

THE FORAMINIFERAL SIGNATURE OF RECENT GULF OF MEXICO HURRICANES

By

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Down-core activities of ^7Be , ^{234}Th , and ^{210}Pb , as well as X-radiography, have indicated the existence of sediments deposited by hurricanes Ivan (2004), Katrina (2005), and Rita (2005) on the continental margin west of the Mississippi Delta between Southwest Pass and the Mississippi Canyon. These radionuclides have fairly short half-lives on the order of days to decades, however, and their utility for the identification of hurricane events decreases with progressively older deposits. Foraminifera, which can be preserved for geologically significant amounts of time, may serve as another proxy for the detection of hurricane event beds. Here I investigate foraminiferal assemblages contained within recent, known hurricane units to determine whether they differ significantly from those of non-hurricane units and a unit deposited by a river flood event, and whether these differences might give insight into where the hurricane-deposited sediment originated.

Cores were collected along the same transect during three different cruises in: 2004, 2005, and 2007; the timing of collection reflected periods of hurricane and non-hurricane influenced deposition. The transect runs southwest from Southwest Pass (~30 m water depth) to the head of the Mississippi Canyon (~170 m depth). Surface samples of a unit deposited by the

2011 Mississippi River flood event were also collected to allow comparison with hurricane units.

Average relative abundances of foraminifera were analyzed for trends and ANOVA and discriminant analysis were utilized to determine whether the foraminiferal assemblages of hurricane and non-hurricane units were statistically discrete. Hurricane unit foraminifera very close to the mouth of Southwest Pass (9 km; ~30 m water depth) were more abundant per unit volume of sediment than pre-hurricane foraminifera at this location. Hurricane units further out on the shelf (> 80 m water depth) tended to contain less foraminifera per unit volume than did the non-hurricane units. Hurricane units also contained more textulariids and miliolids than the non-hurricane units, and sometimes contained rare marsh taxa.

ANOVA results show that the abundances of 13 of the 32 most abundant taxa were statistically different between units when comparing all four unit types (hurricane, pre- and post-hurricane, flood, and bioturbated). Ten of these species were statistically different between hurricane and non-hurricane units; relative abundance of coastal taxa increased in the hurricane units. Discriminant analysis indicates that all four unit types are generally discrete. The species that contributed most to the discrimination of unit types were generally rare, and some were helpful in the determination of the origin of the hurricane-transported sediment. In contrast, the species that were significant in the ANOVA were among the most abundant. Thus, both abundant and rare species are useful for identifying hurricane deposited sediment.

A portion of hurricane unit sediments was likely locally resuspended and redeposited (indicated by high relative abundances of those taxa which were abundant in the pre- and post-hurricane units). There is also evidence of seaward transport of sediment; some species that occur in the pre- and post-hurricane units only at the shallow end of the transect also occurred in hurricane units at the deeper end of the transect. In addition, hurricane units contained some rare

marsh and upper slope taxa which were absent from the pre- and post-hurricane units, indicating some portion of the sediment in the hurricane units is derived from these environments. In summary, foraminifera can provide information on the provenance of hurricane-deposited sediment soon after deposition, but bioturbation can destroy this signal rapidly.

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CHAPTER 1: INTRODUCTION

Foraminifera are useful indicators of environmental change both long-term, such as sea-level rise (Kemp and others, 2011) and short-term, such as tsunami strikes (Horton and others, 2011). Current and projected climate change could well result in increased hurricane activity (more storms or more intense storms) (Goldenberg and others, 2001). Thus, it is timely to investigate the question of whether hurricane event beds have a foraminiferal signature that allow for their origin to be determined. Recent hurricane activity in the northern Gulf of Mexico and the existence of geochemical and sedimentological data from known hurricane event beds provide an opportunity to address this question.

On September 16, 2004, Hurricane Ivan made landfall near Gulf Shores, Alabama, USA, as a category 4 hurricane (Teague and others, 2007). To investigate sediment resuspension, transportation, and deposition by Hurricane Ivan, a sampling cruise to the northern Gulf of Mexico shelf seaward of Southwest Pass of the Mississippi River Delta (Fig. 1) was conducted in late October 2004. Box and kasten cores were collected at 11 stations on the continental shelf and slope. X-radiographs and radionuclides (^7Be , ^{234}Th , and ^{210}Pb) from cores exhibited a recently and rapidly deposited layer of sediment associated with Hurricane Ivan (Dail and others, 2007). A second sampling cruise conducted in late September 2005 immediately followed the landfall of hurricanes Katrina and Rita (Fig. 1) and reoccupied many of the same stations. More than 80 cores (box, kasten, and multi-cores) were taken and many displayed deposits from Katrina, Rita, or both hurricanes, as well as the relict deposit from Hurricane Ivan (Goñi and others, 2007).

The hurricane event beds cored in Dail and others (2007) and Goñi and others (2007) were recognized using relatively short-lived radionuclides, the utility of which decreases with

time. Foraminifera, on the other hand, can be preserved for geologically significant amounts of time. Therefore, if sediment resuspended, transported, and deposited by tropical cyclones can be discriminated from sediment deposited during calm periods based upon their foraminiferal assemblages, this may give insight into sediment dynamics during and after tropical cyclones and aid in the recognition of hurricane event beds in the geologic record. This study investigates the foraminiferal assemblages of the known Hurricane Ivan, Katrina, and Rita deposits in the same cores studied by Dail and others (2007) and Goñi and others (2007) and compares them to the foraminiferal assemblages of sediment deposited in the same area during non-hurricane conditions as well as the foraminiferal assemblage of sediment deposited in the area during a recent (2011) Mississippi River flood event.

ENVIRONMENTAL SETTING

Storm Overview

With the exception of tropical cyclones and winter cold fronts, wind and wave energy in the Gulf of Mexico is generally quite low; over 99% of deep-water wave power is dissipated in the Gulf before it ever reaches the Mississippi Delta (Boyd and Penland, 1984). Mean wind speed in the Gulf during non-storm periods tends to be between 5–10 m/s, usually out of the southeast (Ohlmann and Niiler, 2005). Wave heights are generally less than 0.5 m (<http://pubs.usgs.gov/of/2000/of00-179/index.html>). Wave heights are greatest to the northeast of the eye of a hurricane; they reached 17.9 m during Hurricane Ivan in September 2004, 16.9 m during Hurricane Katrina in August 2005, and 11.63 m during Hurricane Rita in September, 2005 (Wang and others, 2005; Wang and Oey, 2008; <http://www.ndbc.noaa.gov/hurricanes/2005/rita>). Maximum 1-minute sustained wind speeds for the three hurricanes were 75 m/s, 77 m/s, and 71 m/s, respectively (<http://www.nhc.noaa.gov/>; Dietrich and others, 2010).

Sedimentation on the Mississippi Delta Shelf

The Mississippi River discharges about 380 km³ of freshwater into the northern Gulf of Mexico each year through the Balize “birdfoot” delta, carrying with it an estimated 2 x 10¹⁴ g of suspended sediment (Meade and Parker, 1985). Freshwater influence from the Mississippi has been observed as far away as Port Aransas in the coastal bend region of Texas, 800 km from the mouth of the river (Smith, 1980). The Mississippi drains 47% of the continental United States and is responsible for the transport of about 60% of all suspended matter being moved from the continental U.S. to any ocean (Meade, 1996). Average discharge for the Mississippi generally tends to be high in winter and spring and lower in late summer and fall (Lohrenz and others, 2008).

As the Mississippi River discharges into the Gulf of Mexico, a semi-enclosed sea with low wave energy and tidal range, it creates a large freshwater effluent plume with an initial sediment/water ratio of 0.36 kg/m³ (Wright and Nittrouer, 1995). Walker (1994) used five years of satellite reflectance data to describe spatial and temporal variability of the Mississippi River Plume and to gain insight on environmental factors influencing plume shape. Plume area seems to be largely controlled by changes in discharge; in high flow periods, the plume covers well over twice the area (4595 km²) than at low flow periods (2058 km²). After discharge, wind speed and direction have been found to be the predominant forcing factors on plume shape. Eastern, western, and southern maxima of the plume are increased by winds from different directions. The plume, however, most often travels northwest (Hitchcock and others, 1997).

As the Mississippi River Plume expands outwards, friction along the freshwater/saltwater interface causes the plume to decelerate and sediment is deposited (Wright and Coleman, 1974). Despite the high delivery of sediment, sediment particles travel on average less than about 30 km

from the mouth of the river before initial deposition (Corbett and others, 2004). Sediments can then go through several cycles of resuspension and deposition before accumulating in a more permanent location (Corbett and others, 2006).

Tropical cyclones, capable of creating tremendous wave orbital velocities and strong currents, are responsible for resuspending, transporting, and depositing a disproportionate amount of sediment on the continental shelf in the Mississippi Delta region (compared to non-storm deposition). Hurricane events are especially important in the more distal areas of the continental shelf, where tropical cyclone-resuspended sediments make up the majority of material transported to the area (Dail and others, 2007; Goñi and others, 2007). Dail and others (2007) reported as much as 75% of sediments accumulating in the Mississippi Canyon on decadal timescales could have been deposited as a result of major tropical cyclone events.

Hurricane Deposits and Preservation Potential

As a tropical cyclone crosses the shelf, large wave orbital velocities beneath it scour the sea floor and cast hundreds of millions of cubic meters of sediment into the water column (Teague and others, 2006). Slope and abyssal plain sediment does not tend to be resuspended during tropical cyclones due to greater water depth (Shanmugam, 2008). As wave energy gradually dissipates in the waning phase of the storm, sediment begins to settle out of the water column by size, generating a normally-graded sand and/or silt deposit atop the sharp erosional surface created by the initial resuspension event (Allison and others, 2005). Shemeret and others (2005) hypothesized that later in the waning phase of the storm, the finest particles can create a fluid mud layer with very low dewatering rates, which exists for several hours to a height of about 60 cm above the sea floor. This is consistent with observations from Allison and others (2005) on the Atchafalaya delta; above the normally graded deposit containing sand expected

from settling, these workers found a somewhat graded mud deposit that they attributed to the dewatering of this fluid mud layer. Dail and others (2007) also noted that high wave orbital velocities may trigger gravity-driven transport of sediments, i.e., fluid muds. A multibeam survey off Southwest Pass of the Mississippi River Delta conducted by Walsh and others (2006) indicated mudflow activity that may have been increased by Hurricanes Katrina and Rita.

Generally, the thicknesses of shelf hurricane deposits at initial deposition are on the order of centimeters to a few tens of centimeters and tend to decrease in thickness in the offshore direction (e.g., Michels and others, 1998; Allison and others, 2005; Wren and Leonard, 2005; Dail and others, 2007, Goñi and others, 2007). However, these deposits are subject to both physical and biological reworking before incorporation into the geologic record. The deposit laid down by one storm can be reworked by the next if enough deposition does not occur between events to cover the bed and protect it (Keen and others, 2004). Bioturbation may also destroy the deposit if either the initial thickness of the deposit does not exceed the depth to which bioturbation occurs or the sedimentation rate is too slow to cover and protect the deposit before its textural, geochemical, or faunal signal is erased (Wheatcroft, 1990).

PREVIOUS FORAMINIFERAL WORK

Foraminiferal Distributions on the Mississippi Delta Shelf

Foraminiferal distributions in the northern Gulf of Mexico have been well-studied. Phleger and Parker (1951) documented foraminiferal distribution in the northwestern Gulf of Mexico. They reported six depth-related biofacies and suggested that the primary factor controlling foraminiferal distribution was temperature. This study, however, did not take samples very close to the subaerial Mississippi Delta. Parker (1954) documented foraminiferal distributions in the northeastern Gulf of Mexico and recognized an analogous set of six depth-

related biofacies with gradational boundaries. She also determined that there is a slightly different assemblage in shallow (<200 m) waters east and west of the Mississippi delta, which she attributed to changes in the salinity, temperature, turbidity, and available nutrients due to the freshwater influx of the Mississippi River. The assemblage contained abundant *Buliminella* cf. *B. bassendorffensis* (*Buliminella morgani* of this study), *Epistominella vitrea*, *Goëssella mississippiensis*, *Nouria* spp., *Proteonina difflugiformis* and *Textularia earlandi*. Parker (1954) also found that planktonic foraminifera were rare to absent in the area affected by the Mississippi River outflow.

Work by Pflum and Frerichs (1976) on the northern slope of the Gulf of Mexico set out to refine the Phleger/Parker model of depth-related biofacies. In doing so, they also noticed the depression or elevation of the upper depth limits of certain species near the Mississippi River, which they attributed to a "delta effect"; a function of the geometry of the river's zone of discharge. Poag (1981), working with predominance facies, reported that the area immediately adjacent to the delta was characterized by very specimen-rich assemblages dominated by *Nonionella* and *Epistominella*. More seaward from the delta was defined as having a predominance facies dominated by *Goëssella mississippiensis*. Culver and Buzas (1981a, 1981b) defined faunal provinces in the Gulf of Mexico and recognized the assemblage in the area at the mouth of the Mississippi River as a distinct biofacies.

Denne and Sen Gupta (1991) took a slightly different approach to defining foraminiferal assemblages in the northwest Gulf of Mexico. They used Q-mode cluster analysis and R-mode factor analysis to relate assemblages to five water masses present within the Gulf. They also found a unique assemblage associated with the area proximal to the Mississippi River Delta discharge area that exists to a water depth of 400 m. Denne and Sen Gupta (1991) postulated that

this assemblage, dominated by *Nonionella opima*, *Bolivina barbata*, *Bulimina marginata* and *Bolivina alata*, reflects varying dissolved oxygen conditions in bottom waters beneath the plume.

Stress from the Mississippi River Plume

A major factor that contributes to the differences in shelf foraminiferal distributions near the Mississippi Delta is seasonal hypoxia. The hypoxic conditions ($O_2 < 2$ mg/L) in the northern Gulf of Mexico are tied to the large influx of freshwater and nutrients from the Mississippi and Atchafalaya rivers, as well as the intense water-column stratification created by the river flow and seasonal heating (Osterman, 2003). High nutrient loads from the fluvial system each spring result in phytoplankton blooms; these algae then die, fall to the bottom waters, and decompose, depleting oxygen from the depths (Sen Gupta and others, 1996). This situation has been exacerbated by increased fertilizer use in the U.S. Midwest since the early decades of the last century (Nelsen and others, 1994; Rabalais and others, 2007). In the northern Gulf of Mexico, hypoxia occurs in most inner shelf areas in warmer months, especially directly west of the Mississippi Delta (Rabalais and Turner, 2001).

The onset of hypoxia results in a reduction of foraminiferal species diversity, but also increases the relative abundance of certain low-oxygen tolerant species (Sen Gupta and others, 1996). *Buliminella morgani* dominates populations in areas where hypoxia is most frequent (Blackwelder and others, 1996; Osterman and others, 2005; Platon and others, 2005; Brunner and others, 2006). Over the last century, this species as well as a few others deemed to be low-oxygen tolerant, such as *Nonionella opima*, *Epistominella vitrea*, *Ammonia* spp., *Bolivina lowmani*, and *Elphidium gunteri* have either increased in relative abundance or at least remained at a constant abundance (Blackwelder and others, 1996, Platon and others, 2005). Conversely, other taxa (especially *Quinqueloculina*) have steadily decreased in abundance through time in the

hypoxia-affected areas (Platon and others, 2005). *Epistominella vitrea* currently dominates populations in the plume region (Poag, 1981, Blackwelder and others, 1996). This is probably due not only to *E. vitrea*'s tolerance of low dissolved oxygen, but also its high motility in the sediments. It is therefore able to tolerate the very high sedimentation rates associated with the plume (Blackwelder and others, 1996).

Foraminiferal Distributions in Northern Gulf of Mexico Coastal Habitats

The distribution of foraminifera in the Gulf of Mexico coastal habitats has been summarized by Poag (1981) and Culver and Buzas (1981). The subaerial Mississippi Delta and the surrounding coast offer many different marsh, lagoon, and estuarine habitats. Phleger (1956, 1960, 1965, and 1966) studied many of these habitats in detail. Several key agglutinated species characterize marshes in the northern Gulf of Mexico, including *Ammotium salsum*, *Arenoparrella mexicana*, *Jadammina macrescens*, *Miliammina fusca*, *Tiphotrocha comprimata*, and *Trochammina inflata*. *A. salsum* and *M. fusca* are especially important in Gulf of Mexico marshes (Phleger, 1965; Scott and others, 1991). *Ammonia beccarii* vars. (= *A. parkinsoniana* and *A. tepida* of this study) and *Elphidium* species, including *E. gunteri*, *E. matagordanum*, *E. poeyanum*, and *E. tumidum*, are typically subtidal but they also occur in marshes (Phleger, 1965; Culver and Buzas, 1981; Poag 1981). Scott and others (1991) also found abundant *Haplophragmoides manilaensis* in marsh transects (possibly = *H. wilberti* according to Scott and others, 1991).

Foraminiferal Data as a Proxy for Hurricane Activity

The use of foraminifera as tracers to indicate onshore transport of sediment by tropical cyclones, other storm events and tsunamis has proven to be quite successful (Collins and others, 1999; Hippensteel and Martin, 1999; Culver and others, 2004; Horton and others, 2011). Studies

of foraminiferal evidence for the reworking and transport of sediment by hurricanes in the offshore direction, however, are much less common (Li and others, 1997).

Using samples collected in a sediment trap placed at a water depth of 400 m on the continental slope of the Middle Atlantic Bight, Brunner and Biscaye (1997) measured the flux of shelf foraminifera to the slope over time. They discovered that the delivery of benthic foraminifera to the slope is greatly increased during storm events; 99% of the benthic foraminiferal tests that made it to the sediment trap were transported during stormy periods. One storm transport event was responsible for 63% of the benthic foraminiferal flux from the shelf to the slope for the entire experimental period (15 months). Fluxes of planktonic foraminifera, however, peaked during non-storm periods and were found to be influenced more by peaks in test production.

Li and others (1997) looked at both onshore and offshore components of storm-driven foraminiferal flux in a shallow lagoon on the coast of Grand Cayman. Their study proposed a two-stage model of transport. As a storm approaches, large waves drive water, sediment, and foraminifera onshore and into the lagoon. In the waning phase of the storm, water that was held within the lagoon by wind and wave energy is released and drains through inlets, carrying lagoonal sediment and foraminifera out onto the shelf.

Out-of-habitat porcelaneous foraminifera sourced from sublittoral seagrass habitats were identified in a highly re-worked Holocene marine section on the northeastern Gulf of Mexico shelf (Anderson and others, 1997). With the aid of sedimentological data, this unit was interpreted to be hurricane-reworked sediment. This study also noted that while foraminifera were transported easily by the storm and hurricane events that reworked this sediment, larger organisms such as mollusks were not, making foraminifera more useful tracers in such cases

(Anderson and others, 1997).

CHAPTER 2: METHODS

SAMPLE COLLECTION

The samples used in this study were collected in a series of cruises aboard the *R/Vs Pelican* and *Cape Hatteras* in 2004, 2005, and 2007. The 2004 cruise sampled the Hurricane Ivan deposits, and the 2005 cruise sampled the Katrina and Rita deposits immediately following the landfall of those hurricanes (Fig. 1). A third cruise was conducted in September 2007 to sample the seafloor after a two-year period of no hurricane activity in the field area. Hurricane Dean (category 5) had hit the southern Gulf of Mexico in 2007, but traveled over the Yucatan Peninsula and into Mexico (<http://www.nhc.noaa.gov/>).

