.07%	3.92%	4.58%	8.6%	8.40%	15.00%	19.45%	17.49%	12.48%	72.8%	18.60%
843	0.00%	0.00%	0.00%	1.76%	3.35%	5.1%	7.61%	16.05%	21.29%	18.41%	12.90%	76.3%	18.63%
844	0.00%	0.00%	0.00%	1.83%	3.52%	5.4%	7.31%	14.96%	20.73%	18.73%	13.43%	75.2%	19.49%
845	0.00%	0.00%	0.00%	1.65%	3.98%	5.6%	8.46%	15.37%	20.41%	18.13%	13.07%	75.4%	18.92%
846	0.00%	0.00%	1.40%	5.81%	6.44%	13.7%	10.09%	14.18%	18.47%	16.23%	11.15%	70.1%	16.23%
847	0.00%	0.00%	0.00%	2.21%	3.52%	5.7%	7.03%	12.83%	18.28%	17.73%	14.95%	70.8%	23.45%
848	0.00%	0.00%	0.00%	1.98%	3.83%	5.8%	7.44%	14.95%	20.80%	18.53%	13.26%	75.0%	19.20%
849	0.00%	0.00%	0.00%	2.15%	3.38%	5.5%	6.59%	13.74%	21.16%	19.27%	13.63%	74.4%	20.08%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
850	0.00%	0.00%	0.00%	1.76%	3.35%	5.1%	6.59%	13.66%	19.86%	19.02%	14.42%	73.5%	21.35%
851	0.00%	0.00%	0.00%	1.50%	2.30%	3.8%	6.35%	14.46%	21.38%	19.62%	13.92%	75.7%	20.47%
852	0.00%	0.00%	0.00%	1.59%	3.16%	4.8%	5.96%	12.34%	19.39%	19.37%	15.13%	72.2%	23.04%
853	0.00%	0.00%	0.00%	1.22%	2.97%	4.2%	7.33%	14.54%	20.57%	18.78%	13.81%	75.0%	20.77%
854	0.00%	0.00%	0.00%	1.53%	2.92%	4.4%	7.77%	15.97%	21.96%	18.52%	12.70%	76.9%	18.63%
855	0.00%	0.00%	0.00%	1.94%	2.65%	4.6%	5.70%	13.38%	20.53%	19.58%	14.72%	73.9%	21.51%
856	0.00%	0.00%	0.65%	6.37%	5.47%	12.5%	7.96%	14.65%	20.24%	17.16%	11.26%	71.3%	16.24%
857	0.00%	0.00%	0.00%	1.84%	2.71%	4.5%	6.55%	13.89%	20.94%	19.70%	14.02%	75.1%	20.35%
858	0.00%	0.00%	0.00%	1.81%	3.90%	5.7%	7.61%	12.13%	15.75%	16.75%	16.04%	68.3%	26.01%
859	0.00%	0.00%	0.00%	1.00%	1.99%	3.0%	6.85%	14.01%	20.04%	19.26%	14.67%	74.8%	22.17%
860	0.00%	0.00%	0.00%	1.04%	2.79%	3.8%	7.74%	15.89%	21.46%	18.85%	13.15%	77.1%	19.09%
861	0.00%	0.00%	0.00%	2.20%	2.83%	5.0%	6.98%	14.91%	20.69%	18.84%	13.60%	75.0%	19.95%
862	0.00%	0.00%	0.00%	1.45%	3.11%	4.6%	7.73%	15.74%	21.43%	18.66%	13.03%	76.6%	18.86%
863	0.00%	0.00%	0.00%	1.66%	2.62%	4.3%	6.31%	12.78%	18.10%	18.09%	15.70%	71.0%	24.75%
864	0.00%	0.00%	0.00%	1.38%	2.93%	4.3%	6.94%	14.36%	20.73%	19.20%	14.04%	75.3%	20.41%
865	0.00%	0.00%	0.00%	0.95%	2.63%	3.6%	8.40%	16.75%	22.02%	18.69%	12.59%	78.5%	17.97%
866	0.00%	0.00%	0.00%	1.33%	3.34%	4.7%	7.39%	12.67%	17.09%	17.13%	15.71%	70.0%	25.34%
867	0.00%	0.00%	0.00%	2.01%	3.79%	5.8%	7.73%	14.60%	20.17%	18.51%	13.52%	74.5%	19.66%
868	0.00%	0.00%	0.03%	3.40%	3.68%	7.1%	7.27%	15.17%	21.32%	18.60%	12.50%	74.9%	18.03%
869	0.00%	0.00%	0.00%	2.31%	4.25%	6.6%	8.96%	16.10%	20.43%	17.77%	12.41%	75.7%	17.76%
870	0.00%	0.00%	0.00%	1.32%	3.01%	4.3%	8.22%	16.04%	21.64%	18.73%	12.70%	77.3%	18.34%
871	0.00%	0.00%	0.00%	1.46%	2.60%	4.1%	6.70%	14.58%	21.01%	19.55%	13.98%	75.8%	20.12%
872	0.00%	0.00%	0.00%	1.23%	2.37%	3.6%	7.05%	15.45%	22.03%	19.51%	13.26%	77.3%	19.09%
873	0.00%	0.00%	0.00%	1.79%	3.44%	5.2%	6.95%	13.81%	19.93%	19.23%	14.34%	74.3%	20.52%
874	0.00%	0.00%	0.12%	3.76%	4.36%	8.2%	7.94%	14.96%	21.49%	18.42%	11.93%	74.7%	17.02%
875	0.00%	0.00%	0.32%	4.21%	5.02%	9.6%	8.92%	14.52%	20.01%	17.40%	12.00%	72.8%	17.61%
876	0.00%	0.00%	0.00%	1.48%	2.69%	4.2%	6.78%	14.51%	21.03%	19.22%	13.86%	75.4%	20.43%
877	0.00%	0.00%	0.23%	3.93%	4.67%	8.8%	8.59%	12.27%	16.87%	16.93%	14.06%	68.7%	22.45%
878	0.00%	0.00%	0.02%	1.89%	1.58%	3.5%	5.81%	13.96%	20.81%	19.66%	14.78%	75.0%	21.49%

Table B1. Continued

Depth (cm)	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	SILT	CLAY
878	0.00%	0.00%	0.02%	2.81%	4.15%	7.0%	9.01%	14.20%	18.19%	16.85%	13.47%	71.7%	21.30%
878	0.00%	0.00%	0.00%	1.47%	1.48%	2.9%	7.00%	14.56%	19.96%	19.24%	14.45%	75.2%	21.84%
879	0.00%	0.00%	0.00%	1.49%	2.14%	3.6%	6.29%	14.45%	21.40%	19.87%	13.90%	75.9%	20.45%
880	0.00%	0.00%	0.00%	1.52%	2.16%	3.7%	7.03%	16.15%	22.81%	19.22%	12.65%	77.9%	18.46%
881	0.00%	0.00%	0.05%	3.56%	3.98%	7.6%	7.26%	11.15%	16.02%	17.05%	15.69%	67.2%	25.24%
882	0.00%	0.00%	0.00%	1.62%	2.99%	4.6%	7.18%	12.09%	17.01%	18.00%	15.94%	70.2%	25.17%
883	0.00%	0.00%	0.00%	1.59%	2.84%	4.4%	7.48%	15.56%	21.35%	18.99%	13.13%	76.5%	19.05%
884	0.00%	0.00%	0.00%	2.21%	3.71%	5.9%	7.83%	12.76%	17.03%	16.82%	15.08%	69.5%	24.58%
885	0.00%	0.00%	0.00%	2.40%	3.65%	6.1%	8.14%	16.34%	22.77%	17.48%	11.55%	76.3%	17.67%
886	0.00%	0.00%	0.01%	2.30%	2.82%	5.1%	8.60%	17.89%	22.60%	17.07%	11.44%	77.6%	17.27%
887	0.00%	0.00%	0.00%	4.08%	9.25%	13.3%	10.77%	12.01%	13.87%	14.03%	13.67%	64.3%	22.32%
888	0.00%	0.00%	0.00%	2.95%	9.91%	12.9%	15.75%	16.15%	15.52%	13.34%	10.77%	71.5%	15.59%
889	0.00%	0.00%	0.00%	3.62%	9.15%	12.8%	9.87%	10.67%	13.28%	13.92%	14.59%	62.3%	24.89%
890	0.00%	0.00%	0.02%	7.05%	11.26%	18.3%	10.28%	10.37%	12.31%	12.96%	13.35%	59.3%	22.39%
891	0.00%	0.00%	0.04%	12.14%	16.10%	28.3%	9.21%	8.01%	9.92%	11.46%	12.20%	50.8%	20.93%
892	0.00%	0.00%	0.00%	2.95%	8.22%	11.2%	13.52%	15.05%	16.16%	14.52%	11.94%	71.2%	17.63%
893	0.00%	0.00%	0.02%	2.54%	3.79%	6.4%	8.64%	17.10%	22.95%	17.09%	11.01%	76.8%	16.84%
894	0.00%	0.00%	0.06%	3.07%	3.63%	6.8%	9.43%	17.46%	22.45%	16.37%	10.72%	76.4%	16.81%
895	0.00%	0.00%	0.54%	5.24%	6.58%	12.4%	10.90%	16.40%	20.66%	15.04%	9.67%	72.7%	14.97%
896	0.00%	0.00%	0.01%	2.99%	5.12%	8.1%	10.19%	13.64%	16.04%	14.87%	13.78%	68.5%	23.37%
897	0.00%	0.00%	0.00%	1.90%	3.76%	5.7%	8.18%	16.50%	23.30%	17.35%	11.41%	76.7%	17.60%
898	0.00%	0.00%	0.03%	2.98%	6.06%	9.1%	11.47%	17.79%	21.65%	15.69%	9.86%	76.5%	14.47%
899	0.00%	0.00%	0.07%	3.38%	4.64%	8.1%	8.86%	15.70%	20.03%	16.44%	12.17%	73.2%	18.72%

Table B2. ICP-MS data for 53 elements from Acme Analytical Laboratories (Bureau Veritas, Vancouver). An *aqua regia* digestion was used prior to ICP-MS analysis.

