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# Sediment and Nutrient Deposition in Lake Griffin

Final Report

St. Johns River Water Management District
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Department of Fisheries and Aquatic Sciences
University of Florida

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## EXECUTIVE SUMMARY

A study of historic, whole-basin sediment and nutrient deposition was conducted in Lake Griffin in two phases. Phase I, a feasibility study, demonstrated that historic sediment and nutrient deposition could be estimated using historic ($^{210}$Pb dated cores) and survey (undated) sediment cores. Results of Phase I, the first study in our laboratory that was designed to estimate whole basin sedimentation, showed that sedimentation rates were greater in some areas of the lake than anticipated. Consequently, Phase II was undertaken to refine estimates by collecting additional historic cores and by collecting and sectioning longer survey cores at finer intervals. In this design, data from historic cores were used to establish a chronology of sedimentation extending from the present to approximately 100-150 years and data from survey cores were used to increase the number of sampling sites and to investigate patterns of sediment and nutrient deposition over the lake basin. Five historic cores were collected in each phase, 40 survey cores were collected in Phase I, and 20 survey cores were collected in Phase II.

Results of Phase I showed that Lake Griffin could be divided into three zones based on patterns of sedimentation: embayment (southwest part of the lake), south basin, and north basin. In general, Phase I cores in the south basin were long enough to sample the anthropogenic horizon defined as the depth at which total phosphorus (TP) concentration increased above a baseline level. Sedimentation rates in the embayment and north basin were so high that the anthropogenic horizon was not sampled in many of the Phase I cores; consequently all Phase II survey cores were collected in these zones.

Sedimentation rates obtained from the constant rate of supply (CRS) model ($^{210}$Pb ages) were weighted by age so decadal dry mass, TP, and non-apatite inorganic phosphorus (NAIP) sedimentation rates could be calculated. Decadal dry mass, TP, and NAIP sedimentation rates generally increased with time. Dry mass sedimentation rates differed from TP or NAIP sedimentation rates in that relative changes in dry mass rates were smaller. The relative increase in decadal dry mass sedimentation rate for the 1985-1994 decade was only 6 fold greater than the rate for the base decade (1895-1904) whereas the relative increases in TP and NAIP sedimentation rate were 23 and 17, respectively, for the same time periods. This difference can be explained by noting that TP and NAIP concentrations increase upcore. The large relative increase in TP sedimentation over time can be illustrated by noting that approximately 70% of TP sedimentation in the past 100 years occurred in the most recent 30 years (from 1965-1994). By contrast only 53% of dry mass sedimentation in the past 100 years occurred in the most recent 30 years (from 1965-1994).

Dry mass, TP, and NAIP sedimentation rates were estimated by decades for the most recent 100 years of the historical record using three different methods of calculation. The first estimate by zones was based on cumulative storage (quantity per unit surface area) of dry mass, TP, and NAIP above the anthropogenic horizon in survey cores from Phase I and Phase II. The second estimate by zones was based on the mean decadal dry mass, TP, and NAIP sedimentation rates calculated from $^{210}Pb$ dated cores and the surface area in each zone. The third estimate was based on the mean decadal dry mass, TP, and NAIP sedimentation rates calculated from all $^{210}Pb$ dated cores extrapolated to the surface area of the lake basin. Ranges in estimated values for whole-basin sedimentation over the entire 100 years were relatively small. The largest relative range was obtained for dry mass sedimentation, 683,000 to 780,000 metric tons. By contrast the relative range for TP sedimentation was 554 to 568 metric tons and for NAIP sedimentation was 218 to 241 metric tons.

Historic cores were dated using a CRS model because plots of excess $^{210}Pb$ activity did not decrease exponentially with either cumulative mass or depth. The CRS model is based on the assumptions that inputs of $^{210}Pb$ to the lake basin are constant and that sedimentation rates can be variable. An exponential decrease in excess $^{210}Pb$ activity with depth would be expected only if the sedimentation rate were relatively constant. Instead, many profiles were relatively flat, showing little change in excess $^{210}Pb$ activity with depth. Relatively flat profiles might be interpreted as an artifact of sediment mixing, but different stratigraphic patterns in $^{137}Cs$ activity among cores is not consistent with this interpretation. The large depth range of excess $^{210}Pb$ activity in cores and chemical, physical, and diatom microfossil data are also at variance with attributing the shape of excess $^{210}Pb$ profiles simply to sediment mixing. An increase in primary production of organic matter, however, could account for the deviation from an exponential profile that would be expected if sedimentation rate were constant. In fact, if organic matter sedimentation increased at approximately 3% annually and if primary production accounted for a constant proportion of sediment mass, the resulting increase in sedimentation would compensate for the radioactive decay of $^{210}Pb$ with a decay constant of 0.03114 (half-life of 22.2 yr). Given the highly organic sediments in Lake Griffin (>60% LOI), increased primary production of organic matter must be considered in interpreting and validating results obtained from the CRS model.

Net TP sedimentation rates in Lake Griffin were evaluated to determine if sediments were a significant sink for phosphorus. Whole-lake TP sedimentation averaged 15.6 metric tons $yr^{-1}$ which was calculated from the three estimates of TP sedimentation in the two most recent decades (1975-1994) or 19.1 metric tons $yr^{-1}$ if estimates for the most recent decade (1985-1994) are averaged. Averaged over the lake basin, the net TP sedimentation rate in Lake Griffin is 410 mg $m^{-2}$ $yr^{-1}$ (average of 1975-1994 decades) or

501 mg $m^{-2}$ $yr^{-1}$ (average of 1985-1994 decade). This net TP sedimentation rate was converted to a water mass equivalent of TP in overlying waters by dividing by mean water depth (2.36 m). The resulting concentration equivalents in overlying waters were 174 and 212 µg $L^{-1}$, greater than measured mean TP concentrations in lake water that ranged from 78 µg $L^{-1}$ to 119 µg $L^{-1}$ in several different investigations. TP residence times in the water column based on TP sedimentation of 410 mg $m^{-2}$ $yr^{-1}$ are 0.448 yr if the water column TP concentration is 78 µg $L^{-1}$ and 0.684 yr if the water column TP concentration is 119 µg $L^{-1}$. If TP sedimentation is 501 mg $m^{-2}$ $yr^{-1}$, TP residence times are 0.368 yr if the water column TP concentration is 78 µg $L^{-1}$ and 0.561 yr if the water column TP concentration is 119 µg $L^{-1}$. Data on net TP sedimentation rates and TP residence times, therefore, indicate that the sediments are a significant sink for TP over periods of decades in Lake Griffin even though, as discussed below, sediment resuspension plays an important role in nutrient and phytoplankton dynamics on shorter time scales. Recent studies of Lake Apopka and Lake Okeechobee also show that large quantities of phosphorus are sedimented on annual or decadal time scales.

Wind-driven resuspension of bottom sediments can provide an important source of internal phosphorus loading. In Lake Griffin, concentrations of phosphorus are high in sediments at the mud-water interface. In addition, the meroplanktonic diatom, *Aulacoseira ambigua*, comprises a large fraction of the diatom assemblage in these sediments. Based on recent research in Lake Apopka and other shallow Florida lakes, it seems likely that a significant fraction of the phosphorus in near-surface sediments is sequestered in meroplankton. Meroplanktonic algae are adapted to survive for long periods in the aphotic environment on the lake bottom and then to become metabolically active when resuspended in the water column. Meroplanktonic algae in near-surface sediments assimilate and store nutrients that can be used for growth during periods of resuspension. The frequency of meteorological events in Lake Griffin that resuspend meroplankton is not known, but in Lake Apopka (a larger lake) and other shallow lakes such events are so common that they play an important role in phytoplankton dynamics and produce significant short-term changes in phytoplankton standing crop. Given the high abundance of *Aulacoseira* in Lake Griffin sediments, both chemical and biogeochemical processes must be considered in interpreting the short-term dynamics of nutrient sequestering and nutrient release from near-surface sediments.

Several lines of paleolimnological evidence point to nutrient enrichment and its consequences on ecosystem processes in Lake Griffin in the 20th century. Sediment TP concentration increased five- to six-fold above the anthropogenic baseline concentration. Dry mass sedimentation rate, which is controlled by organic matter sedimented as a by-product of primary production, increased upcore; TP sedimentation rates determined from $^{210}Pb$ dated cores increased upcore with a sharp increase beginning about 1950; diatom-inferred water column TP concentrations generally increased with a sharp break early in the century; the planktonic/benthic (P/B) ratio of diatom microfossils, an index of nutrient enrichment, increased in recent sediments; and the TC/TN ratio of organic matter decreased in recent sediments. High P/B ratios of diatom microfossils and low TC/TN ratios in the 1980s and early 1990s are inferred as evidence of the period of highest nutrient enrichment. These signals of nutrient enrichment occur after the development of the Emeralda muck farms at a time when nutrient inputs from these sources probably peaked. In Lake Apopka, increases in P/B ratios of diatom microfossils and decreases in TC/TN ratios were attributed to replacement of macrophytes by phytoplankton as a result of nutrient enrichment. Similar changes in P/B and TC/TN ratios in Lake Griffin may also reflect loss of macrophytes due to nutrient enrichment.

Two possible signs of recent, decreased nutrient loading were found in Lake Griffin sediments: a decrease in sediment TP concentration in the near-surface sediments of most cores and a decrease in diatom-inferred water column concentrations in near-surface sediments in two of the three cores studied. The decrease in sediment TP concentration was either too small or in such a small portion of the sediment record that it did not produce a corresponding decrease in TP sedimentation rate in the most recent decade of the sediment record. A decrease in phosphorus sedimentation would be expected if phosphorus loading to the lake basin and phosphorus concentrations in the water column decreased.

In conclusion, results presented in this report show that phosphorus loading has affected the trophic state of Lake Griffin in the 20th century, but most severely in the second half of this century; that sediments are a significant sink for phosphorus and therefore that reductions in phosphorus loading can be expected to improve water quality on time scales of years or one or two decades; that improvements in water quality can be predicted from data on historic phosphorus loading (not a part of this study); and that permanent sedimentation of stored phosphate in meroplanktonic algae may be an important phosphorus sink and thus an unrecognized factor in accelerating improvements in water quality. Burial and sedimentation of stored phosphorus in meroplanktonic algae, a potentially important phosphorus sink, should be investigated in greater detail to evaluate the environmental implications related to long-term phosphorus dynamics.

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# ACKNOWLEDGMENTS

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# INTRODUCTION

Historic phosphorus loading to lakes can be estimated from loading models or from water column data when data are available. However, in the absence of such data, measuring sediment and nutrient deposition is the only means to infer historical conditions and to obtain data to back calculate phosphorus loading (Rippey and Anderson 1996). Estimating phosphorus sedimentation using paleolimnological methods is important because most phosphorus loading models assume that net phosphorus sedimentation and water column concentration are proportional, but that specific coefficients must be developed for each system. Knowledge of historical conditions is a prerequisite for lake management and restoration (Brenner et al. 1993).

The project on sediment and nutrient deposition in Lake Griffin was undertaken initially during Phase I as a feasibility study with the following four major objectives:

- assessment of the feasibility and methodology to quantitatively estimate basin-wide net sedimentation rates of nutrients,
- estimation of modern basin-wide storage of sedimentary nutrients from 40 survey cores,
- measurement of temporal changes in rates of sediment accumulation and nutrient accumulation using radiometric dating of five historic cores; and,
- inference of historic lake total phosphorus concentrations from paleolimnological analyses of sedimentary diatoms in two historic cores.

Therefore, studies were undertaken to directly measure phosphorus sedimentation as the basis for estimating lake-basin changes in sediment and nutrient deposition. In addition, historic concentrations of total phosphorus in the water column were inferred from transfer functions based on relative abundance of diatom microfossils (Whitmore 1989).

Results of the Phase I investigation demonstrated that basin-wide estimates of sediment and nutrient deposition were feasible provided the sampling strategy was modified. The extensive deposits of soft sediments in high deposition areas were not anticipated in the Phase I design. As a result some of the collected cores were too short to sample the entire record of interest. It was also apparent that finer sectioning of survey cores would be advantageous during Phase II because data from Phase I stratigraphy using 10-cm intervals were difficult to interpret.

Phase II was focused on quantitative estimation of basin-wide net sedimentation rates and designed to obtain data that would refine rates obtained during Phase I. Specifically, nutrient analyses of additional longer survey cores and radiometric dating of five additional historic cores were utilized to obtain more reliable estimates of sediment and nutrient deposition than would have been possible if only Phase I data had been collected.

Determining sedimentation rates in shoreline areas was also attempted during Phase II as a means to refine basin-wide net sedimentation rates. Many stations are necessarily located adjacent to the shoreline due to the elongate nature of Lake Griffin. Obtaining data to measure sedimentation rates in shoreline areas was more difficult than anticipated because relevant data could not be obtained from grab samples. Soft muck sediments which are found over most of the lake basin (Danek et al. 1991) could not be sampled reliably with a grab sampler. In addition, such samples provided no stratigraphic information. As a consequence in attempting to implement this sampling, it was soon discovered that collecting and sectioning sediment cores is the only reliable method to obtain data for the specified purposes and that obtaining data on sedimentation in shoreline areas would be beyond the scope of this project.

Survey and historic stations were utilized in Phase I and Phase II investigations of sediment and nutrient deposition in Lake Griffin. Ten historic cores were collected so they could be aged using $^{210}Pb$ (Appleby and Oldfield 1983), a naturally occurring radioisotope, to establish a chronology of sediment and nutrient deposition. The purpose of survey stations was to provide nutrient profiles at a greater number of stations than those that could be aged with $^{210}Pb$. Profiles at survey stations were measured so they could be stratigraphically correlated with the historic stations. Much more information was obtained using this strategy because 60 survey cores were collected during Phase I and II. Data from historic and survey cores were used to estimate basin-wide sediment and nutrient deposition and to determine changes in historic rates over the previous 100 yr. Results show that total phosphorus sedimentation increased with time such that the decadal rate increased at least 10 fold since 1925 and that approximately 70% of the phosphorus sedimentation in the past 100 yr occurred in the most recent 30 yr (after 1964). Such large increases in total phosphorus sedimentation indicate that phosphorus concentrations in the water column increased historically. This conclusion is supported by other paleolimnological data collected during the investigation including inferences about increased phosphorus concentrations obtained from diatom microfossils.

The report is organized into sections including an Executive Summary, Introduction, Methods, and Results. These sections are followed by sections titled Stratigraphy of Nutrients, Sediment and Phosphorus Accumulation Rate, Diatom Microfossils, Estimates of Sediment and Phosphorus Storage, and Discussion and Conclusions. Data collected during the investigation are presented in seven Appendices.

## METHODS

Lake Griffin is a shallow lake with a surface area of 38.06 km$^2$ and a mean depth of 2.3 m (Danek et al. 1991). Results obtained during Phase I provided evidence for three distinct depositional areas in the lake. These areas were the embayment (southwest portion of the lake) and a south basin and north basin. The three areas are shown in Figs. 1 and 2. The north basin represents nearly half (48.9%) of the total surface area. The remainder of the surface area is apportioned between the south basin (35.7%) and the embayment (15.4%).

### Station Selection

Survey and historic stations were utilized in the investigation of sediment deposition in Lake Griffin (Figs. 1 and 2). Historic cores were collected at sites shown so they could be aged

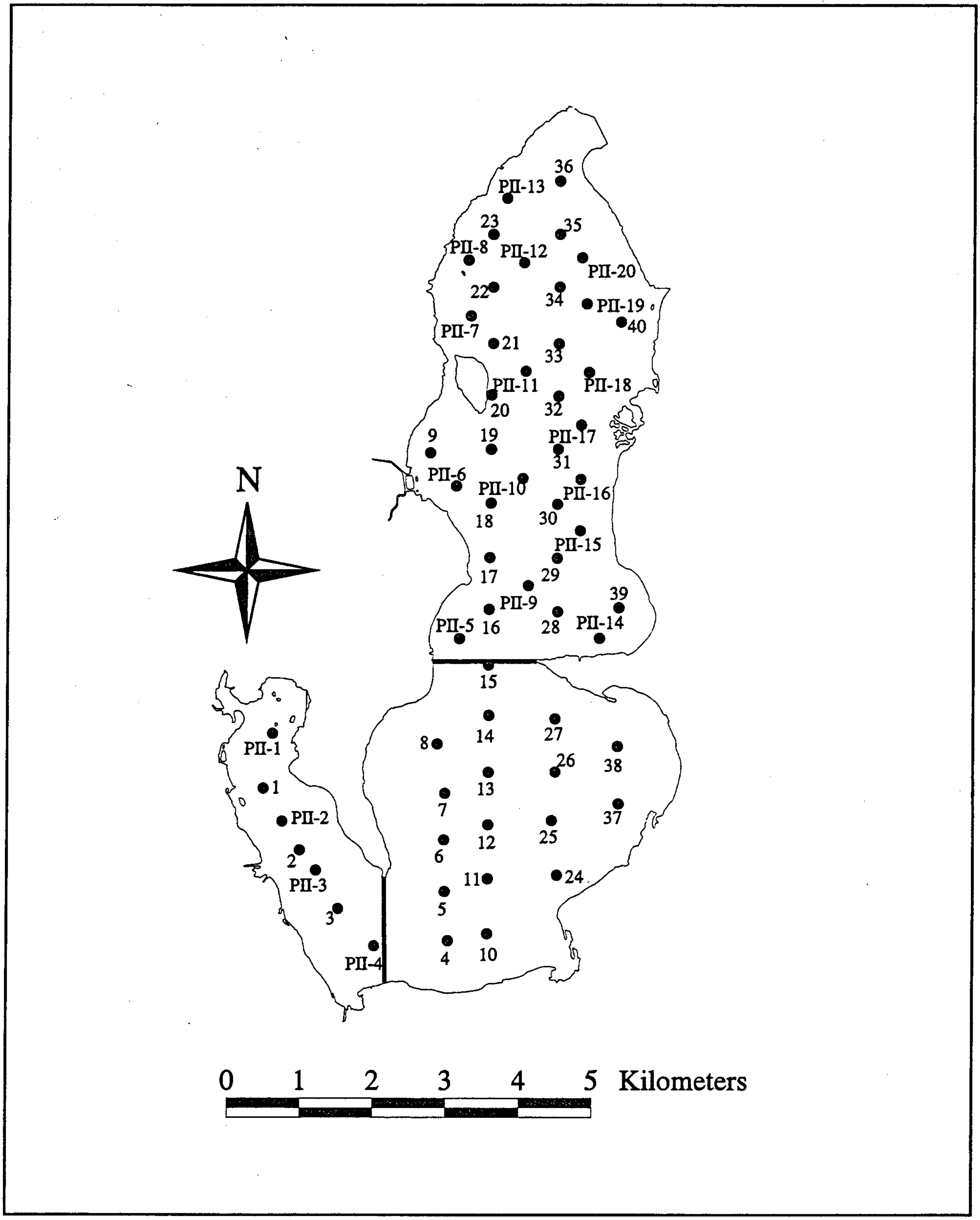


**Fig. 1.** Map of Lake Griffin with location of survey stations for Phase I and Phase II. Forty Phase I stations are shown by numbers 1 through 40. Twenty Phase II stations are shown by designations PII-1 through P1I-20. Coordinates for the stations are given in Appendix A.

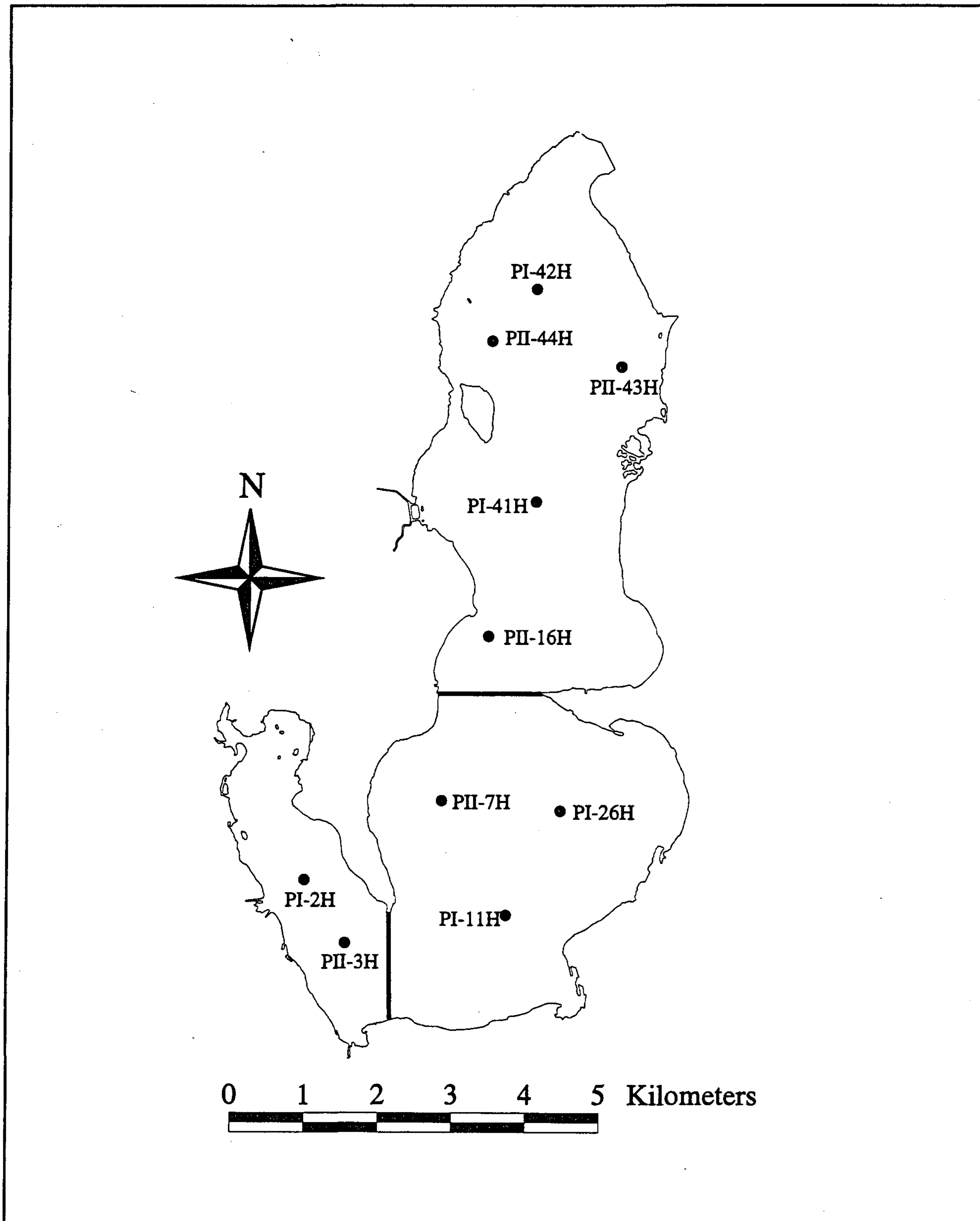


**Fig. 2.** Map of Lake Griffin with location of historic stations for Phase I and Phase II. The five historic stations collected during Phase I are designated with the prefix I and the five historic stations collected during Phase II are designated with the prefix II. In the report, historic stations are identified by the prefix LG and the suffix H combined with the unique numerical identification for each station. Coordinates for the stations are given in Appendix A.

using $^{210}Pb$, a naturally occurring radioisotope. The purpose of survey stations was to provide nutrient profiles at a greater number of stations than those that could be aged with $^{210}Pb$. Profiles at survey stations were measured so they could be stratigraphically correlated with the historic stations. Survey and historic stations were located with a Global Positioning System and latitude and longitude were recorded (Appendix A).

Sixty survey stations were sampled during the investigation (Fig. 1). Forty survey stations were selected for Phase I. These stations were located primarily on two north-south transects. Additional stations not located on the two transects were positioned on transects in areas not represented spatially by the two north-south transects. Stations were positioned so cores collected represented all areas in the lake basin. Because sedimentation rates were higher than anticipated, 50-cm cores collected at survey stations located in the north basin and in the southwest embayment were too short to sample the entire sediment column deposited during the period of interest (approximately 100 yr). As a consequence, the 20 survey cores collected during Phase II were located in these two parts of the lake. These cores were positioned in areas in which sedimentation rates were high as determined during Phase I.

Ten historic cores were collected during the investigation (Fig. 2). Five historic cores (LG-2H, LG-11H, LG-26H, LG-41H, and LG-42H) were collected during Phase I. LG-2H, LG-11H, and LG-26H in the embayment and south basin were positioned at approximately the same sites as the Phase I survey cores with these numbers. LG-41H and LG-42H were each positioned in the center of a quadrangle bounded by four Phase I survey stations. LG-41H was too short to sample the entire sediment column with measurable excess $^{210}Pb$ activity. LG-10, a survey core collected during Phase II at the site for LG-41H, was used to assess the degree of truncation in LG-41H. Five historic cores (LG-3H, LG-7H, LG-16H, LG-43H, and LG-44H) were also collected during Phase II. LG-3H and LG-16H were positioned at approximately the same sites as the Phase I survey cores with these numbers. Sites for LG-7H, LG-43H, and LG-44H were positioned to represent high sedimentation areas that had not been sampled previously.

## Core Collection and Sectioning

At each station, thickness of soft sediment was determined using a steel spudding rod and a Secchi disc. The steel spudding rod calibrated in 5-cm intervals was driven vertically to hard bottom and depth relative to the water surface was recorded. Depth of the water column was determined by lowering a 20-cm Secchi disk to the sediment surface and this depth was subtracted from the spudding value to yield soft-sediment depth. A sediment core of approximately 1.5 m in length was collected with a piston corer (Fisher et al. 1992) when sufficient soft thickness of sediment was present. Survey cores with a few exceptions were collected using a 1.8-m clear plastic core barrel (4.2-cm inside diameter). A few survey cores and all historic cores were collected using a 1.8-m clear plastic core barrel (6.99-cm inside diameter). Depths of stratigraphic features in sediment cores were determined visually on deck after retrieval and measured directly in the core tube when such features were distinguishable (see Appendix A). Cores were generally sectioned at the station immediately after collection or soon after collection onboard the boat. Samples from each section were placed in Whirl-Pak bags which were stored in insulated freezer chests during transit to the laboratory in Gainesville.

Different strategies were employed in core sectioning for the two phases of this investigation. Survey cores (40 cores) were sectioned at 10-cm intervals to a maximum depth of 50 cm during Phase I. Samples from survey cores collected in the north basin and southwest embayment were too short to sample the complete sediment record deposited in the past 100-150 yr. Therefore, an additional 20 survey cores were collected during Phase II in these two parts of the lake. These cores were sectioned at either 4.0- or 5.0-cm intervals. Phase I and Phase II historic cores were sampled at 2.0-cm intervals, with the exception of LG-16H which was sampled at 4.0-cm intervals. In addition, sections for LG-42H below 52 cm and all sections for LG-41H were combined so that $^{210}Pb$ dating was conducted at 4.0-cm intervals, but other analyses were run on the 2.0-cm sections. Sampling, as shown by dating and chemical results, appeared to be much finer than necessary, particularly at the high sedimentation sites.

**Laboratory Analyses**

In the laboratory, all samples were stored frozen, generally for no more than 6 weeks, before processing. For Phase I samples, dry weight fraction (% dry weight) was determined from a small subsample of wet sediment after oven drying at 70°C. For Phase II samples, dry mass per section and dry weight fraction (% dry weight) were obtained by weighing the entire section before and after freeze drying. Organic matter content of dried sediments was measured as percent loss on ignition (LOI) at 550°C for 2 hr in a Sybron Thermolyne muffle furnace (Håkanson and Jansson 1983). Inorganic or non-volatile solids (ash/dry fraction) was considered to represent the fraction remaining after combustion. Dry weight density, rho ($\rho$), was calculated using an equation by Binford (1990)

$$\rho = \frac{D\,(2.5I_x + 1.6C_x)}{D + (1-D)\,(2.5I_x + 1.6C_x)}$$

where $\rho$ is dry weight density (g dry cm$^{-3}$ wet), x is depth in the sediment profile (cm), D is proportion of dry mass in wet sediment (dry mass/wet mass), I is inorganic proportion of dry mass with density = 2.5 g cm$^{-3}$ dry, and C is the organic proportion of dry material with density = 1.6 g cm$^{-3}$ dry. All samples used in chemical and radiometric analyses were freeze dried and ground to fine powder using a mortar and pestle.

Two forms of phosphorus were measured in dried sediment samples (Schelske et al. 1986). Total phosphorus (TP) was analyzed using persulfate digestion. Non-apatite inorganic phosphorus (NAIP), a chemically determined form of phosphorus that has been shown to be biologically available (Williams et al. 1976), was leached from small samples for 17 hr at 25°C in a solution of 0.1 N NaOH. Phosphate was measured after digestion or leaching with a segmented flow autoanalyzer and an electronic data acquisition system.

Total carbon (TC) and total nitrogen (TN) were measured with a Carlo Erba NA1500 CNS elemental analyzer equipped with an autosampler on all cores except Phase II survey cores. Analysis of sediment samples was based on methodology described by Verardo et al. (1990).

Gravimetric and chemical data for survey and historic cores from Phase I and Phase II include percent dry weight, dry weight density, organic matter from loss on ignition (LOI) at 550°C, TP, NAIP, TC, TN, and TC/TN (Appendices B-E). Cumulative dry mass (g $cm^{-2}$), cumulative NAIP (mg NAIP $cm^{-2}$) and cumulative TP (mg TP $cm^{-2}$) are also presented in the Appendices B-E. For Phase II cores, cumulative dry mass (g $cm^{-2}$) was calculated by dividing the sample dry mass for each section by core tube area and summing the results with depth. For Phase I cores, cumulative dry mass was calculated by multiplying dry weight density by section thickness and summing the results with depth. Cumulative dry mass and the concentration of NAIP and TP were used to calculate TP and NAIP storage with depth. Missing data were interpolated so cumulative storage of nutrients could be calculated. Missing data resulted primarily from inadequate amounts of sample for all analyses at the tops of cores.

**Radiometric Analysis**

Sediments were aged by measuring the activity of naturally occurring radioisotopes in sediment samples. The method is based on determining the activity of total $^{210}Pb$ (22.3 yr half-life), a decay product of $^{226}Ra$ (half-life 1622 yr) in the $^{238}U$ decay series. Total $^{210}Pb$ represents the sum of excess $^{210}Pb$ and supported $^{210}Pb$ activity in sediments. The ultimate source of excess $^{210}Pb$ is the outgassing of chemically inert $^{222}Rn$ (3.83 d half-life) from continents as $^{226}Ra$ incorporated in soils and rocks decays. In the atmosphere, $^{222}Rn$ decays to $^{210}Pb$ which is deposited at the earth's surface with atmospheric washout as unsupported or excess $^{210}Pb$. Supported $^{210}Pb$ in lake sediments is produced by the decay of $^{226}Ra$ that is deposited as one fraction of erosional inputs. In the sediments gaseous $^{222}Rn$ produced from $^{226}Ra$ is trapped and decays to $^{210}Pb$. By definition, supported $^{210}Pb$ is in secular equilibrium with sedimentary $^{226}Ra$ and is equal to total $^{210}Pb$ activity at depths where excess $^{210}Pb$ activity is not measurable due to decay. Because the decay of excess $^{210}Pb$ activity in sediments provides the basis for estimating sediment ages, it is necessary to make estimates of total and supported $^{210}Pb$ activities so excess $^{210}Pb$ activity can be determined by difference.

Radiometric measurements were made using low-background gamma counting systems with well-type intrinsic germanium detectors (Schelske et al. 1994). To prepare samples for radiometric analysis, dry homogeneous sediment from each core section was packed to a nominal height of 30 mm in a tared polypropylene tube (84 mm high x 14.5 mm outside diameter, 12 mm inside diameter). Sample height was recorded and tubes were weighed to obtain sample mass. Samples in the tubes were sealed with a layer of epoxy resin and polyamine hardener, capped, and stored for 2 to 3 weeks before counting to ensure radioactive equilibrium between $^{226}Ra$ and its daughter, $^{214}Bi$. Activities for each radionuclide were calculated using empirically derived factors of variation in counting efficiency with sample mass and height and corrected for decay from the coring date (Schelske et al. 1994). Total $^{210}Pb$ activity was obtained from the 46.5 kev photon peak and $^{226}Ra$ activity was based on the equilibrium activity of $^{214}Bi$ at the 609.2 kev peak. Excess (unsupported) $^{210}Pb$ activity was determined from the difference between total and supported $^{210}Pb$ activity. Supported $^{210}Pb$ activity was assumed to be equal to $^{226}Ra$ activity. Supported $^{210}Pb$ activity, however, was based on measurements of total $^{210}Pb$ activity at depths where total and supported $^{210}Pb$ activity were considered to be in equilibrium. Direct measurements of $^{226}Ra$ were not used because low activity was not measured precisely, a result of relatively large counting errors.

The 661.7 kev photon peak was used to measure $^{137}Cs$ activity. The peak in $^{137}Cs$ activity was measured to evaluate its usefulness as an independent time marker for the peak period of fallout from nuclear weapons testing in 1962-63.

Sediment ages were calculated using a CRS model (Appleby and Oldfield 1983). This model calculates ages based on the assumption that the flux of excess $^{210}Pb$ to the lake was constant. Variation in sedimentation rates over time, therefore, will result in deviation in $^{210}Pb$ activity from a pattern of exponential decrease with cumulative mass of sediment (depth). For Lake Griffin and other Ocklawaha lakes, the assumption that sedimentation rate was not constant must be invoked to apply a $^{210}Pb$ age model. The age of sediments at depth x is given by

$$t = (1/k) \ln (A_o/A)$$

where t is time in yr, k is 0.03114 (the $^{210}Pb$-decay constant), $A_o$ is the total excess $^{210}Pb$ activity (dpm $cm^{-2}$) in the sediment core, and A is the integrated excess $^{210}Pb$ activity (dpm $cm^{-2}$) below depth x. Calculations for each depth provide a continuous profile of ages as a function of depth. Mass sedimentation rate (MSR) at depth x is given by

$$MSR = m/t$$

where m is dry mass of sediment (g $cm^{-2}$) for the sampling interval. Errors in age and mass sedimentation rate were propagated using first-order approximations (Binford 1990).

Radiometric data and CRS model output are presented in Appendix F.

Diatom microfossils were enumerated in three historic cores, two collected during Phase I (LG-11H and LG-26H) and one collected during Phase II (LG-44H). Sedimentary diatom analyses were performed on 15 sediment samples from each historic core. Samples were cleaned of organic matter using the potassium dichromate and hydrogen peroxide method of Van der Werff (1955), then mounted for microscopic analysis. A minimum of 500 diatom valves was counted per sample and identified to the lowest taxon possible. Data are presented in Appendix G.

## RESULTS

### Gravimetric Analysis

Sediments were generally high in water content and highly organic in both survey and historic cores (Appendices B-E). The % dry weight increased downcore in all cores with values >5% dry weight being found at depth only in some cores. Samples with dry weight <5% were found at all depths in some cores and to depths of 100 cm or more in others. These sediments which contained more than 95% water by weight also were high in organic matter measured as LOI. LOI in sediments with dry weight <5% generally ranged from 60 to 80% in survey and historic cores from Phase I and Phase II (Figs. 3 and 4). LOI in sediments was high and variable in the upper parts of cores with the lowest values at depth (Appendices B-E). Less variation in LOI or % dry was found in data from Phase I survey stations than in the other data sets. Phase I sediments were less variable because sediments were sectioned at 10-cm intervals to 50 cm. Thus, sediments with low % dry weight and high organic matter were underrepresented in the 0-10 cm section compared to the 2.0-cm sections at other stations and deeper samples with higher % dry weight and lower LOI were not sampled in the Phase I survey stations.

### Total Carbon and Total Nitrogen

No distinct trends in TC or TN were apparent in either survey or historic cores from Phase I and Phase II (Appendices B-E), but distinct patterns were found in TC/TN ratios of historic cores (Figs. 5 A-C). TC/TN increased down core from values that ranged from 8.5 to 9.5 near the surface to values of approximately 12 at depth in most cores. Considerable variation among cores was found in the depth at which TC/TN increased. Some of the variation was undoubtedly related to sedimentation rate and the time interval sampled in individual cores. For example, the range in TC/TN ratios for LG-41H was small compared to other cores, but the complete historic record in this core was not sampled as noted previously. TC/TN ratios for Phase I survey cores were not plotted since only five depths were sampled for each core (Appendix B). No data were obtained for TC/TN ratios in Phase II survey cores because the potential utility of this parameter was not recognized when Phase II studies were designed.

### Non-Apatite Inorganic and Total Phosphorus

Phosphorus concentration decreased with depth in all cores in which the record was complete (Appendices B-E). Records in some cores were truncated because cores were too short (Truncated records were found for survey cores from the north basin and Phase I historic core, LG-41H). NAIP and TP were greatest in samples at the tops of cores and decreased to minimum values at depth in historic cores (with the exception of LG-41H) and in all 20 survey cores from Phase II (Figs. 6 A-E). Plots for TP and NAIP concentration with depth in historic cores are

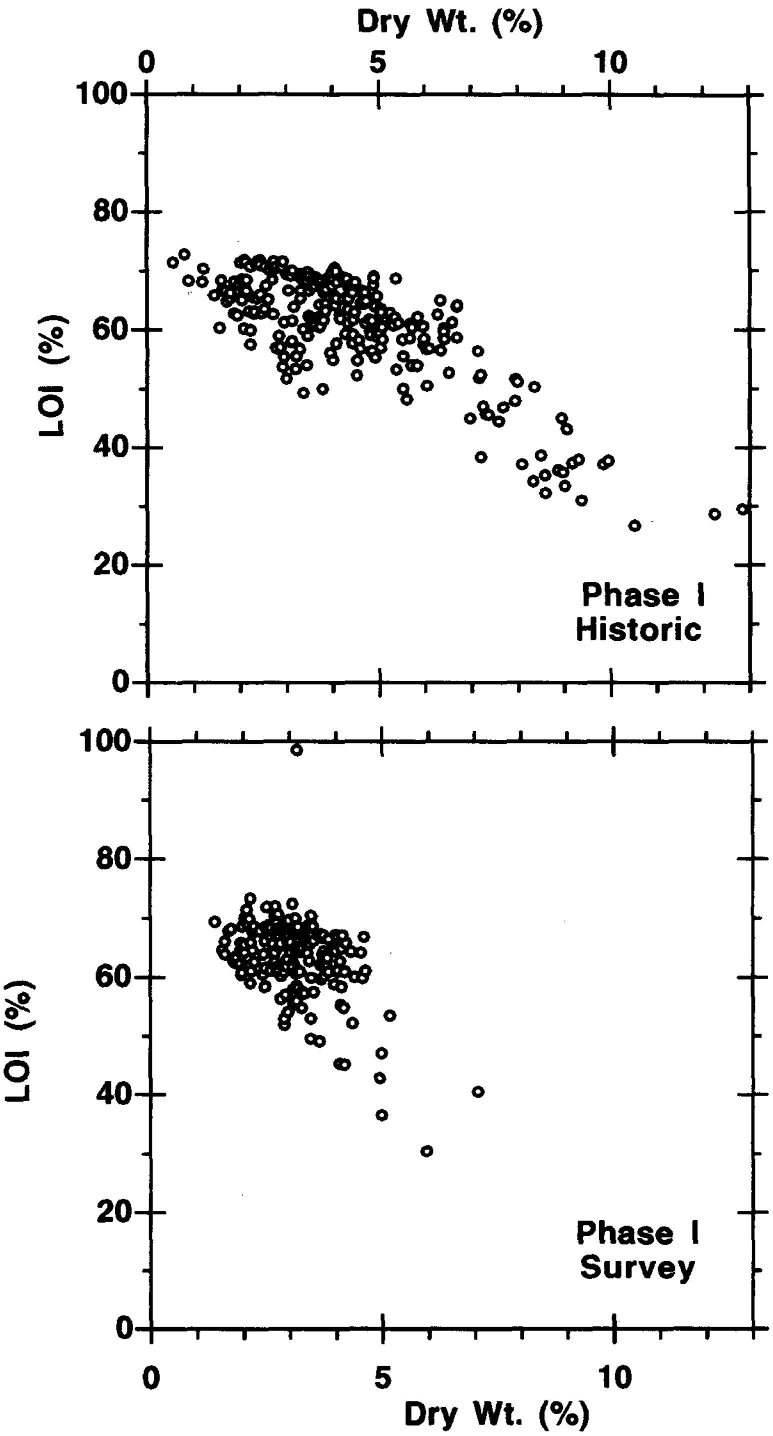


**Fig. 3.** Scatter plots of loss on ignition (LOI) and % dry weight for Phase I survey and historic cores.

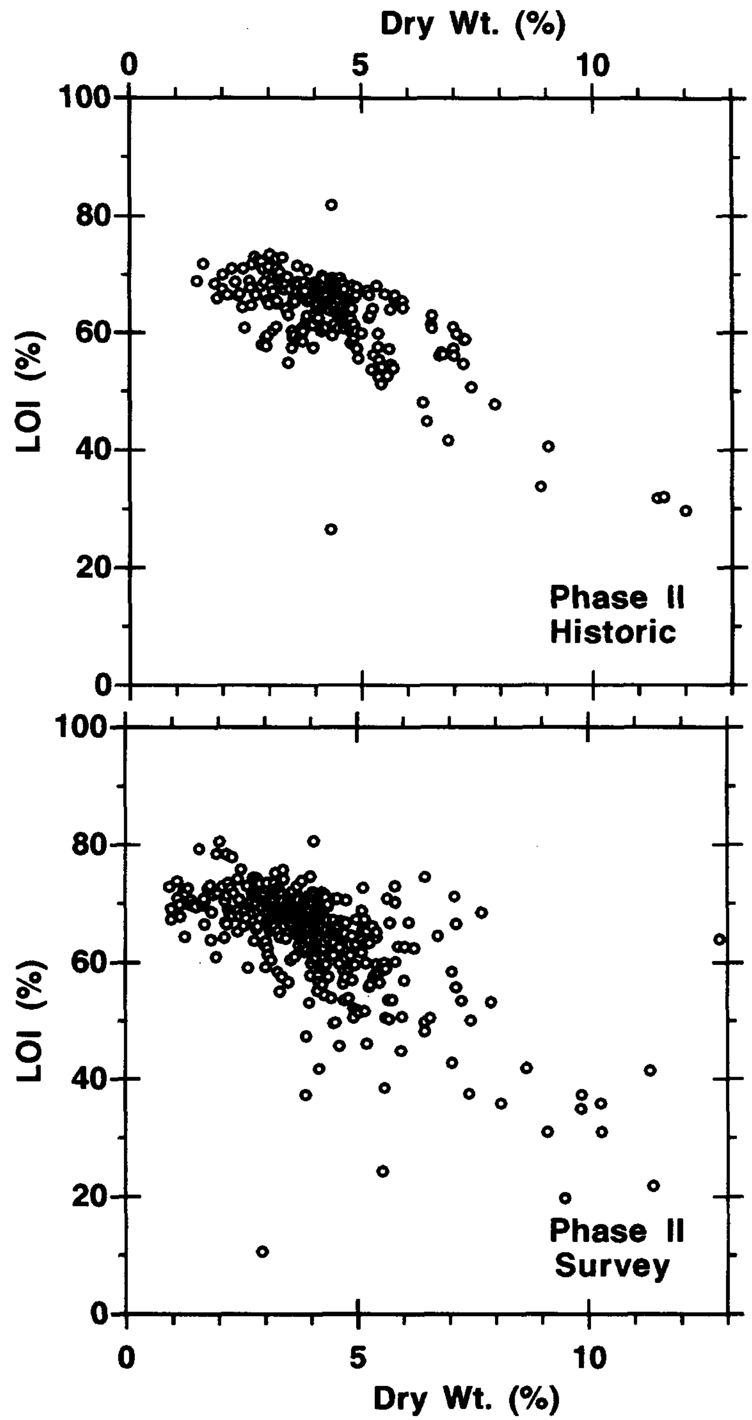


**Fig. 4.** Scatter plots of loss on ignition (LOI) and % dry weight for Phase II survey and historic cores.

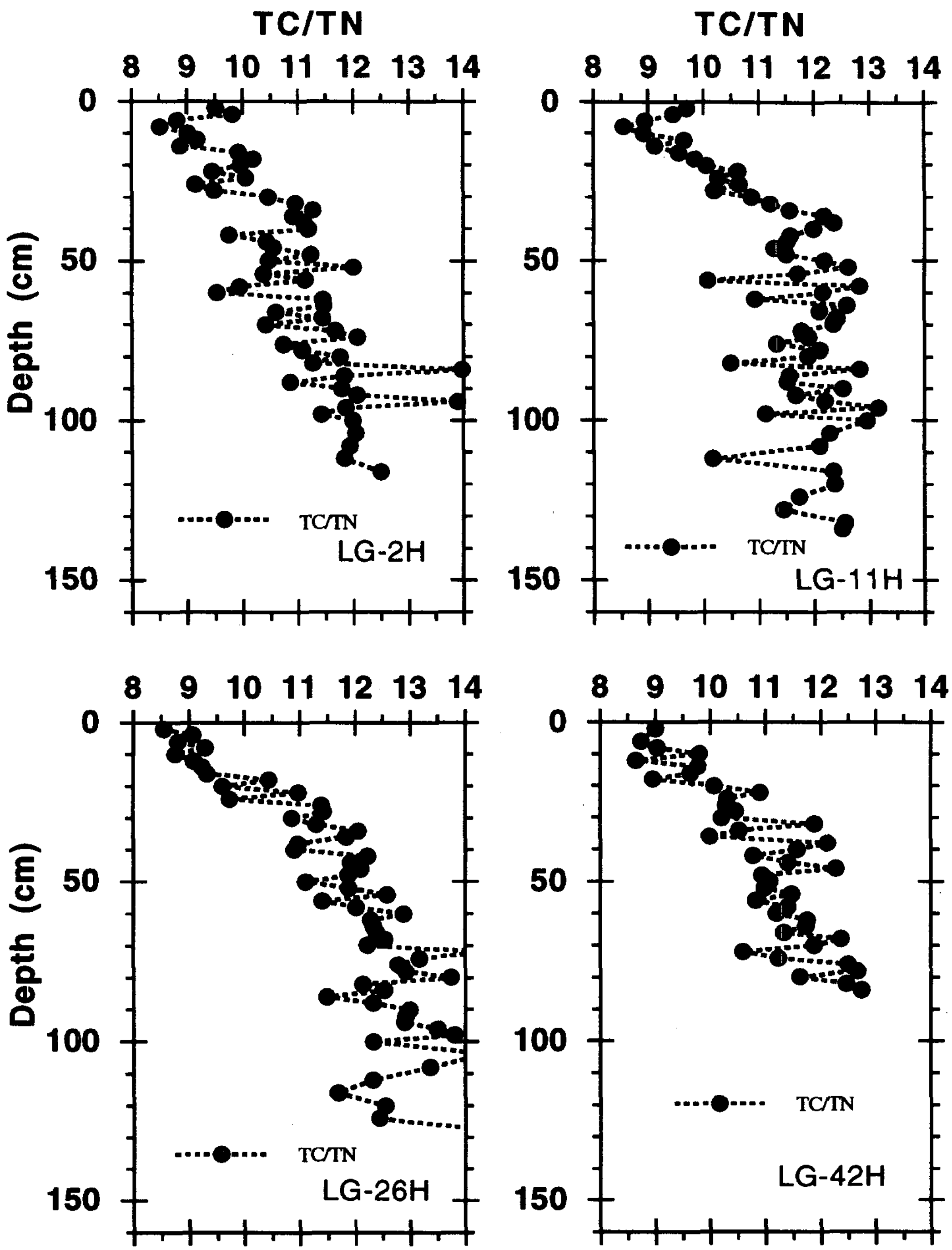


**Fig. 5A.** Plots of TC/TN vs. depth for historic cores, Lake Griffin. Data are weight ratios.A. Phase I cores: LG-2H, LG-11H, LG-26H and LG-42H.

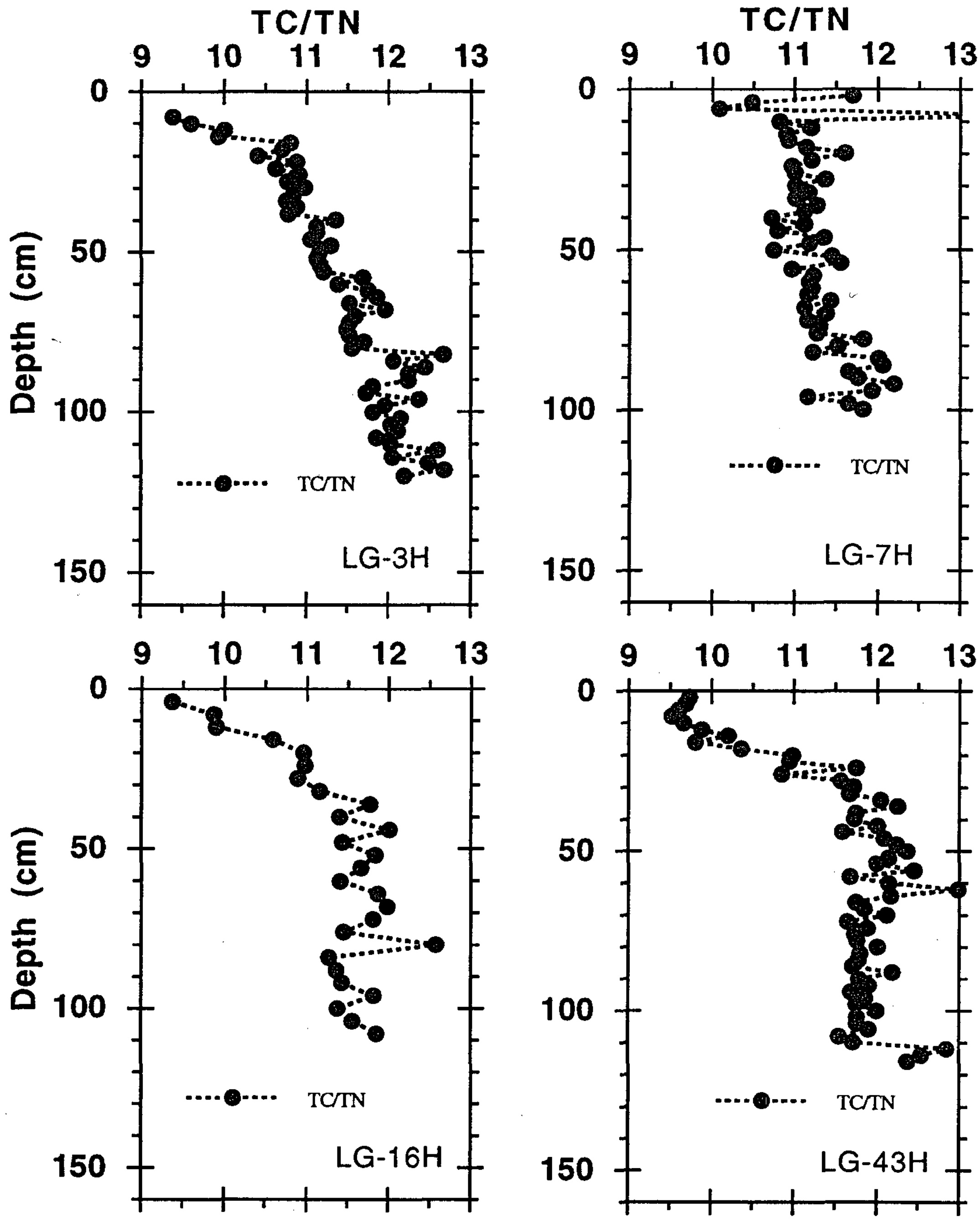


**Fig. 5B.** Phase II cores: LG-3H, LG-7H, LG-16H and LG-43H.

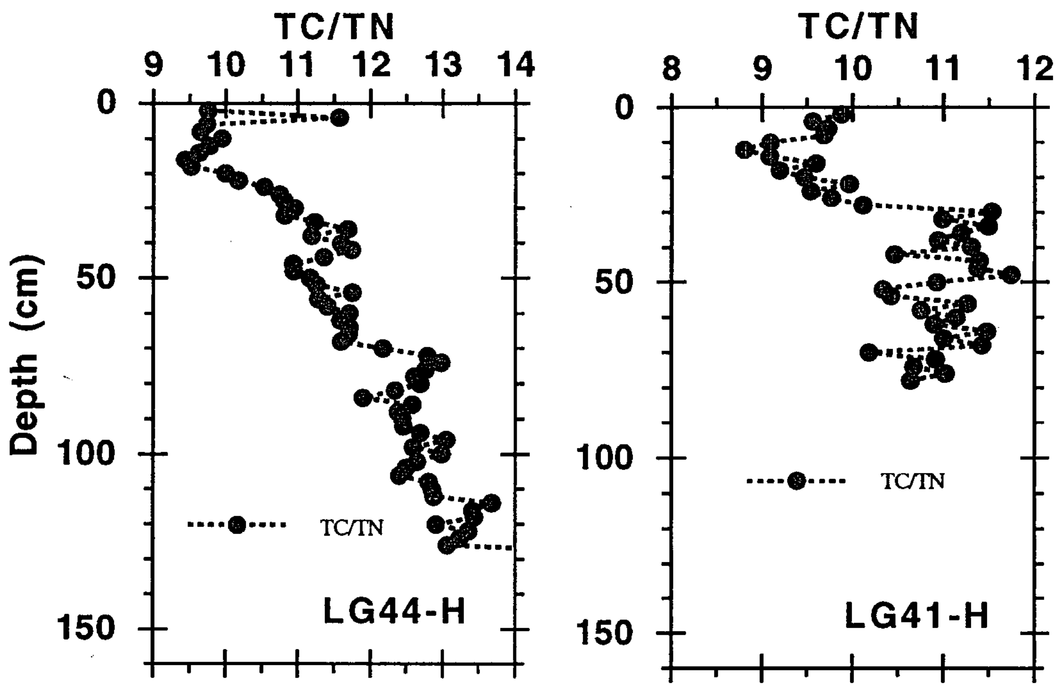


**Fig. 5C.** Phase II core: LG-44H and Phase I core: LG-41H.

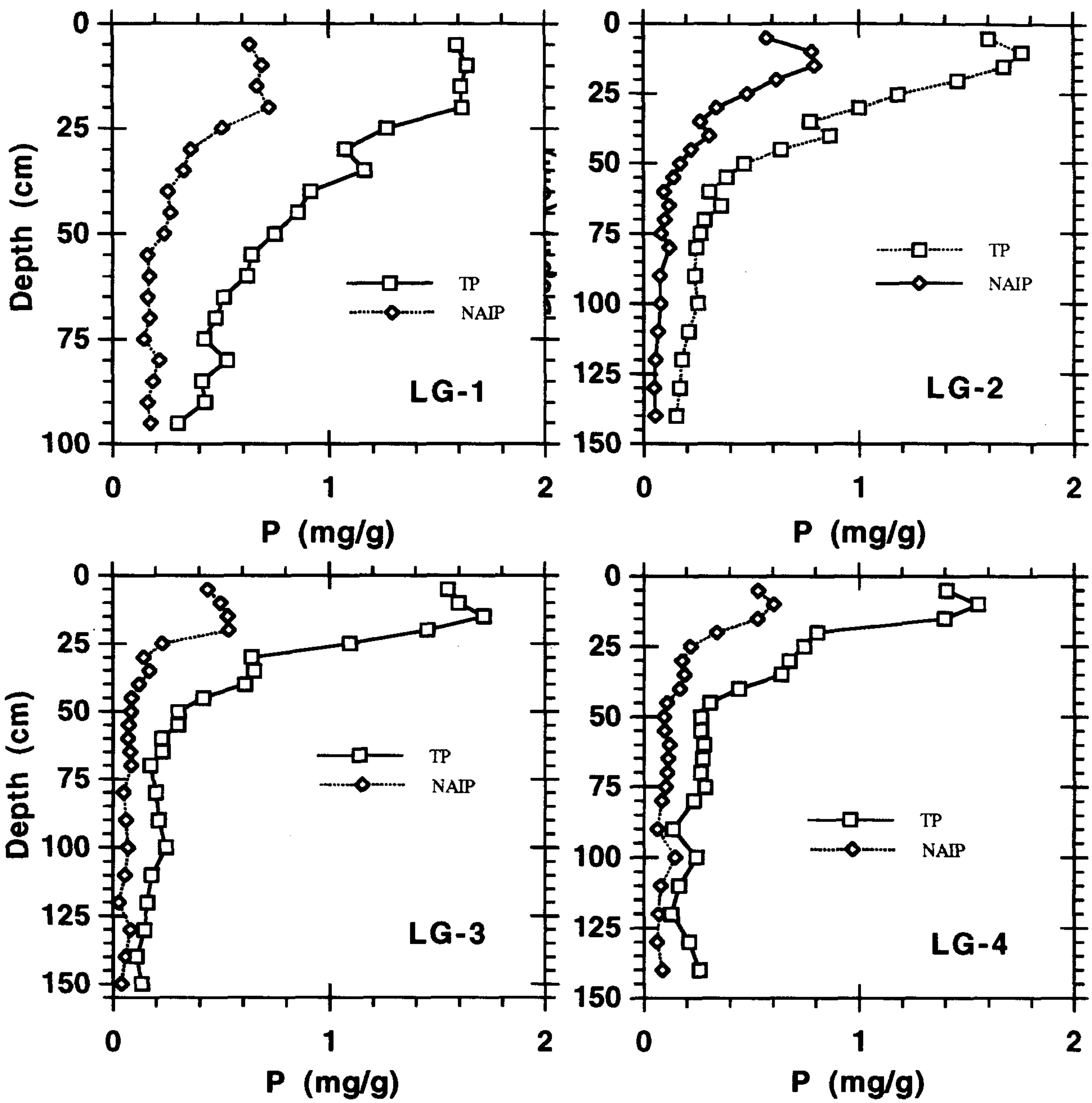


**Fig. 6A.** Plots of total phosphorus (TP) and non-apatite inorganic phosphorus (NAIP) vs. depth in Phase II survey cores. Data are in mg P/g dry sediment. Plots are presented consecutively by station. A. Cores 1-4.

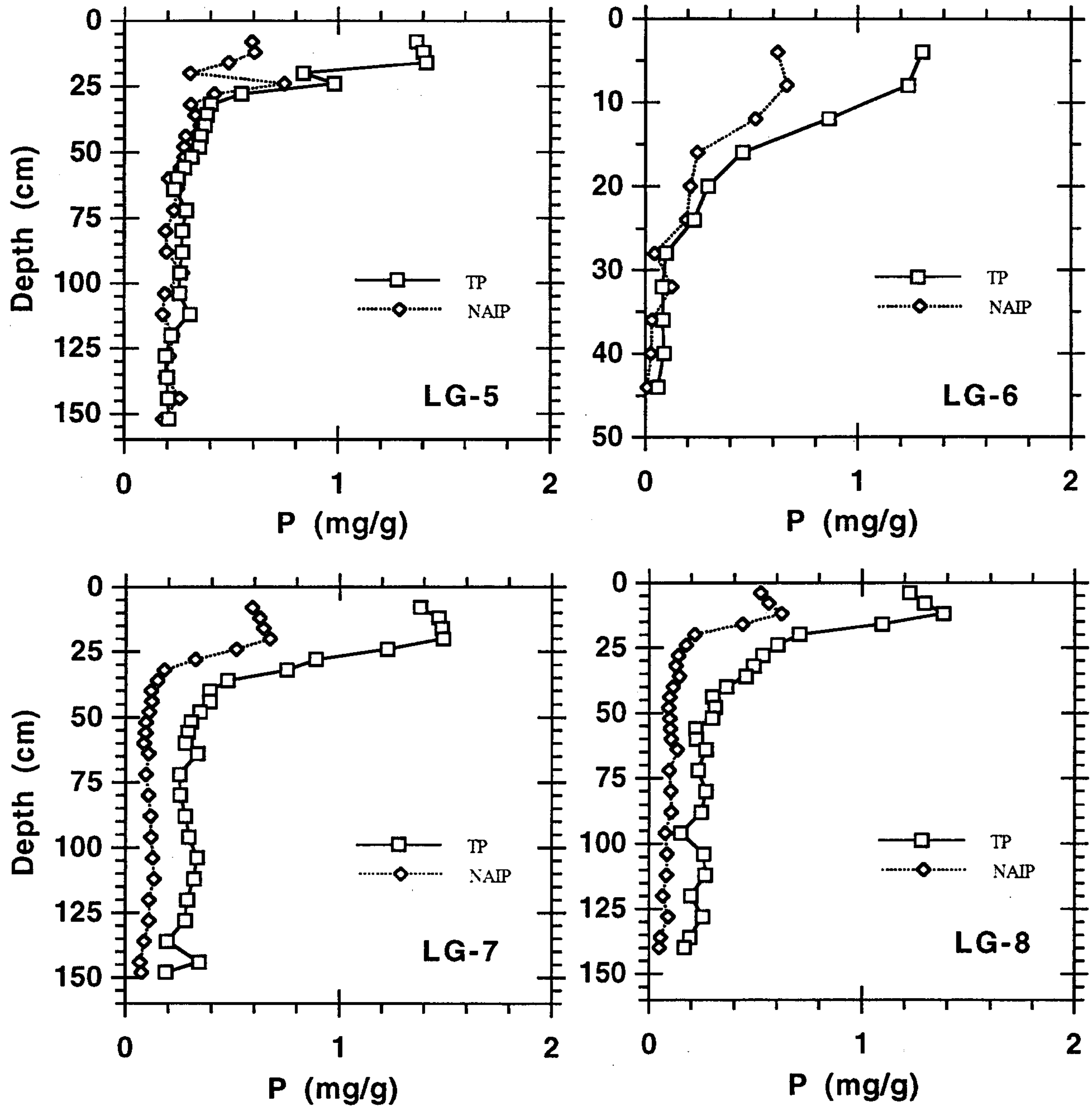


**Fig. 6B.** Cores 5-8.

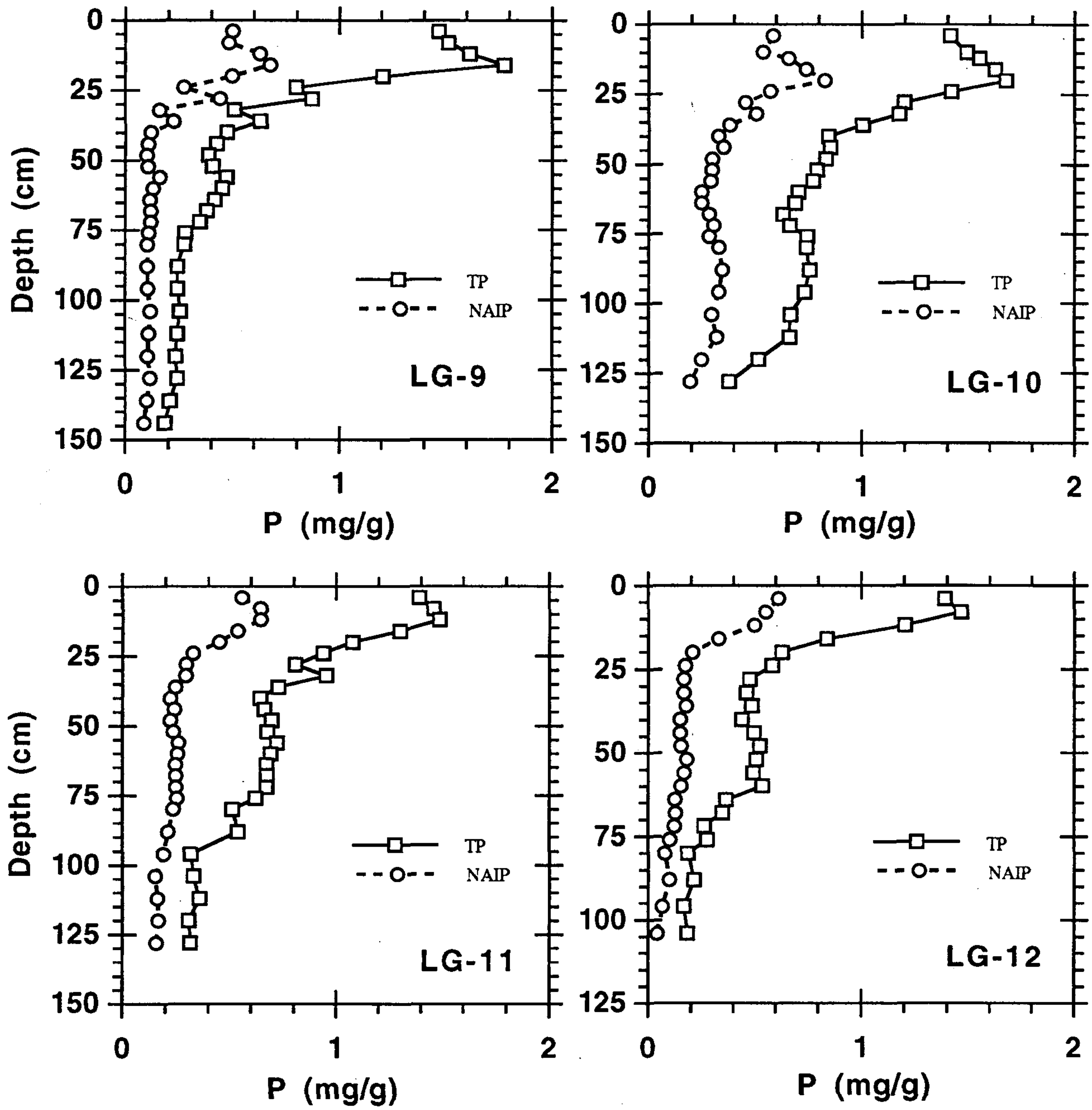


**Fig. 6C.** Cores 9-12.

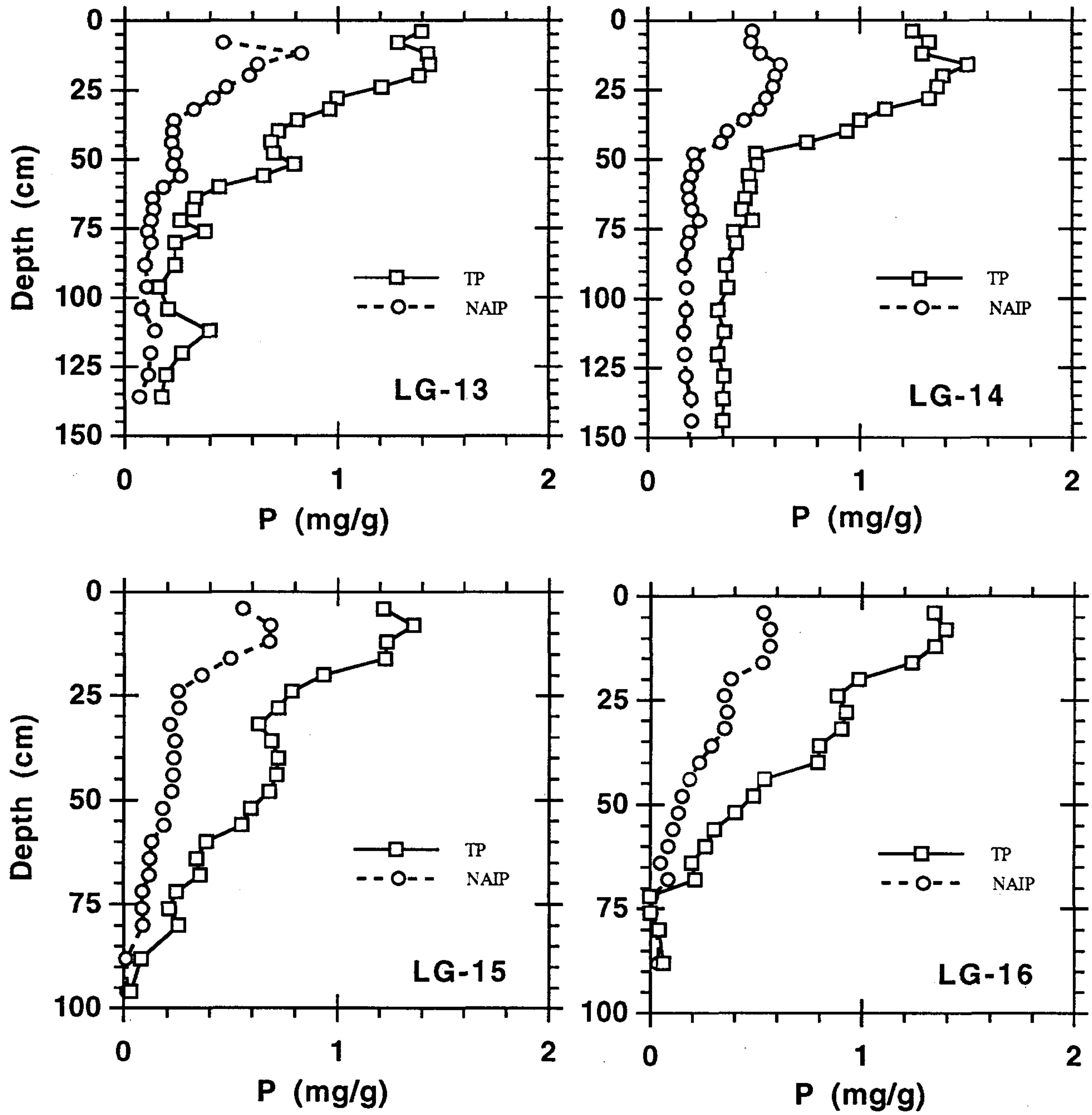


**Fig. 6D.** Cores 13-16.

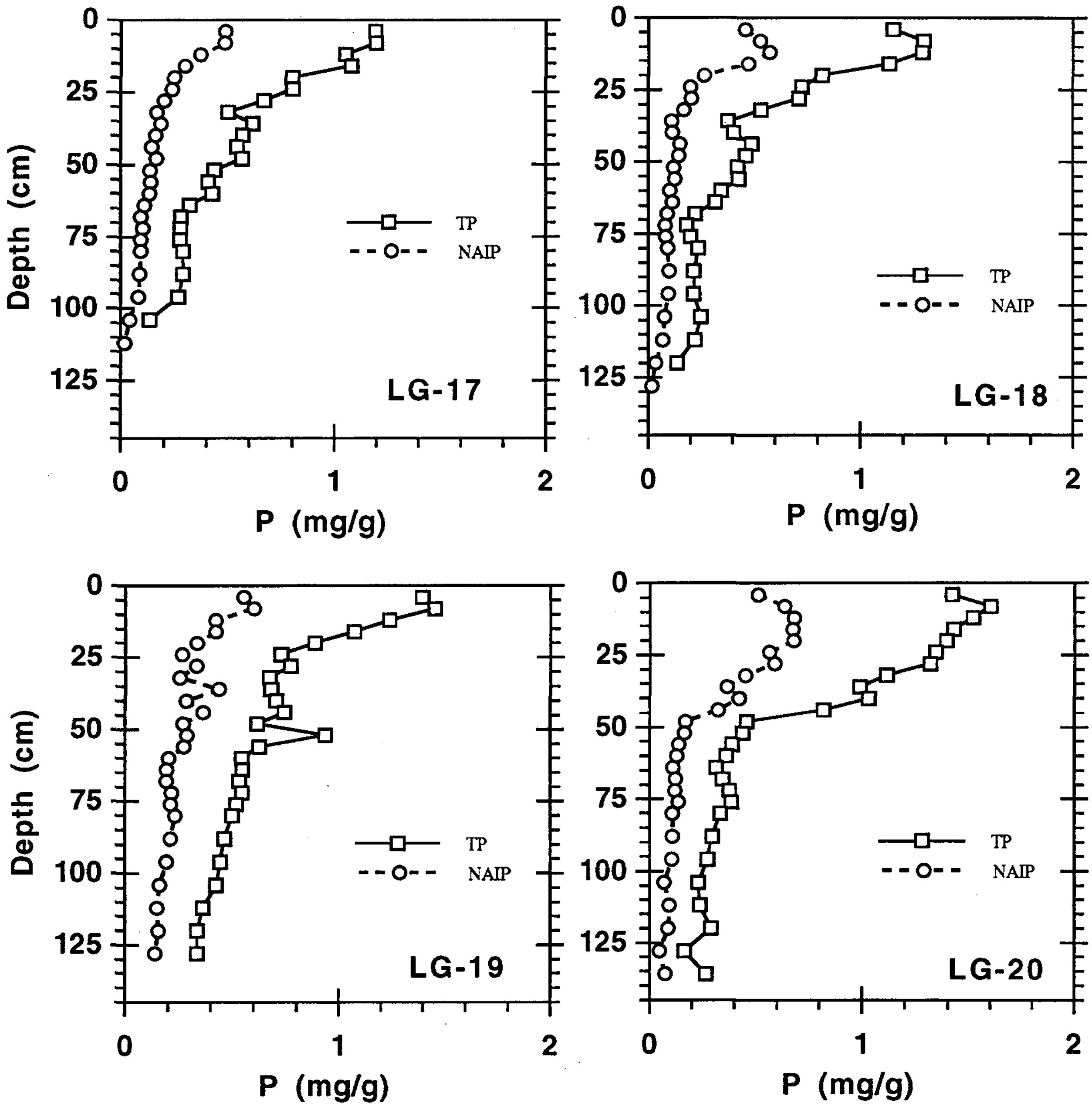


**Fig. 6E.** Cores 17-20.

presented below in the section on Stratigraphy of Nutrients. The depth zone of high concentration and the minimum concentration varied from core to core. Maximum values for TP generally ranged from 1.4 to 2.0 mg/g with high values occurring at survey and historic stations with higher sedimentation rate, i.e., stations with extended zones of high concentration. The minimum concentration was found at shallower depths at stations with lower sedimentation rate. The minimum or baseline TP concentration ranged from 0.2 to 0.4 mg/g. Smaller TP concentrations were at depths where sediments were older than 100-150 yr which will be shown in the section on Stratigraphy of Nutrients.

Maxima in NAIP and TP concentration were found below the surface in a number of historic and survey cores (Fig. 6 A-E, Appendices C-E). This distribution is important to consider in interpreting other data because such a distribution is inconsistent with the premise that shallow lake sediments are mixed over large depths by wind action (turbulence) or by other factors.

TP and NAIP concentration in sediment samples were highly correlated in all the different sets of survey and historic cores (Figs. 7 and 8). The major difference among the four sets of data was that the slope for the calculated regression line was lower for Phase I survey cores than for the other data sets. The lower slope is undoubtedly an artifact of sampling; the thicker (10 cm) sections in the Phase I survey cores probably caused an under representation of high TP and NAIP values in surface samples. The similar slopes for the other three regressions show that conclusions about TP concentrations will be supported by data on NAIP concentrations because TP and NAIP are measured separately and independently.