Three stations along a transect off Southwest Pass (Fig. 1) were cored in both 2004 and 2005; these six box cores were selected for this study, creating three core groups: core group 1, core group 2, and core group 3 (Fig. 2). Two of the three stations were cored again in 2007 (core group 1 and 2); these two cores were also selected for this study for a total of eight cores. Five PONAR surface grab samples were also collected along the same transect during the 2007 cruise to investigate the foraminiferal assemblage after the two-year period of no hurricane activity. The timing of the first three cruises was such that the samples reflect seasons of hurricane- and non-hurricane (i.e., pre-hurricane and post-hurricane) activity. Also, as cores were collected at the same stations two or three times over a three year period, it is possible to assess the effects of bioturbation on the hurricane deposits over time.

A fourth cruise, conducted in August 2011, collected samples from off Southwest Pass following the 2011 Mississippi River flood event. The six surface samples (box core tops) utilized in this study (Fig. 1), represent the seabed and its foraminiferal assemblage after a high fluvial discharge event. Thus, a comparison of river flood foraminiferal assemblages with

hurricane assemblages is possible.

While still aboard the research vessels, cores were X-rayed and 20 mL foraminiferal subsamples were collected at 1 cm intervals from select cores to a depth of 20 cm and then in 2 cm intervals from 20 cm to 40 cm. The top 0–10 cm samples were treated with rose Bengal stain to indicate live foraminifera (Walton, 1952). Two foraminiferal subsamples (Fig. 2) were selected from each storm and non-storm unit (where available) in the eight cores for a total of 51 down-core samples, in addition to the five 2007 PONAR and six 2011 flood surface samples. When a sample below 30 cm core depth was needed, they were taken from kasten cores that were collected at the same time and place as the box cores.

Once in the lab, the 20 mL foraminiferal samples were washed over 63 and 710 μm sieves. If the 63–710 μm aliquot contained a significant sand fraction, the foraminifera were isolated from the sediment by floating them in a high-density sodium polytungstate solution (Munsterman and Kerstholt, 1996). Two hundred foraminiferal specimens, where available, were picked from each sample using a random squares method. All specimens were picked when fewer than 200 specimens were present. Foraminifera were identified to the species level by reference to the published literature and identifications were confirmed by reference to primary type and comparative material housed in the Cushman Collection of the Smithsonian Institution, Washington, D.C.

STATISTICAL ANALYSES

The data analyzed here consist of census counts of all species (123), which were standardized by converting count data to proportional abundance data and finally to a 2 arcsine square-root transformation of the proportional abundance data (Appendices C–E; Owen, 1962).

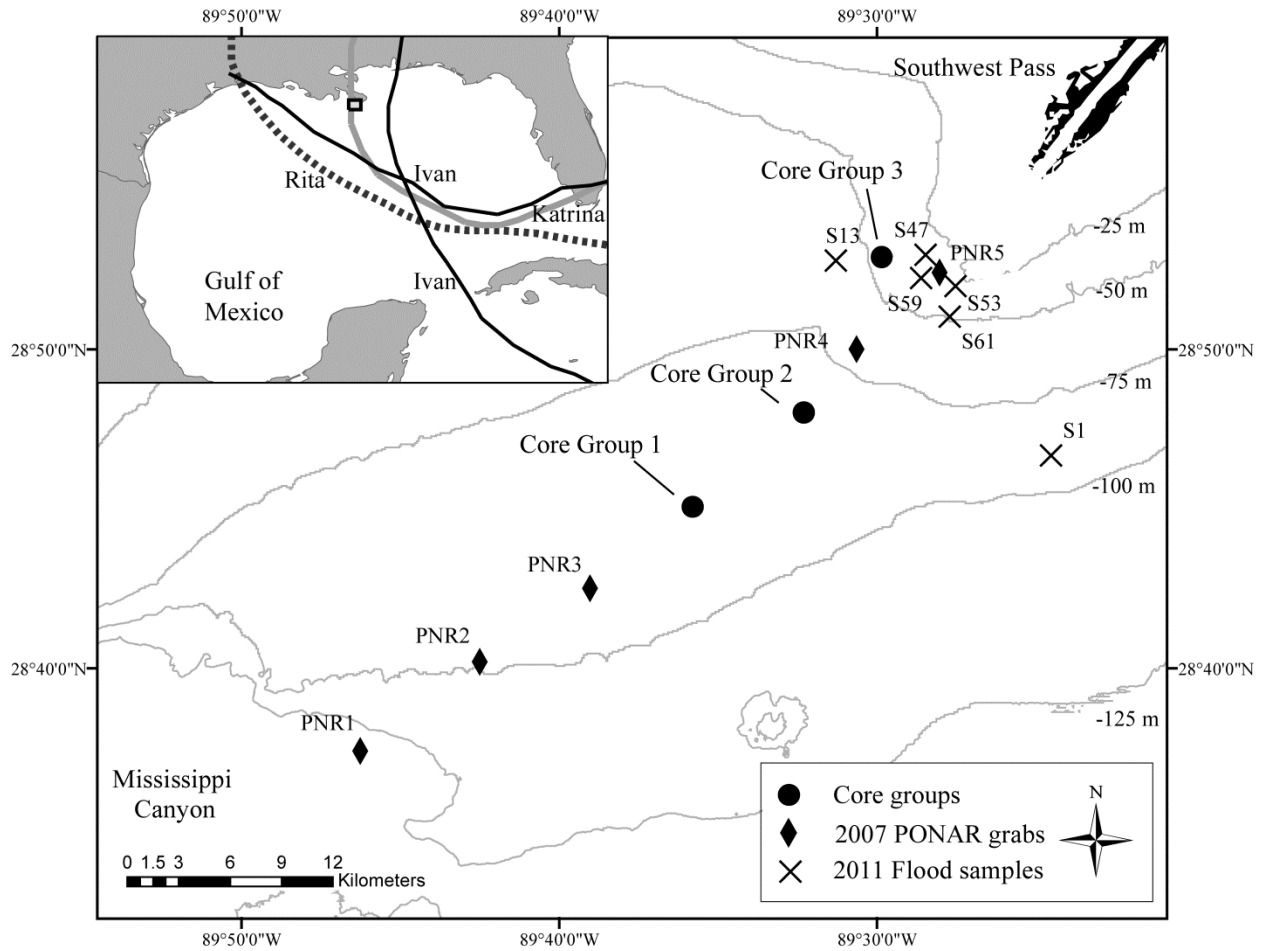


FIGURE 1. Map of the study area (continental shelf between Southwest Pass and the Mississippi Canyon) with locations of core groups as well as 2007 PONAR surface grab samples (PNR) and 2011 flood samples (S) (core tops) used in this study. Small box within inset map indicates location of study area in the Gulf of Mexico.

Species that did not comprise at least 5% or more of any sample were excluded from further analysis, leaving a total of 32 species across 62 samples. Average relative abundance of species for each unit was calculated. These most abundant species were analyzed across all

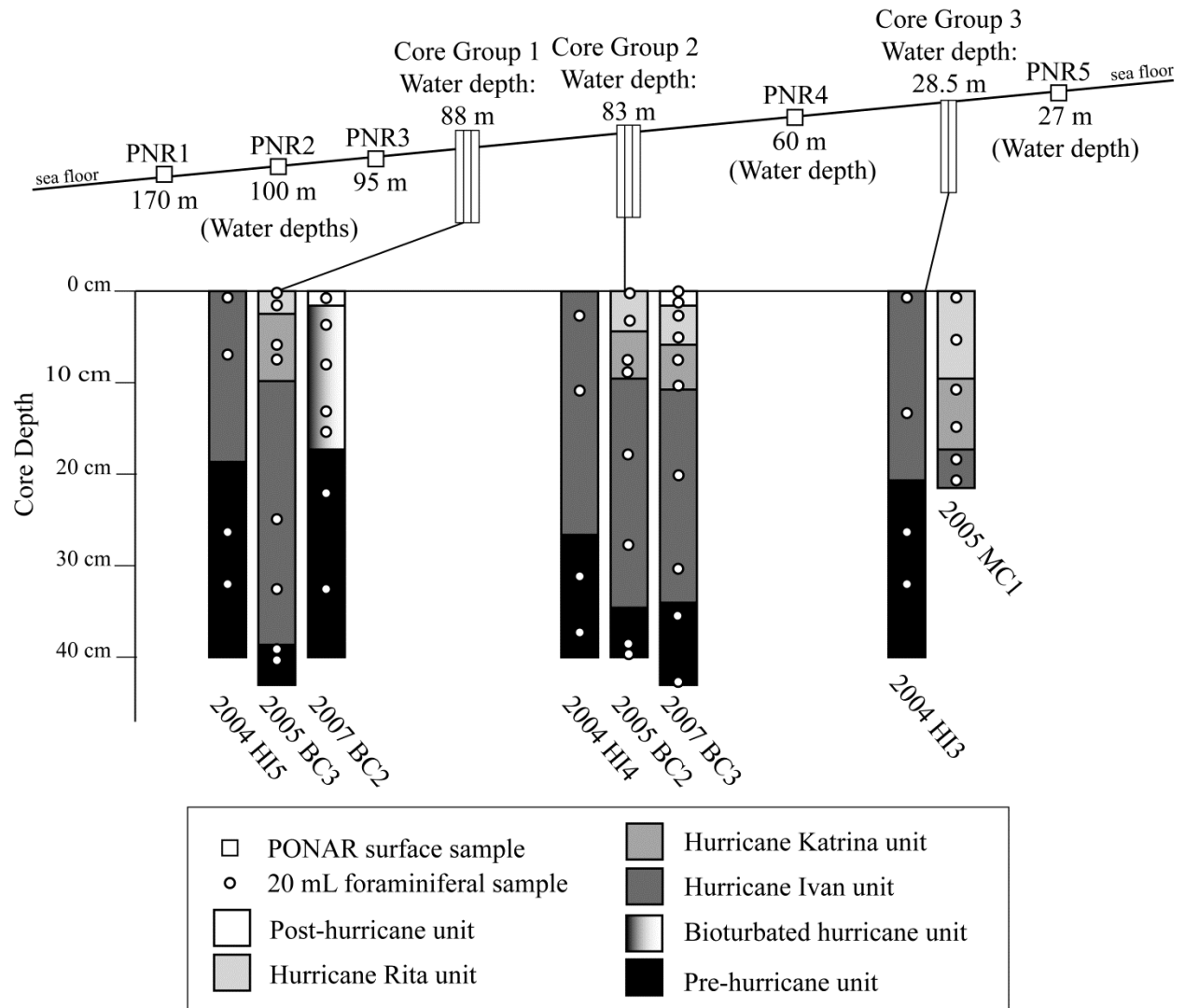


FIGURE 2. Cross-sectional diagram of core groups and PONAR grab locations along the sampling transect shown in Figure 1 and down-core subsampling scheme for each core group. Hurricane units determined by Dail and others, 2007 and Goñi and others, 2007. Figure not to scale.

samples using ANOVA and Scheffé's method to test the hypothesis that the abundances of these species are equal between hurricane and pre- and post-hurricane units (Scheffé, 1959). Finally, a discriminant analysis was performed to determine whether the four types of unit were statistically distinguishable based upon their foraminiferal assemblages.

CHAPTER 3: RESULTS

FORAMINIFERAL PATTERNS

Ternary plots (Fig. 3) of test types within the pre- and post-hurricane units, flood unit, and hurricane units show that the pre- and post-hurricane and flood units mainly comprise rotaliids, with rare textulariids and miliolids. The hurricane units, on the other hand, are more likely to contain textulariids and miliolids. In general, foraminifera tend to be less abundant and less diverse within hurricane units than within pre- and post-hurricane units and the flood unit (Figs. 4, 5, and 6).

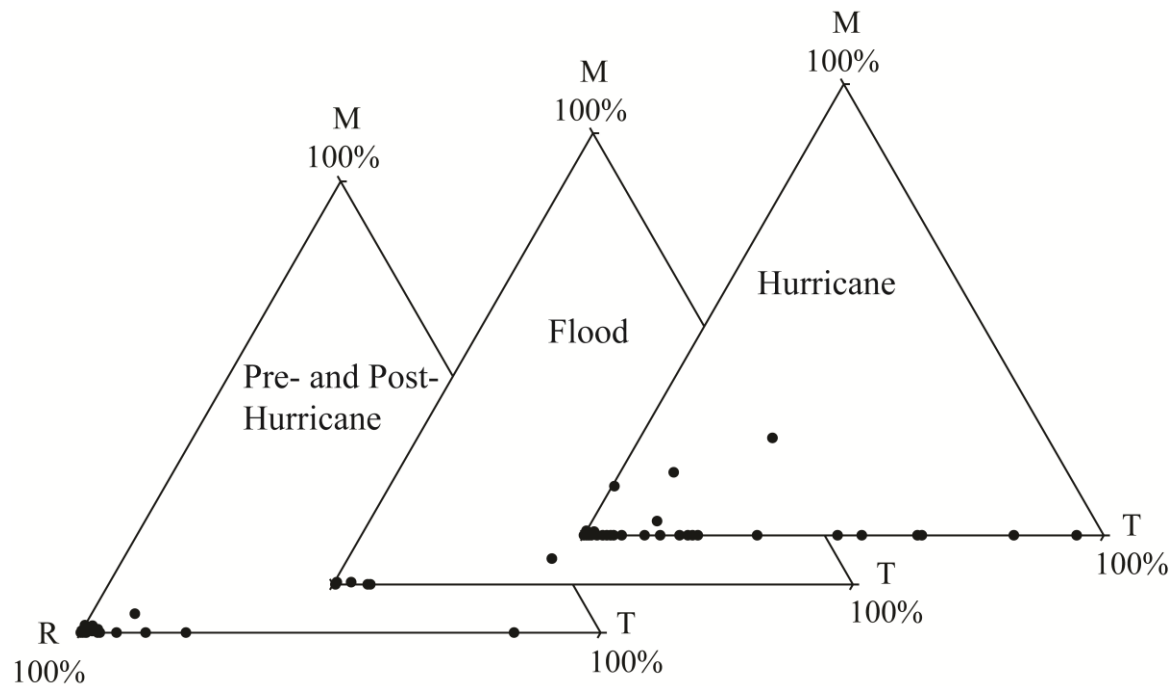


FIGURE 3. Ternary diagrams comparing the relative abundance of textulariids (T), miliolids (M), and rotaliids (R) within pre- and post-hurricane, flood, and hurricane units.

In core group 1 (Fig. 4; see Figs. 1 and 2 for location), the deepest core group (taken from an average water depth of 88 m; see Appendix B), foraminiferal densities are much higher than in any other core group. Foraminifera are generally less abundant in the hurricane units than in

the pre-hurricane units in the 2004 and 2005 cores. In the 2007 core BC2, a pre-hurricane unit from the bottom of the core to about 17 cm core depth is overlain with a sharp contact by a well-bioturbated hurricane unit to 2 cm core depth. Foraminiferal densities in the lower two samples in the bioturbated hurricane unit are similar to those in the underlying pre-hurricane unit, but densities in the upper two samples are much lower (Fig. 4C). Foraminiferal density increases once more in the overlying post-hurricane unit. Planktonic foraminifera are generally more abundant in the pre- and post-hurricane units versus hurricane units in the 2004 and 2007 cores; however, in the 2005 core, planktonics are most abundant in the Ivan unit (Fig. 4C, Table 1). The number of benthic species per sample ranges between 10 and 20 (Fig. 4); no trends related to hurricane and non-hurricane units are apparent.

In core group 2 (Fig. 5), from an average depth of 83 m (see Appendix B), foraminifera (as for core group 1) are generally less abundant in the hurricane units than in the pre-hurricane units in the 2004 and 2005 cores. Planktonic foraminifera are more abundant in the pre-hurricane units in two of three cores, but in 2007 BC3 this is not the case (Table 1). In this core planktonics are very abundant in one of the two samples from the post-hurricane unit. This, however, is due to the low density of foraminifera in this sample (Table 1). Like core group 1, core group 2 does not exhibit a trend in the number of species per sample, although the uppermost Rita sample in 2005 BC2 has an increased number of species (Fig. 5B).

In the shallow, proximal core group 3 (Fig. 6) from an average water depth of 28.5 m (see Appendix B), the percent of planktonic foraminifera is generally higher than in any other core group (Figs. 4–6). This is due to the overall low density of foraminifera in many of these samples (Table 1). Planktonic foraminifera are also more abundant in the pre-hurricane unit than in the Ivan unit in the 2004 core, generally following the pattern of the 2004 cores in group 1 and

2 (Table 1, Figs. 4–6). In the 2004 core from this group, however, foraminifera are more abundant and diverse in the Hurricane Ivan unit than in the pre-storm unit, a contrast with patterns in core group 1 and 2. Unfortunately, the 2005 box core from core group 3 did not penetrate a pre-storm unit. This core, however, shows strong variation in the abundance and number of benthic species as well as percent of planktonic foraminifera between individual hurricane units (Table 1, Fig. 6B). This is due, in part, to the variation in the number of specimens picked (two samples were almost barren of foraminifera).

The PONAR surface samples taken in 2007, which characterize the sea-floor after a two-year period of no hurricane activity in the study area, display considerable variation (Fig. 7A; see Fig. 1 for location). PONAR samples PNR4 and PNR5, which were on the shallower, more proximal end of the transect (Fig. 1), have a much lower foraminiferal abundance than the deeper PONAR samples; this agrees with the low abundance seen in the pre-hurricane unit in proximal core group 3. The numbers of species picked per sample and the percent of planktonic foraminifera in these two shallow PONAR samples are also low.