	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U
Unit	PPM	PPM	PPM	PPM	PPB	PPM	PPM	PPM	%	PPM	PPM
MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1
Depth (cm)											
12-12.5	3.36	34.61	12.01	82.2	188	38.6	12.8	384	2.69	67.4	3.4
14-14.5	3.25	39.56	11.84	78.5	90	36.6	12.7	385	2.63	60.1	3.2
16-16.5	4.47	143.49	15.6	129.5	139	34.9	11.2	342	2.32	32.9	2.9
16-16.5	3.7	106.05	14.7	122.7	106	34.5	11.1	383	2.35	45.8	3.2
16-16.5	3.92	63.83	13.01	106.2	91	35.6	10.9	355	2.37	39.1	3.3
18.5-19	4.55	56.32	11.46	89.3	96	36.7	11.2	356	2.38	32.1	2.9
20.5-21	3.47	36.94	10.59	76.4	85	34.4	10.5	352	2.34	25.5	2.6
22-22.5	2.9	42.6	11.36	73	81	31.5	11.3	330	2.22	22.6	2.3
24-24.5	2.87	48.02	10.76	76.6	95	35.6	11.5	335	2.28	21.1	2.3
26-26.5	2.87	82.72	12.39	111.9	109	33.6	10.7	339	2.28	16.9	2.3
28-28.5	3.25	44.3	9.56	74.9	76	32.3	11.3	338	2.32	18	2.3
30-30.5	3.7	45.02	10.69	87.4	102	32.8	11.1	333	2.34	20.1	2.5
32-32.5	4.27	59.56	10.69	93.1	97	33.3	11.5	334	2.39	23	2.8
34-34.5	3.94	107.6	12.86	130.6	112	34.1	10.9	347	2.37	23.3	2.8
34-34.5	4.11	54.89	10.64	88.1	93	32.1	10.8	319	2.34	22.3	2.8
34-34.5	3.73	58.99	9.84	92.8	98	29.5	10.4	379	2.39	22.6	2.7
36-36.5	3.75	84.14	11.46	111.5	106	32.8	10.4	330	2.35	20.8	2.7
38.5-39	3.67	48.87	9.43	80.1	85	30.3	10.8	321	2.26	19.9	2.6
40-40.5	3.25	139.34	16.83	148.7	129	34.5	10	334	2.4	18.5	2.6
42-42.5	3.42	49.44	10.84	79.1	103	33.2	10.7	327	2.35	17.8	2.7
44-44.5	4.23	85.75	13.4	117.9	126	35.1	11.7	317	2.35	19.5	2.7
45.5-46	3.4	72.96	10.89	95.4	108	34.5	10.9	338	2.43	18.6	2.5
46.5-47	4.01	50.9	12.34	88.9	106	35.2	11	340	2.44	20.4	2.8
48-48.5	3.54	59.78	11.19	98.3	121	31.3	10.4	340	2.33	20.9	2.6
50-50.5	4.19	58.16	10.68	92.9	151	32.3	9.9	305	2.25	18.2	2.4

Table B2. Continued

	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U
Unit	PPM	PPM	PPM	PPM	PPB	PPM	PPM	PPM	%	PPM	PPM
MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1
Depth (cm)											
52-52.5	2.73	49.25	9.83	83.2	91	29	9.7	292	2.14	19.7	1.8
54-54.5	3.32	61.95	10.27	94.9	100	29.2	10	311	2.3	18.6	2.4
56-56.5	3.66	73.64	11	91.1	118	32.9	10.2	319	2.38	20.4	2.4
56-56.5	3.54	82.77	13.33	107.3	115	33.1	11.4	339	2.43	23.3	2.7
56-56.5	3.98	161.84	16.69	154.4	155	34	10.8	320	2.35	23.7	2.7
57.5-58	3.81	55.66	10.5	91.9	99	34	11.1	340	2.41	21.8	2.5
59-59.5	4.42	51.91	10.32	83.5	94	33.8	11.3	334	2.46	26.9	2.5
61-61.5	3.53	47.31	8.97	69.4	77	26.3	9.8	331	2.33	25.1	2.4
63-63.5	3.65	41.64	9.14	75	87	28.3	10.6	337	2.43	27.8	2.8
65-65.5	3.94	41.42	9.01	68	85	28.9	9.4	336	2.25	24.4	2.8
67-67.5	4.29	44.17	9.83	76.1	114	32.1	11.2	338	2.53	25.1	3.3
69-69.5	3.28	66.41	10.84	93.9	119	30.2	10.6	316	2.44	19.3	2.9
71-71.5	4.15	47.19	10.04	78.6	103	32.9	11.4	330	2.59	24.4	3.3
73-73.5	3.78	42.19	10.14	76.9	106	33.5	11.2	337	2.63	23.1	3.4
75-75.5	3.49	44.94	9.44	79	93	33.9	10.9	338	2.53	19.3	3
77-77.5	3.27	54.48	9.58	81	89	31.8	10.3	328	2.42	20.2	2.7
79.5-80	3.29	44.46	8.83	72.3	89	32.3	9.7	324	2.29	21.6	2.6
79.5-80	3.15	45.41	9.45	83.2	99	33	10.3	346	2.36	21.4	2.5
79.5-80	3.08	59.8	10.16	93	102	32.6	10.4	353	2.38	21.2	2.5
81-81.5	3.3	73.52	10.37	101.9	100	32.5	10.8	322	2.33	20.5	2.6
82.5-83	3.71	64.72	10.27	91.9	102	32.4	10.8	339	2.47	19.9	2.7
84.5-85	4.2	44.67	9.05	78.4	95	32.9	10.3	316	2.31	17.8	2.8
86.5-87	3.49	70.07	9.97	87.7	99	30.5	9.9	304	2.22	16.7	2.6
89-89.5	3.09	51.95	8.93	79.7	100	29.1	9.6	300	2.21	15.3	2.4
90.5-91	3.93	54.77	10.33	85.6	108	33.7	11.1	333	2.51	18.8	2.7

Table B2. Continued

	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr
Unit	PPB	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM
MDL	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001	0.5	0.5
Depth (cm)											
12-12.5	5.5	11.4	43.4	0.19	1.8	0.31	47	0.63	0.066	35.5	49.1
14-14.5	5.4	10.3	41.7	0.21	1.73	0.3	47	0.63	0.058	31.5	45.6
16-16.5	5.1	9.3	38.4	0.28	0.74	0.32	44	0.68	0.066	31.5	44.7
16-16.5	1.5	8.9	37.8	0.26	0.76	0.3	44	0.65	0.06	30.9	41.6
16-16.5	1.4	9.4	39.4	0.23	0.76	0.31	44	0.69	0.062	30.4	44.6
18.5-19	1.9	9	36.7	0.22	0.67	0.28	43	0.74	0.07	30	43.1
20.5-21	2	8.8	38.1	0.18	0.65	0.28	43	0.68	0.064	29.3	41.1
22-22.5	0.9	8.7	36.3	0.15	0.6	0.27	43	0.68	0.064	29.2	41.6
24-24.5	2.3	9.3	39.6	0.22	0.6	0.29	43	0.69	0.069	30.7	45.4
26-26.5	1.8	8	34.8	0.24	0.54	0.29	43	0.68	0.064	28.2	38.2
28-28.5	1.9	8.4	35.1	0.18	0.57	0.28	42	0.73	0.077	26.3	42.2
30-30.5	1.7	9	37.1	0.21	0.65	0.3	42	0.7	0.07	29.7	41.3
32-32.5	1.8	8.2	35.1	0.24	0.62	0.29	44	0.77	0.069	28.6	39.4
34-34.5	1.6	8.2	35.4	0.29	0.7	0.29	43	0.87	0.091	27.5	43.1
34-34.5	1.8	8.6	37	0.23	0.68	0.3	44	0.85	0.068	29.7	40.8
34-34.5	1.2	7.9	33.2	0.24	0.6	0.28	42	0.81	0.091	27.1	39.5
36-36.5	1.7	8.2	33.5	0.24	0.67	0.29	44	0.75	0.069	28.7	39.8
38.5-39	2.1	8.4	35.5	0.24	0.68	0.28	41	0.73	0.071	27.8	37.2
40-40.5	1.3	8.7	35.2	0.3	0.7	0.31	45	0.77	0.066	30	42.6
42-42.5	2.1	8.6	33.6	0.23	0.67	0.29	43	0.74	0.071	30.1	40.8
44-44.5	2.3	9	40.7	0.3	0.68	0.31	43	0.91	0.077	32.4	43.5
45.5-46	1	8.7	38.5	0.24	0.64	0.29	44	1.09	0.074	29.3	41.7
46.5-47	0.9	9.1	37.8	0.24	0.69	0.31	44	1.05	0.069	30.2	43.5
48-48.5	1.7	9.3	34.8	0.24	0.65	0.3	43	0.9	0.073	29.4	43.4
50-50.5	0.8	9.2	37.9	0.22	0.63	0.29	42	0.93	0.06	29.4	43.7

Table B2. Continued

	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr
Unit	PPB	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM
MDL	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001	0.5	0.5
Depth (cm)											
52-52.5	2.2	7.4	34.6	0.18	0.54	0.26	39	1.16	0.065	26.9	37.6
54-54.5	2.1	8.2	32.6	0.24	0.55	0.28	41	0.8	0.061	27.2	39
56-56.5	1.6	9	35.1	0.23	0.6	0.29	43	0.78	0.066	29.2	40.6
56-56.5	1.4	9.4	35.7	0.28	0.64	0.3	43	0.79	0.067	31.5	42.4
56-56.5	1.8	9.3	36.9	0.32	0.67	0.33	42	0.8	0.067	31.1	42.7
57.5-58	2.1	9.3	36.7	0.21	0.6	0.31	43	0.87	0.079	30.2	43.1
59-59.5	2.1	8.8	41.8	0.2	0.59	0.29	43	1.63	0.077	28.5	39.3
61-61.5	1.9	8.1	49	0.16	0.54	0.24	39	3.49	0.063	26.5	37
63-63.5	1.9	8.7	50.1	0.19	0.59	0.28	41	3.11	0.056	27.7	39.2
65-65.5	1.8	8.9	46.8	0.21	0.52	0.27	40	2.67	0.091	28.4	37.7
67-67.5	<0.2	8.8	43.1	0.24	0.68	0.33	48	1.49	0.062	29.4	42.9
69-69.5	1.3	8.7	39.4	0.23	0.63	0.31	46	1.05	0.061	28.8	43
71-71.5	1	8.7	37.3	0.21	0.62	0.33	49	0.86	0.06	28.1	44
73-73.5	0.8	9.5	39.4	0.22	0.55	0.34	49	0.91	0.062	29.7	44.8
75-75.5	1.5	8.9	38.6	0.21	0.55	0.3	48	1	0.065	28.9	44.5
77-77.5	1.4	8.1	38.8	0.19	0.52	0.33	47	1.05	0.063	27.8	41.6
79.5-80	2.3	7.8	46.9	0.19	0.57	0.29	44	2.04	0.072	27.2	43.4
79.5-80	1.5	8.2	46.9	0.19	0.62	0.31	44	2.14	0.065	28.1	42.1
79.5-80	1.4	8.1	46.4	0.21	0.55	0.3	45	2.03	0.062	29.2	44.4
81-81.5	3	7.8	38.4	0.25	0.63	0.29	44	1.01	0.068	27.8	43.8
82.5-83	3	8.3	40.8	0.22	0.62	0.3	47	1	0.063	28.3	45.1
84.5-85	2	7.2	38.5	0.23	0.57	0.3	45	0.77	0.061	28.5	41.7
86.5-87	1.1	6.8	38.1	0.26	0.53	0.29	43	0.72	0.062	27.6	42.2
89-89.5	1.3	7.5	38.7	0.23	0.54	0.3	43	0.81	0.057	27.4	41.3
90.5-91	3.3	9	41.5	0.28	0.6	0.32	49	0.79	0.065	31	47.2