## Sediment Dating

Radiometric data were measured in ten cores collected during Phase I and Phase II (five from Phase I and five from Phase II). The classic monotonic decrease in excess $^{210}Pb$ activity with cumulative weight (depth), which indicates a relatively constant sedimentation rate, was not found in the Lake Griffin cores (Figs. 9 and 10). Instead, profiles appeared to be composed of two components, a component near the surface with a steep slope and a deeper component with a smaller decrease in activity with cumulative weight. These patterns in data indicate that sedimentation rate changed markedly over the period of $^{210}Pb$ record. The pattern of excess $^{210}Pb$ activity with depth for LG-44H differed from most cores in that activity decreased little with depth over the entire profile and only decreased to a relatively small value in one section near the bottom (Fig. 10). The profile for LG-43H differed in that excess $^{210}Pb$ activity $<5$ dpm $g^{-1}$ at depth was variable. One core, LG-41H, was not aged because the core was too short to adequately sample the entire record of excess $^{210}Pb$ activity (Fig. 9). The lowest excess $^{210}Pb$ activity in this core was 5 dpm $g^{-1}$. $^{137}Cs$ data also were plotted vs. cumulative weight, except no data were obtained for the cores, LG-2H and LG-11H, in which $^{210}Pb$ activity was measured

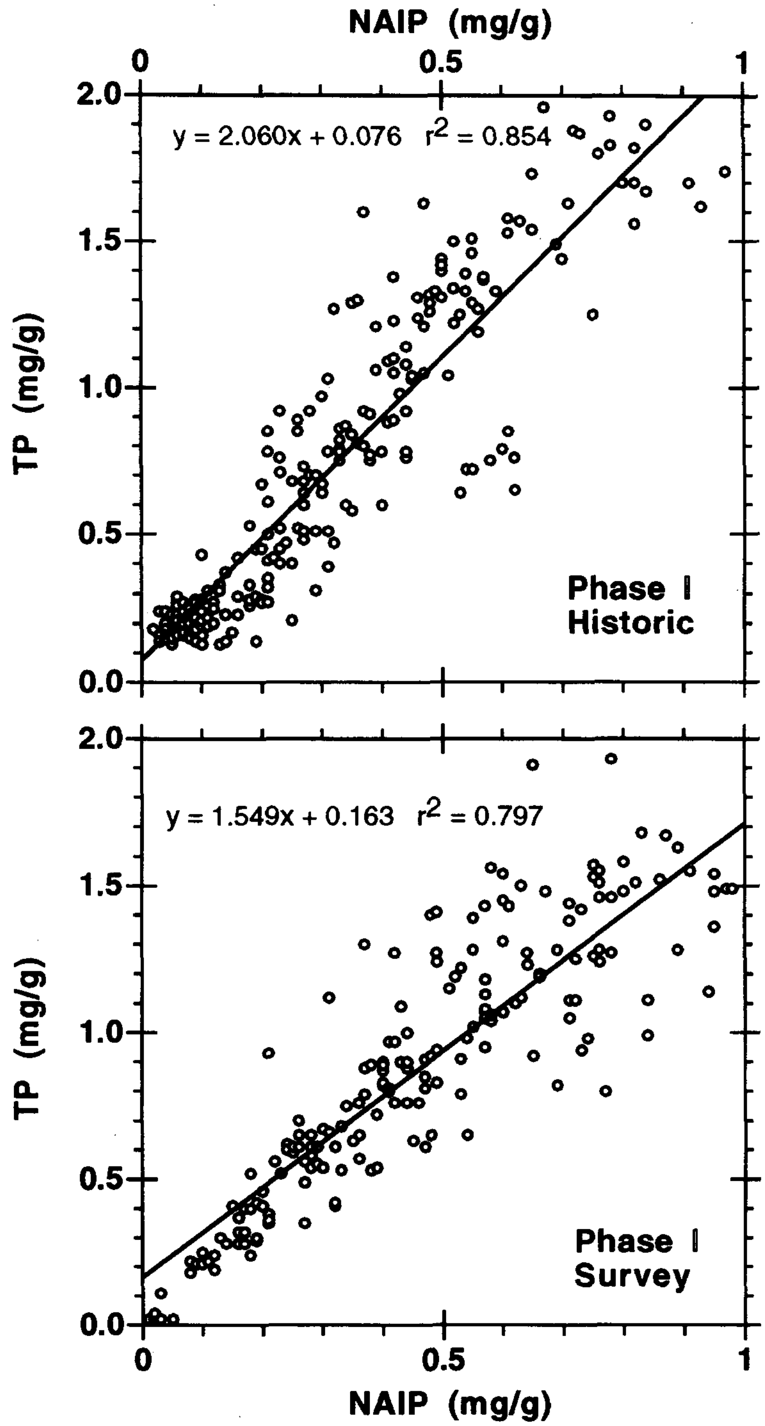


**Fig. 7.** Scatter plots of total phosphorus (TP) and non-apatite inorganic phosphorus (NAIP) in Phase I historic and survey cores. Data are in mg P/g dry sediment.

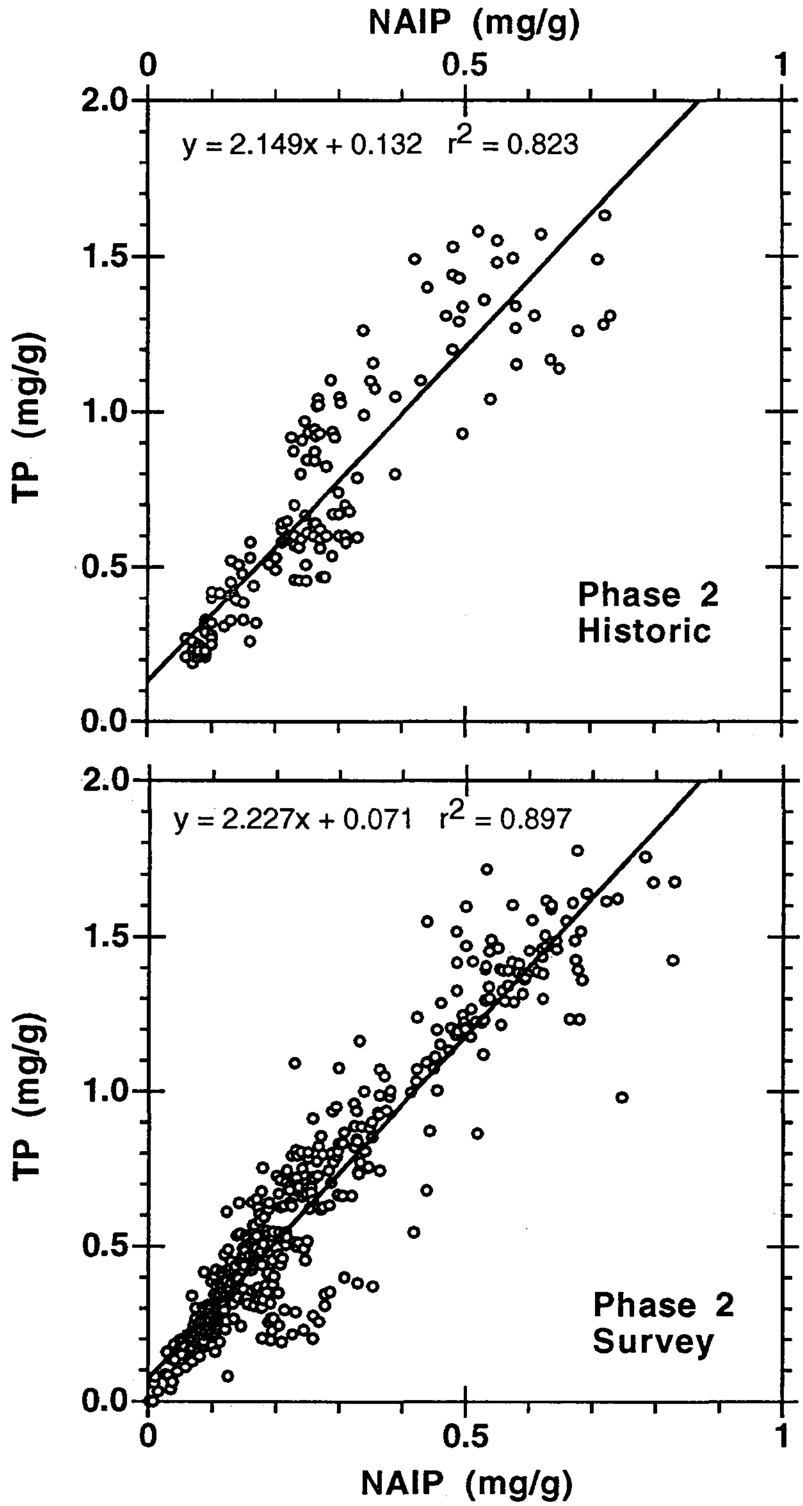


**Fig. 8.** Scatter plots of total phosphorus (TP) and non-apatite inorganic phosphorus (NAIP) in Phase II historic and survey cores. Data are in mg P/g dry sediment.

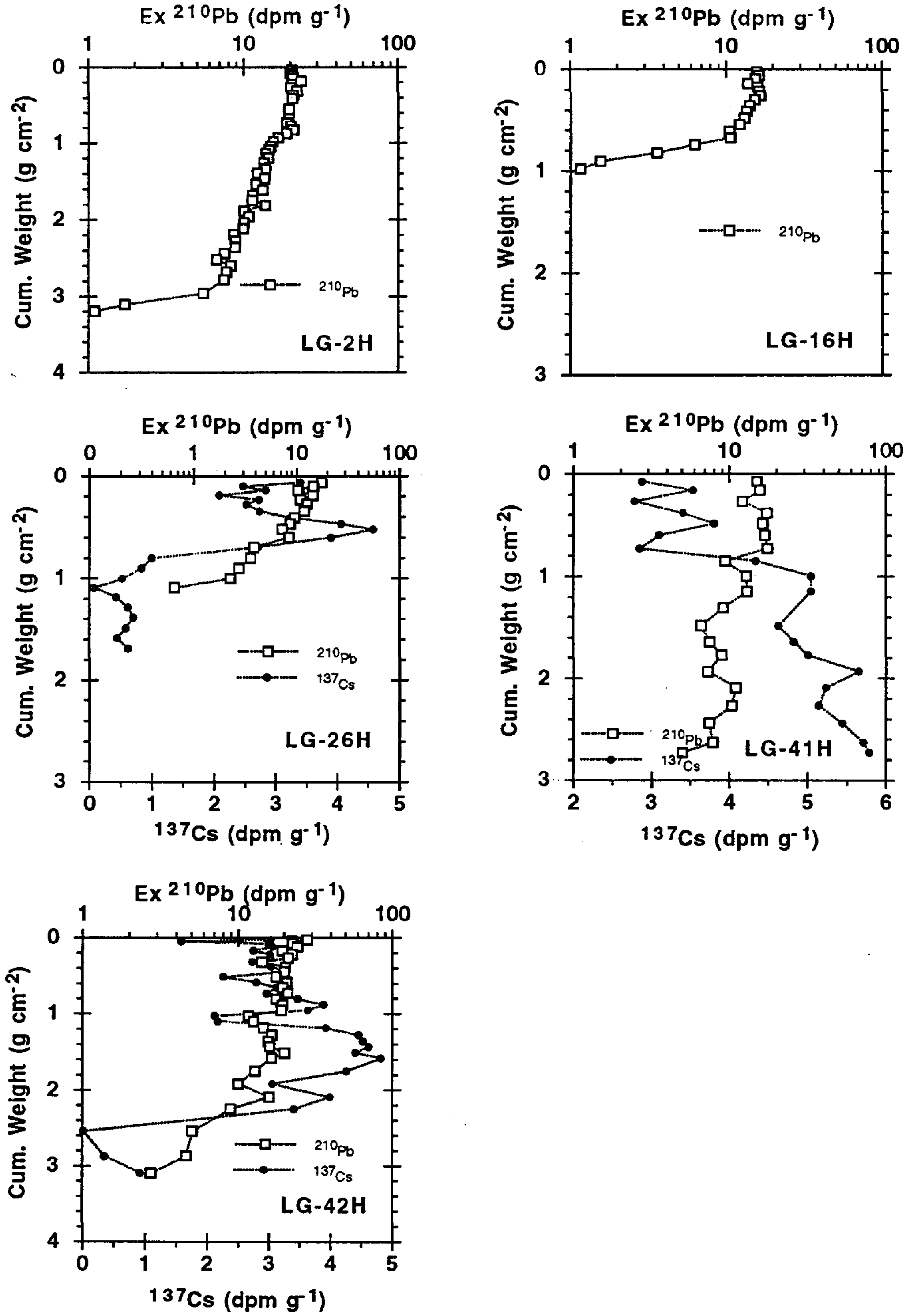


**Fig. 9.** Plots of excess $^{210}$Pb activity (dpm $g^{-1}$) and $^{137}$Cs activity (dpm $g^{-1}$) vs. cumulative weight (g dry mass $cm^{-2}$) in five historic cores, Phase I Lake Griffin. $^{210}$Pb activity for LG-2H and LG-11H was measured with alpha counting so $^{137}$Cs data were not obtained.

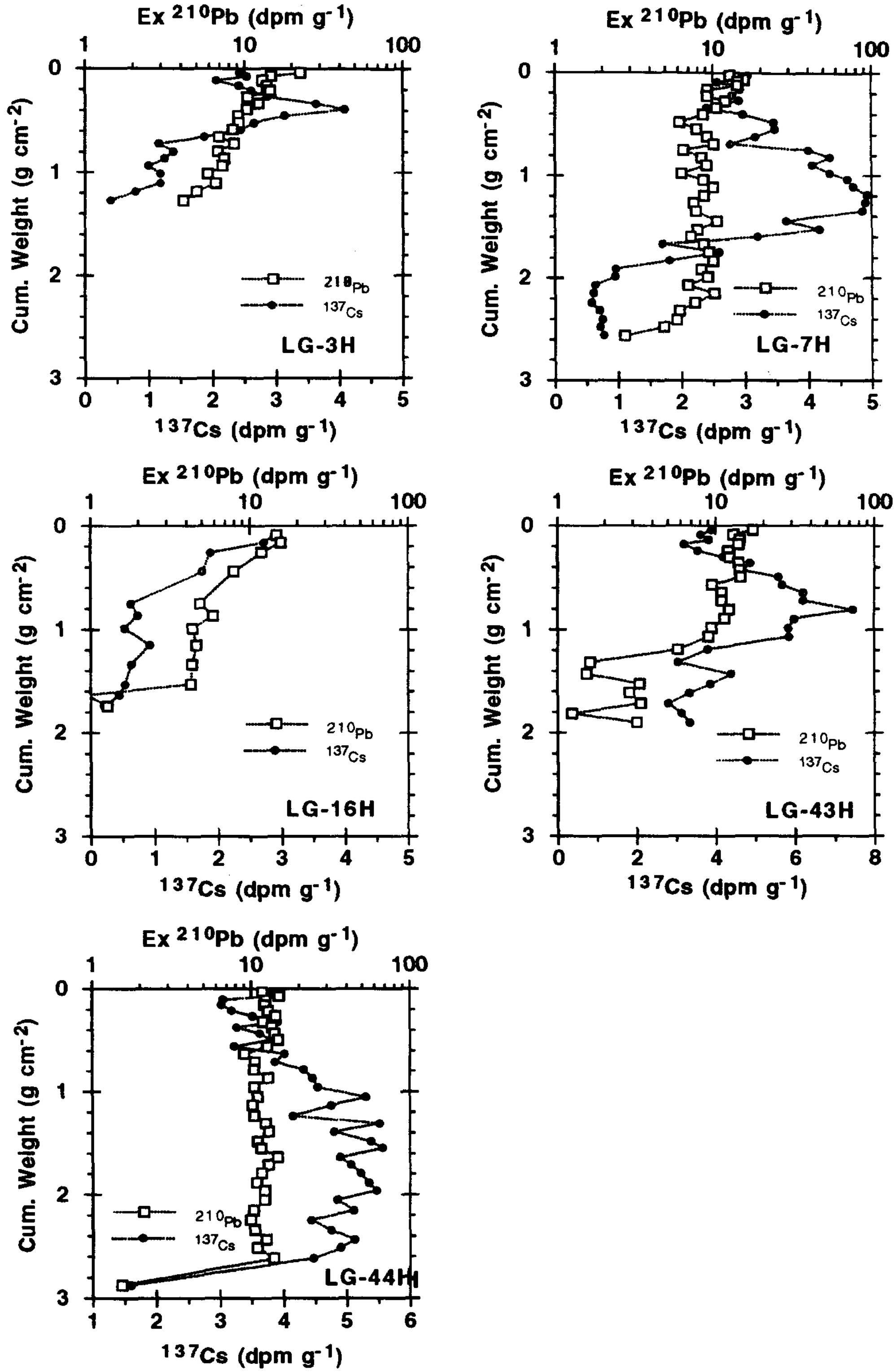


**Fig. 10.** Plots of excess $^{210}Pb$ activity (dpm $g^{-1}$) and $^{137}Cs$ activity (dpm $g^{-1}$) vs. cumulative weight (g dry mass $cm^{-2}$) in five historic cores, Phase II Lake Griffin.

with alpha counting. It can be seen from the grossly different patterns among cores that $^{137}Cs$ is not useful as a time-dependent stratigraphic marker. For example, no peak was found in LG-16H and a very broad peak was found in LG-44H (Fig. 10).

Ages were calculated with a CRS model (Appleby and Oldfield 1983) because the decrease in excess $^{210}Pb$ activity with cumulative weight (depth) was not logarithmic for most of these cores (Figs. 9 and 10). Age/depth plots showed that profiles were divided into two groups on the basis of excess $^{210}Pb$ activity (Fig. 11) because the sedimentation rate of one group was much greater than the other. The sedimentation rate can be inferred from cumulative weight at the bottom of the zone of excess $^{210}Pb$ activity (Figs. 9 and 10) where the age is >100 yr (Fig. 11, Table 1). Cumulative weight was <2.0 mg $cm^{-2}$ in the low sedimentation group and >2.0 mg $cm^{-2}$ in the high sedimentation group. In the low sedimentation group, excess $^{210}Pb$ activity representing an age of approximately 150 yr was not found deeper than 48 cm; whereas in the high sedimentation group excess $^{210}Pb$ activity representing an age of approximately 150 yr was found at depths ranging from 70 to 88 cm (Appendix F). Cores 11H, 26H, 3H, 16H and 43H were in the low sedimentation group and cores 2H, 42H, 7H and 44H were in the high sedimentation group. The sites for high or low sedimentation apparently varied over short distances. Station LG-2H, for example, was a high sedimentation site whereas LG-3H (the adjacent historic station, Fig. 2) was a low sedimentation site.

An average sedimentation rate for the cores was calculated on the basis of data presented in Table 1. Average rates were also divided into two groups. The average MSR for the low sedimentation stations ranged from 6.3 to 13.3 mg $cm^{-2}$ $yr^{-1}$ and for the high sedimentation stations ranged from 16.0 to 22.0 mg $cm^{-2}$ $yr^{-1}$. The range in average sedimentation rate was <4 fold. Age/depth plots, however, show that sedimentation rates generally decreased with increasing age and that sedimentation rates increased most rapidly during the past 50 yr (Fig. 11). Thus, information on changes in MSR over time is important.

MSR calculated from $^{210}Pb$ ages varied greatly among historic cores collected in Lake Griffin with maximum rates ranging from <20 to 80 mg $cm^{-2}$ $yr^{-1}$ and minimum rates being <10 mg $cm^{-2}$ $yr^{-1}$ (Appendix F; see Figs. 19 and 20, pages 52 and 53). MSR in all cores generally increased with time with the increase beginning at least at the turn of the century and being most pronounced after 1950. Ranges in MSR among stations were large when highest rates were compared to the rate at 1900. This range was 6 fold at LG-2H and more than 10 fold at LG-44H, two stations with high MSR. The high sedimentation rate at the surface is reflected in age/depth relationships. An age of 4 yr was found at depths ranging from 12-14 cm in the four cores with high MSR: cores LG-2H (12 cm), LG-42H (14 cm), LG-7H (14 cm), LG-44H (14 cm). At the other extreme, an age of 5 yr was found at 4 cm for core LG-26H. These large differences in MSR which are attributed to differential sediment focusing obviously affect the resolution of temporal events that might be recorded in the sediments.

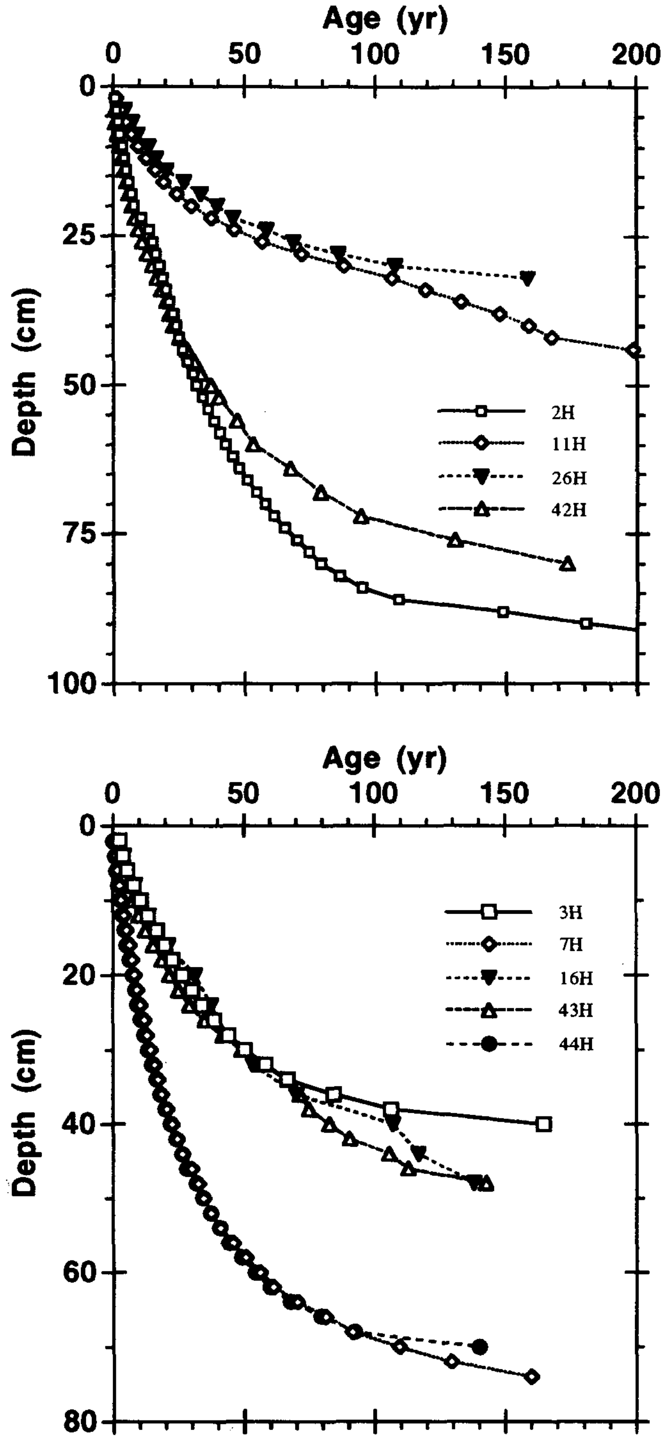


**Fig. 11.** Age/depth plots for Phase I (upper panel) and Phase II (lower panel) historic cores, Lake Griffin.

**Table 1.** Data for $^{210}Pb$ dated historic cores for 9 stations in Lake Griffin (see Fig. 2 for station location). Data are inventory of excess $^{210}Pb$ (dpm $cm^{-2}$), cumulative weight (g $cm^{-2}$), depth (cm), age (yr) and average MSR (mg $cm^{-2}$ $yr^{-1}$) for sediments with the specified age.

| Station | Excess $^{210}Pb$ (dpm $cm^{-2}$) | Cum Weight (g $cm^{-2}$) | Depth (cm) | Age (yr) | MSR (mg $cm^{-2}$ $yr^{-1}$) |
|---|---|---|---|---|---|
| **Phase I** | | | | | |
| LG-2H | 40.1 | 2.961 | 88 | 149 | 19.9 |
| LG-11H | 10.2 | 1.057 | 38 | 148 | 7.16 |
| LG-26H | 8.10 | 1.003 | 32 | 158 | 6.33 |
| LG-42H | 40.4 | 2.868 | 76 | 130 | 22.0 |
| **Phase II** | | | | | |
| LG-3H | 11.5 | 1.273 | 40 | 165 | 7.73 |
| LG-7H | 21.9 | 2.559 | 74 | 160 | 16.0 |
| LG-16H | 10.5 | 1.740 | 48 | 138 | 12.6 |
| LG-43H | 15.4 | 1.900 | 48 | 143 | 13.3 |
| LG-44H | 31.2 | 2.614 | 70 | 140 | 18.6 |

Plots of the excess $^{210}Pb$ inventory and cumulative weight for the depth interval most closely approximating 1850 show that excess $^{210}Pb$ and sediment mass are focused in similar proportions among stations (Fig. 12). The cumulative weight of sediments focused at the two stations with the largest inventory of excess $^{210}Pb$, LG-2H and LG-44H, was nearly 3.0 g $cm^{-2}$ and the excess $^{210}Pb$ inventory at these stations was approximately 40 dpm $cm^{-2}$. At LG-26H, the excess $^{210}Pb$ inventory was <10 dpm $cm^{-2}$. A four-fold range in the excess $^{210}Pb$ inventory among the stations is not uncommon for other Florida lakes studied recently in our laboratory (Whitmore et al. 1996, Schelske 1997a), but is inconsistent with the conclusions from a study by Oldfield and Appleby (1984).

The shape of excess $^{210}Pb$ profiles for sediment cores analyzed during this investigation could be attributed to sediment mixing, but such an interpretation as a single factor in explaining the non-monotonic curves is not consistent with other data. Profiles of $^{137}Cs$ activity (Figs. 9 and 10), for example, for cores 26H, 42H, 3H, 7H and 43H show a region of high $^{137}Cs$ activity at depth. These profiles suggest that the sediment record reflects the peak input of $^{137}Cs$ in the early 1960s and lower inputs since the 1960s. The relatively shallow peak at 3H is particularly important in this respect because the importance of mixing should be greater at low sedimentation sites and a sharp peak in $^{137}Cs$ would not be expected at a low sedimentation site. The expected 1952 rise in $^{137}Cs$ occurs at a much older age than expected, approximately 1915, in a number of cores which could be attributed to mixing or to downward movement of soluble Cs in pore water. No $^{137}Cs$ data were obtained for cores 2H and 11H because $^{210}Pb$ activity in these cores was measured using alpha spectroscopy. The distribution of $^{137}Cs$ in cores 16H and 44H may be related to depositional characteristics at the two sites. Core 16H was the site with the lowest sedimentation rate; the lack of a peak at 16H, therefore, can be explained by characterizing this site as either transitional or non-depositional. Core 44H is a high sedimentation site with a greater zone of high $^{137}Cs$ activity than the other high sedimentation cores, 7H and 42H. Possible explanations for the broad $^{137}Cs$ peaks include $^{137}Cs$ mobility in the sediments, focusing of $^{137}Cs$ after the period of peak input, sediment mixing or some combination of these factors. Chemical and physical and data presented above and microfossil data presented below also are at variance with attributing the shape of excess $^{210}Pb$ profiles simply to sediment mixing.

One explanation for the steep slopes of excess $^{210}Pb$ activity in the upper parts of Lake Griffin cores is an increase in primary production of organic matter by phytoplankton. Robbins and Herche (1993) point out that "flat profiles" could be produced if inputs of sediment increased at a rate comparable to the decay of $^{210}Pb$. They discount such a possibility in invoking sediment mixing as a cause for flat profiles. Their data, however, differ in two important respects from those obtained from Lake Griffin and other lakes in the Ocklawaha chain

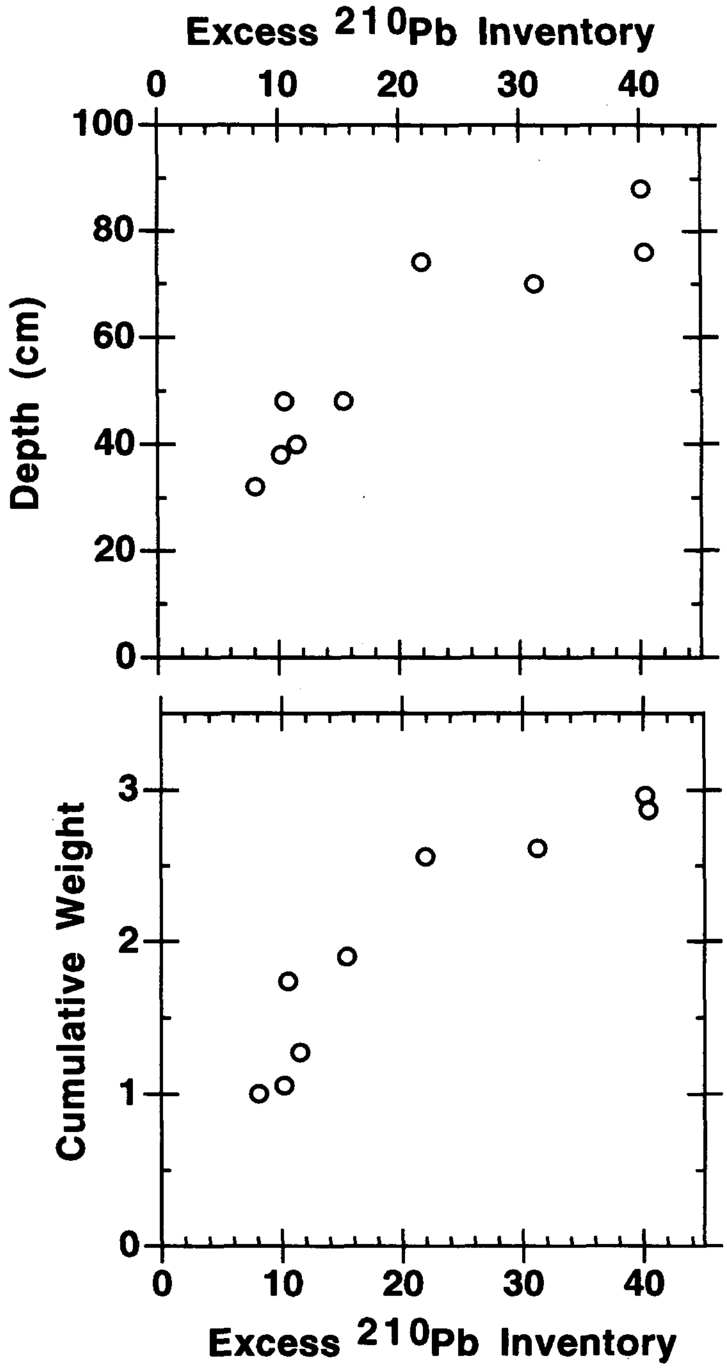


**Fig. 12.** Excess $^{210}Pb$ inventory (dpm $cm^{-2}$) plotted vs. depth (cm) and cumulative weight (g $cm^{-2}$) for Phase I and Phase II historic cores, Lake Griffin.

(Schelske 1997a). First, flat profiles usually refer to a relatively small fraction of the profile and not to the extensive depth ranges found in the Florida lakes that practically can not be explained by mixing. Second, composition of sediments in the Ocklawaha lakes is very different from those commonly found in many regions of the world considered by Robbins and Herche (1993). Sediments in many lakes average <10% organic matter; whereas the Ocklawaha lakes are highly organic, averaging >60% organic matter. Therefore, it is possible that an increase in production of organic matter can produce flat profiles. A profile with no change in excess $^{210}Pb$ activity with depth (cumulative mass) would be produced if the rate of sedimentation doubled in 22.2 years, during one half-life of $^{210}Pb$. The necessary increase to produce a flat profile is equivalent to an annual increase in net sedimentation of approximately 3.1 %. A flat profile would be the result for the special case in which net sedimentation was proportional to such an increase in primary production during approximately the last 80-100 yr. Because sediments are not composed entirely of the by-products of primary production, an increase in primary production greater than 3.1% might be required to produce an annual 3.1% increase in net sedimentation. If the entire increase in net sedimentation was due to the by-products of primary production, an annual increase in primary production of approximately 5% would produce a flat profile if the organic content of sediments average 67%. A relatively modest increase in primary production in the 20th century, therefore, can be invoked as an explanation for the relatively flat excess $^{210}Pb$ profiles in Lake Griffin.

## STRATIGRAPHY OF NUTRIENTS

### NAIP and TP

Depth and time dependence of changes in phosphorus concentration were compared by plotting NAIP and TP concentration vs. depth and date for the nine historic cores (Figs. 13 and 14). Redundancy in sampling is illustrated for several stations (LG-2H, LG-42H, LG-7H and LG-44H) by the density of sampling points when concentration was plotted vs. date. At the other extreme, only 14 sampling points were present in the datable record for LG-26H (Fig. 13B), a station with a low sedimentation rate. The difference in temporal resolution is mainly a function of sedimentation rate (see Table 1) and not a result of coarser or finer sampling depths.

NAIP and TP concentration increased upcore at all historic stations (Figs. 13 and 14). At many of the historic and survey (Fig. 6) stations, the maximum concentration was found at depth. The date for the maximum concentration in historic cores ranged from the late 1980s to approximately 1990. A zone of high concentration was found in the uppermost sediments at all stations. The time dependence of the greatest increase in concentration varied among cores, ranging from approximately 1950 to 1970 in most cores; but the inflection occurred latest, approximately 1980, at LG-44H.

### TC/TN Ratio

A distinct stratigraphic change in TC/TN ratio was found in all datable historic cores (Figs. 15 and 16) with the exception of LG-7H (Fig. 16A). Ratios generally increased downcore from values of 8-9 to approximately 12 at variable depths. The change in ratios with depth was at least 3 for all cores except LG-41H and LG-7H. LG-41H, a truncated core, was too short to sample the entire excess $^{210}$Pb record. This provides an explanation for the small change in TC/TN ratio in LG-41H because the range in TC/TN is larger in the datable historic cores. A small change in TC/TN at LG-7H must be attributed to another factor because supported $^{210}$Pb was measured at depth in this core with a high sedimentation rate (Fig. 10, Appendix F). Relatively high TC/TN ratios in near-surface sediments and the small change in the ratio at LG-7H indicate source material for sediments that contains less organic matter derived from phytoplankton than at other historic stations. In a study of Lake Apopka, TC/TN ratios $<10.5$ were associated with sediments derived from phytoplankton whereas ratios $>12.5$ were from sediments derived primarily from macrophytes (Schelske 1997a).

The time dependence of the change in TC/TN ratio was compared with the change in TP concentration to determine if the two coincided temporally (Figs. 15 and 16). With the exception of LG-7H, low TC/TN ratios at the tops of cores coincided with high TP concentration. The time dependence for the two changes was variable from core to core. LG-7H also differs from the other cores in that the overall change in TP concentration is smaller.

The stratigraphy of TP concentration in the five historic cores from Phase II was compared with the stratigraphy of % dry weight and ash/dry fraction to determine if these variables were stratigraphically correlated (Fig. 17). A peak in % dry weight that corresponded to the increase in

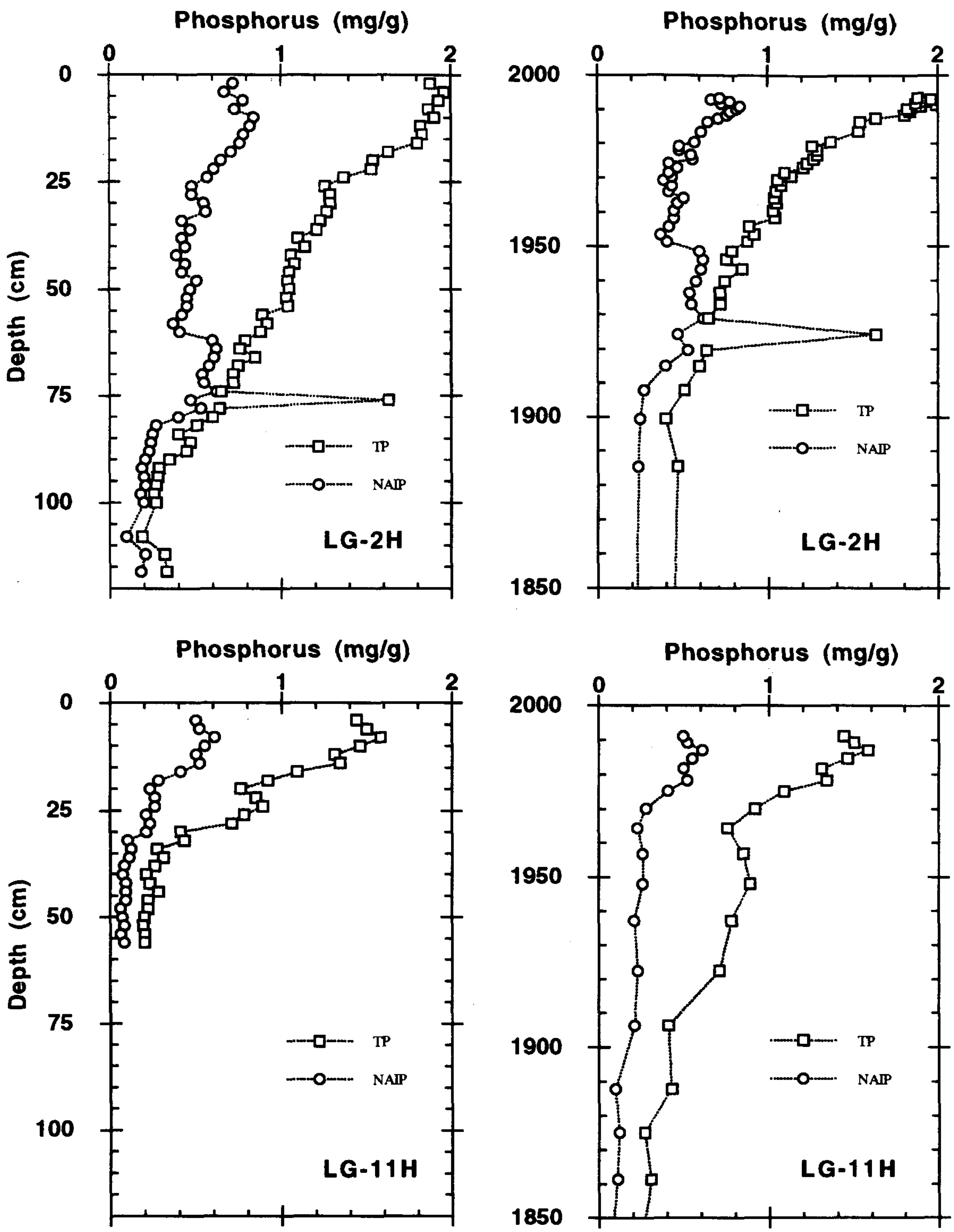


**Fig. 13A.** Plots of total phosphorus (TP) and non-apatite inorganic phosphorus (NAIP) vs. depth and date in Phase I historic cores. Data are in mg P/g dry sediment. Plots are presented consecutively by station. A. LG-2H and LG-11H.

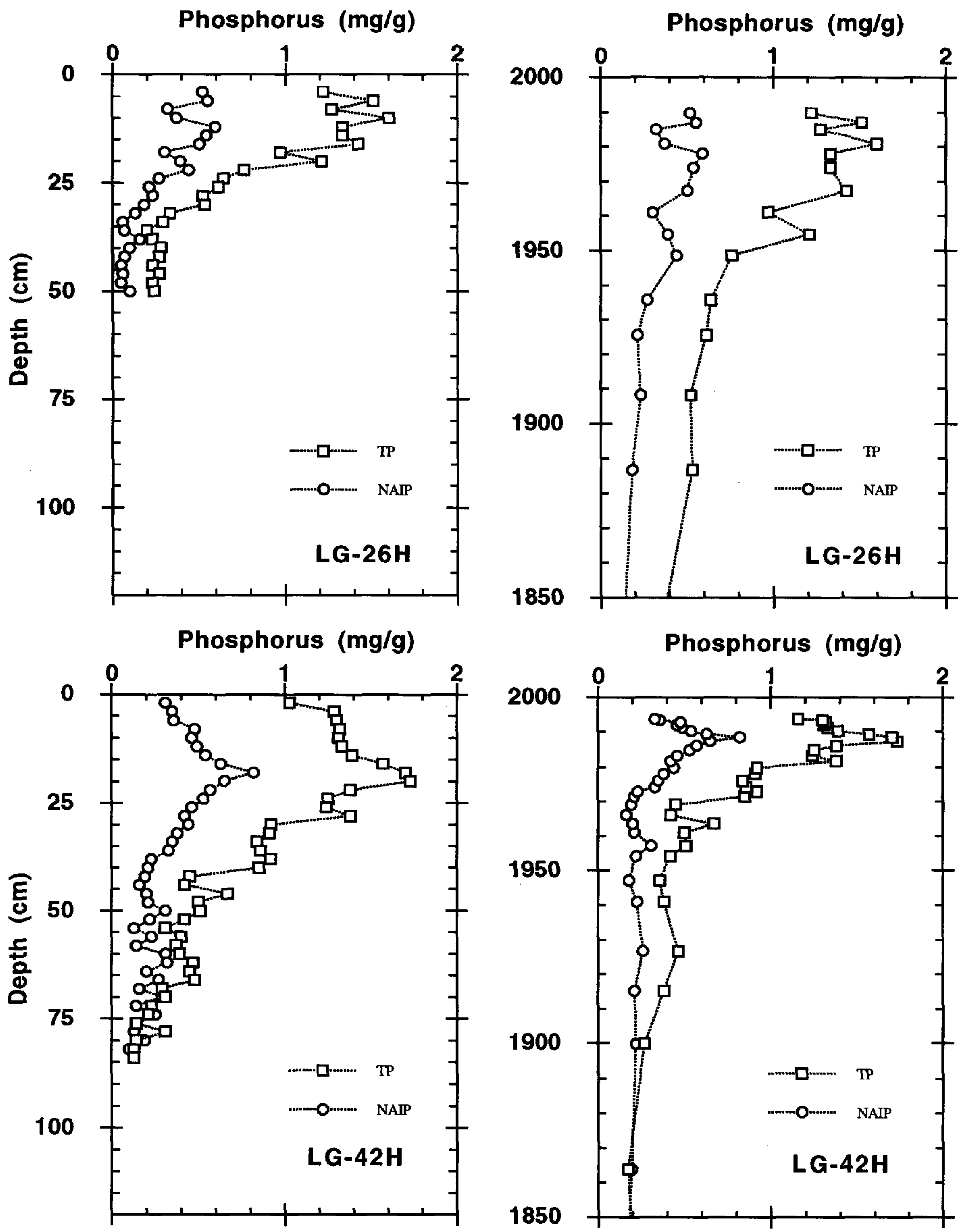


**Fig. 13B.** LG-26H and LG-42H.

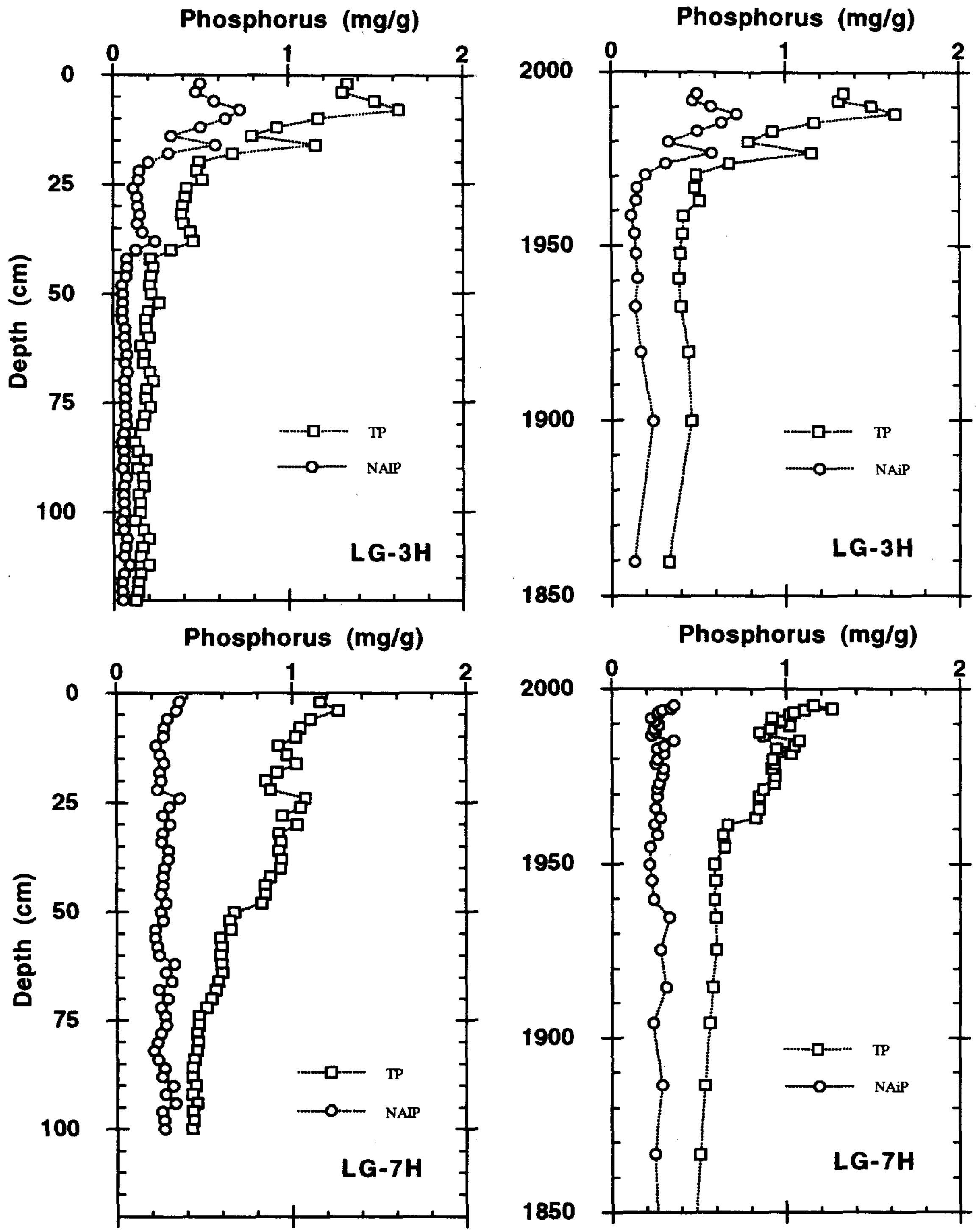


**Fig. 14A.** Plots of total phosphorus (TP) and non-apatite inorganic phosphorus (NAIP) vs. depth and date in Phase II historic cores. Data are in mg P/g dry sediment. Plots are presented consecutively by station. A. LG-3H and LG-7H.

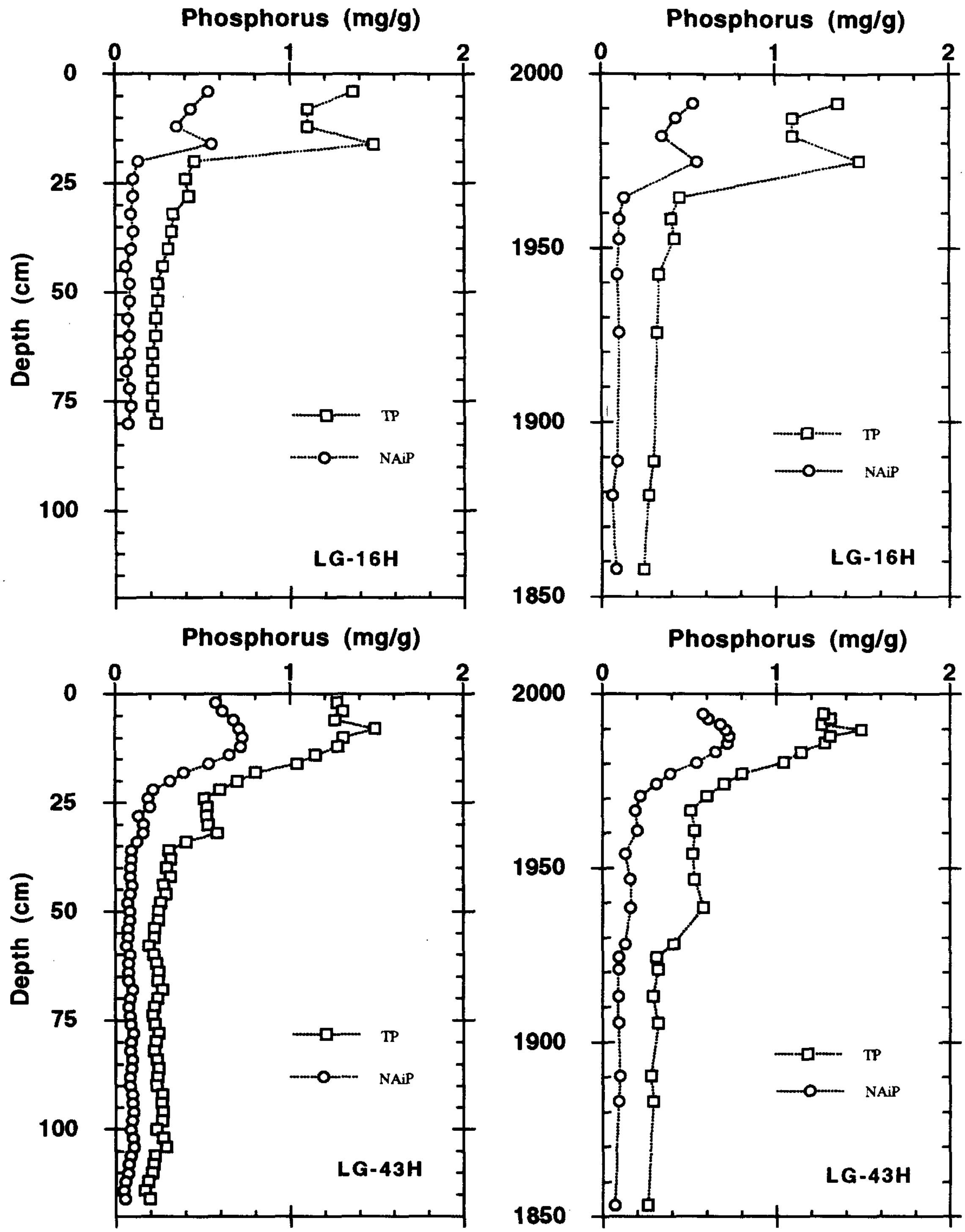


**Fig. 14B.** LG-16H and LG-43H.

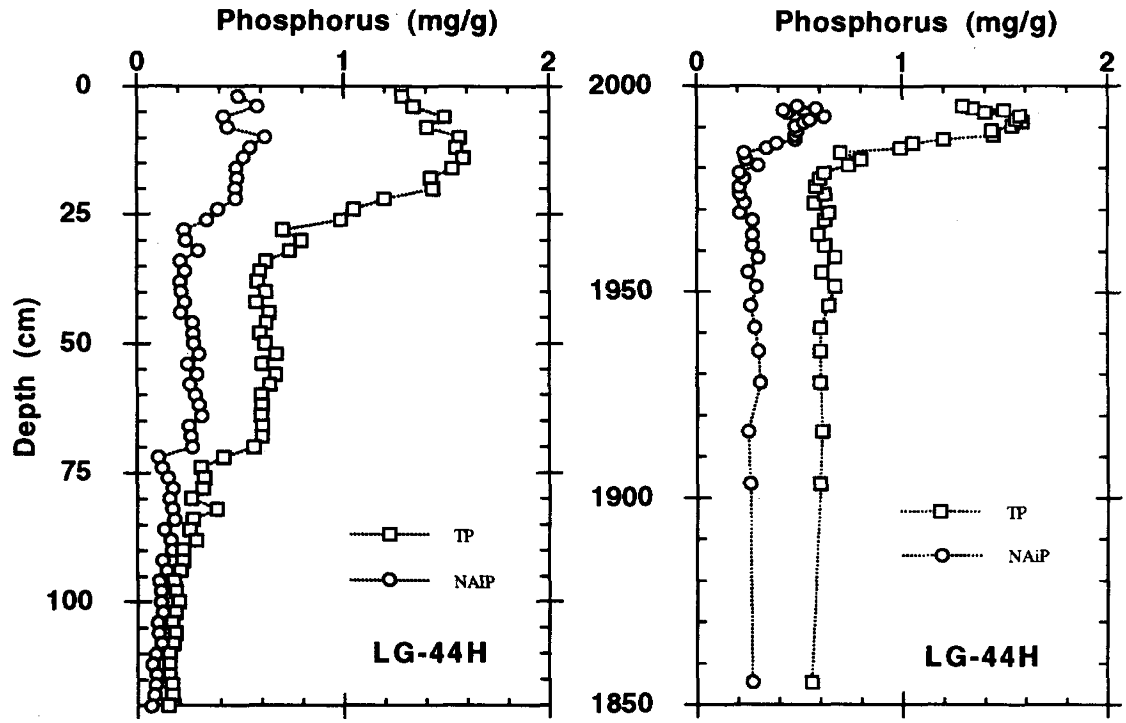


**Fig. 14C.** LG-44H.

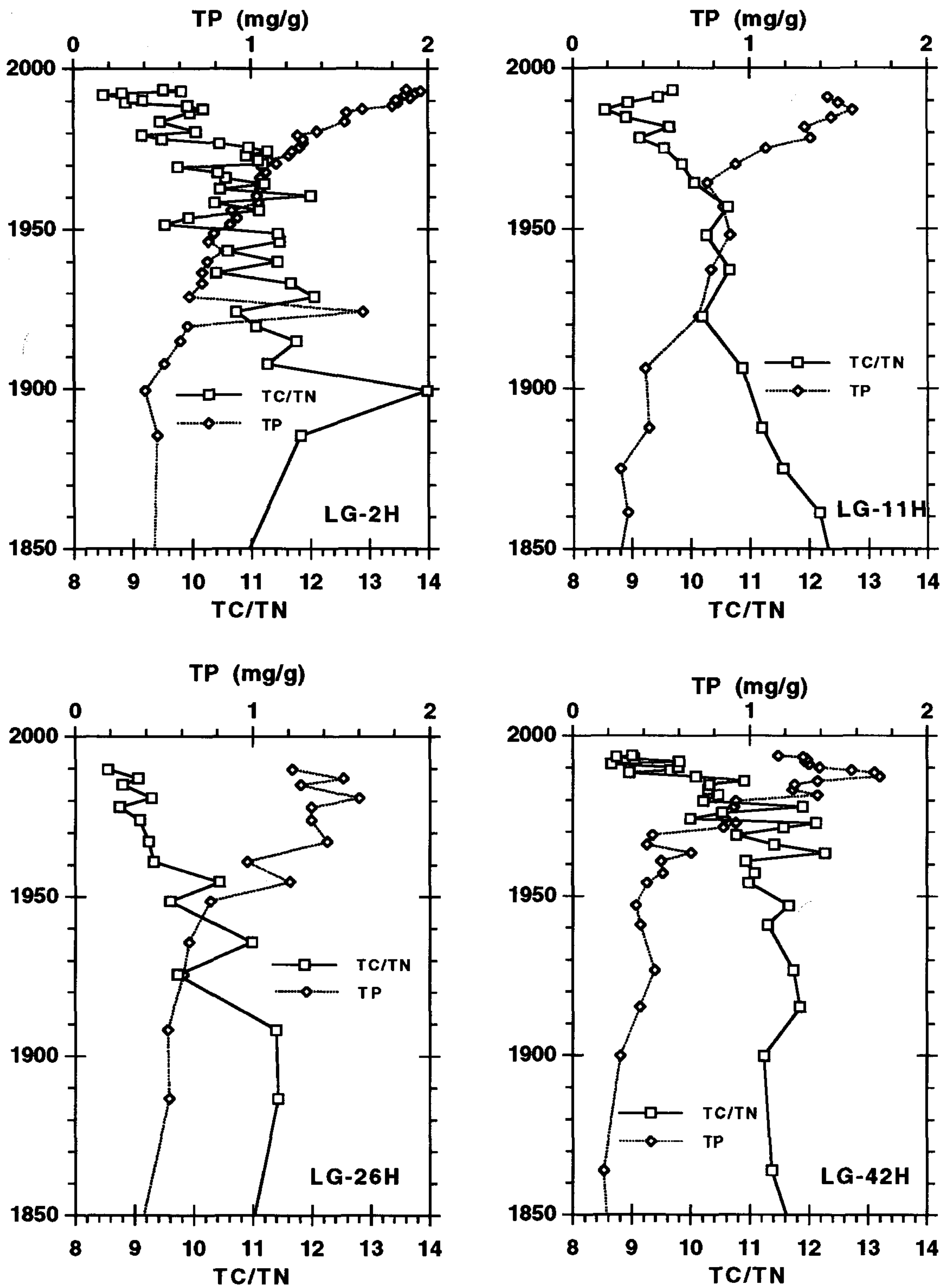


**Fig. 15.** Plots of total phosphorus (TP) and total carbon/total nitrogen ratio (TC/TN) vs. date in Phase I historic cores. Data are in mg P/g dry sediment and mass ratio of TC/TN.

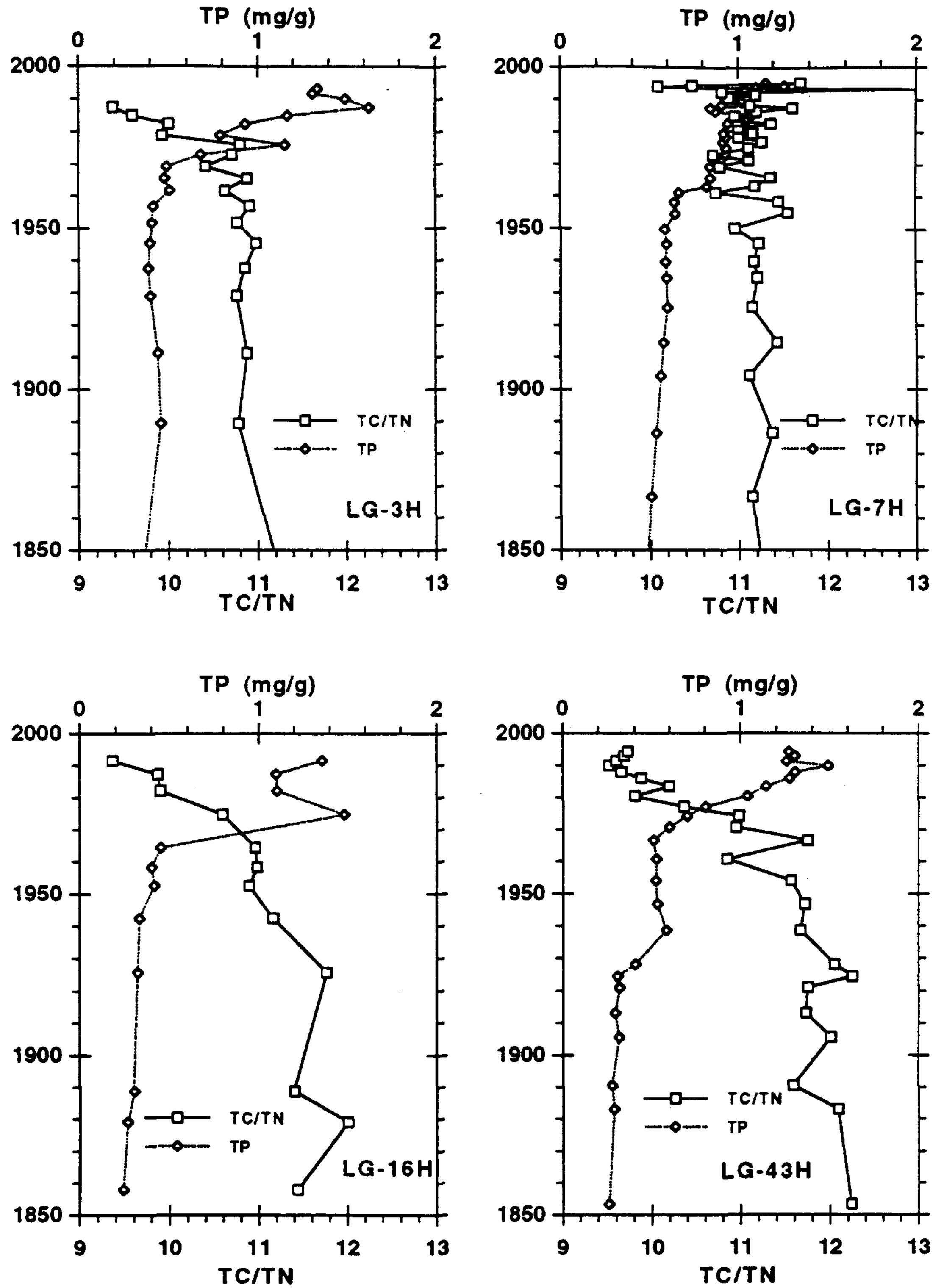


**Fig. 16A.** Plots of total phosphorus (TP) and total carbon/total nitrogen ratio (TC/TN) vs. date in Phase II historic cores. Data are in mg P/g dry sediment and mass ratio of TC/TN. Plots are presented consecutively by station. A. LG-3H, LG-7H, LG-16H and LG-43H.

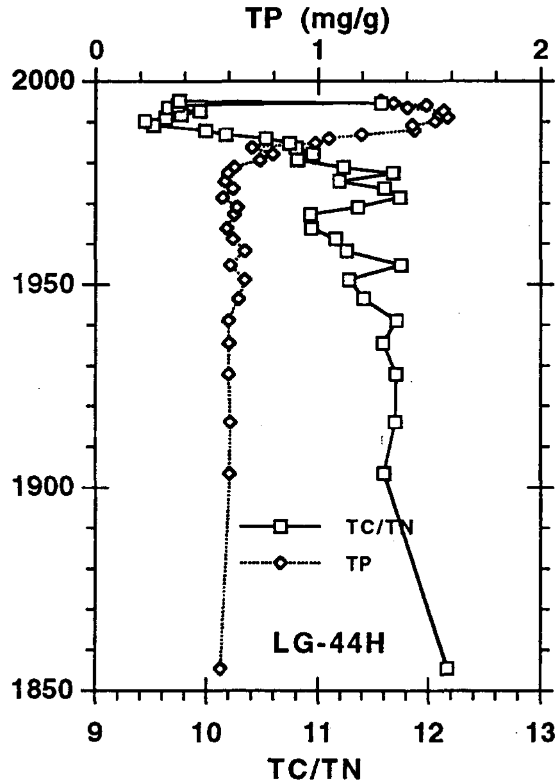


**Fig. 16B.** LG-44H.

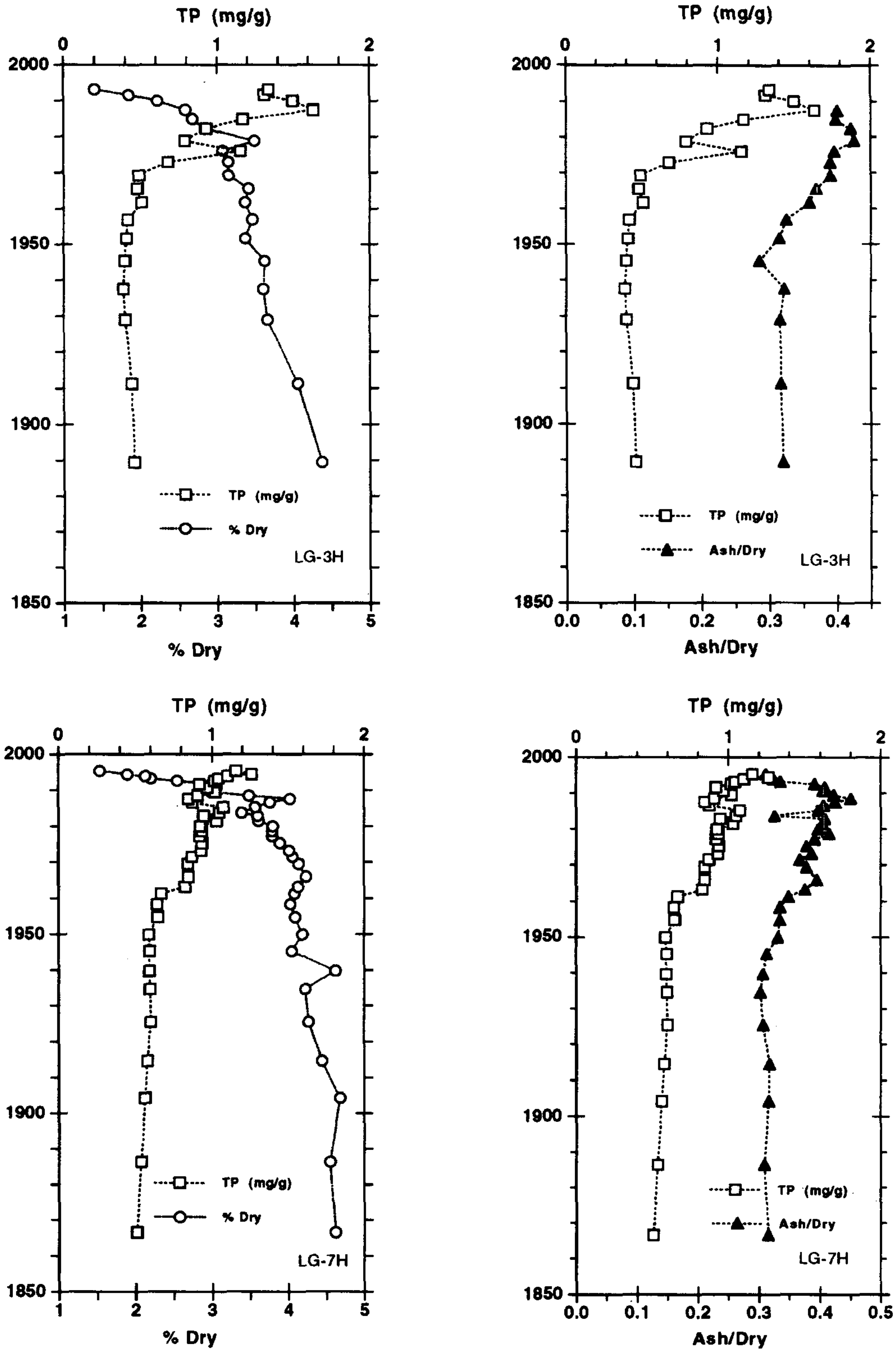


**Fig. 17A.** Plots of total phosphorus (TP) and % dry weight and TP and ash dry ratio vs.date in Phase II historic cores. Data are in mg P/g dry sediment and % and fraction of dry sediment. Plots are presented consecutively by station. A. LG-3H and LG-7H.

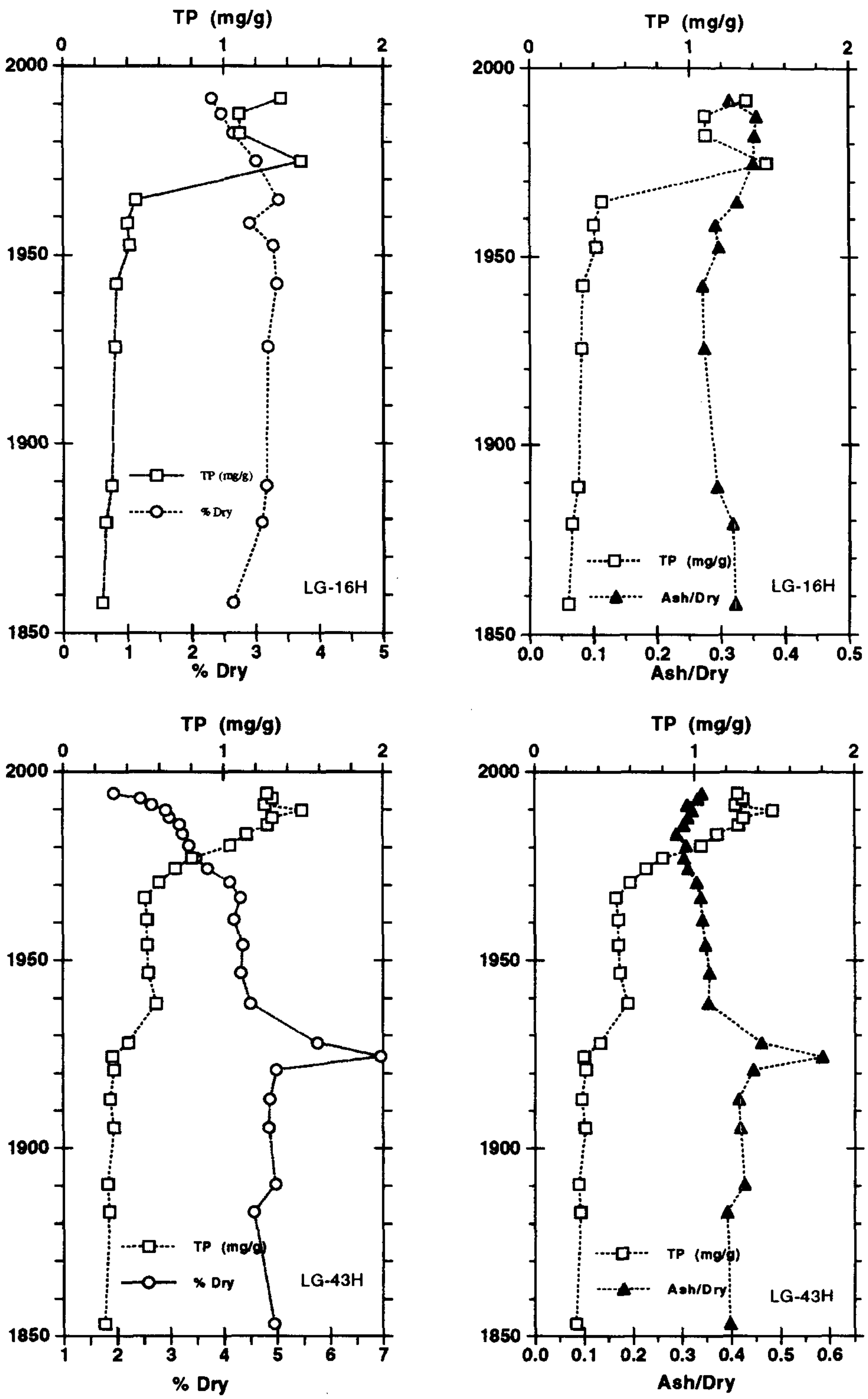


Fig. 17B. LG-16H and LG-43H.

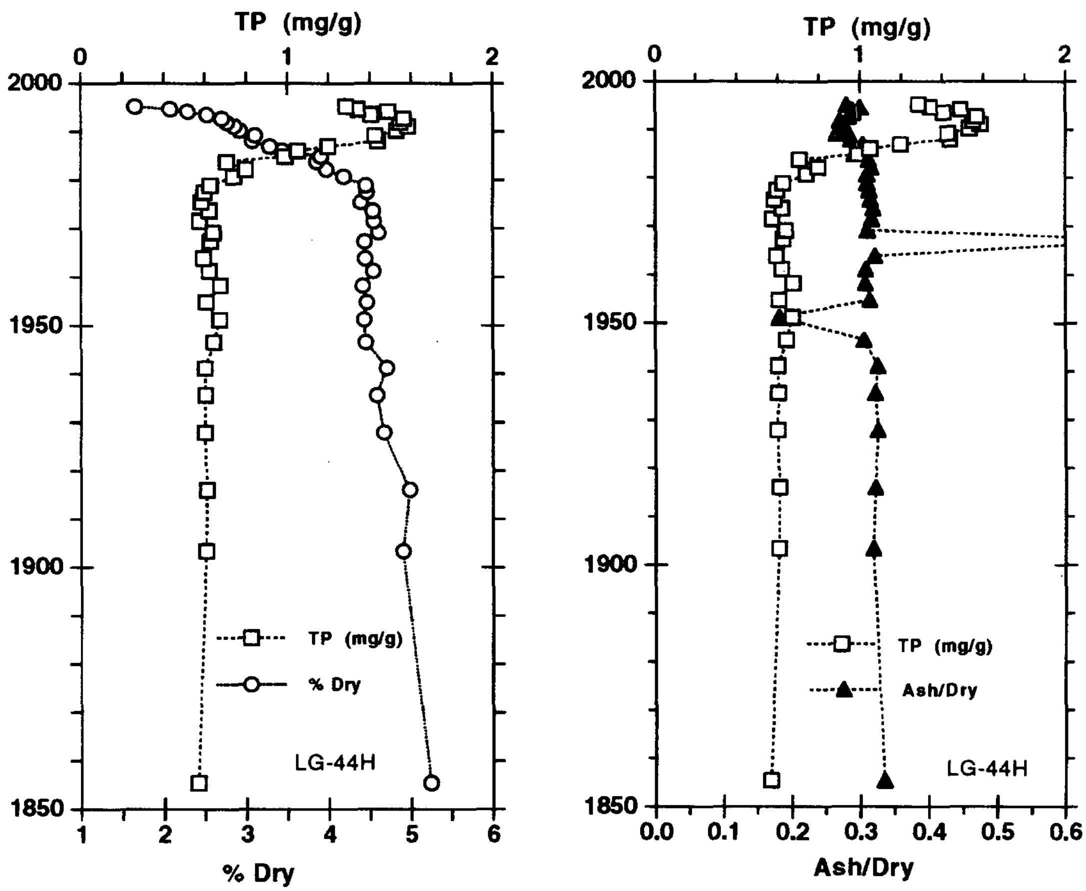


Fig. 17C. LG-44H.

TP from the baseline concentration was found in three of the five cores. The time dependence, however, was not consistent. Peaks occurred at approximately 1979 in LG-3H and 1989 in LG-7H, but at 1924 in LG-43H. Comparable stratigraphic features were not found in LG-16H and LG-44H even though LG-44H is a high sedimentation site. Thus LG-44H and LG-16H (a low sedimentation site) have no clear time-dependent stratigraphic marker in sediments deposited in the last 100 yr. Taken together, no feature that is stratigraphically correlated is evident in comparing the stratigraphy of all five cores.