The 2011 flood samples used in this study are aligned NW to SE (Fig. 7B; see Fig. 1 for location), normal to the outflow from Southwest Pass. Preliminary work on the flood unit (Young and others, 2012) shows that it is thickest close to Southwest Pass (up to 25 cm thick about 5 km away from the mouth of the Pass) and thins seaward rapidly. The numbers of benthic species per sample for the flood deposit are low and generally similar to those in the shallower PONAR surface samples (PNR4, PNR5; Fig. 7A), which were taken from the same general area. The deepest flood sample, S1 (89 m water depth), has a higher density of foraminifera than the rest of the flood samples but is comparable to the surface sample PNR3 that was collected from a similar depth. The percentage of planktonic foraminifera in the flood samples, however, is much

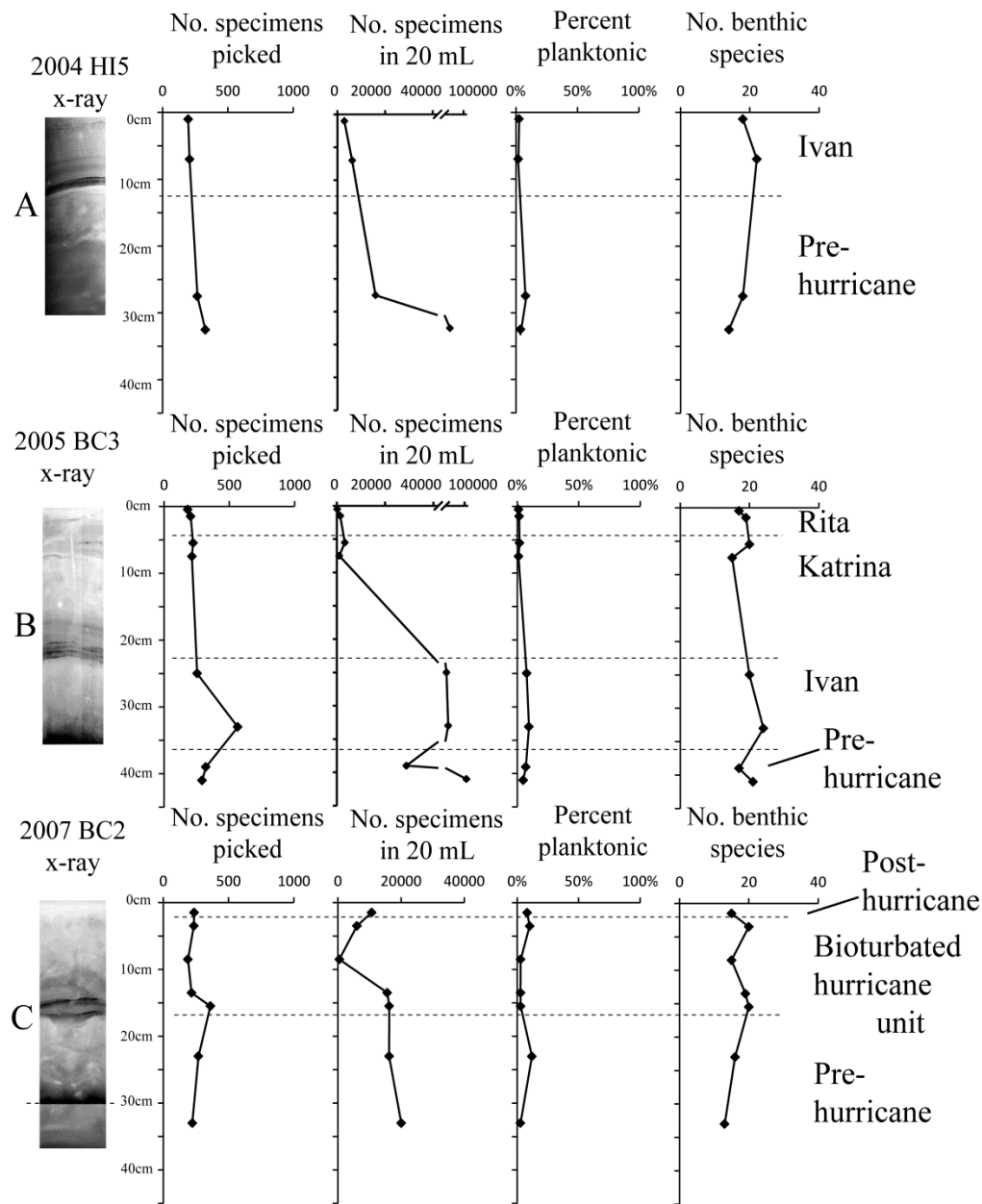


FIGURE 4. X-radiographs of cores showing hurricane units (Dail and others, 2007; Goñi and others, 2007) from core group 1 and down-core plots of number of specimens picked, calculated number of specimens in 20 mL, percent planktonics, and number of species picked. A, 2004 HI5; B, 2005 BC3; C, 2007 BC2. Note that lineation at 30 cm on the X-radiograph for 2007 core BC2 (C) is an artifact of joining two images. Also, there is a break in the scales for number of specimens in 20 mL on A and B.

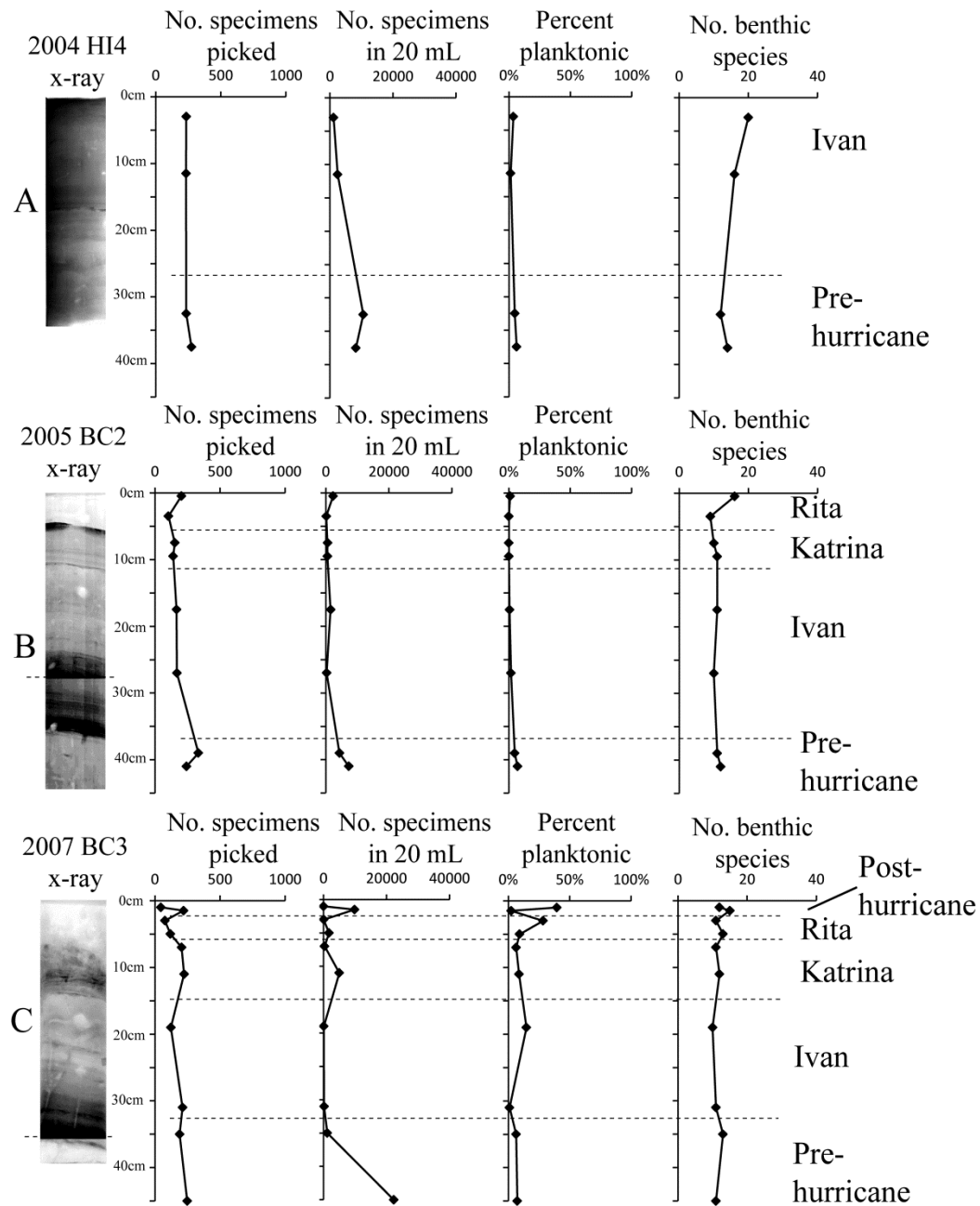


FIGURE 5. X-radiographs of cores showing hurricane units (Dail and others, 2007; Goñi and others, 2007) from core group 2 and down-core plots of number of specimens picked, calculated number of specimens in 20 mL, percent planktonics, and number of species picked. A, 2004 HI4; B, 2005 BC2; C, 2007 BC3. Note that lineations at ~ 27 cm on the X-radiograph for 2005 core BC2 (B) and at 35 cm for 2007 core BC3 (C) are both artifacts of joining two images.

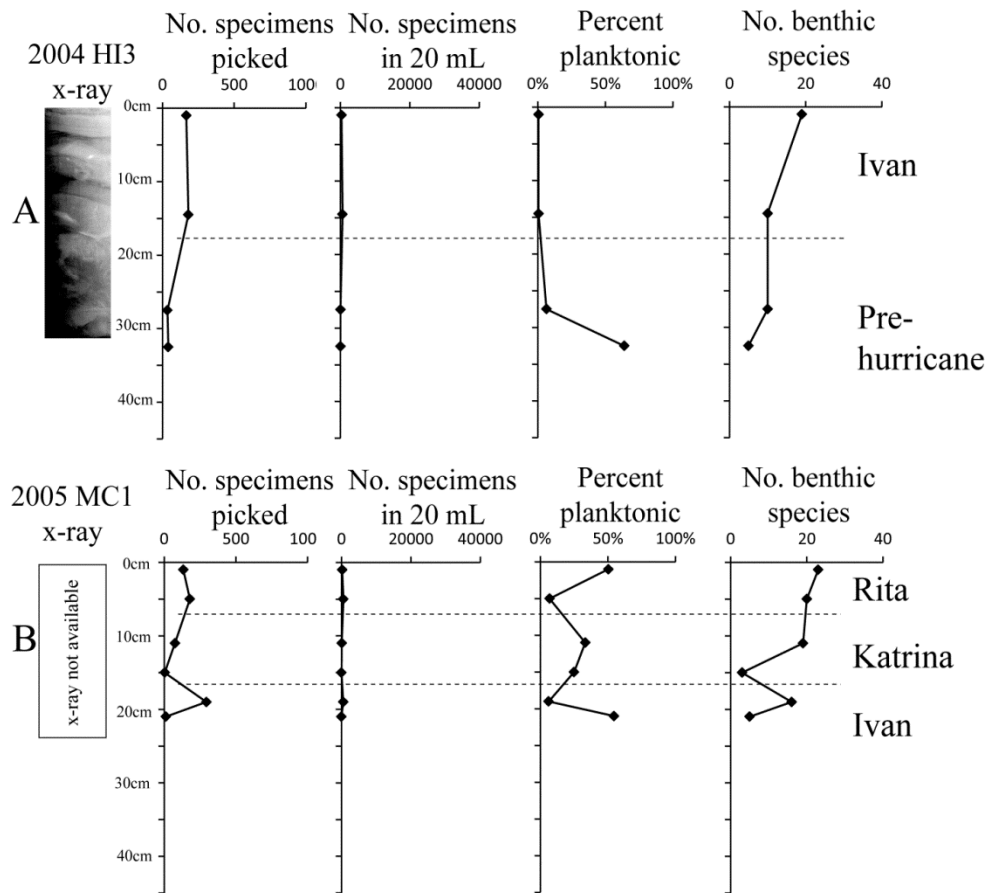


FIGURE 6. X-radiographs of cores showing hurricane units (Dail and others, 2007; Goñi and others, 2007) from core group 3 and down-core plots of number of specimens picked, calculated number of specimens in 20 mL, percent planktonics, and number of species picked. A, 2004 HI3; B, 2005 MC1.

lower in surface samples (PNR3, PNR4, and PNR5) taken from similar depths (Table 1; Fig. 7A, B).

The percentage of planktonic foraminifera is very variable between units and between cores (Figs. 4–6). Thus, it is unlikely that a hurricane unit could be identified using planktonic foraminiferal relative abundance (Table 1). Some samples (PNR5; 2007 BC3 0–2 cm and 2–4 cm; 2005 MC1 10–12 cm; 12–14 cm and 20–22 cm; 2004 HI3 25–30 cm and 30–35 cm), usually

those from the shallow end of the transect, had a very high percentages of planktonic foraminifera because they had a low overall foraminiferal density (Table 1). The various units still cannot be distinguished when samples that contained fewer than 100 specimens are excluded. Only the flood unit has a significantly lower density of planktonic foraminifera (Table 1).

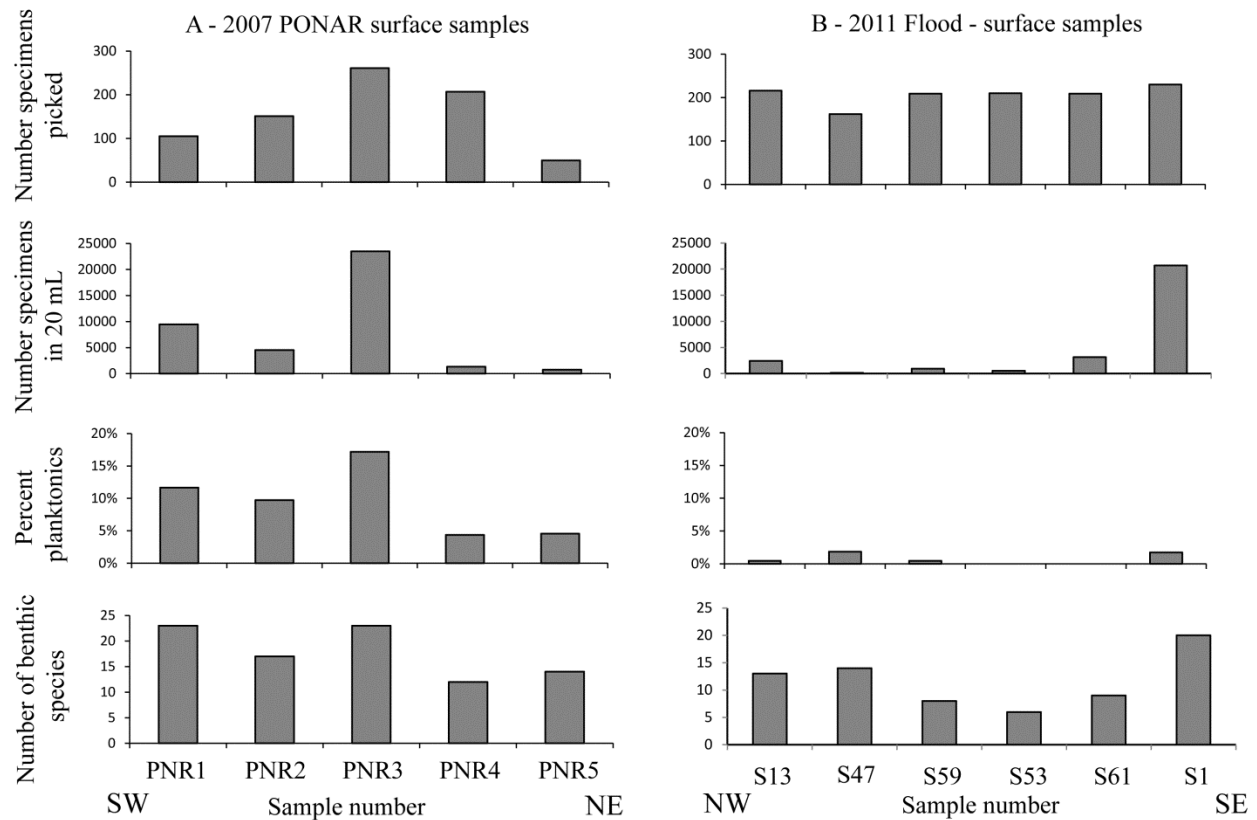


FIGURE 7. Plots of number of specimens picked, calculated number of specimen in 20 mL, percent planktonics, and number of species picked for A) PONAR surface grab samples plotted along the core group transect (NE to SW) and B) 2011 flood surface samples (arranged roughly NW to SE). See Fig. 2 for site locations.

TABLE 1. The percentage of planktonic foraminifera in each sample and the average percentage of planktonic foraminifera per unit type with standard deviation (σ) and coefficient of variation (c_v).

Unit type	Core/Sample ID	Core depth	Total foraminifera picked	Percent planktonics	Average percent planktonics	Average percent planktonics (samples with <100 specimens excluded)	σ	c_v
Post-Hurricane	PNR1	0-1 cm	105	11%	12%	9%	11.25	0.34
	PNR2	0-1 cm	151	9%				
	PNR3	0-1 cm	261	17%				
	PNR4	0-1 cm	207	4%				
	PNR5	0-1 cm	50	4%				
	2007 BC3	0-2 cm	46	37%				
		1-2 cm	220	2%				
	2007 BC2	1-2 cm	237	8%				
Pre-Hurricane	2004 HI3	25-30 cm	34	6%	9%	6%	9.31	0.29
		30-35 cm	40	40%				
	2004 HI4	30-35 cm	235	5%				
		35-40 cm	275	6%				
	2004 HI5	25-30 cm	267	8%				
		30-35 cm	327	4%				
	2005 BC2	38-40 cm	334	5%				
		40-42 cm	242	7%				
	2005 BC3	38-40 cm	320	7%				
		40-42 cm	292	5%				
	2007 BC3	36-38 cm	190	6%				
		44-46 cm	248	7%				
2007 BC2	22-24 cm	270	12%					
	32-34 cm	223	3%					
Flood unit	S1	0-1 cm	230	2%	1%	1%	0.83	0.45
	S13	0-1 cm	216	0%				
	S47	0-1 cm	162	2%				
	S53	0-1 cm	210	0%				
	S59	0-1 cm	209	0%				
	S61	0-1 cm	209	0%				

Bioturbated unit	2007 BC2	3-4 cm	235	10%	5%	5%	3.47	0.40
		8-9 cm	189	3%				
		13-14 cm	217	3%				
		15-16 cm	361	3%				
Hurricane Ivan	2004 HI3	0-2 cm	166	1%	8%	4%	14.14	0.5
		13-16 cm	180	1%				
	2004 HI4	2-4 cm	235	3%				
		10-13 cm	233	1%				
	2004 HI5	0-2 cm	196	3%				
		6-8 cm	206	2%				
	2005 MC1	18-20 cm	294	6%				
		20-22 cm	11	55%				
	2005 BC2	17-18 cm	166	1%				
		26-28 cm	169	2%				
	2005 BC3	24-26 cm	254	7%				
		32-34 cm	565	9%				
	2007 BC3	18-20 cm	123	15%				
		30-32 cm	212	1%				
Hurricane Katrina	2005 MC1	10-12 cm	75	32%	9%	3%	12.38	0.5
		14-16 cm	4	25%				
	2005 BC2	7-8 cm	153	0%				
		9-10 cm	140	0%				
	2005 BC3	5-6 cm	223	2%				
		7-8 cm	214	1%				
	2007 BC3	6-8 cm	205	6%				
		10-12 cm	224	8%				
Hurricane Rita	2005 MC1	0-2 cm	133	50%	12%	10%	17.37	0.5
		4-6 cm	179	7%				
	2005 BC2	0-1 cm	203	1%				
		3-4 cm	104	0%				
	2005 BC3	0-1 cm	182	1%				
		1-2 cm	204	1%				
	2007 BC3	2-4 cm	77	25%				
		4-6 cm	119	8%				

FORAMINIFERAL RELATIVE ABUNDANCE

Table 2 reports the average relative abundance per deposited unit of the 31 most abundant taxa, i.e., those that make up at least 5% of any one sample. The post- and pre-hurricane units are dominated by the same two species: *Epistominella vitrea* (37% and 48%, respectively), and *Buliminella morgani* (11% and 19%, respectively). *E. vitrea* also dominates both the bioturbated hurricane unit and the Hurricane Ivan unit (52% and 41%, respectively), accompanied by

abundant *Bolivina lowmani* (13% and 15%, respectively). The most abundant species in the Hurricane Katrina and Rita deposits is *Textularia earlandi* (27% and 15%). The flood deposit is dominated by *Nonionella opima* (32%), with abundant *E. vitrea* (24%), *B. lowmani* (15%) and *B. morgani* (12%).