Table B2. Continued

	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S
Unit	%	PPM	%	PPM	%	%	%	PPM	PPM	PPM	%
MDL	0.01	0.5	0.001	20	0.01	0.001	0.01	0.1	0.1	0.02	0.02
Depth (cm)											
12-12.5	0.94	198.1	0.092	29	2.09	0.048	0.43	0.2	6.7	0.26	0.35
14-14.5	0.9	178.4	0.079	<20	2.04	0.05	0.43	0.2	5.8	0.29	0.3
16-16.5	0.82	172.9	0.073	<20	1.84	0.045	0.38	0.2	5.8	0.26	0.34
16-16.5	0.83	174.6	0.075	<20	1.91	0.05	0.38	0.3	5.8	0.26	0.27
16-16.5	0.85	177.1	0.072	<20	1.93	0.051	0.4	0.3	5.3	0.27	0.32
18.5-19	0.83	169.9	0.071	20	1.83	0.044	0.37	0.2	5.6	0.24	0.36
20.5-21	0.82	174.2	0.07	23	1.86	0.044	0.37	0.3	5.7	0.24	0.31
22-22.5	0.79	170	0.07	27	1.84	0.046	0.37	0.2	5.6	0.22	0.28
24-24.5	0.82	174.4	0.072	27	1.88	0.045	0.37	0.3	5.6	0.25	0.3
26-26.5	0.81	158.1	0.066	<20	1.92	0.047	0.37	0.2	5.5	0.23	0.29
28-28.5	0.81	165.8	0.066	20	1.9	0.044	0.37	0.2	5.3	0.23	0.33
30-30.5	0.82	167.3	0.065	20	1.91	0.043	0.37	0.3	5.8	0.23	0.35
32-32.5	0.83	168.9	0.066	<20	1.89	0.046	0.38	0.2	5.7	0.22	0.39
34-34.5	0.79	155.7	0.063	24	1.85	0.045	0.38	0.2	4.6	0.23	0.39
34-34.5	0.78	155.2	0.069	<20	1.81	0.047	0.37	0.3	4.9	0.23	0.4
34-34.5	0.81	161.5	0.063	<20	1.87	0.045	0.37	0.3	5.2	0.21	0.35
36-36.5	0.79	155.5	0.063	<20	1.83	0.047	0.36	0.2	5	0.21	0.35
38.5-39	0.78	161.3	0.065	<20	1.83	0.044	0.36	0.2	4.8	0.2	0.34
40-40.5	0.81	174.7	0.064	<20	1.89	0.048	0.38	0.3	4.9	0.23	0.33
42-42.5	0.8	179.8	0.068	<20	1.91	0.047	0.38	0.3	5.7	0.22	0.32
44-44.5	0.81	177.6	0.07	20	1.84	0.046	0.37	0.3	5.4	0.22	0.33
45.5-46	0.82	172.1	0.065	<20	1.87	0.046	0.38	0.2	4.7	0.21	0.35
46.5-47	0.82	171.8	0.069	<20	1.88	0.046	0.38	0.2	5.5	0.23	0.35
48-48.5	0.8	171.4	0.074	<20	1.86	0.047	0.37	0.3	5.8	0.22	0.31
50-50.5	0.78	181.8	0.071	<20	1.83	0.046	0.36	0.4	5.3	0.23	0.31

Table B2. Continued

	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S
Unit	%	PPM	%	PPM	%	%	%	PPM	PPM	PPM	%
MDL	0.01	0.5	0.001	20	0.01	0.001	0.01	0.1	0.1	0.02	0.02
Depth (cm)											
52-52.5	0.74	160.6	0.06	<20	1.67	0.043	0.34	0.3	4.7	0.2	0.34
54-54.5	0.78	145.2	0.062	<20	1.82	0.045	0.36	0.2	5.6	0.2	0.35
56-56.5	0.8	174.7	0.066	<20	1.89	0.048	0.37	0.2	4.7	0.21	0.38
56-56.5	0.82	181.7	0.068	21	1.93	0.049	0.38	0.2	5.3	0.23	0.37
56-56.5	0.79	174.3	0.065	<20	1.86	0.046	0.37	0.2	5.2	0.23	0.38
57.5-58	0.81	181.9	0.067	<20	1.88	0.046	0.38	0.3	5.6	0.23	0.36
59-59.5	0.8	166.4	0.063	<20	1.82	0.046	0.36	0.3	4.4	0.21	0.43
61-61.5	0.76	153.5	0.063	<20	1.68	0.043	0.35	0.2	4.8	0.21	0.42
63-63.5	0.79	187.3	0.069	<20	1.79	0.047	0.37	0.2	4.3	0.22	0.42
65-65.5	0.74	173.3	0.068	<20	1.69	0.044	0.35	0.2	4.6	0.2	0.37
67-67.5	0.83	194.1	0.071	<20	1.87	0.047	0.39	0.2	5.1	0.25	0.41
69-69.5	0.81	185.7	0.072	21	1.84	0.047	0.39	0.2	4.8	0.24	0.36
71-71.5	0.84	185.4	0.07	22	1.9	0.046	0.4	0.2	4.9	0.23	0.41
73-73.5	0.87	194.1	0.074	<20	1.98	0.049	0.41	0.2	5.1	0.25	0.42
75-75.5	0.86	183.4	0.073	<20	1.95	0.048	0.4	0.2	4.9	0.23	0.32
77-77.5	0.82	178.4	0.068	<20	1.86	0.046	0.39	0.2	4.8	0.22	0.3
79.5-80	0.77	177.2	0.07	<20	1.76	0.048	0.37	0.2	4.6	0.22	0.33
79.5-80	0.81	178.6	0.069	<20	1.82	0.048	0.37	0.2	4.7	0.22	0.29
79.5-80	0.81	180.4	0.071	<20	1.86	0.049	0.39	0.2	4.9	0.23	0.3
81-81.5	0.78	172.7	0.067	<20	1.81	0.044	0.36	0.2	4.7	0.22	0.37
82.5-83	0.82	186.5	0.069	<20	1.92	0.048	0.39	0.2	4.8	0.22	0.38
84.5-85	0.78	174.2	0.067	<20	1.83	0.046	0.36	0.3	4.6	0.22	0.33
86.5-87	0.75	172.9	0.064	<20	1.78	0.046	0.36	0.2	4.5	0.2	0.34
89-89.5	0.75	172	0.069	<20	1.77	0.05	0.36	0.2	4.4	0.21	0.29
90.5-91	0.86	185.6	0.078	<20	1.96	0.051	0.4	0.2	5.1	0.24	0.33

Table B2. Continued

	Hg	Se	Te	Ga	Cs	Ge	Hf	Nb	Rb	Sn	Ta
Unit	PPB	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
MDL	5	0.1	0.02	0.1	0.02	0.1	0.02	0.02	0.1	0.1	0.05
Depth (cm)											
12-12.5	27	0.4	<0.02	7.2	2.44	<0.1	0.25	1.86	39.4	1	<0.05
14-14.5	22	0.3	<0.02	7.4	2.19	<0.1	0.19	1.83	35.9	1	<0.05
16-16.5	21	0.4	<0.02	6.5	2.06	<0.1	0.15	1.8	36.2	2.1	<0.05
16-16.5	28	0.3	<0.02	7.2	2.08	<0.1	0.15	1.83	35.1	1.6	<0.05
16-16.5	27	0.4	0.02	7.1	2.12	<0.1	0.18	1.72	35.7	1.2	<0.05
18.5-19	16	0.4	0.03	6.6	1.99	<0.1	0.17	1.82	34.1	1.1	<0.05
20.5-21	18	0.5	<0.02	6.7	2.11	<0.1	0.15	1.75	33	0.8	<0.05
22-22.5	20	0.5	<0.02	6.6	2.16	<0.1	0.15	1.67	34.2	0.9	<0.05
24-24.5	30	0.6	<0.02	7.2	2.1	<0.1	0.18	1.99	35.4	1	<0.05
26-26.5	27	0.4	0.03	6	1.9	<0.1	0.16	1.63	32.3	1.3	<0.05
28-28.5	21	0.4	<0.02	6.3	1.85	<0.1	0.16	1.88	33.3	0.9	<0.05
30-30.5	18	0.5	0.02	7.1	2.06	<0.1	0.15	1.79	33	0.9	<0.05
32-32.5	14	0.6	0.03	7.1	2.09	<0.1	0.18	1.78	32.3	1.1	<0.05
34-34.5	29	0.6	0.03	6.4	1.82	<0.1	0.13	1.72	32.3	1.5	<0.05
34-34.5	19	0.6	0.02	7	1.92	<0.1	0.16	1.88	34	1	<0.05
34-34.5	19	0.4	0.02	6.2	1.86	<0.1	0.17	1.6	29.5	1	<0.05
36-36.5	15	0.5	0.03	7.2	1.85	<0.1	0.16	1.75	32	1.3	<0.05
38.5-39	12	0.4	0.02	5.9	1.83	<0.1	0.15	1.71	29.7	0.9	<0.05
40-40.5	26	0.5	0.02	6.6	1.91	<0.1	0.16	1.83	31.4	2	<0.05
42-42.5	23	0.7	0.03	7.1	1.89	0.1	0.17	1.64	33.1	0.9	<0.05
44-44.5	13	0.5	0.03	6.9	2.04	<0.1	0.18	1.92	33.1	1.5	<0.05
45.5-46	11	0.5	<0.02	7	1.93	<0.1	0.17	1.6	31.3	1.3	<0.05
46.5-47	20	0.5	0.03	7.1	1.98	<0.1	0.16	1.83	33.5	0.9	<0.05
48-48.5	16	0.6	<0.02	7	1.99	<0.1	0.19	1.81	35.3	1.2	<0.05
50-50.5	16	0.3	0.02	6.8	2.03	<0.1	0.17	1.81	35.8	1.1	<0.05