Although time-dependent stratigraphic markers were not readily identifiable in historic cores, consistent depth relationships were found among some variables for depths that could be aged with $^{210}Pb$. Among these variables were % dry weight which increased with depth (see Fig. 17), TC/TN which generally was smaller at the tops of cores than at depth (see Figs. 15 and 16), and TP and NAIP concentration which were greater at tops of cores than at depth (see Figs. 13 and 14). Scatter plots of TP concentration and TC/TN in historic and survey cores show that TP decreases with increases in TC/TN, or that these variables covary with depth (Figs. 18A and B). At deeper depths in historic cores where TP and TC/TN are relatively constant, the relationship flattens out. These deeper depths were not sampled with 50-cm survey cores from Phase I. By contrast, the variation in LOI was relatively small (see Figs. 3 and 4).

The time dependence of the inflection from the baseline TP in historic cores was evaluated using data from Phase I and Phase II historic cores (Figs. 13 and 14). This analysis was confounded by differences among cores in the baseline TP concentration and in the time dependence of the inflection in TP concentration. A baseline concentration in the range of 0.2-0.3 mg/g could be identified in all cores except LG-41H and LG-7H . The baseline TP concentration in LG-41H was 0.6 mg/g; but a high baseline concentration was expected because several variables show this core was truncated. A baseline TP concentration >0.4 mg/g, however, was not expected for LG-7H, particularly because measurable excess $^{210}Pb$ was found only to a depth of 74 cm (1836) in this 100-cm core. The baseline TP concentration was 0.47 mg/g at 74 cm. A high TP concentration (0.56 mg/g) was found at 70 cm (1855) for LG-44H; the baseline concentration was 0.31 mg/g at 74 cm. LG-7H and LG-44H were the two high sedimentation cores collected during Phase II. An inflection concentration of 0.3 mg/g or less was found for the remaining historic cores, but the time dependence varied from below 1813 (92 cm, LG-2H) to 1882, an interpolated date (74 cm, LG-42H). Variability in time dependence and TP concentration of the inflection point shows that stratigraphic correlation has limited utility in establishing dates in survey cores. The error in establishing cumulative TP for the anthropogenic horizon, however, is relatively small at the selected depths in dated historic cores.

Stratigraphic features in profiles of TP, NAIP, TC/TN, fraction dry weight, and LOI were used to infer the initial point of anthropogenic disturbance in survey and historic cores (Tables 2-4). Given that phosphorus concentration increased markedly upcore, the increase in phosphorus concentration above a baseline was assumed to reflect anthropogenic disturbance.

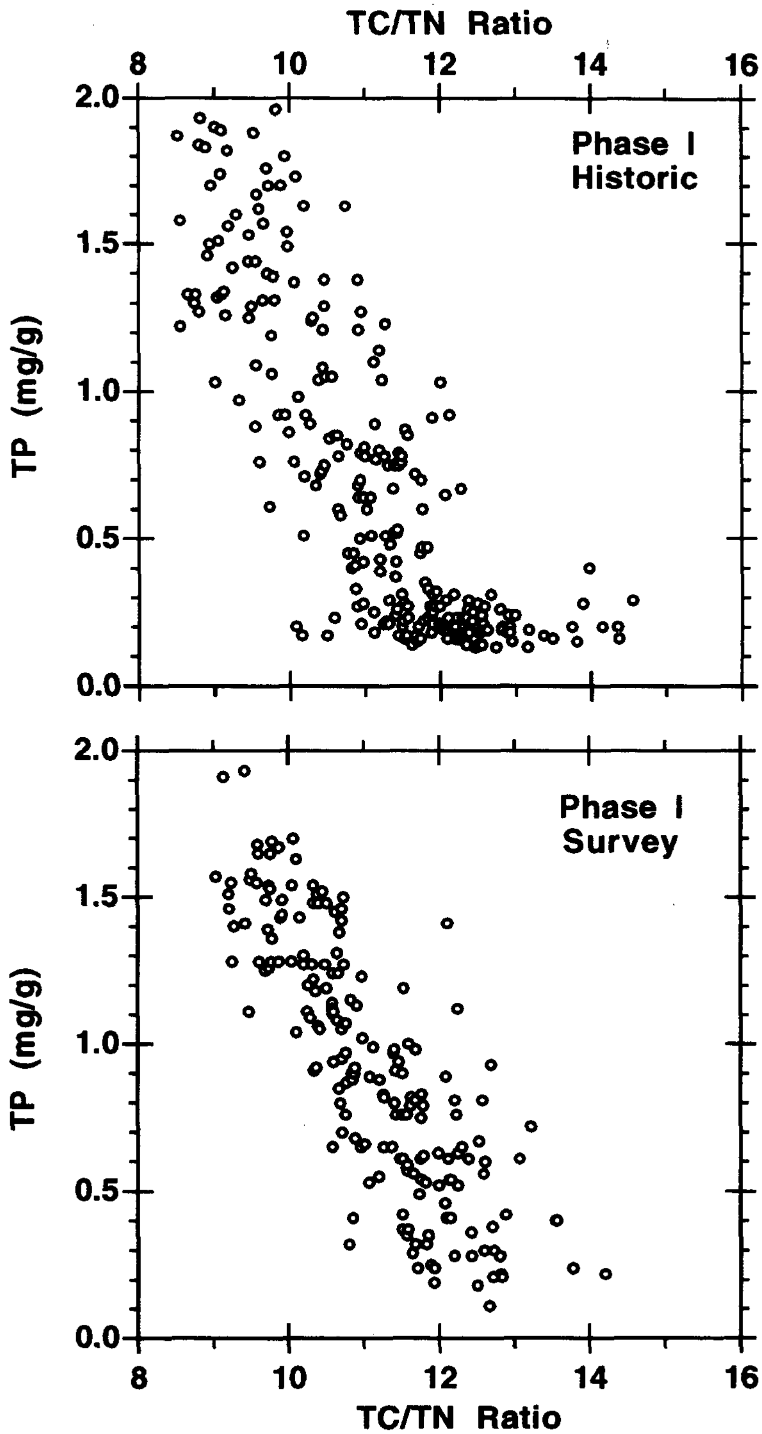


**Fig. 18A.** Scatter plots of TP (mg/g) and TC/TN ratio for Phase I and Phase II cores. A. Phase I historic and survey cores.

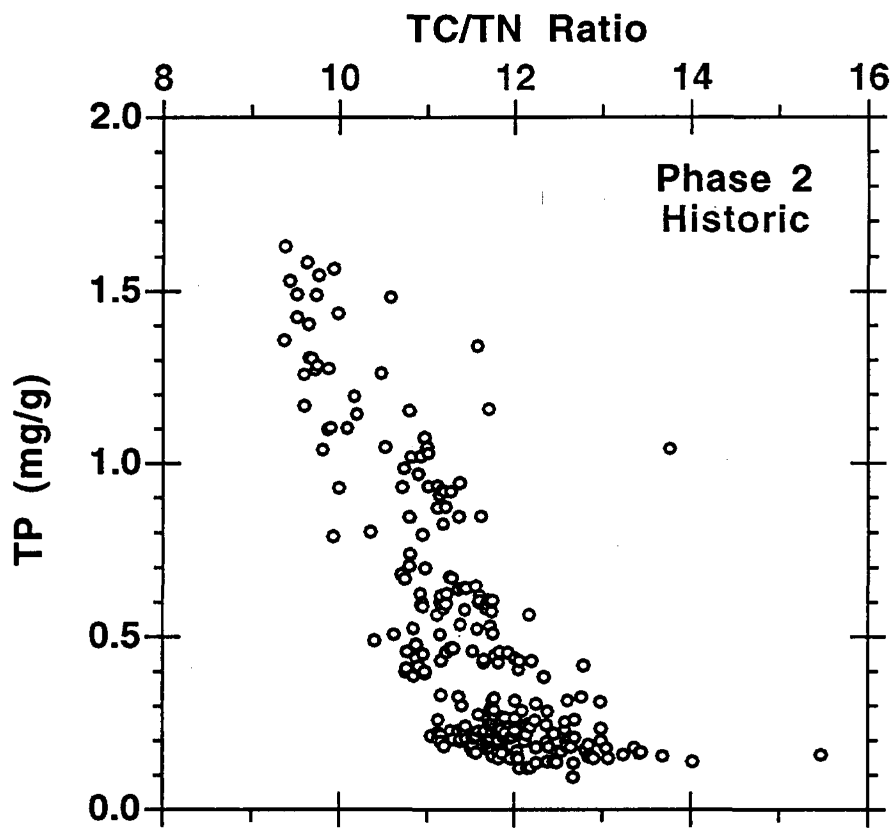


**Fig. 18B.** Phase II historic cores.

**Table 2.** Physical and chemical characteristics of sediments at the depth of anthropogenic disturbance for Phase I survey stations, Lake Griffin. Core 15 was on the border between the north and south basin and was divided equally between the south and north basin for the averages. Cum TP, Cum NAIP, and Cum Mass are considered to be zero for Cores 27 and 20 because sediments at these stations contain essentially no organic matter.

| Core Number | Depth (cm) | Dry Wt (%) | LOI (%) | TP (mg/g) | NAIP (mg/g) | TN (%) | TC (%) | TC/TN | Cum TP (mg cm$^{-2}$) | Cum NAIP (mg cm$^{-2}$) | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Embayment** | | | | | | | | | | | |
| 1 | 50 | 2.78 | 68.42 | 0.88 | 0.37 | 3.12 | 33.84 | 10.85 | 1.447 | 0.559 | 1.168 |
| 2 | 50 | 2.93 | 61.78 | 1.19 | 0.52 | 2.98 | 31.29 | 10.50 | 1.797 | 0.748 | 1.259 |
| 3 | 40 | 3.99 | 67.19 | 0.32 | 0.17 | 2.88 | 34.06 | 11.83 | 0.779 | 0.320 | 1.284 |
| **South** | | | | | | | | | | | |
| 4 | 50 | 4.09 | 55.31 | 0.91 | 0.53 | 2.67 | 30.50 | 11.42 | 1.615 | 0.873 | 1.494 |
| 5 | 40 | 4.16 | 54.90 | 0.32 | 0.16 | 2.68 | 31.30 | 11.68 | 0.967 | 0.481 | 1.290 |
| 6 | 50 | 4.98 | 36.52 | 0.53 | 0.33 | 2.77 | 30.66 | 11.07 | 1.324 | 0.780 | 1.493 |
| 7 | 40 | 3.31 | 57.32 | 0.65 | 0.28 | 2.81 | 31.65 | 11.26 | 1.160 | 0.724 | 1.085 |
| 8 | 50 | 3.73 | 62.42 | 0.95 | 0.57 | 2.75 | 29.46 | 10.71 | 1.709 | 1.012 | 1.539 |
| 10 | 30 | 2.67 | 62.58 | 0.65 | 0.26 | 2.79 | 31.72 | 11.37 | 0.653 | 0.351 | 0.746 |
| 11 | 30 | 3.14 | 55.95 | 0.61 | 0.29 | 2.56 | 29.50 | 11.52 | 0.869 | 0.366 | 0.809 |
| 12 | 30 | 3.07 | 56.15 | 0.57 | 0.36 | 2.34 | 27.10 | 11.58 | 0.921 | 0.484 | 0.798 |
| 13 | 50 | 3.42 | 62.80 | 0.49 | 0.27 | 2.66 | 31.22 | 11.74 | 1.295 | 0.672 | 1.413 |
| 14 | 50 | 3.96 | 58.81 | 0.99 | 0.84 | 2.69 | 29.91 | 11.12 | 1.720 | 1.289 | 1.523 |
| 15 | 50 | 4.19 | 60.95 | 0.80 | 0.77 | 2.93 | 31.31 | 10.69 | 1.587 | 1.163 | 1.506 |
| 24 | 30 | 4.57 | 59.85 | 0.35 | 0.21 | 2.59 | 30.73 | 11.86 | 0.519 | 0.277 | 1.189 |
| 25 | 20 | 4.19 | 45.15 | 0.52 | 0.18 | 2.51 | 30.13 | 12.00 | 0.502 | 0.282 | 0.461 |
| 26 | 40 | 3.47 | 59.90 | 0.37 | 0.16 | 2.81 | 32.38 | 11.52 | 0.811 | 0.432 | 1.144 |
| 27 | 10 | 78.6 | 0.94 | 0.03 | 0.02 | | 0.14 | | 0.000 | 0.000 | 0.000 |
| 37 | 50 | 3.74 | 63.55 | 0.36 | 0.21 | 2.73 | 33.94 | 12.43 | 1.322 | 0.692 | 1.507 |
| 38 | 50 | 3.67 | 62.06 | 0.52 | 0.23 | 2.57 | 31.47 | 12.25 | 1.202 | 0.549 | 1.367 |

**Table 2.** Continued.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **North** | | | | | | | | | | | |
| 9 | 50 | 4.35 | 52.17 | 0.54 | 0.30 | 2.58 | 31.32 | 12.14 | 1.742 | 0.859 | 1.577 |
| 16 | 50 | 2.67 | 64.10 | 0.41 | 0.32 | 2.62 | 31.71 | 12.10 | 1.124 | 0.852 | 1.376 |
| 17 | 10 | 2.17 | 61.09 | 1.11 | 0.84 | 2.93 | 27.78 | 9.48 | 0.243 | 1.036 | 0.219 |
| 18 | 50 | 3.28 | 65.06 | 0.54 | 0.39 | 2.93 | 34.45 | 11.76 | 1.037 | 0.648 | 1.524 |
| 19 | 50 | 3.35 | 65.49 | 0.65 | 0.54 | 3.21 | 33.97 | 10.58 | 1.313 | 0.879 | 1.618 |
| 20 | 10 | 75.79 | 0.97 | 0.02 | 0.03 | | 0.09 | | 0.000 | 0.000 | 0.000 |
| 21 | 50 | 3.18 | 65.91 | 0.67 | 0.30 | 2.69 | 33.71 | 12.53 | 1.354 | 0.655 | 1.526 |
| 22 | 40 | 3.06 | 72.41 | 0.30 | 0.13 | 2.90 | 36.91 | 12.73 | 0.603 | 0.291 | 1.060 |
| 23 | 50 | 3.46 | 70.39 | 0.38 | 0.21 | 2.85 | 36.21 | 12.71 | 0.960 | 0.474 | 1.536 |
| 28 | 50 | 3.27 | 57.59 | 0.61 | 0.28 | 2.60 | 33.97 | 13.07 | 1.305 | 0.571 | 1.352 |
| 29 | 50 | 4.63 | 61.03 | 0.81 | 0.41 | 2.45 | 30.82 | 12.58 | 1.710 | 0.829 | 1.732 |
| 30 | 50 | 3.96 | 64.78 | 1.41 | 0.49 | 2.36 | 28.58 | 12.11 | 2.271 | 1.164 | 1.674 |
| 31 | 50 | 4.32 | 64.32 | 0.68 | 0.33 | 3.13 | 34.07 | 10.88 | 1.841 | 0.950 | 1.688 |
| 32 | 50 | 4.12 | 64.96 | 0.72 | 0.39 | 2.51 | 33.19 | 13.22 | 1.623 | 0.829 | 1.607 |
| 33 | 50 | 4.08 | 62.70 | 0.81 | 0.47 | 2.73 | 33.32 | 12.21 | 1.688 | 0.923 | 1.738 |
| 34 | 50 | 4.02 | 66.93 | 0.55 | 0.29 | 3.02 | 33.82 | 11.20 | 1.078 | 0.509 | 1.461 |
| 35 | 30 | 2.87 | 68.25 | 0.35 | 0.27 | 2.96 | 34.24 | 11.57 | 0.773 | 0.391 | 0.860 |
| 36 | 50 | 3.73 | 67.11 | 0.56 | 0.27 | 2.95 | 34.39 | 11.66 | 1.403 | 0.624 | 1.654 |
| 39 | 50 | 2.97 | 69.55 | 0.58 | 0.28 | 3.07 | 35.51 | 11.57 | 1.318 | 0.639 | 1.465 |
| 40 | 40 | 3.72 | 62.90 | 0.40 | 0.17 | 2.50 | 33.92 | 13.57 | 1.106 | 0.544 | 1.307 |

**Table 3.** Physical and chemical characteristics of sediments at the depth of anthropogenic disturbance for Phase II survey stations, Lake Griffin.

| Station | Depth (cm) | Dry Wt (%) | LOI (%) | TP (mg/g) | NAIP (mg/g) | Cum TP (mg $cm^{-2}$) | Cum NAIP (mg $cm^{-2}$) | Cum Mass (g $cm^{-2}$) |
|---|---|---|---|---|---|---|---|---|
| **Embayment** | | | | | | | | |
| 1 | 95 | 5.04 | 52.1 | 0.303 | 0.177 | 2.174 | 0.800 | 2.784 |
| 2 | 110 | 4.17 | 64.6 | 0.209 | 0.067 | 2.015 | 0.762 | 3.641 |
| 3 | 60 | 4.09 | 59.9 | 0.227 | 0.070 | 1.274 | 0.349 | 1.782 |
| 4 | 75 | 5.04 | 50.6 | 0.285 | 0.101 | 1.600 | 0.572 | 2.907 |
| **North Basin** | | | | | | | | |
| 5 | 56 | 4.43 | 65.5 | 0.277 | 0.259 | 1.233 | 0.745 | 1.908 |
| 6 | 20 | 4.97 | 61.2 | 0.296 | 0.214 | 0.732 | 0.411 | 1.061 |
| 7 | 52 | 4.18 | 63.6 | 0.304 | 0.094 | 1.461 | 0.554 | 1.785 |
| 8 | 52 | 3.96 | 66.3 | 0.296 | 0.096 | 1.101 | 0.390 | 1.757 |
| 9 | 76 | 4.12 | 70.4 | 0.280 | 0.109 | 1.570 | 0.551 | 2.351 |
| 10 | 128 | 4.85 | 66.9 | 0.378 | 0.195 | 3.858 | 1.644 | 4.767 |
| 11 | 120 | 4.85 | 66.7 | 0.309 | 0.166 | 3.205 | 1.283 | 5.032 |
| 12 | 76 | 4.60 | 70.8 | 0.277 | 0.102 | 1.900 | 0.681 | 3.374 |
| 13 | 68 | 4.39 | 69.5 | 0.318 | 0.132 | 2.652 | 0.875 | 2.976 |
| 14 | 104 | 4.29 | 69.1 | 0.329 | 0.180 | 2.688 | 1.191 | 3.932 |
| 15 | 60 | 3.95 | 65.2 | 0.385 | 0.130 | 1.839 | 0.706 | 2.308 |
| 16 | 56 | 5.85 | 50.3 | 0.303 | 0.108 | 1.977 | 0.748 | 2.450 |
| 17 | 64 | 4.57 | 67.3 | 0.321 | 0.110 | 2.081 | 0.672 | 3.098 |
| 18 | 64 | 3.51 | 64.2 | 0.316 | 0.116 | 1.594 | 0.544 | 2.574 |
| 19 | 128 | 4.46 | 64.2 | 0.336 | 0.140 | 2.612 | 1.072 | 4.424 |
| 20 | 104 | 4.54 | 64.7 | 0.231 | 0.070 | 2.183 | 0.869 | 3.520 |

**Table 4.** Physical and chemical characteristics of sediments at the depth of anthropogenic disturbance for Phase I and Phase II historic stations, Lake Griffin. Data for LG-41H are included even though this truncated core was not dated.

| Station | Depth (cm) | Dry Wt (%) | LOI (%) | Cum Wt (g $cm^{-2}$) | TC (%) | TN (%) | TC/TN | TP (mg/g) | NAIP (mg/g) | Cum TP (mg $cm^{-2}$) | Cum NAIP (mg $cm^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Phase I** | | | | | | | | | | | |
| LG-2H | 92 | 4.48 | 68.1 | 3.197 | 32.6 | 2.70 | 12.1 | 0.287 | 0.189 | 3.197 | 1.525 |
| LG-11H | 38 | 3.80 | 61.7 | 1.057 | 30.7 | 2.48 | 12.4 | 0.255 | 0.085 | 0.848 | 0.293 |
| LG-26H | 34 | 4.44 | 59.1 | 1.093 | 29.3 | 2.43 | 12.1 | 0.205 | 0.074 | 0.840 | 0.305 |
| LG-41H | 78 | 4.88 | 68.7 | 2.729 | 35.0 | 3.29 | 10.6 | 0.604 | 0.338 | 2.529 | 1.232 |
| LG-42H | 74 | 10.51 | 26.7 | 2.765 | 19.0 | 1.69 | 11.2 | 0.205 | 0.249 | 1.934 | 0.858 |
| **Phase II** | | | | | | | | | | | |
| LG-3H | 42 | 5.21 | 53.7 | 1.394 | 28.1 | 2.53 | 11.1 | 0.210 | 0.075 | 0.881 | 0.364 |
| LG-7H | 76 | 4.51 | 65.7 | 2.691 | 32.2 | 2.85 | 11.3 | 0.467 | 0.278 | 2.106 | 0.722 |
| LG-16H | 56 | 2.96 | 65.5 | 1.974 | 32.4 | 2.78 | 11.7 | 0.230 | 0.071 | 1.093 | 0.359 |
| LG-43H | 54 | 4.75 | 60.3 | 2.187 | 29.5 | 2.46 | 12.0 | 0.226 | 0.073 | 1.237 | 0.516 |
| LG-44H | 74 | 8.88 | 33.8 | 3.038 | 20.9 | 1.61 | 13.0 | 0.312 | 0.122 | 2.312 | 0.870 |

## SEDIMENT AND PHOSPHORUS ACCUMULATION RATE

Decadal MSR since 1895 (last 100 yr) varied widely among the nine historic cores (Table 5) as expected from the primary data on MSR (see Figs. 19 and 20). Decadal averages, which were calculated based on age-weighting of MSR data (Appendix F), varied from 14.7 to 66.1 mg dry sediment $cm^{-2}$ $yr^{-1}$ for the most recent decade (1985-1994). Cores with the highest rates were LG-44H, LG-7H, LG-42H and LG-2H, as expected from age/depth relationships (Fig. 11). The rate at LG-44H for the most recent decade was 66.1 mg dry sediment $cm^{-2}$ $yr^{-1}$, somewhat greater than rates for the other three cores which ranged from 51.6 to 58.1 mg dry sediment $cm^{-2}$ $yr^{-1}$. The mean MSR of all cores in the most recent decade increased approximately 2.2 fold since the decade from 1945-1954 (50 yr before present) and approximately 4.4 fold since the decade ending in 1914 (90 yr). Decadal sedimentation rates were also calculated for TP, NAIP, organic matter (OM), and inorganic or non-volatile solids (NVS). Trends in these rates among cores were similar as shown below because all use MSR as one variable in the calculated product. In addition, organic matter is the major component of dry sediment, comprising >60% in most sediment samples that were aged with $^{210}Pb$ dating. Thus, the four cores with the highest MSR were also the four cores with the highest rates of sedimentation for TP, NAIP, OM, and NVS.

Changes in decadal total phosphorus accumulation rates (TPAR) over time among the nine historic cores were compared to determine if patterns were similar (Table 6). TPAR was calculated as the product of MSR and TP concentration, both of which increase with time. Therefore, TPAR was greatest for the four cores (LG-2H, LG-7H, LG-42H, and LG-44H) with high MSR (Figs. 19 and 20) which were readily identifiable in age/depth plots (Fig. 11). For most cores, TPAR increased at a greater rate than MSR, particularly in cores with high MSR. This greater increase occurred because both TP concentration and MSR increased upcore. The mean relative increase in decadal MSR was only 7.0 fold (Table 5) whereas the mean relative increase in decadal TPAR was 22 fold (Table 6) when the most recent decade (10 yr) was compared to 1895-1904 (91-100 yr before present). Lower TP accumulation rates were found in the five cores with lower MSR (Figs. 19 and 20). Rates for both variables increased markedly in all cores after 1950 with smaller increases from 1900 to 1950. Maxima in TPAR among cores ranged from 25-35 $\mu$g TP $cm^{-2}$ $yr^{-1}$ for cores LG-11H, LG-26H, LG-3H and LG-16H to >100 $\mu$g TP $cm^{-2}$ $yr^{-1}$ for cores LG-2H, LG-42H, and LG-44H. TPAR, therefore, varied greatly among cores with the differences being determined largely by differences in MSR.

The relative increase in decadal TPAR normalized to the 1900 rate (100 yr) was at least 13 fold in all cores and was 25 fold and 52 fold for LG-2H and LG-44H, respectively (Fig. 21). Data are decadal averages (Table 6) plotted for 10-year intervals beginning with 1900 which is approximately the mid-date for each decade. The relative increase in TPAR for all historic cores was greater after 1950 than for the 1900-1950 period. It should be noted that MSR and TPAR calculated for the most recent sediments, particularly at high sedimentation sites, represent

**Table 5.** Decadal mass sedimentation rates (MSR, mg $cm^{-2}$ $yr^{-1}$) by years since core collection. MSR (upper half) calculated from $^{210}Pb$ geochronology using a CRS model and change in MSR (bottom half) relative to the base decade (91-100 yrs) are shown for nine historic cores. Averages (Avg) by decade for both sets of data are presented for the nine cores.

| Yrs | Avg | 2H | 3H | 7H | 11H | 16H | 26H | 42H | 43H | 44H |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 36.76 | 51.56 | 19.58 | 58.12 | 18.02 | 19.03 | 14.65 | 53.39 | 30.37 | 66.09 |
| 20 | 31.04 | 40.99 | 20.05 | 50.45 | 12.78 | 22.47 | 12.52 | 41.16 | 22.38 | 56.57 |
| 30 | 26.80 | 40.21 | 18.49 | 35.31 | 10.90 | 29.39 | 10.26 | 39.32 | 20.57 | 36.72 |
| 40 | 20.06 | 33.59 | 15.73 | 27.60 | 8.35 | 21.14 | 9.70 | 23.90 | 13.56 | 27.01 |
| 50 | 16.39 | 27.04 | 12.44 | 18.11 | 6.85 | 17.71 | 7.85 | 24.92 | 12.22 | 20.39 |
| 60 | 13.06 | 23.30 | 9.14 | 14.89 | 5.57 | 12.78 | 6.38 | 17.20 | 10.71 | 17.57 |
| 70 | 11.29 | 19.05 | 7.59 | 9.48 | 4.17 | 11.20 | 8.75 | 12.60 | 17.12 | 11.64 |
| 80 | 10.11 | 16.98 | 5.25 | 8.44 | 4.36 | 5.23 | 6.41 | 14.18 | 22.30 | 7.90 |
| 90 | 8.36 | 10.93 | 4.41 | 7.69 | 4.42 | 5.17 | 5.70 | 19.08 | 11.66 | 6.23 |
| 100 | 6.16 | 8.38 | 3.77 | 5.50 | 4.50 | 5.17 | 4.61 | 13.51 | 6.99 | 2.99 |
| | | | | | | | | | | |
| 10 | 7.02 | 6.15 | 5.20 | 10.57 | 4.01 | 3.68 | 3.17 | 3.95 | 4.34 | 22.09 |
| 20 | 6.05 | 4.89 | 5.32 | 9.18 | 2.84 | 4.34 | 2.71 | 3.05 | 3.20 | 18.91 |
| 30 | 4.95 | 4.80 | 4.91 | 6.42 | 2.42 | 5.68 | 2.22 | 2.91 | 2.94 | 12.27 |
| 40 | 3.78 | 4.01 | 4.18 | 5.02 | 1.86 | 4.09 | 2.10 | 1.77 | 1.94 | 9.03 |
| 50 | 2.99 | 3.23 | 3.30 | 3.29 | 1.52 | 3.42 | 1.70 | 1.84 | 1.75 | 6.81 |
| 60 | 2.41 | 2.78 | 2.43 | 2.71 | 1.24 | 2.47 | 1.38 | 1.27 | 1.53 | 5.87 |
| 70 | 2.03 | 2.27 | 2.02 | 1.72 | 0.93 | 2.16 | 1.90 | 0.93 | 2.45 | 3.89 |
| 80 | 1.69 | 2.02 | 1.39 | 1.53 | 0.97 | 1.01 | 1.39 | 1.05 | 3.19 | 2.64 |
| 90 | 1.36 | 1.30 | 1.17 | 1.40 | 0.98 | 1.00 | 1.24 | 1.41 | 1.67 | 2.08 |
| 100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

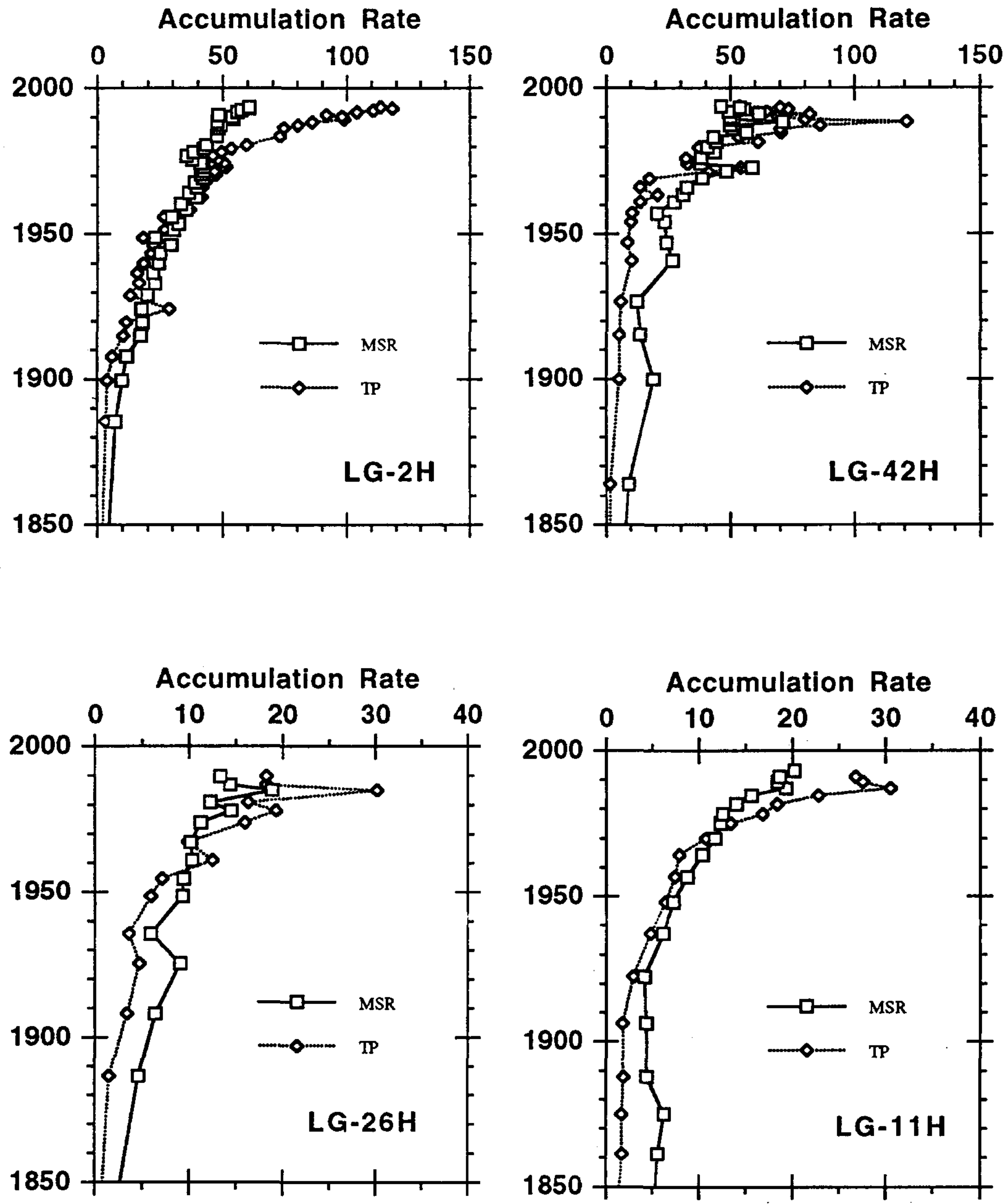


**Fig. 19.** Plots of mass sedimentation rate (MSR in mg $cm^{-2}$ $yr^{-1}$) and TP accumulation rate (TPAR in µg $cm^{-2}$ $yr^{-1}$) vs. date for Phase I historic cores.

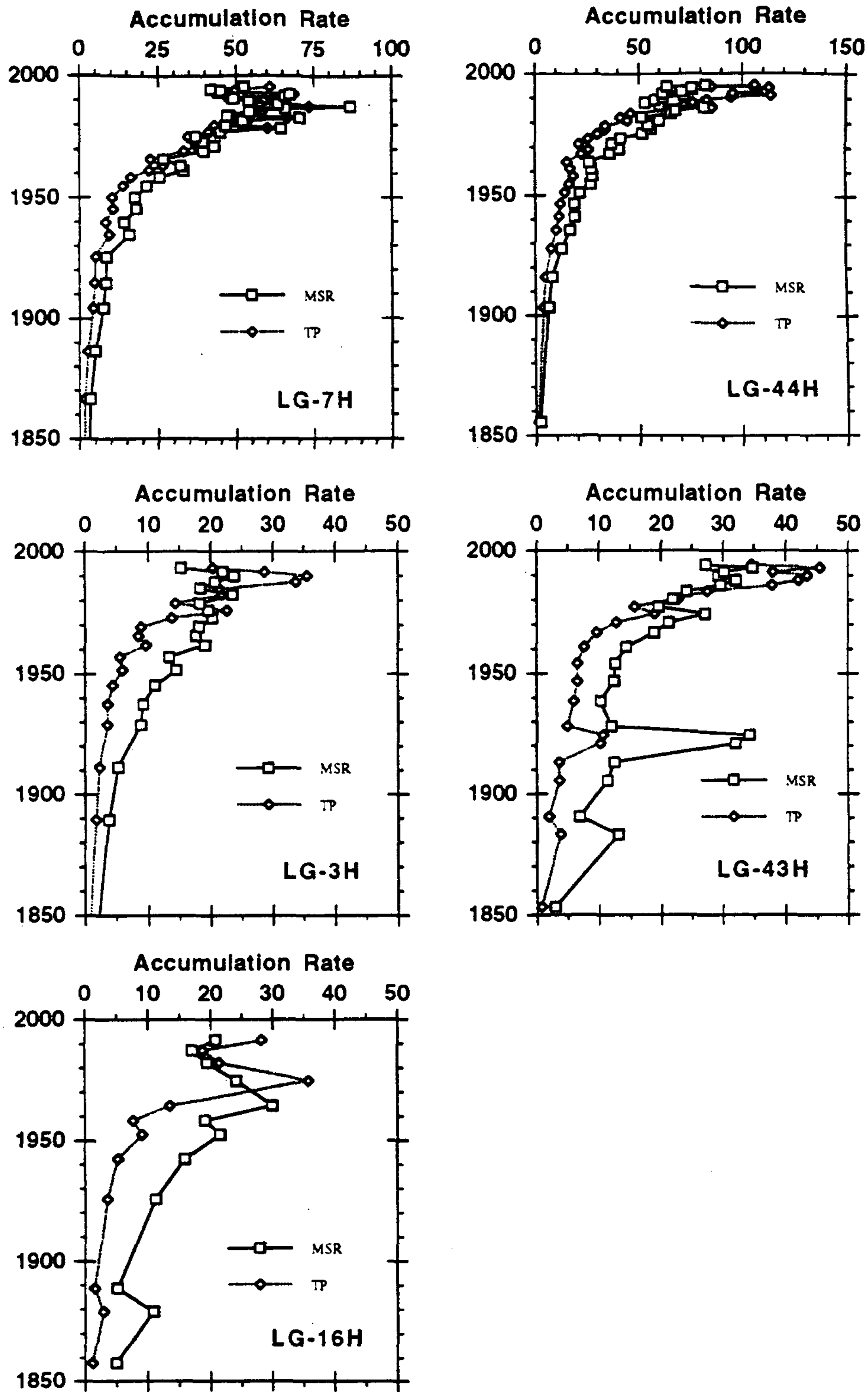


**Fig. 20.** Plots of mass sedimentation rate (MSR in mg $cm^{-2}$ $yr^{-1}$) and TP accumulation rate (TPAR in µg $cm^{-2}$ $yr^{-1}$) vs. date for Phase II historic cores.

**Table 6.** Decadal total phosphorus accumulation rates (TPAR, µg $cm^{-2}$ $yr^{-1}$) by years since core collection. TPAR (upper half) calculated from $^{210}Pb$ geochronology using a CRS model and change in TPAR relative to the base decade (91-100 yrs) are shown for nine historic cores. Averages (Avg) by decade for both sets of data are presented for the nine cores.

| Yrs | Avg | 2H | 3H | 7H | 11H | 16H | 26H | 42H | 43H | 44H |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 50.25 | 90.15 | 27.69 | 57.24 | 26.70 | 23.22 | 20.50 | 75.87 | 39.83 | 91.04 |
| 20 | 31.97 | 54.23 | 19.12 | 48.96 | 15.58 | 30.66 | 17.01 | 41.54 | 21.08 | 39.53 |
| 30 | 20.03 | 44.01 | 10.03 | 30.95 | 9.11 | 15.80 | 10.85 | 25.18 | 11.95 | 22.42 |
| 40 | 13.41 | 33.22 | 7.20 | 19.44 | 7.17 | 8.75 | 8.89 | 11.95 | 7.11 | 16.94 |
| 50 | 9.34 | 22.26 | 4.99 | 10.83 | 5.84 | 6.45 | 4.95 | 9.09 | 6.52 | 13.14 |
| 60 | 7.26 | 17.32 | 3.56 | 8.82 | 4.25 | 4.18 | 3.77 | 7.23 | 5.65 | 10.54 |
| 70 | 6.57 | 20.51 | 3.10 | 5.68 | 2.96 | 3.62 | 4.52 | 5.59 | 6.17 | 6.99 |
| 80 | 4.62 | 10.55 | 2.31 | 4.88 | 1.94 | 1.58 | 3.40 | 5.27 | 6.89 | 4.79 |
| 90 | 3.32 | 5.18 | 1.98 | 4.34 | 1.82 | 1.56 | 2.67 | 4.92 | 3.61 | 3.76 |
| 100 | 2.24 | 3.61 | 1.72 | 2.98 | 1.95 | 1.56 | 1.53 | 3.12 | 1.94 | 1.74 |
| 10 | 22.15 | 24.99 | 16.09 | 19.22 | 13.71 | 14.86 | 13.38 | 24.34 | 20.49 | 52.24 |
| 20 | 14.24 | 15.04 | 11.11 | 16.44 | 8.00 | 19.62 | 11.10 | 13.33 | 10.84 | 22.68 |
| 30 | 8.60 | 12.20 | 5.83 | 10.39 | 4.68 | 10.11 | 7.08 | 8.08 | 6.14 | 12.86 |
| 40 | 5.80 | 9.21 | 4.19 | 6.53 | 3.68 | 5.60 | 5.80 | 3.83 | 3.65 | 9.72 |
| 50 | 4.10 | 6.17 | 2.90 | 3.64 | 3.00 | 4.13 | 3.23 | 2.92 | 3.35 | 7.54 |
| 60 | 3.16 | 4.80 | 2.07 | 2.96 | 2.18 | 2.67 | 2.46 | 2.32 | 2.90 | 6.04 |
| 70 | 2.80 | 5.69 | 1.80 | 1.91 | 1.52 | 2.32 | 2.95 | 1.79 | 3.18 | 4.01 |
| 80 | 2.01 | 2.92 | 1.34 | 1.64 | 1.00 | 1.01 | 2.22 | 1.69 | 3.54 | 2.75 |
| 90 | 1.48 | 1.43 | 1.15 | 1.46 | 0.94 | 1.00 | 1.74 | 1.58 | 1.86 | 2.16 |
| 100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

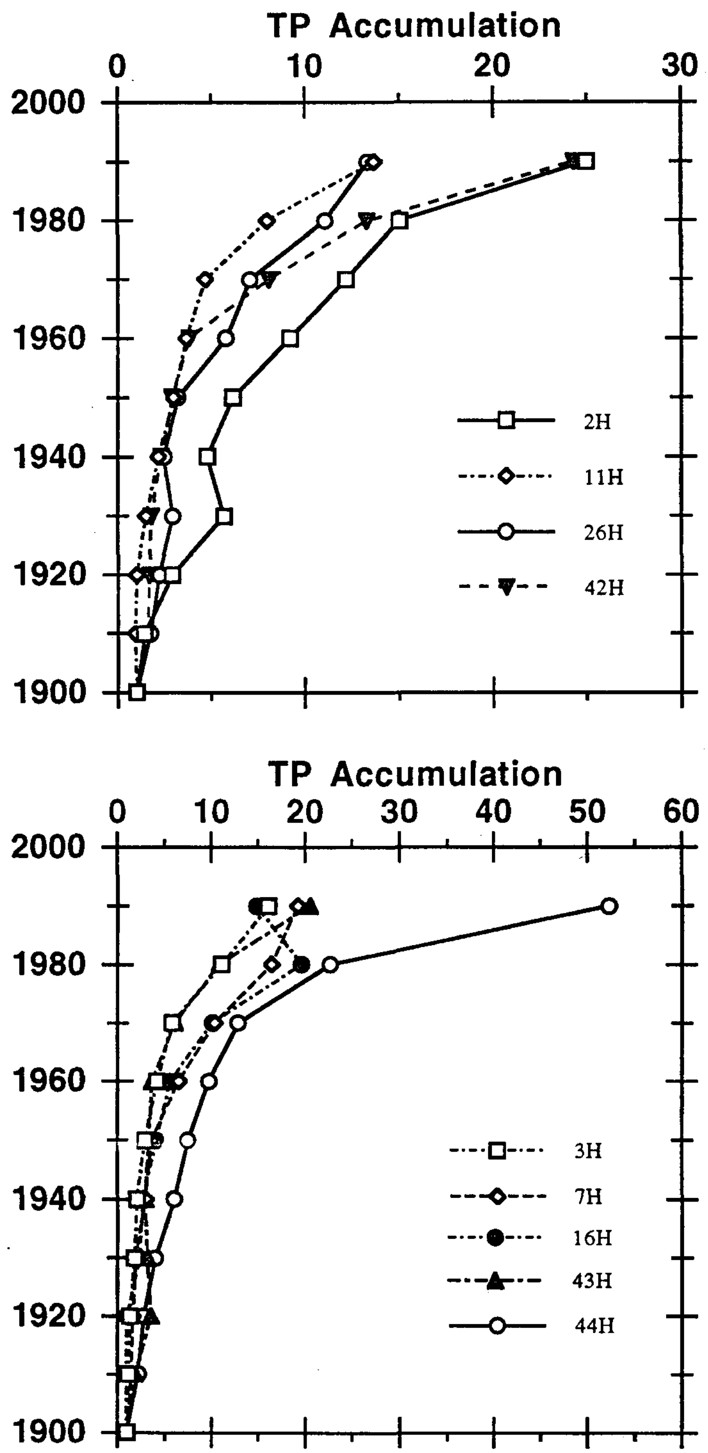


**Fig. 21.** Plots of relative increase in TP accumulation rate (TPAR in μg $cm^{-2}$ $yr^{-1}$) vs. date for Phase I and Phase II historic cores. The relative increase for each core was based on an estimated 1900 rate for each core. Phase I cores are plotted in the upper panel and Phase II cores in the lower panel.

relatively little sediment mass compared to deeper depths. Thus, in terms of sediment mass, several sections at the top of a core must be summed to obtain a sediment mass comparable to deeper depths or to obtain a specified time span such as that used to calculate decadal MSR or TPAR rates (see Appendix F).

Decadal changes in TPAR since the base decade 1895-1904 (100 yr, Table 6) were much greater than changes in MSR (Tables 5) because TP concentration increased upcore since 1900 (Figs. 13 and 14). Highest decadal TPAR in the 1985-1994 decade (10 yr) were found for the four cores (LG-44H, LG-7H, LG-42H and LG-2H) with the highest decadal MSR; but unlike MSR, TPAR at LG-2H (90.2 μg TP $cm^{-2}$ $yr^{-1}$) was essentially the same as LG-44H (91.0 μg TP $cm^{-2}$ $yr^{-1}$), the core with the highest MSR. Rates for LG-42H (75.9 μg TP $cm^{-2}$ $yr^{-1}$) and LG-7H (57.2 μg TP $cm^{-2}$ $yr^{-1}$) were lower, but greater than rates at the remaining stations which ranged from 20.5 μg TP $cm^{-2}$ $yr^{-1}$ at LG-26H to 39.8 μg TP $cm^{-2}$ $yr^{-1}$ at LG-43H. Mean TPAR in the most recent decade increased 5.4 fold compared to the 1945-54 decade (50 yr) and 11 times compared to the 1915-24 decade (80 yr). The mean relative increase in the most recent decade was 22 times greater than the rate for the oldest decade (1895-1904). Among cores, the relative increase in rate in the most recent decade compared to the oldest decade varied nearly 4 fold, from a 13.4-fold increase for LG-26H to a 52.2-fold increase for LG-44H. The average rate in the most recent decade for the nine historic cores was 50.3 μg TP $cm^{-2}$ $yr^{-1}$.

Decadal changes in NAIPAR since the base decade 1895-1904 (Table 7) were similar to those for TPAR (Table 6) with some important differences. Highest decadal rates in the 1985-1994 decade (10 yr) were also found at LG-2H (37.0 μg NAIP $cm^{-2}$ $yr^{-1}$), LG-44H (31.9 μg NAIP $cm^{-2}$ $yr^{-1}$), and LG-42H (29.8 μg NAIP $cm^{-2}$ $yr^{-1}$); but NAIPAR (20.6 μg NAIP $cm^{-2}$ $yr^{-1}$) at LG-43H, a core with a low sedimentation rate (see Fig. 11), was greater than that for LG-7H (15.6 μg NAIP $cm^{-2}$ $yr^{-1}$), a core with a high sedimentation rate. This difference must be attributed to differences in NAIP/TP ratio at the two stations. NAIPAR in the 1985-1994 decade ranged from 6.4 μg NAIP $cm^{-2}$ $yr^{-1}$ to 11.6 μg NAIP $cm^{-2}$ $yr^{-1}$ at the remaining stations. The average relative increase in NAIPAR was 19 fold compared to an average relative increase in TPAR of 22 fold (Table 6).

Decadal organic matter sedimentation rate (OMSR) since the base decade 1895-1904 (Table 8) varied among the nine cores in patterns similar to those for MSR (Table 5). Cores with the highest OMSR in the 1985-1994 decade (10 yr) were also LG-44H, LG-7H, LG-42H and LG-2H. The highest rate, 47.1 mg OM $cm^{-2}$ $yr^{-1}$, was found for LG-44H and rates for the other high sedimentation rate cores ranged from 34.3 to 37.3 mg OM $cm^{-2}$ $yr^{-1}$. Decadal OMSR rates at the five low sedimentation rate stations ranged from 9.4 to 20.7 mg OM $cm^{-2}$ $yr^{-1}$ in the most recent decade. Mean decadal OMSR increased 2.3 fold since the decade from 1945-1954 (50 yr) and increased 3.7 fold since the decade ending in 1934 (70 yr) and increased only 2.0 fold from the base decade (1895-1904) to the 70-yr decade (1925-1934).

**Table 7.** Decadal non-apatite inorganic phosphorus accumulation rates (NAIPAR, µg $cm^{-2}$ $yr^{-1}$) by years since core collection. NAIPAR (upper half) calculated from $^{210}Pb$ geochronology using a CRS model and change in NAIPAR (bottom half) relative to the base decade (91-100 yrs) are shown for nine historic cores. Averages (Avg) by decade for both sets of data are presented for the nine cores.

| Yrs | Avg | 2H | 3H | 7H | 11H | 16H | 26H | 42H | 43H | 44H |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 19.04 | 36.97 | 11.59 | 15.55 | 9.69 | 8.82 | 6.43 | 29.79 | 20.55 | 31.94 |
| 20 | 12.23 | 21.70 | 9.41 | 14.36 | 5.90 | 10.98 | 6.82 | 16.19 | 10.91 | 13.82 |
| 30 | 7.00 | 17.73 | 4.01 | 9.28 | 2.77 | 4.76 | 3.42 | 7.86 | 4.65 | 8.54 |
| 40 | 5.31 | 14.68 | 2.04 | 7.06 | 2.21 | 2.19 | 4.03 | 5.92 | 2.30 | 7.38 |
| 50 | 4.22 | 14.73 | 1.71 | 4.01 | 1.66 | 1.67 | 1.99 | 4.82 | 1.90 | 5.50 |
| 60 | 3.70 | 13.13 | 1.35 | 4.11 | 1.19 | 1.25 | 1.39 | 4.15 | 1.58 | 5.11 |
| 70 | 2.97 | 10.40 | 1.09 | 2.74 | 0.95 | 1.16 | 1.99 | 3.06 | 1.87 | 3.50 |
| 80 | 2.31 | 7.74 | 0.87 | 2.61 | 0.94 | 0.49 | 1.14 | 3.00 | 2.03 | 1.99 |
| 90 | 1.59 | 2.92 | 0.89 | 1.90 | 0.80 | 0.48 | 0.93 | 3.75 | 1.03 | 1.63 |
| 100 | 1.14 | 2.06 | 0.90 | 1.53 | 0.44 | 0.48 | 0.61 | 2.75 | 0.68 | 0.80 |
| 10 | 19.21 | 17.93 | 12.93 | 10.18 | 21.82 | 18.34 | 10.52 | 10.85 | 30.13 | 40.16 |
| 20 | 13.00 | 10.53 | 10.50 | 9.40 | 13.28 | 22.82 | 11.16 | 5.90 | 15.99 | 17.38 |
| 30 | 6.81 | 8.60 | 4.47 | 6.07 | 6.23 | 9.88 | 5.61 | 2.86 | 6.81 | 10.74 |
| 40 | 4.99 | 7.12 | 2.27 | 4.62 | 4.97 | 4.55 | 6.60 | 2.16 | 3.37 | 9.28 |
| 50 | 3.73 | 7.15 | 1.90 | 2.63 | 3.75 | 3.46 | 3.26 | 1.76 | 2.79 | 6.92 |
| 60 | 3.15 | 6.37 | 1.50 | 2.69 | 2.69 | 2.60 | 2.28 | 1.51 | 2.32 | 6.42 |
| 70 | 2.68 | 5.04 | 1.22 | 1.79 | 2.15 | 2.42 | 3.25 | 1.12 | 2.74 | 4.40 |
| 80 | 2.00 | 3.76 | 0.97 | 1.71 | 2.11 | 1.01 | 1.87 | 1.09 | 2.98 | 2.51 |
| 90 | 1.44 | 1.41 | 0.99 | 1.24 | 1.81 | 1.00 | 1.53 | 1.37 | 1.51 | 2.05 |
| 100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

**Table 8.** Decadal organic matter sedimentation rates (OMSR) and non-volatile solids sedimentation rates (NVSAR) in mg $cm^{-2}$ $yr^{-1}$ by years since core collection. OMSR and NVSAR calculated from $^{210}Pb$ geochronology using a CRS model and change in OMSR and NVSAR relative to the base decade (91-100 yrs) are shown for nine historic cores. Averages (Avg) by decade for both sets of data are presented for the nine cores. The upper sets of data are for OMSR and the lower sets are for NVSAR.

| Yrs | Avg | 2H | 3H | 7H | 11H | 16H | 26H | 42H | 43H | 44H |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 24.46 | 34.26 | 11.75 | 35.06 | 11.93 | 12.65 | 9.37 | 37.31 | 20.70 | 47.14 |
| 20 | 20.26 | 26.43 | 11.78 | 30.83 | 8.24 | 14.58 | 7.54 | 28.36 | 15.60 | 38.98 |
| 30 | 16.81 | 24.29 | 11.42 | 21.81 | 6.15 | 19.78 | 5.22 | 26.38 | 13.78 | 22.45 |
| 40 | 12.99 | 20.59 | 10.38 | 17.95 | 4.69 | 14.83 | 5.22 | 15.79 | 8.89 | 18.60 |
| 50 | 10.84 | 16.77 | 8.72 | 12.24 | 3.95 | 12.74 | 4.29 | 15.89 | 7.90 | 15.05 |
| 60 | 8.46 | 14.54 | 6.22 | 10.35 | 3.09 | 9.31 | 3.25 | 10.94 | 6.57 | 11.89 |
| 70 | 7.09 | 12.77 | 5.19 | 6.58 | 2.16 | 8.15 | 4.78 | 8.07 | 8.26 | 7.85 |
| 80 | 6.28 | 11.66 | 3.59 | 5.76 | 2.34 | 3.70 | 3.41 | 8.76 | 11.93 | 5.36 |
| 90 | 4.91 | 7.64 | 3.00 | 5.26 | 2.40 | 3.66 | 3.09 | 8.12 | 6.79 | 4.24 |
| 100 | 3.60 | 5.82 | 2.56 | 3.79 | 2.47 | 3.66 | 2.59 | 5.50 | 4.01 | 2.01 |
| | | | | | | | | | | |
| 10 | 7.45 | 5.89 | 4.59 | 9.25 | 4.83 | 3.46 | 3.61 | 6.79 | 5.16 | 23.44 |
| 20 | 6.21 | 4.54 | 4.60 | 8.13 | 3.34 | 3.98 | 2.90 | 5.16 | 3.89 | 19.38 |
| 30 | 4.85 | 4.17 | 4.46 | 5.75 | 2.49 | 5.41 | 2.01 | 4.80 | 3.44 | 11.16 |
| 40 | 3.85 | 3.54 | 4.06 | 4.73 | 1.90 | 4.05 | 2.01 | 2.87 | 2.22 | 9.25 |
| 50 | 3.18 | 2.88 | 3.41 | 3.23 | 1.60 | 3.48 | 1.65 | 2.89 | 1.97 | 7.48 |
| 60 | 2.47 | 2.50 | 2.43 | 2.73 | 1.25 | 2.54 | 1.25 | 1.99 | 1.64 | 5.91 |
| 70 | 2.04 | 2.19 | 2.03 | 1.74 | 0.87 | 2.23 | 1.84 | 1.47 | 2.06 | 3.90 |
| 80 | 1.71 | 2.00 | 1.40 | 1.52 | 0.95 | 1.01 | 1.32 | 1.59 | 2.97 | 2.66 |
| 90 | 1.37 | 1.31 | 1.17 | 1.39 | 0.97 | 1.00 | 1.19 | 1.48 | 1.69 | 2.11 |
| 100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | | | | | | | | | | |
| 10 | 12.30 | 17.30 | 7.82 | 23.05 | 6.09 | 6.38 | 5.34 | 16.08 | 9.67 | 18.95 |
| 20 | 10.78 | 14.57 | 8.27 | 19.62 | 4.54 | 7.89 | 4.98 | 12.80 | 6.78 | 17.58 |
| 30 | 9.99 | 15.92 | 7.08 | 13.50 | 4.76 | 9.61 | 5.05 | 12.93 | 6.79 | 14.27 |
| 40 | 7.07 | 13.01 | 5.35 | 9.65 | 3.66 | 6.31 | 4.48 | 8.10 | 4.67 | 8.41 |
| 50 | 5.55 | 10.27 | 3.72 | 5.87 | 2.90 | 4.97 | 3.56 | 9.03 | 4.32 | 5.34 |
| 60 | 4.60 | 8.77 | 2.93 | 4.54 | 2.47 | 3.48 | 3.13 | 6.26 | 4.14 | 5.68 |
| 70 | 4.20 | 6.28 | 2.40 | 2.90 | 2.01 | 3.05 | 3.97 | 4.54 | 8.87 | 3.79 |
| 80 | 3.84 | 5.31 | 1.67 | 2.67 | 2.02 | 1.53 | 2.99 | 5.42 | 10.37 | 2.54 |
| 90 | 3.45 | 3.29 | 1.40 | 2.43 | 2.02 | 1.52 | 2.61 | 10.96 | 4.86 | 1.99 |
| 100 | 2.56 | 2.56 | 1.21 | 1.71 | 2.03 | 1.52 | 2.02 | 8.01 | 2.98 | 0.98 |
| | | | | | | | | | | |
| 10 | 6.80 | 6.75 | 6.48 | 13.51 | 3.01 | 4.21 | 2.64 | 2.01 | 3.24 | 19.32 |
| 20 | 6.19 | 5.68 | 6.86 | 11.50 | 2.24 | 5.20 | 2.47 | 1.60 | 2.27 | 17.93 |
| 30 | 5.51 | 6.21 | 5.86 | 7.91 | 2.35 | 6.34 | 2.50 | 1.61 | 2.28 | 14.55 |
| 40 | 3.83 | 5.08 | 4.43 | 5.66 | 1.81 | 4.16 | 2.22 | 1.01 | 1.57 | 8.57 |
| 50 | 2.78 | 4.01 | 3.08 | 3.44 | 1.43 | 3.28 | 1.76 | 1.13 | 1.45 | 5.45 |
| 60 | 2.39 | 3.42 | 2.43 | 2.66 | 1.22 | 2.29 | 1.55 | 0.78 | 1.39 | 5.79 |
| 70 | 2.06 | 2.45 | 1.99 | 1.70 | 0.99 | 2.02 | 1.97 | 0.57 | 2.97 | 3.86 |
| 80 | 1.69 | 2.07 | 1.38 | 1.57 | 1.00 | 1.01 | 1.48 | 0.68 | 3.47 | 2.59 |
| 90 | 1.35 | 1.28 | 1.16 | 1.43 | 1.00 | 1.00 | 1.29 | 1.37 | 1.63 | 2.03 |
| 100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Decadal non-volatile solids accumulation rate (NVSAR) is equal to decadal MSR minus decadal OMSR. (NVS or ash/dry fraction is the sediment remaining after LOI measurements.) The mean relative increase in NVSAR in the most recent decade (1985-1994 ) was 6.8 fold greater than the base decade, 1895-1904, or less than 10% smaller the 7.5-fold increase in OMSR for the same time periods (Table 8). The four stations with the greatest NVSAR were LG-2H, LG-7H, LG-42H, and LG-44H; the same set of stations with the largest MSR, OMSR, TPAR, and NAIPAR (Tables 5-7). NVSAR in the most recent decade ranged from 16.1 to 23.1 mg $cm^{-2}$ $yr^{-1}$ at these high sedimentation stations compared to a range of 5.3 to 9.7 mg $cm^{-2}$ $yr^{-1}$ at the remaining, low sedimentation stations. The station with the largest NVSAR in the most recent decade, however, was LG-7H, the station with the third highest OMSR. For all stations, the decadal average NVSAR in the most recent decade was 33.5% of the decadal average MSR . NVSAR represented the largest fraction of MSR in the most recent decade at LG-7H and LG-3H, 40% for both stations. The percent NVSAR relative to MSR in the most recent decade was smallest at stations in the northern basin (LG-42H, LG-43H, and LG-44H), ranging from 29 to 32%.

Comparing relative increases in MSR, TPAR, NAIPAR, OMSR, and NVSAR for the 1985-1994 decade (10 yr) to the 1895-1904 base decade (100 yr) showed large variation among the nine cores (Tables 5-8). Variability among stations in the 1985-1994 decade (10 yr) was greatest for NVSAR (9.6 fold) and least for TPAR and NAIPAR (nearly 4 fold). MSR and OMSR varied 7.0 and 6.8 fold, respectively. Much of the variation among cores is due to the large relative increase at LG-44H. The relative increase in MSR, TP, and OM sedimentation for LG-44H was at least two-fold greater than any other historic core. NAIP sedimentation does not fit this pattern because a large relative increase was also found for LG-43H; NVS sedimentation is not included because a large relative increase was also found at LG-7H.

The time dependence of phosphorus density (mg TP $cm^{-3}$ wet sediment) was evaluated for Phase I and Phase II historic cores (Fig. 22). The time dependence of changes in TP density varied markedly from core to core. TP density calculated as the product of TP concentration (mg $g^{-1}$ dry) and rho (g dry $cm^{-3}$ wet sediment) is relatively constant over much of each profile because changes in TP concentration and rho (or fraction dry weight) compensate over the core. TP generally decreases down core, with the exception that the highest TP concentration is slightly below the sediment surface in some samples, whereas rho and fraction dry weight increase with depth as the result of compaction. Increases in TP density were found in sediments deposited after 1950, but no consistent temporal pattern was obvious for all cores. Phosphorus density peaked at depth in most cores, an expected feature because TP concentration to some depth is relatively constant and rho increases with depth (see Figs. 6, 13 and 14). TP density in the oldest sediments varied largely in relation to sedimentation rate (Fig. 11) and lower compaction in low sedimentation cores. This approach, therefore, also appears to have limited utility for stratigraphic correlation of historic and survey cores.

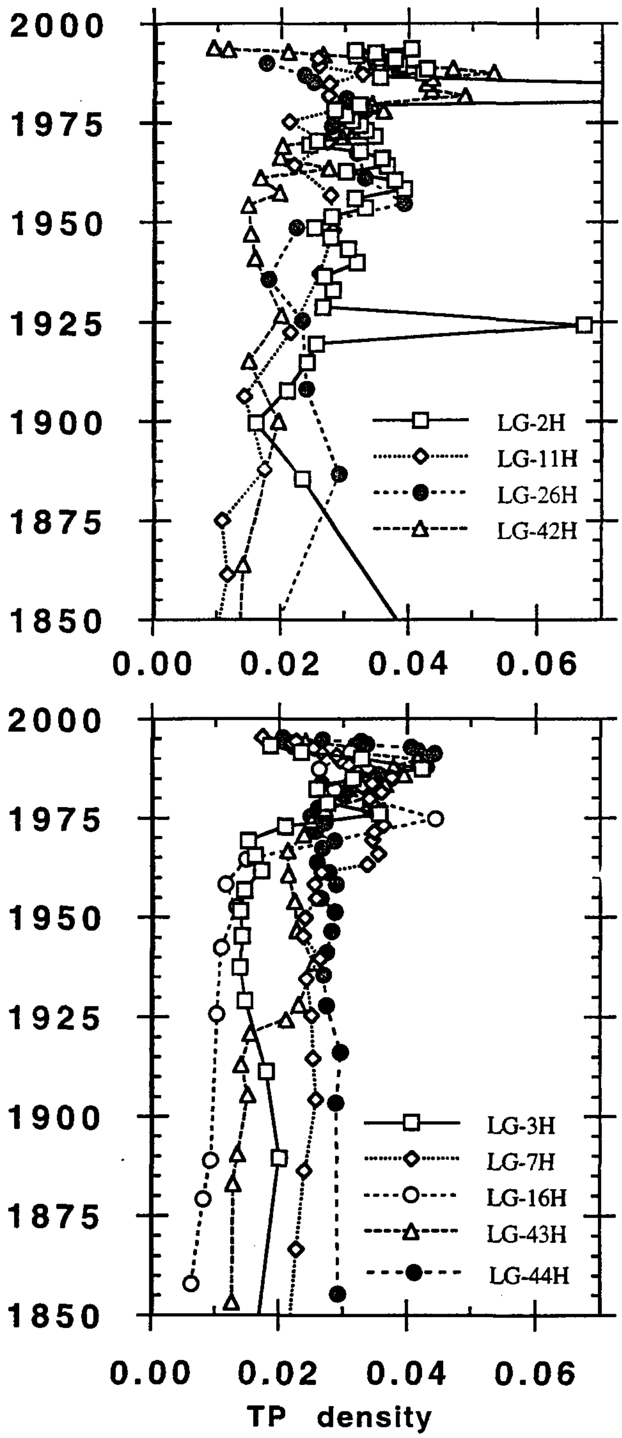


**Fig. 22.** Plots of total phosphorus density (mg TP $cm^{-3}$ wet sediment) vs. date for Phase I and Phase II historic cores. Phase I cores are plotted in the upper panel and Phase II cores in the lower panel.

## DIATOM MICROFOSSILS

The most abundant diatom in recent sediment samples from LG-11H, LG-26H, and LG-44H was *Aulacoseira ambigua*, a planktonic diatom that commonly occurs in eutrophic lakes. *A. ambigua* decreased in abundance below 14 cm in LG-11H and LG-26H (Figs. 23 and 24). In LG-44H, *A. ambigua* reached its maximum at 10 cm and declined below 20 cm (Fig. 25). *Pseudostaurosira brevistriata*, *Staurosira construens* var. *venter*, and *Staurosirella pinnata* are periphytic taxa that increased in abundance as *A. ambigua* declined. These three periphytic taxa indicate mesotrophic to hypereutrophic conditions, possibly indicating that trophic state was high in the lake at the time of their deposition.

Changes in the diatom flora occur in the lower portions of LG-11H and LG-26H (Figs. 23 and 24). At 34 cm and below in LG-11H, eutrophic indicators become less abundant, and an increase in periphytic taxa suggests shallower water or macrophyte presence. A similar change occurs in LG-26H at 28 cm. These periphytic taxa include species from the genera *Pinnularia, Navicula, Epithemia, Gomphonema, Stauroneis, and Eunotia*. These taxa suggest lower trophic state conditions in the past, although relatively high percentages (10-15%) of *A. ambigua* in the lower portions of the cores indicate that planktonic production was still high during this period. The shift to shallow-water diatoms may also be the result of changes in hydrologic regime, and may have occurred if water levels were subject to greater fluctuation in the past, or if sediment inputs to the basin from nearby wetlands were greater. This change, which was observed in LG-11H and LG-26H, does not occur at LG-44H (Fig. 25). LG-44H appears to be truncated with respect to LG-11H and LG-26H because *P. brevistriata* and *S. construens* var. *venter* are dominant to the base of LG-44H. The truncation, however, probably results from a much higher sedimentation rate at LG-44H. For LG-11H and LG-26H, sediments below 38 cm and 30 cm, respectively, were older than 1850, but at LG-44H a comparable date was found at 72 cm (see Fig. 11). Therefore, samples with ages old enough to reveal periphytic species identified at depths older than 1850 in LG-11H and LG-26H probably were not counted at LG-44H.

Quantitative inferences for limnetic total P values were obtained from sedimented diatom assemblages for LG-11H (Table 9), LG-26H (Table 10), and LG-44H (Table 11). The modern limnetic total P inference for the recent sample (0-2 cm) in LG-11H was 86 µg L-1 (95% c.i. 65-114 µg $L^{-1}$), in LG-26H was 141 µg $L^{-1}$ (95% c.i. 101-198 µg $L^{-1}$), and in LG-44H was 87 µg $L^{-1}$ (95% c.i. 66-114 µg $L^{-1}$). These inferences are close approximations to measured limnetic total P in 1992 when the mean was 78 µg $L^{-1}$ and ranged from 58 to 114 µg $L^{-1}$ (Canfield et al. 1992). Higher means were reported for data combined from samples collected by different agencies: 119 µg $L^{-1}$ for data collected from 1977-1993 (Fulton 1995), 102 µg $L^{-1}$ for data collected at a center lake station from 1984-94 (Fulton, personal communication) and 103 µg $L^{-1}$ for data collected at the center lake station in 1992 (Fulton, personal communication). These higher means are more representative of TP inferences for samples collected at depths below 2 cm.