ANOVA RESULTS

The ANOVAs which tested whether, for each of the 32 most common species, the mean abundances of all units were equal ($H_0 = \mu_1 = \mu_2 = \mu_3 = \mu_4$; where 1 = pre- and post-hurricane units, 22 observations; 2 = hurricane units, 30 observations; 3 = flood unit, 6 observations; and 4 = bioturbated hurricane unit, 4 observations), revealed that 13 of these species showed significant ($p \leq 0.1$) differences in abundance between units. Table 3 reports these results, as well as a test of the hypothesis (Scheffé's method) that the abundances of these ten taxa are equal between hurricane and non-hurricane units (not including the flood unit). Species which did not return a significant ($p \leq 0.1$) result for the ANOVAs were excluded from the hypothesis test. For each of the remaining species, with the exception of *Elphidium excavatum* and *Nonionella opima*, the p-value was significant ($p \leq 0.1$; significant p-values in bold in Table 3) and, therefore, the abundances are significantly different between hurricane and non-hurricane units. The average relative abundance of *N. opima* across all unit types (Table 2) shows that this species is much more abundant in the flood unit than in the bioturbated unit, hurricane units, and pre- and post-hurricane units. Therefore, Scheffé's hypothesis test was run again for *N. opima*, this time testing the hypothesis that the abundance of *N. opima* within the flood unit was equal to the abundances in all the other units.

This test returned a significant result ($p = 0.000$), meaning the abundance of *N. opima* was significantly different between the flood unit and all other units.

TABLE 2. Average relative abundances of the 32 species that make up at least 5% of any one sample; boxes indicate the two most abundant species in each deposit.

Species	Post-hurricane	Rita	Katrina	Ivan	Pre-hurricane	Bioturbated unit	Flood unit
<i>Ammonia parkinsoniana</i>	3.2%	2.4%	5.2%	4.3%	0.2%	1.8%	1.4%
<i>Ammonia tepida</i>	1.2%	9.9%	1.5%	3.0%	2.7%	3.7%	0.0%
<i>Bolivina barbata</i>	1.9%	1.8%	0.0%	0.3%	0.8%	0.2%	0.6%
<i>Bolivina daggarius</i>	1.1%	0.1%	0.3%	0.7%	1.5%	0.8%	2.4%
<i>Bolivina lowmani</i>	4.9%	13.2%	5.2%	14.6%	4.6%	13.3%	15.1%
<i>Bolivina ordinaria</i>	0.3%	0.4%	0.0%	0.6%	0.1%	0.0%	0.0%
<i>Bolivina striatula</i>	1.0%	2.1%	0.6%	0.9%	2.0%	0.8%	0.4%
<i>Bolivina translucens</i>	0.1%	2.5%	0.3%	0.6%	0.1%	0.4%	0.1%
<i>Bulimina marginata</i>	2.4%	0.3%	0.3%	0.7%	1.2%	0.3%	0.1%
<i>Buliminella morgani</i>	11.2%	10.8%	12.3%	7.3%	18.5%	8.6%	11.7%
<i>Cassidulina</i> cf. <i>C. minuta</i>	1.4%	0.3%	0.1%	0.3%	0.6%	0.8%	0.2%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0%	0.8%	1.3%	0.4%	0.0%	0.0%	0.0%
<i>Eggerella advena</i>	0.4%	5.9%	5.4%	1.5%	0.5%	0.0%	0.4%
<i>Eggerelloides scaber</i>	0.1%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%
<i>Elphidium excavatum</i>	0.0%	0.6%	0.0%	1.4%	1.0%	2.3%	0.1%
<i>Epistominella vitrea</i>	36.5%	10.6%	19.7%	41.2%	47.8%	51.9%	23.6%
<i>Eponides regularis</i>	0.0%	1.0%	0.8%	0.0%	0.0%	0.0%	0.0%
<i>Glomospira gordialis</i>	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
<i>Goesella mississippiensis</i>	0.8%	5.0%	0.3%	0.3%	0.0%	0.1%	0.3%
<i>Hanzawaia strattoni</i>	0.5%	0.1%	0.0%	1.4%	0.0%	0.0%	0.0%
<i>Haplophragmoides</i> sp. A	0.0%	0.1%	0.3%	1.4%	2.3%	0.0%	0.0%
<i>Haplophragmoides</i> sp. B	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%
<i>Nonionella opima</i>	8.2%	5.3%	5.6%	5.5%	6.6%	6.1%	31.9%
<i>Quinqueloculina</i> sp. A	0.0%	0.0%	2.6%	0.2%	0.0%	0.0%	0.0%
<i>Reophax bacillaris</i>	5.1%	0.4%	0.7%	0.2%	0.0%	0.0%	0.0%
<i>Reophax</i> sp. A	0.3%	0.8%	0.3%	0.1%	0.0%	0.0%	0.8%
<i>Sigmoilina distorta</i>	0.2%	2.2%	0.0%	0.1%	0.2%	0.0%	1.0%
<i>Textularia earlandi</i>	1.9%	14.5%	26.6%	3.6%	1.3%	0.0%	1.9%
<i>Triloculina</i> sp. A	0.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
<i>Trochammina</i> cf. <i>T. advena</i>	1.6%	0.0%	0.8%	0.0%	0.0%	0.0%	2.4%
<i>Trochammina</i> sp. B	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Uvigerina peregrina</i>	8.0%	2.2%	1.3%	1.4%	4.8%	3.8%	1.1%

In general, the results of the ANOVAs (Table 3) verify the trends that are apparent with an inspection of the results in Table 2.

DISCRIMINANT ANALYSIS

A discriminant analysis was performed to determine whether the four types of units (bioturbated hurricane unit, hurricane units, pre- and post-hurricane units, and flood unit) were statistically distinguishable based on their foraminiferal assemblages using taxa that made up at least 5% of the assemblage of any one sample. This analysis used 31 variables ($p = 31$ species), 62 observations ($n = 62$ samples), and four groups ($h = 4$ unit types). As p is greater than h , three canonical discriminant functions ($h - 1 = 3$) were possible.

The first canonical discriminant function (CDF) 1 explains 51.2% of the variance (Table 4), and distinguishes the bioturbated hurricane unit and pre- and post- hurricane units from the flood unit and the hurricane units (Table 5, Figure 8). The separation of unit types along CDF1 is mostly due to *Cassidulina* cf. *C. neocarinata*, *Glomospira gordialis*, *Hanzawaia strattoni*, *Nonionella opima*, *Reophax bacillaris*, *Sigmoilina distorta*, *Textularia earlandi*, and *Trochammina* cf. *T. advena* (Tables 6, 7).

CDF2, explaining 38.2% of the variance (Table 4), contrasts the flood unit and the pre- and post-hurricane units from each other and from the hurricane units and bioturbated hurricane unit (Table 5; Figure 8A). Along CDF2, separation is due mainly to *Bolivina barbata*, *Bolivina translucens*, *Eponides regularis*, *Glomospira gordialis*, *Hanzawaia strattoni*, *Reophax bacillaris*, and *Trochammina* cf. *T. advena* (Tables 6, 8).

CDF3, explaining the remaining 10.6% of the variance (Table 4), distinguishes the bioturbated hurricane unit from all the other units (Table 5, Figure 8B).

TABLE 3. Results of ANOVAs testing whether the mean abundance of each species is equal between all units (including the flood unit and bioturbated unit) and Scheffé's method test of the hypothesis that the mean abundance of each species is equal between hurricane and non-hurricane units (not including flood unit or bioturbated unit). Numbers in bold in the hypothesis test column indicate those taxa that returned a significant result ($p \leq 0.1$).

Species	ANOVA				Hypothesis test
	MS	F	df	p	p
<i>Ammonia parkinsoniana</i>	0.146	2.318	3	0.046	0.034
<i>Ammonia tepida</i>	0.123	1.292	3	0.276	
<i>Bolivina barbata</i>	0.038	1.830	3	0.110	
<i>Bolivina daggarius</i>	0.043	2.231	3	0.054	0.077
<i>Bolivina lowmani</i>	0.227	2.023	3	0.078	0.099
<i>Bolivina ordinaria</i>	0.005	0.467	3	0.830	
<i>Bolivina striatula</i>	0.034	1.760	3	0.125	
<i>Bolivina translucens</i>	0.018	0.885	3	0.513	
<i>Bulimina marginata</i>	0.048	2.672	3	0.024	0.001
<i>Buliminella morgani</i>	0.194	2.464	3	0.035	0.019
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.025	1.969	3	0.086	0.004
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.010	0.720	3	0.635	
<i>Eggerella advena</i>	0.180	4.170	3	0.002	0.000
<i>Eggerelloides scaber</i>	0.019	2.646	3	0.025	0.105
<i>Elphidium excavatum</i>	0.057	2.405	3	0.039	0.541
<i>Epistominella vitrea</i>	1.300	4.602	3	0.001	0.002
<i>Eponides regularis</i>	0.012	1.330	3	0.260	
<i>Glomospira gordialis</i>	0.010	0.660	3	0.682	
<i>Göesella mississippiensis</i>	0.050	1.493	3	0.198	
<i>Hanzawaia strattoni</i>	0.008	0.467	3	0.830	
<i>Haplophragmoides</i> sp. A	0.020	0.504	3	0.802	
<i>Haplophragmoides</i> sp. B	0.012	1.433	3	0.219	
<i>Nonionella opima</i>	0.458	3.319	3	0.007	0.311
<i>Quinqueloculina</i> sp. A	0.016	0.972	3	0.453	
<i>Reophax bacillaris</i>	0.035	0.965	3	0.457	
<i>Reophax</i> sp. A	0.008	0.827	3	0.554	
<i>Textularia earlandi</i>	0.895	5.692	3	0.000	0.000
<i>Triloculina</i> sp. A	0.003	0.650	3	0.690	
<i>Trochammina</i> cf. <i>T. advena</i>	0.030	1.441	3	0.216	
<i>Trochammina</i> sp. B	0.004	1.141	3	0.352	
<i>Uvigerina peregrina</i>	0.192	3.585	3	0.005	0.000

Ammonia tepida, *Bolivina ordinaria*, *B. translucens*, *Haplophragmoides* sp. A, *H.* sp. B, *Reophax bacillaris*, *Sigmoilina distorta*, and *Trochammina* cf. *T. advena* were the taxa that contributed most to the discrimination of units (Table 6, 9). Of the 17 species which contributed most to the discrimination of units in the discriminant analysis (those with boxes in Table 6), only three species were also significant in the ANOVA testing (Table 3).

TABLE 4. Canonical discriminant functions and corresponding eigenvalues for analysis (using species that comprise 5% or more of any one sample) of the four unit types: bioturbated hurricane unit, hurricane, pre- and post- hurricane, and flood units.

Function	Eigenvalue	% of Variance	Cumulative %
1	3.178	51.2%	51%
2	2.372	38.2%	89%
3	0.658	10.6%	100%

TABLE 5. Canonical scores of group (unit type) means.

Unit	Function		
	1	2	3
Bioturbated hurricane unit	-0.867	1.409	-2.868
Flood unit	1.984	-4.12	-0.471
Hurricane units	1.323	0.909	0.256
Pre- and post-hurricane units	-2.187	-0.371	0.301

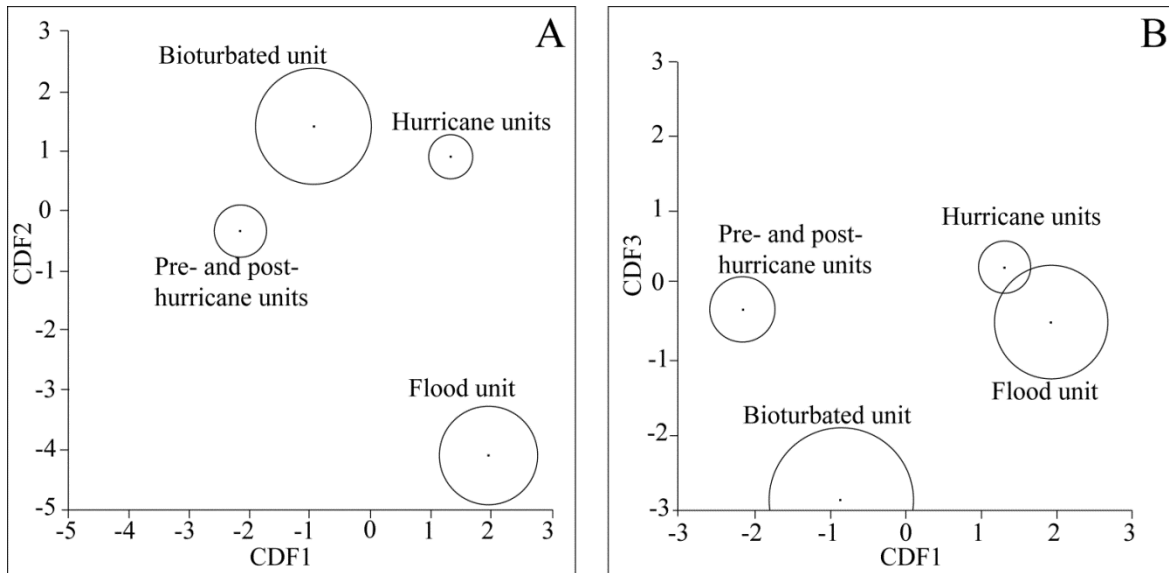


FIGURE 8. Plot of canonical discriminant functions (CDF) using the dataset of species that comprise at least 5% of the assemblage in any one sample. Points represent group centroids; circles represent 95% confidence intervals. A) CDF1 versus CDF2; B) CDF1 versus CDF3.

TABLE 6. Standardized discriminant function coefficients for variables (species that make up 5% or more of any one sample) used in the discriminant analysis. Boxes indicate those species that contribute most to separation along canonical discrimination functions.

	Function		
	1	2	3
<i>Ammonia parkinsoniana</i>	0.597	0.002	0.771
<i>Ammonia tepida</i>	0.116	0.402	-1.197
<i>Bolivina barbata</i>	0.359	-1.315	-0.444
<i>Bolivina daggarius</i>	-0.274	-0.486	0.071
<i>Bolivina lowmani</i>	0.574	-0.54	0.499
<i>Bolivina ordinaria</i>	-0.387	-0.734	1.203
<i>Bolivina striatula</i>	-0.568	0.117	0.217
<i>Bolivina translucens</i>	-0.447	1.181	-1.286
<i>Bulimina marginata</i>	-0.41	0.36	1.014
<i>Buliminella morgani</i>	-0.056	0.036	1.026
<i>Cassidulina</i> cf. <i>C. minuta</i>	-0.048	0.177	0.715
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	1.113	0.811	-0.019
<i>Eggerella advena</i>	0.192	-0.357	0.534
<i>Eggerelloides scaber</i>	-0.065	0.707	0.616
<i>Elphidium excavatum</i>	-0.07	0.331	0.113
<i>Epistominella vitrea</i>	0.328	-0.279	0.466
<i>Eponides regularis</i>	-0.435	-1.173	-0.394
<i>Glomospira gordialis</i>	2.02	1.402	-0.36
<i>Goesella mississippiensis</i>	0.592	0.5	0.412
<i>Hanzawaia strattoni</i>	-1.325	-1.083	0.581
<i>Haplophragmoides</i> sp. A	-0.463	-0.855	1.338
<i>Haplophragmoides</i> sp. B	0.336	0.165	-2.59
<i>Nonionella opima</i>	0.864	-0.954	0.49
<i>Quinqueloculina</i> sp. A	0.105	0.608	0.308
<i>Reophax bacillaris</i>	0.955	1.526	-1.539
<i>Reophax</i> sp. A	-0.264	0.363	0.733
<i>Sigmoilina distorta</i>	0.873	-0.166	1.324
<i>Textularia earlandi</i>	0.629	-0.375	0.839
<i>Triloculina</i> sp. A	0.332	-0.102	0.468
<i>Trochammina</i> cf. <i>T. advena</i>	-0.794	-1.425	2.037
<i>Trochammina</i> sp. B	-0.657	-0.823	0.722
<i>Uvigerina peregrina</i>	-0.745	0.605	-0.919

TABLE 7. Summary of species contributing to the discrimination of unit types along CDF1 using a dataset consisting of species that comprise 5% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 1 (Distinguishes bioturbated and pre- and post-hurricane units from flood and hurricane units)		
Species	Occurrence	Species habitat
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	Only in hurricane deposits, only in core group 3 (shallow core group)	Low DO tolerant; shelf to bathyal (Murray, 2006)
<i>Glomospira gordialis</i>	One specimen in one MC1 Ivan sample (core group 3; shallow), one in 2005 BC3 Ivan sample (core group 1; deepest)	Slope (Culver and Buzas, 1981a)
<i>Hanzawaia strattoni</i>	One specimen in one 2007 BC3 post-hurricane sample (core group 2, mid-depth) and one each in the Rita and Ivan deposits in MC1 (core group 3; shallow, proximal)	Inner shelf (Culver and Buzas, 1981a)
<i>Nonionella opima</i>	Ubiquitous, but especially abundant in the flood deposit	Shelf and slope (Culver and Buzas, 1981a); Low DO tolerant (Blackwelder and others, 1996)
<i>Reophax bacillaris</i>	Fairly common; most abundant species in PNR 5 (shallowest surface sample) and otherwise only occurs in hurricane samples	
<i>Sigmoilina distorta</i>	Occurs in small numbers in all unit types except the bioturbated unit; highest numbers in Rita unit in core MC1 (core group 3; shallow)	Shelf (Parker, 1954)
<i>Textularia earlandi</i>	Occurs in all units; most abundant in the Katrina and Rita units of the mid and deep core groups. In the post-hurricane unit, the highest abundance occurs in PNR5 (shallowest surface sample).	Shallow infaunal, low DO tolerant (Bernhard and others, 1997); Mississippi River Plume area (Parker, 1954)
<i>Trochammina</i> cf. <i>T. advena</i>	Rare, except in PNR5 (shallowest surface sample), one Katrina sample in MC1 (core group 3; shallow), and in the flood sample S47 (closest flood sample to Southwest Pass)	Shelf and slope (Culver and Buzas, 1981a)

TABLE 8. Summary of species contributing to the discrimination of unit types along CDF2 using a dataset consisting of species that comprise 5% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 2 (Distinguishes flood and pre- and post-hurricane units from bioturbated and hurricane units)		
Species	Occurrence	Species habitat
<i>Bolivina barbata</i>	Occurs in all units; most abundant in the deeper-water flood and pre- and post- hurricane samples (absent in PNR4 and PNR5 as well as core MC1); rare to absent in the hurricane and bioturbated unit samples.	Shelf, slope (Culver and Buzas, 1981a)
<i>Bolivina translucens</i>	Most abundant in hurricane units in core group 3 (shallow); least common in the pre- and post-hurricane units in all cores.	Shelf to abyssal (Culver and Buzas, 1981a)
<i>Eponides regularis</i>	Occurs only in the Katrina and Rita units in core MC1.	Shelf to abyssal (Murray, 2006)
<i>Glomospira gordialis</i>	See table 7	
<i>Hanzawaia strattoni</i>	See table 7	
<i>Reophax bacillaris</i>	See table 7	
<i>Trochammina</i> cf. <i>T. advena</i>	See table 7	

TABLE 9. Summary of species contributing to the discrimination of unit types along CDF3 using a dataset consisting of species that comprise 5% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

Species	CDF 3 (Distinguishes bioturbated unit from all other units)	
	Occurrence	Species habitat
<i>Ammonia tepida</i>	Occurs in all units except the flood unit, but is more common in the bioturbated unit and hurricane units than in the pre- and post-hurricane units.	Common in various marginal marine environments, low DO tolerant (Phleger, 1965)
<i>Bolivina ordinaria</i>	Absent in the flood unit and bioturbated unit; occurs as a rare species in a few samples in all other units.	Shelf, slope >50 m water depth (Culver and Buzas, 1981a)
<i>Bolivina translucens</i>	See table 7	
<i>Haplophragmoides</i> sp. A	Absent in the flood unit and bioturbated unit; common species in one Ivan sample in core MC1 and two pre-hurricane samples in HI3 (core group 3; shallow and proximal) and occurs as a rare species in the Katrina and Rita units in 2005 core BC2 (core group 2, mid depth)	Marshes to bathyal (Murray, 2006)
<i>Haplophragmoides</i> sp. B	See table 7	
<i>Reophax bacillaris</i>	See table 7	
<i>Sigmoilina distorta</i>	See table 7	
<i>Trochammina</i> cf. <i>T. advena</i>	See table 7	

CHAPTER 4: DISCUSSION

Foraminiferal data indicate that factors controlling the species composition of assemblages within the hurricane units and the non-hurricane units are complex. The sediment and foraminiferal assemblages of the hurricane units differ from those of the pre- and post-hurricane units. In general, the hurricane units of the deeper core groups 1 and 2 contained more sand and less benthic foraminifera than the pre- and post-hurricane units (Figs. 4–6). The density of foraminifera in the hurricane units of the cores most proximal to Southwest Pass, however, was higher than in the pre-storm unit (Figs. 4–6). This is likely due to the fact that the foraminiferal community during non-hurricane (pre-storm) conditions is affected by the Mississippi River Plume (low dissolved oxygen, rapid burial) and thus foraminiferal densities are normally low. The material that comprises the hurricane units in these shallower cores must contain some sediment transported from an area of less stressful conditions more distal to Southwest Pass that has higher foraminiferal densities.