Table B2. Continued

	Hg	Se	Te	Ga	Cs	Ge	Hf	Nb	Rb	Sn	Ta
Unit	PPB	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
MDL	5	0.1	0.02	0.1	0.02	0.1	0.02	0.02	0.1	0.1	0.05
Depth (cm)											
52-52.5	53	0.4	<0.02	5.9	1.85	<0.1	0.17	1.55	29.5	0.9	<0.05
54-54.5	61	0.5	<0.02	6.3	1.74	<0.1	0.13	1.66	29.8	1	<0.05
56-56.5	34	0.5	0.03	7	1.87	0.1	0.14	1.73	33.1	1.2	<0.05
56-56.5	81	0.6	0.03	7.5	1.98	<0.1	0.19	1.81	34.7	1.5	<0.05
56-56.5	130	0.7	0.03	7.3	1.98	0.1	0.19	1.85	35.8	2.3	<0.05
57.5-58	82	0.5	0.02	6.9	1.96	<0.1	0.19	1.85	32.9	1	<0.05
59-59.5	254	0.6	0.02	6.5	1.82	<0.1	0.17	1.71	30.7	1	<0.05
61-61.5	268	0.6	<0.02	6.1	1.83	<0.1	0.14	1.59	30	0.9	<0.05
63-63.5	37	0.3	0.03	5.8	1.93	<0.1	0.16	1.7	31.8	0.9	<0.05
65-65.5	41	0.6	0.03	6	1.92	<0.1	0.17	1.58	32.1	0.8	<0.05
67-67.5	31	0.6	<0.02	6.6	2.07	<0.1	0.17	1.64	33.5	0.9	<0.05
69-69.5	596	0.7	0.02	6.5	1.98	<0.1	0.18	1.55	33.2	1.3	<0.05
71-71.5	206	0.6	<0.02	6.7	1.94	<0.1	0.23	1.73	32.9	0.9	<0.05
73-73.5	82	0.7	0.03	6.9	2.02	<0.1	0.23	1.76	34.3	0.9	<0.05
75-75.5	38	0.5	0.04	6.6	1.96	<0.1	0.21	1.67	33	0.9	<0.05
77-77.5	52	0.7	0.02	6.3	1.83	<0.1	0.2	1.69	32.1	1	<0.05
79.5-80	109	0.8	<0.02	6.2	1.83	<0.1	0.18	1.59	31.4	0.9	<0.05
79.5-80	282	0.7	0.04	6.5	1.88	0.1	0.15	1.57	32	0.9	<0.05
79.5-80	73	1	0.03	6.6	1.87	<0.1	0.18	1.6	32.7	1.1	<0.05
81-81.5	84	0.7	0.02	6.2	1.86	<0.1	0.17	1.56	31.1	1.2	<0.05
82.5-83	53	0.8	<0.02	6.5	1.86	<0.1	0.17	1.72	32.4	1.1	<0.05
84.5-85	88	0.7	0.03	6.5	1.71	<0.1	0.17	1.82	30.4	0.9	<0.05
86.5-87	64	0.6	0.03	6.1	1.72	<0.1	0.17	1.71	30.2	1.1	<0.05
89-89.5	64	0.3	0.03	6.3	1.84	<0.1	0.16	1.54	29.7	0.9	<0.05
90.5-91	246	0.8	0.05	6.9	2.05	<0.1	0.16	1.76	33.7	1.1	<0.05

Table B2. Continued

	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit	PPM	PPM	PPM	PPM	PPB	PPM	PPM	PPB	PPB
MDL	0.1	0.01	0.1	0.02	1	0.1	0.1	10	2
Depth (cm)									
12-12.5	11.3	10.62	69.1	<0.02	4	1.1	40.3	28	<2
14-14.5	9.3	9.87	66.4	0.03	5	0.8	34.2	<10	<2
16-16.5	8.2	10.51	63.2	0.02	5	0.8	35.5	21	<2
16-16.5	7.8	9.9	64.2	<0.02	5	0.9	32.2	27	2
16-16.5	8.3	10.42	60.4	<0.02	8	0.8	37.1	<10	<2
18.5-19	8.3	9.69	63.8	<0.02	3	0.8	34.1	16	<2
20.5-21	8.2	9.27	59.8	<0.02	5	0.8	33	18	<2
22-22.5	8.2	9.35	58	<0.02	3	0.7	32.6	<10	3
24-24.5	9	10.14	61.1	<0.02	3	0.7	36.4	17	2
26-26.5	7.6	9.22	55.4	<0.02	4	0.7	38.1	27	<2
28-28.5	7.5	9.55	57.3	<0.02	2	0.7	29.7	16	<2
30-30.5	8.3	10.16	61	<0.02	5	0.8	36.6	19	2
32-32.5	8	9.74	57.5	<0.02	4	0.8	31.7	23	<2
34-34.5	7	9.51	56.1	0.02	4	0.7	31.3	14	<2
34-34.5	7.3	9.8	58	<0.02	3	0.7	34.1	<10	<2
34-34.5	7	9.7	57.5	<0.02	7	0.7	32	<10	<2
36-36.5	7.4	9.22	56.7	0.02	4	0.9	32.5	<10	<2
38.5-39	7.5	9.21	54	<0.02	4	0.7	33.9	<10	<2
40-40.5	8.3	8.88	58.3	<0.02	6	0.8	38	<10	<2
42-42.5	8.1	9.92	59.5	0.02	3	0.8	36.7	<10	<2
44-44.5	8.5	10.05	63.7	<0.02	4	0.9	34.3	<10	<2
45.5-46	8.8	9.06	58.8	<0.02	6	0.7	32.5	<10	<2
46.5-47	8.9	9.8	63.3	<0.02	5	0.7	33.8	<10	2
48-48.5	8	9.69	59.7	<0.02	3	0.7	37.1	<10	<2
50-50.5	9.6	9.9	61.2	0.03	7	0.7	40.3	13	<2

Table B2. Continued

	Zr	Y	Ce	In	Re	Be	Li	Pd	Pt
Unit	PPM	PPM	PPM	PPM	PPB	PPM	PPM	PPB	PPB
MDL	0.1	0.01	0.1	0.02	1	0.1	0.1	10	2
Depth (cm)									
52-52.5	7.4	8.87	53.7	<0.02	4	0.7	26.3	36	<2
54-54.5	8	7.87	55.9	<0.02	8	0.6	33.1	<10	<2
56-56.5	8.8	9.05	58.8	<0.02	4	0.7	31.5	<10	2
56-56.5	9	9.75	61.7	0.02	5	0.7	36.5	22	2
56-56.5	8.9	9.12	63.9	0.03	7	0.6	30.1	21	<2
57.5-58	8.7	9.37	60.2	0.02	4	0.8	35.5	29	<2
59-59.5	8	8.3	57.8	<0.02	4	0.7	31.4	10	<2
61-61.5	7.3	7.93	55	<0.02	5	0.7	30	16	<2
63-63.5	7.7	8.32	55.4	<0.02	6	0.7	27.8	<10	<2
65-65.5	7.3	8.46	55	<0.02	7	0.6	26.8	13	2
67-67.5	8.3	9.14	58.8	<0.02	9	0.6	31	21	<2
69-69.5	8.5	8.96	56.9	<0.02	5	0.6	29.2	14	<2
71-71.5	9.7	9.09	57.7	0.03	5	0.7	30.7	12	<2
73-73.5	10.3	9.33	60.2	0.02	7	0.8	33.2	14	<2
75-75.5	9.5	8.68	55.8	0.03	6	0.9	31	<10	<2
77-77.5	10.6	8.61	54.5	0.02	6	0.6	29.6	<10	<2
79.5-80	9.3	8.83	54.3	<0.02	5	0.8	29.1	<10	<2
79.5-80	8.6	9.19	57.7	<0.02	5	0.7	30.2	<10	<2
79.5-80	8.9	9.18	56.1	0.02	6	0.8	29.6	<10	<2
81-81.5	7.9	8.74	55.5	<0.02	6	0.7	28.6	<10	<2
82.5-83	9	9.09	56.4	<0.02	6	0.9	30.3	<10	<2
84.5-85	9.2	8.78	55.7	0.03	5	0.6	27.7	<10	<2
86.5-87	8.6	8.73	54.7	<0.02	6	0.9	27.7	<10	<2
89-89.5	7.5	8.49	52.5	<0.02	4	0.8	26.7	<10	<2
90.5-91	9.4	9.5	60.4	0.02	6	0.6	30.3	<10	3

Table B3. HAWK pyrolysis data from AGAT Laboratories (Calgary).

Depth (cm)		T_{max}	S1	S2	S3	TOC	HI	OI
From	To	°C	(mg/g)	(mg/g)	(mg/g)	%		
0.5	1.5	422	4.5	19.43	5.37	5.39	360	99
2.5	3	422	4.24	17.4	5.02	4.9	354	102
3	3.5	424	3.53	16.05	4.96	4.8	334	103
3.5	4.5	422	3.61	15.77	4.63	4.63	340	100
5	6	422	3.23	15.08	4.83	4.65	324	103
6.5	7	420	3.13	14.29	5.04	4.57	312	110
7	7.5	422	2.79	13.33	4.79	4.43	300	108
8	9	424	2.89	13.99	4.73	4.39	318	107
9	9.5	425	2.7	13.98	4.48	4.16	336	107
10	10.5	424	2.8	13.83	4.51	4.23	326	106
10.5	11	425	3.39	15.2	4.79	4.52	336	105
11.5	12	425	3.12	14.99	4.78	4.4	340	108
12.5	13	426	3.05	15.86	4.9	4.71	336	104
13	13.5	428	3.79	18.17	5.02	4.9	370	102
14.5	15	428	4.63	21.79	5.91	5.64	386	104
15	15.5	427	4.66	22.31	5.93	5.94	375	99
16.5	17	427	5.39	25.38	6.74	6.54	388	103
17	17.5	428	5.51	25.78	6.56	6.5	396	100
18	18.5	429	5.3	25.53	6.84	6.53	391	104
19	19.5	427	5.35	25.64	6.73	6.52	393	103
20	20.5	427	5.46	25.61	6.63	6.44	397	102
21	21.5	427	5.71	25.89	6.86	6.69	386	102
22	22.5	426	5.89	26.51	6.88	6.74	393	101
23	23.5	428	5.77	26.85	6.69	6.66	403	100
24	24.5	427	6.21	27.72	6.98	6.85	404	101
25	25.5	428	6.51	28.8	7.05	7.05	408	99
26	26.5	428	7.09	30.1	7.08	7.21	417	98
27	27.5	427	6.9	30.14	7.11	7.32	412	97
28	28.5	428	6.49	30.68	6.9	7.41	414	93
29	29.5	427	6.57	30.65	7.29	7.57	405	96
30	30.5	427	6.25	30.81	7.88	7.64	403	103
31	31.5	428	6.75	32.42	8.01	7.88	411	101
32	32.5	428	7.01	32.43	7.64	7.77	417	98
33	33.5	428	6.46	31.69	7.57	7.59	417	99
33.5	34	428	5.87	29.58	7.25	7.28	406	99
35	35.5	428	6.89	31.81	7.99	7.55	421	105
36	36.5	427	6.6	31.46	7.65	7.61	413	100
37.5	38	427	6.94	32.1	7.66	7.67	418	99
38	38.5	427	6.65	31.54	7.44	7.65	412	97
39	39.5	428	6.18	31.3	7.55	7.58	413	99