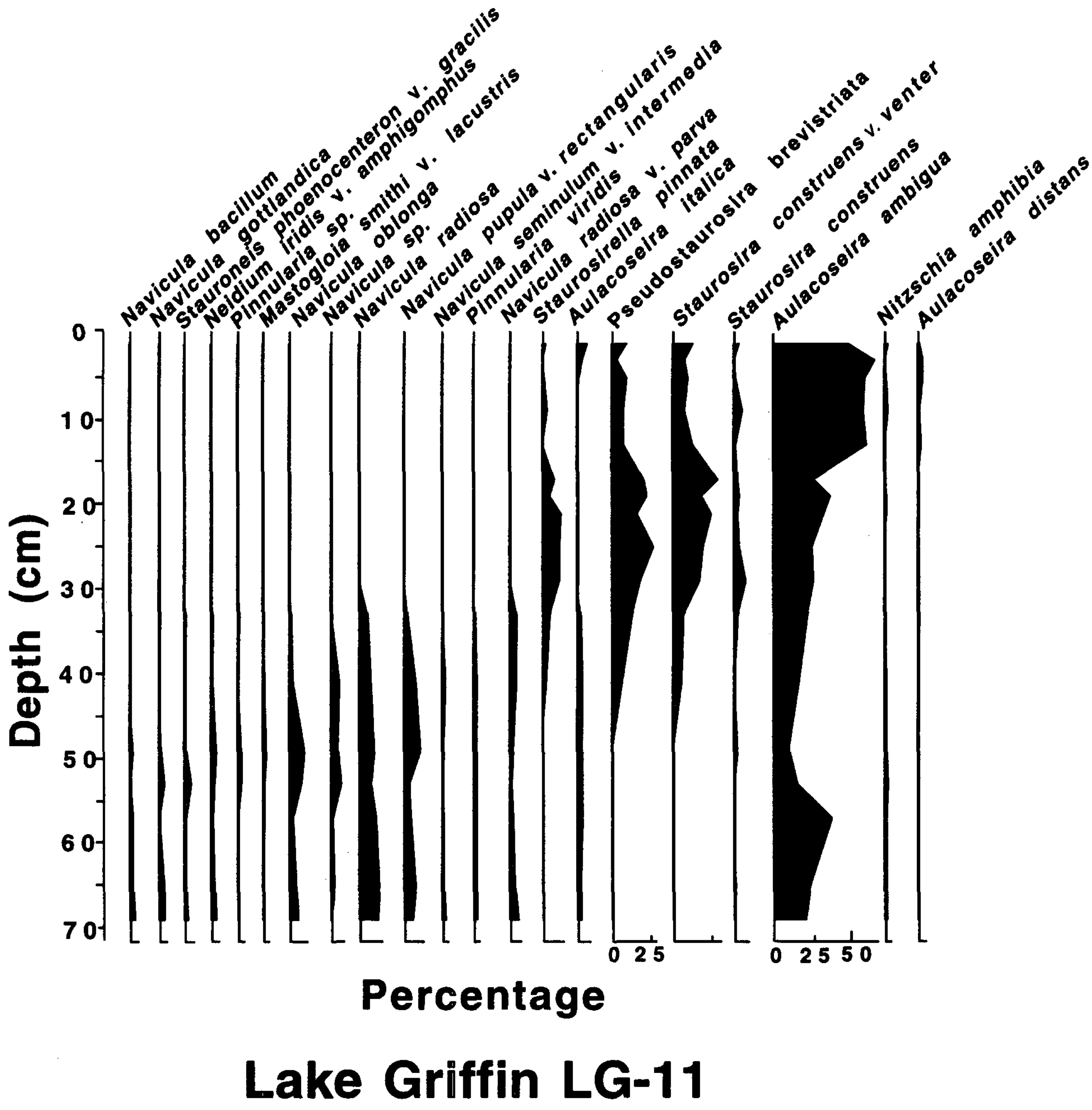


**Fig. 23.** Diatom assemblages (relative abundance) in sediment core, LG-11H.

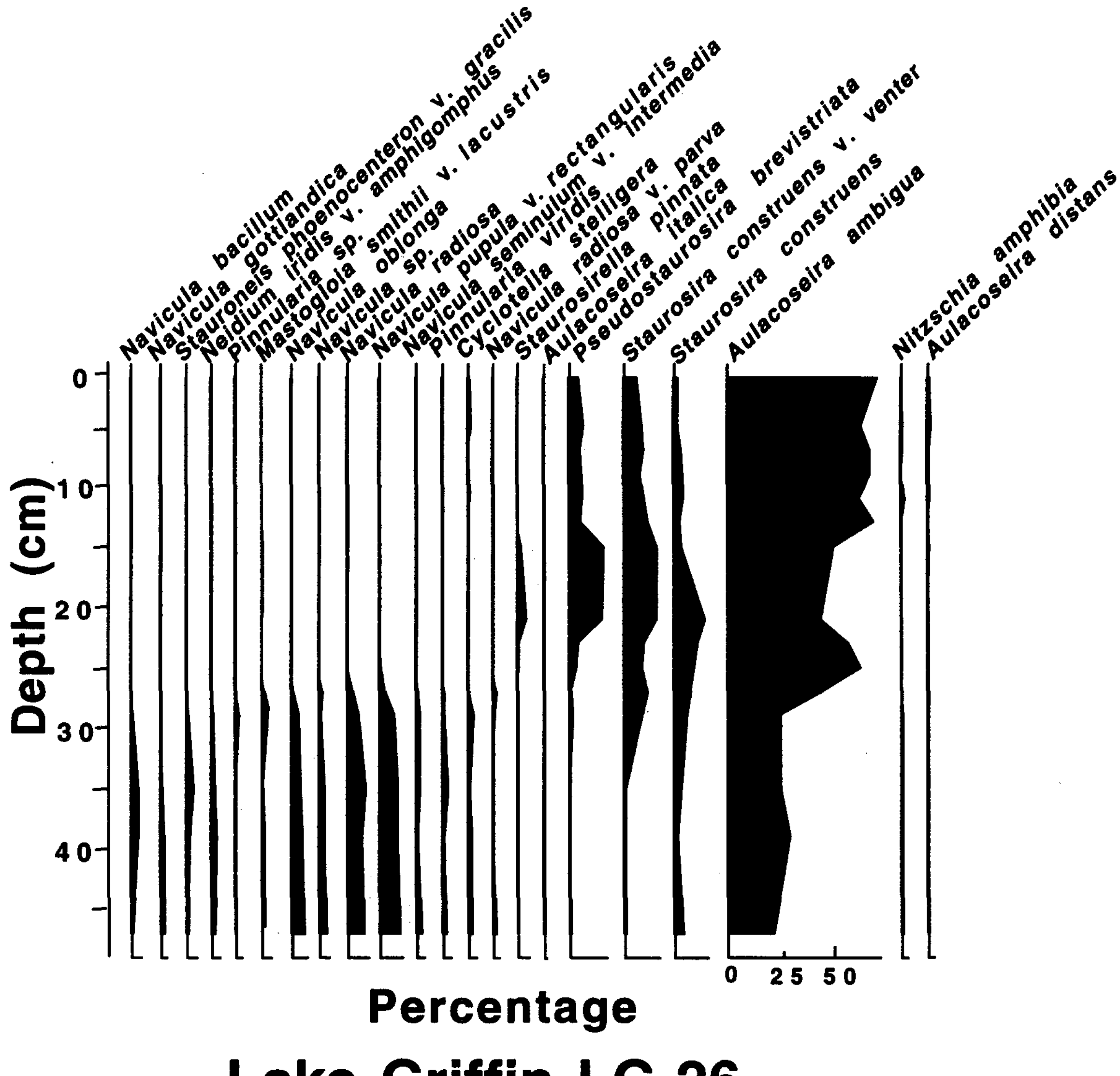


**Fig. 24.** Diatom assemblages (relative abundance) in sediment core, LG-26H.

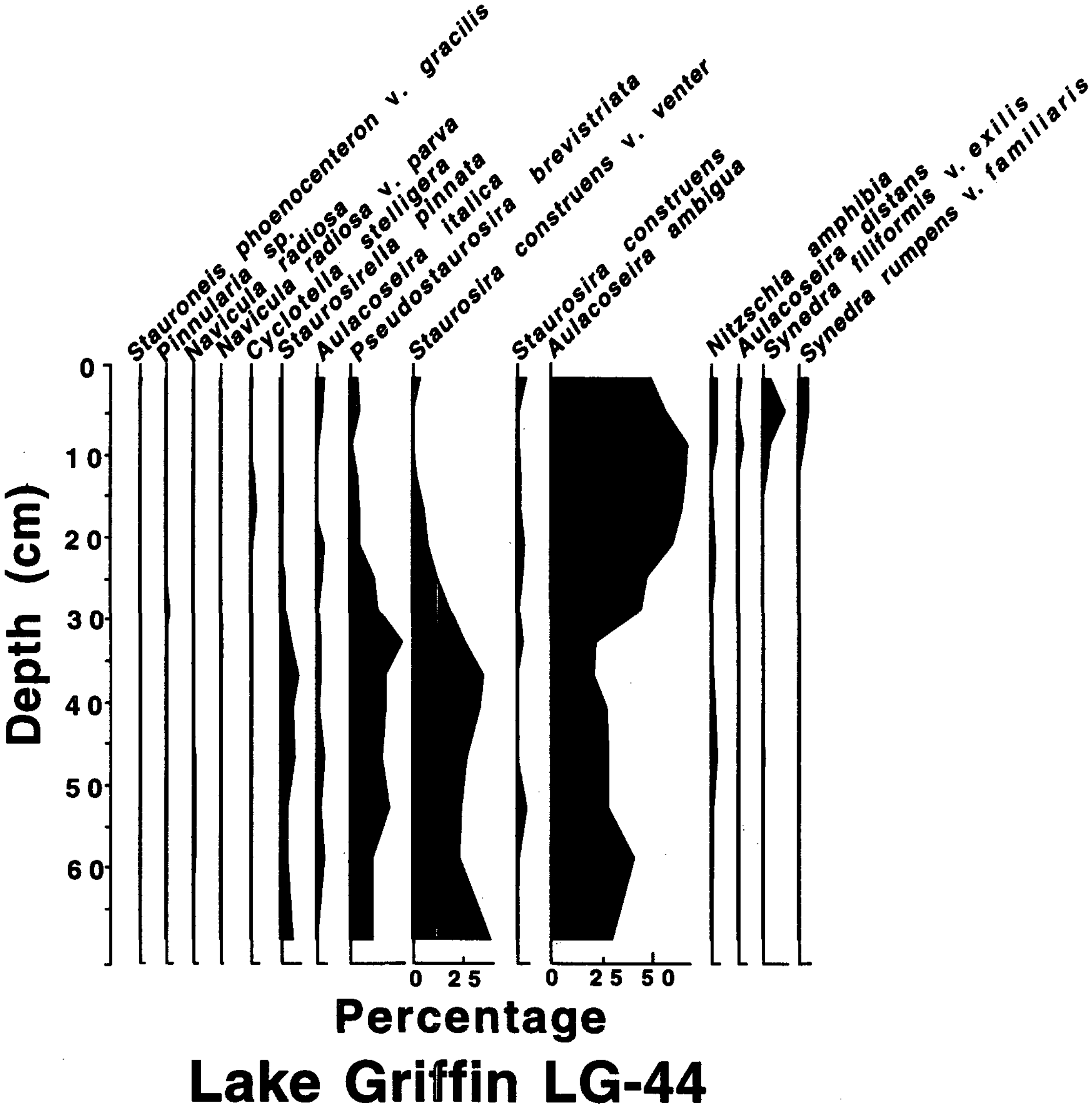


**Fig. 25.** Diatom assemblages (relative abundance) in sediment core, LG-44H.

**Table 9.** Limnetic total P values inferred from sedimentary diatoms in Core LG-11H with upper and lower bounds for 95% confidence intervals (c.i.).

| Sample interval (cm) | Nominal depth (cm) | Inferred total P (µg/L) | lower bound of 95% c.i. (µg/L) | upper bound of 95% c.i. (µg/L) |
|---|---|---|---|---|
| 0-2 | 1 | 86 | 65 | 114 |
| 2-4 | 3 | 112 | 83 | 153 |
| 4-6 | 5 | 127 | 92 | 175 |
| 8-10 | 9 | 169 | 118 | 243 |
| 12-14 | 13 | 114 | 83 | 155 |
| 16-18 | 15 | 74 | 58 | 96 |
| 18-20 | 19 | 113 | 83 | 154 |
| 20-22 | 21 | 83 | 63 | 108 |
| 24-26 | 25 | 89 | 67 | 117 |
| 28-30 | 29 | 81 | 62 | 106 |
| 32-34 | 33 | 48 | 39 | 59 |
| 36-38 | 37 | 38 | 31 | 45 |
| 40-42 | 41 | 33 | 28 | 39 |
| 44-46 | 45 | 30 | 26 | 36 |
| 48-50 | 49 | 28 | 24 | 33 |
| 52-54 | 53 | 29 | 25 | 34 |
| 56-58 | 57 | 47 | 38 | 57 |
| 60-62 | 61 | 55 | 44 | 68 |
| 64-66 | 65 | 38 | 32 | 46 |
| 68-70 | 69 | 33 | 28 | 39 |

**Table 10.** Limnetic total P values inferred from sedimentary diatoms in Core LG-26H with upper and lower bounds for 95% confidence intervals (c.i.).

| Sample interval (cm) | Nominal depth (cm) | Inferred total P (μg/L) | lower bound of 95% c.i. (μg/L) | upper bound of 95% c.i. (μg/L) |
|---|---|---|---|---|
| 0-2 | 1 | 141 | 101 | 198 |
| 2-4 | 3 | 137 | 98 | 192 |
| 4-6 | 5 | 116 | 85 | 159 |
| 6-8 | 7 | 160 | 112 | 228 |
| 8-10 | 9 | 154 | 109 | 219 |
| 10-12 | 11 | 123 | 90 | 170 |
| 12-14 | 13 | 152 | 107 | 215 |
| 14-16 | 15 | 118 | 86 | 163 |
| 16-18 | 17 | 129 | 93 | 179 |
| 18-20 | 19 | 96 | 72 | 128 |
| 20-22 | 21 | 116 | 85 | 159 |
| 22-24 | 23 | 123 | 90 | 170 |
| 24-26 | 25 | 138 | 99 | 193 |
| 26-28 | 27 | 57 | 45 | 71 |
| 28-30 | 29 | 39 | 32 | 47 |
| 30-32 | 31 | 43 | 35 | 52 |
| 34-36 | 35 | 41 | 34 | 50 |
| 38-40 | 39 | 44 | 36 | 53 |
| 42-44 | 43 | 45 | 37 | 55 |
| 46-48 | 47 | 36 | 30 | 43 |

**Table 11.** Limnetic total P values inferred from sedimentary diatoms in Core LG-44H with upper and lower bounds for 95% confidence intervals (c.i.).

| Sample interval (cm) | Nominal depth (cm) | Inferred total P (µg/L) | lower bound of 95% c.i. (µg/L) | upper bound of 95% c.i. (µg/L) |
|---|---|---|---|---|
| 0-2 | 1 | 87 | 66 | 114 |
| 4-6 | 5 | 94 | 71 | 126 |
| 8-10 | 9 | 131 | 94 | 182 |
| 12-14 | 13 | 120 | 87 | 164 |
| 16-18 | 17 | 113 | 83 | 154 |
| 20-22 | 21 | 127 | 92 | 175 |
| 24-26 | 25 | 98 | 73 | 132 |
| 28-30 | 29 | 92 | 70 | 122 |
| 32-34 | 33 | 84 | 64 | 109 |
| 36-38 | 37 | 65 | 51 | 82 |
| 40-42 | 41 | 71 | 55 | 90 |
| 46-48 | 47 | 79 | 61 | 102 |
| 52-54 | 53 | 81 | 62 | 105 |
| 58-60 | 59 | 83 | 63 | 108 |
| 68-70 | 69 | 61 | 48 | 77 |

Inferred TP at these depths, which according to the $^{210}Pb$ dates were deposited since 1987, were >100 $\mu g\ L^{-1}$ for all three cores (Figs. 23-25). Concurrence between measured and inferred recent total P values suggests that historic inferences are reliable for Lake Griffin, particularly at LG-11H and LG-44H.

Inferred limnetic total P for LG-11H and LG-26H show large increases since the late 1800s. Limnetic total P values for LG-11H indicate that the lake was hypereutrophic between recent times and the 30-cm level (Fig. 26). A sharp, significant decrease in limnetic total P occurs between 30 and 34 cm which indicates that the lake has become more eutrophic since 1907 (Appendix F). A sharp decrease in limnetic total P occurs between 26 and 28 cm in LG-26H (Fig. 27). This sharp decrease suggests that the change occurred abruptly before 1925 (Appendix F) or that sediment redistribution processes affected stratigraphic continuity to a greater extent at LG-26H than at LG-11H. Bounds for inferred total P for older sediments in these two cores (Table 9 and 10) are similar to the predevelopment total P (27 $\mu g\ L^{-1}$) obtained by Fulton (1995) using a nutrient budget/trophic state modeling approach.

By contrast with LG-11H and LG-26H, limnetic total P inferences for LG-44H are relatively high over the core (Fig. 28). Total P inferences and $^{210}Pb$ dates (Fig. 11) suggest that the upper portion of the stratigraphic profile is extended in LG-44H with respect to LG-11H and LG-26H (Figs. 26 and 27). Total P inferences decrease less in LG-44H than in LG-11H and LG-26H (Tables 9-11). However, samples counted for LG-11H and LG-26H were older than those for LG-44H. The deepest sample (68-70 cm) counted in LG-44H was $^{210}Pb$ dated at 1855 whereas much older samples were analyzed for LG-11H and LG-26H. Total P inferences at the tops of LG-11H and LG-44H appear slightly lower than in sediment samples corresponding to a decade earlier, but limnetic total P values in the recent samples are not statistically different from earlier samples at the 95% level of confidence.

The planktonic/benthic (P/B) ratio of diatoms can be used to infer changes in trophic state because planktonic diatoms will replace benthic forms when decreases in water transparency produce an aphotic benthic environment (Schelske et al. 1997). Therefore, nutrient enrichment will increase the proportion of planktonic species in the assemblage. Plots of P/B ratios show an increase in planktonic diatoms in LG-11H and LG-26H by approximately 1900 (Figs. 29 and 30). By contrast, the proportion of planktonic diatoms is high in the oldest samples counted for LG-44H, but only two depths represent samples deposited before 1950 (Fig. 31). All cores show high P/B ratios in sediments deposited in the 1980s and 1990s. The Emeralda muck farm area developed from sawgrass marshes in the 1950s through the early 1970s increased nutrient input (Marburger and Godwin 1996). Plant cover (primarily spatterdock) decreased from 4,600 acres in 1947 to 250 acres in 1973 (Benton 1994). Studies of aerial photos by SJRWMD show a similar decrease with only 43 acres of spatterdock and other deep marsh vegetation in 1981 (Fulton, personal communication). Low P/B ratios beginning about 1950 and ending in the 1970s in LG-26H

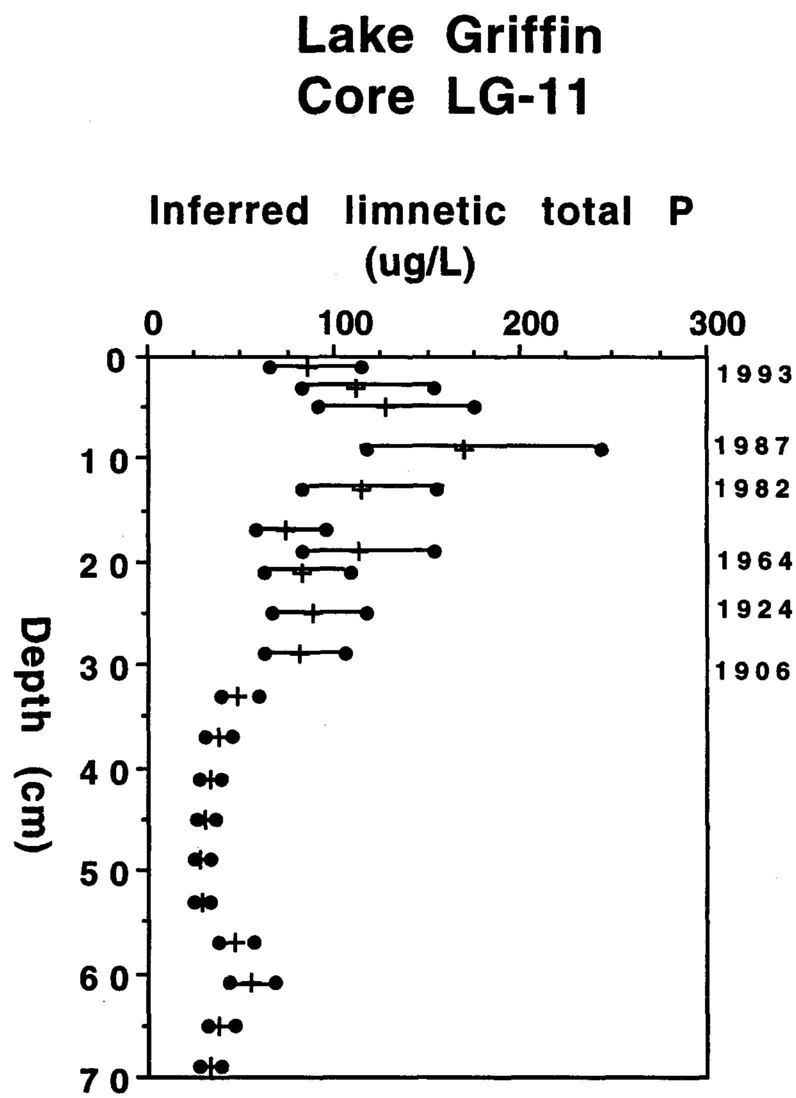


**Fig. 26.** Inferred limnetic TP based on diatom assemblages in sediment core, LG-11H.

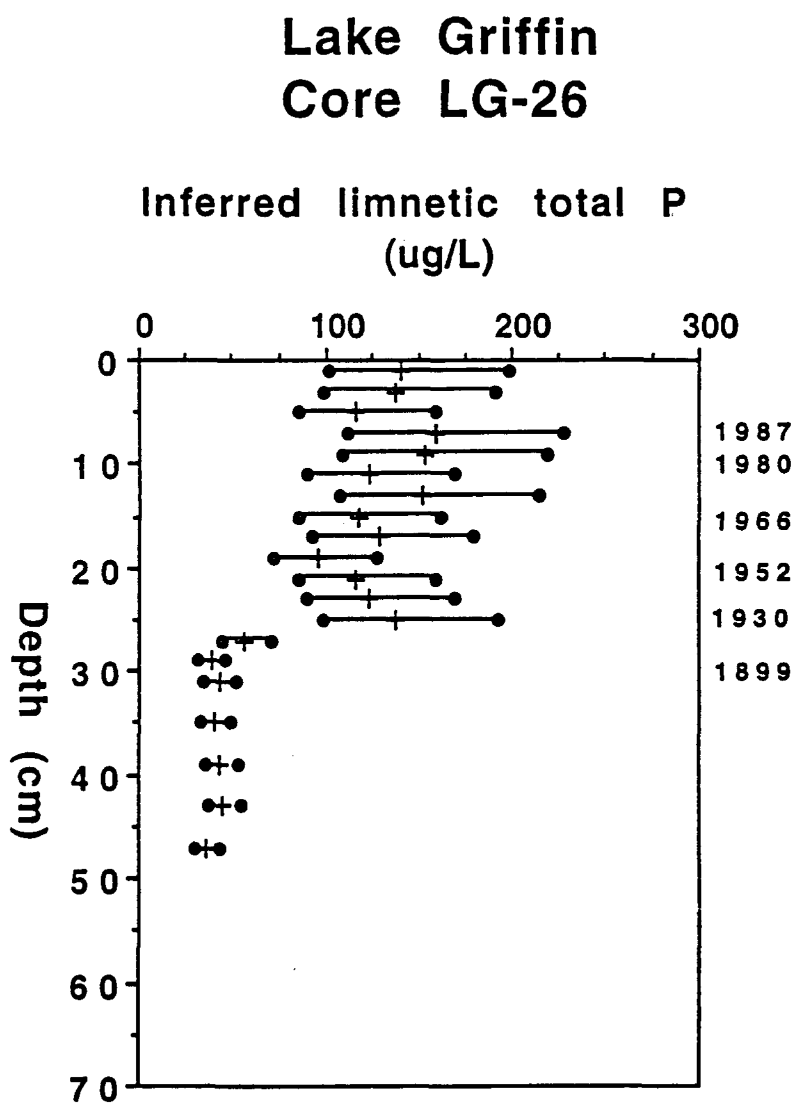


**Fig. 27.** Inferred limnetic TP based on diatom assemblages in sediment core, LG-26H.

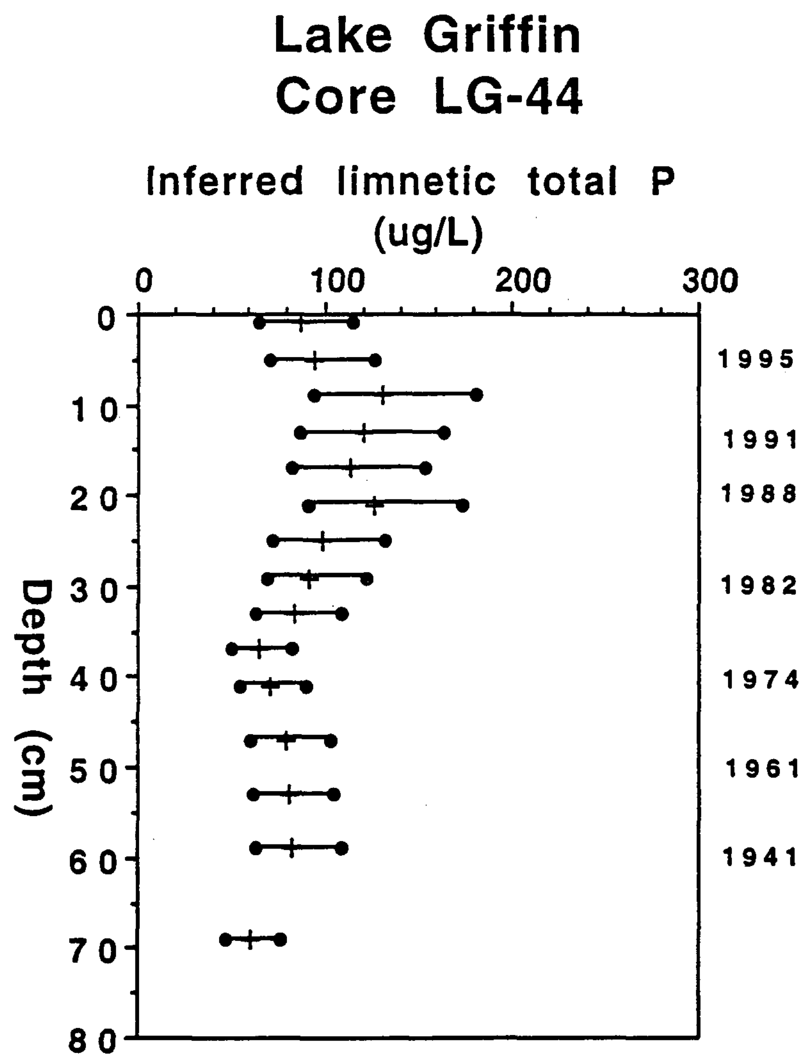


**Fig. 28.** Inferred limnetic TP based on diatom assemblages in sediment core, LG-44H.

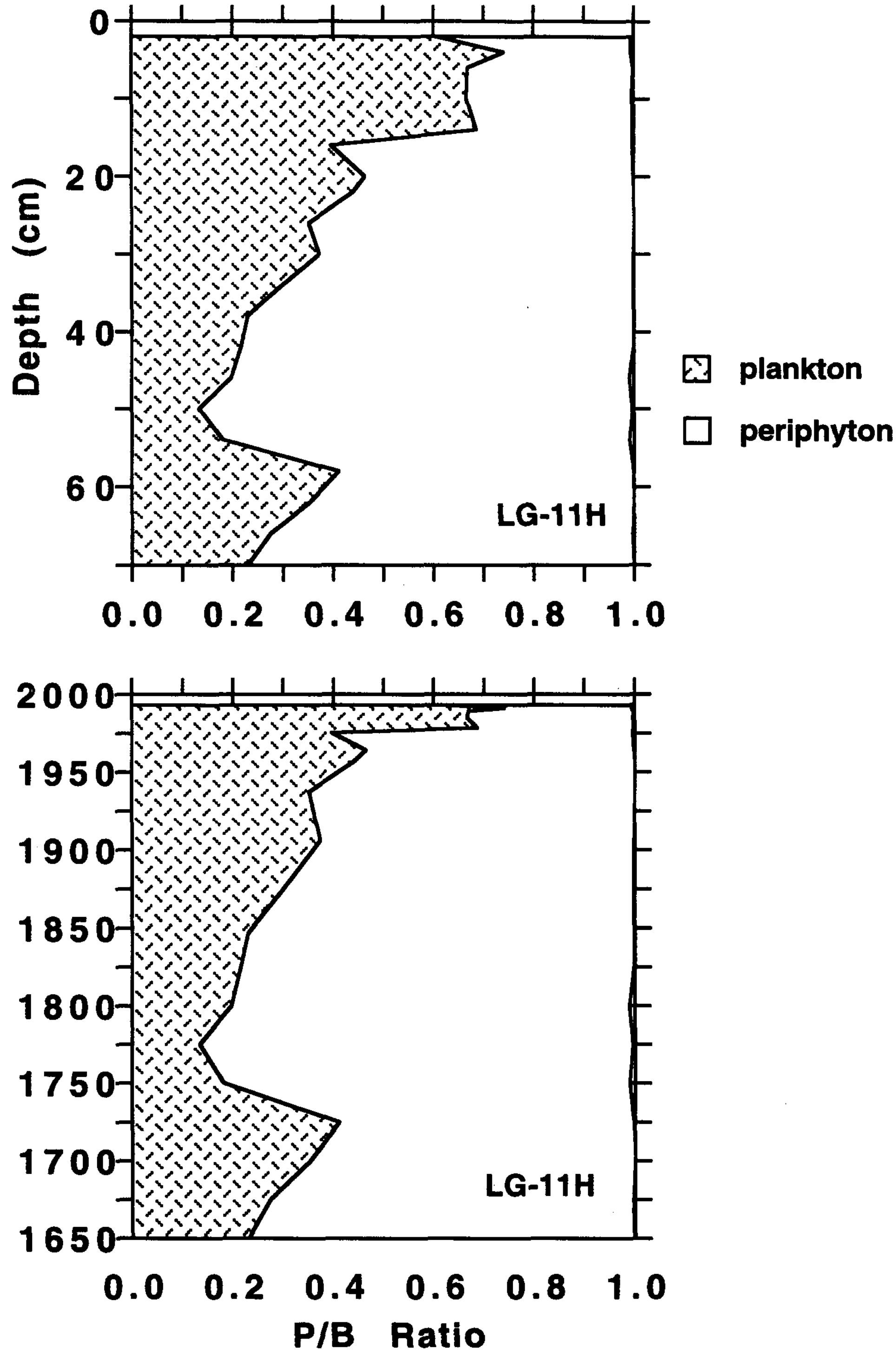


**Fig. 29.** P/B ratios of planktonic to periphytic diatoms in sediment samples from core, LG-11H. Upper panel presents data by depth and lower panel by date. In lower panel dates older than $^{210}Pb$ have been interpolated so all data are presented

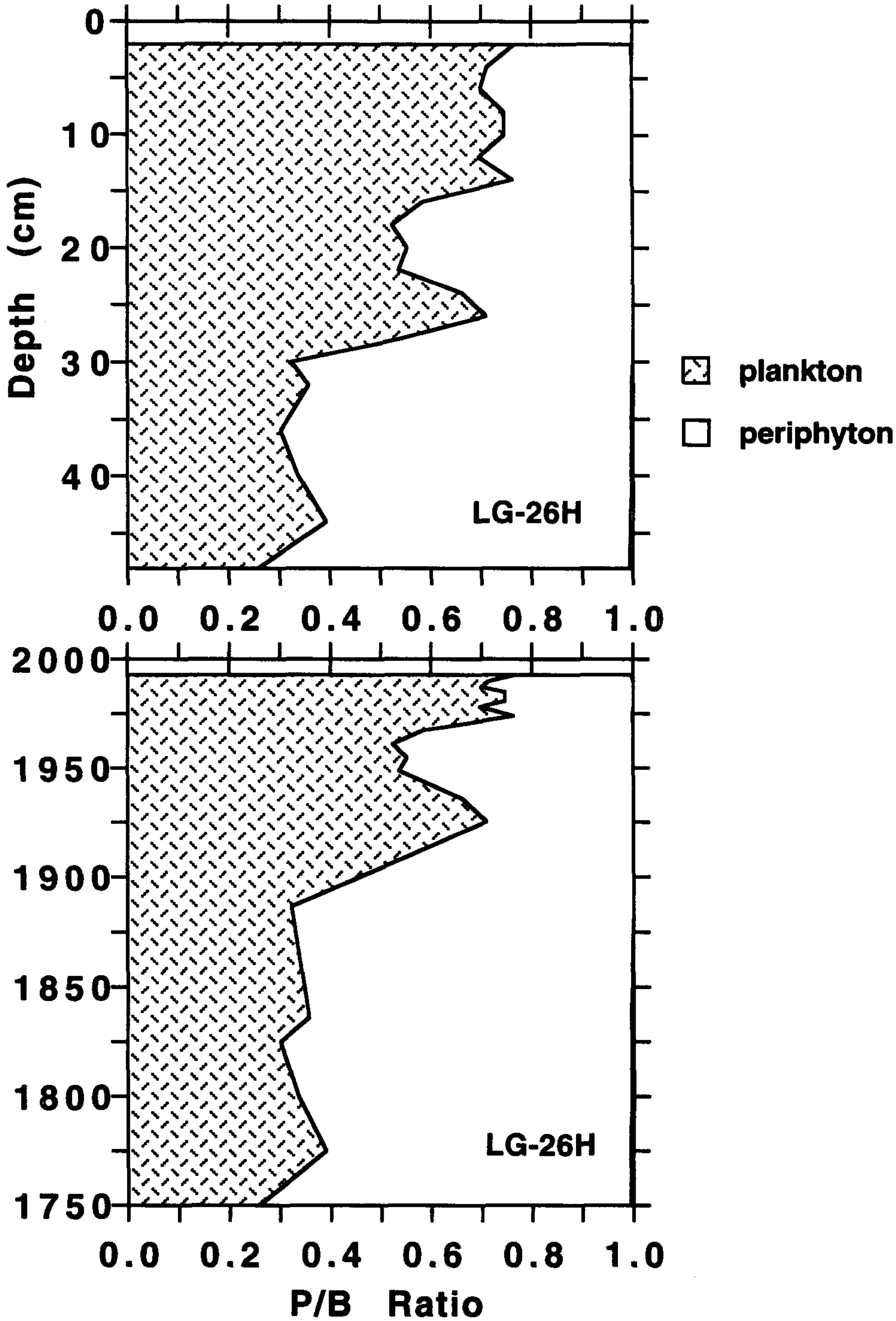


**Fig. 30.** P/B ratios of planktonic to periphytic diatoms in sediment samples from core, LG-26H. Upper panel presents data by depth and lower panel by date. In lower panel dates older than $^{210}Pb$ have been interpolated so all data are presented.

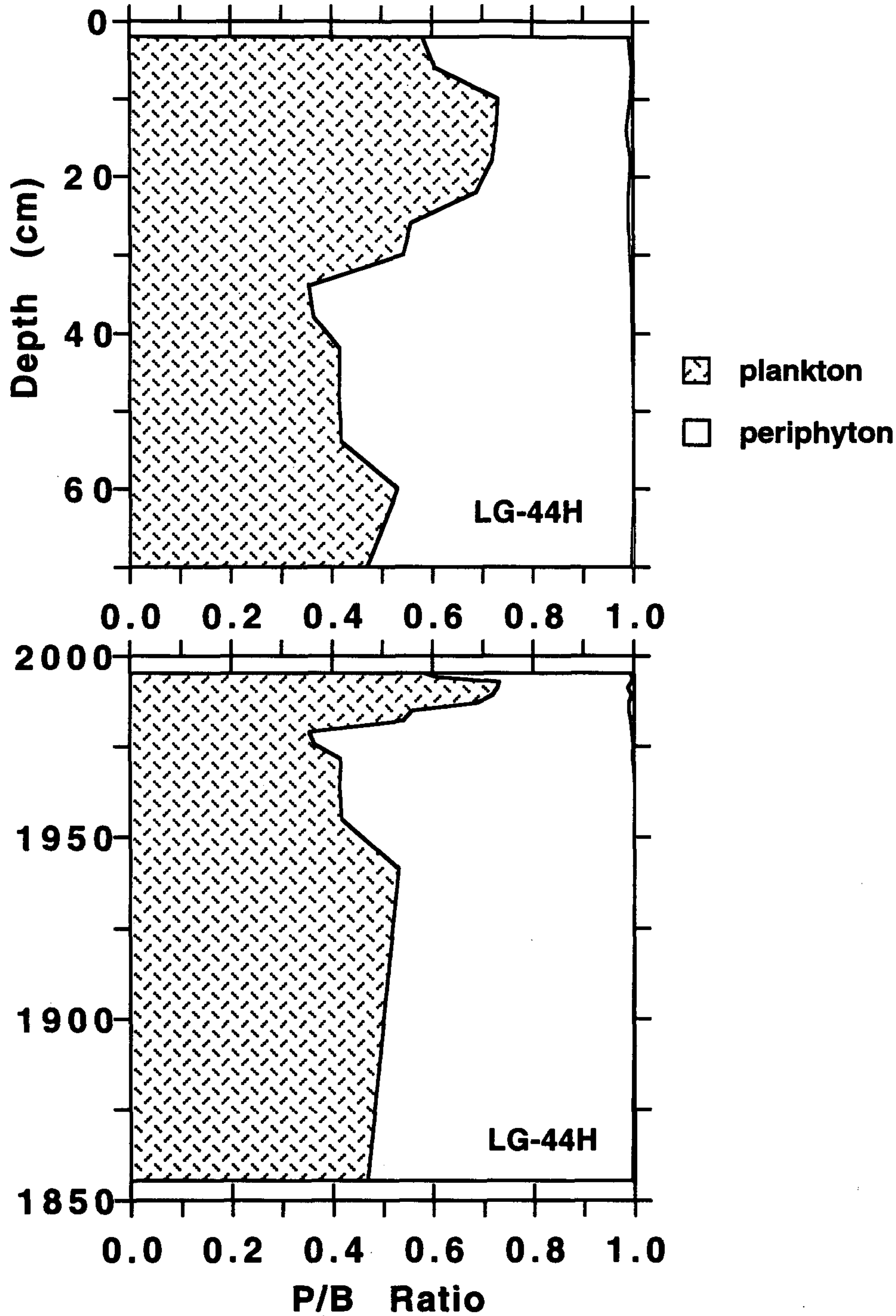


**Fig. 31.** P/B ratios of planktonic to periphytic diatoms in sediment samples from core, LG-44H. Upper panel presents data by depth and lower panel by date. All data for this core are plotted in both panels.

and LG-44H (Figs. 30 and 31) may reflect high abundance of aquatic macrophytes and subsequent decrease in plant cover, but this trend is not obvious in LG-11H (Fig. 29). A minimum in P/B ratios in the 1950s and 1960s may not have been detected in LG-11H because fewer samples were counted in this age range than in LG-26H. The increase in P/B ratio in sediments deposited in the 1980s and 1990s of all three cores (Figs. 29-31) reflects an increase in planktonic diatoms, primarily *A. ambigua* (Figs. 23-25). An increase in P/B ratios and the dominance of *A. italica* in sediments deposited in the 1980s and 1990s in Lake Apopka also was attributed to macrophyte loss resulting from nutrient enrichment (Schelske 1997a, Schelske et al. 1997). A decrease in the TC/TN ratio also has been used as a proxy for a an increase in phytoplankton relative to macrophytes in the primary producer community (Schelske et al. 1997). The TC/TN ratio decreases markedly after 1950 at LG-11H and LG-26H (Fig. 15) and after 1975 at LG-44H (Fig. 16b). Thus, both P/B and TC/TN ratios provide evidence of increased phytoplankton abundance after macrophytes decreased in Lake Griffin.

## ESTIMATES OF SEDIMENT AND PHOSPHORUS STORAGE

Dry sediment mass, TP, and NAIP storage were calculated using two basic analyses of data. The first was to calculate sediment mass and phosphorus storage per unit surface area of sediment for all survey and historic cores. In this approach, storage per unit area was summed section by section to the anthropogenic horizon defined as the point in the phosphorus profile where TP and NAIP concentration increased relative to a baseline concentration. In dated historic cores, the anthropogenic horizon was generally in that portion of the record that could be dated with $^{210}$Pb, but in some cores the horizon was at a slightly deeper depth. Determining the date for a horizon at approximately 1850 using $^{210}$Pb ages is somewhat problematic owing to inherent uncertainties in the CRS model. At the depths of interest, however, the change in cumulative mass or cumulative phosphorus storage per section is relatively small. Errors, therefore, are small and were considered to be random for the purposes of storage calculations. In survey cores, the anthropogenic horizon was established by using not only data for TP and NAIP concentration, but also data for % dry weight, LOI and TC/TN ratio. Some cores appeared to be truncated which would result in underestimates of storage. The second analysis was to infer the rate of change in phosphorus storage (accumulation) over time using decadal averages of MSR, TPAR and NAIPAR obtained from $^{210}$Pb dated historic cores. Data were weighted by sediment age and rates were calculated for ten decades (100 yr) for each of the nine historic cores. Storage estimates to the anthropogenic horizon were adjusted, as explained below, to account for an anthropogenic horizon older than 100 years.

Three estimates of decadal changes in sediment, TP, and NAIP deposition or storage were developed. Decadal sediment, TP and NAIP deposition were estimated for three zones (embayment, south basin and north basin) using two different calculations and whole-basin deposition only was estimated in the third calculation. The first estimate was based on calculated storage (cumulative mass, cumulative TP, or cumulative NAIP) to the anthropogenic horizon at either Phase I or Phase II survey stations (Tables 2 and 3). The mean relative increase by decade for each variable during the past 100 yr was obtained from $^{210}$Pb dated historic cores (Tables 5-7). The relative increase was used to calculate the proportion of storage during each of the ten decades. Because the anthropogenic horizon was older than 100 years, it was assumed that only 90% of the storage occurred in the ten decades used in the calculations. Data from Phase I survey stations were used to calculate storage in the south basin and data from Phase II survey stations were used to calculate storage in the embayment and north basin. Phase I data for survey stations in the embayment and north basin were not used because these cores were too short to sample the sediment record of interest.

The second and third estimates of sediment, TP and NAIP storage were based on decadal averages of MSR, NAIPAR and TPAR for $^{210}$Pb dated historic cores (Tables 5-7).

The second estimate used the decadal mean of MSR, NAIPAR and TPAR to calculate mean decadal storage rate by zone. The third estimate was based on the mean decadal MSR, NAIPAR and TPAR for all historic cores extrapolated to the lake basin. Zone and basin storage by decade was the product of mean decadal storage (quantity $m^{-2}$) for each parameter and either zone area or lake surface area.

Phosphorus storage above the anthropogenic horizon could not be calculated for all survey cores collected during Phase I because the records for many cores were truncated. The degree of truncation can be illustrated by comparing phosphorus storage for the paired survey and historic cores collected at the same site during Phase I (Appendices B and C). Storage for survey core 2 was 1.80 mg TP $cm^{-2}$ compared to 3.20 mg TP $cm^{-2}$ for the longer historic core (LG-2H), survey core 11 was 0.87 mg TP $cm^{-2}$ compared to 0.85 mg TP $cm^{-2}$ for LG-11H, and survey core 26 was 0.81 mg TP $cm^{-2}$ compared to 0.84 for LG-26H. The large difference for station 2 resulted from truncation. The anthropogenic horizon was at 92 cm in the historic core (LG-2H) whereas the shorter survey core was only 50 cm long. The anthropogenic horizon was found above 50 cm at the other two stations. Differences in storage for paired stations would be expected because the horizon could not be resolved as precisely at the survey stations which were sectioned at coarser intervals than those employed for historic stations. Nearly half (8 of 17) of the south basin cores and 75% (15 of 20) of the north basin cores collected in Phase I appeared to be truncated (Table 2) based on the TP concentration at 50 cm. TP concentration at 50 cm was less in south basin cores than in north basin cores indicating truncation was not as severe in the south basin. Truncation of embayment and north basin cores was not important because Phase II cores in the embayment and north basin were used to calculate storage in these zones (Table 3).

Variation in sediment, TP and NAIP storage over the lake basin was evident from the analysis of the Phase I and Phase II survey cores. This difference was evident from Phase I data even though some cores were truncated. A greater proportion of cores from the north basin and the embayment were truncated than those from the south basin (Table 2, Appendix B). Average storage per station for Phase I cores was 1.34 mg TP $cm^{-2}$ in the embayment, 1.23 mg TP $cm^{-2}$ in the north basin, and only 1.05 mg TP $cm^{-2}$ in the south basin (Table 12). Average storage per station for Phase II cores was 1.77 and 2.04 mg TP $cm^{-2}$, respectively, in the embayment and north basin, much greater than Phase I averages of 1.34 and 1.23 mg TP $cm^{-2}$ for the same areas. No Phase II survey cores were collected in the south basin. TP storage in historic cores which were collected at high deposition sites averaged 2.04 mg TP $cm^{-2}$ in the embayment and ranged from an average of 1.26 mg TP $cm^{-2}$ in the south basin to an average of 1.82 mg TP $cm^{-2}$ in the north basin. The greatest storage of 2.53 mg TP $cm^{-2}$, however, was at LG-41H (Appendix C), the truncated Phase I historic core that was too short to sample the entire excess $^{210}Pb$ record. The degree of truncation at LG-41H can be evaluated

**Table 12.** Cumulative storage of sediment (g dry $cm^{-2}$), total phosphorus (mg TP $cm^{-2}$), and non-apatite inorganic phosphorus (mg NAIP $cm^{-2}$) for Phase I and II survey cores in three morphometric zones of Lake Griffin. Data presented are averages for each zone to the depth of anthropogenic disturbance or deepest depth. See text for additional explanation.

**Phase I Survey Cores**

| | Cum Mass | Cum TP | Cum NAIP |
|---|---|---|---|
| Embayment | 1.237 | 1.341 | 0.542 |
| South | 1.128 | 1.053 | 0.597 |
| North | 1.353 | 1.233 | 0.695 |

**Phase II Survey Cores**

| | Cum Mass | Cum TP | Cum NAIP |
|---|---|---|---|
| Embayment | 2.778 | 1.766 | 0.621 |
| North | 2.957 | 2.037 | 0.806 |

by comparing TP storage with that for Phase II core LG-10, a core collected at essentially the same location (Appendix A). TP storage at LG-10 was 3.86 mg TP $cm^{-2}$ (Appendix D), approximately 50% greater than measured in the truncated core LG-41H.

Two estimates of decadal storage of sediment, TP and NAIP per unit surface area over 100 yr were obtained for the three zones in the lake (Table 13). The third estimate (rate average) is simply the average rates for the nine cores. Dry mass and TP sedimentation rates were much greater in the embayment and north basin than in the south basin whereas NAIP sedimentation rates were higher in the north basin but differed relatively little among the three zones. Dry mass, TP, and NAIP sedimentation rates generally increased upcore with the largest values for each zone in the two most recent decades (from 1975-1994). TP and NAIP sedimentation increased at a faster rate than dry mass sedimentation in the three most recent decades (1965-1994). The difference is most pronounced for TP sedimentation in the last 20 yr (since 1975), a difference that can be attributed to increased decadal MSR and larger phosphorus concentrations in near surface sediments of survey and historic cores (Appendices B-E).

A general increase in net storage rates of sediment, TP and NAIP (Table 13) was also obtained for the third estimate based on decadal averages of MSR, TPAR, and NAIPAR of all $^{210}Pb$ cores. The relative increase in estimated decadal rates of mass sedimentation was slower than that for estimated decadal rates of TP or NAIP sedimentation, particularly in the most recent decades. The increase in decadal mass sedimentation rate from the base period to the most recent decade was only 6 fold, much smaller than increases of 23 and 17 fold for TP and NAIP sedimentation, respectively. Differences among the relative increases resulted from greater historic increases in decadal TPAR and NAIPAR compared to decadal MSR (Tables 5-7). TPAR and NAIPAR increased at a faster rate because TP and NAIP concentration in cores generally increased upcore with time.

Storage expressed as totals for the three zones (data not shown) was greater for all three variables in the north basin than in the other two areas combined. This result is expected because dry mass sedimentation is high in the north basin (Table 13) which represents nearly half of the total surface area (48.9%). Storage in the embayment which only represents 15.4% of the surface area is relatively large compared to the larger south basin (35.7% of the surface area) because the mass sedimentation rate is higher in the embayment. Differences in phosphorus concentration among zones are relatively unimportant in affecting storage by zone. Decadal storage of sediment mass, TP and NAIP in the lake basin increased over time with the greatest quantities being stored in the last 30 yr, 1965-1994 (Table 14). For example, the proportion of TP stored in this period was 68.9%, 69.2% and 68.6%, respectively, for the first, second and third estimates. Rates of either TP and NAIP storage were similar for the three methods among different decades.

**Table 13.** Three estimates of decadal storage of sediment mass (kg $m^{-2}$ $decade^{-1}$), total phosphorus (g TP $m^{-2}$ $decade^{-1}$) and non-apatite-inorganic phosphorus (g NAIP $m^{-2}$ $decade^{-1}$) for the Lake Griffin basin during the last 100 years. Two estimates provide decadal storage by morphometric zones and the third estimate is an average for the lake basin. See text for explanation of methods.

| | Mass Sedimentation (kg $m^{-2}$ $decade^{-1}$) | | | TP Sedimentation (g $m^{-2}$ $decade^{-1}$) | | | NAIP Sedimentation (g $m^{-2}$ $decade^{-1}$) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Embayment | South | North | Embayment | South | North | Embayment | South | North |
| **Relative by Zone** | | | | | | | | | |
| 10 | 5.27 | 2.14 | 5.61 | 5.39 | 3.21 | 6.22 | 1.85 | 1.78 | 2.40 |
| 20 | 4.55 | 1.85 | 4.84 | 3.46 | 2.07 | 4.00 | 1.25 | 1.20 | 1.63 |
| 30 | 3.72 | 1.51 | 3.96 | 2.09 | 1.25 | 2.41 | 0.66 | 0.63 | 0.85 |
| 40 | 2.84 | 1.15 | 3.02 | 1.41 | 0.84 | 1.63 | 0.48 | 0.46 | 0.62 |
| 50 | 2.24 | 0.91 | 2.39 | 1.00 | 0.59 | 1.15 | 0.36 | 0.35 | 0.47 |
| 60 | 1.81 | 0.74 | 1.93 | 0.77 | 0.46 | 0.89 | 0.30 | 0.29 | 0.39 |
| 70 | 1.53 | 0.62 | 1.62 | 0.68 | 0.41 | 0.78 | 0.26 | 0.25 | 0.34 |
| 80 | 1.27 | 0.52 | 1.35 | 0.49 | 0.29 | 0.56 | 0.19 | 0.19 | 0.25 |
| 90 | 1.02 | 0.42 | 1.09 | 0.36 | 0.21 | 0.42 | 0.14 | 0.13 | 0.18 |
| 100 | 0.75 | 0.31 | 0.80 | 0.24 | 0.15 | 0.28 | 0.10 | 0.09 | 0.13 |
| **Rate by Zone** | | | | | | | | | |
| 10 | 3.56 | 3.03 | 4.22 | 5.89 | 3.48 | 5.75 | 2.43 | 1.06 | 2.28 |
| 20 | 3.05 | 2.52 | 3.56 | 3.67 | 2.72 | 3.32 | 1.56 | 0.90 | 1.30 |
| 30 | 2.94 | 1.88 | 3.15 | 2.70 | 1.70 | 1.88 | 1.09 | 0.52 | 0.64 |
| 40 | 2.47 | 1.52 | 2.14 | 2.02 | 1.18 | 1.12 | 0.84 | 0.44 | 0.44 |
| 50 | 1.97 | 1.09 | 1.88 | 1.36 | 0.72 | 0.88 | 0.82 | 0.26 | 0.35 |
| 60 | 1.62 | 0.89 | 1.46 | 1.04 | 0.56 | 0.69 | 0.72 | 0.22 | 0.30 |
| 70 | 1.33 | 0.75 | 1.31 | 1.18 | 0.44 | 0.56 | 0.57 | 0.19 | 0.24 |
| 80 | 1.11 | 0.64 | 1.24 | 0.64 | 0.34 | 0.46 | 0.43 | 0.16 | 0.19 |
| 90 | 0.77 | 0.59 | 1.05 | 0.36 | 0.29 | 0.35 | 0.19 | 0.12 | 0.17 |
| 100 | 0.61 | 0.49 | 0.72 | 0.27 | 0.22 | 0.21 | 0.15 | 0.09 | 0.12 |
| **Rate Average** | | | | | | | | | |
| 10 | | 3.68 | | | 5.03 | | | 1.90 | |
| 20 | | 3.10 | | | 3.20 | | | 1.22 | |
| 30 | | 2.68 | | | 2.00 | | | 0.70 | |
| 40 | | 2.01 | | | 1.34 | | | 0.53 | |
| 50 | | 1.64 | | | 0.93 | | | 0.42 | |
| 60 | | 1.31 | | | 0.73 | | | 0.37 | |
| 70 | | 1.13 | | | 0.66 | | | 0.30 | |
| 80 | | 1.01 | | | 0.46 | | | 0.23 | |
| 90 | | 0.84 | | | 0.33 | | | 0.16 | |
| 100 | | 0.62 | | | 0.22 | | | 0.11 | |

**Table 14.** Three whole-basin estimates of dry sediment ($10^3$ metric tons), total phosphorus (metric tons) and non-apatite-inorganic phosphorus (metric tons) storage by decade for Lake Griffin during the last 100 yr. The relative by zone estimate represents adjusted cumulative storage to the depth of anthropogenic disturbance in survey cores. Decadal storage in the two estimates based on rates was determined from rates and dates established from $^{210}Pb$ dating. See text for explanation of methods.

| Years | Dry Mass | TP | NAIP |
|---|---|---|---|
| **Relative by Zone** | | | |
| 10 | 164.6 | 191.2 | 79.8 |
| 20 | 141.9 | 122.8 | 54.0 |
| 30 | 116.2 | 74.2 | 28.3 |
| 40 | 88.6 | 50.0 | 20.7 |
| 50 | 70.0 | 35.3 | 15.5 |
| 60 | 56.5 | 27.2 | 13.1 |
| 70 | 47.6 | 24.1 | 11.1 |
| 80 | 39.6 | 17.4 | 8.3 |
| 90 | 31.9 | 12.8 | 6.0 |
| 100 | 23.5 | 8.6 | 4.2 |
| Total | 780.4 | 563.6 | 241.0 |
| **Rate by Zone** | | | |
| 10 | 140.7 | 189.0 | 71.0 |
| 20 | 118.6 | 120.3 | 45.6 |
| 30 | 101.5 | 74.0 | 25.4 |
| 40 | 75.0 | 48.8 | 19.2 |
| 50 | 61.5 | 34.2 | 14.8 |
| 60 | 48.8 | 26.6 | 12.9 |
| 70 | 42.4 | 23.3 | 10.4 |
| 80 | 38.3 | 17.0 | 8.2 |
| 90 | 32.2 | 12.6 | 6.0 |
| 100 | 23.5 | 8.4 | 4.2 |
| Total | 682.6 | 554.2 | 217.6 |
| **Rate Average** | | | |
| 10 | 140.0 | 191.4 | 72.5 |
| 20 | 118.2 | 121.8 | 46.6 |
| 30 | 102.1 | 76.3 | 26.7 |
| 40 | 76.4 | 51.1 | 20.2 |
| 50 | 62.4 | 35.6 | 16.1 |
| 60 | 49.7 | 27.6 | 14.1 |
| 70 | 43.0 | 25.0 | 11.3 |
| 80 | 38.5 | 17.6 | 8.8 |
| 90 | 31.9 | 12.6 | 6.1 |
| 100 | 23.5 | 8.5 | 4.3 |
| Total | 685.8 | 567.6 | 226.7 |

Three estimates of dry sediment, TP and NAIP storage by decade summed for the lake basin for the past 100 yr are shown in Table 14. Estimated dry mass sedimentation ranged from 683,000 to 780,000 metric tons dry mass, a much larger relative range than that for either TP or NAIP sedimentation. The relative difference between the high and low estimate was 1.14 for dry mass sedimentation, but only 1.024 for TP sedimentation. Estimated TP sedimentation ranged from 554 to 568 metric tons for the lake basin and estimated NAIP sedimentation ranged from 218 to 241 metric tons for the lake basin. The largest basin values for dry mass and NAIP sedimentation were obtained from the first estimate and the largest value for TP sedimentation was obtained from the third estimate. The smallest values for all three variables were obtained from the second estimate. General agreement among the three estimates was good with the exception of the relatively high value for basin-wide dry mass sedimentation obtained with the relative by zone estimate. This finding probably results because more than 10% of the cumulative mass storage to the anthropogenic horizon occurred before 1895. The relative by zone estimate, therefore, overestimated storage in the most recent 100 yr. An error in this correction results in less variability for TP or NAIP sedimentation because TP and NAIP concentrations decrease with depth and age of sediments and therefore contribute relatively small quantities to cumulative phosphorus deposition at depths close to the anthropogenic horizon.

## DISCUSSION AND CONCLUSIONS

The study of sediment and phosphorus deposition in Lake Griffin was undertaken in two phases utilizing survey and historic sediment cores. A total of 60 survey and 10 historic cores were collected during the two phases. Dry sediment mass, TP, NAIP, OM and NVS (ash fraction) were measured from sections obtained at 2.0- or 4.0-cm intervals in both sets of cores. Historic cores were dated with the CRS $^{210}$Pb model (Appleby and Oldfield 1983) to establish time-dependent stratigraphic features and to calculate sediment and nutrient deposition rates. Survey cores were collected to measure deposition over the lake basin and were then calibrated to rates of sediment and phosphorus deposition measured in $^{210}$Pb dated historic cores. The 40 survey cores collected during Phase I, designed as a feasibility study, were only 50 cm long which was too short to measure the depositional record of interest at many sites (Table 2). Survey cores from the south basin collected during Phase I were generally long enough to sample the anthropogenic record defined as sediments in which TP concentration increased above a baseline concentration. Therefore, 20 additional survey cores were collected in the embayment and north basin during Phase II. Results from Phase I showed that the lake could be divided into three zones, embayment, south basin and north basin (Figs. 1 and 2), based on sediment and phosphorus deposition. Results of Phase II confirmed that sediment and phosphorus deposition rates were greater in the north basin and embayment than in the south basin.

Historic cores were dated using a $^{210}$Pb CRS model (Appleby and Oldfield 1983) because plots of excess $^{210}$Pb activity did not decrease exponentially with either cumulative mass or depth. An exponential decrease in excess $^{210}$Pb activity with depth would be expected only if the sedimentation rate were relatively constant. Instead, many profiles were relatively flat, showing little change in excess $^{210}$Pb activity with depth (Figs. 9 and 10). Relatively flat profiles might be interpreted as an artifact of sediment mixing (Robbins and Herche 1993), but different stratigraphic patterns in $^{137}$Cs activity among cores (Figs. 9 and 10) is not consistent with this interpretation. The large depth range of excess $^{210}$Pb activity in cores and chemical, physical, and diatom microfossil data are also at variance with attributing the shape of excess $^{210}$Pb profiles simply to sediment mixing. An increase in primary production of organic matter, however, could account for the deviation from an exponential profile that would be expected if sedimentation rate were constant. In fact, if organic matter sedimentation increased at approximately 3% annually and if primary production accounted for a constant proportion of sediment mass, the resulting increase in sedimentation would compensate for the radioactive decay of $^{210}$Pb with a decay constant of 0.03114 (half-life of 22.2 yr). Given the highly organic sediments in Lake Griffin (>60% LOI), increased primary production of organic matter must be considered in interpreting and validating results obtained from the CRS model. Increased primary production, particularly in the last 50 years, would be expected due to the large increase in TP concentration in both historic and survey cores (Figs. 6, 13 and 14).

The temporal resolution of sediment chronological events with $^{210}$Pb dating is affected by resuspension and mixing of sediments, but the time constant associated with these physical dynamics is unknown and should be investigated in the future. However, the depth of sediments with measurable excess $^{210}$Pb activity can be used to estimate the magnitude of sedimentation because excess $^{210}$Pb activity is not measurable at depths with ages equivalent to six or seven half-lives of $^{210}$Pb (approximately 130 to 150 yr). Such sediments, therefore, can be assumed to be no older than approximately 150 years. Measurements of excess $^{210}$Pb activity can be used to verify that the anthropogenic horizon, defined as the depth at which TP concentration increased above a baseline, represents sediments deposited since approximately 1850.

No stratigraphic horizons other than the anthropogenic horizon could be identified and correlated stratigraphically in historic or survey cores. Because temporal events could not be stratigraphically correlated, models were used to simulate decadal chronological sediment and nutrient deposition in survey and historic cores. Decadal mass, TP, and NAIP sedimentation rates were estimated for ten decades (100 yr) since 1895 using three methods (Table 13). The first (Relative by Zone) estimate was based on cumulative storage of dry mass, TP, and NAIP in survey cores (Table 12) and the relative mean increase in mass, TP, and NAIP sedimentation by decade determined from $^{210}$Pb dated historic cores (Table 13). The second (Rate by Zone) and third (Rate Average) estimates were based entirely on decadal mass, TP and NAIP sedimentation rates determined from $^{210}$Pb dated historic cores (Tables 5-7). Thus, estimated mass, TP and NAIP sedimentation rates were determined using cumulative storage in survey cores for the first estimate and decadal MSR, TPAR, and NAIPAR calculated from $^{210}$Pb dated historic cores in the second and third estimates. Estimated whole-basin storage of dry mass, TP, and NAIP over the last 100 years was similar for the three methods except the first estimate for dry mass was 13% and 14% greater than the other two estimates (Table 14). Estimated dry mass storage by decade was similar for all three methods in the first 50 years, but diverged in the last 50 years.

Data from Phase I and II survey cores were used to estimate sediment, TP and NAIP storage in terms of quantity per unit area to the anthropogenic horizon (Tables 2 and 3). These data were then used to calculate decadal storage for each variable for the three zones of the lake (Table 13). Four Phase II cores from the embayment (15.4% of the surface area), 16 Phase II cores from the north basin (48.9% of the surface area) and 16.5 Phase I cores (one core was located on the boundary between the north and south basin so it was weighted as half in the calculation) from the south basin (35.7% of the surface area) were used in the calculations. It was assumed that averages represented storage in each subdivision of the basin. This assumption might be questioned because many survey stations in the elongated basin of Lake Griffin are adjacent to the shoreline (see Fig. 1). However, the extensive sediment survey by

Danek et al. (1991) showed that 95% of the lake basin was covered by organic sediments. Sand was found at two of the 40 Phase I survey stations and organic sediments were found at 38 or 95% of the stations (Appendix A, Table 2).

Storage expressed as totals for the three zones in the lake was greater for dry mass, TP and NAIP in the north basin than in the other two areas combined. This result is expected because dry mass sedimentation is high in the north basin (Table 13) which represents nearly half of the total surface area (48.9%). Storage in the embayment which only represents 15.4% of the surface area is relatively large compared to the larger south basin (35.7% of the surface area) because the mass sedimentation rate is higher in the embayment. Differences in phosphorus concentration among zones are relatively unimportant in affecting storage by zone.

Estimated dry sediment, TP and NAIP storage by decade summed for the lake basin for the past 100 years were similar (Table 14). Estimated dry mass sedimentation ranged from 683,000 to 780,000 metric tons dry mass, a much larger relative range than that for either TP or NAIP sedimentation. The relative difference between the high and low estimate was 1.14 for dry mass sedimentation, but only 1.024 for TP sedimentation. Estimated TP sedimentation ranged from 554 to 568 metric tons and estimated NAIP sedimentation ranged from 218 to 241 metric tons for the lake basin. General agreement among the three estimates was good with the exception of the relatively high value for basin-wide dry mass sedimentation obtained with the relative by zone estimate. This finding probably results because more than 10% of the cumulative mass storage to the anthropogenic horizon occurred before 1895. The relative by zone estimate, therefore, overestimated storage in the most recent 100 years. An error in this correction results in less variability for TP or NAIP sedimentation because TP and NAIP concentrations decrease with depth and age of sediments and therefore contribute relatively small quantities to cumulative phosphorus deposition at depths close to the anthropogenic horizon.

Organic matter represented approximately 60% of the dry mass sedimented in the Lake Griffin basin. Therefore, increases in dry mass, TP, and NAIP sedimentation were driven by increased OMSR (Table 8). Average dry mass, TP, and NAIP sedimentation rates based on decadal time intervals increased over time in the lake basin (Tables 5-7) even though this pattern in MSR was not present in all historic cores (Figs. 20 and 21). Decadal storage of sediment mass, TP and NAIP in the lake basin also increased over time with the greatest quantities being stored in the last 30 years or from 1965-1994 (Table 14). For example, the proportion of TP stored in this period was 68.9%, 69.2% and 68.6%, respectively, for the first, second and third estimates. Relative changes in storage rates over the ten decades were greater for TP than for dry sediment (Table 14). TP storage increased more than 20 fold from the base decade (1895 to 1904) to the most recent decade (1985 to 1994 whereas dry sediment storage only increased 6 fold. This large difference is due mainly to greater TP concentrations in the most recent sediments (Figs. 6, 13 and 14).

Because sediments are highly organic (>60% LOI), the historic increase in mass sedimentation in Lake Griffin is inferred to represent increased organic production by primary producers. A nutrient-driven increase in primary production is inferred from the increase in TP and NAIP concentration upcore and in increased TPAR, NAIPAR and OMSR (Tables 6-8). Although TP concentration decreases in near-surface sediments of some cores (Figs. 6, 13 and 14; Appendices B-E), estimated decadal TP sedimentation rates do not reflect this decrease because sections of near-surface sediment represent a relatively small time interval (Appendix F). Data discussed in the next paragraph show that estimated areal rates of TP sedimentation in Lake Griffin are similar to recent estimates for Lake Apopka (Schelske 1997a).

Net TP sedimentation in Lake Griffin was evaluated to determine if sediments were a significant sink for phosphorus. Estimated TP sedimentation in Lake Griffin during the two most recent decades was compared with recent estimates of TP sedimentation in other Florida lakes. The average whole-lake TP sedimentation in Lake Griffin was 15.6 metric tons $yr^{-1}$ which was calculated from three estimates of TP sedimentation in the two most recent decades or 19.1 metric tons $yr^{-1}$ if based only on the three estimates from the most recent decade (Table 14). Averaged over the lake basin, net TP sedimentation in Lake Griffin is 410 mg $m^{-2}$ $yr^{-1}$ or 501 mg $m^{-2}$ $yr^{-1}$ if only estimates from the most recent decade are averaged. The higher estimate undoubtedly is more representative of recent sedimentation than the more conservative estimate based on sedimentation averaged over 20 years. Several estimates of TP sedimentation are available for Lake Apopka. Net TP sedimentation from a mass balance study conducted in 1977 was 49.1 metric tons $yr^{-1}$ (Brezonik et al. 1978), or 393 mg $m^{-2}$ $yr^{-1}$. TP sedimentation estimated from estimates of TP storage in sediments was 72.7 and 52.5 metric tons $yr^{-1}$, respectively, for decades from 1986-1995 and 1976-1985 (Schelske 1997a), or 582 and 420 mg $m^{-2}$ $yr^{-1}$, respectively. Finally, Brezonik and Engstrom (In press) compared net TP sedimentation of 249 mg $m^{-2}$ $yr^{-1}$ determined from loading estimates to average TP sedimentation in $^{210}Pb$ dated cores of 371 mg $m^{-2}$ $yr^{-1}$ in Lake Okeechobee. Annual rates of net TP sedimentation in Lake Griffin, Lake Apopka, and Lake Okeechobee were converted to water mass equivalents of TP in overlying waters by dividing by mean water depth. Concentration equivalents in overlying waters were 174 and 212 $\mu g\ L^{-1}$ for Lake Griffin, 231-342 $\mu g\ L^{-1}$ for Lake Apopka and 92-137 $\mu g\ L^{-1}$ for Lake Okeechobee. These concentrations are greater than the mean water column TP concentration for each lake, 78 $\mu g\ L^{-1}$ (Canfield et al. 1992) and 119 $\mu g\ L^{-1}$ (Fulton 1995) for Lake Griffin, approximately 200 $\mu g\ L^{-1}$ for Lake Apopka and approximately 100 $\mu g\ L^{-1}$ for Lake Okeechobee. Data on net TP sedimentation rates, therefore, indicate that the sediments in Lake Griffin are a significant sink for TP over periods of decades because the annual TP sedimentation rate is greater than the average quantity of TP in the overlying waters.

The TP retention coefficient in Lake Griffin can be calculated directly from the average estimated net TP sedimentation obtained in the present study and the average annual TP loading estimated by Fulton (1995). Net TP sedimentation was 15.6 metric tons $yr^{-1}$ averaged over two decades or 19.1 metric tons $yr^{-1}$ averaged over the most recent decade and average annual loading was 37.8 metric tons $yr^{-1}$. TP retention coefficients calculated from these data are 0.413 or 0.505, less than either the estimated (0.739) or predicted (0.519) TP retention coefficients (Fulton 1995). TP residence times in the water column based on TP sedimentation of 410 mg $m^{-2}$ $yr^{-1}$ are 0.448 yr if the water column TP concentration is 78 $\mu g\ L^{-1}$ and 0.684 yr if the water column TP concentration is 119 $\mu g\ L^{-1}$. If TP sedimentation is 501 mg $m^{-2}$ $yr^{-1}$, TP residence times are 0.368 yr if the water column TP concentration is 78 $\mu g\ L^{-1}$ and 0.561 yr if the water column TP concentration is 119 $\mu g\ L^{-1}$. These comparisons indicate that net TP retention, although lower than reported by Fulton (1995), is still large enough to conclude that sediments are a significant sink for phosphorus in Lake Griffin on decadal time scales.

On shorter time scales, as discussed below, sediment resuspension plays an important role in nutrient and phytoplankton dynamics. Resuspension of bottom sediments can provide an important source of internal phosphorus loading. In Lake Griffin, high concentrations of phosphorus are found in sediments at the mud-water interface. Based on work in Lake Apopka, it seems likely that a significant fraction of the phosphorus in near-surface sediments is found in meroplankton (Kenney 1997). Meroplanktonic algae are adapted to survive for long periods (decades) in the aphotic environment on the lake bottom and then to become metabolically active when resuspended in the water column (Carrick et al. 1993). After sinking to the sediment surface, meroplanktonic algae assimilate and store nutrients that can be used for growth during periods of resuspension (Schelske et al. 1995). The meroplanktonic diatom, *A. ambigua*, comprises a large fraction of the diatom assemblage in near-surface sediments (Figs. 23-25). The frequency of meteorological events in Lake Griffin that resuspend meroplankton is not known, but in Lake Apopka (a larger lake) and other shallow lakes such events are so common that they play an important role in phytoplankton dynamics and produce significant short-term changes in phytoplankton standing crop (Carrick et al. 1993, Schelske et al. 1995). Storage of phosphorus by the algal community in near-surface sediments and subsequent burial of dormant algae, therefore, may be one of the factors contributing to high storage of phosphorus in recent sediments (Tables 12-14).

Given the high relative abundance of *Aulacoseira* in Lake Griffin sediments (Figs. 23-25), both chemical and biogeochemical processes must be considered in interpreting the dynamics of sedimentation, nutrient sequestering, and nutrient release in the near-surface sediments. Pore-water profiles of soluble phosphorus (phosphate) and soluble nitrogen (ammonium) at depths >8 cm in Lake Apopka are those attributed to geochemical processes (Reddy et al. 1996). Relatively low phosphate concentrations in the upper 8 cm in these sediments indicate that diffuse flux of phosphate into overlying waters is relatively unimportant. Reddy et al. (1996) conclude that the presence of a large algal mass (dominated by the meroplanktonic diatom, *Aulacoseira*) in the upper 5-10 cm of the sediment column may be an active sink for phosphate released from deeper sediments (see Van Luijn et al. 1995), adding a biological component to these dynamics and effectively altering the release of soluble phosphorus from the sediments (see Schelske et al. 1995). It is known that dormant meroplankton survive in a viable form for decades in sediments (Schelske et al. 1995). Such algae provide a potentially large phosphorus sink in lakes, particularly those in which dormant cells have stored excess phosphorus as polyphosphate (Schelske et al. 1995, Kenney 1997). Meroplanktonic algae, therefore, also are likely to be an important component of the biogeochemical cycle of phosphorus in Lake Griffin.

Paleolimnologic investigations of diatom microfossils in Florida lakes have demonstrated consistent stratigraphic patterns in a number of lakes. Four taxa that are indicators of either eutrophic or hypereutrophic conditions are dominant in eutrophic to hypereutrophic lakes in which macrophytes presently are relatively unimportant (Whitmore 1989). These taxa are either *A. italica* or *A. ambigua* which are meroplanktonic (Carrick et al. 1993) and three species formerly in the genus *Fragilaria*: *P. brevistriata*, *S. pinnata*, and several subspecies of *S. construens*. The three sets of entities formerly in the genus *Fragilaria* will be referred to collectively by that genus for purposes of convenience. In some lakes either *A. italica* or *A. ambigua* is dominant in surface sediments whereas in other lakes one or more of the three *Fragilaria* entities are dominant. At depth, a very different flora is commonly found. It is distinguished by periphytic (benthic) taxa including the genera *Pinnularia, Nitzschia, Navicula, Amphora, Epithemia, Gomphonema, Stauroneis,* and *Cymbella*. In addition, meroplanktonic diatoms in the genus *Aulacoseira* and planktonic diatoms in the genus *Cyclotella* may be present. The microfossil flora at depth is more diverse and generally is used to infer a macrophyte-dominated lake, lake water with higher transparency and lower nutrient content than at present, or some combination of both.

In this discussion of diatom microfossils in the sediments of eutrophic or hypereutrophic lakes, Case 1 lakes will be those in which either *A. italica* or *A. ambigua* is dominant in surface sediments and Case 2 lakes will be those in which one or more of the three *Fragilaria* entities are dominant in surface sediments. Whether *A. italica* and *A. ambigua* represent separate taxonomic entities or whether the same entity has been identified by different investigators is not resolved. For the purposes of this discussion, it is assumed that both *A. italica* or *A. ambigua* are meroplanktonic.

Lake Apopka provides a good example to illustrate Case 1 lakes. The lake is presently hypereutrophic with an average TP of 194 $\mu g\ L^{-1}$ (Conrow et al. 1993). It is known that the primary producer community shifted abruptly from macrophyte dominance to phytoplankton dominance in 1947 (Schelske et al. 1997). The microfossil assemblage in Lake Apopka before 1947 was a diverse assemblage consisting of *A. italica* and benthic species that were not important in terms of relative abundance after 1947. Case 2 species in this lake were most important after 1947 and then *A. italica* dominated the assemblage after approximately 1980.

Since then *A. italica* comprised approximately 80% of the microfossil assemblage. It has been shown that nutrient enrichment of lake waters increased after 1947 (Schelske et al. 1997). Therefore, the recent microfossil assemblage dominated by *A. italica* is associated with hypereutrophic conditions (194 $\mu g$ TP $L^{-1}$) in Lake Apopka and the assemblage with the greatest proportion of the *Fragilaria* species reflected a lower degree of nutrient enrichment during the early part of the phytoplankton phase.

The microfossil assemblage in Lake Griffin and its historic changes are similar to those found in Lake Apopka. *A. ambigua* comprised 60% or more of the microfossil assemblage in recent sediments, Case 2 species are most abundant at intermediate depths, and benthic species are found at the deepest depths in LG-11H and LG-26H but not in LG-44H (Figs. 23-25). The benthic assemblage, if present in LG-44H, was not sampled because the core was collected at a high sedimentation site and multiple depths deeper than $^{210}Pb$ dated sediments such as those counted in the other two cores were not studied.

Different microfossil assemblages were found in the surface sediments of two other lakes in the Ocklawaha chain (Schelske 1997b). Lake Eustis is clearly an example of a Class 1 lake. *A. ambigua* in two cores from this lake averaged 68% of the surface microfossil assemblage. Case 2 species were found at deeper depths. By contrast, *A. ambigua* comprises only 33% of surface microfossil assemblage in Lake Dora and *P. brevistriata* is the next most abundant taxon. These results based on the pattern found in Lake Apopka indicate that Lake Dora is less nutrient enriched than Lake Eustis, Lake Apopka, or Lake Griffin, other lakes studied in the Ocklawaha chain. According to data summarized by Fulton (1995), the average annual TP concentration in Lake Eustis was 50 $\mu g$ $L^{-1}$ or less in several years and only exceeded 100 $\mu g$ $L^{-1}$ in one year; whereas the annual TP concentration in Lake Dora was greater, exceeding 100 $\mu g$ $L^{-1}$ in most years and being >250 $\mu g$ $L^{-1}$ in one year. Data on water chemistry, therefore, are inconsistent with the inference that the average TP concentration is lower in Lake Dora than in Lake Eustis.

Examples of Case 2 lakes include Lake Jesup and Lake Hollingsworth, two hypereutrophic lakes. In Lake Jesup *A. ambigua* comprises <1.0% of the microfossil assemblage in surface sediments of three cores (Cable et al. 1997). In this lake, *P. brevistriata* is the most abundant taxon in the surface sediments. The microfossil assemblage in Lake Hollingsworth is dominated by the *Fragilaria* assemblage (Brenner et al. 1995). This lake, however, differs from Lake Jesup in that *P. brevistriata* is more important at depth and the importance of *S. pinnata* is greatest in surface sediments. *A. ambigua* and *A. italica* are also present in low relative abundance in Lake Hollingsworth. Lake Hollingsworth with a surface area of only 144 ha is by far the smallest lake used in this comparison.

No single hypothesis can be advanced to explain the differences in near-surface diatom microfossil assemblages in hypereutrophic Florida lakes. The hypothesis that nutrient enrichment increases phytoplankton standing crop and decreases water transparency (Schelske et al. 1997) is consistent with Case 1 lakes. This hypothesis invokes shading of the benthic *Fragilaria* assemblage and replacement with meroplanktonic *Aulacoseira* during nutrient enrichment. It is also consistent with the scenario in which macrophytes are replaced by phytoplankton during nutrient enrichment (Scheffer et al. 1993). The nutrient enrichment hypothesis, however, is not consistent with data from Case 2 lakes. Here, the benthic *Fragilaria* assemblage appears to exist in lakes with a mean depth much greater than the photic depth. These data indicate that the *Fragilaria* assemblage may be meroplanktonic. Therefore, other factors must be considered to explain differences observed among lakes.

Differences in physical factors may be important in explaining the distribution of diatom microfossils among hypereutrophic lakes. A refuge for benthic species may exist in lakes if depth varies markedly over the lake basin. Comparing hypsographic curves with photic depths for the lakes in question is needed to resolve this question. Size of lakes is also important. Case 1 lakes, particularly Lake Apopka, are large. In Lake Apopka, the area of bottom which is in the photic zone is very small; therefore, the meroplanktonic strategy is important in this system (Schelske et al. 1995). Lake Dora and Lake Jesup (Case 2 lakes) are moderately sized lakes, but both have an east-west orientation that may affect the role of resuspension because the long axis of these lakes is not in the path of prevailing winds . In small lakes, benthic diatoms produced in a relatively small littoral area (refuge) could contribute significantly to the microfossil flora. If the refuge hypothesis does not explain the presence of the benthic *Fragilaria* assemblage in surface sediments then species in this assemblage also must be meroplanktonic. Therefore, meroplanktonic species may have a competitive advantage in such lakes. Meroplanktonic *Aulacoseira* may replace the *Fragilaria* assemblage if *Aulacoseira* are better adapted as meroplankton. This hypothesized competitive advantage for meroplanktonic algae in hypereutrophic lakes (Carrick et al. 1993, Schelske et al. 1995) does provide a mechanism to explain the observed patterns of microfossil succession in Lake Apopka (Schelske et al. 1997).

Stratigraphic changes in the P/B ratio of microfossil diatoms (Figs. 29-31) and the TC/TN ratio (Figs. 15 and 16b) in Lake Griffin are consistent with known changes in macrophyte cover. Low P/B ratios beginning about 1950 and ending in the 1970s in LG-26H and LG-44H (Figs. 30 and 31) may reflect high abundance of aquatic macrophytes and subsequent decrease in plant cover, but this trend is not obvious in LG-11H (Fig. 29). The increase in P/B ratio in sediments deposited in the 1980s and 1990s of all three cores (Figs. 29-31) reflects an increase in planktonic diatoms, primarily *A. ambigua* (Figs. 23-25). A decrease in the TC/TN ratio also has been used as a proxy for a an increase in phytoplankton relative to macrophytes in the primary producer community (Schelske et al. 1997). The TC/TN ratio decreases markedly after 1950 at LG-11H and LG-26H (Fig. 15) and after 1975 at LG-44H (Fig. 16b). Thus, both P/B and TC/TN ratios provide evidence of increased phytoplankton abundance after macrophytes decreased in Lake Griffin. In Lake Apopka, these patterns were inferred to reflect increased abundance of phytoplankton and the associated decrease in transparency. If decreased water transparency can be inferred from the P/B ratio of microfossil diatoms in Lake Griffin, then the microfossils provide evidence that water transparency decreased markedly with the observed increase in sediment TP concentration after 1950 (Figs. 13 and 14). Large P/B ratios were found in recent sediments with high TP concentrations and during the period of highest TP sedimentation rates (Table 13).