The foraminifera of the hurricane units were often visibly abraded and broken (for examples, see Plate 1, Fig. 17a, b; Plate 2, Figs. 26 and 28). The hurricane units also contain foraminifera from several environments (coastal, shelf, and upper slope) suggesting sources of resuspended material both landward and seaward of the study area, as well as locally-resuspended material (Appendix C). In addition, assemblages of benthic foraminifera show different patterns between storm and non-storm units across the three core groups. Some of these differences help identify resuspension, transportation and deposition of sediment within the study area (Tables 7–9).

STORM-RELATED SEDIMENT TRANSPORT INFERRED FROM FORAMINIFERAL DATA

The hurricane units contain high relative abundances of many of the same taxa that dominate the local assemblage (i.e., the assemblage of the pre- and post-hurricane units in the same core group) such as *Epistominella vitrea*, *Buliminella morgani*, *Bulimina marginata*, *Uvigerina peregrina* and *Nonionella opima* (Table 2). The high relative abundances of these species in the hurricane units, although they are significantly lower than in the pre- and post-hurricane units, suggest that a large portion of the sediment contained in the hurricane units is resuspended shelf sediment (Tables 2, 3). Even some of the less abundant taxa which contribute to the discrimination of unit types (Tables 6, 7–9) do not appear to have been transported very far. For example, *Trochammina* cf. *T. advena*, which is most common at the shallow end of the transect (core group 3, Fig. 2), also occurs in a Hurricane Katrina sample at the shallow end of the transect. *Bolivina barbata*, which was more common in the pre- and post-hurricane units at the deeper end of the transect (core groups 1 and 2, Fig. 2), also occurs in the hurricane units at the deeper end of the transect (Appendix C, D). The specimens of these two species found within the hurricane samples were most likely resuspended and deposited in the same general area.

Some of the other species that contributed to the discrimination of unit types inhabit the shallow, proximal end of the transect and were transported seaward by the hurricanes (Tables 7–9). For example, *Reophax bacillaris*, *Haplophragmoides* sp. A, *H.* sp. B, and *Bolivina ordinaria* occur as common to abundant species in pre- and post-hurricane samples exclusively or more commonly at the shallower end of the transect (core group 3) but in hurricane samples exclusively or more commonly at the deeper end of the transect (core groups 1 and 2; Appendix C, D). *Textularia earlandi* is a common species at the shallow end of the transect (core group 3) in the pre- and post- hurricane units (Appendix C, D). This species occurs in greatest abundance

(approaching 80%) in areas less than 10 km from the river mouth of Southwest Pass at less than 80 m water depth (Parker, 1954). This species was also found at the deeper end of the transect, but almost exclusively in the hurricane deposits, suggesting these specimens were transported seaward by the hurricanes. The hurricane units also contained a higher abundance of *T. earlandi* than did the pre- and post-hurricane units, indicating some of the sediment was transported seaward from a location even more proximal to the river mouth than the transect itself (Table 2).

The Rita unit shows an increase in the abundance of *Ammonia tepida*, while the Katrina and Ivan units show an increase in the abundance of *A. parkinsoniana* (Tables 2 and 3). These two species were generally more abundant in the hurricane unit samples (especially at the deep end of the transect) than in the pre- and post- hurricane units (Table 2). The fact that one *Ammonia* species is more abundant in one hurricane unit than another may have to do with the hurricane tracks, as Rita passed to the west of the study area and Katrina and Ivan passed to the east. Exactly where these specimens came from is difficult to narrow down, however. These species occupy a wide range of coastal habitats, including the one that they occurred in (inner shelf) in this study, although they are generally more abundant in paralic environments (Phleger, 1965). Therefore, the specimens of *A. parkinsoniana* and *A. tepida* contained in the hurricane units were likely transported seaward, though it is hard to say whether they are from the inner shelf or a paralic habitat, or both.

Bolivina lowmani was also shown by ANOVA to be more abundant in the hurricane than in the pre- and post-hurricane units (Table 3). In the post-hurricane samples, this common species was slightly more abundant at the deeper end of the transect, though there was no such pattern in the pre-hurricane units (Appendix D). According to Parker (1954), this species is most abundant in deeper waters, comprising 8% of the assemblage at 1730 m, though it can also occur

on the shelf. In this study, *B. lowmani* was more abundant at the shallower end of the transect in the Ivan unit and more abundant at the deeper end of the transect in the Katrina unit. These patterns, especially in the Ivan unit, might be indicative of some landward transport of sediment from a deeper area with more abundant *B. lowmani*.

Some species contributing to the discrimination of units occurred only in hurricane unit samples, and are thus interpreted as belonging to an allochthonous portion of the sediment deposited by the hurricanes. *Cassidulina* cf. *C. neocarinata*, *Eponides regularis*, and *Glomospira gordialis* are all mainly slope species, though *C. neocarinata* can occur as shallow as 75 m (Parker, 1954). These species were found only in the hurricane units and only at the shallow end of the transect (core group 3), which, at 27–30 m water depth is out of the documented depth ranges for all three species. Thus, these specimens were likely transported landward by the hurricanes from outside of the study area.

The marginal marine species *Eggerella advena* was shown by ANOVA to be significantly more abundant in hurricane units than in pre- and post-hurricane units (Phleger, 1965; Table 3). This species does occur in the pre- and post-hurricane units, but in low relative abundance (<4%), and is not more common at one end of the transect than the other. In the hurricane units, this species is more abundant on the deeper end of the transect (core group 1 and 2). *Eggerella advena* has been recorded on the landward side of Timbalier Island and in Terrebone Bay on the western Mississippi Delta by Scott and others (1991). Though this species does occur on the shelf, the higher relative abundances encountered in the hurricane units may indicate seaward transport by the hurricanes from a more coastal environment with more abundant *E. advena*.

In addition to the above species that made up at least 5% of any one sample, *Arenoparrella mexicana*, *Jadammina macrescens*, and *Haplophragmoides wilberti* occurred as

rare species (<2%) in the two samples in the Rita unit in core group 3 (Appendix C, D). *A. mexicana*, *J. macrescens* and *H. wilberti* are salt marsh species (Phleger, 1965). These records indicate that marsh species can be transported far offshore presumably following the seaward draining of Gulf waters from marshes flooded by storm surge.

THE FLOOD UNIT

The foraminiferal assemblage in flood unit samples look very different from those of the hurricane units and the other units. While there were usually very few live specimens in samples in the other units, the foraminifera in the flood unit were almost all live at the time of collection. These live specimens also tended to be much smaller than those of the same species found in other units, sometimes almost half the size of their hurricane or pre- and post-hurricane counterparts. Abundance data, ANOVA results, and discriminant analysis all clearly distinguish the flood unit from the hurricane units and rest of the units (Tables 1–3, 7–9).

The flood unit has the lowest diversity of all the deposits (Table 10) and is dominated by *Nonionella opima* (average relative abundance of 32%). Most of the species (with the exception of *N. opima* and *Haplophragmoides* sp. B) that contribute to the discrimination of the units do not occur in the flood unit. The other abundant species in this unit were *E. vitrea* (24%), *B. lowmani* (15.1%), and *B. morgani* (11.7%), which are all low oxygen-tolerant taxa (Blackwelder and others, 1996; Platon and others, 2005; Osterman and others, 2005). The relatively high abundance of these species may reflect low dissolved oxygen in bottom waters related to the flood event. The increased river discharge due to the flood event may have indirectly affected bottom-water oxygen concentrations by increasing nutrient flux (causing eutrophication) or by increasing the stratification of the water column (Rabalais and others, 2001). The low diversity

and high density of small, live specimens indicates rapid post-flood colonization of the flood-affected region by opportunistic, low oxygen tolerant species.

TABLE 10. Measures of species diversity; average number of species (S) per sample and average values for alpha (α) for each unit type. Samples that contained too few specimens to calculate an alpha value were not included in that average.

Unit	Average number of species (S)	mean α
Bioturbated	19	4.763
Post-hurricane	16	5.261
Rita	16	5.584
Ivan	15	4.053
Katrina	13	3.316
Pre-hurricane	13	3.345
Flood	12	2.795

BIOTURBATION

The average relative abundances per unit of the most common species (Table 2) show that the foraminiferal assemblage of the bioturbated unit is discernible from that of the Hurricane Katrina and Rita units. The bioturbated unit is dominated by the same species as the other units (*E. vitrea*, *B. lowmani*, *B. morgani*, *N. opima*, and *A. tepida*), the relative abundances of which compare most readily with those of the Hurricane Ivan unit (Table 2). The bioturbated unit does not contain the high relative abundance of *Texularia earlandi* that occurs in hurricanes Katrina and Rita, and also has a much higher relative abundance of *Epistominella vitrea* (52%) than any other deposit (Table 2). The discriminant analysis (Table 9) shows that the bioturbated unit is discrete from the hurricane units in general. The separation of the bioturbated unit from the other hurricane units is surprising, as it is composed of amalgamated hurricane units, possibly

intermixed (via bioturbation) with some post-hurricane material.

The clear separation of the bioturbated hurricane unit from the other hurricane units shows that the foraminiferal signal of a hurricane unit is significantly altered by bioturbation, and can become unrecognizable after just two years. This demonstrates the importance of a thick enough event bed so that some sediment is below the limit of bioturbation, or a fast enough sediment accumulation rate to preserve an event deposit in this environment (Wheatcroft, 1990).

CHAPTER 5: CONCLUSIONS

The foraminiferal abundances within several known, previously-studied deposits from Hurricanes Katrina, Rita, and Ivan were investigated to determine whether hurricane units can be differentiated from non-hurricane (pre- and post-hurricane and flood) units based solely on foraminiferal data, as well as to gain insight on the provenance of the sediment deposited by the hurricanes. In shallow, proximal areas where benthic foraminiferal abundances are normally low, hurricane samples contained much higher densities of foraminifera. In deeper water, where benthic foraminifera occur with high densities, the hurricane samples contained lower densities of foraminifera than the non-hurricane samples. ANOVA and discriminant analysis show that the hurricane units and the non-hurricane (pre- and post-hurricane) units are statistically discrete.

Average relative abundances and results of ANOVAs suggest some marsh and/or lagoonal sediment input onto the shelf. These analyses also indicate that suspended sediment was transported and redeposited seaward on the shelf by the hurricanes. In contrast, landward transport of sediment deposited closest to the river mouth was also indicated.

Discriminant analysis revealed that some of the less abundant taxa were important in the discrimination of the hurricane units from the pre- and post-hurricane units. Many of the species which contributed most to the discrimination of these units occurred in the pre-hurricane unit almost exclusively in the cores closest to the Mississippi river mouth and in cores at greater water depth only in the hurricane units, suggesting some downslope transport of foraminifera. Some other species contributing to the discrimination of the hurricane and pre- and post-hurricane units were found in both of these units, but only in the deeper cores, possibly suggesting some local resuspension. Slope species were found only in the hurricane units at the

shallow end of the transect, indicating they were transported landward by the hurricanes from outside the study area.

The hurricane deposits within one core (collected two years after the last hurricane) had become bioturbated. ANOVA and discriminant analysis showed that the foraminiferal assemblage of this bioturbated unit was discrete from that of the rest of the hurricane units, suggesting that a short period of bioturbation in the study area was enough to make a hurricane event bed unrecognizable. Results of ANOVA and discriminant analysis also indicated that the foraminiferal assemblage of a flood event deposit, which is characterized by opportunistic, low oxygen tolerant species, can be distinguished from that of a hurricane event deposit.