Table B3. Continued

Depth (cm)		T_{max}	S1	S2	S3	TOC	HI	OI
From	To	°C	(mg/g)	(mg/g)	(mg/g)	%		
40	40.5	429	6.25	31.16	7.5	7.62	408	98
41	41.5	428	6.86	31.03	7.52	7.44	416	100
42	42.5	429	6.13	31.29	7.65	7.6	411	100
43	43.5	427	6.28	32.34	7.39	7.69	420	96
44	44.5	428	6.19	31.89	7.76	7.46	427	104
45	45.5	429	6.15	31.41	7.19	7.6	413	94
45.5	46	428	5.96	30.22	7.24	7.28	415	99
46.5	47	429	5.85	30.7	7.43	7.31	419	101
47	47.5	429	6.7	30.81	7.04	7.26	424	97
48	48.5	428	6.38	31.45	7.19	7.42	424	96
49	49.5	428	6.37	31.49	7.25	7.4	425	97
50	50.5	429	5.69	31.51	7.91	7.48	421	105
51	51.5	429	6.06	32.12	7.76	7.52	426	103
52	52.5	428	6.1	32.48	7.33	7.42	437	98
53	53.5	428	6.13	33.63	7.95	7.93	423	100
54	54.5	430	5.98	33.36	7.97	7.86	424	101
55	55.5	428	6.86	31.78	7.28	7.54	421	96
55.5	56	428	6.43	32.6	7.37	7.71	422	95
56.5	57	430	6.62	31.03	8.03	7.4	419	108
57	57.5	429	5.51	31.03	7.63	7.54	411	101
58	58.5	428	5.36	29.75	6.88	7.07	420	97
*59	59.5	428	5.41	29.95	6.66	6.96	429	95
*60	60.5	428	5.19	28.62	6.56	6.73	425	97
*61	61.5	429	4.63	27.43	6.47	6.38	429	101
*62	62.5	429	4.27	25.97	6.46	6.31	411	102
*63	63.5	431	3.82	25.11	6.55	6.3	398	103
*64	64.5	430	4.1	25.33	6.07	6.28	403	96
*65	65.5	430	4.08	25.41	6.24	6.15	413	101
*66	66.5	430	4.24	26.46	6.46	6.39	413	101
*67	67.5	430	3.84	26.62	7.03	6.68	398	105
*68	68.5	428	4.34	25.66	6.55	6.25	410	104
*69	69.5	429	4.26	25.44	6.05	6.16	412	98
70	70.5	429	4.49	25.66	6.23	6.26	409	99
71	71.5	428	4.51	25.69	5.77	6.26	410	92
72	72.5	429	3.91	25.11	6.2	6.07	413	102
73	73.5	428	3.93	24.58	6	6.07	405	98
74	74.5	430	3.82	25.02	6.06	6	417	101
*75	75.5	430	3.99	25.67	5.8	6.16	416	94
*76	76.5	428	4.59	26.22	5.86	6.27	417	93
*77	77.5	430	4.08	26.35	6.17	6.18	426	99

Table B3. Continued

Depth (cm)		T_{max}	S1	S2	S3	TOC	HI	OI
From	To	°C	(mg/g)	(mg/g)	(mg/g)	%		
78	78.5	430	4.37	26.61	6	6.12	434	98
79	79.5	428	4.51	27.06	6.28	6.23	434	100
80	80.5	431	4.61	28.52	6.54	6.65	429	98
81	81.5	428	5.3	30.72	6.65	7.03	437	94
82	82.5	428	5.38	32.1	6.92	7.23	444	95
83	73.5	429	5.28	31.44	7.42	7.25	433	102
84	84.5	427	5.77	32.12	6.83	7.1	452	96
85	85.5	428	5.64	32.9	7.58	7.57	434	100
86	86.5	429	5.76	33.43	7.26	7.47	447	97
87	87.5	429	5.91	33.61	7.07	7.58	443	93
88	88.5	428	4.86	31.31	7.09	7.07	442	100
89	89.5	427	4.87	27.44	5.81	6.2	442	93
90	90.5	428	4.25	26.38	5.8	6.14	429	94
91	91.5	428	4.91	27.27	5.56	6.3	433	88
92	92.5	428	3.9	25.14	5.75	6.01	418	95
93	93.5	427	4.41	25.28	5.55	5.92	427	93
93.5	94	428	3.61	24.86	5.87	5.97	416	98
*94	94.5	427	3.57	23.67	5.37	5.61	421	95
*95	95.5	429	4.56	25.88	5.64	5.98	433	94
*95.5	96	428	4.58	28.08	6.3	6.48	433	97

*Sample contains elevated carbon content.

Appendix C: Supplementary Analyses

Table C. Results from the Shapiro-Wilks normality test. Elements with a *p*-value greater than 0.05 are normally distributed and are highlighted in grey.

Element	*p*-value	Element	*p*-value
Mo	0.666672	W	6.60E-09
Cu	1.18E-05	Sc	0.0276286
Pb	8.48E-05	Tl	0.0023893
Zn	0.00018	S	0.0910849
Ag	1.77E-05	Hg	6.60E-10
Ni	0.68303	Se	0.0308118
Co	0.104743	Ga	0.2651332
Mn	0.007805	Cs	0.0289355
Fe	0.186296	Hf	0.0001063
As	7.21E-10	Nb	0.5376503
U	0.047448	Rb	0.0754516
Au	1.10E-05	Sn	3.54E-06
Th	0.017941	Zr	0.0301496
Sr	0.00296	Y	0.9880546
Cd	0.443023	Ce	0.0625059
Sb	1.19E-11	Re	0.0685061
Bi	0.12608	Be	0.000298
V	0.010135	Li	0.4802663
Ca	1.83E-09	S0	1.92E-07
P	0.006584	S1	0.1191553
La	0.005731	S2	0.0006933
Cr	0.516281	S3	0.3180325
Mg	0.014505	TOC	0.0075147
Ba	0.783747	HI	0.0071437
Ti	0.000129	OI	0.808145
Al	0.048842	SAND	0.0239127
Na	0.128155	SILT	2.69E-05
K	0.004984	CLAY	7.25E-05

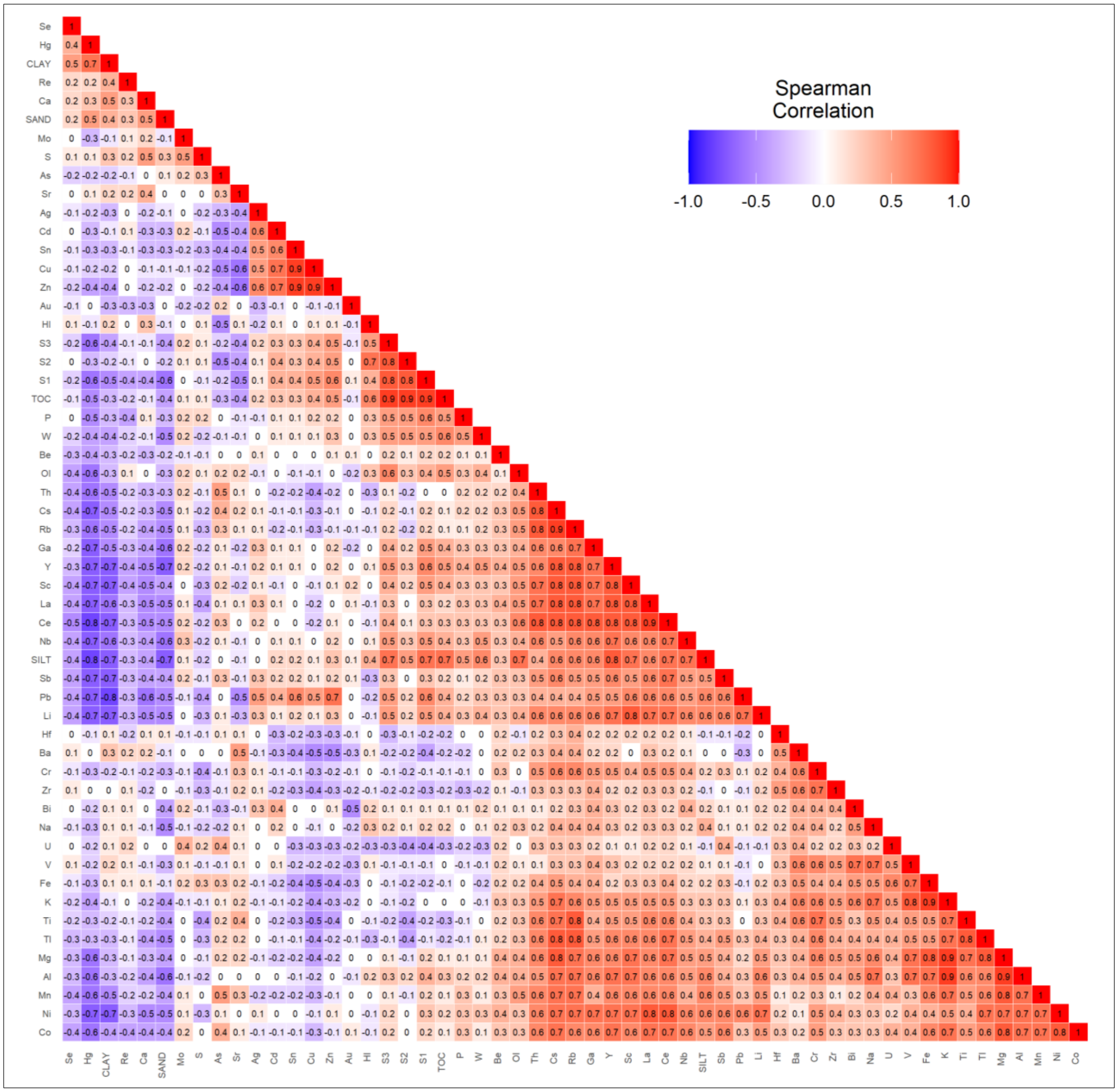

Figure C1. Spearman's correlation matrix with the complete environmental dataset. Variables with an $r_s > 0.5$ are considered highly correlated.