Some data collected during this investigation of Lake Griffin point to improved water quality in recent sediments. Such a decrease in the 1980s and 1990s might be anticipated because a trend of decreased TP concentration in the water column is indicated by SJRWMD data collected since 1977 (Fulton, personal communication). Diatom-inferred TP concentrations in the water column decreased in near-surface sediments in two of the three cores studied, an indication that TP concentration in the water column decreased. Lower TP and NAIP concentrations in near-surface sediments of some historic and survey cores also indicates that TP concentration in the water column decreased. However, lower TP concentrations in cores also may reflect dilution by labile organic matter in near-surface sediments. Diagenesis (decomposition) of this labile organic matter during burial will result in higher TP concentration as sediment mass is reduced. Both of these possible signals of reduced TP concentration were found only in sediments deposited in the 1990s. Therefore, an indication of reduced TP sedimentation was not found in analyses that were based on decadal weighting. The signal inferred from diatom microfossils of improved water quality is not confounded by averaging data from more than one section and apparently is not blurred completely by sediment mixing. One of the possible explanations for the absence of signals of reduced TP in the water column in the 1980s is blurring of the sediment record by mixing.

Several lines of paleolimnological evidence point to nutrient enrichment and its consequences on ecosystem processes in Lake Griffin in the 20th century. Sediment TP concentration increased five- to six-fold above the anthropogenic baseline concentration. Dry mass sedimentation rate, which is controlled by organic matter sedimented as a by-product of primary production, increased upcore; TP sedimentation rates determined from $^{210}$Pb dated cores increased upcore with a sharp increase beginning about 1950; diatom-inferred water column TP concentrations generally increased with a sharp break early in the century; the planktonic/benthic (P/B) ratio of diatom microfossils an, index of nutrient enrichment, increased in recent sediments; and the TC/TN ratio of organic matter decreased in recent sediments. High P/B ratios of diatom microfossils and low TC/TN ratios in the 1980s and early 1990s are inferred as evidence of the period of highest nutrient enrichment. These signals of nutrient enrichment occur after development of the Emeralda muck farms in the early 1950s through the 1970s (Marburger and Godwin 1996), or at a time when nutrient inputs from such sources probably peaked (Fulton 1995). In Lake Apopka, increases in P/B ratios of diatom microfossils and decreases in TC/TN ratios were attributed to replacement of macrophytes by phytoplankton as a result of nutrient enrichment (Schelske et al. 1997). Similar changes in P/B and TC/TN ratios in Lake Griffin may also reflect loss of macrophytes due to nutrient enrichment (Scheffer et al. 1993).

Two possible signs of recent, decreased nutrient loading were found in Lake Griffin sediments: a decrease in sediment TP concentration in the near-surface sediments of most cores and a decrease in diatom-inferred water column concentrations in near-surface sediments in two of the three cores studied. The decrease in sediment TP concentration was either too small or in such a small portion of the sediment record that it did not produce a corresponding decrease in TP sedimentation rate in the most recent decade of the sediment record. A decrease in phosphorus sedimentation would be expected if phosphorus loading to the lake basin and phosphorus concentrations in the water column decreased.

In conclusion, results presented in this report show that phosphorus loading has affected the trophic state of Lake Griffin in the 20th century, but most severely in the second half of this century; that sediments are a significant sink for phosphorus and therefore that reductions in phosphorus loading can be expected to improve water quality on time scales of years or one or two decades; that improvements in water quality can be predicted from data on historic phosphorus loading (not a part of this study); and that permanent sedimentation of stored phosphate in meroplanktonic algae may be an important phosphorus sink and thus an unrecognized factor in assessing the predicted time scales required for improvements in water quality. Burial and sedimentation of stored phosphorus in meroplanktonic algae, a potentially important phosphorus sink, should be investigated in greater detail to evaluate the environmental implications for long-term phosphorus dynamics.

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# APPENDIX A

Field core description and station location
for survey and historic cores collected during
Phase I and Phase II, Lake Griffin.

## Key to Field Notes

**Station Location Data** for stations are latitude and longitude values obtained from a Trimble Navigation Global Positioning System Pathfinder. Station locations were stored as waypoint values on the system. An initial reading was taken after anchoring on station and a second reading was taken when work was completed. Only one reading is recorded here.

**Sediment Survey Data** include information on water depth, sediment thickness, and descriptions of the sediment cores retrieved.

Depth of the water column was determined by sounding with a Secchi disc on a metered line.

Depth to hard bottom was measured by inserting metered electrical conduit rods into the sediment until they bottomed on hard, sandy deposits.

Soft sediment thickness was estimated by subtracting the depth of the water column from the depth to hard bottom.

Sediment core length was determined by measuring the retrieved core with a meter stick.

Sediment core descriptions were made before sediment cores were extruded. Additional descriptions were made as the cores were sectioned.

# LAKE GRIFFIN SURVEY CORES - PHASE I

## Station 1

Core ID: LG-1-93

Collected: 13 December 1993
Location: 28° 50' 47.3" N
81° 52' 51.4" W
Length: 134 cm
Description: Dark organic sediments to 68 cm. Dark organic sediments with plant fibers 68-134 cm.
Water Depth: 196 cm

Soft Sediment Thickness: 404 cm

## Station 2

Core ID: LG-2-93

Collected: 13 December 1993
Location: 28° 50' 19.3" N
81° 52' 32.6" W
Length: 110 cm
Description: Dark organic sediments 0-110 cm.

Water Depth: 216 cm

Soft Sediment Thickness: 384 cm

## Station 3

Core ID: LG-3-93

Collected: 13 December 1993
Location: 28° 49' 53.1" N
81° 52' 12.7" W
Length: 120 cm
Description: Dark organic sediments from 0-120 cm.

Water Depth: 230 cm

Soft Sediment Thickness: 370 cm

## Station 4

Core ID: LG-4-93

Collected: 13 December 1993
Location: 28° 49' 39" N
81° 51' 17" W
Length: 137 cm
Description: Dark organic sediments to 137 cm

Water Depth: 260 cm

Soft Sediment Thickness: 340 cm

## Station 5

Core ID: LG-5-93

Collected: 13 December 1993
Location: 28° 50' 01.2" N
81° 51' 18.9" W
Length: 147 cm
Description: Dark organic sediments to 147 cm.

Water Depth: 280 cm

Soft Sediment Thickness: 320 cm

## Station 6

Core ID: LG-6-93

Collected: 13 December 1993
Location: 28° 50' 24.4" N
81° 51' 19.5" W
Length: 142 cm
Description: Dark organic sediments to 142 cm.

Water Depth: 286 cm

Soft Sediment Thickness: 314 cm

**Station 7**

| | |
|---|---|
| Core ID: | LG-7-93 |
| Collected: | 13 December 1993 |
| Location: | 28° 50' 45.5" N<br>81° 51' 19.3" W |
| Length: | 129 cm |
| Description: | Dark organic sediments to 129 cm. |
| Water Depth: | 272 cm |
| Soft Sediment Thickness: | 328 cm |

**Station 8**

| | |
|---|---|
| Core ID: | LG-8-93 |
| Collected: | 13 December 1993 |
| Location: | 28° 51' 07.8" N<br>81° 51 23.3" W |
| Length: | 131 cm |
| Description: | Dark organic sediments to 131 cm. |
| Water Depth: | 242 cm |
| Soft Sediment Thickness: | 358 cm |

**Station 9**

| | |
|---|---|
| Core ID: | LG-9-93 |
| Collected: | 13 December 1993 |
| Location: | 28° 53' 18.6" N<br>81° 51' 28.5" W |
| Length: | 147 cm |
| Description: | Dark organic sediments to 92 cm. And plant fibers to 147 cm. |
| Water Depth: | 140 cm |
| Soft Sediment Thickness: | 200 cm |

**Station 10**

| | |
|---|---|
| Core ID: | LG-10-93 |
| Collected: | 17 December 1993 |
| Location: | 28° 49' 42.2" N<br>81° 50' 57.4" W |
| Length: | 123 cm |
| Description: | Dark organic sediments to 123 cm. |
| Water Depth: | 220 cm |
| Soft Sediment Thickness: | 380 cm |

**Station 11**

| | |
|---|---|
| Core ID: | LG-11-93 |
| Collected: | 17 December 1993 |
| Location: | 28° 50' 07.0" N<br>81° 50' 57.5" W |
| Length: | 151 cm |
| Description: | Dark organic sediments to 124 cm. With plant fibers from 124- 151 cm. |
| Water Depth: | 265 cm |
| Soft Sediment Thickness: | 335 cm |

**Station 12**

| | |
|---|---|
| Core ID: | LG-12-93 |
| Collected: | 17 December 1993 |
| Location: | 28° 50' 31.4" N<br>81° 50' 57.6" W |
| Length: | 140 cm. |
| Description: | Dark organic sediments to 140 cm. |
| Water Depth: | 260 cm |
| Soft Sediment Thickness: | 340 cm |

**Station 13**

Core ID: LG-13-93

Collected: 17 December 1993
Location: 28° 50' 55.1" N
81° 50' 57,6" W
Length: 124 cm
Description: Dark organic sediment with small gastropods to 20 cm. Dark sediment only from 20-124 cm.

Water Depth: 260 cm

Soft Sediment Thickness: 305 cm

**Station 14**

Core ID: LG-14-93

Collected: 17 December 1993
Location: 28° 51' 20.7" N
81° 50' 57.7" W
Length: 140 cm
Description: Dark organic sediments to 140 cm.

Water Depth: 280 cm

Soft Sediment Thickness: 295 cm

**Station 15**

Core ID: LG-15-93

Collected: 17 December 1993
Location: 28° 51' 43.2" N
81° 50' 58.2" W
Length: 126 cm
Description: Dark organic sediment to 126 cm.

Water Depth: 220 cm

Soft Sediment Thickness: 350 cm

**Station 16**

Core ID: LG-16-93

Collected: 17 December 1993
Location: 28° 52' 08.1" N
81° 50' 58.1" W
Length: 129 cm
Description: Dark organic sediments to 129 cm.

Water Depth: 210 cm

Soft Sediment Thickness: 208 cm

**Station 17**

Core ID: LG-17-93

Collected: 17 December 1993
Location: 28° 52' 31.4" N
81° 50' 58.1" W
Length: 54 cm
Description: 0-29 cm, dark organic sediments; 29-39 cm, brown sand with gray clay to 39-54 cm.
Water Depth: 300 cm

Soft Sediment Thickness: 30 cm

**Station 18**

Core ID: LG-18-93

Collected: 17 December 1993
Location: 28° 52' 56" N
81° 50' 57.8" W
Length: 137 cm
Description: Dark organic sediments to 137 cm.

Water Depth: 215 cm

Soft Sediment Thickness: 155 cm

**Station 19**

Core ID: LG-19-93

Collected: 17 December 1993
Location: 28° 53' 20.2" N
81° 50' 58" W
Length: 134 cm
Description: Dark organic sediments to 134 cm.

Water Depth: 210 cm

Soft Sediment Thickness: 330 cm

**Station 20**

Core ID: LG-20-93

Collected: 17 December 1993
Location: 28° 53' 44.5" N
81° 50′ 58.1" W
Length: 17 cm
Description: Dark organic sediments to 0.5 cm. Brown sand 0.5-8.5 cm and gray clay from 8.5-17 cm.

Water Depth: 275 cm

Soft Sediment Thickness: 20 cm

**Station 21**

Core ID: LG-21-93

Collected: 17 December 1993
Location: 28° 54' 07.5" N
81° 50′ 57.5" W
Length: 142 cm
Description: Dark organic sediments to 142 cm.

Water Depth: 170 cm

Soft Sediment Thickness: 275 cm

**Station 22**

Core ID: LG-22-93

Collected: 17 December 1993
Location: 28° 54' 32.9" N
81° 50′ 57.8" W
Length: 136 cm
Description: Dark organic sediments to 136 cm.

Water Depth: 165 cm

Soft Sediment Thickness: 205 cm

**Station 23**

Core ID: LG-23-93

Collected: 17 December 1993
Location: 28° 54' 56.9" N
81° 50′ 58.0" W
Length: 148 cm
Description: Dark organic sediment to 148 cm.

Water Depth: 158 cm

Soft Sediment Thickness: 202 cm

**Station 24**

Core ID: LG-24-93

Collected: 14 December 1993
Location: 28° 50' 08.8" N
81° 50′ 22.3" W
Length: 131 cm
Description: Dark organic sediment to 131 cm.

Water Depth: 275 cm

Soft Sediment Thickness: 185 cm

**Station 25**

Core ID: LG-22-93

Collected: 14 December 1993
Location: 28° 50' 33.5" N
81° 50' 25.3" W
Length: 148 cm
Description: Dark organic sediments to 148 cm.

Water Depth: 260 cm

Soft Sediment Thickness: 340 cm

**Station 26**

Core ID: LG-26-93

Collected: 18 December 1993
Location: 28° 50' 55.5" N
81° 50" 23.7" W
Length: 130 cm
Description: Light brown organic sediments with gastropods to 38 cm; from 38-130 cm dark brown sediments.

Water Depth: 250 cm

Soft Sediment Thickness: 265 cm

**Station 27**

Core ID: LG-27-93

Collected: 18 December 1993
Location: 28° 51' 19.3" N
81° 50' 24.0" W
Length: 17 cm
Description: Sand to 6 cm and gray clay from 6-17 cm.

Water Depth: 310 cm

Soft Sediment Thickness: 10 cm

**Station 28**

Core ID: LG-28-93

Collected: 18 December 1993
Location: 28° 52' 07.2" N
81° 50' 23.3" W
Length: 126 cm
Description: Dark organic sediment to 126 cm.
Water Depth: 200 cm

Soft Sediment Thickness: 170 cm

**Station 29**

Core ID: LG-29-93

Collected: 18 December 1993
Location: 28° 52' 31.3" N
81° 50' 23.7" W
Length: 138 cm
Description: Dark organic sediment to 73 cm. From 73-114 cm plant fibers, sand at 114-122. From 122-123 cm gray clay with small gastropods and gray clay only to 138 cm.
Water Depth: 220 cm

Soft Sediment Thickness: 90 cm

**Station 30**

Core ID: LG-30-93

Collected: 18 December 1993
Location: 28° 52' 55.7" N
81° 50' 23.9" W
Length: 103 cm
Description: Dark organic sediment to 88 cm. From 88-93 cm, sand. Gray clay with small gastropods from 93-103 cm
Water Depth: 255 cm

Soft Sediment Thickness: 85 cm

**Station 31**

Core ID: LG-31-93

Collected: 18 December 1993
Location: 28° 53' 20.4" N
81° 50′ 23.9" W
Length: 136 cm
Description: Dark organic sediment to 136 cm.

Water Depth: 220 cm

Soft Sediment Thickness: 150 cm

**Station 32**

Core ID: LG-32-93

Collected: 18 December 1993
Location: 28° 53' 44.1" N
81° 50" 23.9" W
Length: 135 cm
Description: Dark brown organic sediments to 135 cm.

Water Depth: 180 cm

Soft Sediment Thickness: 180 cm

**Station 33**

Core ID: LG-33-93

Collected: 18 December 1993
Location: 28° 54' 07.6" N
81° 50" 24.0" W
Length: 98 cm
Description: Dark organic sediments to 86 cm; from 86-91 cm sand with gray clay from 91-98 cm.

Water Depth: 205 cm

Soft Sediment Thickness: 95 cm

**Station 34**

Core ID: LG-34-93

Collected: 18 December 1993
Location: 28° 54' 33.1" N
81° 50′ 23.9" W
Length: 142 cm
Description: Dark organic sediment to 132 cm. with sand from 132-134 cm. and clay from 134-142 cm.
Water Depth: 170 cm

Soft Sediment Thickness: 140 cm

**Station 35**

Core ID: LG-35-93

Collected: 18 December 1993
Location: 28° 54' 57.1" N
81° 50" 24.0" W
Length: 142 cm
Description: Dark brown sediments with plant fibers to 142 cm.

Water Depth: 160 cm

Soft Sediment Thickness: 160 cm

**Station 36**

Core ID: LG-36-93

Collected: 18 December 1993
Location: 28° 55 21.1" N
81° 50" 24.1" W
Length: 125 cm
Description: Dark organic sediments to 70 cm. with plant fibers from 70-105 cm. Sand from 105-111 cm and gray clay from 111-125 cm.
Water Depth: 160 cm

Soft Sediment Thickness: 110 cm

**Station 37**

Core ID: LG-37-93

Collected: 18 December 1993
Location: 28° 50' 41.3" N
81° 49'51.6" W
Length: 114 cm
Description: Dark organic sediment to 102 cm. with sand from 102-102.5 cm. then dark organic sediments from 102.5-114 cm.

Water Depth: 190 cm

Soft Sediment Thickness: 265 cm

**Station 38**

Core ID: LG-38-93

Collected: 18 December 1993
Location: 28° 51 07.2" N
81° 49' 52.3" W
Length: 132 cm
Description: Dark organic sediment to 132 cm.

Water Depth: 200 cm

Soft Sediment Thickness: 250 cm

**Station 39**

Core ID: LG-39-93

Collected: 18 December 1993
Location: 28° 52' 09.1" N
81° 49' 52.3" W
Length: 137 cm
Description: Dark organic sediment to 90 cm. with sand from 90-96 cm. A shell layer from 96-98 cm. and gray clay from 98-110 cm.

Water Depth: 140 cm

Soft Sediment Thickness: 180 cm

**Station 40**

Core ID: LG-40-93

Collected: 18 December 1993
Location: 28° 54' 17.6" N
81° 49' 52.5" W
Length: 136 cm
Description: Dark organic sediment with plant fibers to 136 cm.

Water Depth: 140 cm

Soft Sediment Thickness: 140 cm

**Station LG-2H**

Core ID: LG-2H-94

Collected: 16 March 1994
Location: 28° 50' 21.6" N
81° 52' 32.0" W
Core Length: 123 cm
Description: Dark organic material with gastropods to 50 cm. From 50-123 cm dark organic material.
Water Depth: 227 cm

Soft Sediment Thickness: 373 cm

**Station LG-11H**

Core ID: LG-11H-94

Collected: 15 March 1994
Location: 28° 50' 06.5" N
81° 50' 51.1" W
Core Length: 138 cm
Description: Dark organic material with gastropods to 35 cm. From 35-138 cm dark organic material.

Water Depth: 292 cm

Soft Sediment Thickness: 308 cm

**Station LG-26H**

Core ID: LG-26H-94

Collected: 15 March 1994
Location: 28° 50' 53.0" N
81° 50' 24.2" W
Core Length: 135 cm
Description: Dark organic material from 0-135 cm.

Water Depth: 278 cm

Soft Sediment Thickness: 237 cm

**Station LG-41H**

Core ID: LG-41H-94

Collected: 16 March 1994
Location: 28° 53' 10.1" N
81° 50' 38.0"W
Core Length: 79 cm
Description: Dark organic material entire core

Water Depth: 240 cm

Soft Sediment Thickness: 160 cm.

**Station LG-42H**

Core ID: LG-42H-94

Collected: 15 March 1994
Location: 28° 54' 44.5" N
81° 50' 38.7"W
Core Length: 84 cm
Description: Dark organic material entire core

Water Depth: 237 cm

Soft Sediment Thickness: 123 cm

## LAKE GRIFFIN SURVEY CORES - PHASE II

### Station PII-1

Core ID: LG-1-95

Collected: 10 October 1995
Location: 28° 51′ 11.9" N
81° 52′ 47.0" W
Length: 95 cm
Description: Plant fibers below 50 cm, core never consolidated

Water Depth: 160 cm

Soft Sediment Thickness: 675 cm

### Station PII-2

Core ID: LG-2-95

Collected: 10 October 1995
Location: 28° 50′32.3" N
81° 52′ 41.7" W
Length: 155 cm
Description: Gastropod shells from 25 to 50 cm, sand at 75 cm

Water Depth: 210 cm

Soft Sediment Thickness: 770 cm

### Station PII-3

Core ID: LG-3-95

Collected: 10 October 1995
Location: 28° 50′10.3" N
81° 52′ 24.3" W
Length: 153 cm
Description: Gastropods to 55 cm

Water Depth: 220 cm

Soft Sediment Thickness: 730 cm

### Station PII-4

Core ID: LG-4-95

Collected: 10 October 1995
Location: 28° 49′ 36.5" N
81° 51′ 54.1" W
Length: 155 cm
Description: 0-30 cm, unconsolidated floc. Gastropod shells from 15 to 20 cm

Water Depth: 280 cm

Soft Sediment Thickness: 290 cm

### Station PII-5

Core ID: LG-5-95

Collected: 31 October 95
Location: 28° 51′ 55.0" N
81° 51′ 12.9" W
Length: 155 cm
Description: 0-20 cm unconsolidated floc. Gastropod shells to 45 cm

Water Depth: 210 cm

Soft Sediment Thickness: 355 cm

### Station PII-6

Core ID: LG-6-95

Collected: 31 October 95
Location: 28° 53′ 03.7" N
81° 51′ 15.2" W
Length: 44 cm
Description: 0-30 cm, unconsolidated floc. Sand layer from 30 to 34 cm, sand at 47 cm, clay below 58 cm
Water Depth: 260 cm

Soft Sediment Thickness: 95 cm

**Station PII-7**

Core ID: LG-7-95

Collected: 31 October 95
Location: 28° 54′ 19.9" N
81° 51′ 08.9" W
Length: 148 cm
Description: Brown floculent material, unconsolidated till last 8 cm. No visible stratigraphy
Water Depth: 160 cm

Soft Sediment Thickness: 245 cm

**Station PII-8**

Core ID: LG-8-95

Collected: 31 October 95
Location: 28° 54′ 45.2" N
81° 51′ 10.3" W
Length: 140 cm
Description: 0-40 cm unconsolidated floc. at 40 cm, macrophyte fibers to end.
No visible stratigraphy

Water Depth: 170 cm

Soft Sediment Thickness: 230 cm

**Station PII-9**

Core ID: LG-9-95

Collected: 31 October 95
Location: 28° 52′ 18.9" N
81° 50′ 38.3" W
Length: 144 cm
Description: Plant fibers to 37 cm, gastropod shells from 14 cm to bottom
Water Depth: 240 cm

Soft Sediment Thickness: 175 cm

**Station PII-10**

Core ID: LG-10-95

Collected: 31 October 95
Location: 28° 53′ 07.3" N
81° 50′ 41.6" W
Length: 128 cm
Description: Fibers at 80 cm
No visible stratigraphy

Water Depth: 260 cm

Soft Sediment Thickness: 155 cm

**Station PII-11**

Core ID: LG-11-95

Collected: 7 November 95
Location: 28° 53′ 55.2 " N
81° 50′ 40.8 " W
Length: 128 cm
Description: 0-20 unconsolidated floc.
A few gastropod shells from 20 to 24 cm

Water Depth: 200 cm

Soft Sediment Thickness: 245 cm

**Station PII-12**

Core ID: LG-12-95

Collected: 7 November 95
Location: 28° 54′ 42.2" N
81° 50′ 42.2" W
Length: 128 cm (104 cm saved)
Description: Gastropod shells from 16 to 29 cm, sand below 128 cm

Water Depth: 220 cm

Soft Sediment Thickness: 135 cm

**Station PII-13**

Core ID: LG-13-95

Collected: 7 November 95
Location: 28° 55´ 13.3" N
81° 50´ 51.2" W
Length: 136 cm
Description: Gastropod shells to 32 cm, plant fibers from 72 cm to bottom

Water Depth: 180 cm

Soft Sediment Thickness: 180 cm

**Station PII-14**

Core ID: LG-14-95

Collected: 7 November 95
Location: 28° 51´ 55.4" N
81° 50´ 02.0" W
Length: 136 cm
Description: Gastropod shells to 32 cm

Water Depth: 180 cm

Soft Sediment Thickness: 385 cm

**Station PII-15**

Core ID: LG-15-95

Collected: 7 November 95
Location: 28° 52´ 43.8" N
81° 50´ 12.2" W
Length: 96 cm
Description: No visible stratigraphy

Water Depth: 250 cm

Soft Sediment Thickness: 85 cm

**Station PII-16**

Core ID: LG-16-95

Collected: 28 November 95
Location: 28° 53´ 07.0" N
81° 50´ 12.3" W
Length: 88 cm
Description: 0-16 cm unconsolidated floc. Fragmented gastropod shells from 8 to 32 cm, sand from 72 to 76 cm, clay below 76 cm
Water Depth: 250 cm

Soft Sediment Thickness: 85 cm

**Station PII-17**

Core ID: LG-17-95

Collected: 28 November 95
Location: 28° 53´ 31.3" N
81° 50´ 12.2" W
Length: 112 cm
Description: 0-28 cm unconsolidated floc. Plant fibers at 64 cm, sand from 108 to 112 cm, clay below 112 cm
Water Depth: 220 cm

Soft Sediment Thickness: 135 cm

**Station PII-18**

Core ID: LG-18-95

Collected: 28 November 95
Location: 28° 53´ 54.8" N
81° 50´ 08.5" W
Length: 128 cm
Description: 0-16 cm unconsolidated floc. Sand from 120 to 126 cm, clay below 126 cm
Water Depth: 180 cm

Soft Sediment Thickness: 135 cm

**Station PII-19**

| | |
|---|---|
| Core ID: | LG-19-95 |
| Collected: | 28 November 95 |
| Location: | 28° 54′ 25.7" N<br>81° 50′ 10.0" W |
| Length: | 128 cm |
| Description: | 0-26 cm unconsolidated floc.<br>Plant fibers below 26 cm |
| Water Depth: | 200 cm |
| Soft Sediment Thickness: | 127 cm |

**Station PII-20**

| | |
|---|---|
| Core ID: | LG-20-95 |
| Collected: | 28 November 95 |
| Location: | 28° 54′ 46.6" N<br>81° 50′ 12.7" W |
| Length: | 136 cm |
| Description: | 0-30 cm unconsolidated floc.<br>Plant fibers below 30 cm |
| Water Depth: | 130 cm |
| Soft Sediment Thickness: | 130 cm |

**Station LG-3H**

| | |
|---|---|
| Core ID: | LG-3H-95 |
| Collected: | 24 July 95 |
| Location: | 28° 49' 53.6" N<br>81° 52' 11.2" W |
| Length: | 120 cm |
| Description: | Plant fibers to 20 cm Gastropod shell fragments from 20 to 30 cm. Unconsolidated organic sediments from 30 to 160 cm |
| Water Depth: | 230 cm |

**Station LG-43H**

| | |
|---|---|
| Core ID: | LG-43H-95 |
| Collected: | 25 July 95 |
| Location: | 28° 54' 10.2" N<br>81° 49' 56.1" W |
| Length: | 116 cm |
| Description: | Flocculent layer 10-15 cm No visible stratigraphy to 116 cm where core terminates with sand |
| Water Depth: | 140 cm |

**Station LG-7H**

| | |
|---|---|
| Core ID: | LG-7H-95 |
| Collected: | 17 May 95 |
| Location: | 28° 50' 57.2" N<br>81° 51' 23.7" W |
| Length: | 100 cm |
| Description: | Flocculent sediments 10 to 20 cm, plant fibers and shells to 90 cm |

**Station LG-44H**

| | |
|---|---|
| Core ID: | LG-44H-95 |
| Collected: | 25 July 95 |
| Location: | 28° 54' 21.3" N<br>81° 51' 01.0" W |
| Length: | 130 cm |
| Description: | No visible stratigraphy |
| Water Depth: | 200 cm |

**Station LG-16H**

| | |
|---|---|
| Core ID: | LG-16H-95 |
| Collected: | 24 July 95 |
| Location: | 28° 52' 10.3" N<br>81° 51' 01.1" W |
| Length: | 108 cm |
| Description: | No visible stratigraphy |
| Water Depth: | 240 cm |

# APPENDIX B

Gravimetric and chemical data, Lake Griffin survey cores, Phase I.
See Appendix A for collection date, location and description of cores.

CODES:
Sta is station number
Depth is depth (cm)
Dry is percent dry weight
Rho is dry weight density (g dry $cm^{-3}$ wet)
LOI is percent loss on ignition
Cum Wt is cumulative mass (g $cm^{-2}$)
TP is total phosphorus (mg $g^{-1}$)
NAIP is non-apatite inorganic phosphorus (mg $g^{-1}$),
Cum TP is cumulative TP (mg $cm^{-2}$)
Cum NAIP is cumulative NAIP (mg $cm^{-2}$)
TN is total nitrogen (%)
TC is total carbon (%)
TC/TN is TC/TN mass ratio

Missing data are indicated by dots.

Lake Griffin Survey Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 1 | 10 | 1.38 | 0.0139 | 69.35 | 0.139 | 1.91 | 0.65 | 0.265 | 0.090 | 3.70 | 33.83 | 9.14 |
| 1 | 20 | 2.12 | 0.0214 | 69.96 | 0.353 | 1.43 | 0.57 | 0.572 | 0.211 | 3.35 | 33.98 | 10.14 |
| 1 | 30 | 2.56 | 0.0259 | 67.49 | 0.612 | 1.27 | 0.49 | 0.900 | 0.337 | 3.23 | 32.93 | 10.20 |
| 1 | 40 | 2.71 | 0.0274 | 68.12 | 0.886 | 1.09 | 0.43 | 1.199 | 0.456 | 3.27 | 33.61 | 10.28 |
| 1 | 50 | 2.78 | 0.0282 | 68.42 | 1.168 | 0.88 | 0.37 | 1.447 | 0.559 | 3.12 | 33.84 | 10.85 |
| | | | | | | | | | | | | |
| 2 | 10 | 1.67 | 0.0168 | 67.86 | 0.168 | 1.93 | 0.78 | 0.325 | 0.132 | 3.51 | 33.08 | 9.42 |
| 2 | 20 | 1.97 | 0.0198 | 68.59 | 0.367 | 1.43 | 0.61 | 0.609 | 0.252 | 3.29 | 32.54 | 9.89 |
| 2 | 30 | 2.78 | 0.0282 | 65.24 | 0.649 | 1.54 | 0.60 | 1.043 | 0.421 | 3.36 | 32.71 | 9.74 |
| 2 | 40 | 3.08 | 0.0313 | 62.36 | 0.962 | 1.28 | 0.55 | 1.444 | 0.593 | 3.18 | 31.93 | 10.04 |
| 2 | 50 | 2.93 | 0.0297 | 61.78 | 1.259 | 1.19 | 0.52 | 1.797 | 0.748 | 2.98 | 31.29 | 10.50 |
| | | | | | | | | | | | | |
| 3 | 10 | 1.97 | 0.0199 | 61.22 | 0.199 | 1.39 | 0.55 | 0.277 | 0.110 | 3.27 | 31.77 | 9.72 |
| 3 | 20 | 3.18 | 0.0323 | 58.13 | 0.522 | 0.70 | 0.26 | 0.503 | 0.195 | 2.98 | 31.91 | 10.71 |
| 3 | 30 | 3.49 | 0.0355 | 68.60 | 0.877 | 0.41 | 0.15 | 0.649 | 0.250 | 3.14 | 34.09 | 10.86 |
| 3 | 40 | 3.99 | 0.0407 | 67.19 | 1.284 | 0.32 | 0.17 | 0.779 | 0.320 | 2.88 | 34.06 | 11.83 |
| 3 | 50 | 4.98 | 0.0511 | 47.09 | 1.795 | 0.19 | 0.12 | 0.876 | 0.380 | 2.52 | 30.07 | 11.93 |
| | | | | | | | | | | | | |
| 4 | 10 | 1.94 | 0.0196 | 64.58 | 0.196 | 1.57 | 0.75 | 0.308 | 0.148 | 3.47 | 31.38 | 9.04 |
| 4 | 20 | 2.15 | 0.0217 | 58.97 | 0.413 | 1.26 | 0.75 | 0.582 | 0.311 | 3.15 | 30.67 | 9.74 |
| 4 | 30 | 3.07 | 0.0311 | 55.45 | 0.725 | 1.07 | 0.57 | 0.915 | 0.487 | 2.77 | 29.81 | 10.76 |
| 4 | 40 | 3.45 | 0.0352 | 53.02 | 1.076 | 0.91 | 0.47 | 1.235 | 0.653 | 2.92 | 30.20 | 10.34 |
| 4 | 50 | 4.09 | 0.0418 | 55.31 | 1.494 | 0.91 | 0.53 | 1.615 | 0.873 | 2.67 | 30.50 | 11.42 |
| | | | | | | | | | | | | |
| 5 | 10 | 1.96 | 0.0198 | 60.42 | 0.198 | 1.46 | 0.76 | 0.289 | 0.150 | 3.36 | 30.94 | 9.21 |
| 5 | 20 | 2.47 | 0.0250 | 58.38 | 0.448 | 1.15 | 0.51 | 0.577 | 0.276 | 2.86 | 30.97 | 10.83 |
| 5 | 30 | 4.08 | 0.0417 | 45.34 | 0.865 | 0.61 | 0.32 | 0.831 | 0.411 | 2.65 | 31.13 | 11.75 |
| 5 | 40 | 4.16 | 0.0425 | 54.90 | 1.290 | 0.32 | 0.16 | 0.967 | 0.481 | 2.68 | 31.30 | 11.68 |
| 5 | 50 | 4.02 | 0.0410 | 60.99 | 1.700 | 0.25 | 0.10 | 1.070 | 0.523 | 2.61 | 31.03 | 11.89 |
| | | | | | | | | | | | | |
| 6 | 10 | 1.54 | 0.0155 | 64.56 | 0.155 | 1.28 | 0.89 | 0.199 | 0.138 | 3.45 | 31.91 | 9.25 |
| 6 | 20 | 2.24 | 0.0227 | 62.66 | 0.382 | 1.28 | 0.69 | 0.489 | 0.295 | 3.06 | 29.41 | 9.61 |
| 6 | 30 | 2.80 | 0.0284 | 56.35 | 0.666 | 1.04 | 0.58 | 0.784 | 0.459 | 3.04 | 30.69 | 10.10 |
| 6 | 40 | 3.11 | 0.0316 | 57.29 | 0.981 | 0.85 | 0.47 | 1.052 | 0.609 | 2.81 | 29.97 | 10.67 |
| 6 | 50 | 4.98 | 0.0512 | 36.52 | 1.493 | 0.53 | 0.33 | 1.324 | 0.780 | 2.77 | 30.66 | 11.07 |
| | | | | | | | | | | | | |
| 7 | 10 | 1.85 | 0.0187 | 63.55 | 0.187 | 1.41 | 1.15 | 0.263 | 0.215 | 3.33 | 31.36 | 9.42 |
| 7 | 20 | 2.47 | 0.0250 | 61.59 | 0.436 | 1.70 | 1.15 | 0.688 | 0.502 | 3.05 | 30.68 | 10.06 |
| 7 | 30 | 3.08 | 0.0313 | 57.89 | 0.749 | 0.81 | 0.41 | 0.941 | 0.629 | 2.63 | 30.75 | 11.69 |
| 7 | 40 | 3.31 | 0.0336 | 57.32 | 1.085 | 0.65 | 0.28 | 1.160 | 0.724 | 2.81 | 31.65 | 11.26 |
| 7 | 50 | 4.12 | 0.0420 | 58.37 | 1.506 | 0.28 | 0.17 | 1.277 | 0.796 | 2.58 | 32.06 | 12.43 |
| | | | | | | | | | | | | |
| 8 | 10 | 1.96 | 0.0198 | 64.08 | 0.198 | 1.55 | 0.91 | 0.306 | 0.180 | 3.51 | 32.44 | 9.24 |
| 8 | 20 | 2.59 | 0.0262 | 61.11 | 0.459 | 1.36 | 0.95 | 0.662 | 0.428 | 3.29 | 32.19 | 9.78 |
| 8 | 30 | 3.14 | 0.0319 | 58.12 | 0.779 | 1.05 | 0.57 | 0.998 | 0.611 | 3.00 | 31.22 | 10.41 |
| 8 | 40 | 3.74 | 0.0381 | 60.18 | 1.160 | 0.92 | 0.48 | 1.348 | 0.796 | 3.03 | 31.43 | 10.37 |
| 8 | 50 | 3.73 | 0.0379 | 62.42 | 1.539 | 0.95 | 0.57 | 1.709 | 1.012 | 2.75 | 29.46 | 10.71 |

# Lake Griffin Survey Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 9 | 10 | 2.54 | 0.0257 | 68.71 | 0.257 | 1.56 | 0.58 | 0.401 | 0.150 | 3.52 | 33.39 | 9.49 |
| 9 | 20 | 2.59 | 0.0263 | 68.29 | 0.519 | 1.69 | 1.01 | 0.844 | 0.414 | 3.50 | 34.24 | 9.78 |
| 9 | 30 | 2.87 | 0.0291 | 67.11 | 0.810 | 1.22 | 0.53 | 1.199 | 0.568 | 3.24 | 33.48 | 10.33 |
| 9 | 40 | 3.17 | 0.0321 | 68.08 | 1.132 | 0.94 | 0.49 | 1.501 | 0.724 | 2.95 | 33.80 | 11.46 |
| 9 | 50 | 4.35 | 0.0445 | 52.17 | 1.577 | 0.54 | 0.30 | 1.742 | 0.859 | 2.58 | 31.32 | 12.14 |
| | | | | | | | | | | | | |
| 10 | 10 | 1.83 | 0.0184 | 62.39 | 0.184 | 1.28 | 0.76 | 0.236 | 0.139 | 3.14 | 30.68 | 9.77 |
| 10 | 20 | 2.87 | 0.0291 | 51.91 | 0.475 | 0.83 | 0.49 | 0.477 | 0.281 | 2.30 | 25.90 | 11.26 |
| 10 | 30 | 2.67 | 0.0271 | 62.58 | 0.746 | 0.65 | 0.26 | 0.653 | 0.351 | 2.79 | 31.72 | 11.37 |
| 10 | 40 | 3.16 | 0.0320 | 65.17 | 1.066 | 0.29 | 0.19 | 0.746 | 0.413 | 2.81 | 32.71 | 11.64 |
| 10 | 50 | 3.38 | 0.0343 | 64.04 | 1.410 | 0.24 | 0.18 | 0.829 | 0.475 | 2.70 | 31.63 | 11.71 |
| | | | | | | | | | | | | |
| 11 | 10 | 1.97 | 0.0199 | 60.80 | 0.199 | 1.53 | 0.75 | 0.304 | 0.150 | 3.02 | 29.49 | 9.76 |
| 11 | 20 | 2.87 | 0.0292 | 52.94 | 0.490 | 1.27 | 0.42 | 0.674 | 0.272 | 2.62 | 28.10 | 10.73 |
| 11 | 30 | 3.14 | 0.0319 | 55.95 | 0.809 | 0.61 | 0.29 | 0.869 | 0.366 | 2.56 | 29.50 | 11.52 |
| 11 | 40 | 3.68 | 0.0374 | 59.68 | 1.184 | 0.30 | 0.19 | 0.981 | 0.437 | 2.49 | 31.38 | 12.60 |
| 11 | 50 | 3.80 | 0.0387 | 61.81 | 1.571 | 0.24 | 0.12 | 1.074 | 0.481 | 2.72 | 32.48 | 11.94 |
| | | | | | | | | | | | | |
| 12 | 10 | 1.85 | 0.0187 | 63.31 | 0.187 | 1.65 | 1.03 | 0.308 | 0.193 | 3.26 | 31.82 | 9.76 |
| 12 | 20 | 2.96 | 0.0300 | 54.09 | 0.487 | 1.45 | 0.60 | 0.743 | 0.373 | 2.57 | 27.27 | 10.61 |
| 12 | 30 | 3.07 | 0.0311 | 56.15 | 0.798 | 0.57 | 0.36 | 0.921 | 0.484 | 2.34 | 27.10 | 11.58 |
| 12 | 40 | 3.52 | 0.0358 | 57.58 | 1.157 | 0.28 | 0.16 | 1.021 | 0.541 | 2.49 | 30.38 | 12.20 |
| 12 | 50 | 3.71 | 0.0378 | 63.88 | 1.535 | 0.93 | 0.21 | 1.373 | 0.619 | 2.64 | 33.49 | 12.69 |
| | | | | | | | | | | | | |
| 13 | 10 | 1.80 | 0.0181 | 62.69 | 0.181 | 1.63 | 0.89 | 0.296 | 0.162 | 3.11 | 31.40 | 10.10 |
| 13 | 20 | 2.81 | 0.0285 | 60.18 | 0.466 | 1.06 | 0.58 | 0.598 | 0.329 | 2.83 | 29.39 | 10.39 |
| 13 | 30 | 2.75 | 0.0278 | 60.87 | 0.745 | 0.95 | 0.43 | 0.862 | 0.450 | 2.75 | 31.66 | 11.51 |
| 13 | 40 | 3.16 | 0.0320 | 98.58 | 1.065 | 0.82 | 0.40 | 1.125 | 0.578 | 2.67 | 31.05 | 11.63 |
| 13 | 50 | 3.42 | 0.0348 | 62.80 | 1.413 | 0.49 | 0.27 | 1.295 | 0.672 | 2.66 | 31.22 | 11.74 |
| | | | | | | | | | | | | |
| 14 | 10 | 2.02 | 0.0204 | 64.15 | 0.204 | 1.65 | 1.05 | 0.336 | 0.215 | 3.35 | 32.16 | 9.60 |
| 14 | 20 | 2.73 | 0.0277 | 61.04 | 0.481 | 1.11 | 0.72 | 0.644 | 0.414 | 2.94 | 31.17 | 10.60 |
| 14 | 30 | 3.15 | 0.0320 | 58.45 | 0.801 | 1.14 | 0.94 | 1.008 | 0.714 | 2.89 | 30.58 | 10.58 |
| 14 | 40 | 3.13 | 0.0318 | 60.66 | 1.119 | 0.98 | 0.74 | 1.320 | 0.949 | 2.66 | 30.32 | 11.40 |
| 14 | 50 | 3.96 | 0.0404 | 58.81 | 1.523 | 0.99 | 0.84 | 1.720 | 1.289 | 2.69 | 29.91 | 11.12 |
| | | | | | | | | | | | | |
| 15 | 10 | 2.02 | 0.0204 | 65.58 | 0.204 | 1.54 | 1.06 | 0.315 | 0.216 | 3.06 | 31.61 | 10.33 |
| 15 | 20 | 2.43 | 0.0246 | 63.92 | 0.450 | 1.27 | 0.78 | 0.627 | 0.408 | 3.12 | 32.18 | 10.31 |
| 15 | 30 | 3.01 | 0.0305 | 64.18 | 0.756 | 1.05 | 0.71 | 0.948 | 0.624 | 2.99 | 31.98 | 10.70 |
| 15 | 40 | 3.17 | 0.0322 | 61.25 | 1.078 | 0.92 | 0.65 | 1.244 | 0.833 | 2.85 | 31.02 | 10.88 |
| 15 | 50 | 4.19 | 0.0428 | 60.95 | 1.506 | 0.80 | 0.77 | 1.587 | 1.163 | 2.93 | 31.31 | 10.69 |
| | | | | | | | | | | | | |
| 16 | 10 | 2.00 | 0.0202 | 63.96 | 0.202 | 1.49 | 0.97 | 0.300 | 0.195 | 3.32 | 32.21 | 9.70 |
| 16 | 20 | 2.87 | 0.0291 | 60.92 | 0.492 | 0.94 | 0.73 | 0.574 | 0.409 | 3.02 | 32.02 | 10.60 |
| 16 | 30 | 3.09 | 0.0314 | 57.10 | 0.807 | 0.82 | 0.69 | 0.831 | 0.624 | 2.73 | 30.77 | 11.27 |
| 16 | 40 | 2.94 | 0.0299 | 63.06 | 1.105 | 0.61 | 0.47 | 1.014 | 0.765 | 2.70 | 32.72 | 12.12 |
| 16 | 50 | 2.67 | 0.0270 | 64.10 | 1.376 | 0.41 | 0.32 | 1.124 | 0.852 | 2.62 | 31.71 | 12.10 |

# Lake Griffin Survey Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 17 | 10 | 2.17 | 0.0219 | 61.09 | 0.219 | 1.11 | 0.84 | 0.243 | 0.184 | 2.93 | 27.78 | 9.48 |
| 17 | 20 | 5.96 | 0.0617 | 30.43 | 0.836 | 0.42 | 0.32 | 0.502 | 0.383 | 2.50 | 28.80 | 11.52 |
| 17 | 30 | 17.46 | 0.1943 | 11.29 | 2.779 | 0.11 | 0.03 | 0.716 | 0.446 | 0.64 | 8.11 | 12.67 |
| 17 | 40 | 76.93 | 1.4283 | 0.18 | 17.063 | 0.02 | 0.01 | 1.002 | 0.622 | . | 0.92 | . |
| 17 | 50 | 79.51 | 1.5169 | 1.11 | 32.232 | 0.02 | 0.05 | 1.305 | 1.437 | . | 0.54 | . |
| | | | | | | | | | | | | |
| 18 | 10 | 2.14 | 0.0216 | 62.07 | 0.216 | 1.24 | 0.76 | 0.268 | 0.165 | 2.98 | 31.77 | 10.66 |
| 18 | 20 | 3.26 | 0.0331 | 64.87 | 0.547 | 0.63 | 0.35 | 0.476 | 0.279 | 2.80 | 33.56 | 11.99 |
| 18 | 30 | 3.23 | 0.0328 | 64.24 | 0.876 | 0.65 | 0.36 | 0.690 | 0.399 | 2.74 | 33.70 | 12.30 |
| 18 | 40 | 3.12 | 0.0316 | 67.61 | 1.192 | 0.53 | 0.38 | 0.857 | 0.519 | 3.08 | 36.40 | 11.82 |
| 18 | 50 | 3.28 | 0.0333 | 65.06 | 1.524 | 0.54 | 0.39 | 1.037 | 0.648 | 2.93 | 34.45 | 11.76 |
| | | | | | | | | | | | | |
| 19 | 10 | 2.19 | 0.0221 | 64.61 | 0.221 | 1.49 | 0.98 | 0.329 | 0.217 | 3.44 | 34.14 | 9.92 |
| 19 | 20 | 3.12 | 0.0316 | 65.00 | 0.537 | 0.76 | 0.36 | 0.570 | 0.332 | 2.94 | 34.02 | 11.57 |
| 19 | 30 | 3.44 | 0.0350 | 65.71 | 0.887 | 0.79 | 0.53 | 0.846 | 0.517 | 2.99 | 34.73 | 11.62 |
| 19 | 40 | 3.83 | 0.0390 | 66.47 | 1.277 | 0.63 | 0.45 | 1.092 | 0.694 | 2.84 | 34.80 | 12.25 |
| 19 | 50 | 3.35 | 0.0341 | 65.49 | 1.618 | 0.65 | 0.54 | 1.313 | 0.879 | 3.21 | 33.97 | 10.58 |
| | | | | | | | | | | | | |
| 20 | 10 | 75.79 | 1.3873 | 0.97 | 13.873 | 0.02 | 0.03 | 0.277 | 0.434 | . | 0.09 | . |
| 20 | 17 | 74.64 | 1.3444 | 2.83 | 23.284 | 0.02 | 0.02 | 0.466 | 0.662 | . | 0.04 | . |
| | | | | | | | | | | | | |
| 21 | 10 | 2.22 | 0.0224 | 68.32 | 0.224 | 1.07 | 0.60 | 0.240 | 0.135 | 3.11 | 33.37 | 10.73 |
| 21 | 20 | 3.04 | 0.0308 | 67.70 | 0.532 | 1.13 | 0.57 | 0.588 | 0.310 | 3.00 | 32.74 | 10.91 |
| 21 | 30 | 3.01 | 0.0305 | 65.91 | 0.837 | 0.89 | 0.38 | 0.859 | 0.427 | 3.02 | 33.46 | 11.08 |
| 21 | 40 | 3.60 | 0.0366 | 67.09 | 1.203 | 0.76 | 0.36 | 1.138 | 0.557 | 2.97 | 34.17 | 11.51 |
| 21 | 50 | 3.18 | 0.0323 | 65.91 | 1.526 | 0.67 | 0.30 | 1.354 | 0.655 | 2.69 | 33.71 | 12.53 |
| | | | | | | | | | | | | |
| 22 | 10 | 2.02 | 0.0204 | 70.00 | 0.204 | 1.08 | 0.57 | 0.220 | 0.116 | 3.18 | 33.82 | 10.64 |
| 22 | 20 | 2.70 | 0.0274 | 70.22 | 0.478 | 0.66 | 0.31 | 0.401 | 0.202 | 3.14 | 34.58 | 11.01 |
| 22 | 30 | 2.69 | 0.0272 | 72.00 | 0.750 | 0.40 | 0.18 | 0.510 | 0.250 | 2.73 | 37.00 | 13.55 |
| 22 | 40 | 3.06 | 0.0310 | 72.41 | 1.060 | 0.30 | 0.13 | 0.603 | 0.291 | 2.90 | 36.91 | 12.73 |
| 22 | 50 | 3.17 | 0.0321 | 68.51 | 1.382 | 0.28 | 0.14 | 0.693 | 0.335 | 2.70 | 34.60 | 12.81 |
| | | | | | | | | | | | | |
| 23 | 10 | 2.15 | 0.0218 | 73.33 | 0.218 | 1.12 | 0.63 | 0.244 | 0.137 | 3.36 | 35.54 | 10.58 |
| 23 | 20 | 2.75 | 0.0278 | 70.61 | 0.496 | 0.88 | 0.44 | 0.488 | 0.259 | 3.20 | 35.87 | 11.21 |
| 23 | 30 | 3.41 | 0.0347 | 68.82 | 0.842 | 0.56 | 0.22 | 0.683 | 0.334 | 2.81 | 35.37 | 12.59 |
| 23 | 40 | 3.36 | 0.0341 | 68.46 | 1.184 | 0.42 | 0.19 | 0.826 | 0.400 | 2.70 | 34.79 | 12.89 |
| 23 | 50 | 3.46 | 0.0352 | 70.39 | 1.536 | 0.38 | 0.21 | 0.960 | 0.474 | 2.85 | 36.21 | 12.71 |
| | | | | | | | | | | | | |
| 24 | 10 | 2.12 | 0.0214 | 63.09 | 0.214 | 0.90 | 0.44 | 0.193 | 0.094 | 2.80 | 30.34 | 10.84 |
| 24 | 20 | 4.94 | 0.0507 | 42.86 | 0.721 | 0.32 | 0.17 | 0.355 | 0.181 | 3.05 | 32.94 | 10.80 |
| 24 | 30 | 4.57 | 0.0467 | 59.85 | 1.189 | 0.35 | 0.21 | 0.519 | 0.277 | 2.59 | 30.73 | 11.86 |
| 24 | 40 | 7.06 | 0.0733 | 40.51 | 1.922 | 0.22 | 0.11 | 0.680 | 0.362 | 2.49 | 31.91 | 12.82 |
| 24 | 50 | 5.16 | 0.0529 | 53.48 | 2.451 | 0.21 | 0.10 | 0.791 | 0.413 | 2.61 | 33.50 | 12.84 |

Lake Griffin Survey Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 25 | 10 | 1.93 | 0.0195 | 62.30 | 0.195 | 1.50 | 0.63 | 0.292 | 0.123 | 2.54 | 27.26 | 10.73 |
| 25 | 20 | 4.19 | 0.0429 | 45.15 | 0.624 | 0.52 | 0.18 | 0.515 | 0.202 | 2.51 | 30.13 | 12.00 |
| 25 | 30 | 3.81 | 0.0388 | 63.29 | 1.012 | 0.21 | 0.09 | 0.597 | 0.238 | 2.72 | 34.60 | 12.72 |
| 25 | 40 | 4.59 | 0.0469 | 66.84 | 1.480 | 0.22 | 0.08 | 0.700 | 0.277 | 2.42 | 34.39 | 14.21 |
| 25 | 50 | 4.21 | 0.0430 | 65.78 | 1.910 | 0.18 | 0.08 | 0.777 | 0.310 | 2.80 | 35.03 | 12.51 |
| | | | | | | | | | | | | |
| 26 | 10 | 1.84 | 0.0186 | 62.98 | 0.186 | 1.25 | 0.72 | 0.233 | 0.134 | 3.27 | 31.70 | 9.69 |
| 26 | 20 | 2.72 | 0.0275 | 61.70 | 0.461 | 0.98 | 0.54 | 0.502 | 0.282 | 2.74 | 32.02 | 11.69 |
| 26 | 30 | 3.25 | 0.0330 | 54.81 | 0.792 | 0.54 | 0.28 | 0.681 | 0.374 | 2.28 | 27.73 | 12.16 |
| 26 | 40 | 3.47 | 0.0353 | 59.90 | 1.144 | 0.37 | 0.16 | 0.811 | 0.432 | 2.81 | 32.38 | 11.52 |
| 26 | 50 | 4.03 | 0.0411 | 61.17 | 1.555 | 0.24 | 0.12 | 0.910 | 0.483 | 2.34 | 32.25 | 13.78 |
| | | | | | | | | | | | | |
| 27 | 10 | 78.55 | 1.4829 | 0.94 | 14.829 | 0.03 | 0.02 | 1.308 | 0.759 | . | 0.14 | . |
| 27 | 17 | 82.75 | 1.6393 | 1.11 | 26.304 | 0.04 | 0.02 | 1.767 | 0.957 | . | 0.33 | . |
| | | | | | | | | | | | | |
| 28 | 10 | 1.73 | 0.0174 | 68.18 | 0.174 | 1.30 | 0.37 | 0.226 | 0.064 | 3.18 | 32.44 | 10.20 |
| 28 | 20 | 2.46 | 0.0249 | 66.15 | 0.423 | 1.40 | 0.48 | 0.575 | 0.184 | 3.57 | 33.08 | 9.27 |
| 28 | 30 | 2.80 | 0.0284 | 65.71 | 0.707 | 1.02 | 0.55 | 0.864 | 0.341 | 2.86 | 31.39 | 10.98 |
| 28 | 40 | 3.08 | 0.0313 | 61.69 | 1.020 | 0.76 | 0.44 | 1.102 | 0.480 | 2.84 | 32.47 | 11.43 |
| 28 | 50 | 3.27 | 0.0332 | 57.59 | 1.352 | 0.61 | 0.28 | 1.305 | 0.571 | 2.60 | 33.97 | 13.07 |
| | | | | | | | | | | | | |
| 29 | 10 | 1.94 | 0.0196 | 65.82 | 0.196 | 1.55 | 0.76 | 0.304 | 0.149 | 3.50 | 33.53 | 9.58 |
| 29 | 20 | 2.96 | 0.0300 | 65.92 | 0.496 | 1.27 | 0.64 | 0.684 | 0.342 | 3.21 | 33.65 | 10.48 |
| 29 | 30 | 3.51 | 0.0357 | 66.24 | 0.852 | 0.90 | 0.40 | 1.005 | 0.484 | 3.08 | 33.47 | 10.87 |
| 29 | 40 | 3.98 | 0.0406 | 64.43 | 1.258 | 0.79 | 0.37 | 1.326 | 0.635 | 2.80 | 33.00 | 11.79 |
| 29 | 50 | 4.63 | 0.0474 | 61.03 | 1.732 | 0.81 | 0.41 | 1.710 | 0.829 | 2.45 | 30.82 | 12.58 |
| | | | | | | | | | | | | |
| 30 | 10 | 2.22 | 0.0224 | 68.64 | 0.224 | 1.67 | 0.87 | 0.374 | 0.195 | 3.45 | 34.06 | 9.87 |
| 30 | 20 | 2.68 | 0.0272 | 67.34 | 0.496 | 1.48 | 0.95 | 0.777 | 0.453 | 3.22 | 33.85 | 10.51 |
| 30 | 30 | 3.48 | 0.0354 | 67.01 | 0.850 | 1.20 | 0.66 | 1.201 | 0.686 | 3.29 | 33.75 | 10.26 |
| 30 | 40 | 4.13 | 0.0421 | 67.09 | 1.271 | 1.19 | 0.66 | 1.702 | 0.966 | 2.92 | 33.66 | 11.53 |
| 30 | 50 | 3.96 | 0.0404 | 64.78 | 1.674 | 1.41 | 0.49 | 2.271 | 1.164 | 2.36 | 28.58 | 12.11 |
| | | | | | | | | | | | | |
| 31 | 10 | 2.07 | 0.0209 | 69.14 | 0.209 | 1.68 | 0.83 | 0.352 | 0.174 | 3.61 | 34.62 | 9.59 |
| 31 | 20 | 2.60 | 0.0263 | 66.77 | 0.473 | 1.48 | 0.80 | 0.741 | 0.386 | 3.29 | 33.99 | 10.33 |
| 31 | 30 | 3.68 | 0.0374 | 67.22 | 0.847 | 1.28 | 0.69 | 1.220 | 0.643 | 3.44 | 33.94 | 9.87 |
| 31 | 40 | 3.93 | 0.0401 | 65.04 | 1.247 | 0.80 | 0.41 | 1.541 | 0.806 | 2.96 | 33.78 | 11.41 |
| 31 | 50 | 4.32 | 0.0441 | 64.32 | 1.688 | 0.68 | 0.33 | 1.841 | 0.950 | 3.13 | 34.07 | 10.88 |
| | | | | | | | | | | | | |
| 32 | 10 | 2.20 | 0.0223 | 67.58 | 0.223 | 1.51 | 0.76 | 0.336 | 0.170 | 3.30 | 34.25 | 10.38 |
| 32 | 20 | 2.63 | 0.0267 | 64.19 | 0.489 | 1.42 | 0.73 | 0.715 | 0.364 | 3.15 | 33.70 | 10.70 |
| 32 | 30 | 3.12 | 0.0316 | 64.66 | 0.806 | 1.00 | 0.44 | 1.032 | 0.504 | 2.88 | 33.37 | 11.59 |
| 32 | 40 | 3.73 | 0.0380 | 64.43 | 1.186 | 0.76 | 0.42 | 1.320 | 0.663 | 2.73 | 33.39 | 12.23 |
| 32 | 50 | 4.12 | 0.0421 | 64.96 | 1.607 | 0.72 | 0.39 | 1.623 | 0.829 | 2.51 | 33.19 | 13.22 |
| | | | | | | | | | | | | |
| 33 | 10 | 2.47 | 0.0250 | 68.56 | 0.250 | 1.54 | 0.95 | 0.385 | 0.237 | 3.52 | 35.39 | 10.05 |
| 33 | 20 | 2.77 | 0.0281 | 66.94 | 0.531 | 1.31 | 0.60 | 0.753 | 0.405 | 3.31 | 35.23 | 10.64 |
| 33 | 30 | 3.23 | 0.0328 | 65.23 | 0.859 | 0.75 | 0.34 | 0.999 | 0.516 | 2.92 | 34.34 | 11.76 |
| 33 | 40 | 4.53 | 0.0463 | 64.17 | 1.322 | 0.76 | 0.46 | 1.351 | 0.727 | 3.10 | 33.36 | 10.76 |

# Lake Griffin Survey Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 50 | 4.08 | 0.0416 | 62.70 | 1.738 | 0.81 | 0.47 | 1.688 | 0.923 | 2.73 | 33.32 | 12.21 |
| | | | | | | | | | | | | |
| 34 | 10 | 2.07 | 0.0209 | 71.38 | 0.209 | 1.38 | 0.71 | 0.288 | 0.149 | 3.39 | 36.18 | 10.67 |
| 34 | 20 | 2.71 | 0.0274 | 69.07 | 0.483 | 0.87 | 0.40 | 0.527 | 0.259 | 3.16 | 34.03 | 10.77 |
| 34 | 30 | 2.97 | 0.0302 | 67.24 | 0.785 | 0.56 | 0.22 | 0.696 | 0.325 | 2.77 | 34.87 | 12.59 |
| 34 | 40 | 2.62 | 0.0266 | 65.62 | 1.051 | 0.59 | 0.25 | 0.852 | 0.391 | 2.95 | 34.15 | 11.58 |
| 34 | 50 | 4.02 | 0.0410 | 66.93 | 1.461 | 0.55 | 0.29 | 1.078 | 0.509 | 3.02 | 33.82 | 11.20 |
| | | | | | | | | | | | | |
| 35 | 10 | 2.50 | 0.0253 | 71.85 | 0.253 | 1.44 | 0.71 | 0.365 | 0.180 | 3.56 | 35.28 | 9.91 |
| 35 | 20 | 3.11 | 0.0316 | 69.98 | 0.569 | 0.97 | 0.42 | 0.671 | 0.313 | 3.02 | 34.39 | 11.39 |
| 35 | 30 | 2.87 | 0.0291 | 68.25 | 0.860 | 0.35 | 0.27 | 0.773 | 0.391 | 2.96 | 34.24 | 11.57 |
| 35 | 40 | 2.96 | 0.0300 | 68.00 | 1.161 | 0.46 | 0.20 | 0.911 | 0.450 | 2.90 | 35.03 | 12.08 |
| 35 | 50 | 3.31 | 0.0336 | 67.15 | 1.497 | 0.41 | 0.20 | 1.049 | 0.517 | 2.85 | 34.64 | 12.15 |
| | | | | | | | | | | | | |
| 36 | 10 | 2.67 | 0.0271 | 70.26 | 0.271 | 1.18 | 0.57 | 0.319 | 0.153 | 3.19 | 33.05 | 10.36 |
| 36 | 20 | 2.82 | 0.0285 | 68.49 | 0.556 | 1.24 | 0.49 | 0.673 | 0.292 | 3.26 | 34.51 | 10.59 |
| 36 | 30 | 3.37 | 0.0343 | 67.41 | 0.899 | 0.83 | 0.40 | 0.958 | 0.430 | 3.03 | 35.65 | 11.77 |
| 36 | 40 | 3.69 | 0.0376 | 66.78 | 1.275 | 0.62 | 0.24 | 1.191 | 0.521 | 2.91 | 34.30 | 11.79 |
| 36 | 50 | 3.73 | 0.0379 | 67.11 | 1.654 | 0.56 | 0.27 | 1.403 | 0.624 | 2.95 | 34.39 | 11.66 |
| | | | | | | | | | | | | |
| 37 | 10 | 1.59 | 0.0160 | 63.89 | 0.160 | 1.51 | 0.82 | 0.241 | 0.130 | 3.54 | 32.62 | 9.21 |
| 37 | 20 | 2.42 | 0.0244 | 60.52 | 0.404 | 1.48 | 0.67 | 0.603 | 0.294 | 2.99 | 31.09 | 10.40 |
| 37 | 30 | 3.45 | 0.0351 | 49.56 | 0.755 | 0.97 | 0.41 | 0.944 | 0.438 | 3.00 | 32.29 | 10.76 |
| 37 | 40 | 3.64 | 0.0371 | 49.15 | 1.126 | 0.65 | 0.48 | 1.184 | 0.614 | 2.57 | 28.16 | 10.96 |
| 37 | 50 | 3.74 | 0.0381 | 63.55 | 1.507 | 0.36 | 0.21 | 1.322 | 0.692 | 2.73 | 33.94 | 12.43 |
| | | | | | | | | | | | | |
| 38 | 10 | 1.60 | 0.0161 | 66.02 | 0.161 | 1.52 | 0.86 | 0.244 | 0.138 | 3.09 | 32.28 | 10.45 |
| 38 | 20 | 2.08 | 0.0210 | 62.57 | 0.371 | 1.11 | 0.71 | 0.478 | 0.287 | 3.24 | 33.20 | 10.25 |
| 38 | 30 | 2.91 | 0.0295 | 57.03 | 0.666 | 1.12 | 0.31 | 0.808 | 0.378 | 2.60 | 31.84 | 12.25 |
| 38 | 40 | 3.22 | 0.0327 | 60.98 | 0.993 | 0.61 | 0.25 | 1.008 | 0.461 | 2.68 | 30.77 | 11.48 |
| 38 | 50 | 3.67 | 0.0374 | 62.06 | 1.367 | 0.52 | 0.23 | 1.202 | 0.549 | 2.57 | 31.47 | 12.25 |
| | | | | | | | | | | | | |
| 39 | 10 | 2.15 | 0.0217 | 65.90 | 0.217 | 1.58 | 0.80 | 0.343 | 0.173 | 3.42 | 32.54 | 9.51 |
| 39 | 20 | 2.76 | 0.0279 | 65.09 | 0.496 | 1.10 | 0.62 | 0.650 | 0.345 | 3.04 | 32.18 | 10.59 |
| 39 | 30 | 3.15 | 0.0320 | 64.31 | 0.816 | 0.89 | 0.40 | 0.935 | 0.474 | 2.67 | 32.27 | 12.09 |
| 39 | 40 | 3.43 | 0.0348 | 67.06 | 1.164 | 0.60 | 0.24 | 1.144 | 0.556 | 2.80 | 35.32 | 12.61 |
| 39 | 50 | 2.97 | 0.0301 | 69.55 | 1.465 | 0.58 | 0.28 | 1.318 | 0.639 | 3.07 | 35.51 | 11.57 |
| | | | | | | | | | | | | |
| 40 | 10 | 2.34 | 0.0236 | 67.84 | 0.236 | 1.46 | 0.78 | 0.345 | 0.183 | 3.13 | 33.50 | 10.70 |
| 40 | 20 | 2.98 | 0.0302 | 65.54 | 0.538 | 1.23 | 0.64 | 0.716 | 0.376 | 3.05 | 33.47 | 10.97 |
| 40 | 30 | 3.83 | 0.0390 | 60.97 | 0.928 | 0.61 | 0.26 | 0.954 | 0.479 | 2.43 | 30.10 | 12.39 |
| 40 | 40 | 3.72 | 0.0379 | 62.90 | 1.307 | 0.40 | 0.17 | 1.106 | 0.544 | 2.50 | 33.92 | 13.57 |
| 40 | 50 | 4.40 | 0.0449 | 60.05 | 1.756 | 0.37 | 0.16 | 1.272 | 0.617 | 2.83 | 32.81 | 11.59 |

# APPENDIX C

Gravimetric and chemical data, Lake Griffin historic cores, Phase I.
See Appendix A for collection date, location and description of cores.

CODES: Sta is station number
Depth is depth (cm)
Dry is percent dry weight
Rho is dry weight density (g dry $cm^{-3}$ wet)
LOI is percent loss on ignition
Cum Wt is cumulative mass (g $cm^{-2}$)
TP is total phosphorus (mg $g^{-1}$)
NAIP is non-apatite inorganic phosphorus (mg $g^{-1}$),
Cum TP is cumulative TP (mg $cm^{-2}$)
Cum NAIP is cumulative NAIP (mg $cm^{-2}$)
TN is total nitrogen (%)
TC is total carbon (%)
TC/TN is TC/TN mass ratio

Missing data are indicated by dots.