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PLATE 1

Scale bars represent 50 μm

Figure 1a, b: *Ammonia parkinsoniana*

Figure 2a, b: *Ammonia tepida*

Figure 3: *Bolivina barbata*

Figure 4: *Bolivina daggarius*

Figure 5: *Bolivina lowmani*

Figure 6: *Bolivina ordinaria*

Figure 7: *Bolivina striatula*

Figure 8: *Bolivina translucens*

Figure 9: *Bulimina marginata*

Figure 10: *Buliminella morgani*

Figure 11: *Cassidulina* cf. *C. minuta*

Figure 12: *Cassidulina* cf. *C. neocarinata*

Figure 13: *Eggerella advena*

Figure 14: *Eggerelloides scaber*

Figure 15: *Elphidium excavatum*

Figure 16a, b: *Epistominella vitrea*

Figure 17a, b: *Eponides regularis*

Figure 18: *Glomospira gordialis*

Figure 19: *Goesella mississippiensis*

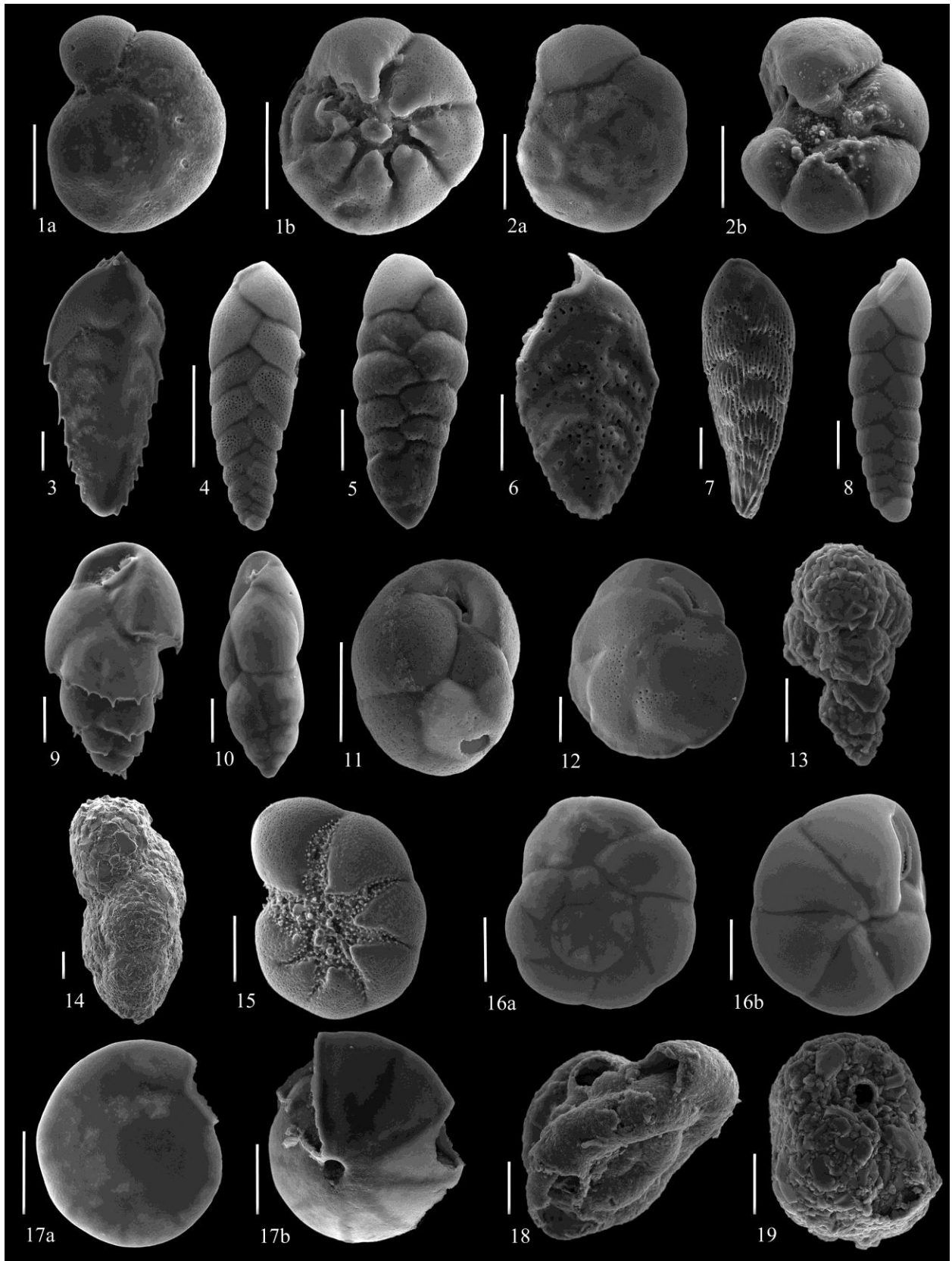


PLATE 2

Scale bars represent 50 μm

Figure 20: *Hanzawaia strattoni*

Figure 21: *Haplophragmoides* sp. A

Figure 22: *Haplophragmoides* sp. B

Figure 23a, b: *Nonionella opima*

Figure 24a, b: *Quinqueloculina* sp. A

Figure 25: *Reophax bacillaris*

Figure 26: *Reophax* sp. A

Figure 27: *Sigmoilina distorta*

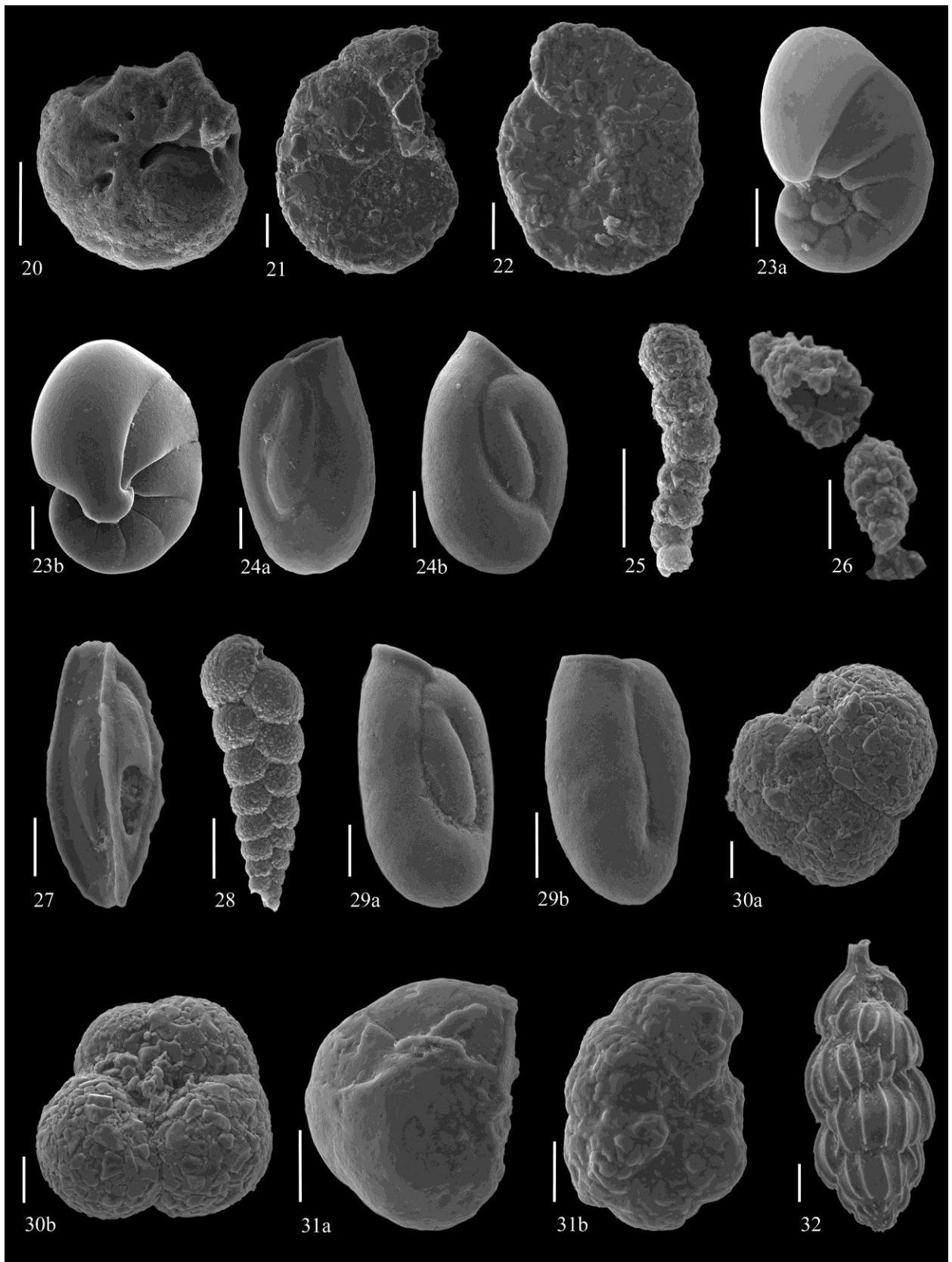
Figure 28: *Textularia earlandi*

Figure 29a, b: *Triloculina* sp. A

Figure 30a, b: *Trochammina* cf. *T. advena*

Figure 31a, b: *Trochammina* sp. B

Figure 32: *Uvigerina peregrina*



APPENDIX A: TAXONOMIC REFERENCE LIST

Taxonomic notes concerning the species figured on plates 1 and 2 as well as the three rare marsh species (*Arenoparrella mexicana*, *Jadammina macrescens*, and *Haplophragmoides wilberti*) mentioned in the text.

Ammonia parkinsoniana (d'Orbigny) = *Rosalina parkinsoniana* d'Orbigny, 1839, p. 99, pl. 4, figs. 25–27.

Ammonia tepida (Cushman) = *Rotalia beccarii* (Linné) var. *tepida* Cushman, 1926, p. 79, pl. 1, figs. 8a, b, c.

Arenoparrella mexicana (Kornfeld) = *Trochammina inflata* (Montagu) var. *mexicana* Kornfeld, 1931, p. 86, pl. 13, fig. 5.

Bolivina barbata Phleger and Parker, 1951, p. 13, pl. 6, figs. 12a, b, 13.

Bolivina daggarius Parker, 1955, p. 52 = *Bolivina lanceolata* Parker 1954, p. 514, pl. 7, figs. 17, 18, 19, 20.

Bolivina lowmani Phleger and Parker, 1951, p. 13, pl. 6, figs. 20a, b, 21.

Bolivina ordinaria Phleger and Parker, 1952, p. 14.

Bolivina striatula Cushman, 1922, p. 27, pl. 3, fig. 10.

Bolivina translucens Phleger and Parker, 1951, p. 15, pl. 7, figs. 13, 14a, b.

Bulimina marginata d'Orbigny, 1826, pl. 12, figs. 10–12.

Buliminella morgani Andersen, 1961, p. 87, pl. 19, fig. 10.

Cassidulina cf. *C. minuta* = *Cassidulina minuta* Cushman, 1933, p. 92, pl. 10, figs. 3a–e.

Cassidulina cf. *C. neocarinata* = *Cassidulina neocarinata* Thalmann, 1950, p. 44.

Eggerella advena (Cushman) = *Vernueilina advena* Cushman, 1921, p. 141, pl. 1 fig. F.

Eggerelloides scaber (Williamson) = *Bulimina scabra* Williamson, 1858, p. 65, pl. 5, figs. 136, 137, (*B. arenacea* in plate explanation).

Elphidium excavatum (Terquem) = *Polystomella excavata* Terquem, 1875, p. 20, pl. 2, figs. 2a, b.

Epistominella vitrea Parker, Phleger and Peirson, 1953, p. 9, pl. 4, figs. 34–36, 40, 41.

Eponides regularis Phleger and Parker, 1951, p. 21, pl. 11, figs. 3a, b, 4a–c.

Glomospira gordialis Cushman 1918, p. 99, pl. 36, figs. 7–9.

Goesella mississippiensis Parker 1954, p. 511, pl. 3, fig. 13, 14, 19.

Hanzawaia strattoni (Applin) = *Truncatulina americana* (Cushman) var. *strattoni*. Applin and others, 1925, p. 99, pl. 3, fig. 8.

Haplophragmoides wilberti Andersen, 1953, p. 21, pl. 4, fig. 7.

Jadammina macrescens (Brady) = *Trochammina inflata* (Montagu) var. *macrescens* Brady, in Brady and Robertson, 1870, p. 47, pl. 11, figs. 5a–c.

Nonionella opima Cushman, 1947, p. 90, pl. 20, figs. 1–3

Reophax bacillaris Brady, 1881, p. 49. Brady, 1884, p. 37, pl. 30, figs. 23 a, b, 24.

Sigmoilina distorta Phleger and Parker, 1951, p. 8, pl. 4, figs. 3, 4, 5.

Textularia earlandi Parker, 1952, p. 458. Parker and Athearn, 1959, p. 340, p. 50, fig. 7.

Trochammina cf. *T. advena* = *Trochammina advena* Cushman 1922, p. 20, pl. 1, figs. 2–4.

Uvigerina peregrina Cushman, 1923, p. 166, pl. 42, figs. 7–10.

APPENDIX B: CORE AND SAMPLE LOCATIONS AND WATER DEPTHS

Core and Surface Sample Locations and Water Depths			
Surface Samples			
Station	Latitude (decimal degrees)	Longitude (decimal degrees)	Water Depth (m)
S1	28.7778	-89.4086	89
S13	28.8797	-89.5214	47
S47	28.8828	-89.4746	9
S53	28.8663	-89.4588	26
S59	28.8706	-89.4769	25
S61	28.8505	-89.4618	44
PNR1	28.6230	-89.7709	170
PNR2	28.6701	-89.7083	100
PNR3	28.7084	-89.6505	95
PNR4	28.8334	-89.5107	60
PNR5	28.8734	-89.4672	27
Core Group 1			
Station	Latitude (decimal degrees)	Longitude (decimal degrees)	Water Depth (m)
2004 HI5	28.7511	-89.5966	88
2005 BC3	28.7526	-89.5930	85
2007 BC2	28.7532	-89.5966	91
Core Group 2			
Station	Latitude (decimal degrees)	Longitude (decimal degrees)	Water Depth (m)
2004 HI4	28.8005	-89.5384	83
2005 BC2	28.8010	-89.5380	80
2007 BC3	28.8029	-89.5404	86
Core Group 3			
Station	Latitude (decimal degrees)	Longitude (decimal degrees)	Water Depth (m)
2004 HI3	28.8816	-89.4975	30
2005 MC1	28.8802	-89.4974	27

APPENDIX C: RAW CENSUS DATA

Sample ID	PNR1	PNR2	PNR3	PNR4	PNR5
Core Depth	0-1 cm	0-1 cm	0-1 cm	0-1 cm	0-1 cm
<i>Ammonia parkinsoniana</i>	1	6			5
<i>Ammonia</i> sp.					
<i>Ammonia tepida</i>	2	5		2	
<i>Ammotium</i> sp.					2
<i>Anomalinoidea</i> sp. B			2		
<i>Bolivina barbata</i>	1	9	12		
<i>Bolivina daggarius</i>	4				
<i>Bolivina lowmani</i>	7	8	13	8	
<i>Bolivina ordinaria</i>					1
<i>Bolivina</i> sp.					
<i>Bolivina</i> sp. A	1	1			
<i>Bolivina striatula</i>		1	4	2	
<i>Bolivina subaenariensis mexicana</i>	3				
<i>Bolivina translucens</i>			1		
<i>Bulimina marginata</i>	4	6	14	5	
<i>Bulimina</i> sp.	1				
<i>Buliminella elegantissima</i>	1				
<i>Buliminella morgani</i>	1	7	22	15	1
<i>Cassidulina</i> cf. <i>C. minuta</i>	6		2		1
<i>Cassidulinoidea tenuis</i>			1		
<i>Cibicides</i> sp.	1				
<i>Cibicides</i> sp. B	1		1		
<i>Cibicides</i> sp. C		1			
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>					1
<i>Eggerella advena</i>		2	1	3	
<i>Eggerelloidea scaber</i>		1			
<i>Elphidium gunteri</i>	1				
<i>Elphidium mexicanum</i>	1				
<i>Elphidium</i> sp.					
<i>Epistominella vitrea</i>	20	70	84	149	
<i>Eponides</i> sp.	2				
<i>Eponides turgidus</i>	2		3		
<i>Fursenkoina pontoni</i>		1			
<i>Goesella mississippiensis</i>					
<i>Hanzawaia strattoni</i>					
<i>Haplophragmoides</i> sp.					1
<i>Haplophragmoides</i> sp. B					1
<i>Lagena</i> cf. <i>L. clavata</i>			1		
<i>Lenticulina</i> cf. <i>L. peregrina</i>			4		
<i>Nonionella opima</i>	13	1	7	9	
<i>Oolina hexagona</i>			1		
<i>Oridorsalis umbonatus</i>			1		
<i>Quinqueloculina</i> sp.				1	
<i>Quinqueloculina</i> sp. C				1	

<i>Reophax bacillaris</i>					17
<i>Reophax</i> sp. A					1
<i>Sigmoilina distorta</i>		1	2		
<i>Spirobolivina</i> sp.					
<i>Textularia candeina</i>			1		
<i>Textularia earlandi</i>	1	1			3
<i>Textularia</i> sp. B					1
<i>Triloculina</i> sp. A				1	
<i>Trochammina</i> cf. <i>T. advena</i>			1		5
<i>Trochammina</i> sp. B					2
<i>Uvigerina peregrina</i>	16	9	33	2	
<i>Valvulinaria mexicana</i>	1		1		
Total benthics (N)	91	130	212	198	42
Planktonic foraminifera	12	14	44	9	2
Indeterminate miliolids	0	0	0	0	0
Indeterminate rotaliids	2	7	5	0	0
Indeterminate textulariids	0	0	0	0	6
Number of species (S)	23	17	23	12	14
Sum including indeterminates and planktonics	105	151	261	207	50
Fraction picked	0.011	0.033	0.011	0.156	0.067
Total in 20 mL	9450	4530	23490	1331	750

Sample ID Core Depth	2007 BC3 0-2 cm	2007 BC3 1-2 cm	2007 BC2 1-2 cm
<i>Ammonia parkinsoniana</i>	2		
<i>Ammonia</i> sp.	1		
<i>Ammonia tepida</i>		5	
<i>Ammotium</i> sp.			
<i>Anomalinoidea</i> sp. B			
<i>Bolivina barbata</i>			4
<i>Bolivina daggarius</i>		9	
<i>Bolivina lowmani</i>	1	9	16
<i>Bolivina ordinaria</i>			
<i>Bolivina</i> sp.	1		
<i>Bolivina</i> sp. A			
<i>Bolivina striatula</i>		1	8
<i>Bolivina subaenariensis mexicana</i>			
<i>Bolivina translucens</i>		1	
<i>Bulimina marginata</i>		1	1
<i>Bulimina</i> sp.			
<i>Buliminella elegantissima</i>		1	
<i>Buliminella morgani</i>	7	46	31
<i>Cassidulina</i> cf. <i>C. minuta</i>		1	1
<i>Cassidulinoidea tenuis</i>			
<i>Cibicides</i> sp.			
<i>Cibicides</i> sp. B			
<i>Cibicides</i> sp. C			
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>		1	1
<i>Eggerella advena</i>			
<i>Eggerelloidea scaber</i>			
<i>Elphidium gunteri</i>			
<i>Elphidium mexicanum</i>			
<i>Elphidium</i> sp.	1		3
<i>Epistominella vitrea</i>	3	78	114
<i>Eponides</i> sp.			
<i>Eponides turgidus</i>			
<i>Fursenkoina pontoni</i>			
<i>Goesella mississippiensis</i>	1	1	5
<i>Hanzawaia strattoni</i>	1		
<i>Haplophragmoides</i> sp.			
<i>Haplophragmoides</i> sp. B			
<i>Lagena</i> cf. <i>L. clavata</i>			
<i>Lenticulina</i> cf. <i>L. peregrina</i>			1
<i>Nonionella opima</i>	3	52	14
<i>Oolina hexagona</i>			
<i>Oridorsalis umbonatus</i>			
<i>Quinqueloculina</i> sp.			
<i>Quinqueloculina</i> sp.C			
<i>Reophax bacillaris</i>			
<i>Reophax</i> sp. A			
<i>Sigmoilina distorta</i>			

<i>Spirobolivina</i> sp.			1
<i>Textularia candeina</i>			
<i>Textularia earlandi</i>	1	5	
<i>Textularia</i> sp. B			
<i>Triloculina</i> sp. A			
<i>Trochammina</i> cf. <i>T. advena</i>			1
<i>Trochammina</i> sp. B			
<i>Uvigerina peregrina</i>	4	3	13
<i>Valvulinaria mexicana</i>			
Total benthics (N)	26	214	214
Planktonic foraminifera	17	5	19
Indeterminate miliolids	0	0	0
Indeterminate rotaliids	3	1	3
Indeterminate textulariids	0	0	1
Number of species (S)	12	15	15
Sum including indeterminates and planktonics	46	220	237
Fraction picked	1.000	0.022	0.022
Total in 20 mL	46	9900	10665

Sample ID Core Depth	S1 0-1 cm	S13 0-1 cm	S47 0-1 cm	S53 0-1 cm	S59 0-1 cm	S61 0-1 cm
<i>Ammobaculites</i> sp. A	1					
<i>Ammonia parkinsoniana</i>			13			
<i>Ammotium</i> sp.			2			
<i>Bolivina barbata</i>	7	1				
<i>Bolivina daggarius</i>	1	20		2	4	3
<i>Bolivina lowmani</i>	15	14	60	33	10	40
<i>Bolivina paula</i>		1				
<i>Bolivina striatula</i>	5	1				
<i>Bolivina subaenariensis mexicana</i>	1					
<i>Bolivina translucens</i>		1				
<i>Bulimina marginata</i>		1				
<i>Bulimina</i> sp.					2	
<i>Bulimina striata</i>	1					
<i>Buliminella morgani</i>	26	10	9	33	59	8
<i>Cassidulina</i> cf. <i>C. minuta</i>	3					
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	1					
<i>Eggerella advena</i>	4				1	
<i>Elphidium excavatum</i>	1					
<i>Elphidium</i> sp.			1			
<i>Epistominella vitrea</i>	118	125	3	12	7	41
<i>Fursenkoina pontoni</i>		1				
<i>Goesella mississippiensis</i>	4					
<i>Haplophragmoides</i> sp.	1					
<i>Haplophragmoides</i> sp. B			18			
<i>Hopkinsina pacifica atlantica</i>					1	
<i>Nonionella opima</i>	17	31	1	129	123	100
<i>Nouria</i> cf. <i>N. polymorphinoides</i>			7	1		6
<i>Oolina</i> sp.						1
<i>Reophax</i> sp. A			8			
<i>Saccamina difflugiformis</i>	1		1			
<i>Sigmoilina distorta</i>		1	9			
<i>Textularia earlandi</i>	4	6	4			9
<i>Trochammina</i> cf. <i>T. advena</i>			23			
<i>Uvigerina laevis</i>	1					
<i>Uvigerina peregrina</i>	14					1
Total benthics (N)	226	213	159	210	207	209
Planktonic foraminifera	4	1	3	0	1	0
Indeterminate miliolids	0	0	0	0	1	0
Indeterminate rotaliids	0	1	0	0	0	0
Indeterminate textulariids	0	1	0	0	0	0
Number of species (S)	20	13	14	6	8	9
Sum including indeterminates and planktonics	230	216	162	210	209	209
Fraction picked	0.011	0.089	1.000	0.378	0.222	0.067
Total in 20 mL	20700	2430	162	556	941	3135

Core ID	2004 HI3		2004 HI4		2004 HI5	
	25-30 cm	30-35 cm	30-35 cm	35-40 cm	25-30 cm	30-35 cm
<i>Ammonia parkinsoniana</i>	1					
<i>Ammonia tepida</i>	7	1		1	1	
<i>Ammotium</i> sp. D						
<i>Anomalinoidea mexicanum</i>	1					
<i>Astacolus</i> sp.						
<i>Bolivina barbata</i>					11	4
<i>Bolivina daggarius</i>			3	2	1	6
<i>Bolivina lowmani</i>	1		14	12	4	8
<i>Bolivina ordinaria</i>						
<i>Bolivina paula</i>				1		
<i>Bolivina</i> sp.	2	1	3		1	
<i>Bolivina striatula</i>			2	1	9	
<i>Bolivina subaenariensis mexicana</i>						
<i>Bolivina translucens</i>						1
<i>Bulimina aculeata</i>						
<i>Bulimina</i> cf. <i>B. gibba</i>						
<i>Bulimina marginata</i>					11	7
<i>Bulimina</i> sp. A					1	
<i>Buliminella elegantissima</i>						
<i>Buliminella morgani</i>	4	2	47	37	52	84
<i>Cassidulina</i> cf. <i>C. minuta</i>			1	5	3	4
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>						2
<i>Dentalina</i> sp.			1			
<i>Eggerella advena</i>				1		
<i>Eggerelloides scaber</i>						
<i>Elphidium excavatum</i>	4			1		
<i>Epistominella vitrea</i>	5	3	134	178	104	125
<i>Eponides tumidulus</i>						1
<i>Fursenkoina pontoni</i>			1		1	
<i>Gaudryina</i> sp.	1					
<i>Globobulimina mississippiensis</i>						
<i>Goesella mississippiensis</i>						
<i>Haplophragmoides</i> sp. A	3	2				
<i>Lagena</i> cf. <i>L. clavata</i>						
<i>Lenticulina</i> cf. <i>L. peregrina</i>			1		2	
<i>Lenticulina</i> sp.				1		
<i>Miliolinella subrotunda</i>					1	
<i>Nonionella opima</i>			8	12	8	46
<i>Oridorsalis umbonatus</i>					1	
<i>Pyrgo</i> cf. <i>P. nasutus</i>				1		
<i>Saccamina difflugiformis</i>						2
<i>Sigmoilina distorta</i>					3	2
<i>Textularia earlandi</i>						
<i>Textularia sagittula</i>						
<i>Triloculina</i> sp. A						
<i>Uvigerina peregrina</i>			7	3	30	22
<i>Valvulinaria mexicana</i>						

Valvulinaria sp.