Variable	.	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Sc	Tl	S	Hg	Se	Ga	Cs	Hf	Nb	Rb	Sn	Zr	Y	Ce	Re	Be	Li	S1	S2	S3	TOC	HI	OI	SAND	SILT	CLAY
Mo	Spearman's rho	—
	p-value	—
Cu	Spearman's rho	-0.053	—
	p-value	0.74	—
Pb	Spearman's rho	-0.07	0.511	—
	p-value	0.66	< .001	—
Zn	Spearman's rho	0.006	0.918	0.672	—
	p-value	0.972	< .001	< .001	—
Ag	Spearman's rho	0.02	0.517	0.51	0.589	—
	p-value	0.902	< .001	< .001	< .001	—
Ni	Spearman's rho	0.075	-0.115	0.557	0.101	0.078	—
	p-value	0.637	0.466	< .001	0.523	0.624	—
Co	Spearman's rho	0.152	-0.304	0.339	-0.138	-0.097	0.75	—
	p-value	0.336	0.051	0.028	0.38	0.542	< .001	—
Mn	Spearman's rho	0.087	-0.317	0.297	-0.137	-0.244	0.666	0.687	—
	p-value	0.582	0.042	0.056	0.387	0.119	< .001	< .001	—
Fe	Spearman's rho	0.168	-0.477	-0.096	-0.368	-0.142	0.406	0.63	0.611	—
	p-value	0.287	0.002	0.543	0.017	0.367	0.008	< .001	< .001	—
As	Spearman's rho	0.242	-0.451	0.022	-0.404	-0.349	0.129	0.374	0.5	0.279	—
	p-value	0.122	0.003	0.888	0.008	0.024	0.414	0.015	< .001	0.074	—
U	Spearman's rho	0.43	-0.343	-0.062	-0.28	0.045	0.194	0.35	0.382	0.593	0.406	—
	p-value	0.005	0.027	0.695	0.072	0.777	0.217	0.023	0.013	< .001	0.008	—
Au	Spearman's rho	-0.192	-0.078	8.91E-04	-0.076	-0.295	0.041	0.133	0.05	-0.252	0.153	-0.153	—
	p-value	0.223	0.621	0.996	0.633	0.059	0.797	0.4	0.754	0.107	0.333	0.333	—
Th	Spearman's rho	0.167	-0.412	0.365	-0.213	0.028	0.57	0.612	0.592	0.417	0.453	0.286	-0.028	—
	p-value	0.29	0.007	0.018	0.176	0.858	< .001	< .001	< .001	0.006	0.003	0.067	0.859	—
Sr	Spearman's rho	-0.016	-0.571	-0.475	-0.63	-0.426	0.017	0.114	0.253	0.242	0.252	0.134	0.015	0.125	—
	p-value	0.92	< .001	0.002	< .001	0.005	0.917	0.47	0.105	0.123	0.107	0.396	0.925	0.428	—
Cd	Spearman's rho	0.202	0.683	0.405	0.658	0.603	0.03	-0.097	-0.201	-0.23	-0.487	0.045	-0.119	-0.187	-0.418	—
	p-value	0.198	< .001	0.008	< .001	< .001	0.85	0.539	0.2	0.143	0.001	0.774	0.453	0.235	0.006	—
Sb	Spearman's rho	0.182	0.056	0.639	0.248	0.32	0.584	0.558	0.517	0.254	0.345	0.351	0.148	0.504	-0.137	0.189	—
	p-value	0.247	0.725	< .001	0.114	0.039	< .001	< .001	< .001	0.105	0.026	0.023	0.348	< .001	0.387	0.23	—
Bi	Spearman's rho	0.23	0.025	0.067	0.125	0.304	0.294	0.287	0.167	0.51	-0.33	0.349	-0.479	0.15	-0.103	0.36	0.111	—
	p-value	0.142	0.876	0.67	0.43	0.051	0.059	0.066	0.288	< .001	0.033	0.024	0.002	0.343	0.516	0.02	0.482	—
V	Spearman's rho	0.07	-0.234	-0.075	-0.184	-0.013	0.387	0.431	0.344	0.737	-0.136	0.493	-0.332	0.135	0.127	0.06	0.114	0.708	—
	p-value	0.659	0.135	0.635	0.242	0.934	0.012	0.005	0.026	< .001	0.39	0.001	0.032	0.394	0.422	0.705	0.473	< .001	—
Ca	Spearman's rho	0.17	-0.104	-0.572	-0.207	-0.218	-0.502	-0.353	-0.238	0.077	-0.004	-0.048	-0.316	-0.282	0.355	-0.269	-0.399	-0.05	-0.114	—
	p-value	0.28	0.511	< .001	0.188	0.164	< .001	0.022	0.128	0.627	0.98	0.762	0.042	0.071	0.022	0.085	0.009	0.755	0.473	—
P	Spearman's rho	0.22	0.16	0.227	0.236	-0.137	0.312	0.278	0.322	-0.004	0.007	-0.216	0.003	0.202	-0.126	0.107	0.121	0.056	-0.142	0.125	—
	p-value	0.162	0.31	0.148	0.132	0.386	0.045	0.075	0.038	0.98	0.965	0.169	0.984	0.198	0.425	0.501	0.442	0.723	0.369	0.431	—
La	Spearman's rho	0.096	-0.175	0.552	0.041	0.257	0.77	0.654	0.556	0.281	0.139	0.241	0.051	0.734	0.103	0.139	0.631	0.266	0.236	-0.452	0.306	—
	p-value	0.544	0.267	< .001	0.796	0.1	< .001	< .001	< .001	0.072	0.379	0.123	0.748	< .001	0.513	0.379	< .001	0.089	0.132	0.003	0.049	—
Cr	Spearman's rho	-0.076	-0.287	0.089	-0.18	0.075	0.514	0.453	0.329	0.394	-0.06	0.23	-0.115	0.51	0.276	-0.077	0.267	0.39	0.586	-0.226	-0.086	0.496	—
	p-value	0.63	0.065	0.575	0.254	0.638	< .001	0.003	0.034	0.01	0.703	0.143	0.468	< .001	0.077	0.629	0.087	0.011	< .001	0.149	0.585	< .001	—
Mg	Spearman's rho	-0.009	-0.39	0.243	-0.187	-0.06	0.729	0.826	0.758	0.813	0.247	0.439	-0.049	0.625	0.157	-0.153	0.444	0.465	0.686	-0.328	0.103	0.646	0.599	—
	p-value	0.958	0.011	0.122	0.234	0.705	< .001	< .001	< .001	< .001	0.115	0.004	0.757	< .001	0.319	0.331	0.004	0.002	< .001	0.034	0.517	< .001	< .001	—
Ba	Spearman's rho	0.048	-0.53	-0.337	-0.505	-0.079	0.133	0.219	0.177	0.505	-0.044	0.402	-0.334	0.326	0.46	-0.272	-0.005	0.402	0.556	0.171	-0.199	0.269	0.552	0.44	—
	p-value	0.76	< .001	0.03	< .001	0.617	0.399	0.164	0.262	< .001	0.783	0.009	0.031	0.035	0.002	0.082	0.975	0.009	< .001	0.277	0.205	0.085	< .001	0.004	—
Ti	Spearman's rho	-0.003	-0.5	0.031	-0.364	-0.042	0.444	0.493	0.527	0.476	0.204	0.444	0.018	0.644	0.414	-0.161	0.31	0.313	0.499	-0.214	-0.133	0.623	0.727	0.68	0.62	—
	p-value	0.985	< .001	0.846	0.018	0.79	0.004	0.001	< .001	0.002	0.193	0.003	0.91	< .001	0.007	0.307	0.046	0.044	< .001	0.174	0.398	< .001	< .001	< .001	< .001	—
Al	Spearman's rho	-0.058	-0.236	0.294	-0.042	8.10E-05	0.689	0.741	0.688	0.707	-0.008	0.283	-0.075	0.522	0.032	0.011	0.39	0.533	0.685	-0.385	0.179	0.638	0.542	0.922	0.416	0.603	—
	p-value	0.712	0.132	0.059	0.792	1	< .001	< .001	< .001	< .001	0.962	0.069	0.635	< .001	0.839	0.945	0.011	< .001	< .001	0.012	0.256	< .001	< .001	< .001	0.007	< .001	—
Na	Spearman's rho	-0.07	-0.072	0.08	-0.007	-0.019	0.284	0.288	0.411	0.495	-0.189	0.237	-0.236	0.191	0.138	0.178	0.108	0.513	0.665	-0.063	-0.018	0.323	0.38	0.569	0.446	0.536	0.684	—
	p-value	0.657	0.652	0.614	0.966	0.907	0.069	0.064	0.007	< .001	0.23	0.13	0.133	0.224	0.383	0.257	0.495	< .001	< .001	0.692	0.911	0.037	0.014	< .001	0.003	< .001	< .001	—
K	Spearman's rho	-0.064	-0.371	0.092	-0.259	-0.073	0.541	0.694	0.66	0.857	0.143	0.532	-0.181	0.48	0.22	-0.127	0.324	0.556	0.807	-0.192	-0.042	0.49	0.604	0.917	0.61	0.699	0.875	0.681	—
	p-value	0.687	0.016	0.561	0.098	0.643	< .001	< .001	< .001	< .001	0.365	< .001	0.249	0.001	0.162	0.423	0.037	< .001	< .001	0.222	0.793	0.001	< .001	< .001	< .001	< .001	< .001	< .001	—
W	Spearman's rho	0.166	0.111	0.28	0.257	0.042	0.278	0.087	0.142	-0.174	-0.112	-0.263	0.013	0.151	-0.126	0.081	0.183	0.168	-0.133	-0.097	0.499	0.344	-0.017	0.073	-0.011	-0.008	0.194	0.105	-0.082	—
	p-value	0.294	0.484	0.073	0.1	0.79	0.075	0.584	0.369	0.27	0.479	0.093	0.936	0.338	0.424	0.611	0.244	0.287	0.399	0.539	< .001	0.026	0.913	0.646	0.943	0.96	0.219	0.507	0.604	—
Sc	Spearman's rho	-0.004	-0.129	0.567	0.11	0.137	0.66	0.643	0.588	0.29	0.224	0.082	0.153	0.653	-0.203	-0.065	0.509	0.164	0.151	-0.529	0.314	0.753	0.357	0.67	0.039	0.469	0.677	0.213	0.472	0.343	—
	p-value	0.98	0.414	< .001	0.488	0.384	< .001	< .001	< .001	0.062	0.153	0.603	0.331	< .001	0.197	0.682	< .001	0.297	0.338	< .001	0.043	< .001	0.021	< .001	0.804	0.002	< .001	0.175	0.002	0.027	—
Tl	Spearman's rho	-0.002	-0.362	0.28	-0.182	0.035	0.657	0.618	0.623	0.516	0.248	0.399	-0.073	0.598	0.164	-0.145	0.451	0.395	0.522	-0.394	-0.14	0.585	0.639	0.753	0.436	0.761	0.65	0.421	0.712	0.131	0.568	—
	p-value	0.991	0.019	0.072	0.247	0.824	< .001	< .001	< .001	< .001	0.114	0.009	0.646	< .001	0.298	0.358	0.003	0.01	< .001	0.01	0.376	< .001	< .001	< .001	0.004	< .001	< .001	0.006	< .001	0.406	< .001	—