# Lake Griffin Historic Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 2 | 2.13 | 0.0215 | 68.48 | 0.043 | 1.882 | 0.720 | 0.081 | 0.031 | 3.72 | 35.40 | 9.52 |
| 2 | 4 | 1.60 | 0.0161 | 66.67 | 0.075 | 1.957 | 0.674 | 0.144 | 0.053 | 3.56 | 34.95 | 9.82 |
| 2 | 6 | 1.79 | 0.0180 | 66.27 | 0.111 | 1.931 | 0.776 | 0.214 | 0.081 | 3.96 | 34.92 | 8.82 |
| 2 | 8 | 1.69 | 0.0170 | 66.67 | 0.145 | 1.872 | 0.727 | 0.277 | 0.105 | 4.08 | 34.74 | 8.51 |
| 2 | 10 | 1.97 | 0.0199 | 67.69 | 0.185 | 1.902 | 0.836 | 0.353 | 0.139 | 3.85 | 34.69 | 9.01 |
| 2 | 12 | 2.03 | 0.0205 | 68.60 | 0.226 | 1.822 | 0.817 | 0.427 | 0.172 | 3.81 | 34.95 | 9.17 |
| 2 | 14 | 2.08 | 0.0210 | 67.48 | 0.268 | 1.828 | 0.775 | 0.504 | 0.205 | 3.97 | 35.24 | 8.88 |
| 2 | 16 | 2.36 | 0.0238 | 65.38 | 0.316 | 1.804 | 0.760 | 0.590 | 0.241 | 3.47 | 34.45 | 9.93 |
| 2 | 18 | 2.55 | 0.0259 | 67.46 | 0.367 | 1.627 | 0.711 | 0.674 | 0.278 | 3.41 | 34.74 | 10.19 |
| 2 | 20 | 2.27 | 0.0230 | 65.56 | 0.413 | 1.544 | 0.651 | 0.745 | 0.307 | 3.47 | 34.59 | 9.97 |
| 2 | 22 | 6.69 | 0.0691 | 64.17 | 0.551 | 1.527 | 0.608 | 0.956 | 0.392 | 3.64 | 34.43 | 9.46 |
| 2 | 24 | 6.32 | 0.0652 | 65.00 | 0.682 | 1.375 | 0.573 | 1.136 | 0.466 | 3.41 | 34.29 | 10.06 |
| 2 | 26 | 2.53 | 0.0256 | 63.54 | 0.733 | 1.257 | 0.476 | 1.200 | 0.491 | 3.64 | 33.29 | 9.15 |
| 2 | 28 | 2.19 | 0.0221 | 63.16 | 0.777 | 1.291 | 0.479 | 1.257 | 0.512 | 3.58 | 33.96 | 9.49 |
| 2 | 30 | 2.31 | 0.0234 | 63.10 | 0.824 | 1.288 | 0.548 | 1.317 | 0.537 | 3.32 | 34.73 | 10.46 |
| 2 | 32 | 2.43 | 0.0245 | 65.96 | 0.873 | 1.271 | 0.556 | 1.380 | 0.565 | 3.15 | 34.48 | 10.95 |
| 2 | 34 | 2.60 | 0.0263 | 65.18 | 0.926 | 1.227 | 0.420 | 1.444 | 0.587 | 2.97 | 33.48 | 11.27 |
| 2 | 36 | 2.72 | 0.0275 | 62.61 | 0.981 | 1.214 | 0.467 | 1.511 | 0.613 | 2.90 | 31.64 | 10.91 |
| 2 | 38 | 3.11 | 0.0315 | 57.94 | 1.044 | 1.095 | 0.418 | 1.580 | 0.639 | 2.92 | 32.43 | 11.11 |
| 2 | 40 | 2.23 | 0.0226 | 60.00 | 1.089 | 1.136 | 0.435 | 1.631 | 0.659 | 2.96 | 33.11 | 11.19 |
| 2 | 42 | 2.30 | 0.0232 | 62.79 | 1.135 | 1.059 | 0.390 | 1.681 | 0.677 | 3.20 | 31.22 | 9.76 |
| 2 | 44 | 2.96 | 0.0300 | 61.27 | 1.196 | 1.083 | 0.436 | 1.746 | 0.703 | 3.10 | 32.33 | 10.43 |
| 2 | 46 | 3.36 | 0.0341 | 60.13 | 1.264 | 1.051 | 0.423 | 1.817 | 0.732 | 3.06 | 32.30 | 10.56 |
| 2 | 48 | 3.46 | 0.0352 | 59.02 | 1.334 | 1.044 | 0.505 | 1.891 | 0.767 | 2.87 | 32.21 | 11.22 |
| 2 | 50 | 2.84 | 0.0288 | 59.01 | 1.392 | 1.051 | 0.474 | 1.951 | 0.795 | 3.07 | 32.14 | 10.47 |
| 2 | 52 | 3.61 | 0.0367 | 60.87 | 1.465 | 1.032 | 0.453 | 2.027 | 0.828 | 2.69 | 32.29 | 12.00 |
| 2 | 54 | 3.71 | 0.0378 | 62.07 | 1.541 | 1.040 | 0.449 | 2.106 | 0.862 | 3.14 | 32.58 | 10.38 |
| 2 | 56 | 3.49 | 0.0355 | 62.28 | 1.612 | 0.886 | 0.422 | 2.169 | 0.892 | 2.95 | 32.84 | 11.13 |
| 2 | 58 | 3.55 | 0.0361 | 62.12 | 1.684 | 0.918 | 0.368 | 2.235 | 0.919 | 3.26 | 32.42 | 9.94 |
| 2 | 60 | 3.13 | 0.0318 | 61.54 | 1.748 | 0.880 | 0.408 | 2.291 | 0.945 | 3.34 | 31.86 | 9.54 |
| 2 | 62 | 3.16 | 0.0320 | 63.92 | 1.812 | 0.786 | 0.600 | 2.341 | 0.983 | 2.73 | 31.26 | 11.45 |
| 2 | 64 | 3.60 | 0.0366 | 61.59 | 1.885 | 0.760 | 0.620 | 2.397 | 1.028 | 2.66 | 30.53 | 11.48 |
| 2 | 66 | 3.53 | 0.0359 | 60.67 | 1.957 | 0.853 | 0.610 | 2.458 | 1.072 | 2.99 | 31.69 | 10.60 |
| 2 | 68 | 4.16 | 0.0425 | 61.95 | 2.042 | 0.747 | 0.580 | 2.522 | 1.121 | 2.76 | 31.57 | 11.44 |
| 2 | 70 | 3.65 | 0.0372 | 62.03 | 2.116 | 0.723 | 0.540 | 2.575 | 1.162 | 3.15 | 32.77 | 10.40 |
| 2 | 72 | 3.84 | 0.0391 | 64.41 | 2.194 | 0.718 | 0.550 | 2.632 | 1.205 | 2.86 | 33.36 | 11.66 |
| 2 | 74 | 4.02 | 0.0410 | 64.49 | 2.276 | 0.653 | 0.620 | 2.685 | 1.255 | 2.69 | 32.45 | 12.06 |
| 2 | 76 | 4.05 | 0.0413 | 70.52 | 2.359 | 1.625 | 0.470 | 2.819 | 1.294 | 3.34 | 35.87 | 10.74 |
| 2 | 78 | 3.93 | 0.0400 | 68.16 | 2.439 | 0.635 | 0.530 | 2.870 | 1.337 | 3.19 | 35.31 | 11.07 |
| 2 | 80 | 3.95 | 0.0403 | 69.07 | 2.519 | 0.601 | 0.400 | 2.919 | 1.369 | 2.86 | 33.63 | 11.76 |
| 2 | 82 | 4.06 | 0.0414 | 69.95 | 2.602 | 0.508 | 0.274 | 2.961 | 1.392 | 3.16 | 35.61 | 11.27 |
| 2 | 84 | 3.97 | 0.0404 | 69.74 | 2.683 | 0.398 | 0.251 | 2.993 | 1.412 | 2.53 | 35.36 | 13.98 |
| 2 | 86 | 4.88 | 0.0500 | 69.05 | 2.783 | 0.470 | 0.240 | 3.040 | 1.436 | 3.04 | 35.97 | 11.83 |
| 2 | 88 | 8.49 | 0.0889 | 38.65 | 2.961 | 0.452 | 0.233 | 3.120 | 1.477 | 3.10 | 33.65 | 10.85 |
| 2 | 90 | 6.97 | 0.0723 | 44.97 | 3.105 | 0.353 | 0.208 | 3.171 | 1.507 | 2.71 | 31.95 | 11.79 |
| 2 | 92 | 4.48 | 0.0457 | 68.07 | 3.197 | 0.287 | 0.189 | 3.197 | 1.525 | 2.70 | 32.58 | 12.07 |
| 2 | 94 | 5.34 | 0.0548 | 62.11 | 3.307 | 0.283 | 0.203 | 3.229 | 1.547 | 2.49 | 34.59 | 13.89 |
| 2 | 96 | 8.33 | 0.0872 | 34.18 | 3.481 | 0.269 | 0.206 | 3.276 | 1.583 | 2.88 | 34.16 | 11.86 |
| 2 | 98 | 4.87 | 0.0498 | 67.67 | 3.581 | 0.261 | 0.184 | 3.301 | 1.601 | 1.97 | 22.49 | 11.42 |
| 2 | 100 | 6.02 | 0.0621 | 56.79 | 3.705 | 0.274 | 0.199 | 3.335 | 1.626 | 2.96 | 35.49 | 11.99 |
| 2 | 104 | 4.67 | 0.0478 | 64.37 | 3.896 | 0.190 | 0.100 | 3.372 | 1.645 | 2.72 | 32.76 | 12.04 |
| 2 | 108 | 5.72 | 0.0588 | 60.42 | 4.131 | 0.325 | 0.210 | 3.448 | 1.694 | 3.04 | 36.30 | 11.94 |
| 2 | 112 | 5.32 | 0.0546 | 60.84 | 4.350 | 0.328 | 0.180 | 3.520 | 1.734 | 2.92 | 34.54 | 11.83 |
| 2 | 116 | 4.91 | 0.0503 | 63.95 | 4.551 | 0.284 | 0.180 | 3.577 | 1.770 | 2.90 | 36.23 | 12.49 |

## Lake Griffin Historic Cores, Phase I

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 2 | 1.183 | 0.012 | 68.12 | 0.024 | . | . | . | . | 3.400 | 32.980 | 9.70 |
| 11 | 4 | 1.777 | 0.018 | 65.35 | 0.060 | 1.435 | 0.500 | 0.051 | 0.018 | 3.470 | 32.800 | 9.45 |
| 11 | 6 | 1.713 | 0.017 | 64.79 | 0.094 | 1.501 | 0.516 | 0.103 | 0.036 | 3.450 | 30.840 | 8.94 |
| 11 | 8 | 2.045 | 0.021 | 65.06 | 0.135 | 1.580 | 0.606 | 0.169 | 0.061 | 3.700 | 31.640 | 8.55 |
| 11 | 10 | 1.870 | 0.019 | 68.22 | 0.173 | 1.462 | 0.550 | 0.224 | 0.081 | 3.490 | 31.110 | 8.91 |
| 11 | 12 | 2.079 | 0.021 | 66.67 | 0.215 | 1.310 | 0.502 | 0.279 | 0.103 | 3.330 | 32.110 | 9.64 |
| 11 | 14 | 2.132 | 0.022 | 66.67 | 0.258 | 1.338 | 0.522 | 0.336 | 0.125 | 3.420 | 31.220 | 9.13 |
| 11 | 16 | 1.945 | 0.020 | 62.50 | 0.298 | 1.087 | 0.405 | 0.379 | 0.141 | 2.960 | 28.270 | 9.55 |
| 11 | 18 | 2.937 | 0.030 | 55.47 | 0.357 | 0.919 | 0.285 | 0.434 | 0.158 | 3.230 | 31.800 | 9.85 |
| 11 | 20 | 2.870 | 0.029 | 57.14 | 0.415 | 0.764 | 0.227 | 0.478 | 0.171 | 2.970 | 29.880 | 10.06 |
| 11 | 22 | 3.214 | 0.033 | 55.56 | 0.481 | 0.848 | 0.265 | 0.534 | 0.188 | 2.760 | 29.350 | 10.63 |
| 11 | 24 | 3.125 | 0.032 | 58.14 | 0.544 | 0.893 | 0.261 | 0.590 | 0.205 | 2.950 | 30.300 | 10.27 |
| 11 | 26 | 3.287 | 0.033 | 56.82 | 0.611 | 0.781 | 0.210 | 0.643 | 0.219 | 3.010 | 32.050 | 10.65 |
| 11 | 28 | 2.998 | 0.030 | 51.76 | 0.672 | 0.709 | 0.228 | 0.686 | 0.233 | 2.470 | 25.170 | 10.19 |
| 11 | 30 | 3.441 | 0.035 | 54.03 | 0.742 | 0.406 | 0.213 | 0.714 | 0.248 | 2.860 | 31.080 | 10.87 |
| 11 | 32 | 3.998 | 0.041 | 54.95 | 0.824 | 0.433 | 0.099 | 0.749 | 0.256 | 2.610 | 29.230 | 11.20 |
| 11 | 34 | 3.941 | 0.040 | 56.13 | 0.904 | 0.274 | 0.124 | 0.772 | 0.266 | 2.520 | 29.130 | 11.56 |
| 11 | 36 | 3.720 | 0.038 | 60.53 | 0.980 | 0.309 | 0.114 | 0.795 | 0.275 | 2.650 | 32.260 | 12.17 |
| 11 | 38 | 3.803 | 0.039 | 61.70 | 1.057 | 0.255 | 0.085 | 0.815 | 0.281 | 2.480 | 30.660 | 12.36 |
| 11 | 40 | 3.729 | 0.038 | 60.64 | 1.133 | 0.209 | 0.070 | 0.831 | 0.287 | 2.670 | 32.010 | 11.99 |
| 11 | 42 | 4.078 | 0.042 | 57.76 | 1.216 | 0.234 | 0.091 | 0.850 | 0.294 | 2.210 | 25.570 | 11.57 |
| 11 | 44 | 4.570 | 0.047 | 58.25 | 1.310 | 0.276 | 0.090 | 0.876 | 0.303 | 2.870 | 33.040 | 11.51 |
| 11 | 46 | 4.282 | 0.044 | 59.36 | 1.397 | 0.222 | 0.089 | 0.895 | 0.310 | 2.650 | 29.890 | 11.28 |
| 11 | 48 | 4.809 | 0.049 | 59.75 | 1.496 | 0.221 | 0.063 | 0.917 | 0.317 | 2.740 | 31.520 | 11.50 |
| 11 | 50 | 4.434 | 0.045 | 57.79 | 1.587 | 0.203 | 0.066 | 0.936 | 0.323 | 2.470 | 30.100 | 12.19 |
| 11 | 52 | 4.524 | 0.046 | 52.34 | 1.679 | 0.194 | 0.075 | 0.954 | 0.330 | 2.480 | 31.290 | 12.62 |
| 11 | 54 | 5.522 | 0.057 | 55.60 | 1.793 | 0.199 | 0.061 | 0.976 | 0.336 | 2.870 | 33.600 | 11.71 |
| 11 | 56 | 4.326 | 0.044 | 61.11 | 1.881 | 0.201 | 0.079 | 0.994 | 0.343 | 2.130 | 21.460 | 10.08 |
| 11 | 58 | 4.911 | 0.050 | 55.33 | 1.982 | 0.199 | 0.081 | 1.014 | 0.352 | 2.630 | 33.710 | 12.82 |
| 11 | 60 | 5.519 | 0.057 | 50.00 | 2.095 | 0.202 | 0.065 | 1.037 | 0.359 | 2.800 | 34.040 | 12.16 |
| 11 | 62 | 5.418 | 0.056 | 61.20 | 2.207 | 0.213 | 0.085 | 1.061 | 0.368 | 1.420 | 15.530 | 10.94 |
| 11 | 64 | 4.955 | 0.051 | 65.68 | 2.308 | 0.194 | 0.106 | 1.080 | 0.379 | 2.690 | 33.890 | 12.60 |
| 11 | 66 | 4.471 | 0.046 | 63.00 | 2.400 | 0.211 | 0.093 | 1.100 | 0.388 | 2.820 | 34.100 | 12.09 |
| 11 | 68 | 4.691 | 0.048 | 66.30 | 2.496 | 0.225 | 0.094 | 1.121 | 0.397 | 2.720 | 33.770 | 12.42 |
| 11 | 70 | 4.340 | 0.044 | 65.24 | 2.584 | 0.220 | 0.107 | 1.141 | 0.406 | 2.780 | 34.310 | 12.34 |
| 11 | 72 | 4.673 | 0.048 | 65.14 | 2.680 | 0.216 | 0.091 | 1.161 | 0.415 | 2.850 | 33.540 | 11.77 |
| 11 | 74 | 4.068 | 0.041 | 65.38 | 2.763 | 0.211 | 0.099 | 1.179 | 0.423 | 2.840 | 33.760 | 11.89 |
| 11 | 76 | 4.610 | 0.047 | 64.52 | 2.857 | 0.211 | 0.075 | 1.199 | 0.430 | 2.880 | 32.580 | 11.31 |
| 11 | 78 | 5.270 | 0.054 | 61.49 | 2.965 | 0.194 | 0.087 | 1.220 | 0.440 | 2.410 | 29.160 | 12.10 |
| 11 | 80 | 5.698 | 0.059 | 53.99 | 3.083 | 0.184 | 0.072 | 1.241 | 0.448 | 2.620 | 31.130 | 11.88 |
| 11 | 82 | 5.066 | 0.052 | 60.49 | 3.186 | 0.173 | 0.044 | 1.259 | 0.453 | 2.910 | 30.530 | 10.49 |
| 11 | 84 | 5.048 | 0.052 | 62.99 | 3.290 | 0.192 | 0.110 | 1.279 | 0.464 | 2.540 | 32.570 | 12.82 |
| 11 | 86 | 6.510 | 0.067 | 52.80 | 3.425 | 0.174 | 0.154 | 1.303 | 0.485 | 2.830 | 32.700 | 11.55 |
| 11 | 88 | 5.669 | 0.058 | 61.03 | 3.541 | 0.164 | 0.061 | 1.322 | 0.492 | 2.830 | 32.590 | 11.52 |
| 11 | 90 | 6.092 | 0.063 | 56.90 | 3.667 | 0.177 | 0.060 | 1.344 | 0.499 | 2.610 | 32.660 | 12.51 |
| 11 | 92 | 5.979 | 0.062 | 58.49 | 3.790 | 0.175 | 0.083 | 1.366 | 0.510 | 2.810 | 32.790 | 11.67 |
| 11 | 94 | 8.077 | 0.084 | 37.13 | 3.959 | 0.163 | 0.081 | 1.393 | 0.523 | 2.260 | 27.570 | 12.20 |
| 11 | 96 | 8.580 | 0.090 | 35.25 | 4.139 | 0.129 | 0.047 | 1.416 | 0.532 | 1.790 | 23.560 | 13.16 |
| 11 | 98 | 7.313 | 0.076 | 45.78 | 4.291 | 0.177 | 0.043 | 1.443 | 0.538 | 2.120 | 23.570 | 11.12 |
| 11 | 100 | 5.972 | 0.062 | 57.53 | 4.414 | 0.154 | 0.049 | 1.462 | 0.544 | 2.500 | 32.380 | 12.95 |
| 11 | 104 | 6.329 | 0.065 | 56.57 | 4.675 | 0.160 | 0.100 | 1.504 | 0.570 | 1.250 | 15.350 | 12.28 |
| 11 | 108 | 7.946 | 0.083 | 51.71 | 5.007 | 0.161 | 0.070 | 1.557 | 0.593 | 2.290 | 27.690 | 12.09 |
| 11 | 112 | 5.946 | 0.061 | 60.59 | 5.252 | 0.165 | 0.070 | 1.598 | 0.611 | 0.810 | 8.230 | 10.16 |
| 11 | 116 | 6.271 | 0.065 | 62.55 | 5.510 | 0.154 | 0.080 | 1.637 | 0.631 | 2.250 | 27.760 | 12.34 |

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 11 | 120 | 6.423 | 0.066 | 58.46 | 5.776 | 0.176 | 0.090 | 1.684 | 0.655 | 1.650 | 20.420 | 12.38 |
| 11 | 124 | 6.576 | 0.068 | 61.26 | 6.047 | 0.161 | 0.090 | 1.728 | 0.680 | 2.490 | 29.200 | 11.73 |
| 11 | 128 | 6.693 | 0.069 | 58.75 | 6.324 | 0.172 | 0.090 | 1.775 | 0.705 | 2.730 | 31.220 | 11.44 |
| 11 | 132 | 7.126 | 0.074 | 56.44 | 6.620 | 0.144 | 0.090 | 1.818 | 0.731 | 2.420 | 30.380 | 12.55 |
| | | | | | | | | | | | | |

Note: In calculations of cumulative storage reported in the text, cumulative TP and NAIP were increased by 0.033 and 0.012, respectively, to account for missing data at 2 cm. Values of 1.40 and 0.50, respectively, were used for missing TP and NAIP data. Cumulative totals reported in these appendix tables do not include these adjustments.

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 2 | 1.44 | 0.0145 | 65.85 | 0.029 | 1.216 | 0.522 | 0.035 | 0.015 | 3.88 | 33.18 | 8.55 |
| 26 | 4 | 1.56 | 0.0157 | 60.38 | 0.061 | 1.514 | 0.547 | 0.083 | 0.032 | 3.54 | 32.09 | 9.06 |
| 26 | 6 | 1.96 | 0.0198 | 66.67 | 0.100 | 1.273 | 0.321 | 0.134 | 0.045 | 3.53 | 31.06 | 8.80 |
| 26 | 8 | 1.87 | 0.0189 | 62.79 | 0.138 | 1.604 | 0.375 | 0.194 | 0.059 | 3.62 | 33.63 | 9.29 |
| 26 | 10 | 2.47 | 0.0250 | 62.79 | 0.188 | 1.328 | 0.589 | 0.260 | 0.089 | 3.59 | 31.41 | 8.75 |
| 26 | 12 | 2.08 | 0.0211 | 60.26 | 0.230 | 1.331 | 0.541 | 0.317 | 0.111 | 3.66 | 33.27 | 9.09 |
| 26 | 14 | 2.23 | 0.0225 | 57.58 | 0.275 | 1.416 | 0.504 | 0.380 | 0.134 | 3.18 | 29.37 | 9.24 |
| 26 | 16 | 3.36 | 0.0342 | 49.30 | 0.344 | 0.969 | 0.300 | 0.447 | 0.155 | 3.09 | 28.83 | 9.33 |
| 26 | 18 | 3.20 | 0.0325 | 53.45 | 0.408 | 1.213 | 0.389 | 0.525 | 0.180 | 2.54 | 26.51 | 10.44 |
| 26 | 20 | 2.91 | 0.0296 | 53.75 | 0.468 | 0.763 | 0.440 | 0.571 | 0.206 | 3.03 | 29.10 | 9.60 |
| 26 | 22 | 2.78 | 0.0282 | 56.92 | 0.524 | 0.641 | 0.273 | 0.607 | 0.221 | 2.86 | 31.39 | 10.98 |
| 26 | 24 | 3.78 | 0.0385 | 50.00 | 0.601 | 0.609 | 0.215 | 0.654 | 0.238 | 3.13 | 30.46 | 9.73 |
| 26 | 26 | 4.53 | 0.0463 | 54.79 | 0.694 | 0.515 | 0.231 | 0.701 | 0.259 | 2.75 | 31.33 | 11.39 |
| 26 | 28 | 5.37 | 0.0551 | 53.29 | 0.804 | 0.531 | 0.178 | 0.760 | 0.279 | 2.67 | 30.51 | 11.43 |
| 26 | 30 | 4.84 | 0.0496 | 56.25 | 0.903 | 0.332 | 0.132 | 0.793 | 0.292 | 2.62 | 28.47 | 10.87 |
| 26 | 32 | 4.85 | 0.0497 | 56.42 | 1.003 | 0.289 | 0.063 | 0.822 | 0.298 | 2.71 | 30.64 | 11.31 |
| 26 | 34 | 4.44 | 0.0454 | 59.13 | 1.093 | 0.205 | 0.074 | 0.840 | 0.305 | 2.43 | 29.30 | 12.06 |
| 26 | 36 | 4.44 | 0.0454 | 61.76 | 1.184 | 0.230 | 0.155 | 0.861 | 0.319 | 2.63 | 31.12 | 11.83 |
| 26 | 38 | 4.72 | 0.0483 | 61.11 | 1.281 | 0.279 | 0.095 | 0.888 | 0.328 | 2.93 | 32.14 | 10.97 |
| 26 | 40 | 5.04 | 0.0517 | 57.04 | 1.384 | 0.271 | 0.067 | 0.916 | 0.335 | 3.12 | 33.98 | 10.89 |
| 26 | 42 | 5.04 | 0.0517 | 62.75 | 1.488 | 0.227 | 0.054 | 0.940 | 0.341 | 2.59 | 31.65 | 12.22 |
| 26 | 44 | 4.79 | 0.0490 | 61.79 | 1.586 | 0.270 | 0.059 | 0.966 | 0.347 | 2.79 | 33.25 | 11.92 |
| 26 | 46 | 5.03 | 0.0516 | 63.57 | 1.689 | 0.229 | 0.055 | 0.990 | 0.353 | 2.73 | 33.04 | 12.10 |
| 26 | 48 | 4.83 | 0.0495 | 59.12 | 1.788 | 0.238 | 0.105 | 1.013 | 0.363 | 2.84 | 33.74 | 11.88 |
| 26 | 50 | 4.60 | 0.0471 | 56.85 | 1.882 | 0.254 | 0.077 | 1.037 | 0.370 | 1.64 | 18.22 | 11.11 |
| 26 | 52 | 7.20 | 0.0748 | 38.34 | 2.032 | 0.250 | 0.076 | 1.075 | 0.381 | 2.64 | 31.39 | 11.89 |
| 26 | 54 | 5.51 | 0.0567 | 58.44 | 2.145 | 0.275 | 0.089 | 1.106 | 0.392 | 2.56 | 32.20 | 12.58 |
| 26 | 56 | 4.85 | 0.0497 | 61.54 | 2.244 | 0.243 | 0.063 | 1.130 | 0.398 | 2.93 | 33.41 | 11.40 |
| 26 | 58 | 8.60 | 0.0903 | 32.23 | 2.425 | 0.198 | 0.120 | 1.166 | 0.419 | 2.66 | 31.97 | 12.02 |
| 26 | 60 | 5.59 | 0.0575 | 48.25 | 2.540 | 0.184 | 0.089 | 1.187 | 0.430 | 2.63 | 33.88 | 12.88 |
| 26 | 62 | 5.82 | 0.0600 | 53.97 | 2.660 | 0.229 | 0.078 | 1.214 | 0.439 | 2.51 | 30.85 | 12.29 |
| 26 | 64 | 4.96 | 0.0508 | 58.82 | 2.762 | 0.228 | 0.061 | 1.238 | 0.445 | 2.73 | 33.68 | 12.34 |
| 26 | 66 | 5.08 | 0.0521 | 58.41 | 2.866 | 0.211 | 0.073 | 1.260 | 0.453 | 2.67 | 33.07 | 12.39 |
| 26 | 68 | 5.67 | 0.0583 | 58.70 | 2.983 | 0.235 | 0.068 | 1.287 | 0.461 | 2.59 | 32.48 | 12.54 |
| 26 | 70 | 6.04 | 0.0624 | 50.50 | 3.107 | 0.162 | 0.067 | 1.307 | 0.469 | 2.60 | 31.79 | 12.23 |
| 26 | 72 | 8.97 | 0.0943 | 35.83 | 3.296 | 0.198 | 0.039 | 1.345 | 0.476 | 2.36 | 33.86 | 14.35 |
| 26 | 74 | 8.87 | 0.0932 | 36.17 | 3.482 | 0.189 | 0.038 | 1.380 | 0.483 | 2.08 | 27.40 | 13.17 |
| 26 | 76 | 7.59 | 0.0790 | 44.51 | 3.640 | 0.256 | 0.056 | 1.420 | 0.492 | 2.67 | 34.14 | 12.79 |
| 26 | 78 | 9.38 | 0.0989 | 31.02 | 3.838 | 0.201 | 0.073 | 1.460 | 0.507 | 1.73 | 22.36 | 12.92 |
| 26 | 80 | 12.24 | 0.1313 | 28.64 | 4.101 | 0.198 | 0.055 | 1.512 | 0.521 | 2.04 | 28.04 | 13.75 |
| 26 | 82 | 7.37 | 0.0766 | 45.63 | 4.254 | 0.200 | 0.057 | 1.543 | 0.530 | 2.66 | 32.29 | 12.14 |
| 26 | 84 | 6.40 | 0.0661 | 58.55 | 4.386 | 0.190 | 0.056 | 1.568 | 0.537 | 2.78 | 34.85 | 12.54 |
| 26 | 86 | 7.94 | 0.0828 | 48.00 | 4.552 | 0.201 | 0.035 | 1.601 | 0.543 | 2.91 | 33.44 | 11.49 |
| 26 | 88 | 7.16 | 0.0743 | 51.89 | 4.700 | 0.184 | 0.042 | 1.628 | 0.549 | 2.81 | 34.64 | 12.33 |
| 26 | 90 | 9.31 | 0.0980 | 38.02 | 4.896 | 0.244 | 0.032 | 1.676 | 0.556 | 2.47 | 32.09 | 12.99 |
| 26 | 92 | 12.84 | 0.1382 | 29.55 | 5.173 | 0.181 | 0.021 | 1.726 | 0.562 | 2.65 | 34.24 | 12.92 |
| 26 | 94 | 28.08 | 0.3359 | 10.32 | 5.844 | 0.239 | 0.038 | 1.887 | 0.587 | 2.32 | 29.92 | 12.90 |
| 26 | 96 | 9.84 | 0.1039 | 37.13 | 6.052 | 0.165 | 0.032 | 1.921 | 0.594 | 2.49 | 33.60 | 13.49 |
| 26 | 98 | 9.17 | 0.0964 | 37.37 | 6.245 | 0.150 | 0.037 | 1.950 | 0.601 | 2.37 | 32.73 | 13.81 |
| 26 | 100 | 7.20 | 0.0747 | 52.43 | 6.395 | 0.143 | 0.028 | 1.971 | 0.605 | 2.78 | 34.31 | 12.34 |
| 26 | 104 | 6.41 | 0.0662 | 60.26 | 6.659 | 0.160 | 0.060 | 2.014 | 0.621 | 2.01 | 28.89 | 14.37 |
| 26 | 108 | 9.05 | 0.0951 | 43.16 | 7.040 | 0.170 | 0.070 | 2.078 | 0.648 | 1.80 | 24.07 | 13.37 |
| 26 | 112 | 7.69 | 0.0801 | 46.90 | 7.360 | 0.160 | 0.040 | 2.130 | 0.660 | 1.90 | 23.43 | 12.33 |
| 26 | 116 | 7.25 | 0.0753 | 47.06 | 7.661 | 0.150 | 0.040 | 2.175 | 0.672 | 2.09 | 24.43 | 11.69 |

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 26 | 120 | 7.99 | 0.0832 | 51.20 | 7.994 | 0.210 | 0.060 | 2.245 | 0.692 | 1.26 | 15.82 | 12.56 |
| 26 | 124 | 9.95 | 0.1051 | 37.72 | 8.415 | 0.250 | 0.120 | 2.350 | 0.743 | 1.91 | 23.75 | 12.43 |
| 26 | 128 | 8.95 | 0.0939 | 45.00 | 8.790 | 0.290 | 0.060 | 2.459 | 0.765 | 2.15 | 31.28 | 14.55 |
| 26 | 132 | 8.36 | 0.0874 | 50.34 | 9.140 | 0.200 | 0.070 | 2.529 | 0.790 | 2.40 | 33.97 | 14.15 |

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 2 | 1.21 | 0.0122 | 70.37 | 0.024 | . | . | . | . | 3.53 | 34.86 | 9.88 |
| 41 | 4 | 2.39 | 0.0242 | 71.72 | 0.073 | 1.671 | 0.843 | 0.081 | 0.041 | 3.61 | 34.51 | 9.56 |
| 41 | 6 | 2.10 | 0.0212 | 71.82 | 0.115 | 1.704 | 0.910 | 0.153 | 0.079 | 3.52 | 34.23 | 9.72 |
| 41 | 8 | 2.12 | 0.0214 | 71.58 | 0.158 | 1.756 | 1.041 | 0.228 | 0.124 | 3.53 | 34.19 | 9.69 |
| 41 | 10 | 2.93 | 0.0297 | 71.54 | 0.217 | 1.891 | 1.034 | 0.340 | 0.185 | 3.84 | 34.90 | 9.09 |
| 41 | 12 | 2.43 | 0.0246 | 71.74 | 0.266 | 1.839 | 1.010 | 0.431 | 0.235 | 3.97 | 34.95 | 8.80 |
| 41 | 14 | 2.90 | 0.0294 | 70.59 | 0.325 | 1.740 | 0.973 | 0.533 | 0.292 | 3.80 | 34.52 | 9.08 |
| 41 | 16 | 2.79 | 0.0282 | 70.69 | 0.382 | 1.617 | 0.934 | 0.624 | 0.345 | 3.60 | 34.54 | 9.59 |
| 41 | 18 | 2.73 | 0.0276 | 70.27 | 0.437 | 1.564 | 0.824 | 0.710 | 0.390 | 3.66 | 33.65 | 9.19 |
| 41 | 20 | 2.43 | 0.0246 | 71.08 | 0.486 | 1.250 | 0.751 | 0.772 | 0.427 | 3.34 | 31.61 | 9.46 |
| 41 | 22 | 2.54 | 0.0258 | 70.59 | 0.537 | 1.494 | 0.694 | 0.849 | 0.463 | 3.44 | 34.28 | 9.97 |
| 41 | 24 | 2.99 | 0.0303 | 69.49 | 0.598 | 1.439 | 0.701 | 0.936 | 0.505 | 3.61 | 34.45 | 9.54 |
| 41 | 26 | 3.31 | 0.0336 | 69.44 | 0.665 | 1.187 | 0.556 | 1.016 | 0.543 | 3.51 | 34.27 | 9.76 |
| 41 | 28 | 3.07 | 0.0311 | 69.41 | 0.728 | 0.978 | 0.433 | 1.077 | 0.570 | 3.35 | 33.88 | 10.11 |
| 41 | 30 | 2.69 | 0.0272 | 68.53 | 0.782 | 0.874 | 0.345 | 1.124 | 0.588 | 2.95 | 34.02 | 11.53 |
| 41 | 32 | 3.32 | 0.0338 | 68.66 | 0.850 | 0.813 | 0.356 | 1.179 | 0.612 | 3.10 | 34.07 | 10.99 |
| 41 | 34 | 3.70 | 0.0376 | 68.11 | 0.925 | 0.780 | 0.444 | 1.238 | 0.646 | 2.97 | 34.12 | 11.49 |
| 41 | 36 | 3.57 | 0.0363 | 68.59 | 0.998 | 0.798 | 0.371 | 1.296 | 0.673 | 3.06 | 34.25 | 11.19 |
| 41 | 38 | 3.79 | 0.0386 | 67.25 | 1.075 | 0.788 | 0.329 | 1.357 | 0.698 | 3.06 | 33.48 | 10.94 |
| 41 | 40 | 3.60 | 0.0366 | 67.46 | 1.148 | 0.754 | 0.335 | 1.412 | 0.723 | 2.95 | 33.34 | 11.30 |
| 41 | 42 | 3.86 | 0.0393 | 66.87 | 1.226 | 0.747 | 0.379 | 1.471 | 0.753 | 3.24 | 33.90 | 10.46 |
| 41 | 44 | 3.98 | 0.0406 | 67.54 | 1.308 | 0.749 | 0.330 | 1.532 | 0.779 | 3.00 | 34.18 | 11.39 |
| 41 | 46 | 4.40 | 0.0449 | 67.57 | 1.397 | 0.667 | 0.303 | 1.591 | 0.807 | 2.96 | 33.66 | 11.37 |
| 41 | 48 | 4.34 | 0.0443 | 67.18 | 1.486 | 0.697 | 0.281 | 1.653 | 0.831 | 2.88 | 33.82 | 11.74 |
| 41 | 50 | 4.08 | 0.0416 | 68.08 | 1.569 | 0.703 | 0.292 | 1.712 | 0.856 | 3.05 | 33.34 | 10.93 |
| 41 | 52 | 3.56 | 0.0362 | 67.32 | 1.642 | 0.676 | 0.246 | 1.761 | 0.874 | 3.26 | 33.71 | 10.34 |
| 41 | 54 | 3.31 | 0.0336 | 66.67 | 1.709 | 0.728 | 0.266 | 1.810 | 0.892 | 3.24 | 33.77 | 10.42 |
| 41 | 56 | 3.09 | 0.0314 | 69.17 | 1.772 | 0.776 | 0.396 | 1.858 | 0.916 | 3.01 | 33.89 | 11.26 |
| 41 | 58 | 4.30 | 0.0439 | 68.61 | 1.860 | 0.821 | 0.328 | 1.930 | 0.945 | 3.75 | 40.34 | 10.76 |
| 41 | 60 | 3.62 | 0.0369 | 68.75 | 1.933 | 0.769 | 0.384 | 1.987 | 0.973 | 3.20 | 35.65 | 11.14 |
| 41 | 62 | 4.01 | 0.0409 | 68.53 | 2.015 | 0.683 | 0.267 | 2.043 | 0.995 | 3.03 | 33.03 | 10.90 |
| 41 | 64 | 3.75 | 0.0382 | 68.25 | 2.091 | 0.777 | 0.305 | 2.102 | 1.019 | 2.97 | 34.08 | 11.47 |
| 41 | 66 | 4.26 | 0.0434 | 68.14 | 2.178 | 0.777 | 0.331 | 2.170 | 1.047 | 3.08 | 33.88 | 11.00 |
| 41 | 68 | 4.41 | 0.0451 | 67.68 | 2.268 | 0.522 | 0.260 | 2.217 | 1.071 | 2.78 | 31.75 | 11.42 |
| 41 | 70 | 4.21 | 0.0430 | 68.87 | 2.354 | 0.507 | 0.286 | 2.260 | 1.095 | 3.28 | 33.40 | 10.18 |
| 41 | 72 | 4.22 | 0.0430 | 68.78 | 2.440 | 0.640 | 0.297 | 2.315 | 1.121 | 3.23 | 35.25 | 10.91 |
| 41 | 74 | 3.85 | 0.0393 | 68.00 | 2.519 | 0.584 | 0.348 | 2.361 | 1.148 | 2.98 | 31.81 | 10.67 |
| 41 | 76 | 5.35 | 0.0549 | 68.70 | 2.629 | 0.597 | 0.274 | 2.427 | 1.178 | 3.02 | 33.29 | 11.02 |
| 41 | 78 | 4.88 | 0.0500 | 68.75 | 2.729 | 0.604 | 0.338 | 2.487 | 1.212 | 3.29 | 35.02 | 10.64 |

Note: In calculations of cumulative storage reported in the text, cumulative TP and NAIP were increased by 0.042 and 0.020, respectively, to account for missing data at 2 cm. Values of 1.70 and 0.80, respectively, were used for missing TP and NAIP data. Cumulative totals reported in these appendix tables do not include these adjustments.

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 42 | 2 | 0.56 | 0.0056 | 71.43 | 0.011 | 1.031 | 0.314 | 0.012 | 0.004 | 3.80 | 34.23 | 9.01 |
| 42 | 4 | 0.81 | 0.0081 | 72.73 | 0.027 | 1.292 | 0.346 | 0.033 | 0.009 | . | . | . |
| 42 | 6 | 0.89 | 0.0090 | 68.29 | 0.045 | 1.301 | 0.363 | 0.056 | 0.016 | 3.75 | 32.78 | 8.74 |
| 42 | 8 | 1.59 | 0.0160 | 68.42 | 0.077 | 1.321 | 0.477 | 0.098 | 0.031 | 3.62 | 32.73 | 9.04 |
| 42 | 10 | 2.01 | 0.0203 | 71.43 | 0.118 | 1.308 | 0.463 | 0.151 | 0.050 | 3.51 | 34.39 | 9.80 |
| 42 | 12 | 2.63 | 0.0266 | 70.09 | 0.171 | 1.331 | 0.488 | 0.222 | 0.076 | 3.93 | 33.99 | 8.65 |
| 42 | 14 | 2.35 | 0.0237 | 71.28 | 0.219 | 1.391 | 0.542 | 0.288 | 0.101 | 3.63 | 35.49 | 9.78 |
| 42 | 16 | 2.22 | 0.0225 | 70.73 | 0.264 | 1.568 | 0.634 | 0.359 | 0.130 | 3.60 | 34.73 | 9.65 |
| 42 | 18 | 2.73 | 0.0276 | 71.53 | 0.319 | 1.703 | 0.823 | 0.453 | 0.175 | 2.98 | 26.68 | 8.95 |
| 42 | 20 | 3.04 | 0.0308 | 66.67 | 0.381 | 1.727 | 0.653 | 0.559 | 0.216 | 4.02 | 40.51 | 10.08 |
| 42 | 22 | 3.12 | 0.0316 | 70.00 | 0.444 | 1.382 | 0.567 | 0.647 | 0.251 | 3.24 | 35.31 | 10.90 |
| 42 | 24 | 3.37 | 0.0342 | 68.93 | 0.512 | 1.246 | 0.533 | 0.732 | 0.288 | 3.01 | 31.02 | 10.31 |
| 42 | 26 | 3.46 | 0.0351 | 69.76 | 0.583 | 1.240 | 0.457 | 0.819 | 0.320 | 3.87 | 39.82 | 10.29 |
| 42 | 28 | 3.48 | 0.0354 | 69.09 | 0.653 | 1.377 | 0.418 | 0.917 | 0.350 | 3.71 | 38.81 | 10.46 |
| 42 | 30 | 3.65 | 0.0372 | 68.65 | 0.728 | 0.917 | 0.441 | 0.985 | 0.383 | 2.63 | 26.84 | 10.21 |
| 42 | 32 | 3.89 | 0.0396 | 68.73 | 0.807 | 0.905 | 0.378 | 1.056 | 0.412 | 3.80 | 45.19 | 11.89 |
| 42 | 34 | 3.57 | 0.0363 | 68.55 | 0.880 | 0.844 | 0.351 | 1.118 | 0.438 | 2.83 | 29.79 | 10.53 |
| 42 | 36 | 3.63 | 0.0369 | 68.89 | 0.953 | 0.856 | 0.330 | 1.181 | 0.462 | 3.60 | 35.96 | 9.99 |
| 42 | 38 | 3.63 | 0.0369 | 68.55 | 1.027 | 0.920 | 0.235 | 1.249 | 0.480 | 2.82 | 34.19 | 12.12 |
| 42 | 40 | 3.43 | 0.0349 | 68.39 | 1.097 | 0.849 | 0.211 | 1.308 | 0.494 | 2.86 | 33.10 | 11.57 |
| 42 | 42 | 4.42 | 0.0451 | 66.22 | 1.187 | 0.447 | 0.189 | 1.348 | 0.511 | 3.41 | 36.71 | 10.77 |
| 42 | 44 | 4.63 | 0.0473 | 66.52 | 1.282 | 0.419 | 0.161 | 1.388 | 0.527 | 3.28 | 37.41 | 11.41 |
| 42 | 46 | 4.03 | 0.0411 | 65.79 | 1.364 | 0.667 | 0.204 | 1.443 | 0.544 | 2.14 | 26.26 | 12.27 |
| 42 | 48 | 3.30 | 0.0336 | 65.30 | 1.431 | 0.504 | 0.214 | 1.477 | 0.558 | 3.56 | 38.92 | 10.93 |
| 42 | 50 | 3.81 | 0.0388 | 66.37 | 1.509 | 0.513 | 0.312 | 1.517 | 0.582 | 2.95 | 32.68 | 11.08 |
| 42 | 52 | 3.49 | 0.0355 | 66.67 | 1.580 | 0.420 | 0.224 | 1.546 | 0.598 | 3.00 | 32.94 | 10.98 |
| 42 | 54 | 4.24 | 0.0433 | 65.24 | 1.666 | 0.312 | 0.128 | 1.573 | 0.609 | 2.93 | 33.64 | 11.48 |
| 42 | 56 | 4.15 | 0.0424 | 62.57 | 1.751 | 0.401 | 0.226 | 1.607 | 0.628 | 2.87 | 31.06 | 10.82 |
| 42 | 58 | 3.84 | 0.0392 | 63.24 | 1.830 | 0.371 | 0.144 | 1.636 | 0.640 | 2.79 | 31.81 | 11.40 |
| 42 | 60 | 4.33 | 0.0442 | 63.40 | 1.918 | 0.393 | 0.307 | 1.671 | 0.667 | 3.11 | 34.83 | 11.20 |
| 42 | 62 | 3.79 | 0.0386 | 62.71 | 1.995 | 0.474 | 0.321 | 1.708 | 0.692 | 2.92 | 34.31 | 11.75 |
| 42 | 64 | 4.72 | 0.0483 | 64.86 | 2.092 | 0.455 | 0.199 | 1.752 | 0.711 | 2.85 | 33.43 | 11.73 |
| 42 | 66 | 4.05 | 0.0413 | 64.24 | 2.174 | 0.475 | 0.266 | 1.791 | 0.733 | 3.02 | 34.21 | 11.33 |
| 42 | 68 | 3.71 | 0.0377 | 64.29 | 2.250 | 0.290 | 0.156 | 1.813 | 0.745 | 2.68 | 33.14 | 12.37 |
| 42 | 70 | 5.02 | 0.0514 | 59.41 | 2.353 | 0.307 | 0.294 | 1.844 | 0.775 | 2.66 | 31.62 | 11.89 |
| 42 | 72 | 9.01 | 0.0947 | 33.44 | 2.542 | 0.231 | 0.144 | 1.888 | 0.802 | 2.64 | 27.97 | 10.59 |
| 42 | 74 | 10.51 | 0.1116 | 26.74 | 2.765 | 0.205 | 0.249 | 1.934 | 0.858 | 1.69 | 18.99 | 11.24 |
| 42 | 76 | 5.03 | 0.0516 | 60.78 | 2.868 | 0.143 | 0.140 | 1.949 | 0.872 | 2.55 | 31.87 | 12.50 |
| 42 | 78 | 5.83 | 0.0600 | 62.21 | 2.988 | 0.310 | 0.134 | 1.986 | 0.888 | 2.48 | 31.41 | 12.67 |
| 42 | 80 | 5.24 | 0.0537 | 62.83 | 3.096 | 0.144 | 0.190 | 2.001 | 0.909 | 2.82 | 32.76 | 11.62 |
| 42 | 82 | 6.68 | 0.0690 | 63.95 | 3.234 | 0.134 | 0.105 | 2.020 | 0.923 | 2.75 | 34.27 | 12.46 |
| 42 | 84 | 6.41 | 0.0661 | 59.71 | 3.366 | 0.126 | 0.132 | 2.036 | 0.941 | 2.78 | 35.41 | 12.74 |

# APPENDIX D

Gravimetric and chemical data, Lake Griffin survey cores, Phase II.
See Appendix A for collection date, location and description of cores.

CODES: Sta is station number
Depth is depth (cm)
Dry is percent dry weight
Rho is dry weight density (g dry $cm^{-3}$ wet)
LOI is percent loss on ignition
Cum Wt is cumulative mass (g $cm^{-2}$)
TP is total phosphorus (mg $g^{-1}$)
NAIP is non-apatite inorganic phosphorus (mg $g^{-1}$),
Cum TP is cumulative TP (mg $cm^{-2}$)
Cum NAIP is cumulative NAIP (mg $cm^{-2}$)

Missing data are indicated by dots.

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-1 | 5 | 1.59 | 0.0160 | 79.3 | 0.067 | 1.589 | 0.634 | 0.107 | 0.043 |
| PII-1 | 10 | 1.96 | 0.0198 | 78.5 | 0.167 | 1.638 | 0.691 | 0.270 | 0.112 |
| PII-1 | 15 | 2.18 | 0.0220 | 78.4 | 0.262 | 1.610 | 0.669 | 0.424 | 0.175 |
| PII-1 | 20 | 2.30 | 0.0233 | 77.9 | 0.382 | 1.614 | 0.722 | 0.617 | 0.262 |
| PII-1 | 25 | 2.49 | 0.0252 | 75.9 | 0.496 | 1.266 | 0.508 | 0.761 | 0.320 |
| PII-1 | 30 | 2.76 | 0.0280 | 74.5 | 0.626 | 1.074 | 0.364 | 0.901 | 0.367 |
| PII-1 | 35 | 2.83 | 0.0287 | 74.3 | 0.763 | 1.164 | 0.331 | 1.061 | 0.412 |
| PII-1 | 40 | 2.86 | 0.0290 | 74.0 | 0.901 | 0.913 | 0.257 | 1.186 | 0.448 |
| PII-1 | 45 | 3.03 | 0.0307 | 72.6 | 1.057 | 0.856 | 0.270 | 1.320 | 0.490 |
| PII-1 | 50 | 3.16 | 0.0321 | 72.0 | 1.216 | 0.750 | 0.241 | 1.439 | 0.528 |
| PII-1 | 55 | 3.20 | 0.0325 | 72.6 | 1.377 | 0.642 | 0.162 | 1.542 | 0.554 |
| PII-1 | 60 | 3.06 | 0.0311 | 72.7 | 1.527 | 0.623 | 0.172 | 1.636 | 0.580 |
| PII-1 | 65 | 2.97 | 0.0301 | 71.8 | 1.665 | 0.515 | 0.165 | 1.707 | 0.603 |
| PII-1 | 70 | 3.15 | 0.0320 | 71.0 | 1.839 | 0.478 | 0.173 | 1.790 | 0.633 |
| PII-1 | 75 | 3.18 | 0.0323 | 67.8 | 1.999 | 0.424 | 0.147 | 1.858 | 0.657 |
| PII-1 | 80 | 3.53 | 0.0359 | 68.0 | 2.152 | 0.530 | 0.217 | 1.939 | 0.690 |
| PII-1 | 85 | 3.67 | 0.0373 | 68.2 | 2.336 | 0.412 | 0.187 | 2.015 | 0.724 |
| PII-1 | 90 | 4.70 | 0.0481 | 64.1 | 2.528 | 0.427 | 0.162 | 2.097 | 0.755 |
| PII-1 | 95 | 4.92 | 0.0504 | 52.1 | 2.784 | 0.303 | 0.177 | 2.174 | 0.800 |
| | | | | | | | | | |
| PII-2 | 5 | 1.46 | 0.0147 | 69.9 | 0.052 | 1.601 | 0.572 | 0.083 | 0.030 |
| PII-2 | 10 | 2.24 | 0.0226 | 68.1 | 0.160 | 1.757 | 0.782 | 0.273 | 0.114 |
| PII-2 | 15 | 2.41 | 0.0244 | 68.7 | 0.275 | 1.674 | 0.795 | 0.465 | 0.205 |
| PII-2 | 20 | 2.56 | 0.0259 | 69.0 | 0.397 | 1.461 | 0.620 | 0.644 | 0.281 |
| PII-2 | 25 | 2.54 | 0.0257 | 66.3 | 0.542 | 1.185 | 0.483 | 0.816 | 0.351 |
| PII-2 | 30 | 2.84 | 0.0288 | 66.2 | 0.683 | 1.002 | 0.339 | 0.957 | 0.399 |
| PII-2 | 35 | 3.02 | 0.0306 | 66.5 | 0.837 | 0.774 | 0.264 | 1.076 | 0.440 |
| PII-2 | 40 | 3.20 | 0.0324 | 70.5 | 0.998 | 0.868 | 0.307 | 1.216 | 0.489 |
| PII-2 | 45 | 3.30 | 0.0335 | 69.9 | 1.146 | 0.639 | 0.223 | 1.311 | 0.522 |
| PII-2 | 50 | 3.52 | 0.0358 | 69.1 | 1.326 | 0.470 | 0.172 | 1.395 | 0.553 |
| PII-2 | 55 | 3.75 | 0.0382 | 65.8 | 1.529 | 0.386 | 0.139 | 1.473 | 0.581 |
| PII-2 | 60 | 3.45 | 0.0351 | 68.9 | 1.698 | 0.307 | 0.094 | 1.525 | 0.597 |
| PII-2 | 65 | 2.95 | 0.0299 | 69.3 | 1.835 | 0.362 | 0.118 | 1.575 | 0.613 |
| PII-2 | 70 | 3.56 | 0.0362 | 60.5 | 2.007 | 0.285 | 0.099 | 1.624 | 0.630 |
| PII-2 | 75 | 3.99 | 0.0407 | 57.8 | 2.200 | 0.265 | 0.083 | 1.675 | 0.646 |
| PII-2 | 80 | 3.91 | 0.0399 | 62.3 | 2.384 | 0.245 | 0.119 | 1.720 | 0.668 |
| PII-2 | 90 | 4.17 | 0.0426 | 62.0 | 2.806 | 0.238 | 0.076 | 1.820 | 0.700 |
| PII-2 | 100 | 4.82 | 0.0494 | 53.9 | 3.256 | 0.253 | 0.080 | 1.934 | 0.736 |
| PII-2 | 110 | 4.09 | 0.0417 | 64.6 | 3.641 | 0.209 | 0.067 | 2.015 | 0.762 |
| PII-2 | 120 | 5.09 | 0.0522 | 63.9 | 4.071 | 0.178 | 0.056 | 2.091 | 0.786 |
| PII-2 | 130 | 4.61 | 0.0471 | 59.8 | 4.523 | 0.166 | 0.048 | 2.166 | 0.808 |
| PII-2 | 140 | 5.39 | 0.0554 | 58.0 | 5.016 | 0.152 | 0.053 | 2.241 | 0.834 |

## Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-3 | 5 | 0.98 | 0.0099 | 67.4 | 0.050 | 1.548 | 0.438 | 0.078 | 0.022 |
| PII-3 | 10 | 1.69 | 0.0170 | 66.6 | 0.130 | 1.597 | 0.498 | 0.205 | 0.062 |
| PII-3 | 15 | 1.95 | 0.0197 | 61.0 | 0.223 | 1.716 | 0.531 | 0.364 | 0.111 |
| PII-3 | 20 | 2.64 | 0.0268 | 59.1 | 0.356 | 1.453 | 0.536 | 0.558 | 0.183 |
| PII-3 | 25 | 3.02 | 0.0306 | 59.2 | 0.499 | 1.093 | 0.229 | 0.714 | 0.215 |
| PII-3 | 30 | 3.00 | 0.0304 | 63.0 | 0.661 | 0.640 | 0.142 | 0.818 | 0.238 |
| PII-3 | 35 | 3.14 | 0.0319 | 65.8 | 0.830 | 0.653 | 0.169 | 0.928 | 0.267 |
| PII-3 | 40 | 3.33 | 0.0338 | 70.3 | 0.995 | 0.612 | 0.122 | 1.029 | 0.287 |
| PII-3 | 45 | 3.52 | 0.0358 | 67.7 | 1.181 | 0.418 | 0.087 | 1.107 | 0.303 |
| PII-3 | 50 | 4.01 | 0.0409 | 61.8 | 1.383 | 0.303 | 0.086 | 1.168 | 0.320 |
| PII-3 | 55 | 4.27 | 0.0436 | 59.3 | 1.590 | 0.301 | 0.074 | 1.230 | 0.336 |
| PII-3 | 60 | 4.01 | 0.0409 | 59.9 | 1.782 | 0.227 | 0.070 | 1.274 | 0.349 |
| PII-3 | 65 | 4.05 | 0.0413 | 60.7 | 2.002 | 0.230 | 0.080 | 1.325 | 0.367 |
| PII-3 | 70 | 4.17 | 0.0426 | 56.7 | 2.198 | 0.175 | 0.086 | 1.359 | 0.384 |
| PII-3 | 80 | 4.28 | 0.0437 | 60.8 | 2.422 | 0.199 | 0.050 | 1.404 | 0.395 |
| PII-3 | 90 | 4.19 | 0.0428 | 62.0 | 2.827 | 0.213 | 0.061 | 1.490 | 0.420 |
| PII-3 | 100 | 4.31 | 0.0440 | 59.8 | 3.271 | 0.246 | 0.071 | 1.599 | 0.451 |
| PII-3 | 110 | 4.53 | 0.0463 | 65.8 | 3.696 | 0.180 | 0.056 | 1.675 | 0.475 |
| PII-3 | 120 | 7.05 | 0.0730 | 58.4 | 4.204 | 0.159 | 0.029 | 1.756 | 0.490 |
| PII-3 | 130 | 5.20 | 0.0533 | 65.4 | 4.707 | 0.146 | 0.080 | 1.830 | 0.530 |
| PII-3 | 140 | 6.46 | 0.0668 | 48.2 | 5.370 | 0.110 | 0.058 | 1.903 | 0.568 |
| PII-3 | 150 | 6.03 | 0.0621 | 62.7 | 5.919 | 0.134 | 0.039 | 1.976 | 0.590 |
| | | | | | | | | | |
| PII-4 | 5 | 0.99 | 0.0099 | 69.2 | 0.059 | 1.405 | 0.531 | 0.083 | 0.031 |
| PII-4 | 10 | 2.17 | 0.0220 | 66.6 | 0.153 | 1.553 | 0.604 | 0.230 | 0.088 |
| PII-4 | 15 | 3.33 | 0.0338 | 55.1 | 0.325 | 1.395 | 0.530 | 0.469 | 0.179 |
| PII-4 | 20 | 3.89 | 0.0397 | 47.4 | 0.518 | 0.807 | 0.340 | 0.624 | 0.245 |
| PII-4 | 25 | 3.96 | 0.0405 | 53.1 | 0.744 | 0.745 | 0.217 | 0.793 | 0.294 |
| PII-4 | 30 | 4.52 | 0.0463 | 49.7 | 0.953 | 0.676 | 0.177 | 0.934 | 0.331 |
| PII-4 | 35 | 4.61 | 0.0472 | 45.7 | 1.189 | 0.640 | 0.189 | 1.085 | 0.376 |
| PII-4 | 40 | 4.48 | 0.0459 | 49.5 | 1.415 | 0.442 | 0.168 | 1.185 | 0.414 |
| PII-4 | 45 | 4.30 | 0.0439 | 54.4 | 1.633 | 0.308 | 0.109 | 1.252 | 0.437 |
| PII-4 | 50 | 4.32 | 0.0442 | 59.7 | 1.823 | 0.265 | 0.093 | 1.303 | 0.455 |
| PII-4 | 55 | 4.11 | 0.0419 | 64.7 | 2.017 | 0.266 | 0.096 | 1.354 | 0.474 |
| PII-4 | 60 | 4.10 | 0.0418 | 64.2 | 2.212 | 0.280 | 0.118 | 1.409 | 0.497 |
| PII-4 | 65 | 4.69 | 0.0480 | 56.4 | 2.434 | 0.274 | 0.114 | 1.470 | 0.522 |
| PII-4 | 70 | 4.25 | 0.0434 | 56.2 | 2.680 | 0.266 | 0.110 | 1.535 | 0.549 |
| PII-4 | 75 | 4.91 | 0.0504 | 50.6 | 2.907 | 0.285 | 0.101 | 1.600 | 0.572 |
| PII-4 | 80 | 5.20 | 0.0535 | 46.1 | 3.218 | 0.232 | 0.082 | 1.672 | 0.597 |
| PII-4 | 90 | 7.05 | 0.0733 | 42.7 | 3.908 | 0.137 | 0.063 | 1.766 | 0.641 |
| PII-4 | 100 | 7.42 | 0.0773 | 37.5 | 4.671 | 0.244 | 0.145 | 1.953 | 0.751 |
| PII-4 | 110 | 8.66 | 0.0908 | 41.9 | 5.561 | 0.165 | 0.079 | 2.100 | 0.822 |
| PII-4 | 120 | 11.33 | 0.1205 | 41.4 | 6.397 | 0.129 | 0.069 | 2.207 | 0.879 |
| PII-4 | 130 | 5.40 | 0.0554 | 64.4 | 6.931 | 0.211 | 0.062 | 2.320 | 0.913 |
| PII-4 | 140 | 5.41 | 0.0555 | 65.2 | 7.478 | 0.260 | 0.087 | 2.462 | 0.960 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-5 | 4 | 1.13 | 0.0113 | 71.0 | 0.065 | • | • | • | • |
| PII-5 | 8 | 2.12 | 0.0214 | 64.3 | 0.152 | 1.369 | 0.594 | 0.119 | 0.052 |
| PII-5 | 12 | 2.41 | 0.0244 | 65.3 | 0.255 | 1.401 | 0.606 | 0.264 | 0.114 |
| PII-5 | 16 | 2.77 | 0.0281 | 63.8 | 0.372 | 1.415 | 0.485 | 0.429 | 0.171 |
| PII-5 | 20 | 3.06 | 0.0311 | 62.5 | 0.506 | 0.834 | 0.305 | 0.541 | 0.212 |
| PII-5 | 24 | 3.37 | 0.0343 | 57.6 | 0.640 | 0.982 | 0.747 | 0.672 | 0.312 |
| PII-5 | 28 | 3.29 | 0.0334 | 65.4 | 0.791 | 0.545 | 0.418 | 0.754 | 0.375 |
| PII-5 | 32 | 3.35 | 0.0340 | 70.3 | 0.932 | 0.401 | 0.308 | 0.811 | 0.418 |
| PII-5 | 36 | 3.56 | 0.0362 | 69.5 | 1.085 | 0.383 | 0.329 | 0.869 | 0.469 |
| PII-5 | 40 | 3.29 | 0.0334 | 68.7 | 1.235 | 0.373 | 0.353 | 0.926 | 0.522 |
| PII-5 | 44 | 4.71 | 0.0482 | 66.8 | 1.400 | 0.355 | 0.285 | 0.984 | 0.569 |
| PII-5 | 48 | 3.89 | 0.0396 | 66.2 | 1.556 | 0.347 | 0.277 | 1.038 | 0.612 |
| PII-5 | 52 | 4.04 | 0.0412 | 66.9 | 1.733 | 0.311 | 0.277 | 1.093 | 0.661 |
| PII-5 | 56 | 4.33 | 0.0443 | 65.5 | 1.908 | 0.277 | 0.259 | 1.142 | 0.706 |
| PII-5 | 60 | 4.12 | 0.0420 | 65.9 | 2.076 | 0.246 | 0.205 | 1.183 | 0.741 |
| PII-5 | 64 | 3.92 | 0.0400 | 67.6 | 2.248 | 0.231 | 0.244 | 1.223 | 0.783 |
| PII-5 | 72 | 3.71 | 0.0378 | 67.5 | 2.570 | 0.288 | 0.231 | 1.316 | 0.857 |
| PII-5 | 80 | 3.82 | 0.0389 | 66.8 | 2.890 | 0.268 | 0.192 | 1.401 | 0.918 |
| PII-5 | 88 | 4.14 | 0.0422 | 68.3 | 3.247 | 0.268 | 0.196 | 1.497 | 0.988 |
| PII-5 | 96 | 4.13 | 0.0421 | 67.4 | 3.601 | 0.258 | 0.268 | 1.588 | 1.083 |
| PII-5 | 104 | 4.20 | 0.0428 | 67.5 | 3.969 | 0.256 | 0.189 | 1.682 | 1.153 |
| PII-5 | 112 | 5.29 | 0.0543 | 56.3 | 4.438 | 0.304 | 0.179 | 1.825 | 1.237 |
| PII-5 | 120 | 4.88 | 0.0500 | 64.5 | 4.831 | 0.217 | 0.226 | 1.910 | 1.325 |
| PII-5 | 128 | 5.17 | 0.0530 | 63.3 | 5.295 | 0.192 | 0.209 | 1.999 | 1.422 |
| PII-5 | 136 | 5.83 | 0.0600 | 70.3 | 5.682 | 0.198 | 0.192 | 2.076 | 1.497 |
| PII-5 | 144 | 4.77 | 0.0488 | 70.7 | 6.098 | 0.203 | 0.258 | 2.160 | 1.604 |
| PII-5 | 152 | 4.36 | 0.0446 | 67.2 | 6.478 | 0.205 | 0.179 | 2.238 | 1.672 |
| | | | | | | | | | |
| Note: In calculations of cumulative storage reported in the text, cumulative TP and NAIP were increased by 0.091 and 0.039, respectively, to account for missing data at 2 cm. Values of 1.40 and 0.60, respectively, were used for missing TP and NAIP data. Cumulative totals reported in these appendix tables do not include these adjustments. | | | | | | | | | |
| | | | | | | | | | |
| PII-6 | 4 | 1.51 | 0.0152 | 69.5 | 0.094 | 1.300 | 0.622 | 0.122 | 0.058 |
| PII-6 | 8 | 3.14 | 0.0319 | 60.4 | 0.232 | 1.235 | 0.665 | 0.292 | 0.150 |
| PII-6 | 12 | 5.59 | 0.0576 | 38.5 | 0.465 | 0.863 | 0.517 | 0.494 | 0.271 |
| PII-6 | 16 | 9.49 | 0.1003 | 19.7 | 0.847 | 0.457 | 0.246 | 0.668 | 0.365 |
| PII-6 | 20 | 4.85 | 0.0497 | 61.2 | 1.061 | 0.296 | 0.214 | 0.732 | 0.411 |
| PII-6 | 24 | 5.47 | 0.0562 | 58.2 | 1.295 | 0.229 | 0.194 | 0.785 | 0.456 |
| PII-6 | 28 | 26.67 | 0.3163 | 8.0 | 2.656 | 0.097 | 0.045 | 0.917 | 0.517 |
| PII-6 | 32 | 13.35 | 0.1441 | 28.7 | 3.258 | 0.082 | 0.125 | 0.966 | 0.592 |
| PII-6 | 36 | 10.26 | 0.1086 | 35.8 | 3.729 | 0.083 | 0.031 | 1.005 | 0.607 |
| PII-6 | 40 | 10.27 | 0.1088 | 31.0 | 4.169 | 0.088 | 0.027 | 1.044 | 0.619 |
| PII-6 | 44 | 56.12 | 0.8436 | 2.4 | 7.652 | 0.059 | 0.009 | 1.250 | 0.650 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-7 | 4 | 1.29 | 0.0129 | 71.7 | 0.056 | 1.400 | 0.600 | 0.078 | 0.033 |
| PII-7 | 8 | 1.69 | 0.0171 | 70.9 | 0.123 | 1.380 | 0.590 | 0.170 | 0.073 |
| PII-7 | 12 | 2.46 | 0.0249 | 70.7 | 0.217 | 1.468 | 0.626 | 0.309 | 0.132 |
| PII-7 | 16 | 2.85 | 0.0288 | 68.7 | 0.332 | 1.482 | 0.642 | 0.479 | 0.206 |
| PII-7 | 20 | 3.08 | 0.0312 | 69.8 | 0.491 | 1.488 | 0.672 | 0.716 | 0.313 |
| PII-7 | 24 | 3.39 | 0.0345 | 69.3 | 0.610 | 1.226 | 0.515 | 0.862 | 0.374 |
| PII-7 | 28 | 3.78 | 0.0385 | 67.8 | 0.746 | 0.889 | 0.323 | 0.983 | 0.418 |
| PII-7 | 32 | 4.72 | 0.0483 | 53.5 | 0.975 | 0.752 | 0.179 | 1.155 | 0.459 |
| PII-7 | 36 | 4.20 | 0.0429 | 59.2 | 1.125 | 0.475 | 0.148 | 1.226 | 0.481 |
| PII-7 | 40 | 3.76 | 0.0383 | 64.6 | 1.290 | 0.391 | 0.118 | 1.290 | 0.501 |
| PII-7 | 44 | 3.72 | 0.0379 | 64.7 | 1.446 | 0.389 | 0.122 | 1.351 | 0.520 |
| PII-7 | 48 | 3.86 | 0.0394 | 66.6 | 1.616 | 0.344 | 0.110 | 1.410 | 0.538 |
| PII-7 | 52 | 4.10 | 0.0418 | 63.6 | 1.785 | 0.304 | 0.094 | 1.461 | 0.554 |
| PII-7 | 56 | 3.97 | 0.0405 | 63.9 | 1.948 | 0.289 | 0.093 | 1.508 | 0.569 |
| PII-7 | 60 | 3.72 | 0.0378 | 68.4 | 2.102 | 0.276 | 0.085 | 1.551 | 0.582 |
| PII-7 | 64 | 3.76 | 0.0383 | 68.8 | 2.260 | 0.333 | 0.106 | 1.603 | 0.599 |
| PII-7 | 72 | 4.05 | 0.0413 | 65.1 | 2.586 | 0.250 | 0.094 | 1.685 | 0.630 |
| PII-7 | 80 | 3.88 | 0.0396 | 67.8 | 2.908 | 0.254 | 0.106 | 1.767 | 0.664 |
| PII-7 | 88 | 3.85 | 0.0393 | 68.4 | 3.247 | 0.278 | 0.117 | 1.861 | 0.704 |
| PII-7 | 96 | 3.87 | 0.0394 | 70.6 | 3.544 | 0.295 | 0.119 | 1.949 | 0.739 |
| PII-7 | 104 | 3.87 | 0.0394 | 70.1 | 3.873 | 0.332 | 0.127 | 2.058 | 0.781 |
| PII-7 | 112 | 3.74 | 0.0380 | 70.8 | 4.174 | 0.317 | 0.133 | 2.153 | 0.821 |
| PII-7 | 120 | 4.29 | 0.0438 | 63.5 | 4.535 | 0.286 | 0.109 | 2.256 | 0.860 |
| PII-7 | 128 | 4.17 | 0.0425 | 65.3 | 4.885 | 0.276 | 0.109 | 2.353 | 0.898 |
| PII-7 | 136 | 5.88 | 0.0606 | 62.7 | 5.392 | 0.194 | 0.087 | 2.451 | 0.942 |
| PII-7 | 144 | 7.26 | 0.0754 | 53.4 | 6.027 | 0.341 | 0.068 | 2.668 | 0.986 |
| PII-7 | 148 | 7.14 | 0.0741 | 55.8 | 6.407 | 0.186 | 0.075 | 2.739 | 1.014 |
| | | | | | | | | | |
| PII-8 | 4 | 1.26 | 0.0126 | 72.2 | 0.080 | 1.223 | 0.524 | 0.098 | 0.042 |
| PII-8 | 8 | 1.99 | 0.0201 | 71.9 | 0.159 | 1.292 | 0.561 | 0.200 | 0.086 |
| PII-8 | 12 | 2.63 | 0.0266 | 73.0 | 0.276 | 1.381 | 0.622 | 0.362 | 0.159 |
| PII-8 | 16 | 2.83 | 0.0287 | 72.7 | 0.393 | 1.095 | 0.438 | 0.490 | 0.210 |
| PII-8 | 20 | 3.37 | 0.0342 | 71.5 | 0.543 | 0.706 | 0.215 | 0.596 | 0.243 |
| PII-8 | 24 | 3.54 | 0.0360 | 70.9 | 0.673 | 0.603 | 0.174 | 0.674 | 0.265 |
| PII-8 | 28 | 3.63 | 0.0369 | 69.9 | 0.843 | 0.535 | 0.138 | 0.765 | 0.289 |
| PII-8 | 32 | 3.70 | 0.0377 | 68.3 | 0.993 | 0.491 | 0.125 | 0.838 | 0.307 |
| PII-8 | 36 | 3.39 | 0.0345 | 70.5 | 1.131 | 0.454 | 0.143 | 0.901 | 0.327 |
| PII-8 | 40 | 3.51 | 0.0357 | 71.4 | 1.300 | 0.363 | 0.115 | 0.963 | 0.347 |
| PII-8 | 44 | 3.96 | 0.0404 | 67.0 | 1.431 | 0.298 | 0.097 | 1.002 | 0.359 |
| PII-8 | 48 | 3.83 | 0.0390 | 68.6 | 1.598 | 0.310 | 0.092 | 1.053 | 0.375 |
| PII-8 | 52 | 3.88 | 0.0396 | 66.3 | 1.757 | 0.296 | 0.096 | 1.101 | 0.390 |
| PII-8 | 56 | 4.24 | 0.0433 | 66.4 | 1.940 | 0.220 | 0.099 | 1.141 | 0.408 |
| PII-8 | 60 | 4.10 | 0.0418 | 65.8 | 2.091 | 0.221 | 0.104 | 1.174 | 0.424 |
| PII-8 | 64 | 4.10 | 0.0418 | 66.5 | 2.277 | 0.267 | 0.134 | 1.224 | 0.449 |
| PII-8 | 72 | 3.94 | 0.0401 | 68.9 | 2.598 | 0.231 | 0.095 | 1.298 | 0.479 |
| PII-8 | 80 | 3.66 | 0.0372 | 70.1 | 2.899 | 0.268 | 0.103 | 1.379 | 0.510 |
| PII-8 | 88 | 4.06 | 0.0413 | 80.7 | 3.232 | 0.246 | 0.105 | 1.460 | 0.545 |
| PII-8 | 96 | 4.15 | 0.0424 | 55.2 | 3.582 | 0.151 | 0.077 | 1.513 | 0.572 |
| PII-8 | 104 | 4.23 | 0.0431 | 71.9 | 3.942 | 0.258 | 0.086 | 1.606 | 0.603 |
| PII-8 | 112 | 4.30 | 0.0439 | 71.5 | 4.301 | 0.265 | 0.082 | 1.701 | 0.632 |
| PII-8 | 120 | 7.69 | 0.0797 | 68.5 | 4.959 | 0.198 | 0.065 | 1.832 | 0.675 |
| PII-8 | 128 | 7.11 | 0.0735 | 71.2 | 5.584 | 0.252 | 0.090 | 1.989 | 0.731 |
| PII-8 | 136 | 13.53 | 0.1448 | 61.2 | 6.740 | 0.192 | 0.053 | 2.211 | 0.793 |
| PII-8 | 140 | 12.82 | 0.1366 | 64.0 | 7.531 | 0.167 | 0.048 | 2.343 | 0.831 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-9 | 4 | 1.35 | 0.0136 | 72.7 | 0.050 | 1.470 | 0.499 | 0.074 | 0.025 |
| PII-9 | 8 | 1.89 | 0.0191 | 71.6 | 0.127 | 1.516 | 0.484 | 0.191 | 0.062 |
| PII-9 | 12 | 2.15 | 0.0217 | 70.4 | 0.212 | 1.616 | 0.626 | 0.328 | 0.116 |
| PII-9 | 16 | 2.21 | 0.0224 | 69.0 | 0.303 | 1.777 | 0.676 | 0.489 | 0.177 |
| PII-9 | 20 | 3.07 | 0.0312 | 61.3 | 0.425 | 1.205 | 0.497 | 0.636 | 0.237 |
| PII-9 | 24 | 3.28 | 0.0333 | 58.4 | 0.556 | 0.797 | 0.273 | 0.741 | 0.273 |
| PII-9 | 28 | 3.51 | 0.0357 | 56.7 | 0.704 | 0.872 | 0.442 | 0.870 | 0.339 |
| PII-9 | 32 | 3.18 | 0.0323 | 68.3 | 0.834 | 0.510 | 0.159 | 0.936 | 0.359 |
| PII-9 | 36 | 3.17 | 0.0322 | 70.4 | 0.967 | 0.630 | 0.225 | 1.020 | 0.389 |
| PII-9 | 40 | 2.89 | 0.0293 | 72.1 | 1.088 | 0.474 | 0.119 | 1.077 | 0.404 |
| PII-9 | 44 | 3.33 | 0.0338 | 72.0 | 1.223 | 0.425 | 0.106 | 1.134 | 0.418 |
| PII-9 | 48 | 3.29 | 0.0334 | 72.7 | 1.358 | 0.387 | 0.098 | 1.187 | 0.431 |
| PII-9 | 52 | 3.31 | 0.0336 | 72.6 | 1.492 | 0.406 | 0.103 | 1.241 | 0.445 |
| PII-9 | 56 | 3.21 | 0.0326 | 73.6 | 1.622 | 0.471 | 0.158 | 1.303 | 0.466 |
| PII-9 | 60 | 3.06 | 0.0311 | 73.6 | 1.749 | 0.453 | 0.129 | 1.360 | 0.482 |
| PII-9 | 64 | 3.23 | 0.0328 | 75.3 | 1.880 | 0.416 | 0.114 | 1.414 | 0.497 |
| PII-9 | 68 | 3.40 | 0.0345 | 75.8 | 2.025 | 0.381 | 0.119 | 1.470 | 0.514 |
| PII-9 | 72 | 3.60 | 0.0366 | 72.1 | 2.165 | 0.347 | 0.118 | 1.518 | 0.531 |
| PII-9 | 76 | 4.04 | 0.0412 | 70.4 | 2.351 | 0.280 | 0.109 | 1.570 | 0.551 |
| PII-9 | 80 | 3.93 | 0.0400 | 68.1 | 2.513 | 0.274 | 0.101 | 1.615 | 0.567 |
| PII-9 | 88 | 4.74 | 0.0485 | 60.7 | 2.916 | 0.243 | 0.102 | 1.713 | 0.608 |
| PII-9 | 96 | 5.33 | 0.0547 | 66.1 | 3.387 | 0.244 | 0.104 | 1.828 | 0.657 |
| PII-9 | 104 | 4.45 | 0.0455 | 65.1 | 3.784 | 0.255 | 0.117 | 1.929 | 0.704 |
| PII-9 | 112 | 4.64 | 0.0474 | 67.0 | 4.163 | 0.242 | 0.109 | 2.021 | 0.745 |
| PII-9 | 120 | 4.47 | 0.0456 | 66.5 | 4.546 | 0.235 | 0.105 | 2.111 | 0.785 |
| PII-9 | 128 | 4.73 | 0.0484 | 65.0 | 4.967 | 0.240 | 0.114 | 2.212 | 0.833 |
| PII-9 | 136 | 5.19 | 0.0533 | 59.9 | 5.422 | 0.208 | 0.098 | 2.306 | 0.878 |
| PII-9 | 144 | 5.77 | 0.0594 | 53.6 | 5.893 | 0.184 | 0.086 | 2.393 | 0.919 |
| | | | | | | | | | |
| PII-10 | 4 | 0.95 | 0.0095 | 72.9 | 0.066 | 1.412 | 0.584 | 0.093 | 0.039 |
| PII-10 | 10 | 1.78 | 0.0179 | 72.7 | 0.162 | 1.490 | 0.539 | 0.237 | 0.090 |
| PII-10 | 12 | 2.09 | 0.0211 | 73.0 | 0.223 | 1.550 | 0.659 | 0.330 | 0.130 |
| PII-10 | 16 | 2.33 | 0.0236 | 71.8 | 0.307 | 1.623 | 0.739 | 0.467 | 0.193 |
| PII-10 | 20 | 2.71 | 0.0275 | 70.3 | 0.421 | 1.676 | 0.828 | 0.658 | 0.287 |
| PII-10 | 24 | 2.84 | 0.0288 | 71.2 | 0.544 | 1.417 | 0.572 | 0.833 | 0.357 |
| PII-10 | 28 | 3.17 | 0.0321 | 70.9 | 0.667 | 1.199 | 0.454 | 0.980 | 0.413 |
| PII-10 | 32 | 3.33 | 0.0338 | 70.7 | 0.801 | 1.176 | 0.507 | 1.138 | 0.481 |
| PII-10 | 36 | 3.22 | 0.0327 | 70.6 | 0.932 | 1.004 | 0.381 | 1.269 | 0.531 |
| PII-10 | 40 | 3.49 | 0.0355 | 69.3 | 1.076 | 0.844 | 0.327 | 1.391 | 0.578 |
| PII-10 | 44 | 3.58 | 0.0364 | 69.4 | 1.232 | 0.853 | 0.351 | 1.523 | 0.633 |
| PII-10 | 48 | 3.59 | 0.0365 | 68.5 | 1.376 | 0.831 | 0.298 | 1.644 | 0.676 |
| PII-10 | 52 | 3.72 | 0.0378 | 69.5 | 1.531 | 0.791 | 0.296 | 1.766 | 0.722 |
| PII-10 | 56 | 3.87 | 0.0395 | 69.7 | 1.684 | 0.771 | 0.290 | 1.884 | 0.766 |
| PII-10 | 60 | 4.22 | 0.0430 | 69.4 | 1.876 | 0.703 | 0.247 | 2.019 | 0.813 |
| PII-10 | 64 | 4.33 | 0.0442 | 69.5 | 2.048 | 0.688 | 0.248 | 2.137 | 0.856 |
| PII-10 | 68 | 4.36 | 0.0446 | 69.6 | 2.236 | 0.633 | 0.284 | 2.256 | 0.910 |
| PII-10 | 72 | 4.33 | 0.0442 | 69.6 | 2.438 | 0.663 | 0.305 | 2.390 | 0.971 |
| PII-10 | 76 | 4.37 | 0.0446 | 69.9 | 2.624 | 0.745 | 0.283 | 2.529 | 1.024 |
| PII-10 | 80 | 4.15 | 0.0423 | 70.5 | 2.796 | 0.742 | 0.330 | 2.656 | 1.080 |
| PII-10 | 88 | 3.99 | 0.0407 | 70.9 | 3.137 | 0.756 | 0.346 | 2.914 | 1.198 |
| PII-10 | 96 | 3.72 | 0.0378 | 71.4 | 3.460 | 0.734 | 0.330 | 3.151 | 1.305 |
| PII-10 | 104 | 3.38 | 0.0343 | 71.6 | 3.738 | 0.667 | 0.297 | 3.337 | 1.388 |
| PII-10 | 112 | 3.48 | 0.0354 | 68.2 | 4.048 | 0.663 | 0.319 | 3.542 | 1.486 |
| PII-10 | 120 | 3.88 | 0.0396 | 70.5 | 4.366 | 0.517 | 0.249 | 3.707 | 1.566 |
| PII-10 | 128 | 4.74 | 0.0485 | 66.9 | 4.767 | 0.378 | 0.195 | 3.858 | 1.644 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-11 | 4 | 1.39 | 0.0139 | 69.9 | 0.068 | 1.392 | 0.558 | 0.095 | 0.038 |
| PII-11 | 8 | 2.15 | 0.0217 | 66.9 | 0.151 | 1.459 | 0.644 | 0.216 | 0.091 |
| PII-11 | 12 | 2.59 | 0.0262 | 67.6 | 0.263 | 1.486 | 0.643 | 0.381 | 0.163 |
| PII-11 | 16 | 3.09 | 0.0314 | 70.0 | 0.414 | 1.301 | 0.537 | 0.578 | 0.244 |
| PII-11 | 20 | 3.10 | 0.0315 | 69.8 | 0.511 | 1.075 | 0.449 | 0.682 | 0.288 |
| PII-11 | 24 | 3.12 | 0.0317 | 69.7 | 0.640 | 0.938 | 0.327 | 0.803 | 0.330 |
| PII-11 | 28 | 3.63 | 0.0370 | 67.8 | 0.804 | 0.806 | 0.297 | 0.936 | 0.379 |
| PII-11 | 32 | 3.56 | 0.0362 | 67.0 | 0.940 | 0.951 | 0.295 | 1.065 | 0.419 |
| PII-11 | 36 | 3.76 | 0.0382 | 67.2 | 1.098 | 0.727 | 0.246 | 1.180 | 0.458 |
| PII-11 | 40 | 4.10 | 0.0418 | 68.1 | 1.267 | 0.642 | 0.221 | 1.288 | 0.495 |
| PII-11 | 44 | 4.33 | 0.0442 | 66.9 | 1.470 | 0.661 | 0.241 | 1.423 | 0.544 |
| PII-11 | 48 | 4.21 | 0.0430 | 66.8 | 1.637 | 0.694 | 0.221 | 1.539 | 0.581 |
| PII-11 | 52 | 4.25 | 0.0434 | 66.1 | 1.837 | 0.676 | 0.236 | 1.674 | 0.628 |
| PII-11 | 56 | 4.42 | 0.0452 | 65.0 | 2.053 | 0.718 | 0.260 | 1.829 | 0.684 |
| PII-11 | 60 | 4.28 | 0.0437 | 65.2 | 2.237 | 0.690 | 0.255 | 1.956 | 0.731 |
| PII-11 | 64 | 4.19 | 0.0428 | 66.1 | 2.406 | 0.671 | 0.246 | 2.069 | 0.773 |
| PII-11 | 68 | 4.07 | 0.0415 | 65.8 | 2.579 | 0.674 | 0.247 | 2.186 | 0.816 |
| PII-11 | 72 | 4.10 | 0.0418 | 65.2 | 2.761 | 0.671 | 0.248 | 2.308 | 0.861 |
| PII-11 | 76 | 4.16 | 0.0425 | 65.2 | 2.939 | 0.621 | 0.252 | 2.418 | 0.905 |
| PII-11 | 80 | 4.02 | 0.0410 | 66.9 | 3.110 | 0.513 | 0.236 | 2.506 | 0.946 |
| PII-11 | 88 | 3.92 | 0.0400 | 68.8 | 3.428 | 0.540 | 0.213 | 2.678 | 1.014 |
| PII-11 | 96 | 4.49 | 0.0459 | 67.2 | 3.833 | 0.318 | 0.191 | 2.807 | 1.091 |
| PII-11 | 104 | 4.71 | 0.0482 | 64.8 | 4.224 | 0.329 | 0.151 | 2.935 | 1.150 |
| PII-11 | 112 | 4.58 | 0.0468 | 66.3 | 4.629 | 0.358 | 0.162 | 3.080 | 1.216 |
| PII-11 | 120 | 4.75 | 0.0485 | 66.7 | 5.032 | 0.309 | 0.166 | 3.205 | 1.283 |
| PII-11 | 128 | 4.25 | 0.0433 | 67.9 | 5.388 | 0.316 | 0.156 | 3.317 | 1.338 |
| | | | | | | | | | |
| PII-12 | 5 | 2.19 | 0.0221 | 71.4 | 0.113 | 1.388 | 0.613 | 0.157 | 0.069 |
| PII-12 | 10 | 2.84 | 0.0288 | 71.3 | 0.216 | 1.464 | 0.550 | 0.307 | 0.126 |
| PII-12 | 15 | 2.89 | 0.0293 | 71.5 | 0.348 | 1.201 | 0.498 | 0.467 | 0.192 |
| PII-12 | 20 | 3.96 | 0.0403 | 71.3 | 0.496 | 0.839 | 0.328 | 0.590 | 0.240 |
| PII-12 | 25 | 2.81 | 0.0285 | 70.2 | 0.627 | 0.627 | 0.207 | 0.672 | 0.267 |
| PII-12 | 30 | 3.92 | 0.0399 | 69.9 | 0.800 | 0.582 | 0.174 | 0.773 | 0.297 |
| PII-12 | 35 | 3.38 | 0.0344 | 70.4 | 0.993 | 0.475 | 0.166 | 0.865 | 0.329 |
| PII-12 | 40 | 3.65 | 0.0371 | 70.6 | 1.137 | 0.461 | 0.165 | 0.931 | 0.353 |
| PII-12 | 45 | 3.69 | 0.0375 | 71.1 | 1.307 | 0.486 | 0.177 | 1.014 | 0.383 |
| PII-12 | 50 | 3.92 | 0.0399 | 70.8 | 1.499 | 0.440 | 0.150 | 1.098 | 0.412 |
| PII-12 | 55 | 4.04 | 0.0411 | 69.9 | 1.726 | 0.495 | 0.148 | 1.210 | 0.446 |
| PII-12 | 60 | 3.84 | 0.0391 | 69.6 | 1.966 | 0.524 | 0.155 | 1.336 | 0.483 |
| PII-12 | 65 | 3.74 | 0.0380 | 70.3 | 2.210 | 0.508 | 0.180 | 1.460 | 0.527 |
| PII-12 | 70 | 3.89 | 0.0396 | 69.9 | 2.426 | 0.493 | 0.168 | 1.567 | 0.563 |
| PII-12 | 75 | 3.73 | 0.0379 | 70.1 | 2.617 | 0.535 | 0.153 | 1.669 | 0.592 |
| PII-12 | 80 | 3.52 | 0.0358 | 70.9 | 2.772 | 0.366 | 0.124 | 1.726 | 0.612 |
| PII-12 | 85 | 3.96 | 0.0403 | 65.5 | 2.926 | 0.348 | 0.127 | 1.779 | 0.631 |
| PII-12 | 90 | 4.20 | 0.0428 | 69.3 | 3.146 | 0.261 | 0.122 | 1.837 | 0.658 |
| PII-12 | 95 | 4.50 | 0.0460 | 70.8 | 3.374 | 0.277 | 0.102 | 1.900 | 0.681 |
| PII-12 | 100 | 5.15 | 0.0527 | 67.4 | 3.635 | 0.186 | 0.078 | 1.948 | 0.702 |
| PII-12 | 110 | 5.11 | 0.0523 | 65.7 | 4.120 | 0.215 | 0.099 | 2.053 | 0.750 |
| PII-12 | 120 | 6.02 | 0.0621 | 56.9 | 4.906 | 0.166 | 0.065 | 2.183 | 0.801 |
| PII-12 | 130 | 6.57 | 0.0680 | 50.5 | 5.627 | 0.183 | 0.040 | 2.315 | 0.830 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-13 | 4 | 5.13 | 0.0525 | 72.7 | 0.258 | 1.396 | | 0.360 | |
| PII-13 | 8 | 3.99 | 0.0407 | 74.7 | 0.418 | 1.285 | 0.460 | 0.566 | 0.074 |
| PII-13 | 12 | 2.90 | 0.0294 | 73.4 | 0.539 | 1.426 | 0.826 | 0.738 | 0.173 |
| PII-13 | 16 | 3.37 | 0.0343 | 74.0 | 0.683 | 1.435 | 0.621 | 0.944 | 0.263 |
| PII-13 | 20 | 3.41 | 0.0347 | 74.3 | 0.819 | 1.384 | 0.582 | 1.134 | 0.342 |
| PII-13 | 24 | 3.81 | 0.0387 | 73.9 | 0.967 | 1.206 | 0.476 | 1.312 | 0.413 |
| PII-13 | 28 | 3.70 | 0.0377 | 73.0 | 1.131 | 0.997 | 0.413 | 1.475 | 0.480 |
| PII-13 | 32 | 4.05 | 0.0412 | 72.0 | 1.298 | 0.962 | 0.323 | 1.635 | 0.534 |
| PII-13 | 36 | 4.10 | 0.0418 | 71.1 | 1.470 | 0.810 | 0.230 | 1.775 | 0.574 |
| PII-13 | 40 | 4.32 | 0.0441 | 71.1 | 1.650 | 0.720 | 0.225 | 1.905 | 0.614 |
| PII-13 | 44 | 5.82 | 0.0598 | 73.0 | 1.908 | 0.687 | 0.220 | 2.082 | 0.671 |
| PII-13 | 48 | 4.19 | 0.0428 | 71.4 | 2.068 | 0.696 | 0.233 | 2.194 | 0.708 |
| PII-13 | 52 | 4.16 | 0.0424 | 71.0 | 2.251 | 0.792 | 0.225 | 2.339 | 0.750 |
| PII-13 | 56 | 4.10 | 0.0418 | 71.5 | 2.423 | 0.649 | 0.257 | 2.450 | 0.794 |
| PII-13 | 60 | 3.98 | 0.0406 | 69.0 | 2.618 | 0.442 | 0.178 | 2.536 | 0.828 |
| PII-13 | 64 | 5.10 | 0.0522 | 68.9 | 2.797 | 0.327 | 0.129 | 2.595 | 0.851 |
| PII-13 | 68 | 4.30 | 0.0439 | 69.5 | 2.976 | 0.318 | 0.132 | 2.652 | 0.875 |
| PII-13 | 72 | 5.09 | 0.0522 | 61.7 | 3.198 | 0.259 | 0.121 | 2.709 | 0.902 |
| PII-13 | 76 | 5.41 | 0.0556 | 59.8 | 3.437 | 0.373 | 0.106 | 2.798 | 0.927 |
| PII-13 | 80 | 4.97 | 0.0508 | 67.4 | 3.669 | 0.233 | 0.121 | 2.852 | 0.955 |
| PII-13 | 88 | 5.55 | 0.0573 | 24.3 | 4.141 | 0.233 | 0.095 | 2.962 | 1.000 |
| PII-13 | 96 | 5.65 | 0.0580 | 70.9 | 4.632 | 0.160 | 0.105 | 3.041 | 1.052 |
| PII-13 | 104 | 5.70 | 0.0586 | 66.8 | 5.127 | 0.202 | 0.081 | 3.141 | 1.092 |
| PII-13 | 112 | 6.11 | 0.0629 | 66.8 | 5.664 | 0.397 | 0.141 | 3.354 | 1.168 |
| PII-13 | 120 | 7.14 | 0.0739 | 66.5 | 6.255 | 0.267 | 0.121 | 3.512 | 1.239 |
| PII-13 | 128 | 6.74 | 0.0696 | 64.6 | 6.839 | 0.192 | 0.112 | 3.624 | 1.304 |
| PII-13 | 136 | 7.45 | 0.0775 | 50.04 | 7.512 | 0.173 | 0.070 | 3.740 | 1.351 |
| | | | | | | | | | |
| PII-14 | 4 | 1.17 | 0.0118 | 69.9 | 0.063 | 1.246 | 0.494 | 0.078 | 0.031 |
| PII-14 | 8 | 1.67 | 0.0168 | 69.9 | 0.131 | 1.325 | 0.485 | 0.169 | 0.064 |
| PII-14 | 12 | 2.28 | 0.0231 | 68.6 | 0.226 | 1.293 | 0.531 | 0.291 | 0.114 |
| PII-14 | 16 | 2.76 | 0.0280 | 67.0 | 0.352 | 1.504 | 0.625 | 0.480 | 0.193 |
| PII-14 | 20 | 2.89 | 0.0293 | 67.5 | 0.462 | 1.389 | 0.601 | 0.634 | 0.260 |
| PII-14 | 24 | 3.14 | 0.0319 | 69.1 | 0.612 | 1.362 | 0.592 | 0.838 | 0.348 |
| PII-14 | 28 | 3.04 | 0.0308 | 68.8 | 0.727 | 1.325 | 0.557 | 0.991 | 0.412 |
| PII-14 | 32 | 3.15 | 0.0320 | 69.2 | 0.852 | 1.120 | 0.527 | 1.130 | 0.478 |
| PII-14 | 36 | 3.91 | 0.0399 | 66.4 | 1.039 | 1.003 | 0.455 | 1.318 | 0.563 |
| PII-14 | 40 | 4.44 | 0.0454 | 53.9 | 1.176 | 0.939 | 0.375 | 1.447 | 0.615 |
| PII-14 | 44 | 4.98 | 0.0511 | 51.9 | 1.435 | 0.753 | 0.345 | 1.642 | 0.704 |
| PII-14 | 48 | 4.04 | 0.0412 | 68.0 | 1.595 | 0.507 | 0.215 | 1.723 | 0.738 |
| PII-14 | 52 | 3.60 | 0.0366 | 70.6 | 1.755 | 0.514 | 0.229 | 1.805 | 0.775 |
| PII-14 | 56 | 3.58 | 0.0364 | 71.4 | 1.913 | 0.474 | 0.203 | 1.880 | 0.807 |
| PII-14 | 60 | 3.70 | 0.0377 | 68.3 | 2.056 | 0.482 | 0.188 | 1.949 | 0.834 |
| PII-14 | 64 | 4.13 | 0.0421 | 66.0 | 2.230 | 0.456 | 0.194 | 2.028 | 0.868 |
| PII-14 | 68 | 3.85 | 0.0392 | 67.3 | 2.413 | 0.443 | 0.207 | 2.109 | 0.905 |
| PII-14 | 72 | 3.34 | 0.0340 | 66.9 | 2.550 | 0.494 | 0.244 | 2.177 | 0.939 |
| PII-14 | 76 | 3.74 | 0.0381 | 66.8 | 2.717 | 0.405 | 0.197 | 2.245 | 0.972 |
| PII-14 | 80 | 3.80 | 0.0387 | 65.2 | 2.879 | 0.416 | 0.188 | 2.312 | 1.002 |
| PII-14 | 88 | 3.84 | 0.0391 | 67.1 | 3.209 | 0.369 | 0.172 | 2.434 | 1.059 |
| PII-14 | 96 | 4.58 | 0.0468 | 70.9 | 3.554 | 0.376 | 0.184 | 2.564 | 1.123 |
| PII-14 | 104 | 4.21 | 0.0429 | 69.1 | 3.932 | 0.329 | 0.180 | 2.688 | 1.191 |
| PII-14 | 112 | 4.50 | 0.0461 | 67.8 | 4.309 | 0.360 | 0.169 | 2.824 | 1.254 |
| PII-14 | 120 | 3.90 | 0.0397 | 67.5 | 4.638 | 0.329 | 0.173 | 2.932 | 1.311 |
| PII-14 | 128 | 4.25 | 0.0434 | 68.2 | 5.000 | 0.359 | 0.181 | 3.062 | 1.377 |
| PII-14 | 136 | 3.87 | 0.0394 | 70.0 | 5.327 | 0.354 | 0.201 | 3.177 | 1.442 |
| PII-14 | 144 | 3.71 | 0.0377 | 70.4 | 5.648 | 0.351 | 0.204 | 3.290 | 1.508 |
| PII-14 | 152 | 3.82 | 0.0389 | 67.8 | 5.915 | 0.354 | 0.186 | 3.385 | 1.558 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-15 | 4 | 1.42 | 0.0143 | 70.7 | 0.094 | 1.216 | 0.555 | 0.114 | 0.052 |
| PII-15 | 8 | 2.65 | 0.0269 | 69.8 | 0.200 | 1.360 | 0.684 | 0.259 | 0.125 |
| PII-15 | 12 | 3.12 | 0.0317 | 67.1 | 0.340 | 1.233 | 0.680 | 0.432 | 0.220 |
| PII-15 | 16 | 3.33 | 0.0338 | 67.2 | 0.481 | 1.224 | 0.496 | 0.604 | 0.290 |
| PII-15 | 20 | 3.71 | 0.0378 | 66.9 | 0.639 | 0.932 | 0.361 | 0.751 | 0.347 |
| PII-15 | 24 | 3.94 | 0.0401 | 67.8 | 0.809 | 0.784 | 0.250 | 0.884 | 0.389 |
| PII-15 | 28 | 4.34 | 0.0443 | 67.4 | 0.994 | 0.721 | 0.256 | 1.018 | 0.437 |
| PII-15 | 32 | 4.27 | 0.0436 | 67.7 | 1.167 | 0.631 | 0.213 | 1.127 | 0.474 |
| PII-15 | 36 | 4.00 | 0.0408 | 67.6 | 1.333 | 0.691 | 0.237 | 1.242 | 0.513 |
| PII-15 | 40 | 4.13 | 0.0421 | 66.1 | 1.524 | 0.721 | 0.232 | 1.379 | 0.557 |
| PII-15 | 44 | 4.21 | 0.0430 | 64.4 | 1.694 | 0.714 | 0.229 | 1.501 | 0.596 |
| PII-15 | 48 | 3.71 | 0.0378 | 69.6 | 1.849 | 0.681 | 0.221 | 1.606 | 0.630 |
| PII-15 | 52 | 3.66 | 0.0372 | 70.6 | 1.986 | 0.594 | 0.181 | 1.688 | 0.655 |
| PII-15 | 56 | 3.50 | 0.0356 | 70.0 | 2.152 | 0.551 | 0.185 | 1.779 | 0.686 |
| PII-15 | 60 | 3.88 | 0.0395 | 65.2 | 2.308 | 0.385 | 0.130 | 1.839 | 0.706 |
| PII-15 | 64 | 3.57 | 0.0363 | 71.7 | 2.460 | 0.339 | 0.121 | 1.891 | 0.725 |
| PII-15 | 68 | 3.75 | 0.0381 | 66.9 | 2.631 | 0.356 | 0.119 | 1.952 | 0.745 |
| PII-15 | 72 | 5.03 | 0.0516 | 51.4 | 2.821 | 0.246 | 0.086 | 1.998 | 0.761 |
| PII-15 | 76 | 5.60 | 0.0577 | 50.5 | 3.054 | 0.210 | 0.084 | 2.047 | 0.781 |
| PII-15 | 80 | 5.96 | 0.0615 | 50.7 | 3.312 | 0.253 | 0.088 | 2.112 | 0.804 |
| PII-15 | 88 | 43.41 | 0.5853 | 3.4 | 8.561 | 0.080 | 0.011 | 2.532 | 0.861 |
| PII-15 | 96 | 68.96 | 1.1713 | 2.6 | 19.528 | 0.032 | 0.016 | 2.883 | 1.037 |
| | | | | | | | | | |
| PII-16 | 4 | 1.85 | 0.0187 | 68.6 | 0.084 | 1.338 | 0.535 | 0.112 | 0.045 |
| PII-16 | 8 | 2.55 | 0.0259 | 68.7 | 0.178 | 1.392 | 0.566 | 0.244 | 0.098 |
| PII-16 | 12 | 3.03 | 0.0308 | 66.8 | 0.309 | 1.342 | 0.567 | 0.420 | 0.173 |
| PII-16 | 16 | 3.41 | 0.0346 | 66.3 | 0.461 | 1.231 | 0.528 | 0.606 | 0.253 |
| PII-16 | 20 | 4.11 | 0.0419 | 64.8 | 0.636 | 0.984 | 0.380 | 0.778 | 0.319 |
| PII-16 | 24 | 4.46 | 0.0456 | 65.2 | 0.816 | 0.884 | 0.347 | 0.938 | 0.382 |
| PII-16 | 28 | 4.51 | 0.0461 | 65.7 | 1.015 | 0.925 | 0.362 | 1.122 | 0.454 |
| PII-16 | 32 | 4.51 | 0.0461 | 65.9 | 1.220 | 0.902 | 0.351 | 1.306 | 0.525 |
| PII-16 | 36 | 4.61 | 0.0471 | 62.6 | 1.421 | 0.800 | 0.287 | 1.467 | 0.583 |
| PII-16 | 40 | 4.81 | 0.0493 | 58.9 | 1.625 | 0.792 | 0.233 | 1.628 | 0.631 |
| PII-16 | 44 | 4.71 | 0.0482 | 58.7 | 1.823 | 0.539 | 0.187 | 1.736 | 0.668 |
| PII-16 | 48 | 4.17 | 0.0426 | 41.8 | 1.994 | 0.488 | 0.152 | 1.819 | 0.694 |
| PII-16 | 52 | 4.81 | 0.0492 | 58.9 | 2.192 | 0.402 | 0.135 | 1.898 | 0.720 |
| PII-16 | 56 | 5.68 | 0.0585 | 50.3 | 2.450 | 0.303 | 0.108 | 1.977 | 0.748 |
| PII-16 | 60 | 11.39 | 0.1218 | 21.7 | 2.951 | 0.261 | 0.087 | 2.107 | 0.792 |
| PII-16 | 64 | 9.10 | 0.0958 | 31.0 | 3.340 | 0.196 | 0.051 | 2.184 | 0.812 |
| PII-16 | 68 | 18.45 | 0.2064 | 16.2 | 4.177 | 0.214 | 0.087 | 2.363 | 0.885 |
| PII-16 | 72 | 46.24 | 0.6378 | 3.5 | 6.469 | 0.000 | 0.008 | 2.363 | 0.903 |
| PII-16 | 76 | 79.83 | 1.5297 | 0.7 | 13.642 | 0.000 | 0.003 | 2.363 | 0.925 |
| PII-16 | 80 | 65.31 | 1.0663 | 4.6 | 18.586 | 0.040 | 0.035 | 2.561 | 1.098 |
| PII-16 | 88 | 61.04 | 0.9551 | 5.9 | 23.539 | 0.063 | 0.038 | 2.873 | 1.286 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-17 | 4 | 2.03 | 0.0205 | 80.6 | 0.146 | 1.194 | 0.487 | 0.175 | 0.071 |
| PII-17 | 8 | 2.94 | 0.0299 | 10.6 | 0.269 | 1.197 | 0.486 | 0.321 | 0.131 |
| PII-17 | 12 | 3.64 | 0.0370 | 61.0 | 0.414 | 1.052 | 0.371 | 0.475 | 0.185 |
| PII-17 | 16 | 4.10 | 0.0419 | 60.9 | 0.586 | 1.077 | 0.299 | 0.660 | 0.236 |
| PII-17 | 20 | 4.38 | 0.0448 | 57.5 | 0.756 | 0.803 | 0.250 | 0.796 | 0.279 |
| PII-17 | 24 | 5.16 | 0.0530 | 51.7 | 0.981 | 0.804 | 0.239 | 0.977 | 0.332 |
| PII-17 | 28 | 5.94 | 0.0613 | 44.8 | 1.248 | 0.670 | 0.204 | 1.156 | 0.387 |
| PII-17 | 32 | 8.11 | 0.0848 | 35.9 | 1.581 | 0.501 | 0.167 | 1.322 | 0.442 |
| PII-17 | 36 | 5.68 | 0.0585 | 53.6 | 1.844 | 0.618 | 0.188 | 1.485 | 0.492 |
| PII-17 | 40 | 4.84 | 0.0496 | 63.1 | 2.049 | 0.568 | 0.164 | 1.601 | 0.525 |
| PII-17 | 44 | 4.63 | 0.0473 | 64.3 | 2.244 | 0.542 | 0.144 | 1.707 | 0.554 |
| PII-17 | 48 | 4.89 | 0.0501 | 57.0 | 2.449 | 0.567 | 0.166 | 1.824 | 0.588 |
| PII-17 | 52 | 3.82 | 0.0389 | 69.7 | 2.605 | 0.438 | 0.136 | 1.892 | 0.609 |
| PII-17 | 56 | 3.71 | 0.0378 | 68.0 | 2.764 | 0.408 | 0.140 | 1.957 | 0.631 |
| PII-17 | 60 | 3.58 | 0.0364 | 70.0 | 2.925 | 0.427 | 0.133 | 2.026 | 0.653 |
| PII-17 | 64 | 4.48 | 0.0457 | 67.3 | 3.098 | 0.321 | 0.110 | 2.081 | 0.672 |
| PII-17 | 68 | 6.23 | 0.0643 | 62.5 | 3.358 | 0.280 | 0.094 | 2.154 | 0.696 |
| PII-17 | 72 | 5.55 | 0.0570 | 59.5 | 3.601 | 0.279 | 0.103 | 2.222 | 0.721 |
| PII-17 | 76 | 5.59 | 0.0574 | 60.0 | 3.821 | 0.277 | 0.094 | 2.283 | 0.742 |
| PII-17 | 80 | 4.86 | 0.0498 | 59.7 | 4.023 | 0.290 | 0.094 | 2.341 | 0.761 |
| PII-17 | 88 | 5.56 | 0.0572 | 58.7 | 4.495 | 0.291 | 0.088 | 2.478 | 0.802 |
| PII-17 | 96 | 5.35 | 0.0550 | 57.4 | 4.972 | 0.269 | 0.084 | 2.607 | 0.842 |
| PII-17 | 104 | 14.03 | 0.1524 | 19.9 | 6.230 | 0.135 | 0.042 | 2.777 | 0.895 |
| PII-17 | 112 | 73.11 | 1.2999 | 1.0 | 16.779 | 0.019 | 0.019 | 2.977 | 1.096 |
| | | | | | | | | | |
| PII-18 | 4 | 1.27 | 0.0128 | 64.5 | 0.047 | 1.152 | 0.459 | 0.054 | 0.022 |
| PII-18 | 8 | 1.84 | 0.0185 | 63.9 | 0.111 | 1.295 | 0.529 | 0.138 | 0.056 |
| PII-18 | 12 | 3.02 | 0.0307 | 63.6 | 0.248 | 1.288 | 0.575 | 0.314 | 0.134 |
| PII-18 | 16 | 3.88 | 0.0397 | 37.3 | 0.414 | 1.134 | 0.473 | 0.501 | 0.213 |
| PII-18 | 20 | 4.05 | 0.0413 | 62.4 | 0.591 | 0.822 | 0.266 | 0.647 | 0.260 |
| PII-18 | 24 | 4.18 | 0.0427 | 62.8 | 0.761 | 0.727 | 0.201 | 0.770 | 0.294 |
| PII-18 | 28 | 4.49 | 0.0459 | 63.4 | 0.945 | 0.714 | 0.206 | 0.902 | 0.332 |
| PII-18 | 32 | 4.74 | 0.0486 | 57.5 | 1.154 | 0.534 | 0.170 | 1.014 | 0.367 |
| PII-18 | 36 | 4.09 | 0.0417 | 63.5 | 1.346 | 0.377 | 0.112 | 1.086 | 0.389 |
| PII-18 | 40 | 3.96 | 0.0404 | 65.8 | 1.516 | 0.406 | 0.116 | 1.155 | 0.409 |
| PII-18 | 44 | 4.10 | 0.0418 | 62.2 | 1.691 | 0.489 | 0.152 | 1.240 | 0.435 |
| PII-18 | 48 | 4.41 | 0.0451 | 61.1 | 1.881 | 0.460 | 0.146 | 1.328 | 0.463 |
| PII-18 | 52 | 4.48 | 0.0458 | 61.2 | 2.066 | 0.423 | 0.122 | 1.406 | 0.485 |
| PII-18 | 56 | 4.45 | 0.0455 | 63.0 | 2.263 | 0.428 | 0.127 | 1.491 | 0.511 |
| PII-18 | 60 | 4.13 | 0.0421 | 63.0 | 2.426 | 0.345 | 0.103 | 1.547 | 0.527 |
| PII-18 | 64 | 3.45 | 0.0351 | 64.2 | 2.574 | 0.316 | 0.116 | 1.594 | 0.544 |
| PII-18 | 68 | 5.83 | 0.0600 | 60.2 | 2.815 | 0.222 | 0.090 | 1.647 | 0.566 |
| PII-18 | 72 | 7.90 | 0.0823 | 53.2 | 3.168 | 0.182 | 0.081 | 1.711 | 0.595 |
| PII-18 | 76 | 6.47 | 0.0666 | 74.5 | 3.434 | 0.201 | 0.084 | 1.765 | 0.617 |
| PII-18 | 80 | 5.26 | 0.0539 | 63.4 | 3.658 | 0.238 | 0.093 | 1.818 | 0.638 |
| PII-18 | 88 | 4.97 | 0.0509 | 63.1 | 4.084 | 0.216 | 0.100 | 1.910 | 0.681 |
| PII-18 | 96 | 5.49 | 0.0564 | 56.5 | 4.540 | 0.216 | 0.095 | 2.009 | 0.724 |
| PII-18 | 104 | 4.95 | 0.0507 | 59.6 | 4.969 | 0.250 | 0.079 | 2.116 | 0.758 |
| PII-18 | 112 | 5.62 | 0.0578 | 58.9 | 5.445 | 0.220 | 0.070 | 2.221 | 0.791 |
| PII-18 | 120 | 9.85 | 0.1041 | 37.3 | 6.333 | 0.136 | 0.036 | 2.341 | 0.823 |
| PII-18 | 128 | 70.54 | 1.2211 | 0.9 | 16.446 | 0.019 | 0.019 | 2.534 | 1.015 |