Total benthics (N)	29	9	222	256	244	314
Planktonic foraminifera	2	16	11	17	21	12
Indeterminate miliolids	0	1	0	0	0	0
Indeterminate rotaliids	3	14	2	2	2	1
Indeterminate textulariids	0	0	0	0	0	0
Number of species (S)	10	5	12	14	18	14
Sum including indeterminates and planktonics	34	40	235	275	267	327
Fraction picked	1.000	1.000	0.022	0.033	0.017	0.006
Total in 20 mL	34	40	10575	8250	16020	58860

Core ID Core Depth	2005 BC2		2005 BC3	
	38-40 cm	40-42 cm	38-40 cm	40-42 cm
<i>Ammonia parkinsoniana</i>				
<i>Ammonia tepida</i>				
<i>Ammotium</i> sp. D			1	
<i>Anomalinoidea mexicanum</i>				
<i>Astacolus</i> sp.				
<i>Bolivina barbata</i>	2	2	3	4
<i>Bolivina daggarius</i>	6	2	9	14
<i>Bolivina lowmani</i>	32	14	16	10
<i>Bolivina ordinaria</i>				
<i>Bolivina paula</i>				
<i>Bolivina</i> sp.				
<i>Bolivina striatula</i>	11	7	6	5
<i>Bolivina subaenariensis mexicana</i>				1
<i>Bolivina translucens</i>				
<i>Bulimina aculeata</i>				
<i>Bulimina</i> cf. <i>B. gibba</i>				1
<i>Bulimina marginata</i>	2	1	5	7
<i>Bulimina</i> sp. A				
<i>Buliminella elegantissima</i>				
<i>Buliminella morgani</i>	56	38	49	39
<i>Cassidulina</i> cf. <i>C. minuta</i>			3	1
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>				
<i>Dentalina</i> sp.				1
<i>Eggerella advena</i>	2		3	1
<i>Eggerelloides scaber</i>		1		
<i>Elphidium excavatum</i>				
<i>Epistominella vitrea</i>	194	142	123	96
<i>Eponides tumidulus</i>				
<i>Fursenkoina pontoni</i>			1	1
<i>Gaudryina</i> sp.				
<i>Globobulimina mississippiensis</i>			1	
<i>Goesella mississippiensis</i>			2	
<i>Haplophragmoides</i> sp. A				
<i>Lagena</i> cf. <i>L. clavata</i>				1
<i>Lenticulina</i> cf. <i>L. peregrina</i>			1	1
<i>Lenticulina</i> sp.				
<i>Miliolinella subrotunda</i>				
<i>Nonionella opima</i>	3	8	53	65
<i>Oridorsalis umbonatus</i>				
<i>Pyrgo</i> cf. <i>P. nasutus</i>				1
<i>Saccammia difflugiformis</i>			2	1
<i>Sigmoilina distorta</i>		1		
<i>Textularia earlandi</i>	1	2		
<i>Textularia sagittula</i>				1
<i>Triloculina</i> sp. A				
<i>Uvigerina peregrina</i>	9	5	14	23
<i>Valvulinaria mexicana</i>				1

Valvulinaria sp.

Total benthics (N)	318	223	292	275
Planktonic foraminifera	16	17	22	14
Indeterminate miliolids	0	0	1	2
Indeterminate rotaliids	0	1	5	0
Indeterminate textulariids	0	1	0	1
Number of species (S)	11	12	17	21
Sum including indeterminates and planktonics	334	242	320	292
Fraction picked	0.078	0.033	0.011	0.003
Total in 20 mL	4294	7260	28800	105120

Core ID	2007 BC2			
	Core Depth	44-46 cm	22-24 cm	32-34 cm
<i>Ammonia parkinsoniana</i>				
<i>Ammonia tepida</i>				
<i>Ammotium</i> sp. D				
<i>Anomalinoidea mexicanum</i>				
<i>Astacolus</i> sp.			1	
<i>Bolivina barbata</i>			1	1
<i>Bolivina daggarius</i>	9			1
<i>Bolivina lowmani</i>	14	13		7
<i>Bolivina ordinaria</i>	2			
<i>Bolivina paula</i>				
<i>Bolivina</i> sp.		2		2
<i>Bolivina striatula</i>	2	12		3
<i>Bolivina subaenariensis mexicana</i>				
<i>Bolivina translucens</i>	1			
<i>Bulimina aculeata</i>		1		2
<i>Bulimina</i> cf. <i>B. gibba</i>				
<i>Bulimina marginata</i>	1	3		5
<i>Bulimina</i> sp. A				
<i>Buliminella elegantissima</i>				
<i>Buliminella morgani</i>	40	35		34
<i>Cassidulina</i> cf. <i>C. minuta</i>		3		2
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>				
<i>Dentalina</i> sp.				
<i>Eggerella advena</i>				
<i>Eggerelloides scaber</i>				
<i>Elphidium excavatum</i>		1		
<i>Epistominella vitrea</i>	148	108		132
<i>Eponides tumidulus</i>				
<i>Fursenkoina pontoni</i>		2		
<i>Gaudryina</i> sp.				
<i>Globobulimina mississippiensis</i>				
<i>Goesella mississippiensis</i>				
<i>Haplophragmoides</i> sp. A				
<i>Lagena</i> cf. <i>L. clavata</i>				
<i>Lenticulina</i> cf. <i>L. peregrina</i>		1		
<i>Lenticulina</i> sp.				
<i>Miliolinella subrotunda</i>				
<i>Nonionella opima</i>	9	22		9
<i>Oridorsalis umbonatus</i>				
<i>Pyrgo</i> cf. <i>P. nasutus</i>				
<i>Saccammia difflugiformis</i>				
<i>Sigmoilina distorta</i>				
<i>Textularia earlandi</i>	2			
<i>Textularia sagittula</i>				
<i>Triloculina</i> sp. A		1		
<i>Uvigerina peregrina</i>	1	28		16
<i>Valvulinaria mexicana</i>				

<i>Valvulinaria</i> sp.			1
Total benthics (N)	229	234	215
Planktonic foraminifera	18	32	6
Indeterminate miliolids	0	0	0
Indeterminate rotaliids	1	4	2
Indeterminate textulariids	0	0	0
Number of species (S)	11	16	13
Sum including indeterminates and planktonics	248	270	223
Fraction picked	0.011	0.017	0.011
Total in 20 mL	22320	16200	20070

Core ID Core Depth	2004 HI3		2004 HI4		2004 HI5	
	0-2 cm	13-16 cm	2-4 cm	10-13 cm	0-2 cm	6-8 cm
<i>Ammonia parkinsoniana</i>	14		1			11
<i>Ammonia tepida</i>	13	4	8	12	7	25
<i>Anomalinoidea mexicanum</i>						1
<i>Asterigerina carinata</i>						1
<i>Bolivina barbata</i>	2				1	1
<i>Bolivina</i> cf. <i>B. göesii</i>						
<i>Bolivina daggarius</i>	1		1	5	1	1
<i>Bolivina lowmani</i>	74	110	27		27	14
<i>Bolivina ordinaria</i>	14	1				
<i>Bolivina paula</i>						
<i>Bolivina</i> sp.				1		1
<i>Bolivina striatula</i>			2	1		1
<i>Bolivina translucens</i>	11	1				
<i>Bulimina</i> cf. <i>B. gibba</i>			1			
<i>Bulimina marginata</i>	4	1		2	1	
<i>Buliminella elegantissima</i>			5		2	7
<i>Buliminella morgani</i>	4	10	17	19	10	9
<i>Cassidulina</i> cf. <i>C. minuta</i>		1	2		5	1
<i>Cassidulina neocarinata</i>	7					
<i>Cibicides fletcheri</i>					1	
<i>Cibicides</i> sp.						5
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>						
<i>Dentalina</i> sp.			1			
<i>Eggerella advena</i>				1		
<i>Elphidium excavatum</i>	1		3		11	20
<i>Elphidium gunteri</i>						
<i>Elphidium mexicanum</i>					1	1
<i>Elphidium</i> sp.						2
<i>Epistominella vitrea</i>	1	38	121	120	93	73
<i>Eponides tumidulus</i>	1					
<i>Fissurina laevis</i>					1	
<i>Fissurina seguenziana</i>	1					
<i>Fissurina</i> sp. B			1			
<i>Fursenkoina mexicana</i>	1					
<i>Fursenkoina pontoni</i>				2		
<i>Gavelinopsis praegeri</i>					1	1
<i>Glomospira gordialis</i>						
<i>Goesella mississippiensis</i>			1			
<i>Hanzawaia strattoni</i>						
<i>Haplophragmoides</i> sp.						
<i>Haplophragmoides</i> sp. A						
<i>Haplophragmoides</i> sp. C						
<i>Hopkinsina pacifica atlantica</i>			1	5		
<i>Lagena</i> sp. A						
<i>Lenticulina</i> cf. <i>L. peregrina</i>						
<i>Nonionella opima</i>	1		24	34	21	14
<i>Nonionella turgida</i>						

<i>Pyrgo</i> cf. <i>P. nasutus</i>						
<i>Quinqueloculina</i> sp. A				6		
<i>Quinqueloculina</i> sp. C				7		
<i>Reophax bacillaris</i>		1				
<i>Reophax</i> sp. A						
<i>Rosalina floridana</i>			1		2	7
<i>Saccamina difflugiformis</i>						
<i>Sagrina pulchella primitiva</i>			1			2
<i>Sigmoilina distorta</i>						2
<i>Spirobolivina</i> sp.				1		
<i>Stetsonia minuta</i>	2		1			
<i>Textularia earlandi</i>	12	12			1	
<i>Triloculina</i> sp. A			1	12		
<i>Trochammina</i> sp. D						
<i>Uvigerina peregrina</i>	1			2	5	1
<i>Valvulinaria mexicana</i>						
Total benthics (N)	165	179	220	230	191	200
Planktonic foraminifera	1	1	8	3	5	4
Indeterminate miliolids	0	0	0	0	0	0
Indeterminate rotaliids	0	0	7	0	0	2
Indeterminate textulariids	0	0	0	0	0	0
Number of species (S)	19	10	20	16	18	22
Sum including indeterminates and planktonics	166	180	235	233	196	206
Fraction picked	0.511	0.289	0.200	0.094	0.067	0.033
Total in 20 mL	325	623	1175	2467	2940	6180

Core ID Core Depth	2005 MC1		2005 BC2		2005 BC3		2007 BC3	
	18-20 cm	20-22 cm	17-18 cm	26-28 cm	24-26 cm	32-34 cm	18-20 cm	30-32 cm
<i>Ammonia parkinsoniana</i>	3		12	4		1	19	34
<i>Ammonia tepida</i>						1	2	10
<i>Anomalinoidea mexicanum</i>						1		
<i>Asterigerina carinata</i>								
<i>Bolivina barbata</i>						7		
<i>Bolivina</i> cf. <i>B. göesii</i>						1		
<i>Bolivina daggarius</i>	5		3		4	2		
<i>Bolivina lowmani</i>	22		69	4	10	14	2	7
<i>Bolivina ordinaria</i>								
<i>Bolivina paula</i>	1				1			
<i>Bolivina</i> sp.		1	1	2		2		
<i>Bolivina striatula</i>	4		2	3	2	9	2	3
<i>Bolivina translucens</i>			1					
<i>Bulimina</i> cf. <i>B. gibba</i>								
<i>Bulimina marginata</i>	2				3	17		
<i>Buliminella elegantissima</i>								
<i>Buliminella morgani</i>	18		9	6	17	86	26	6
<i>Cassidulina</i> cf. <i>C. minuta</i>								
<i>Cassidulina neocarinata</i>	2							
<i>Cibicides fletcheri</i>								
<i>Cibicides</i> sp.								
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>					1	1		
<i>Dentalina</i> sp.								
<i>Eggerella advena</i>	2		4	20	3	3	3	1
<i>Elphidium excavatum</i>						2		2
<i>Elphidium gunteri</i>		1						
<i>Elphidium mexicanum</i>								
<i>Elphidium</i> sp.								
<i>Epistominella vitrea</i>	188		62	66	138	232	46	139
<i>Eponides tumidulus</i>								
<i>Fissurina laevis</i>								
<i>Fissurina seguenziana</i>								
<i>Fissurina</i> sp. B					1			
<i>Fursenkoina mexicana</i>								
<i>Fursenkoina pontoni</i>								
<i>Gavelinopsis praegeri</i>	2							
<i>Glomospira gordialis</i>		1				1		
<i>Goesella mississippiensis</i>					3		2	
<i>Hanzawaia strattoni</i>		1						
<i>Haplophragmoides</i> sp.	1							
<i>Haplophragmoides</i> sp. A		1						
<i>Haplophragmoides</i> sp. C								1
<i>Hopkinsina pacifica atlantica</i>								
<i>Lagena</i> sp. A					1			
<i>Lenticulina</i> cf. <i>L. peregrina</i>					2	3		1
<i>Nonionella opima</i>	17				25	58	1	6
<i>Nonionella turgida</i>						1		

<i>Pyrgo</i> cf. <i>P. nasutus</i>					2	1		
<i>Quinqueloculina</i> sp. A								
<i>Quinqueloculina</i> sp. C								
<i>Reophax bacillaris</i>		1	3					
<i>Reophax</i> sp. A		1	1					
<i>Rosalina floridana</i>								
<i>Saccammina difflugiformis</i>					2	5		
<i>Sagrina pulchella primitiva</i>								
<i>Sigmoilina distorta</i>							4	
<i>Spirobolivina</i> sp.								
<i>Stetsonia minuta</i>								
<i>Textularia earlandi</i>	3		56		2	2		
<i>Triloculina</i> sp. A								
<i>Trochammina</i> sp. D								1
<i>Uvigerina peregrina</i>	2				8	51		
<i>Valvulinaria mexicana</i>	2				1	1		
Total benthics (N)	274	5	165	165	228	504	104	210
Planktonic foraminifera	18	6	1	3	19	53	18	2
Indeterminate miliolids	0	0	0	0	0	0	0	0
Indeterminate rotaliids	1	0	0	0	4	6	1	0
Indeterminate textulariids	1	0	0	1	3	2	0	0
Number of species (S)	16	5	11	10	20	24	10	11
Sum including indeterminates and planktonics	294	11	166	169	254	565	123	212
Fraction picked	0.578	1.000	0.111	0.711	0.006	0.011	1.000	1.000
Total in 20 mL	509	11	1494	238	45720	50850	123	212

Core ID	2005 MC1		2005 BC2		2005 BC3		2007 BC3	
	10-12 cm	14-16 cm	7-8 cm	9-10 cm	5-6 cm	7-8 cm	6-8 cm	10-12 cm
<i>Ammonia parkinsoniana</i>	4		3	13	3	1	30	5
<i>Ammonia tepida</i>					16	6	1	2
<i>Ammotium</i> sp. A			1	1				
<i>Anomalinoidea mexicanum</i>	1							
<i>Bolivina daggarius</i>				1	2	1		1
<i>Bolivina lowmani</i>	2			16	21	3	6	22
<i>Bolivina</i> sp.						2		
<i>Bolivina striatula</i>			1	2	3	3		
<i>Bolivina translucens</i>	1				1			
<i>Bulimina aculeata</i>	1				1			
<i>Bulimina marginata</i>						1	3	
<i>Buliminella morgani</i>		1		7	40	24	20	33
<i>Cassidulina</i> cf. <i>C. minuta</i>								1
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	5							
<i>Cribrostomoides</i> cf. <i>jeffreysii</i>						6		
<i>Discammina</i> cf. <i>D. compressa</i>					1			
<i>Eggerella advena</i>			19	13	2	33	2	3
<i>Eggerelloides scaber</i>					1	1		
<i>Elphidium gunteri</i>	1							
<i>Elphidium</i> sp.	2				1			
<i>Epistominella rugosa</i>					1			
<i>Epistominella vitrea</i>			2	8	61	16	101	111
<i>Eponides regularis</i>	3							
<i>Eponides</i> sp.			1					
<i>Globobulimina</i> sp.	1							
<i>Goesella mississippiensis</i>					3		1	
<i>Haplophragmoides</i> sp.		1						
<i>Haplophragmoides</i> sp. A			4					
<i>Haplophragmoides wilberti</i>	1							
<i>Nonionella opima</i>	1	1			10	1	2	6
<i>Nonionella turgida</i>	2							
<i>Quinqueloculina jugosa</i>	1							
<i>Quinqueloculina</i> sp. A	10							
<i>Reophax bacillaris</i>			2	4	1	1		
<i>Reophax</i> sp. A			1	2				
<i>Saccammina difflugiformis</i>							3	1
<i>Textularia earlandi</i>	7		114	71	38	94		6
<i>Trochammina</i> cf. <i>T. advena</i>	3				1			
<i>Uvigerina peregrina</i>	1				1		8	7
<i>Valvulinaria mexicana</i>	1							
Total benthics (N)	48	3	148	138	208	193	177	198
Planktonic foraminifera	24	1	0	0	4	2	12	19
Indeterminate miliolids	0	0	0	0	0	0	1	0
Indeterminate rotaliids	1	0	1	2	10	18	15	7
Indeterminate textulariids	2	0	4	0	1	1	0	0

Number of species (S)	19	3	10	11	20	15	11	12
Sum including indeterminates and planktonics	75	4	153	140	223	214	205	224
Fraction picked	1.000	1.000	0.289	0.278	0.067	0.206	0.544	0.044
Total in 20 mL	75	4	530	504	3345	1041	377	5040