S	Spearman's rho	0.51	-0.153	-0.351	-0.217	-0.194	-0.308	0.047	-0.013	0.294	0.304	0.233	-0.172	-0.103	-0.003	-0.124	-0.096	-0.103	-0.063	0.465	0.177	-0.353	-0.362	-0.082	0.012	-0.374	-0.164	-0.242	-0.087	-0.155	-0.258	-0.296	—
	p-value	< .001	0.331	0.023	0.166	0.218	0.048	0.765	0.937	0.059	0.051	0.137	0.276	0.516	0.985	0.431	0.543	0.515	0.69	0.002	0.261	0.023	0.019	0.604	0.939	0.015	0.297	0.123	0.584	0.325	0.099	0.057	—
Hg	Spearman's rho	-0.264	-0.176	-0.671	-0.397	-0.233	-0.676	-0.593	-0.591	-0.279	-0.174	-0.216	-0.013	-0.573	0.101	-0.265	-0.705	-0.212	-0.15	0.294	-0.476	-0.744	-0.255	-0.557	-0.03	-0.313	-0.57	-0.315	-0.374	-0.416	-0.657	-0.329	0.088	—
	p-value	0.091	0.264	< .001	0.01	0.137	< .001	< .001	< .001	0.073	0.27	0.168	0.935	< .001	0.524	0.09	< .001	0.177	0.34	0.059	0.002	< .001	0.104	< .001	0.851	0.044	< .001	0.043	0.015	0.007	< .001	0.034	0.58	—
Se	Spearman's rho	-0.009	-0.079	-0.427	-0.22	-0.129	-0.348	-0.35	-0.361	-0.144	-0.212	-0.044	-0.131	-0.383	0.041	-0.042	-0.423	0.029	0.139	0.244	-0.02	-0.375	-0.093	-0.315	0.068	-0.229	-0.267	-0.146	-0.174	-0.245	-0.361	-0.299	0.104	0.438	—
	p-value	0.955	0.616	0.005	0.16	0.416	0.024	0.024	0.019	0.36	0.176	0.78	0.409	0.013	0.797	0.793	0.006	0.857	0.377	0.119	0.898	0.015	0.558	0.043	0.666	0.145	0.088	0.356	0.27	0.117	0.019	0.055	0.512	0.004	—
Ga	Spearman's rho	0.151	-0.037	0.527	0.166	0.26	0.698	0.564	0.422	0.37	0.062	0.165	-0.193	0.592	-0.185	0.14	0.534	0.402	0.407	-0.391	0.282	0.734	0.494	0.626	0.171	0.372	0.649	0.372	0.496	0.312	0.688	0.504	-0.198	-0.654	-0.159	—
	p-value	0.338	0.815	< .001	0.294	0.096	< .001	< .001	0.006	0.016	0.694	0.295	0.22	< .001	0.24	0.375	< .001	0.009	0.008	0.011	0.071	< .001	0.001	< .001	0.278	0.016	< .001	0.016	< .001	0.045	< .001	< .001	0.208	< .001	0.314	—
Cs	Spearman's rho	0.076	-0.342	0.372	-0.119	0.064	0.668	0.732	0.685	0.47	0.377	0.299	-0.021	0.771	0.241	-0.127	0.557	0.228	0.319	-0.309	0.165	0.812	0.566	0.784	0.374	0.747	0.678	0.351	0.652	0.221	0.751	0.771	-0.172	-0.657	-0.44	0.641	—
	p-value	0.63	0.027	0.016	0.451	0.687	< .001	< .001	< .001	0.002	0.014	0.054	0.893	< .001	0.124	0.422	< .001	0.147	0.04	0.047	0.295	< .001	< .001	< .001	0.015	< .001	< .001	0.023	< .001	0.16	< .001	< .001	0.275	< .001	0.004	< .001	—
Hf	Spearman's rho	-0.113	-0.316	-0.152	-0.299	0.019	0.199	0.289	0.051	0.336	0.055	0.296	-0.135	0.248	0.095	-0.251	-0.088	0.244	0.333	0.069	0.011	0.196	0.4	0.343	0.48	0.375	0.261	0.177	0.401	-0.045	0.172	0.253	-0.088	-0.081	-0.039	0.234	0.294	—
	p-value	0.476	0.042	0.337	0.055	0.905	0.205	0.064	0.749	0.03	0.729	0.057	0.391	0.113	0.549	0.109	0.579	0.12	0.031	0.664	0.945	0.212	0.009	0.027	0.001	0.015	0.095	0.262	0.009	0.778	0.275	0.106	0.577	0.611	0.804	0.135	0.059	—
Nb	Spearman's rho	0.315	-0.038	0.455	0.166	0.035	0.64	0.553	0.433	0.221	0.058	0.135	-0.011	0.55	-0.123	0.146	0.462	0.364	0.194	-0.447	0.318	0.602	0.407	0.497	0.107	0.356	0.539	0.219	0.307	0.484	0.606	0.459	-0.161	-0.681	-0.389	0.578	0.525	0.105	—
	p-value	0.043	0.81	0.003	0.293	0.827	< .001	< .001	0.004	0.159	0.712	0.393	0.945	< .001	0.437	0.354	0.002	0.018	0.217	0.003	0.04	< .001	0.008	< .001	0.497	0.021	< .001	0.164	0.049	0.001	< .001	0.002	0.308	< .001	0.011	< .001	< .001	0.506	—
Rb	Spearman's rho	0.075	-0.299	0.422	-0.096	0.089	0.654	0.633	0.682	0.421	0.346	0.335	-0.085	0.817	0.114	-0.153	0.49	0.272	0.337	-0.371	0.13	0.757	0.606	0.733	0.407	0.775	0.674	0.419	0.641	0.227	0.769	0.807	-0.279	-0.608	-0.34	0.677	0.872	0.354	0.571	—
	p-value	0.635	0.054	0.006	0.546	0.574	< .001	< .001	< .001	0.006	0.026	0.03	0.592	< .001	0.47	0.333	0.001	0.081	0.029	0.016	0.412	< .001	< .001	< .001	0.008	< .001	< .001	0.006	< .001	0.149	< .001	< .001	0.074	< .001	0.028	< .001	< .001	0.022	< .001	—
Sn	Spearman's rho	-0.161	0.906	0.596	0.851	0.514	0.011	-0.144	-0.192	-0.422	-0.358	-0.319	-0.008	-0.211	-0.433	0.631	0.171	0.003	-0.159	-0.251	0.069	-0.034	-0.084	-0.23	-0.448	-0.256	-0.12	0.042	-0.23	0.069	-0.035	-0.144	-0.332	-0.272	-0.131	0.056	-0.138	-0.221	0.055	-0.087	—
	p-value	0.307	< .001	< .001	< .001	< .001	0.945	0.362	0.221	0.006	0.02	0.04	0.962	0.178	0.004	< .001	0.278	0.986	0.314	0.108	0.661	0.832	0.597	0.143	0.003	0.102	0.446	0.789	0.143	0.663	0.825	0.361	0.032	0.082	0.408	0.725	0.381	0.16	0.729	0.582	—
Zr	Spearman's rho	-0.062	-0.412	-0.108	-0.341	0.057	0.391	0.275	0.062	0.394	-0.122	0.243	-0.23	0.342	0.237	-0.191	-0.013	0.389	0.538	-0.19	-0.315	0.317	0.664	0.458	0.596	0.456	0.404	0.189	0.496	-0.195	0.185	0.385	-0.297	-0.026	0.125	0.357	0.268	0.489	0.248	0.347	-0.294	—
	p-value	0.697	0.007	0.497	0.028	0.719	0.011	0.078	0.693	0.01	0.44	0.121	0.142	0.027	0.131	0.225	0.935	0.011	< .001	0.228	0.042	0.041	< .001	0.003	< .001	0.003	0.008	0.231	< .001	0.215	0.241	0.012	0.057	0.868	0.428	0.021	0.087	0.001	0.113	0.025	0.059	—
Y	Spearman's rho	0.154	-0.033	0.547	0.173	0.157	0.703	0.666	0.552	0.229	0.091	0.128	0.029	0.602	-0.12	0.111	0.598	0.332	0.251	-0.454	0.415	0.79	0.488	0.632	0.183	0.498	0.675	0.344	0.49	0.486	0.795	0.594	-0.237	-0.74	-0.307	0.73	0.752	0.193	0.722	0.775	0.082	0.217	—
	p-value	0.33	0.835	< .001	0.273	0.321	< .001	< .001	< .001	0.144	0.563	0.419	0.856	< .001	0.449	0.482	< .001	0.032	0.109	0.003	0.007	< .001	0.001	< .001	0.245	< .001	< .001	0.026	0.001	0.001	< .001	< .001	0.131	< .001	0.049	< .001	< .001	0.221	< .001	< .001	0.606	0.167	—
Ce	Spearman's rho	0.174	-0.174	0.624	0.067	0.19	0.772	0.718	0.633	0.356	0.289	0.23	0.042	0.81	-0.008	0.033	0.66	0.207	0.194	-0.462	0.278	0.883	0.516	0.695	0.168	0.575	0.646	0.272	0.503	0.321	0.845	0.662	-0.197	-0.753	-0.492	0.778	0.832	0.188	0.693	0.838	-0.017	0.291	0.841	—
	p-value	0.27	0.269	< .001	0.67	0.226	< .001	< .001	< .001	0.021	0.063	0.143	0.793	< .001	0.96	0.835	< .001	0.187	0.218	0.002	0.075	< .001	< .001	< .001	0.287	< .001	< .001	0.082	< .001	0.038	< .001	< .001	0.211	< .001	0.001	< .001	< .001	0.232	< .001	< .001	0.914	0.062	< .001	—
Re	Spearman's rho	0.132	-0.012	-0.309	-0.036	0.049	-0.327	-0.395	-0.169	0.085	-0.13	0.232	-0.311	-0.176	0.228	0.142	-0.27	0.135	0.125	0.334	-0.37	-0.291	-0.079	-0.143	0.219	-0.119	-0.158	0.069	-0.02	-0.174	-0.404	-0.122	0.175	0.195	0.176	-0.28	-0.223	-0.205	-0.315	-0.249	-0.098	0.142	-0.432	-0.324	—
	p-value	0.403	0.94	0.047	0.823	0.759	0.035	0.01	0.283	0.593	0.411	0.139	0.046	0.263	0.146	0.368	0.084	0.391	0.431	0.031	0.016	0.062	0.618	0.366	0.163	0.45	0.317	0.665	0.9	0.27	0.008	0.439	0.266	0.214	0.263	0.073	0.156	0.192	0.042	0.112	0.537	0.369	0.005	0.037	—
Be	Spearman's rho	-0.065	0.026	0.286	0.135	0.097	0.433	0.334	0.278	0.17	0.024	0.18	0.101	0.162	0.016	-0.01	0.303	0.062	0.168	-0.331	0.128	0.408	0.292	0.397	0.152	0.191	0.393	0.237	0.317	0.116	0.338	0.171	-0.114	-0.44	-0.313	0.336	0.334	0.223	0.304	0.261	0.032	0.128	0.401	0.347	-0.238	—