# Lake Griffin Survey Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| PII-19 | 4 | 1.17 | 0.0117 | 67.8 | 0.045 | 1.396 | 0.553 | 0.063 | 0.025 |
| PII-19 | 8 | 1.69 | 0.0170 | 70.3 | 0.103 | 1.455 | 0.600 | 0.147 | 0.059 |
| PII-19 | 12 | 2.30 | 0.0232 | 68.0 | 0.201 | 1.240 | 0.423 | 0.269 | 0.101 |
| PII-19 | 16 | 2.42 | 0.0244 | 68.9 | 0.300 | 1.072 | 0.423 | 0.375 | 0.143 |
| PII-19 | 20 | 2.46 | 0.0248 | 67.8 | 0.409 | 0.886 | 0.334 | 0.471 | 0.179 |
| PII-19 | 24 | 2.82 | 0.0286 | 65.7 | 0.525 | 0.727 | 0.265 | 0.556 | 0.210 |
| PII-19 | 28 | 3.11 | 0.0316 | 65.5 | 0.655 | 0.771 | 0.332 | 0.656 | 0.253 |
| PII-19 | 32 | 3.21 | 0.0326 | 66.2 | 0.786 | 0.673 | 0.255 | 0.744 | 0.287 |
| PII-19 | 36 | 3.18 | 0.0323 | 66.7 | 0.912 | 0.680 | 0.438 | 0.830 | 0.342 |
| PII-19 | 40 | 3.64 | 0.0370 | 65.6 | 1.091 | 0.705 | 0.286 | 0.956 | 0.393 |
| PII-19 | 44 | 3.53 | 0.0359 | 66.9 | 1.234 | 0.745 | 0.364 | 1.062 | 0.445 |
| PII-19 | 48 | 3.40 | 0.0345 | 66.8 | 1.382 | 0.618 | 0.271 | 1.154 | 0.485 |
| PII-19 | 52 | 3.86 | 0.0394 | 61.9 | 1.544 | 0.936 | 0.288 | 1.306 | 0.532 |
| PII-19 | 56 | 3.81 | 0.0388 | 66.2 | 1.721 | 0.627 | 0.274 | 1.416 | 0.580 |
| PII-19 | 60 | 3.57 | 0.0363 | 67.1 | 1.864 | 0.546 | 0.205 | 1.495 | 0.610 |
| PII-19 | 64 | 3.67 | 0.0374 | 65.3 | 2.014 | 0.547 | 0.195 | 1.577 | 0.639 |
| PII-19 | 68 | 3.68 | 0.0374 | 65.2 | 2.185 | 0.533 | 0.193 | 1.668 | 0.672 |
| PII-19 | 72 | 3.74 | 0.0381 | 63.0 | 2.341 | 0.546 | 0.215 | 1.753 | 0.706 |
| PII-19 | 76 | 3.83 | 0.0390 | 62.9 | 2.514 | 0.518 | 0.212 | 1.843 | 0.742 |
| PII-19 | 80 | 3.33 | 0.0338 | 64.5 | 2.652 | 0.500 | 0.232 | 1.911 | 0.774 |
| PII-19 | 88 | 3.54 | 0.0360 | 66.8 | 2.944 | 0.463 | 0.210 | 2.047 | 0.835 |
| PII-19 | 96 | 3.44 | 0.0349 | 67.5 | 3.233 | 0.444 | 0.192 | 2.175 | 0.891 |
| PII-19 | 104 | 3.59 | 0.0365 | 66.4 | 3.535 | 0.425 | 0.161 | 2.304 | 0.940 |
| PII-19 | 112 | 4.16 | 0.0424 | 57.9 | 3.886 | 0.363 | 0.149 | 2.431 | 0.992 |
| PII-19 | 120 | 4.27 | 0.0436 | 62.5 | 4.230 | 0.336 | 0.155 | 2.546 | 1.045 |
| PII-19 | 128 | 4.37 | 0.0446 | 64.2 | 4.424 | 0.336 | 0.140 | 2.612 | 1.072 |
| | | | | | | | | | |
| PII-20 | 4 | 1.12 | 0.0113 | 73.9 | 0.046 | 1.420 | 0.510 | 0.066 | 0.024 |
| PII-20 | 8 | 1.83 | 0.0185 | 73.2 | 0.130 | 1.601 | 0.635 | 0.199 | 0.077 |
| PII-20 | 12 | 2.22 | 0.0224 | 73.5 | 0.216 | 1.518 | 0.682 | 0.330 | 0.135 |
| PII-20 | 16 | 2.42 | 0.0245 | 74.2 | 0.321 | 1.426 | 0.674 | 0.479 | 0.206 |
| PII-20 | 20 | 2.27 | 0.0229 | 72.6 | 0.410 | 1.393 | 0.678 | 0.604 | 0.266 |
| PII-20 | 24 | 2.79 | 0.0283 | 72.7 | 0.525 | 1.341 | 0.565 | 0.758 | 0.332 |
| PII-20 | 28 | 2.85 | 0.0289 | 72.3 | 0.649 | 1.316 | 0.589 | 0.922 | 0.405 |
| PII-20 | 32 | 2.73 | 0.0276 | 71.8 | 0.768 | 1.113 | 0.451 | 1.054 | 0.458 |
| PII-20 | 36 | 2.81 | 0.0285 | 71.4 | 0.878 | 0.989 | 0.364 | 1.163 | 0.498 |
| PII-20 | 40 | 2.86 | 0.0290 | 72.3 | 1.007 | 1.033 | 0.422 | 1.296 | 0.553 |
| PII-20 | 44 | 3.06 | 0.0310 | 68.6 | 1.134 | 0.820 | 0.323 | 1.400 | 0.594 |
| PII-20 | 48 | 3.26 | 0.0331 | 68.5 | 1.271 | 0.457 | 0.170 | 1.463 | 0.617 |
| PII-20 | 52 | 3.51 | 0.0356 | 69.6 | 1.419 | 0.440 | 0.164 | 1.528 | 0.641 |
| PII-20 | 56 | 3.66 | 0.0372 | 68.7 | 1.556 | 0.389 | 0.139 | 1.581 | 0.660 |
| PII-20 | 60 | 3.80 | 0.0387 | 68.0 | 1.719 | 0.361 | 0.128 | 1.640 | 0.681 |
| PII-20 | 64 | 3.76 | 0.0383 | 66.7 | 1.881 | 0.313 | 0.110 | 1.691 | 0.699 |
| PII-20 | 68 | 3.84 | 0.0391 | 67.4 | 2.058 | 0.346 | 0.122 | 1.752 | 0.721 |
| PII-20 | 72 | 3.49 | 0.0355 | 69.9 | 2.224 | 0.376 | 0.120 | 1.814 | 0.740 |
| PII-20 | 76 | 3.35 | 0.0340 | 68.8 | 2.361 | 0.386 | 0.137 | 1.867 | 0.759 |
| PII-20 | 80 | 3.46 | 0.0352 | 67.9 | 2.489 | 0.334 | 0.107 | 1.910 | 0.773 |
| PII-20 | 88 | 3.89 | 0.0396 | 68.9 | 2.811 | 0.294 | 0.108 | 2.005 | 0.808 |
| PII-20 | 96 | 3.95 | 0.0403 | 67.2 | 3.154 | 0.273 | 0.105 | 2.098 | 0.844 |
| PII-20 | 104 | 4.45 | 0.0454 | 64.7 | 3.520 | 0.231 | 0.070 | 2.183 | 0.869 |
| PII-20 | 112 | 5.26 | 0.0540 | 55.9 | 3.983 | 0.237 | 0.093 | 2.293 | 0.913 |
| PII-20 | 120 | 6.45 | 0.0668 | 49.7 | 4.546 | 0.290 | 0.088 | 2.456 | 0.962 |
| PII-20 | 128 | 9.83 | 0.1039 | 34.9 | 5.446 | 0.164 | 0.047 | 2.603 | 1.004 |
| PII-20 | 136 | 20.44 | 0.2314 | 19.4 | 7.293 | 0.267 | 0.074 | 3.096 | 1.141 |

# APPENDIX E

Gravimetric and chemical data, Lake Griffin historic cores, Phase II.
See Appendix A for collection date, location and description of cores.

CODES:
Sta is station number
Depth is depth (cm)
Dry is percent dry weight
Rho is dry weight density (g dry $cm^{-3}$ wet)
LOI is percent loss on ignition
Cum Wt is cumulative mass (g $cm^{-2}$)
TP is total phosphorus (mg $g^{-1}$)
NAIP is non-apatite inorganic phosphorus (mg $g^{-1}$),
Cum TP is cumulative TP (mg $cm^{-2}$)
Cum NAIP is cumulative NAIP (mg $cm^{-2}$)
TN is total nitrogen (%)
TC is total carbon (%)
TC/TN is TC/TN mass ratio

Missing data are indicated by dots.

## Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 03H | 2 | 1.40 | . | . | 0.037 | 1.338 | 0.496 | 0.050 | 0.019 | . | . | . |
| 03H | 4 | 1.85 | . | . | 0.070 | 1.309 | 0.470 | 0.093 | 0.034 | . | . | . |
| 03H | 6 | 2.21 | . | . | 0.110 | 1.495 | 0.575 | 0.152 | 0.057 | . | . | . |
| 03H | 8 | 2.58 | 0.0260 | 60.00 | 0.163 | 1.630 | 0.721 | 0.238 | 0.095 | 2.98 | 27.95 | 9.38 |
| 03H | 10 | 2.67 | 0.0270 | 60.20 | 0.208 | 1.168 | 0.636 | 0.292 | 0.124 | 3.03 | 29.11 | 9.60 |
| 03H | 12 | 2.84 | 0.0288 | 57.98 | 0.269 | 0.929 | 0.496 | 0.348 | 0.154 | 2.93 | 29.33 | 10.00 |
| 03H | 14 | 3.49 | 0.0355 | 57.49 | 0.333 | 0.789 | 0.330 | 0.398 | 0.175 | 2.79 | 27.74 | 9.93 |
| 03H | 16 | 3.07 | 0.0312 | 60.38 | 0.389 | 1.153 | 0.581 | 0.464 | 0.208 | 2.67 | 28.84 | 10.80 |
| 03H | 18 | 3.15 | 0.0320 | 61.04 | 0.451 | 0.680 | 0.316 | 0.506 | 0.228 | 2.83 | 30.29 | 10.71 |
| 03H | 20 | 3.15 | 0.0320 | 61.04 | 0.518 | 0.490 | 0.200 | 0.538 | 0.241 | 2.85 | 29.71 | 10.41 |
| 03H | 22 | 3.41 | 0.0347 | 63.10 | 0.584 | 0.478 | 0.148 | 0.570 | 0.251 | 2.81 | 30.61 | 10.88 |
| 03H | 24 | 3.37 | 0.0342 | 64.14 | 0.656 | 0.507 | 0.142 | 0.606 | 0.261 | 3.02 | 32.08 | 10.63 |
| 03H | 26 | 3.46 | 0.0352 | 67.52 | 0.720 | 0.416 | 0.113 | 0.633 | 0.268 | 3.07 | 33.51 | 10.91 |
| 03H | 28 | 3.37 | 0.0342 | 68.47 | 0.796 | 0.409 | 0.135 | 0.664 | 0.278 | 3.24 | 34.88 | 10.77 |
| 03H | 30 | 3.62 | 0.0368 | 71.53 | 0.865 | 0.395 | 0.139 | 0.692 | 0.288 | 3.08 | 33.85 | 10.98 |
| 03H | 32 | 3.60 | 0.0366 | 67.77 | 0.937 | 0.387 | 0.150 | 0.719 | 0.299 | 3.12 | 33.84 | 10.85 |
| 03H | 34 | 3.66 | 0.0372 | 68.39 | 1.013 | 0.399 | 0.137 | 0.749 | 0.309 | 3.02 | 32.53 | 10.76 |
| 03H | 36 | 4.05 | 0.0413 | 68.30 | 1.105 | 0.440 | 0.166 | 0.790 | 0.324 | 3.08 | 33.53 | 10.88 |
| 03H | 38 | 4.37 | 0.0446 | 67.96 | 1.188 | 0.457 | 0.238 | 0.828 | 0.344 | 3.16 | 34.05 | 10.78 |
| 03H | 40 | 4.69 | 0.0480 | 64.42 | 1.273 | 0.328 | 0.130 | 0.856 | 0.355 | 2.87 | 32.66 | 11.36 |
| 03H | 42 | 5.21 | 0.0535 | 53.66 | 1.394 | 0.210 | 0.075 | 0.881 | 0.364 | 2.53 | 28.14 | 11.13 |
| 03H | 44 | 4.37 | 0.0447 | 61.12 | 1.475 | 0.224 | 0.078 | 0.899 | 0.371 | 2.64 | 29.37 | 11.13 |
| 03H | 46 | 3.89 | 0.0396 | 65.74 | 1.552 | 0.214 | 0.073 | 0.916 | 0.376 | 2.96 | 32.69 | 11.05 |
| 03H | 48 | 4.01 | 0.0409 | 65.11 | 1.632 | 0.205 | 0.048 | 0.932 | 0.380 | 2.84 | 32.13 | 11.30 |
| 03H | 50 | 4.22 | 0.0431 | 60.88 | 1.731 | 0.216 | 0.054 | 0.954 | 0.385 | 2.72 | 30.31 | 11.16 |
| 03H | 52 | 4.13 | 0.0421 | 60.22 | 1.808 | 0.261 | 0.054 | 0.974 | 0.390 | 2.91 | 32.41 | 11.13 |
| 03H | 54 | 3.79 | 0.0385 | 67.25 | 1.888 | 0.198 | 0.050 | 0.990 | 0.393 | 3.06 | 34.08 | 11.16 |
| 03H | 56 | 3.73 | 0.0379 | 67.58 | 1.967 | 0.185 | 0.054 | 1.004 | 0.398 | 3.05 | 34.13 | 11.20 |
| 03H | 58 | 3.76 | 0.0383 | 67.99 | 2.037 | 0.184 | 0.065 | 1.017 | 0.402 | 2.83 | 33.06 | 11.69 |
| 03H | 60 | 3.83 | 0.0390 | 65.63 | 2.118 | 0.200 | 0.064 | 1.033 | 0.407 | 2.90 | 33.01 | 11.38 |
| 03H | 62 | 4.36 | 0.0446 | 59.58 | 2.197 | 0.156 | 0.068 | 1.046 | 0.413 | 2.52 | 29.59 | 11.75 |
| 03H | 64 | 4.03 | 0.0411 | 64.18 | 2.284 | 0.176 | 0.077 | 1.061 | 0.420 | 2.75 | 32.59 | 11.86 |
| 03H | 66 | 4.01 | 0.0409 | 65.46 | 2.358 | 0.172 | 0.067 | 1.074 | 0.425 | 2.82 | 32.47 | 11.52 |
| 03H | 68 | 4.08 | 0.0416 | 66.96 | 2.435 | 0.209 | 0.079 | 1.090 | 0.431 | 2.82 | 33.67 | 11.96 |
| 03H | 70 | 4.07 | 0.0415 | 67.27 | 2.523 | 0.228 | 0.062 | 1.110 | 0.436 | 2.91 | 33.73 | 11.59 |
| 03H | 72 | 4.10 | 0.0418 | 66.96 | 2.602 | 0.188 | 0.067 | 1.125 | 0.441 | 2.86 | 32.99 | 11.52 |
| 03H | 74 | 4.19 | 0.0427 | 66.50 | 2.698 | 0.185 | 0.067 | 1.142 | 0.448 | 2.89 | 33.18 | 11.49 |
| 03H | 76 | 4.30 | 0.0439 | 65.13 | 2.775 | 0.209 | 0.065 | 1.159 | 0.453 | 2.80 | 32.23 | 11.52 |
| 03H | 78 | 4.40 | 0.0450 | 64.10 | 2.861 | 0.176 | 0.068 | 1.174 | 0.459 | 2.71 | 31.73 | 11.70 |
| 03H | 80 | 4.63 | 0.0474 | 61.58 | 2.949 | 0.166 | 0.070 | 1.188 | 0.465 | 2.64 | 30.54 | 11.56 |
| 03H | 82 | 6.40 | 0.0662 | 44.85 | 3.080 | 0.095 | 0.057 | 1.201 | 0.472 | 1.78 | 22.55 | 12.67 |
| 03H | 84 | 5.56 | 0.0572 | 52.66 | 3.192 | 0.121 | 0.049 | 1.214 | 0.478 | 2.37 | 28.64 | 12.06 |
| 03H | 86 | 4.78 | 0.0489 | 60.86 | 3.289 | 0.140 | 0.059 | 1.228 | 0.484 | 2.38 | 29.70 | 12.45 |
| 03H | 88 | 4.99 | 0.0512 | 59.92 | 3.391 | 0.181 | 0.061 | 1.246 | 0.490 | 2.43 | 29.82 | 12.25 |
| 03H | 90 | 5.42 | 0.0558 | 51.30 | 3.500 | 0.137 | 0.054 | 1.261 | 0.496 | 2.23 | 27.27 | 12.25 |
| 03H | 92 | 4.29 | 0.0438 | 67.62 | 3.582 | 0.168 | 0.069 | 1.275 | 0.501 | 2.83 | 33.47 | 11.81 |
| 03H | 94 | 4.35 | 0.0444 | 67.56 | 3.678 | 0.169 | 0.059 | 1.291 | 0.507 | 2.89 | 33.87 | 11.73 |
| 03H | 96 | 4.75 | 0.0486 | 62.42 | 3.772 | 0.141 | 0.056 | 1.305 | 0.512 | 2.65 | 32.77 | 12.38 |
| 03H | 98 | 4.38 | 0.0447 | 69.06 | 3.860 | 0.150 | 0.059 | 1.318 | 0.517 | 2.81 | 33.55 | 11.96 |
| 03H | 100 | 4.45 | 0.0455 | 67.45 | 3.955 | 0.149 | 0.060 | 1.332 | 0.523 | 2.85 | 33.64 | 11.82 |
| 03H | 102 | 5.35 | 0.0550 | 57.53 | 4.052 | 0.122 | 0.048 | 1.344 | 0.528 | 2.44 | 29.62 | 12.15 |
| 03H | 104 | 4.66 | 0.0476 | 65.61 | 4.158 | 0.171 | 0.059 | 1.362 | 0.534 | 2.70 | 32.48 | 12.03 |
| 03H | 106 | 4.68 | 0.0479 | 64.09 | 4.255 | 0.200 | 0.078 | 1.381 | 0.542 | 2.68 | 32.52 | 12.12 |
| 03H | 108 | 4.69 | 0.0480 | 63.65 | 4.352 | 0.164 | 0.066 | 1.397 | 0.548 | 2.65 | 31.49 | 11.86 |

# Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 03H | 110 | 4.78 | 0.0489 | 64.13 | 4.443 | 0.151 | 0.059 | 1.411 | 0.553 | 2.55 | 30.73 | 12.03 |
| 03H | 112 | 4.59 | 0.0469 | 66.17 | 4.534 | 0.198 | 0.090 | 1.429 | 0.561 | 2.66 | 33.47 | 12.60 |
| 03H | 114 | 5.81 | 0.0597 | 65.27 | 4.633 | 0.150 | 0.056 | 1.444 | 0.567 | 2.64 | 31.75 | 12.05 |
| 03H | 116 | 4.83 | 0.0495 | 66.02 | 4.734 | 0.139 | 0.046 | 1.458 | 0.572 | 2.56 | 31.91 | 12.49 |
| 03H | 118 | 5.63 | 0.0579 | 54.56 | 4.852 | 0.136 | 0.049 | 1.474 | 0.577 | 2.19 | 27.72 | 12.68 |
| 03H | 120 | 6.32 | 0.0654 | 48.03 | 4.991 | 0.124 | 0.050 | 1.491 | 0.584 | 1.92 | 23.43 | 12.19 |

# Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07H | 2 | 1.45 | 0.0146 | 68.90 | 0.025 | 1.158 | 0.354 | 0.029 | 0.009 | 2.84 | 33.19 | 11.70 |
| 07H | 4 | 1.83 | 0.0185 | 68.49 | 0.063 | 1.262 | 0.338 | 0.077 | 0.022 | 3.18 | 33.36 | 10.48 |
| 07H | 6 | 2.00 | 0.0201 | 67.58 | 0.087 | 1.103 | 0.287 | 0.103 | 0.029 | 3.13 | 31.59 | 10.09 |
| 07H | 8 | 2.11 | 0.0213 | 66.51 | 0.118 | 1.043 | 0.267 | 0.136 | 0.037 | 2.22 | 30.55 | 13.76 |
| 07H | 10 | 2.47 | 0.0250 | 60.89 | 0.161 | 1.019 | 0.265 | 0.179 | 0.048 | 2.82 | 30.57 | 10.82 |
| 07H | 12 | 2.93 | 0.0297 | 59.18 | 0.221 | 0.919 | 0.225 | 0.234 | 0.062 | 2.68 | 30.01 | 11.20 |
| 07H | 14 | 2.96 | 0.0300 | 59.52 | 0.268 | 0.970 | 0.246 | 0.280 | 0.073 | 2.91 | 31.73 | 10.90 |
| 07H | 16 | 2.93 | 0.0298 | 57.73 | 0.333 | 1.022 | 0.268 | 0.346 | 0.091 | 2.67 | 29.19 | 10.93 |
| 07H | 18 | 3.42 | 0.0347 | 54.89 | 0.398 | 0.909 | 0.242 | 0.406 | 0.107 | 2.44 | 27.22 | 11.14 |
| 07H | 20 | 3.95 | 0.0403 | 57.46 | 0.475 | 0.847 | 0.250 | 0.471 | 0.126 | 2.41 | 27.97 | 11.61 |
| 07H | 22 | 3.67 | 0.0374 | 59.40 | 0.538 | 0.874 | 0.229 | 0.526 | 0.140 | 2.73 | 30.60 | 11.21 |
| 07H | 24 | 3.50 | 0.0356 | 60.31 | 0.612 | 1.075 | 0.357 | 0.606 | 0.167 | 2.79 | 30.63 | 10.97 |
| 07H | 26 | 3.32 | 0.0337 | 67.55 | 0.685 | 1.048 | 0.301 | 0.682 | 0.189 | 2.80 | 30.77 | 11.00 |
| 07H | 28 | 3.51 | 0.0357 | 59.23 | 0.744 | 0.944 | 0.262 | 0.738 | 0.204 | 2.70 | 30.71 | 11.37 |
| 07H | 30 | 3.54 | 0.0360 | 59.63 | 0.815 | 1.030 | 0.303 | 0.811 | 0.226 | 2.71 | 29.85 | 11.01 |
| 07H | 32 | 3.72 | 0.0379 | 60.29 | 0.890 | 0.923 | 0.263 | 0.880 | 0.245 | 2.70 | 30.11 | 11.17 |
| 07H | 34 | 3.72 | 0.0379 | 58.52 | 0.971 | 0.934 | 0.252 | 0.956 | 0.266 | 2.54 | 27.99 | 11.01 |
| 07H | 36 | 3.71 | 0.0377 | 60.94 | 1.036 | 0.919 | 0.294 | 1.015 | 0.285 | 2.67 | 30.14 | 11.27 |
| 07H | 38 | 3.81 | 0.0388 | 62.21 | 1.108 | 0.936 | 0.290 | 1.083 | 0.306 | 2.77 | 30.85 | 11.12 |
| 07H | 40 | 3.94 | 0.0402 | 61.36 | 1.192 | 0.931 | 0.270 | 1.161 | 0.328 | 2.81 | 30.10 | 10.72 |
| 07H | 42 | 3.97 | 0.0405 | 63.29 | 1.264 | 0.872 | 0.262 | 1.224 | 0.347 | 2.83 | 31.49 | 11.12 |
| 07H | 44 | 4.06 | 0.0414 | 62.19 | 1.343 | 0.844 | 0.262 | 1.291 | 0.368 | 2.89 | 31.18 | 10.80 |
| 07H | 46 | 4.18 | 0.0426 | 60.46 | 1.437 | 0.846 | 0.251 | 1.370 | 0.391 | 2.78 | 31.57 | 11.36 |
| 07H | 48 | 4.06 | 0.0414 | 62.51 | 1.523 | 0.825 | 0.280 | 1.441 | 0.416 | 2.79 | 31.15 | 11.18 |
| 07H | 50 | 3.98 | 0.0406 | 65.15 | 1.587 | 0.667 | 0.247 | 1.483 | 0.431 | 3.03 | 32.55 | 10.75 |
| 07H | 52 | 3.95 | 0.0403 | 66.62 | 1.662 | 0.641 | 0.263 | 1.532 | 0.451 | 2.90 | 33.21 | 11.45 |
| 07H | 54 | 4.01 | 0.0408 | 66.62 | 1.737 | 0.647 | 0.218 | 1.580 | 0.467 | 2.85 | 32.98 | 11.55 |
| 07H | 56 | 4.12 | 0.0420 | 66.92 | 1.823 | 0.588 | 0.217 | 1.631 | 0.486 | 3.08 | 33.77 | 10.96 |
| 07H | 58 | 3.98 | 0.0406 | 68.68 | 1.906 | 0.595 | 0.228 | 1.680 | 0.505 | 3.01 | 33.81 | 11.22 |
| 07H | 60 | 4.54 | 0.0464 | 69.43 | 1.992 | 0.590 | 0.240 | 1.731 | 0.526 | 3.12 | 34.86 | 11.17 |
| 07H | 62 | 4.15 | 0.0423 | 69.76 | 2.072 | 0.595 | 0.329 | 1.779 | 0.552 | 3.08 | 34.56 | 11.21 |
| 07H | 64 | 4.19 | 0.0427 | 69.32 | 2.151 | 0.600 | 0.279 | 1.826 | 0.574 | 3.06 | 34.11 | 11.15 |
| 07H | 66 | 4.37 | 0.0446 | 68.26 | 2.242 | 0.578 | 0.311 | 1.879 | 0.602 | 2.95 | 33.75 | 11.43 |
| 07H | 68 | 4.60 | 0.0470 | 68.39 | 2.321 | 0.563 | 0.237 | 1.923 | 0.621 | 3.04 | 33.85 | 11.12 |
| 07H | 70 | 4.48 | 0.0457 | 69.13 | 2.412 | 0.536 | 0.289 | 1.972 | 0.647 | 3.03 | 34.42 | 11.38 |
| 07H | 72 | 4.55 | 0.0465 | 68.55 | 2.506 | 0.507 | 0.248 | 2.020 | 0.671 | 3.05 | 34.02 | 11.15 |
| 07H | 74 | 4.55 | 0.0465 | 66.51 | 2.593 | 0.468 | 0.273 | 2.060 | 0.695 | 2.84 | 32.10 | 11.30 |
| 07H | 76 | 4.51 | 0.0460 | 65.66 | 2.691 | 0.467 | 0.278 | 2.106 | 0.722 | 2.85 | 32.16 | 11.27 |
| 07H | 78 | 4.72 | 0.0483 | 64.59 | 2.786 | 0.456 | 0.249 | 2.149 | 0.745 | 2.63 | 31.06 | 11.83 |
| 07H | 80 | 4.44 | 0.0454 | 69.19 | 2.880 | 0.459 | 0.230 | 2.193 | 0.767 | 2.98 | 34.29 | 11.52 |
| 07H | 82 | 4.51 | 0.0461 | 68.04 | 2.957 | 0.456 | 0.210 | 2.228 | 0.783 | 2.95 | 33.07 | 11.22 |
| 07H | 84 | 4.72 | 0.0483 | 64.11 | 3.044 | 0.438 | 0.230 | 2.266 | 0.803 | 2.64 | 31.76 | 12.01 |
| 07H | 86 | 4.72 | 0.0483 | 61.51 | 3.133 | 0.430 | 0.268 | 2.304 | 0.827 | 2.51 | 30.28 | 12.06 |
| 07H | 88 | 4.31 | 0.0440 | 63.79 | 3.217 | 0.427 | 0.254 | 2.340 | 0.848 | 2.78 | 32.38 | 11.65 |
| 07H | 90 | 4.03 | 0.0411 | 67.44 | 3.294 | 0.445 | 0.317 | 2.374 | 0.873 | 2.77 | 32.54 | 11.77 |
| 07H | 92 | 4.22 | 0.0430 | 67.14 | 3.372 | 0.430 | 0.275 | 2.408 | 0.894 | 2.64 | 32.21 | 12.20 |
| 07H | 94 | 4.18 | 0.0427 | 67.95 | 3.452 | 0.454 | 0.332 | 2.444 | 0.921 | 2.75 | 32.83 | 11.93 |
| 07H | 96 | 4.36 | 0.0445 | 67.44 | 3.533 | 0.432 | 0.255 | 2.479 | 0.941 | 2.94 | 32.85 | 11.16 |
| 07H | 98 | 4.19 | 0.0428 | 64.68 | 3.617 | 0.435 | 0.267 | 2.516 | 0.964 | 2.76 | 32.09 | 11.65 |
| 07H | 100 | 4.37 | 0.0447 | 65.35 | 3.717 | 0.426 | 0.270 | 2.558 | 0.991 | 2.78 | 32.91 | 11.82 |

# Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 16H | 4 | 2.28 | 0.0230 | 68.71 | 0.089 | 1.358 | 0.530 | 0.120 | 0.047 | 3.62 | 33.98 | 9.37 |
| 16H | 8 | 2.42 | 0.0245 | 64.40 | 0.160 | 1.099 | 0.431 | 0.199 | 0.078 | 3.28 | 32.35 | 9.87 |
| 16H | 12 | 2.61 | 0.0264 | 64.71 | 0.260 | 1.104 | 0.347 | 0.310 | 0.113 | 3.43 | 33.99 | 9.90 |
| 16H | 16 | 2.99 | 0.0303 | 64.97 | 0.439 | 1.483 | 0.553 | 0.575 | 0.212 | 3.07 | 32.49 | 10.59 |
| 16H | 20 | 3.34 | 0.0339 | 67.50 | 0.748 | 0.451 | 0.126 | 0.714 | 0.250 | 3.25 | 35.56 | 10.96 |
| 16H | 24 | 2.87 | 0.0291 | 70.94 | 0.866 | 0.401 | 0.097 | 0.762 | 0.262 | 3.22 | 35.33 | 10.98 |
| 16H | 28 | 3.23 | 0.0328 | 70.39 | 0.989 | 0.415 | 0.102 | 0.813 | 0.274 | 3.29 | 35.82 | 10.89 |
| 16H | 32 | 3.30 | 0.0335 | 72.94 | 1.151 | 0.332 | 0.089 | 0.866 | 0.289 | 3.27 | 36.47 | 11.16 |
| 16H | 36 | 3.16 | 0.0321 | 72.73 | 1.338 | 0.323 | 0.104 | 0.927 | 0.308 | 3.10 | 36.42 | 11.77 |
| 16H | 40 | 3.15 | 0.0320 | 70.71 | 1.529 | 0.302 | 0.093 | 0.985 | 0.326 | 3.13 | 35.70 | 11.40 |
| 16H | 44 | 3.05 | 0.0310 | 68.20 | 1.634 | 0.266 | 0.064 | 1.013 | 0.333 | 2.53 | 30.37 | 12.01 |
| 16H | 48 | 2.60 | 0.0264 | 67.75 | 1.740 | 0.243 | 0.078 | 1.038 | 0.341 | 2.97 | 33.94 | 11.44 |
| 16H | 52 | 2.72 | 0.0275 | 66.54 | 1.843 | 0.241 | 0.083 | 1.063 | 0.350 | 2.88 | 34.06 | 11.84 |
| 16H | 56 | 2.96 | 0.0300 | 65.50 | 1.974 | 0.230 | 0.071 | 1.093 | 0.359 | 2.78 | 32.44 | 11.66 |
| 16H | 60 | 3.16 | 0.0321 | 65.47 | 2.119 | 0.234 | 0.081 | 1.127 | 0.371 | 2.89 | 32.99 | 11.41 |
| 16H | 64 | 3.16 | 0.0321 | 64.99 | 2.257 | 0.213 | 0.081 | 1.157 | 0.382 | 2.65 | 31.40 | 11.87 |
| 16H | 68 | 3.55 | 0.0361 | 65.93 | 2.399 | 0.213 | 0.058 | 1.187 | 0.390 | 2.76 | 33.08 | 11.98 |
| 16H | 72 | 3.81 | 0.0388 | 62.96 | 2.575 | 0.210 | 0.077 | 1.224 | 0.404 | 2.47 | 29.15 | 11.81 |
| 16H | 76 | 3.51 | 0.0357 | 65.08 | 2.749 | 0.206 | 0.088 | 1.260 | 0.419 | 2.86 | 32.81 | 11.45 |
| 16H | 80 | 1.06 | . | 68.90 | 2.800 | 0.232 | 0.067 | 1.271 | 0.422 | 2.59 | 32.63 | 12.58 |
| 16H | 84 | 3.61 | 0.0367 | 67.05 | 2.946 | 0.229 | 0.072 | 1.305 | 0.433 | 2.88 | 32.48 | 11.27 |
| 16H | 88 | 3.73 | 0.0380 | 66.87 | 3.125 | 0.229 | 0.071 | 1.346 | 0.446 | 2.89 | 32.84 | 11.36 |
| 16H | 92 | 3.82 | 0.0389 | 65.53 | 3.290 | 0.218 | 0.094 | 1.382 | 0.461 | 2.89 | 33.00 | 11.43 |
| 16H | 96 | 4.05 | 0.0413 | 64.86 | 3.475 | 0.201 | 0.056 | 1.419 | 0.471 | 2.85 | 33.72 | 11.82 |
| 16H | 100 | 3.55 | 0.0361 | 65.39 | 3.636 | 0.205 | 0.057 | 1.452 | 0.481 | 2.91 | 33.14 | 11.38 |
| 16H | 104 | 3.10 | 0.0314 | 67.13 | 3.772 | 0.214 | 0.057 | 1.481 | 0.488 | 2.88 | 33.27 | 11.56 |
| 16H | 108 | 2.33 | 0.0236 | 66.37 | 3.870 | 0.233 | 0.063 | 1.504 | 0.495 | 2.82 | 33.47 | 11.85 |

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43H | 2 | 1.87 | 0.0189 | 65.87 | 0.041 | 1.272 | 0.575 | 0.052 | 0.023 | 3.17 | 30.85 | 9.73 |
| 43H | 4 | 2.37 | 0.0240 | 66.72 | 0.087 | 1.305 | 0.613 | 0.112 | 0.052 | 3.18 | 30.80 | 9.69 |
| 43H | 6 | 2.58 | 0.0261 | 68.95 | 0.137 | 1.259 | 0.679 | 0.175 | 0.086 | 3.43 | 32.90 | 9.60 |
| 43H | 8 | 2.82 | 0.0286 | 67.94 | 0.180 | 1.491 | 0.708 | 0.239 | 0.116 | 3.30 | 31.43 | 9.52 |
| 43H | 10 | 2.91 | 0.0295 | 68.72 | 0.241 | 1.307 | 0.729 | 0.319 | 0.161 | 3.45 | 33.35 | 9.66 |
| 43H | 12 | 3.10 | 0.0314 | 69.61 | 0.300 | 1.276 | 0.719 | 0.394 | 0.203 | 3.30 | 32.60 | 9.88 |
| 43H | 14 | 3.16 | 0.0321 | 71.10 | 0.360 | 1.144 | 0.651 | 0.462 | 0.242 | 2.96 | 30.23 | 10.20 |
| 43H | 16 | 3.28 | 0.0333 | 69.18 | 0.427 | 1.040 | 0.535 | 0.532 | 0.278 | 3.83 | 37.53 | 9.81 |
| 43H | 18 | 3.40 | 0.0346 | 69.56 | 0.491 | 0.802 | 0.393 | 0.584 | 0.303 | 3.23 | 33.49 | 10.36 |
| 43H | 20 | 3.62 | 0.0369 | 68.77 | 0.568 | 0.698 | 0.314 | 0.638 | 0.327 | 3.01 | 32.99 | 10.98 |
| 43H | 22 | 4.03 | 0.0411 | 67.04 | 0.643 | 0.599 | 0.218 | 0.683 | 0.344 | 3.02 | 33.12 | 10.95 |
| 43H | 24 | 4.24 | 0.0432 | 66.18 | 0.721 | 0.510 | 0.191 | 0.722 | 0.358 | 2.79 | 32.83 | 11.75 |
| 43H | 26 | 4.13 | 0.0421 | 65.79 | 0.806 | 0.525 | 0.200 | 0.767 | 0.375 | 2.99 | 32.40 | 10.85 |
| 43H | 28 | 4.28 | 0.0437 | 65.30 | 0.891 | 0.523 | 0.134 | 0.811 | 0.387 | 2.80 | 32.43 | 11.57 |
| 43H | 30 | 4.26 | 0.0435 | 64.50 | 0.981 | 0.531 | 0.161 | 0.859 | 0.401 | 2.75 | 32.25 | 11.72 |
| 43H | 32 | 4.43 | 0.0452 | 64.69 | 1.064 | 0.582 | 0.158 | 0.908 | 0.415 | 2.75 | 32.11 | 11.67 |
| 43H | 34 | 5.69 | 0.0586 | 53.98 | 1.190 | 0.407 | 0.125 | 0.959 | 0.430 | 2.11 | 25.44 | 12.05 |
| 43H | 36 | 6.87 | 0.0713 | 41.56 | 1.316 | 0.307 | 0.091 | 0.997 | 0.442 | 1.80 | 22.04 | 12.25 |
| 43H | 38 | 4.92 | 0.0505 | 55.59 | 1.428 | 0.318 | 0.092 | 1.033 | 0.452 | 2.39 | 28.11 | 11.75 |
| 43H | 40 | 4.80 | 0.0491 | 58.51 | 1.526 | 0.294 | 0.090 | 1.062 | 0.461 | 2.51 | 29.46 | 11.73 |
| 43H | 42 | 4.77 | 0.0488 | 58.19 | 1.612 | 0.316 | 0.088 | 1.089 | 0.468 | 2.46 | 29.53 | 12.01 |
| 43H | 44 | 4.90 | 0.0502 | 57.29 | 1.716 | 0.276 | 0.098 | 1.118 | 0.479 | 2.43 | 28.16 | 11.59 |
| 43H | 46 | 4.50 | 0.0460 | 60.78 | 1.812 | 0.287 | 0.085 | 1.145 | 0.487 | 2.54 | 30.74 | 12.09 |
| 43H | 48 | 4.87 | 0.0499 | 60.22 | 1.900 | 0.259 | 0.071 | 1.168 | 0.493 | 2.51 | 30.76 | 12.24 |
| 43H | 50 | 4.41 | 0.0451 | 61.44 | 1.990 | 0.246 | 0.082 | 1.190 | 0.500 | 2.49 | 30.84 | 12.37 |
| 43H | 52 | 4.62 | 0.0472 | 60.78 | 2.078 | 0.248 | 0.083 | 1.212 | 0.508 | 2.54 | 30.88 | 12.15 |
| 43H | 54 | 4.75 | 0.0486 | 60.34 | 2.187 | 0.226 | 0.073 | 1.237 | 0.516 | 2.46 | 29.50 | 12.00 |
| 43H | 56 | 4.83 | 0.0495 | 59.13 | 2.282 | 0.222 | 0.076 | 1.258 | 0.523 | 2.54 | 31.61 | 12.45 |
| 43H | 58 | 5.44 | 0.0559 | 54.20 | 2.385 | 0.193 | 0.066 | 1.278 | 0.530 | 2.39 | 27.94 | 11.68 |
| 43H | 60 | 5.38 | 0.0553 | 55.32 | 2.493 | 0.218 | 0.082 | 1.301 | 0.538 | 2.32 | 28.10 | 12.14 |
| 43H | 62 | 5.59 | 0.0575 | 57.23 | 2.611 | 0.235 | 0.075 | 1.329 | 0.547 | 2.07 | 26.83 | 12.99 |
| 43H | 64 | 5.37 | 0.0552 | 52.48 | 2.718 | 0.248 | 0.076 | 1.355 | 0.555 | 2.21 | 26.90 | 12.17 |
| 43H | 66 | 5.26 | 0.0540 | 56.22 | 2.816 | 0.245 | 0.075 | 1.380 | 0.563 | 2.47 | 28.99 | 11.75 |
| 43H | 68 | 4.83 | 0.0494 | 61.36 | 2.913 | 0.269 | 0.099 | 1.405 | 0.572 | 2.50 | 29.59 | 11.85 |
| 43H | 70 | 4.82 | 0.0494 | 60.51 | 3.011 | 0.242 | 0.084 | 1.429 | 0.581 | 2.48 | 30.10 | 12.12 |
| 43H | 72 | 4.81 | 0.0493 | 61.31 | 3.104 | 0.225 | 0.078 | 1.450 | 0.588 | 2.64 | 30.72 | 11.65 |
| 43H | 74 | 4.69 | 0.0480 | 62.10 | 3.207 | 0.217 | 0.085 | 1.473 | 0.597 | 2.61 | 30.99 | 11.89 |
| 43H | 76 | 4.49 | 0.0459 | 62.88 | 3.287 | 0.225 | 0.088 | 1.491 | 0.604 | 2.64 | 31.04 | 11.74 |
| 43H | 78 | 4.41 | 0.0451 | 64.84 | 3.378 | 0.246 | 0.101 | 1.513 | 0.613 | 2.77 | 32.56 | 11.77 |
| 43H | 80 | 4.55 | 0.0466 | 62.91 | 3.468 | 0.230 | 0.090 | 1.534 | 0.621 | 2.63 | 31.57 | 12.01 |
| 43H | 82 | 4.72 | 0.0483 | 61.59 | 3.553 | 0.220 | 0.084 | 1.552 | 0.628 | 2.58 | 30.43 | 11.80 |
| 43H | 84 | 4.55 | 0.0465 | 62.23 | 3.645 | 0.238 | 0.098 | 1.574 | 0.637 | 2.63 | 30.93 | 11.78 |
| 43H | 86 | 4.61 | 0.0472 | 62.37 | 3.732 | 0.248 | 0.092 | 1.596 | 0.645 | 2.58 | 30.16 | 11.71 |
| 43H | 88 | 4.55 | 0.0465 | 63.33 | 3.828 | 0.240 | 0.082 | 1.619 | 0.653 | 2.55 | 31.05 | 12.19 |
| 43H | 90 | 4.65 | 0.0476 | 63.18 | 3.912 | 0.234 | 0.082 | 1.638 | 0.660 | 2.66 | 31.42 | 11.79 |
| 43H | 92 | 4.49 | 0.0459 | 63.77 | 4.000 | 0.265 | 0.094 | 1.662 | 0.668 | 2.62 | 31.19 | 11.90 |
| 43H | 94 | 4.41 | 0.0451 | 64.08 | 4.098 | 0.263 | 0.096 | 1.687 | 0.678 | 2.65 | 31.01 | 11.69 |
| 43H | 96 | 4.42 | 0.0452 | 63.84 | 4.178 | 0.268 | 0.102 | 1.709 | 0.686 | 2.68 | 31.80 | 11.86 |
| 43H | 98 | 4.16 | 0.0424 | 64.74 | 4.266 | 0.267 | 0.095 | 1.733 | 0.694 | 2.66 | 31.25 | 11.76 |
| 43H | 100 | 4.24 | 0.0432 | 64.23 | 4.359 | 0.236 | 0.088 | 1.754 | 0.702 | 2.58 | 31.01 | 12.00 |
| 43H | 102 | 4.38 | 0.0447 | 64.74 | 4.456 | 0.273 | 0.100 | 1.781 | 0.712 | 2.68 | 31.60 | 11.77 |
| 43H | 104 | 4.20 | 0.0429 | 64.86 | 4.532 | 0.289 | 0.107 | 1.803 | 0.720 | 2.68 | 31.56 | 11.77 |
| 43H | 106 | 4.41 | 0.0451 | 63.97 | 4.619 | 0.223 | 0.086 | 1.822 | 0.728 | 2.63 | 31.33 | 11.90 |
| 43H | 108 | 4.58 | 0.0468 | 64.40 | 4.704 | 0.215 | 0.072 | 1.840 | 0.734 | 2.69 | 31.10 | 11.55 |

# Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 43H | 110 | 4.71 | 0.0482 | 65.12 | 4.801 | 0.208 | 0.070 | 1.861 | 0.741 | 2.63 | 30.85 | 11.72 |
| 43H | 112 | 5.23 | 0.0537 | 64.16 | 4.902 | 0.188 | 0.057 | 1.880 | 0.746 | 2.48 | 31.84 | 12.85 |
| 43H | 114 | 5.73 | 0.0589 | 66.43 | 5.032 | 0.169 | 0.047 | 1.902 | 0.752 | 2.46 | 30.85 | 12.54 |
| 43H | 116 | 5.62 | 0.0577 | 64.01 | 5.159 | 0.196 | 0.055 | 1.927 | 0.759 | 2.53 | 31.35 | 12.37 |

# Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44H | 2 | 1.58 | 0.0159 | 71.86 | 0.031 | 1.285 | 0.489 | 0.040 | 0.015 | 3.42 | 33.35 | 9.75 |
| 44H | 4 | 2.00 | 0.0202 | 69.97 | 0.068 | 1.341 | 0.579 | 0.090 | 0.037 | 2.77 | 32.02 | 11.57 |
| 44H | 6 | 2.20 | 0.0222 | 71.05 | 0.106 | 1.489 | 0.419 | 0.146 | 0.052 | 3.64 | 35.45 | 9.74 |
| 44H | 8 | 2.45 | 0.0247 | 71.05 | 0.154 | 1.404 | 0.438 | 0.213 | 0.073 | 3.68 | 35.55 | 9.65 |
| 44H | 10 | 2.63 | 0.0266 | 71.73 | 0.212 | 1.565 | 0.618 | 0.304 | 0.110 | 3.57 | 35.47 | 9.94 |
| 44H | 12 | 2.68 | 0.0271 | 72.96 | 0.263 | 1.547 | 0.546 | 0.383 | 0.137 | 3.66 | 35.73 | 9.77 |
| 44H | 14 | 2.77 | 0.0281 | 72.44 | 0.318 | 1.584 | 0.515 | 0.470 | 0.165 | 3.70 | 35.65 | 9.63 |
| 44H | 16 | 2.84 | 0.0288 | 72.22 | 0.373 | 1.530 | 0.480 | 0.554 | 0.192 | 3.83 | 36.15 | 9.44 |
| 44H | 18 | 3.02 | 0.0306 | 73.47 | 0.432 | 1.425 | 0.485 | 0.639 | 0.221 | 3.72 | 35.40 | 9.52 |
| 44H | 20 | 2.99 | 0.0303 | 71.33 | 0.495 | 1.436 | 0.477 | 0.729 | 0.251 | 3.51 | 35.05 | 9.99 |
| 44H | 22 | 3.21 | 0.0326 | 69.61 | 0.559 | 1.196 | 0.476 | 0.806 | 0.281 | 3.25 | 33.02 | 10.17 |
| 44H | 24 | 3.36 | 0.0342 | 69.07 | 0.633 | 1.048 | 0.390 | 0.882 | 0.310 | 3.38 | 35.55 | 10.53 |
| 44H | 26 | 3.83 | 0.0390 | 70.88 | 0.712 | 0.986 | 0.337 | 0.961 | 0.337 | 3.24 | 34.82 | 10.74 |
| 44H | 28 | 3.77 | 0.0384 | 68.79 | 0.785 | 0.704 | 0.227 | 1.012 | 0.353 | 3.19 | 34.49 | 10.80 |
| 44H | 30 | 3.90 | 0.0397 | 68.39 | 0.868 | 0.795 | 0.235 | 1.078 | 0.373 | 3.07 | 33.63 | 10.95 |
| 44H | 32 | 4.11 | 0.0419 | 68.97 | 0.955 | 0.738 | 0.297 | 1.142 | 0.399 | 3.21 | 34.70 | 10.81 |
| 44H | 34 | 4.38 | 0.0447 | 68.96 | 1.053 | 0.624 | 0.212 | 1.203 | 0.419 | 3.03 | 34.03 | 11.23 |
| 44H | 36 | 4.38 | 0.0447 | 68.67 | 1.132 | 0.595 | 0.233 | 1.250 | 0.438 | 2.94 | 34.31 | 11.68 |
| 44H | 38 | 4.33 | 0.0442 | 68.53 | 1.236 | 0.582 | 0.210 | 1.311 | 0.460 | 3.06 | 34.24 | 11.19 |
| 44H | 40 | 4.45 | 0.0454 | 68.09 | 1.309 | 0.620 | 0.213 | 1.356 | 0.475 | 2.96 | 34.30 | 11.60 |
| 44H | 42 | 4.46 | 0.0456 | 68.29 | 1.388 | 0.573 | 0.230 | 1.402 | 0.493 | 2.91 | 34.13 | 11.74 |
| 44H | 44 | 4.53 | 0.0462 | 69.01 | 1.484 | 0.637 | 0.210 | 1.463 | 0.513 | 3.02 | 34.26 | 11.35 |
| 44H | 46 | 4.33 | 0.0443 | 26.48 | 1.548 | 0.624 | 0.269 | 1.503 | 0.531 | 3.14 | 34.34 | 10.93 |
| 44H | 48 | 4.36 | 0.0445 | 67.93 | 1.639 | 0.591 | 0.270 | 1.556 | 0.555 | 3.12 | 34.18 | 10.94 |
| 44H | 50 | 4.45 | 0.0455 | 69.16 | 1.710 | 0.619 | 0.273 | 1.601 | 0.575 | 3.11 | 34.73 | 11.16 |
| 44H | 52 | 4.33 | 0.0442 | 69.34 | 1.792 | 0.673 | 0.300 | 1.656 | 0.599 | 3.04 | 34.29 | 11.26 |
| 44H | 54 | 4.39 | 0.0448 | 68.65 | 1.885 | 0.605 | 0.245 | 1.712 | 0.622 | 2.93 | 34.45 | 11.75 |
| 44H | 56 | 4.35 | 0.0443 | 81.85 | 1.961 | 0.670 | 0.289 | 1.763 | 0.644 | 3.05 | 34.37 | 11.28 |
| 44H | 58 | 4.38 | 0.0447 | 69.35 | 2.049 | 0.642 | 0.257 | 1.819 | 0.667 | 3.02 | 34.47 | 11.41 |
| 44H | 60 | 4.63 | 0.0473 | 67.53 | 2.150 | 0.598 | 0.280 | 1.880 | 0.695 | 2.84 | 33.31 | 11.71 |
| 44H | 62 | 4.51 | 0.0461 | 67.84 | 2.243 | 0.601 | 0.300 | 1.936 | 0.723 | 2.86 | 33.14 | 11.59 |
| 44H | 64 | 4.60 | 0.0470 | 67.39 | 2.341 | 0.599 | 0.310 | 1.994 | 0.753 | 2.93 | 34.30 | 11.71 |
| 44H | 66 | 4.90 | 0.0502 | 67.81 | 2.436 | 0.606 | 0.252 | 2.052 | 0.777 | 2.92 | 34.21 | 11.70 |
| 44H | 68 | 4.81 | 0.0492 | 68.09 | 2.514 | 0.604 | 0.262 | 2.099 | 0.798 | 2.89 | 33.47 | 11.60 |
| 44H | 70 | 5.16 | 0.0529 | 66.48 | 2.614 | 0.564 | 0.269 | 2.155 | 0.824 | 2.76 | 33.56 | 12.17 |
| 44H | 72 | 11.98 | 0.1283 | 29.61 | 2.874 | 0.417 | 0.103 | 2.264 | 0.851 | 2.12 | 27.15 | 12.79 |
| 44H | 74 | 8.88 | 0.0933 | 33.77 | 3.040 | 0.312 | 0.122 | 2.315 | 0.871 | 1.61 | 20.86 | 12.98 |
| 44H | 76 | 5.35 | 0.0550 | 59.88 | 3.153 | 0.326 | 0.151 | 2.352 | 0.888 | 2.41 | 30.79 | 12.77 |
| 44H | 78 | 5.18 | 0.0531 | 63.02 | 3.258 | 0.316 | 0.173 | 2.385 | 0.907 | 2.63 | 33.21 | 12.61 |
| 44H | 80 | 5.15 | 0.0528 | 62.61 | 3.363 | 0.260 | 0.156 | 2.413 | 0.923 | 2.55 | 32.31 | 12.69 |
| 44H | 82 | 4.89 | 0.0501 | 66.47 | 3.456 | 0.384 | 0.171 | 2.448 | 0.939 | 2.69 | 33.14 | 12.34 |
| 44H | 84 | 5.13 | 0.0526 | 67.29 | 3.547 | 0.267 | 0.180 | 2.473 | 0.955 | 2.87 | 34.14 | 11.90 |
| 44H | 86 | 5.33 | 0.0547 | 68.11 | 3.661 | 0.254 | 0.131 | 2.502 | 0.970 | 2.71 | 34.16 | 12.58 |
| 44H | 88 | 5.51 | 0.0566 | 66.67 | 3.764 | 0.285 | 0.162 | 2.531 | 0.987 | 2.63 | 32.53 | 12.38 |
| 44H | 90 | 5.71 | 0.0587 | 65.56 | 3.896 | 0.221 | 0.168 | 2.560 | 1.009 | 2.64 | 32.88 | 12.44 |
| 44H | 92 | 5.89 | 0.0606 | 64.29 | 4.004 | 0.220 | 0.122 | 2.584 | 1.022 | 2.62 | 32.61 | 12.46 |
| 44H | 94 | 5.88 | 0.0605 | 65.47 | 4.132 | 0.209 | 0.144 | 2.611 | 1.041 | 2.61 | 33.15 | 12.69 |
| 44H | 96 | 7.88 | 0.0822 | 47.74 | 4.288 | 0.178 | 0.105 | 2.639 | 1.057 | 1.64 | 21.46 | 13.05 |
| 44H | 98 | 6.76 | 0.0699 | 56.32 | 4.438 | 0.185 | 0.112 | 2.666 | 1.074 | 2.26 | 28.53 | 12.60 |
| 44H | 100 | 6.68 | 0.0692 | 56.13 | 4.572 | 0.200 | 0.112 | 2.693 | 1.089 | 2.21 | 28.74 | 12.99 |
| 44H | 102 | 7.19 | 0.0746 | 54.72 | 4.728 | 0.182 | 0.123 | 2.721 | 1.108 | 2.37 | 29.95 | 12.65 |
| 44H | 104 | 6.99 | 0.0724 | 56.08 | 4.872 | 0.169 | 0.100 | 2.746 | 1.122 | 2.41 | 30.15 | 12.49 |
| 44H | 106 | 6.52 | 0.0673 | 60.75 | 5.000 | 0.182 | 0.104 | 2.769 | 1.136 | 2.44 | 30.23 | 12.40 |
| 44H | 108 | 6.49 | 0.0671 | 61.42 | 5.152 | 0.174 | 0.117 | 2.795 | 1.154 | 2.48 | 31.73 | 12.81 |

Lake Griffin Historic Cores, Phase II

| Sta | Depth | Dry | Rho | LOI | Cum Wt | TP | NAIP | Cum TP | Cum NAIP | TN | TC | TC/TN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 44H | 110 | 6.52 | 0.0673 | 62.99 | 5.269 | 0.154 | 0.089 | 2.814 | 1.164 | 2.45 | 31.44 | 12.85 |
| 44H | 112 | 7.21 | 0.0748 | 58.85 | 5.425 | 0.155 | 0.073 | 2.838 | 1.175 | 2.31 | 29.81 | 12.88 |
| 44H | 114 | 7.23 | 0.0750 | 58.82 | 5.552 | 0.156 | 0.095 | 2.857 | 1.187 | 2.29 | 31.36 | 13.68 |
| 44H | 116 | 6.97 | 0.0722 | 60.99 | 5.690 | 0.164 | 0.087 | 2.880 | 1.199 | 2.18 | 29.22 | 13.42 |
| 44H | 118 | 7.05 | 0.0730 | 59.74 | 5.848 | 0.167 | 0.079 | 2.907 | 1.212 | 2.29 | 30.78 | 13.44 |
| 44H | 120 | 6.98 | 0.0723 | 57.27 | 5.989 | 0.150 | 0.068 | 2.928 | 1.221 | 2.20 | 28.45 | 12.91 |
| 44H | 122 | 6.72 | 0.0695 | 56.65 | 6.128 | 0.180 | 0.077 | 2.953 | 1.232 | 2.05 | 27.38 | 13.36 |
| 44H | 124 | 7.38 | 0.0767 | 50.70 | 6.294 | 0.160 | 0.071 | 2.979 | 1.244 | 1.92 | 25.43 | 13.24 |
| 44H | 126 | 9.03 | 0.0949 | 40.53 | 6.463 | 0.150 | 0.059 | 3.005 | 1.254 | 1.68 | 21.93 | 13.07 |
| 44H | 128 | 11.53 | 0.1231 | 31.98 | 6.732 | 0.160 | 0.050 | 3.048 | 1.267 | 0.95 | 14.64 | 15.47 |
| 44H | 130 | 11.38 | 0.1214 | 31.74 | 6.958 | 0.140 | 0.059 | 3.079 | 1.281 | 1.17 | 16.38 | 14.02 |

# APPENDIX F

Radiometric data for 10 historic cores
collected during Phase I and Phase II, Lake Griffin.
See Appendix A for collection date, location and description of cores.

CODES:
- Depth is depth (cm)
- Total $^{210}Pb$ is activity (dpm $g^{-1}$)
- $^{137}Cs$ is activity (dpm $g^{-1}$)
- $^{210}Pb$ error is error in Total $^{210}Pb$ activity (dpm $g^{-1}$)
- $^{137}Cs$ error is error in $^{137}Cs$ activity (dpm $g^{-1}$)
- Excess $^{210}Pb$ is activity (dpm $g^{-1}$)
- Age is age in years at each depth
- Date is calendar year at each depth
- MSR is mass sedimentation rate (mg $cm^{-2}$ $yr^{-1}$)
- Cum mass is cumulative dry mass (g $cm^{-2}$) at each depth

Total $^{210}Pb$ activity in two cores, LG-2H and LG-11H, was measured using alpha counting. Therefore, $^{137}Cs$ activity was not measured in these cores.

**Radiometric data, Phase I Core, LG-2H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 21.56 | | 0.62 | | 20.49 | 0.7 | 1993.5 | 0.4 | 60.5 | 1.9 | 0.043 |
| 4 | 21.18 | | 0.84 | | 20.10 | 1.2 | 1993.0 | 0.4 | 60.5 | 2.6 | 0.075 |
| 6 | 21.87 | | 0.70 | | 20.80 | 1.9 | 1992.4 | 0.4 | 57.4 | 2.0 | 0.111 |
| 8 | 22.09 | | 0.76 | | 21.02 | 2.5 | 1991.8 | 0.4 | 55.7 | 2.1 | 0.145 |
| 10 | 24.77 | | 1.39 | | 23.71 | 3.3 | 1990.9 | 0.4 | 48.3 | 2.8 | 0.185 |
| 12 | 21.78 | | 1.15 | | 20.71 | 4.1 | 1990.2 | 0.4 | 53.9 | 3.0 | 0.226 |
| 14 | 21.26 | | 1.06 | | 20.18 | 4.8 | 1989.4 | 0.4 | 54.0 | 2.9 | 0.268 |
| 16 | 23.28 | | 0.97 | | 22.21 | 5.8 | 1988.4 | 0.4 | 47.8 | 2.1 | 0.316 |
| 18 | 21.96 | | 0.90 | | 20.89 | 6.9 | 1987.4 | 0.4 | 49.2 | 2.1 | 0.367 |
| 20 | 21.66 | | 1.02 | | 20.59 | 7.8 | 1986.4 | 0.5 | 48.4 | 2.4 | 0.413 |
| 22 | 20.78 | | 0.81 | | 19.71 | 10.7 | 1983.5 | 0.5 | 47.6 | 2.0 | 0.551 |
| 24 | 20.77 | | 0.83 | | 19.70 | 13.7 | 1980.5 | 0.5 | 43.4 | 1.8 | 0.682 |
| 26 | 20.01 | | 1.04 | | 18.93 | 15.0 | 1979.3 | 0.5 | 42.3 | 2.3 | 0.733 |
| 28 | 21.19 | | 0.82 | | 20.12 | 16.1 | 1978.1 | 0.5 | 38.4 | 1.6 | 0.777 |
| 30 | 21.97 | | 0.93 | | 20.90 | 17.4 | 1976.8 | 0.5 | 35.6 | 1.6 | 0.824 |
| 32 | 19.94 | | 0.94 | | 18.86 | 18.7 | 1975.5 | 0.5 | 37.8 | 1.9 | 0.873 |
| 34 | 17.75 | | 0.68 | | 16.67 | 20.0 | 1974.3 | 0.5 | 41.1 | 1.7 | 0.926 |
| 36 | 16.63 | | 0.73 | | 15.54 | 21.3 | 1973.0 | 0.5 | 42.4 | 2.0 | 0.981 |
| 38 | 15.96 | | 0.67 | | 14.87 | 22.8 | 1971.5 | 0.5 | 42.4 | 2.0 | 1.044 |
| 40 | 15.71 | | 0.65 | | 14.62 | 23.9 | 1970.4 | 0.6 | 41.4 | 1.9 | 1.089 |
| 42 | 15.00 | | 0.56 | | 13.91 | 25.0 | 1969.3 | 0.6 | 42.1 | 1.8 | 1.135 |
| 44 | 15.55 | | 0.58 | | 14.46 | 26.5 | 1967.7 | 0.6 | 38.9 | 1.6 | 1.195 |
| 46 | 14.55 | | 0.58 | | 13.46 | 28.2 | 1966.0 | 0.6 | 39.7 | 1.8 | 1.264 |
| 48 | 14.96 | | 0.70 | | 13.87 | 30.2 | 1964.1 | 0.6 | 36.4 | 1.9 | 1.334 |
| 50 | 13.22 | | 0.61 | | 12.12 | 31.6 | 1962.6 | 0.6 | 39.5 | 2.1 | 1.392 |
| 52 | 14.73 | | 0.65 | | 13.64 | 33.9 | 1960.4 | 0.7 | 33.1 | 1.6 | 1.465 |
| 54 | 13.04 | | 0.72 | | 11.95 | 36.0 | 1958.3 | 0.7 | 35.3 | 2.2 | 1.541 |
| 56 | 14.37 | | 0.83 | | 13.28 | 38.4 | 1955.9 | 0.7 | 29.6 | 1.9 | 1.612 |
| 58 | 12.46 | | 0.96 | | 11.36 | 40.6 | 1953.6 | 0.7 | 32.2 | 2.7 | 1.684 |
| 60 | 12.37 | | 0.56 | | 11.28 | 42.7 | 1951.5 | 0.8 | 30.3 | 1.6 | 1.748 |

**Radiometric data, Phase I Core, LG-2H, Continued.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg $cm^{-2}$ $yr^{-1}$) | MSR Error | Cum Mass (g $cm^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | 14.91 | | 0.75 | | 13.82 | 45.5 | 1948.7 | 0.8 | 23.0 | 1.3 | 1.812 |
| 64 | 11.11 | | 0.53 | | 10.01 | 48.0 | 1946.2 | 0.9 | 29.2 | 1.7 | 1.885 |
| 66 | 11.86 | | 0.94 | | 10.76 | 50.9 | 1943.3 | 0.9 | 25.0 | 2.2 | 1.957 |
| 68 | 11.09 | | 0.54 | | 9.99 | 54.4 | 1939.9 | 1.0 | 24.3 | 1.4 | 2.042 |
| 70 | 11.01 | | 0.51 | | 9.91 | 57.8 | 1936.5 | 1.1 | 22.1 | 1.3 | 2.116 |
| 72 | 9.70 | | 0.49 | | 8.59 | 61.2 | 1933.1 | 1.2 | 22.9 | 1.4 | 2.194 |
| 74 | 9.93 | | 0.76 | | 8.83 | 65.3 | 1928.9 | 1.2 | 19.8 | 1.8 | 2.276 |
| 76 | 9.87 | | 0.56 | | 8.77 | 70.1 | 1924.2 | 1.4 | 17.4 | 1.3 | 2.359 |
| 78 | 8.58 | | 0.50 | | 7.47 | 74.6 | 1919.6 | 1.6 | 17.6 | 1.4 | 2.439 |
| 80 | 7.75 | | 0.43 | | 6.65 | 79.3 | 1914.9 | 1.8 | 17.2 | 1.4 | 2.519 |
| 82 | 9.31 | | 0.88 | | 8.21 | 86.5 | 1907.8 | 2.0 | 11.6 | 1.3 | 2.602 |
| 84 | 8.78 | | 0.46 | | 7.67 | 94.8 | 1899.5 | 2.6 | 9.7 | 0.9 | 2.683 |
| 86 | 8.53 | | 0.58 | | 7.43 | 108.8 | 1885.5 | 3.7 | 7.2 | 0.8 | 2.783 |
| 88 | 6.55 | | 0.44 | | 5.44 | 148.6 | 1845.6 | 11.0 | 4.5 | 0.9 | 2.961 |
| 90 | 2.82 | | 0.39 | | 1.71 | 180.4 | 1813.8 | 26.8 | 4.6 | 2.5 | 3.106 |
| 92 | 2.20 | | 0.36 | | 1.10 | 217.6 | 1776.7 | 82.0 | 2.5 | 3.5 | 3.197 |
| 94 | 1.53 | | 0.36 | | 0.42 | | | | | | 3.307 |
| 96 | 1.00 | | 0.35 | | 0.00 | | | | | | 3.481 |
| 98 | 0.73 | | 0.35 | | 0.00 | | | | | | 3.581 |
| 100 | 1.43 | | 0.37 | | 0.00 | | | | | | 3.705 |
| 108 | 1.56 | | 0.39 | | 0.00 | | | | | | 3.800 |
| 112 | 0.89 | | 0.38 | | 0.00 | | | | | | 3.918 |
| 116 | 1.05 | | 0.37 | | 0.00 | | | | | | 4.027 |

**Radiometric data, Phase II Core, LG-3H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 23.95 | 2.43 | 1.46 | 0.25 | 22.63 | 2.45 | 1993.2 | 0.86 | 15.2 | 1.11 | 0.037 |
| 4 | 16.21 | 2.54 | 0.72 | 0.14 | 14.77 | 3.97 | 1991.6 | 0.88 | 21.9 | 1.25 | 0.070 |
| 6 | 14.39 | 2.06 | 0.97 | 0.20 | 12.98 | 5.61 | 1990.0 | 0.90 | 23.7 | 2.03 | 0.110 |
| 8 | 15.41 | 2.42 | 1.05 | 0.22 | 13.96 | 8.18 | 1987.4 | 0.91 | 20.7 | 1.78 | 0.163 |
| 10 | 15.96 | 2.61 | 1.24 | 0.27 | 14.56 | 10.67 | 1984.9 | 0.93 | 18.3 | 1.80 | 0.208 |
| 12 | 11.97 | 2.86 | 0.84 | 0.22 | 10.48 | 13.26 | 1982.3 | 0.94 | 23.5 | 2.19 | 0.269 |
| 14 | 13.76 | 3.63 | 0.81 | 0.22 | 12.33 | 16.76 | 1978.8 | 0.98 | 18.2 | 1.42 | 0.333 |
| 16 | 11.85 | 4.08 | 0.82 | 0.25 | 10.36 | 19.65 | 1976.0 | 1.00 | 19.6 | 1.82 | 0.389 |
| 18 | 10.63 | 3.13 | 0.83 | 0.24 | 9.13 | 22.72 | 1972.9 | 1.02 | 20.3 | 2.15 | 0.451 |
| 20 | 10.71 | 2.65 | 0.74 | 0.19 | 9.21 | 26.40 | 1969.2 | 1.05 | 18.1 | 1.74 | 0.518 |
| 22 | 9.95 | 2.44 | 0.77 | 0.20 | 8.44 | 30.14 | 1965.5 | 1.07 | 17.6 | 1.89 | 0.584 |
| 24 | 8.42 | 1.87 | 0.69 | 0.17 | 6.92 | 33.93 | 1961.7 | 1.07 | 19.1 | 2.34 | 0.656 |
| 26 | 10.17 | 1.16 | 0.49 | 0.08 | 8.66 | 38.72 | 1956.9 | 1.15 | 13.3 | 0.98 | 0.720 |
| 28 | 8.32 | 1.38 | 0.45 | 0.09 | 6.81 | 44.00 | 1951.6 | 1.23 | 14.5 | 1.25 | 0.796 |
| 30 | 8.99 | 1.25 | 0.47 | 0.09 | 7.47 | 50.23 | 1945.4 | 1.36 | 11.1 | 0.93 | 0.865 |
| 32 | 8.75 | 0.99 | 0.50 | 0.08 | 7.24 | 58.08 | 1937.5 | 1.52 | 9.2 | 0.88 | 0.937 |
| 34 | 7.39 | 1.18 | 0.42 | 0.08 | 5.86 | 66.64 | 1929.0 | 1.76 | 8.8 | 0.90 | 1.013 |
| 36 | 8.10 | 1.18 | 0.40 | 0.07 | 6.57 | 84.32 | 1911.3 | 2.49 | 5.3 | 0.58 | 1.105 |
| 38 | 6.53 | 0.79 | 0.40 | 0.07 | 4.99 | 106.16 | 1889.4 | 3.95 | 3.8 | 0.60 | 1.188 |
| 40 | 5.70 | 0.40 | 0.36 | 0.05 | 4.14 | 164.60 | 1831.0 | 17.83 | 1.5 | 0.49 | 1.273 |
| 42 | 2.17 | 0.24 | 0.24 | 0.03 | 0.56 | | | | | | 1.394 |
| 44 | 1.42 | 0.46 | 0.22 | 0.04 | 0.00 | | | | | | 1.475 |
| 46 | 1.81 | 0.29 | 0.23 | 0.03 | | | | | | | 1.552 |

**Radiometric data, Phase II Core, LG-7H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg $cm^{-2}$ $yr^{-1}$) | MSR Error | Cum Mass (g $cm^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 14.68 | 3.05 | 1.09 | 0.22 | 12.86 | 0.48 | 1995.3 | 0.71 | 52.6 | 4.70 | 0.025 |
| 4 | 17.63 | 2.92 | 1.26 | 0.25 | 15.81 | 1.39 | 1994.4 | 0.72 | 41.8 | 3.53 | 0.063 |
| 6 | 16.21 | 2.57 | 1.32 | 0.24 | 14.40 | 1.91 | 1993.9 | 0.72 | 44.9 | 4.36 | 0.087 |
| 8 | 16.14 | 2.85 | 0.76 | 0.14 | 14.33 | 2.62 | 1993.2 | 0.73 | 44.3 | 2.59 | 0.118 |
| 10 | 11.08 | 2.93 | 1.05 | 0.24 | 9.25 | 3.26 | 1992.5 | 0.73 | 67.2 | 8.01 | 0.161 |
| 12 | 11.05 | 2.80 | 0.93 | 0.21 | 9.22 | 4.16 | 1991.6 | 0.74 | 65.8 | 6.99 | 0.221 |
| 14 | 13.80 | 2.91 | 1.06 | 0.22 | 11.98 | 5.13 | 1990.7 | 0.74 | 49.2 | 4.62 | 0.268 |
| 16 | 12.37 | 2.40 | 1.01 | 0.20 | 10.54 | 6.33 | 1989.5 | 0.75 | 54.0 | 5.53 | 0.333 |
| 18 | 10.49 | 2.97 | 0.88 | 0.21 | 8.67 | 7.36 | 1988.4 | 0.75 | 63.5 | 7.04 | 0.398 |
| 20 | 7.99 | 3.46 | 0.83 | 0.23 | 6.15 | 8.25 | 1987.6 | 0.75 | 86.8 | 12.74 | 0.475 |
| 22 | 9.72 | 3.48 | 0.92 | 0.24 | 7.89 | 9.21 | 1986.6 | 0.76 | 65.7 | 8.20 | 0.538 |
| 24 | 11.05 | 3.17 | 0.99 | 0.02 | 9.23 | 10.57 | 1985.2 | 0.76 | 54.2 | 6.19 | 0.612 |
| 26 | 11.98 | 2.78 | 0.89 | 0.20 | 10.17 | 12.12 | 1983.7 | 0.77 | 47.0 | 4.46 | 0.685 |
| 28 | 8.32 | 4.01 | 0.85 | 0.25 | 6.54 | 12.96 | 1982.8 | 0.77 | 70.4 | 10.02 | 0.744 |
| 30 | 10.39 | 4.35 | 0.69 | 0.18 | 8.55 | 14.33 | 1981.5 | 0.78 | 52.1 | 4.63 | 0.815 |
| 32 | 10.97 | 4.06 | 0.70 | 0.18 | 9.14 | 15.93 | 1979.9 | 0.80 | 46.5 | 3.97 | 0.890 |
| 34 | 8.16 | 4.34 | 0.65 | 0.19 | 6.32 | 17.20 | 1978.6 | 0.81 | 64.3 | 7.19 | 0.971 |
| 36 | 10.55 | 4.62 | 0.65 | 0.18 | 8.72 | 18.64 | 1977.2 | 0.82 | 44.7 | 3.72 | 1.036 |
| 38 | 11.87 | 4.71 | 0.69 | 0.19 | 10.05 | 20.60 | 1975.2 | 0.84 | 36.8 | 2.83 | 1.108 |
| 40 | 10.65 | 4.93 | 0.63 | 0.17 | 8.82 | 22.72 | 1973.1 | 0.86 | 39.3 | 3.17 | 1.192 |
| 42 | 9.45 | 4.90 | 0.64 | 0.18 | 7.62 | 24.41 | 1971.4 | 0.88 | 42.9 | 4.03 | 1.264 |
| 44 | 9.62 | 4.86 | 0.63 | 0.19 | 7.84 | 26.43 | 1969.4 | 0.90 | 39.4 | 3.61 | 1.343 |
| 46 | 12.44 | 3.66 | 0.91 | 0.01 | 10.63 | 29.94 | 1965.9 | 0.92 | 26.7 | 2.60 | 1.437 |
| 48 | 9.76 | 4.17 | 0.70 | 0.19 | 8.00 | 32.62 | 1963.2 | 0.94 | 32.2 | 3.23 | 1.523 |
| 50 | 9.06 | 3.20 | 0.95 | 0.02 | 7.23 | 34.54 | 1961.3 | 0.94 | 33.1 | 4.73 | 1.587 |
| 52 | 10.51 | 1.70 | 0.66 | 0.12 | 8.74 | 37.50 | 1958.3 | 0.98 | 25.4 | 2.21 | 1.662 |
| 54 | 11.26 | 2.59 | 0.65 | 0.01 | 9.44 | 41.03 | 1954.8 | 1.03 | 21.2 | 1.72 | 1.737 |
| 56 | 11.77 | 1.81 | 0.70 | 0.12 | 10.02 | 45.91 | 1949.9 | 1.09 | 17.6 | 1.49 | 1.823 |
| 58 | 10.26 | 0.96 | 0.63 | 0.01 | 8.44 | 50.55 | 1945.3 | 1.17 | 18.0 | 1.62 | 1.906 |
| 60 | 11.02 | 0.95 | 0.60 | 0.08 | 9.26 | 56.09 | 1939.7 | 1.29 | 14.0 | 1.15 | 1.983 |

**Radiometric data, Phase II Core, LG-7H, Continued**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | 8.80 | 0.64 | 0.56 | 0.01 | 6.97 | 61.20 | 1934.6 | 1.40 | 15.7 | 1.59 | 2.064 |
| 64 | 11.95 | 0.61 | 0.62 | 0.07 | 10.21 | 70.39 | 1925.4 | 1.68 | 8.6 | 0.75 | 2.143 |
| 66 | 9.48 | 0.57 | 0.55 | 0.01 | 7.66 | 81.20 | 1914.6 | 2.08 | 8.4 | 0.89 | 2.234 |
| 68 | 7.91 | 0.70 | 0.55 | 0.07 | 6.12 | 91.55 | 1904.3 | 2.59 | 7.6 | 1.01 | 2.313 |
| 70 | 7.73 | 0.75 | 0.73 | 0.01 | 5.90 | 109.41 | 1886.4 | 3.18 | 5.1 | 1.02 | 2.404 |
| 72 | 6.70 | 0.71 | 0.45 | 0.06 | 4.89 | 129.19 | 1866.6 | 5.19 | 3.4 | 0.64 | 2.472 |
| 74 | 4.61 | 0.77 | 0.46 | 0.01 | 2.77 | 159.78 | 1836.0 | 9.90 | 2.8 | 1.05 | 2.559 |
| 76 | 3.39 | 0.50 | 0.39 | 0.01 | 1.54 | | | | | 1.25 | 2.657 |
| 78 | 1.30 | 0.51 | 0.38 | 0.01 | 0.00 | | | | | | 2.751 |

**Radiometric data, Phase II Core, LG-16H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 16.56 | 2.89 | 0.88 | 0.18 | 14.77 | 4.28 | 1991.5 | 1.72 | 20.7 | 1.56 | 0.089 |
| 8 | 17.48 | 2.72 | 1.11 | 0.22 | 15.69 | 8.44 | 1987.4 | 1.83 | 17.1 | 1.51 | 0.160 |
| 12 | 13.72 | 1.88 | 0.94 | 0.17 | 11.93 | 13.60 | 1982.2 | 1.97 | 19.5 | 1.98 | 0.260 |
| 16 | 9.70 | 1.75 | 0.67 | 0.13 | 7.91 | 21.02 | 1974.8 | 2.20 | 24.2 | 2.75 | 0.439 |
| 20 | 6.64 | 0.63 | 0.70 | 0.09 | 4.85 | 31.31 | 1964.5 | 2.18 | 30.0 | 5.61 | 0.748 |
| 24 | 7.66 | 0.74 | 0.70 | 0.10 | 5.87 | 37.47 | 1958.3 | 2.38 | 19.1 | 2.89 | 0.866 |
| 28 | 6.12 | 0.53 | 0.47 | 0.06 | 4.33 | 43.21 | 1952.6 | 2.64 | 21.5 | 3.08 | 0.989 |
| 32 | 6.38 | 0.92 | 0.48 | 0.07 | 4.59 | 53.36 | 1942.4 | 3.20 | 15.9 | 2.47 | 1.151 |
| 36 | 6.11 | 0.64 | 0.50 | 0.06 | 4.32 | 70.09 | 1925.7 | 4.44 | 11.2 | 2.19 | 1.338 |
| 40 | 6.03 | 0.54 | 0.68 | 0.09 | 4.24 | 106.95 | 1888.9 | 6.90 | 5.2 | 1.87 | 1.529 |
| 44 | 2.73 | 0.44 | 0.39 | 0.05 | 0.93 | 116.65 | 1879.2 | 7.79 | 10.8 | 6.17 | 1.634 |
| 48 | 3.06 | 0.20 | 0.34 | 0.03 | 1.27 | 137.86 | 1857.9 | 12.23 | 5.0 | 2.55 | 1.740 |
| 52 | 3.18 | 0.33 | 0.50 | 0.06 | 1.39 | | | | | | 1.843 |

**Radiometric data, Phase I Core, LG-26H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 19.10 | 3.40 | 2.05 | 0.33 | 17.65 | 4.6 | 1989.8 | 2.59 | 13.32 | 1.94 | 0.061 |
| 6 | 16.07 | 2.46 | 2.39 | 0.41 | 14.60 | 7.3 | 1987.0 | 2.67 | 14.36 | 2.77 | 0.100 |
| 8 | 11.82 | 2.83 | 1.42 | 0.24 | 10.31 | 9.3 | 1985.0 | 2.75 | 18.88 | 3.12 | 0.138 |
| 10 | 15.92 | 2.08 | 1.19 | 0.19 | 14.45 | 13.4 | 1980.9 | 2.96 | 12.26 | 1.44 | 0.188 |
| 12 | 12.45 | 2.72 | 1.64 | 0.28 | 10.96 | 16.3 | 1978.0 | 3.11 | 14.50 | 2.68 | 0.230 |
| 14 | 14.18 | 2.52 | 1.41 | 0.24 | 12.70 | 20.3 | 1974.0 | 3.36 | 11.24 | 1.71 | 0.275 |
| 16 | 13.34 | 2.73 | 1.38 | 0.24 | 11.86 | 27.0 | 1967.3 | 3.83 | 10.20 | 1.73 | 0.344 |
| 18 | 11.07 | 3.24 | 1.52 | 0.27 | 9.57 | 33.3 | 1961.0 | 4.35 | 10.32 | 2.26 | 0.408 |
| 20 | 10.14 | 4.06 | 1.28 | 0.25 | 8.63 | 39.6 | 1954.7 | 5.03 | 9.40 | 2.09 | 0.468 |
| 22 | 8.72 | 4.58 | 1.45 | 0.28 | 7.20 | 45.7 | 1948.6 | 5.78 | 9.30 | 2.67 | 0.524 |
| 24 | 9.93 | 3.89 | 1.21 | 0.24 | 8.42 | 58.6 | 1935.7 | 8.06 | 5.95 | 1.67 | 0.601 |
| 26 | 5.40 | 2.71 | 1.39 | 0.25 | 3.84 | 68.8 | 1925.5 | 9.90 | 9.06 | 4.89 | 0.694 |
| 28 | 5.13 | 0.99 | 1.00 | 0.16 | 3.57 | 86.1 | 1908.2 | 15.23 | 6.41 | 3.56 | 0.804 |
| 30 | 4.30 | 0.83 | 1.44 | 0.22 | 2.73 | 107.6 | 1886.7 | 24.01 | 4.61 | 4.66 | 0.903 |
| 32 | 3.84 | 0.52 | 1.21 | 0.18 | 2.27 | 158.3 | 1836.0 | 91.82 | 1.96 | 3.67 | 1.003 |
| 34 | 2.22 | 0.07 | 1.20 | 0.18 | 0.65 | | | | | | 1.093 |
| 36 | 1.63 | 0.42 | 1.17 | 0.18 | | | | | | | 1.184 |
| 38 | 1.76 | 0.61 | 1.25 | 0.18 | | | | | | | 1.281 |
| 40 | 1.38 | 0.70 | 1.62 | 0.23 | | | | | | | 1.384 |
| 42 | 3.79 | 0.58 | 1.17 | 0.18 | | | | | | | 1.488 |
| 44 | 1.10 | 0.44 | 1.04 | 0.15 | | | | | | | 1.586 |
| 46 | 3.54 | 0.62 | 1.11 | 0.16 | | | | | | | 1.689 |

**Radiometric data, Phase I Core, LG-41H.**

| Depth (cm) | Total $^{210}$Pb (dpm/g) | $^{137}$Cs (dpm/g) | $^{210}$Pb Error (dpm/g) | $^{137}$Cs Error | Excess $^{210}$Pb | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 16.68 | 2.88 | 2.27 | 0.37 | 15.05 | | | | | | 0.070 |
| 8 | 16.28 | 3.54 | 2.00 | 0.34 | 15.72 | | | | | | 0.160 |
| 12 | 13.08 | 2.78 | 2.22 | 0.37 | 12.13 | | | | | | 0.270 |
| 16 | 16.94 | 3.41 | 2.37 | 0.38 | 17.35 | | | | | | 0.380 |
| 20 | 17.68 | 3.81 | 2.04 | 0.34 | 16.34 | | | | | | 0.490 |
| 24 | 17.33 | 3.10 | 2.49 | 0.43 | 16.86 | | | | | | 0.600 |
| 28 | 19.52 | 2.85 | 2.20 | 0.37 | 17.55 | | | | | | 0.730 |
| 32 | 11.97 | 4.34 | 2.16 | 0.39 | 9.40 | | | | | | 0.850 |
| 36 | 13.21 | 5.04 | 2.13 | 0.41 | 12.86 | | | | | | 1.000 |
| 40 | 15.24 | 5.04 | 2.12 | 0.39 | 13.00 | | | | | | 1.150 |
| 44 | 10.39 | 0.20 | 2.11 | 0.30 | 9.18 | | | | | | 1.310 |
| 48 | 8.13 | 4.63 | 2.15 | 0.40 | 6.62 | | | | | | 1.490 |
| 52 | 9.11 | 4.83 | 2.21 | 0.40 | 7.53 | | | | | | 1.640 |
| 56 | 9.22 | 5.00 | 2.11 | 0.40 | 8.96 | | | | | | 1.770 |
| 60 | 9.51 | 5.65 | 2.17 | 0.41 | 7.30 | | | | | | 1.930 |
| 64 | 11.71 | 5.23 | 1.91 | 0.35 | 10.98 | | | | | | 2.090 |
| 68 | 11.26 | 5.14 | 2.19 | 0.40 | 10.35 | | | | | | 2.270 |
| 72 | 8.35 | 5.44 | 1.47 | 0.29 | 7.43 | | | | | | 2.440 |
| 76 | 9.15 | 5.71 | 1.55 | 0.31 | 7.86 | | | | | | 2.630 |
| 78 | 5.72 | 5.79 | 1.61 | 0.32 | 5.00 | | | | | | 2.730 |

Note: Excess activity was determined using nominal values for $^{226}$Ra activity. Core was too short to reach depths of supported $^{210}$Pb activity.

**Radiometric data, Phase I Core, LG-42H.** Note: Sections deeper than 52 cm were combined for radiometric analysis.

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 28.29 | 3.03 | 3.33 | 0.48 | 28.13 | 0.6 | 1993.7 | 1.2 | 46.1 | 6.2 | 0.027 |
| 6 | 24.09 | 1.58 | 6.70 | 0.91 | 22.54 | 0.9 | 1993.4 | 1.2 | 53.9 | 16.8 | 0.045 |
| 8 | 23.07 | 2.99 | 2.16 | 0.33 | 22.65 | 1.5 | 1992.8 | 1.2 | 55.6 | 6.1 | 0.077 |
| 10 | 25.34 | 3.06 | 2.64 | 0.40 | 24.22 | 2.3 | 1992.0 | 1.2 | 49.3 | 6.0 | 0.118 |
| 12 | 20.03 | 2.75 | 1.87 | 0.28 | 19.35 | 3.2 | 1991.1 | 1.2 | 61.6 | 6.8 | 0.171 |
| 14 | 23.82 | 3.02 | 2.00 | 0.30 | 22.42 | 4.2 | 1990.2 | 1.2 | 49.8 | 4.9 | 0.219 |
| 16 | 22.63 | 3.03 | 1.49 | 0.23 | 21.15 | 5.0 | 1989.3 | 1.2 | 51.1 | 4.1 | 0.264 |
| 18 | 16.25 | 2.73 | 1.83 | 0.29 | 14.26 | 5.8 | 1988.5 | 1.3 | 71.1 | 9.5 | 0.319 |
| 20 | 21.95 | 3.04 | 1.85 | 0.29 | 20.41 | 7.0 | 1987.3 | 1.3 | 49.8 | 5.0 | 0.381 |
| 22 | 20.80 | 3.28 | 2.26 | 0.27 | 19.89 | 8.3 | 1986.0 | 1.3 | 50.8 | 6.4 | 0.444 |
| 24 | 18.18 | 2.26 | 1.65 | 0.24 | 17.65 | 9.5 | 1984.8 | 1.3 | 56.4 | 6.2 | 0.512 |
| 26 | 22.38 | 2.80 | 1.60 | 0.25 | 20.70 | 11.1 | 1983.2 | 1.4 | 43.2 | 3.8 | 0.583 |
| 28 | 20.83 | 3.13 | 1.42 | 0.23 | 19.54 | 12.7 | 1981.6 | 1.4 | 44.3 | 3.8 | 0.653 |
| 30 | 21.47 | 2.96 | 1.87 | 0.29 | 21.03 | 14.6 | 1979.7 | 1.4 | 40.7 | 4.3 | 0.728 |
| 32 | 19.07 | 3.47 | 1.85 | 0.29 | 17.60 | 16.4 | 1977.9 | 1.5 | 43.6 | 5.2 | 0.807 |
| 34 | 20.38 | 3.89 | 1.79 | 0.29 | 19.44 | 18.3 | 1976.0 | 1.5 | 38.3 | 4.2 | 0.880 |
| 36 | 19.42 | 3.63 | 1.67 | 0.26 | 19.19 | 20.2 | 1974.1 | 1.6 | 38.0 | 4.1 | 0.953 |
| 38 | 12.47 | 2.12 | 1.28 | 0.20 | 11.65 | 21.5 | 1972.8 | 1.6 | 58.8 | 7.7 | 1.027 |
| 40 | 14.27 | 2.17 | 1.51 | 0.23 | 12.60 | 22.9 | 1971.4 | 1.7 | 48.3 | 6.5 | 1.097 |
| 42 | 16.55 | 3.93 | 1.71 | 0.29 | 14.64 | 25.2 | 1969.1 | 1.8 | 38.7 | 5.1 | 1.187 |
| 44 | 18.09 | 4.46 | 1.91 | 0.32 | 16.48 | 28.2 | 1966.1 | 1.9 | 32.4 | 4.4 | 1.282 |
| 46 | 17.45 | 4.53 | 1.67 | 0.28 | 15.71 | 30.8 | 1963.5 | 2.0 | 30.9 | 3.9 | 1.364 |
| 48 | 18.06 | 4.62 | 2.21 | 0.38 | 16.04 | 33.3 | 1961.0 | 2.1 | 27.4 | 4.3 | 1.431 |
| 50 | 21.75 | 4.41 | 2.08 | 0.35 | 20.03 | 37.1 | 1957.2 | 2.2 | 20.4 | 2.7 | 1.509 |
| 52 | 17.21 | 4.82 | 1.33 | 0.24 | 16.49 | 40.1 | 1954.2 | 2.4 | 23.5 | 2.7 | 1.580 |
| 56 | 14.53 | 4.26 | 1.34 | 0.24 | 12.86 | 47.2 | 1947.1 | 2.8 | 24.2 | 3.5 | 1.751 |
| 60 | 11.06 | 3.06 | 1.38 | 0.22 | 10.02 | 53.4 | 1940.9 | 3.2 | 26.7 | 5.0 | 1.918 |
| 64 | 16.83 | 3.99 | 1.38 | 0.24 | 15.99 | 67.6 | 1926.7 | 4.6 | 12.3 | 2.0 | 2.092 |
| 68 | 10.59 | 3.41 | 1.39 | 0.24 | 8.96 | 79.1 | 1915.2 | 6.1 | 13.7 | 3.5 | 2.250 |
| 72 | 5.75 | 0.02 | 1.20 | 0.17 | 5.06 | 94.4 | 1899.9 | 8.0 | 19.1 | 8.3 | 2.542 |
| 76 | 5.70 | 0.35 | 1.13 | 0.16 | 4.63 | 130.4 | 1863.9 | 16.0 | 9.1 | 5.6 | 2.868 |
| 80 | 3.58 | 0.93 | 1.29 | 0.18 | 2.76 | 173.4 | 1820.9 | 24.0 | 5.3 | 7.6 | 3.096 |

**Radiometric data, Phase II Core, LG-43H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 20.57 | 3.89 | 1.14 | 0.25 | 17.19 | 1.49 | 1994.3 | 0.98 | 27.2 | 1.99 | 0.041 |
| 4 | 16.27 | 3.63 | 0.98 | 0.23 | 12.89 | 2.83 | 1993.0 | 1.00 | 34.7 | 2.88 | 0.087 |
| 6 | 17.56 | 3.83 | 1.13 | 0.26 | 14.18 | 4.49 | 1991.3 | 1.02 | 30.1 | 2.62 | 0.137 |
| 8 | 17.33 | 3.20 | 1.21 | 0.26 | 13.95 | 5.94 | 1989.9 | 1.03 | 29.2 | 2.72 | 0.180 |
| 10 | 15.41 | 3.55 | 0.96 | 0.23 | 12.04 | 7.86 | 1987.9 | 1.06 | 32.1 | 2.77 | 0.241 |
| 12 | 15.65 | 4.19 | 1.16 | 0.29 | 12.29 | 9.85 | 1986.0 | 1.08 | 29.6 | 3.11 | 0.300 |
| 14 | 17.43 | 4.87 | 0.90 | 0.23 | 14.06 | 12.32 | 1983.5 | 1.12 | 24.1 | 1.77 | 0.360 |
| 16 | 17.56 | 4.67 | 0.88 | 0.22 | 14.19 | 15.38 | 1980.4 | 1.17 | 21.9 | 1.61 | 0.427 |
| 18 | 17.73 | 5.58 | 0.63 | 0.17 | 14.37 | 18.66 | 1977.1 | 1.25 | 19.6 | 1.13 | 0.491 |
| 20 | 12.81 | 5.67 | 0.82 | 0.26 | 9.45 | 21.51 | 1974.3 | 1.30 | 27.1 | 2.77 | 0.568 |
| 22 | 14.28 | 6.21 | 0.69 | 0.21 | 10.92 | 25.03 | 1970.8 | 1.39 | 21.3 | 1.67 | 0.643 |
| 24 | 14.31 | 6.21 | 0.65 | 0.19 | 10.95 | 29.16 | 1966.6 | 1.52 | 18.8 | 1.45 | 0.721 |
| 26 | 15.59 | 7.46 | 1.12 | 0.38 | 12.23 | 35.04 | 1960.8 | 1.65 | 14.4 | 1.64 | 0.806 |
| 28 | 14.81 | 5.99 | 0.70 | 0.21 | 11.45 | 41.75 | 1954.1 | 1.92 | 12.7 | 1.11 | 0.891 |
| 30 | 12.79 | 5.83 | 0.78 | 0.25 | 9.44 | 49.00 | 1946.8 | 2.24 | 12.4 | 1.43 | 0.981 |
| 32 | 12.36 | 5.84 | 0.70 | 0.22 | 8.99 | 57.19 | 1938.6 | 2.74 | 10.2 | 1.22 | 1.064 |
| 34 | 9.13 | 3.80 | 0.62 | 0.17 | 5.77 | 67.68 | 1928.1 | 3.48 | 11.9 | 1.93 | 1.190 |
| 36 | 4.96 | 3.04 | 0.46 | 0.14 | 1.61 | 71.36 | 1924.4 | 3.70 | 34.3 | 11.54 | 1.316 |
| 38 | 4.89 | 4.39 | 0.51 | 0.17 | 1.53 | 74.87 | 1920.9 | 3.92 | 32.0 | 12.20 | 1.428 |
| 40 | 6.68 | 3.88 | 0.83 | 0.27 | 3.32 | 82.71 | 1913.1 | 4.42 | 12.5 | 3.96 | 1.526 |
| 42 | 6.22 | 3.34 | 0.59 | 0.16 | 2.86 | 90.31 | 1905.5 | 5.28 | 11.4 | 3.20 | 1.612 |
| 44 | 6.71 | 2.79 | 0.80 | 0.21 | 3.35 | 105.35 | 1890.5 | 6.90 | 6.9 | 2.55 | 1.716 |
| 46 | 4.59 | 3.14 | 0.55 | 0.16 | 1.23 | 112.74 | 1883.1 | 7.74 | 13.0 | 7.54 | 1.812 |
| 48 | 6.53 | 3.34 | 0.70 | 0.21 | 3.17 | 142.54 | 1853.3 | 15.79 | 2.9 | 1.51 | 1.900 |
| 50 | 5.36 | 3.51 | 0.56 | 0.17 | 2.01 | | | | | | 1.990 |
| 52 | 1.95 | 3.11 | 0.43 | 0.15 | 0.00 | | | | | | 2.078 |
| 54 | 3.70 | 2.73 | 0.52 | 0.15 | 0.00 | | | | | | 2.187 |
| 56 | 1.97 | 2.92 | 0.48 | 0.16 | 0.00 | | | | | | 2.282 |
| 58 | 4.63 | 2.74 | 0.72 | 0.22 | 0.00 | | | | | | 2.385 |
| 60 | 3.12 | 2.80 | 0.51 | 0.15 | 0.00 | | | | | | 2.493 |

**Radiometric data, Phase II Core, LG-43H, Continued.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg $cm^{-2}$ $yr^{-1}$) | MSR Error | Cum Mass (g $cm^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | 2.91 | 2.32 | 0.47 | 0.13 | 0.00 | | | | | | 2.611 |
| 64 | 3.40 | 2.31 | 0.41 | 0.11 | 0.00 | | | | | | 2.718 |
| 66 | 2.66 | 3.13 | 0.51 | 0.16 | 0.00 | | | | | | 2.816 |
| 68 | 3.72 | 3.34 | 0.55 | 0.16 | | | | | | | 2.913 |
| 70 | 1.96 | 3.22 | 0.48 | 0.15 | | | | | | | 3.011 |
| 72 | 3.88 | 3.02 | 0.55 | 0.16 | | | | | | | 3.104 |
| 74 | 5.60 | 3.17 | 0.59 | 0.16 | | | | | | | 3.207 |
| 76 | 2.48 | 2.50 | 0.70 | 0.21 | | | | | | | 3.287 |
| 78 | 5.01 | 3.46 | 0.57 | 0.17 | | | | | | | 3.378 |

**Radiometric data, Phase II Core, LG-44H.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 14.80 | 3.79 | 1.02 | 0.26 | 11.78 | 0.38 | 1995.2 | 0.58 | 82.1 | 7.72 | 0.031 |
| 4 | 17.99 | 3.77 | 1.06 | 0.25 | 14.99 | 0.96 | 1994.6 | 0.58 | 63.5 | 4.82 | 0.068 |
| 6 | 15.39 | 3.05 | 1.44 | 0.33 | 12.38 | 1.46 | 1994.1 | 0.58 | 75.7 | 10.05 | 0.106 |
| 8 | 15.13 | 3.03 | 1.15 | 0.27 | 12.12 | 2.09 | 1993.5 | 0.59 | 75.9 | 7.89 | 0.154 |
| 10 | 15.76 | 3.19 | 0.91 | 0.21 | 12.75 | 2.92 | 1992.7 | 0.59 | 70.6 | 5.47 | 0.212 |
| 12 | 17.25 | 3.52 | 1.13 | 0.27 | 14.25 | 3.74 | 1991.9 | 0.60 | 61.5 | 5.27 | 0.263 |
| 14 | 14.91 | 3.92 | 1.10 | 0.29 | 11.89 | 4.50 | 1991.1 | 0.60 | 71.9 | 7.32 | 0.318 |
| 16 | 16.49 | 3.27 | 0.88 | 0.20 | 13.48 | 5.39 | 1990.2 | 0.60 | 61.8 | 4.39 | 0.373 |
| 18 | 16.97 | 3.63 | 0.61 | 0.14 | 13.98 | 6.42 | 1989.2 | 0.61 | 57.9 | 2.86 | 0.432 |
| 20 | 17.76 | 3.80 | 1.11 | 0.27 | 14.78 | 7.61 | 1988.0 | 0.62 | 52.9 | 4.40 | 0.495 |
| 22 | 15.59 | 3.23 | 0.90 | 0.21 | 12.59 | 8.68 | 1986.9 | 0.62 | 59.9 | 4.68 | 0.559 |
| 24 | 12.04 | 4.02 | 0.82 | 0.24 | 9.00 | 9.58 | 1986.0 | 0.63 | 81.3 | 8.23 | 0.633 |
| 26 | 13.52 | 3.87 | 0.97 | 0.26 | 10.50 | 10.76 | 1984.8 | 0.63 | 67.5 | 6.86 | 0.712 |
| 28 | 13.39 | 4.33 | 0.88 | 0.26 | 10.42 | 11.87 | 1983.7 | 0.64 | 65.6 | 6.17 | 0.785 |
| 30 | 15.70 | 4.46 | 0.61 | 0.17 | 12.77 | 13.49 | 1982.1 | 0.65 | 51.3 | 2.82 | 0.868 |
| 32 | 13.48 | 4.55 | 0.71 | 0.20 | 10.45 | 14.95 | 1980.7 | 0.66 | 59.8 | 4.55 | 0.955 |
| 34 | 13.98 | 5.30 | 0.78 | 0.23 | 10.95 | 16.75 | 1978.9 | 0.67 | 54.2 | 4.33 | 1.053 |
| 36 | 13.17 | 4.75 | 0.65 | 0.18 | 10.13 | 18.16 | 1977.4 | 0.68 | 55.7 | 4.02 | 1.132 |
| 38 | 13.41 | 4.15 | 0.96 | 0.28 | 10.39 | 20.19 | 1975.4 | 0.68 | 51.5 | 5.42 | 1.236 |
| 40 | 15.23 | 5.52 | 0.73 | 0.23 | 12.30 | 21.98 | 1973.6 | 0.69 | 41.0 | 2.84 | 1.309 |
| 42 | 15.80 | 4.80 | 0.72 | 0.20 | 12.84 | 24.12 | 1971.5 | 0.71 | 36.9 | 2.42 | 1.388 |
| 44 | 13.90 | 5.39 | 0.69 | 0.22 | 10.94 | 26.49 | 1969.1 | 0.73 | 40.4 | 3.02 | 1.484 |
| 46 | 14.47 | 5.57 | 0.73 | 0.22 | 11.50 | 28.26 | 1967.3 | 0.75 | 36.1 | 2.62 | 1.548 |
| 48 | 17.57 | 4.90 | 0.76 | 0.21 | 14.66 | 31.74 | 1963.9 | 0.78 | 26.1 | 1.64 | 1.639 |
| 50 | 15.81 | 5.06 | 0.66 | 0.17 | 12.80 | 34.38 | 1961.2 | 0.81 | 27.2 | 1.67 | 1.710 |

**Radiometric data, Phase II Core, LG-44H, Continued.**

| Depth (cm) | Total $^{210}Pb$ (dpm/g) | $^{137}Cs$ (dpm/g) | $^{210}Pb$ Error (dpm/g) | $^{137}Cs$ Error | Excess $^{210}Pb$ | Age (yr) | Date | Age Error | MSR (mg cm$^{-2}$ yr$^{-1}$) | MSR Error | Cum Mass (g cm$^{-2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | 14.53 | 5.22 | 0.68 | 0.20 | 11.56 | 37.35 | 1958.3 | 0.85 | 27.5 | 1.92 | 1.792 |
| 54 | 13.72 | 5.35 | 0.53 | 0.16 | 10.75 | 40.81 | 1954.8 | 0.91 | 26.8 | 1.64 | 1.885 |
| 56 | 15.02 | 5.47 | 0.67 | 0.20 | 12.05 | 44.38 | 1951.2 | 0.97 | 21.4 | 1.49 | 1.961 |
| 58 | 15.04 | 4.85 | 0.70 | 0.20 | 12.10 | 49.06 | 1946.5 | 1.04 | 18.8 | 1.38 | 2.049 |
| 60 | 13.31 | 5.11 | 0.72 | 0.21 | 10.28 | 54.40 | 1941.2 | 1.12 | 18.9 | 1.68 | 2.150 |
| 62 | 12.95 | 4.44 | 0.72 | 0.20 | 9.92 | 60.01 | 1935.6 | 1.22 | 16.5 | 1.52 | 2.243 |
| 64 | 13.50 | 4.75 | 0.66 | 0.19 | 10.48 | 67.72 | 1927.9 | 1.40 | 12.7 | 1.10 | 2.341 |
| 66 | 15.38 | 5.12 | 0.79 | 0.22 | 12.38 | 79.57 | 1916.0 | 1.72 | 8.0 | 0.76 | 2.436 |
| 68 | 13.84 | 4.90 | 0.64 | 0.19 | 10.83 | 92.22 | 1903.4 | 2.30 | 6.2 | 0.62 | 2.514 |
| 70 | 16.82 | 4.47 | 0.68 | 0.17 | 13.82 | 140.16 | 1855.4 | 8.28 | 2.1 | 0.35 | 2.614 |
| 72 | 4.64 | 1.60 | 0.32 | 0.08 | 1.53 | | | | | | 2.874 |
| 74 | 2.77 | 2.16 | 0.26 | 0.09 | 0.00 | | | | | | 3.040 |
| 76 | 2.77 | 3.60 | 0.38 | 0.17 | | | | | | | 3.153 |
| 78 | 4.14 | 4.37 | 0.43 | 0.18 | | | | | | | 3.258 |
| 80 | 2.82 | 3.95 | 0.39 | 0.15 | | | | | | | 3.363 |

# APPENDIX G

Microfossil data for diatoms from 3 historic cores
collected during Phase I and Phase II, Lake Griffin.
See Appendix A for collection date, location and description of cores.

## Key to taxonomic abbreviations in Appendix G.

| Abbreviation | Taxonomic name |
|---|---|
| NAVBAC | *Navicula bacillum* |
| NAVGOT | *Navicula gottlandica* |
| STAUPHGR | *Stauroneis phoenocenteron* var. *gracilis* |
| NEIIRAMH | *Neidium iridis* var. *amphigomphus* |
| PINSP | *Pinnularia sp.* |
| MASTSMLA | *Mastogloia smithii* var. *lacustris* |
| NAVOBL | *Navicula oblonga* |
| NAVSP | *Navicula sp.* |
| NAVRA | *Navicula radiosa* |
| NAVPURE | *Navicula pupula* var. *rectangularis* |
| NAVSEMIN | *Navicula seminulum* |
| PINVIR | *Pinnularia viridis* |
| CYCSTEL | *Cyclotella stelligera* |
| NAVRAPA | *Navicula radiosa* var. *parva* |
| SSRLPIN | *Staurosirella pinnata* |
| AULAITAL | *Aulacoseira italica* |
| PSSTBREV | *Pseudostaurosira brevistriata* |
| STASCONV | *Staurosira construens* var. *venter* |
| STASCON | *Staurosira construens* |
| AULAAM | *Aulacoseira ambigua* |
| NITZAM | *Nitzschia ambigua* |
| AULADIS | *Aulacoseira distans* |

Appendix G. Percentages of diatoms with >3% abundance in core LG-11.

| | Depth in sediment core (cm) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-2 | 2-4 | 4-6 | 8-10 | 12-14 | 16-18 | 18-20 | 20-22 | 24-26 | 28-30 | 32-34 | 40-42 | 48-50 | 52-54 | 56-58 | 64-66 | 68-70 |
| NAVBAC | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.789 | 1.597 | 1.782 | 2.128 | 2.874 |
| NAVGOT | 0.000 | 0.000 | 0.000 | 0.385 | 0.385 | 0.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.781 | 0.990 | 2.584 | 4.192 | 1.188 | 3.868 | 4.598 |
| STAUPHGR | 0.188 | 0.000 | 0.192 | 0.000 | 0.771 | 0.200 | 0.000 | 0.398 | 0.000 | 0.390 | 1.758 | 1.782 | 2.584 | 5.389 | 1.980 | 2.708 | 3.448 |
| NEIIRAMH | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.344 | 2.574 | 3.976 | 2.994 | 2.178 | 2.901 | 4.215 |
| PINSP | 0.188 | 0.207 | 0.000 | 0.000 | 0.000 | 0.200 | 0.000 | 0.398 | 0.402 | 0.780 | 2.344 | 0.990 | 2.783 | 3.194 | 0.990 | 0.000 | 0.383 |
| MASTSMLA | 0.188 | 0.000 | 0.000 | 0.000 | 0.193 | 0.000 | 0.000 | 0.000 | 0.000 | 0.390 | 0.977 | 1.782 | 2.783 | 2.595 | 2.178 | 0.967 | 1.341 |
| NAVOBL | 0.376 | 0.413 | 0.000 | 0.192 | 0.000 | 0.000 | 0.191 | 0.000 | 0.402 | 0.780 | 2.148 | 3.366 | 11.332 | 8.782 | 3.366 | 5.609 | 6.513 |
| NAVSP | 0.188 | 0.000 | 0.576 | 0.000 | 0.000 | 1.198 | 0.191 | 0.000 | 0.201 | 0.975 | 1.563 | 6.139 | 5.964 | 7.186 | 2.574 | 2.901 | 1.149 |
| NAVRA | 0.000 | 0.620 | 0.192 | 0.385 | 0.193 | 0.000 | 0.191 | 0.000 | 0.201 | 0.585 | 6.641 | 8.713 | 10.934 | 9.381 | 12.277 | 14.313 | 13.410 |
| NAVPURE | 0.376 | 0.000 | 0.000 | 0.000 | 0.000 | 0.200 | 0.191 | 0.398 | 0.402 | 0.780 | 3.320 | 9.307 | 11.928 | 3.992 | 5.743 | 9.091 | 6.130 |
| NAVSEMIN | 0.000 | 0.000 | 0.000 | 0.192 | 0.193 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.977 | 3.168 | 2.187 | 1.597 | 1.782 | 2.708 | 2.874 |
| PINVIR | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.344 | 3.366 | 3.380 | 3.393 | 3.366 | 2.901 | 3.640 |
| CYCSTEL | 7.519 | 3.926 | 1.727 | 0.385 | 0.578 | 0.599 | 0.382 | 0.000 | 1.207 | 0.390 | 3.516 | 4.356 | 3.976 | 4.591 | 3.960 | 3.675 | 3.831 |
| NAVRAPA | 0.376 | 0.000 | 0.000 | 0.000 | 0.578 | 0.000 | 0.382 | 0.000 | 1.006 | 1.559 | 5.078 | 5.941 | 3.380 | 2.395 | 2.970 | 4.836 | 6.705 |
| SSRLPIN | 2.820 | 1.653 | 1.919 | 4.423 | 0.771 | 9.182 | 5.153 | 12.724 | 11.871 | 11.696 | 5.859 | 3.564 | 0.000 | 0.200 | 0.000 | 0.000 | 0.192 |
| AULAITAL | 0.000 | 0.000 | 0.000 | 0.962 | 0.385 | 0.200 | 0.000 | 0.000 | 0.805 | 0.000 | 1.953 | 0.594 | 0.000 | 0.599 | 0.990 | 0.000 | 0.192 |
| PSSTBREV | 10.526 | 4.339 | 10.940 | 8.846 | 9.056 | 21.557 | 24.809 | 17.893 | 28.571 | 20.273 | 14.063 | 8.119 | 1.193 | 1.198 | 0.198 | 0.193 | 0.766 |
| STASCONV | 14.662 | 8.471 | 11.324 | 8.654 | 14.258 | 30.539 | 20.229 | 26.640 | 20.724 | 18.908 | 7.813 | 7.129 | 0.994 | 0.399 | 0.396 | 0.387 | 0.383 |
| STASCON | 4.135 | 1.033 | 2.495 | 6.154 | 2.697 | 3.393 | 4.771 | 3.579 | 4.628 | 8.967 | 3.516 | 0.990 | 2.982 | 0.998 | 0.396 | 2.515 | 1.149 |
| AULAAM | 49.436 | 67.562 | 60.461 | 59.808 | 61.850 | 26.747 | 37.405 | 32.604 | 25.553 | 26.901 | 22.461 | 16.436 | 9.742 | 15.170 | 39.010 | 24.758 | 20.498 |
| NITZAM | 2.820 | 1.240 | 1.919 | 3.846 | 0.771 | 0.998 | 2.672 | 2.386 | 0.000 | 1.559 | 0.977 | 2.178 | 2.386 | 3.792 | 2.574 | 2.515 | 1.724 |
| AULADIS | 1.692 | 4.959 | 4.607 | 2.308 | 3.854 | 1.597 | 1.527 | 0.398 | 1.006 | 2.144 | 1.953 | 0.396 | 1.193 | 0.000 | 0.792 | 0.193 | 0.383 |

Appendix G. Percentages of diatoms with >3% abundance in core LG-26.

| | Depth in sediment core (cm) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-2 | 4-6 | 6-8 | 8-10 | 10-12 | 12-14 | 14-16 | 20-22 | 22-24 | 24-26 | 26-28 | 28-30 | 34-36 | 38-40 | 46-48 |
| NAVBAC | 0.000 | 0.199 | 0.198 | 0.394 | 0.000 | 0.000 | 0.000 | 0.000 | 0.596 | 0.591 | 0.371 | 1.972 | 4.511 | 4.554 | 2.183 |
| NAVGOT | 0.196 | 0.199 | 0.198 | 0.000 | 0.990 | 0.000 | 0.369 | 0.527 | 0.199 | 0.394 | 0.371 | 0.592 | 1.692 | 2.376 | 2.778 |
| STAUPHGR | 0.196 | 0.598 | 0.000 | 0.000 | 0.396 | 0.000 | 0.554 | 0.000 | 0.795 | 0.591 | 1.113 | 1.578 | 3.947 | 2.574 | 2.183 |
| NEIIRAMH | 0.196 | 0.598 | 0.198 | 0.394 | 0.198 | 0.198 | 0.185 | 0.351 | 0.994 | 0.197 | 1.299 | 1.775 | 3.008 | 3.168 | 2.778 |
| PINSP | 0.196 | 0.000 | 0.198 | 0.197 | 0.198 | 0.198 | 0.000 | 0.176 | 0.000 | 0.394 | 1.299 | 2.564 | 0.564 | 0.990 | 0.000 |
| MASTSMLA | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.198 | 0.554 | 0.879 | 0.398 | 0.394 | 0.557 | 3.748 | 0.940 | 1.782 | 1.786 |
| NAVOBL | 0.196 | 0.199 | 0.000 | 0.000 | 0.000 | 0.395 | 0.369 | 0.000 | 0.596 | 0.591 | 1.484 | 4.536 | 5.075 | 6.337 | 6.746 |
| NAVSP | 0.589 | 0.398 | 0.198 | 0.591 | 0.396 | 0.000 | 0.369 | 0.176 | 0.199 | 0.394 | 2.968 | 1.381 | 3.759 | 3.168 | 4.563 |
| NAVRA | 0.786 | 0.398 | 0.397 | 0.984 | 1.188 | 0.198 | 0.923 | 0.351 | 0.398 | 0.787 | 3.896 | 5.720 | 9.211 | 7.525 | 9.127 |
| NAVPURE | 0.393 | 0.398 | 0.198 | 0.000 | 0.198 | 0.791 | 0.554 | 0.527 | 1.193 | 1.575 | 3.154 | 7.495 | 9.586 | 9.505 | 10.317 |
| NAVSEMIN | 0.000 | 0.000 | 0.198 | 0.197 | 0.594 | 0.000 | 0.000 | 0.176 | 0.199 | 0.787 | 2.041 | 2.367 | 2.820 | 1.584 | 3.373 |
| PINVIR | 0.393 | 0.398 | 0.000 | 0.000 | 0.396 | 0.395 | 0.000 | 0.000 | 0.994 | 0.394 | 1.855 | 1.578 | 3.571 | 2.178 | 2.976 |
| CYCSTEL | 1.768 | 2.988 | 1.190 | 1.575 | 1.386 | 0.198 | 0.369 | 0.176 | 0.994 | 0.197 | 0.742 | 3.156 | 1.504 | 2.376 | 2.778 |
| NAVRAPA | 0.000 | 0.199 | 0.397 | 0.000 | 0.000 | 0.198 | 0.185 | 0.527 | 0.000 | 0.197 | 2.412 | 1.972 | 0.188 | 0.792 | 2.976 |
| SSRLPIN | 0.982 | 0.797 | 0.397 | 0.984 | 1.188 | 0.395 | 2.583 | 4.569 | 2.187 | 1.575 | 0.371 | 0.592 | 0.000 | 0.198 | 0.397 |
| AULAITAL | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.394 | 0.000 | 1.188 | 0.198 |
| PSSTBREV | 5.108 | 7.769 | 6.349 | 6.693 | 7.129 | 5.731 | 17.159 | 15.114 | 5.169 | 4.134 | 1.855 | 2.367 | 0.940 | 0.792 | 1.389 |
| STASCONV | 6.876 | 9.761 | 10.516 | 8.465 | 10.099 | 12.055 | 16.790 | 15.466 | 10.139 | 9.449 | 12.616 | 9.467 | 1.880 | 1.386 | 1.984 |
| STASCON | 2.554 | 2.988 | 4.563 | 5.315 | 4.950 | 3.755 | 4.059 | 14.236 | 12.326 | 10.236 | 9.091 | 7.101 | 4.511 | 2.772 | 5.556 |
| AULAAM | 71.513 | 63.944 | 68.056 | 68.701 | 63.168 | 70.158 | 50.923 | 41.652 | 58.052 | 63.780 | 45.269 | 25.049 | 25.564 | 30.099 | 21.627 |
| NITZAM | 0.786 | 2.191 | 1.984 | 0.591 | 2.376 | 0.988 | 0.369 | 0.703 | 0.398 | 0.787 | 0.371 | 1.775 | 1.504 | 1.386 | 2.183 |
| AULADIS | 2.161 | 2.390 | 1.587 | 1.969 | 1.584 | 1.186 | 1.845 | 1.054 | 0.398 | 0.591 | 0.742 | 0.000 | 0.188 | 0.594 | 0.000 |

Appendix G. Percentages of diatoms with >3% abundance in core LG-44.

| | Depth in sediment core (cm) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-2 | 4-6 | 8-10 | 12-14 | 16-18 | 20-24 | 24-26 | 28-30 | 32-34 | 36-38 | 40-44 | 46-48 | 58-60 | 68-70 |
| NAVBAC | 0.200 | 0.198 | 0.198 | 0.191 | 0.792 | 0.975 | 0.198 | 0.527 | 0.000 | 0.327 | 0.000 | 0.000 | 0.000 | 0.185 |
| NAVGOT | 0.000 | 0.000 | 0.198 | 0.382 | 0.000 | 0.000 | 0.395 | 0.176 | 0.583 | 0.164 | 0.000 | 0.196 | 0.171 | 0.000 |
| STAUPHGR | 1.603 | 0.397 | 0.396 | 0.956 | 0.198 | 0.000 | 0.198 | 0.527 | 0.388 | 0.164 | 0.000 | 0.196 | 0.512 | 0.369 |
| NEIIRAMH | 0.601 | 0.198 | 0.000 | 0.000 | 0.000 | 0.000 | 0.395 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| PINSP | 0.200 | 0.397 | 0.594 | 0.574 | 1.188 | 0.390 | 0.791 | 2.460 | 0.388 | 0.491 | 0.575 | 0.000 | 0.512 | 0.000 |
| MASTSMLA | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.395 | 0.351 | 0.000 | 0.000 | 0.000 | 0.196 | 0.171 | 0.000 |
| NAVOBL | 0.000 | 0.000 | 0.000 | 0.191 | 0.198 | 0.390 | 0.395 | 0.351 | 0.000 | 0.164 | 0.192 | 0.000 | 0.171 | 1.292 |
| NAVSP | 0.802 | 0.198 | 0.198 | 0.000 | 0.594 | 0.975 | 0.791 | 0.176 | 0.194 | 0.000 | 0.192 | 0.196 | 0.000 | 0.000 |
| NAVRA | 0.200 | 0.000 | 0.000 | 0.000 | 0.594 | 0.195 | 0.000 | 0.527 | 0.583 | 0.491 | 0.383 | 2.161 | 1.706 | 0.369 |
| NAVPURE | 0.802 | 0.000 | 0.000 | 0.191 | 0.000 | 0.195 | 0.000 | 0.176 | 0.971 | 0.327 | 0.192 | 0.196 | 0.000 | 0.000 |
| NAVSEMIN | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| PINVIR | 0.000 | 0.198 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.164 | 0.383 | 0.196 | 0.341 | 0.000 |
| CYCSTEL | 2.004 | 1.190 | 0.396 | 2.677 | 3.564 | 1.949 | 0.791 | 0.527 | 0.583 | 0.818 | 0.575 | 0.982 | 1.195 | 1.292 |
| NAVRAPA | 0.200 | 0.198 | 0.000 | 0.000 | 0.198 | 0.000 | 0.000 | 0.176 | 0.000 | 0.164 | 0.000 | 0.982 | 1.024 | 0.369 |
| SSRLPIN | 0.000 | 0.198 | 0.198 | 2.294 | 1.980 | 0.390 | 2.372 | 2.812 | 5.437 | 9.493 | 6.322 | 7.073 | 3.584 | 6.089 |
| AULAITAL | 4.208 | 3.571 | 1.584 | 0.000 | 0.000 | 4.288 | 3.755 | 2.285 | 2.718 | 2.619 | 1.916 | 5.108 | 4.949 | 1.107 |
| PSSTBREV | 4.208 | 5.357 | 2.178 | 4.398 | 5.149 | 5.458 | 12.648 | 15.290 | 27.379 | 18.658 | 18.391 | 16.699 | 11.945 | 11.808 |
| STASCONV | 4.810 | 0.992 | 0.792 | 3.250 | 6.337 | 8.382 | 13.043 | 19.332 | 27.379 | 35.843 | 34.291 | 27.505 | 24.232 | 39.852 |
| STASCON | 5.611 | 1.786 | 1.584 | 2.868 | 2.574 | 4.483 | 3.360 | 1.757 | 3.301 | 1.146 | 0.958 | 1.179 | 1.536 | 0.923 |
| AULAAM | 50.301 | 57.341 | 68.911 | 67.495 | 66.337 | 61.014 | 48.419 | 45.167 | 21.942 | 21.440 | 27.586 | 29.077 | 41.980 | 30.996 |
| NITZAM | 3.808 | 3.770 | 4.158 | 0.956 | 1.584 | 2.339 | 2.372 | 1.054 | 1.359 | 1.473 | 2.682 | 3.733 | 1.706 | 1.292 |
| AULADIS | 2.605 | 1.190 | 1.386 | 0.574 | 0.990 | 0.195 | 1.383 | 0.000 | 0.000 | 0.000 | 0.000 | 0.196 | 0.171 | 0.000 |