	p-value	0.68	0.872	0.067	0.394	0.542	0.004	0.031	0.075	0.28	0.881	0.253	0.524	0.304	0.918	0.952	0.052	0.696	0.287	0.033	0.419	0.008	0.061	0.01	0.335	0.225	0.01	0.131	0.041	0.463	0.029	0.278	0.47	0.004	0.044	0.03	0.031	0.155	0.051	0.095	0.839	0.418	0.009	0.025	0.129	—
Li	Spearman's rho	-0.008	0.104	0.666	0.303	0.349	0.656	0.478	0.491	0.195	0.079	-0.059	-0.017	0.627	-0.293	0.122	0.56	0.225	0.028	-0.498	0.314	0.691	0.25	0.507	-0.034	0.278	0.578	0.168	0.32	0.423	0.792	0.437	-0.29	-0.673	-0.423	0.585	0.551	-0.004	0.603	0.604	0.17	0.16	0.68	0.714	-0.292	0.3	—
	p-value	0.961	0.512	< .001	0.052	0.024	< .001	0.002	0.001	0.216	0.616	0.711	0.914	< .001	0.06	0.44	< .001	0.152	0.859	< .001	0.043	< .001	0.11	< .001	0.83	0.075	< .001	0.286	0.039	0.006	< .001	0.004	0.062	< .001	0.006	< .001	< .001	0.981	< .001	< .001	0.28	0.309	< .001	< .001	0.061	0.054	—
S1	Spearman's rho	-0.029	0.456	0.568	0.57	0.139	0.341	0.245	0.175	-0.156	-0.25	-0.43	0.088	0.044	-0.493	0.36	0.271	0.095	-0.058	-0.369	0.558	0.297	-0.105	0.16	-0.372	-0.196	0.366	0.177	-0.024	0.54	0.479	-0.065	-0.093	-0.561	-0.184	0.451	0.177	-0.2	0.477	0.155	0.417	-0.271	0.558	0.346	-0.439	0.182	0.492	—
	p-value	0.854	0.003	< .001	< .001	0.377	0.027	0.118	0.267	0.323	0.111	0.005	0.58	0.784	0.001	0.02	0.083	0.549	0.714	0.017	< .001	0.056	0.508	0.309	0.016	0.212	0.018	0.261	0.879	< .001	0.002	0.68	0.558	< .001	0.242	0.003	0.261	0.203	0.002	0.325	0.006	0.083	< .001	0.025	0.004	0.247	0.001	—
S2	Spearman's rho	0.089	0.428	0.202	0.494	0.142	0.033	-0.033	-0.123	-0.205	-0.481	-0.413	-0.015	-0.248	-0.388	0.357	0.034	0.113	-0.078	-0.005	0.469	0.022	-0.163	-0.077	-0.222	-0.361	0.174	0.143	-0.176	0.49	0.181	-0.357	0.1	-0.342	-0.037	0.194	-0.127	-0.131	0.325	-0.153	0.275	-0.209	0.307	0.053	-0.147	0.124	0.199	0.796	—
	p-value	0.572	0.005	0.198	0.001	0.367	0.835	0.835	0.437	0.193	0.001	0.007	0.927	0.114	0.012	0.021	0.832	0.475	0.624	0.973	0.002	0.89	0.3	0.625	0.157	0.019	0.27	0.366	0.264	0.001	0.251	0.021	0.527	0.027	0.816	0.217	0.42	0.407	0.036	0.331	0.078	0.184	0.048	0.737	0.351	0.432	0.207	< .001	—
S3	Spearman's rho	0.181	0.371	0.489	0.519	0.201	0.233	0.167	0.108	-0.102	-0.212	-0.29	-0.09	0.111	-0.399	0.329	0.313	0.085	-0.129	-0.135	0.491	0.307	-0.141	0.109	-0.181	-0.229	0.294	0.156	-0.057	0.544	0.446	-0.108	0.122	-0.613	-0.208	0.44	0.175	-0.257	0.496	0.16	0.277	-0.205	0.515	0.386	-0.108	0.152	0.474	0.831	0.839	—
	p-value	0.251	0.016	0.001	< .001	0.201	0.138	0.289	0.494	0.519	0.178	0.063	0.569	0.482	0.009	0.034	0.044	0.59	0.416	0.392	0.001	0.048	0.373	0.489	0.251	0.144	0.059	0.321	0.717	< .001	0.003	0.494	0.44	< .001	0.186	0.004	0.265	0.101	< .001	0.31	0.076	0.192	< .001	0.012	0.494	0.337	0.002	< .001	< .001	—
TOC	Spearman's rho	0.116	0.398	0.378	0.52	0.165	0.199	0.144	0.08	-0.078	-0.333	-0.349	-0.058	-0.035	-0.414	0.344	0.215	0.142	-0.035	-0.115	0.533	0.189	-0.114	0.109	-0.179	-0.264	0.33	0.198	-0.032	0.555	0.372	-0.173	0.126	-0.532	-0.129	0.357	0.085	-0.187	0.444	0.051	0.287	-0.217	0.467	0.254	-0.158	0.175	0.398	0.879	0.942	0.945	—
	p-value	0.461	0.009	0.014	< .001	0.295	0.207	0.362	0.615	0.623	0.032	0.024	0.715	0.823	0.007	0.026	0.172	0.368	0.823	0.467	< .001	0.229	0.471	0.492	0.254	0.091	0.034	0.208	0.838	< .001	0.016	0.273	0.425	< .001	0.415	0.021	0.591	0.234	0.003	0.749	0.066	0.167	0.002	0.105	0.315	0.267	0.009	< .001	< .001	< .001	—
HI	Spearman's rho	-0.027	0.147	-0.229	0.124	-0.173	-0.12	-0.115	-0.032	-0.002	-0.458	-0.311	-0.109	-0.336	0.089	0.07	-0.32	0.176	0.148	0.323	0.321	-0.113	-0.011	0.002	0.066	-0.091	0.209	0.333	0.025	0.306	-0.001	-0.275	0.075	-0.079	0.058	-0.041	-0.111	0.026	0.103	-0.134	0.003	-0.078	0.105	-0.133	0.045	-0.008	-0.094	0.441	0.742	0.463	0.606	—
	p-value	0.863	0.352	0.144	0.432	0.271	0.448	0.466	0.842	0.992	0.003	0.045	0.492	0.03	0.574	0.657	0.039	0.263	0.348	0.037	0.039	0.474	0.946	0.992	0.678	0.565	0.184	0.032	0.873	0.049	0.993	0.078	0.634	0.619	0.716	0.795	0.484	0.868	0.516	0.395	0.988	0.621	0.508	0.399	0.775	0.959	0.552	0.004	< .001	0.002	< .001	—
OI	Spearman's rho	0.176	-0.137	0.253	0.024	-0.081	0.288	0.301	0.478	0.236	0.194	0.041	-0.175	0.384	0.187	-0.041	0.318	0.054	0.053	0.024	0.308	0.494	0.045	0.389	0.214	0.253	0.425	0.336	0.27	0.425	0.474	0.281	0.134	-0.562	-0.37	0.384	0.526	-0.137	0.404	0.485	-0.134	-0.06	0.489	0.551	0.085	0.073	0.38	0.379	0.33	0.643	0.502	0.346	—
	p-value	0.264	0.385	0.106	0.879	0.608	0.064	0.053	0.002	0.132	0.218	0.796	0.266	0.012	0.234	0.796	0.041	0.732	0.737	0.881	0.048	0.001	0.775	0.011	0.172	0.106	0.005	0.03	0.084	0.005	0.002	0.072	0.396	< .001	0.016	0.013	< .001	0.386	0.008	0.001	0.396	0.706	0.001	< .001	0.59	0.646	0.013	0.014	0.033	< .001	< .001	0.025	—
SAND	Spearman's rho	-0.11	-0.143	-0.46	-0.237	-0.087	-0.534	-0.41	-0.441	-0.138	0.135	0.013	0.039	-0.303	0.036	-0.334	-0.396	-0.373	-0.345	0.454	-0.252	-0.53	-0.315	-0.428	-0.054	-0.357	-0.568	-0.486	-0.378	-0.473	-0.443	-0.509	0.311	0.534	0.176	-0.557	-0.518	0.114	-0.569	-0.499	-0.294	0.037	-0.654	-0.501	0.266	-0.172	-0.459	-0.551	-0.246	-0.363	-0.377	-0.138	-0.327	—
	p-value	0.485	0.367	0.002	0.131	0.584	< .001	0.007	0.004	0.384	0.393	0.935	0.804	0.052	0.82	0.031	0.01	0.016	0.026	0.003	0.107	< .001	0.042	0.005	0.735	0.021	< .001	0.001	0.014	0.002	0.004	< .001	0.046	< .001	0.263	< .001	< .001	0.469	< .001	< .001	0.06	0.818	< .001	< .001	0.089	0.275	0.002	< .001	0.116	0.019	0.014	0.381	0.035	—
SILT	Spearman's rho	0.111	0.122	0.563	0.314	0.037	0.625	0.495	0.629	0.156	0.017	-0.064	0.062	0.398	-0.059	0.179	0.54	0.153	0.135	-0.374	0.504	0.635	0.213	0.507	-0.016	0.291	0.625	0.388	0.331	0.606	0.671	0.376	-0.16	-0.804	-0.391	0.554	0.6	-0.118	0.656	0.56	0.199	-0.096	0.794	0.681	-0.294	0.308	0.641	0.75	0.519	0.692	0.683	0.36	0.668	-0.747	—
	p-value	0.484	0.442	< .001	0.043	0.818	< .001	< .001	< .001	0.321	0.917	0.688	0.693	0.009	0.711	0.257	< .001	0.333	0.394	0.015	< .001	< .001	0.176	< .001	0.921	0.062	< .001	0.012	0.033	< .001	< .001	0.015	0.311	< .001	0.011	< .001	< .001	0.456	< .001	< .001	0.206	0.543	< .001	< .001	0.059	0.048	< .001	< .001	< .001	< .001	< .001	0.02	< .001	< .001	—
CLAY	Spearman's rho	-0.062	-0.193	-0.768	-0.402	-0.255	-0.655	-0.445	-0.467	0.088	-0.223	0.064	-0.335	-0.499	0.195	-0.122	-0.69	0.148	0.224	0.543	-0.294	-0.632	-0.179	-0.305	0.31	-0.192	-0.297	0.082	-0.054	-0.385	-0.685	-0.313	0.332	0.73	0.484	-0.49	-0.513	0.088	-0.56	-0.509	-0.314	0.017	-0.662	-0.738	0.408	-0.308	-0.7	-0.515	-0.202	-0.424	-0.346	0.154	-0.285	0.421	-0.699	—
	p-value	0.698	0.219	< .001	0.009	0.103	< .001	0.003	0.002	0.58	0.156	0.685	0.03	< .001	0.214	0.44	< .001	0.348	0.154	< .001	0.059	< .001	0.256	0.05	0.046	0.221	0.056	0.604	0.733	0.012	< .001	0.044	0.032	< .001	0.001	0.001	< .001	0.579	< .001	< .001	0.044	0.913	< .001	< .001	0.008	0.048	< .001	< .001	0.2	0.005	0.025	0.329	0.068	0.006	< .001	—

Figure C2. Spearman's correlation coefficients and p-values for the complete environmental dataset (JASP Team, 2022).