Core ID Core Depth	2005 MC1		2005 BC2		2005 BC3		2007 BC3	
	0-2 cm	4-6 cm	0-1 cm	3-4 cm	0-1 cm	1-2 cm	2-4 cm	4-6 cm
<i>Ammonia parkinsoniana</i>	3		9		1			9
<i>Ammonia tepida</i>		87	1		40	3		
<i>Arenoparrella mexicana</i>		1						
<i>Bolivina barbata</i>			6		15	1	1	
<i>Bolivina daggarius</i>						2		
<i>Bolivina lowmani</i>	12	11	67	10	22	12	1	15
<i>Bolivina ordinaria</i>	2							
<i>Bolivina</i> sp.		2	1	4	1			
<i>Bolivina striatula</i>			2	3	9	5	1	3
<i>Bolivina subaenariensis mexicana</i>	1							
<i>Bolivina translucens</i>	12		2			1		
<i>Bulimina marginata</i>	1				2			
<i>Bulimina</i> sp.		1						
<i>Buliminella morgani</i>	4	3	35		29	51	8	1
<i>Cassidulina</i> cf. <i>C. minuta</i>	1					1		
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	4							
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>						1		1
<i>Discammina</i> cf. <i>D. compressa</i>							1	
<i>Eggerella advena</i>	3		2	22	1	3	7	4
<i>Eggerelloides scaber</i>			4	1	14			
<i>Elphidium excavatum</i>		8						
<i>Elphidium gunteri</i>		1						
<i>Elphidium</i> sp.		2						
<i>Epistominella rugosa</i>					1			
<i>Epistominella</i> sp.					2	1		
<i>Epistominella vitrea</i>	2	3	32	1	22	50		24
<i>Eponides regularis</i>	5	1						
<i>Eponides repandus</i>							2	
<i>Eponides</i> sp.	2		1					
<i>Eponides turgidus</i>								1
<i>Fursenkoina pontoni</i>					3			
<i>Gavelinopsis praegeri</i>	1							
<i>Goesella mississippiensis</i>					3		17	3
<i>Hanzawaia strattoni</i>		1						
<i>Haplophragmoides</i> sp.	1	1						
<i>Haplophragmoides</i> sp. A				1				
<i>Islandiella helenae australis</i>	1							
<i>Jadammina macrescens</i>		1						
<i>Lagena laevis</i>						1		
<i>Lenticulina</i> cf. <i>L. peregrina</i>	1							
<i>Lenticulina</i> sp. D	1							
<i>Nonionella opima</i>	1	1	1		5	26	2	19
<i>Nonionella</i> sp.						1		
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	1							
<i>Pyrgo</i> cf. <i>P. nasutus</i>								1
<i>Reophax bacillaris</i>				2		2		
<i>Reophax</i> sp.			1					

<i>Reophax</i> sp. A		9				1		
<i>Saccamina difflugiformis</i>	1	2						
<i>Sigmoilina distorta</i>	2	23						
<i>Textularia earlandi</i>	3	2	30	60	3	33	5	8
<i>Textularia</i> sp. A		1						
<i>Uvigerina peregrina</i>			1			1	3	10
Total benthics (N)	65	161	195	104	173	196	48	99
Planktonic foraminifera	66	12	2	0	2	3	19	10
Indeterminate miliolids	0	0	0	0	0	0	0	0
Indeterminate rotaliids	1	4	6	0	7	3	9	10
Indeterminate textulariids	1	2	0	0	0	2	1	0
Number of species (S)	23	20	16	9	17	19	11	13
Sum including indeterminates and planktonics	133	179	203	104	182	204	77	119
Fraction picked	0.600	0.328	0.089	0.933	1.000	0.144	1.000	0.067
Total in 20 mL	222	546	2284	111	182	1412	77	1785

Core ID Core Depth	2007 BC2			
	3-4 cm	8-9 cm	13-14 cm	15-16 cm
<i>Ammobaculites</i> sp. A	1			
<i>Ammonia parkinsoniana</i>		11	1	2
<i>Ammonia tepida</i>	8	8	6	12
<i>Bolivina barbata</i>	1			1
<i>Bolivina daggarius</i>	1		2	6
<i>Bolivina lowmani</i>	30	25	28	39
<i>Bolivina paula</i>	1			
<i>Bolivina</i> sp.				1
<i>Bolivina striatula</i>	2	2		4
<i>Bolivina subaenariensis mexicana</i>	1			
<i>Bolivina translucens</i>			3	
<i>Bulimina aculeata</i>		1		
<i>Bulimina marginata</i>	1	1		
<i>Buliminella elegantissima</i>			2	6
<i>Buliminella morgani</i>	20	14	14	36
<i>Cassidulina</i> cf. <i>C. minuta</i>	1	2		6
<i>Cibicides fletcheri</i>			2	
<i>Cibicides</i> sp.	1		1	1
<i>Eggerella advena</i>				
<i>Elphidium excavatum</i>	2	2	10	8
<i>Elphidium mexicanum</i>		5	1	4
<i>Elphidium poeyanum</i>				1
<i>Epistominella vitrea</i>	100	90	112	193
<i>Fissurina laevis</i>				1
<i>Fursenkoina complanata</i>			1	
<i>Fursenkoina pontoni</i>				1
<i>Goesella mississippiensis</i>	1			
<i>Hopkinsina pacifica atlantica</i>	2		2	
<i>Lenticulina</i> cf. <i>L. peregrina</i>		2	1	
<i>Nonionella opima</i>	20		18	22
<i>Pyrgo</i> cf. <i>P. nasutus</i>	1			
<i>Rosalina</i> sp.			1	
<i>Sagrina pulchella primitiva</i>		1		1
<i>Stetsonia minuta</i>		1		
<i>Uvigerina peregrina</i>	15	11	1	5
<i>Valvulinaria minuta</i>	1		2	
Total benthics (N)	210	176	208	350
Planktonic foraminifera	24	5	6	10
Indeterminate miliolids	0	0	0	0
Indeterminate rotaliids	1	8	0	1
Indeterminate textulariids	0	0	3	0
Number of species (S)	20	15	19	20
Sum including indeterminates and planktonics	235	189	217	361
Fraction picked	0.0389	0.4000	0.0139	0.0222

Total in 20 mL	6043	473	15624	16245
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APPENDIX D: RELATIVE ABUNDANCE DATA

Sample ID Core Depth	PNR1 0-1 cm	PNR2 0-1 cm	PNR3 0-1 cm	PNR4 0-1 cm	PNR5 0-1 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	1.10%	4.62%	0.00%	0.00%	11.90%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	2.20%	3.85%	0.00%	1.01%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%	4.76%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.94%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	1.10%	6.92%	5.66%	0.00%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	4.40%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina lowmani</i>	7.69%	6.15%	6.13%	4.04%	0.00%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp. A	1.10%	0.77%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.77%	1.89%	1.01%	0.00%
<i>Bolivina subaenariensis mexicana</i>	3.30%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	4.40%	4.62%	6.60%	2.53%	0.00%
<i>Bulimina</i> sp.	1.10%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	1.10%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	1.10%	5.38%	10.38%	7.58%	2.38%
<i>Cassidulina</i> cf. <i>C. minuta</i>	6.59%	0.00%	0.94%	0.00%	2.38%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoidea tenuis</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	1.10%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	1.10%	0.00%	0.47%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.77%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	1.54%	0.47%	1.52%	0.00%
<i>Eggerelloidea scaber</i>	0.00%	0.77%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	1.10%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	1.10%	0.00%	0.00%	0.00%	0.00%

<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	21.98%	53.85%	39.62%	75.25%	0.00%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	2.20%	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	2.20%	0.00%	1.42%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.77%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	1.89%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	14.29%	0.77%	3.30%	4.55%	0.00%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.51%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.51%	0.00%

<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%	40.48%
<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.77%	0.94%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.47%	0.00%	0.00%
<i>Textularia earlandi</i>	1.10%	0.77%	0.00%	0.00%	7.14%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%	2.38%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.51%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.47%	0.00%	11.90%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%	4.76%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	17.58%	6.92%	15.57%	1.01%	0.00%
<i>Valvulinaria mexicana</i>	1.10%	0.00%	0.47%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%

Sample ID	2007 BC3	2007 BC3	2007 BC2
Core Depth	0-2 cm	1-2 cm	1-2 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	7.69%	0.00%	0.00%
<i>Ammonia</i> sp.	3.85%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	2.34%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	1.87%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	4.21%	0.00%
<i>Bolivina lowmani</i>	3.85%	4.21%	7.48%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	3.85%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.47%	3.74%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.47%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.47%	0.47%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.47%	0.00%
<i>Buliminella morgani</i>	26.92%	21.50%	14.49%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.47%	0.47%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%
<i>Cassidulinooides tenuis</i>	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.47%	0.47%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	0.00%	0.00%
<i>Eggerellooides scaber</i>	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	3.85%	0.00%	1.40%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	11.54%	36.45%	53.27%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	3.85%	0.47%	2.34%
<i>Hanzawaia strattoni</i>	3.85%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%
<i>Islandiella helena australis</i>	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.47%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	11.54%	24.30%	6.54%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.47%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	3.85%	2.34%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.47%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	15.38%	1.40%	6.07%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%

Sample ID Core Depth	S1 0-1 cm	S13 0-1 cm	S47 0-1 cm	S53 0-1 cm	S59 0-1 cm	S61 0-1 cm
<i>Ammobaculites</i> sp. A	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	0.00%	0.00%	8.18%	0.00%	0.00%	0.00%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	1.26%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	3.10%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.44%	9.39%	0.00%	0.95%	1.93%	1.44%
<i>Bolivina lowmani</i>	6.64%	6.57%	37.74%	15.71%	4.83%	19.14%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	2.21%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina subaenariensis mexicana</i>	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.97%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	11.50%	4.69%	5.66%	15.71%	28.50%	3.83%
<i>Cassidulina</i> cf. <i>C. minuta</i>	1.33%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	1.77%	0.00%	0.00%	0.00%	0.48%	0.00%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium</i> sp.	0.00%	0.00%	0.63%	0.00%	0.00%	0.00%

<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	52.21%	58.69%	1.89%	5.71%	3.38%	19.62%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.47%	0.00%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	1.77%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	11.32%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%	0.48%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	7.52%	14.55%	0.63%	61.43%	59.42%	47.85%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	4.40%	0.48%	0.00%	2.87%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.48%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp. A	0.00%	0.00%	5.03%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.44%	0.00%	0.63%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.47%	5.66%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	1.77%	2.82%	2.52%	0.00%	0.00%	4.31%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	14.47%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.44%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	6.19%	0.00%	0.00%	0.00%	0.00%	0.48%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2004 HI3		2004 HI4		2004 HI5	
	25-30 cm	30-35 cm	30-35 cm	35-40 cm	25-30 cm	30-35 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	24.14%	11.11%	0.00%	0.39%	0.41%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	0.00%	0.00%	4.51%	1.27%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	0.00%	1.35%	0.78%	0.41%	1.91%
<i>Bolivina lowmani</i>	3.45%	0.00%	6.31%	4.69%	1.64%	2.55%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%
<i>Bolivina</i> sp.	6.90%	11.11%	1.35%	0.00%	0.41%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.00%	0.90%	0.39%	3.69%	0.00%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.00%	0.00%	0.00%	4.51%	2.23%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.41%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	13.79%	22.22%	21.17%	14.45%	21.31%	26.75%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	0.45%	1.95%	1.23%	1.27%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.64%
<i>Dentalina</i> sp.	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	13.79%	0.00%	0.00%	0.39%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	17.24%	33.33%	60.36%	69.53%	42.62%	39.81%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.45%	0.00%	0.41%	0.00%
<i>Gaudryina</i> sp.	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	10.34%	22.22%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helena australis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.45%	0.00%	0.82%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%	0.41%	0.00%
<i>Nonionella opima</i>	0.00%	0.00%	3.60%	4.69%	3.28%	14.65%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%	0.41%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.64%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%	1.23%	0.64%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.00%	0.00%	3.15%	1.17%	12.30%	7.01%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2005 BC2		2005 BC3	
	38-40 cm	40-42 cm	38-40 cm	40-42 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	0.00%	0.00%	0.00%	0.00%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.34%	0.00%
<i>Anomalinoidea mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.63%	0.90%	1.03%	1.45%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	1.89%	0.90%	3.08%	5.09%
<i>Bolivina lowmani</i>	10.06%	6.28%	5.48%	3.64%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	3.46%	3.14%	2.05%	1.82%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.36%
<i>Bolivina translucens</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.36%
<i>Bulimina marginata</i>	0.63%	0.45%	1.71%	2.55%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	17.61%	17.04%	16.78%	14.18%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	1.03%	0.36%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribratomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.36%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.63%	0.00%	1.03%	0.36%
<i>Eggerelloidea scaber</i>	0.00%	0.45%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	61.01%	63.68%	42.12%	34.91%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.34%	0.36%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.34%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.68%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.36%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.34%	0.36%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	0.94%	3.59%	18.15%	23.64%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.36%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.68%	0.36%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.45%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	0.31%	0.90%	0.00%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.36%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	2.83%	2.24%	4.79%	8.36%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.36%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2007 BC3		2007 BC2	
	36-38 cm	44-46 cm	22-24 cm	32-34 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	0.00%	0.00%	0.00%	0.00%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	2.25%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.43%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	0.43%	0.47%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.56%	3.93%	0.00%	0.47%
<i>Bolivina lowmani</i>	5.06%	6.11%	5.56%	3.26%
<i>Bolivina ordinaria</i>	0.00%	0.87%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.85%	0.93%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	5.62%	0.87%	5.13%	1.40%
<i>Bolivina subaenariensis mexicana</i>	0.56%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.44%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.43%	0.93%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.44%	1.28%	2.33%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.56%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	25.28%	17.47%	14.96%	15.81%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	1.28%	0.93%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.56%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%
<i>eggerella advena</i>	3.93%	0.00%	0.00%	0.00%
<i>eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.43%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	32.58%	64.63%	46.15%	61.40%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.85%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.43%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	2.25%	3.93%	9.40%	4.19%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	15.73%	0.87%	0.00%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.43%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	5.06%	0.44%	11.97%	7.44%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.47%

Core ID Core Depth	2004 HI3		2004 HI4		2004 HI5	
	0-2 cm	13-16 cm	2-4 cm	10-13 cm	0-2 cm	6-8 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	8.48%	0.00%	0.45%	0.00%	0.00%	5.50%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	7.88%	2.23%	3.64%	5.22%	3.66%	12.50%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%
<i>Bolivina barbata</i>	1.21%	0.00%	0.00%	0.00%	0.52%	0.50%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.61%	0.00%	0.45%	2.17%	0.52%	0.50%
<i>Bolivina lowmani</i>	44.85%	61.45%	12.27%	0.00%	14.14%	7.00%
<i>Bolivina ordinaria</i>	8.48%	0.56%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.43%	0.00%	0.50%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.00%	0.91%	0.43%	0.00%	0.50%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	6.67%	0.56%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	2.42%	0.56%	0.00%	0.87%	0.52%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	2.27%	0.00%	1.05%	3.50%
<i>Buliminella morgani</i>	2.42%	5.59%	7.73%	8.26%	5.24%	4.50%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.56%	0.91%	0.00%	2.62%	0.50%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	4.24%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%	0.52%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	2.50%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	0.00%	0.00%	0.43%	0.00%	0.00%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.61%	0.00%	1.36%	0.00%	5.76%	10.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.52%	0.50%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	0.61%	21.23%	55.00%	52.17%	48.69%	36.50%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.52%	0.00%
<i>Fissurina seguenziana</i>	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.87%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%	0.52%	0.50%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.45%	2.17%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	0.61%	0.00%	10.91%	14.78%	10.99%	7.00%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	2.61%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	3.04%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.56%	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.45%	0.00%	1.05%	3.50%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.45%	0.00%	0.00%	1.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%
<i>Spirobolevina</i> sp.	0.00%	0.00%	0.00%	0.43%	0.00%	0.00%
<i>Stetsonia minuta</i>	1.21%	0.00%	0.45%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	7.27%	6.70%	0.00%	0.00%	0.52%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.45%	5.22%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.61%	0.00%	0.00%	0.87%	2.62%	0.50%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2005 MC1		2005 BC2		2005 BC3	
	18-20 cm	20-22 cm	17-18 cm	26-28 cm	24-26 cm	32-34 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	1.09%	0.00%	7.27%	2.42%	0.00%	0.20%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
<i>Bolivina daggarius</i>	1.82%	0.00%	1.82%	0.00%	1.75%	0.40%
<i>Bolivina lowmani</i>	8.03%	0.00%	41.82%	2.42%	4.39%	2.78%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.36%	0.00%	0.00%	0.00%	0.44%	0.00%
<i>Bolivina</i> sp.	0.00%	20.00%	0.61%	1.21%	0.00%	0.40%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	1.46%	0.00%	1.21%	1.82%	0.88%	1.79%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.00%	0.61%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.73%	0.00%	0.00%	0.00%	1.32%	3.37%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	6.57%	0.00%	5.45%	3.64%	7.46%	17.06%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.73%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%	0.44%	0.20%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.73%	0.00%	2.42%	12.12%	1.32%	0.60%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%	0.88%	0.00%
<i>Elphidium gunteri</i>	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	68.61%	0.00%	37.58%	40.00%	60.53%	46.03%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.44%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.73%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	20.00%	0.00%	0.00%	0.00%	0.20%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%	1.32%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.36%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helena australis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.44%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%	0.88%	0.60%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	6.20%	0.00%	0.00%	0.00%	10.96%	11.51%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%	0.88%	0.20%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.61%	1.82%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.61%	0.61%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%	0.88%	0.99%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	1.09%	0.00%	0.00%	33.94%	0.88%	0.40%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.73%	0.00%	0.00%	0.00%	3.51%	10.12%
<i>Valvulinaria mexicana</i>	0.73%	0.00%	0.00%	0.00%	0.44%	0.20%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2007 BC3	
	18-20 cm	30-32 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	18.27%	16.19%
<i>Ammonia</i> sp.	0.00%	0.00%
<i>Ammonia tepida</i>	1.92%	4.76%
<i>Ammotium</i> sp.	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	0.00%
<i>Bolivina lowmani</i>	1.92%	3.33%
<i>Bolivina ordinaria</i>	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%
<i>Bolivina striatula</i>	1.92%	1.43%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%
<i>Buliminella morgani</i>	25.00%	2.86%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%
<i>Eggerella advena</i>	2.88%	0.48%
<i>Eggerelloides scaber</i>	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.95%
<i>Elphidium gunteri</i>	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%

<i>Elphidium</i> sp.	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%
<i>Epistominella vitrea</i>	44.23%	66.19%
<i>Eponides regularis</i>	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%
<i>Goesella mississippiensis</i>	1.92%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.48%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.48%
<i>Lenticulina</i> sp.	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%
<i>Nonionella opima</i>	0.96%	2.86%
<i>Nonionella</i> sp.	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%
<i>Textularia earlandi</i>	0.00%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%
<i>Trochammina</i> sp. D	0.96%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.00%	0.00%
<i>Valvulinaria mexicana</i>	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%

Core ID Core Depth	2005 MC1		2005 BC2	
	10-12 cm	14-16 cm	7-8 cm	9-10 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	8.33%	0.00%	2.03%	9.42%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.68%	0.72%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea mexicanum</i>	2.08%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	0.00%	0.00%	0.72%
<i>Bolivina lowmani</i>	4.17%	0.00%	0.00%	11.59%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.00%	0.68%	1.45%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	2.08%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	2.08%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	0.00%	33.33%	0.00%	5.07%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	10.42%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	0.00%	12.84%	9.42%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	2.08%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	4.17%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	0.00%	0.00%	1.35%	5.80%
<i>Eponides regularis</i>	6.25%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.68%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	2.08%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	33.33%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	2.70%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	2.08%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	2.08%	33.33%	0.00%	0.00%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	4.17%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	2.08%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	20.83%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	1.35%	2.90%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.68%	1.45%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	14.58%	0.00%	77.03%	51.45%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	6.25%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	2.08%	0.00%	0.00%	0.00%
<i>Valvulinaria mexicana</i>	2.08%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2005 BC3		2007 BC3	
	5-6 cm	7-8 cm	6-8 cm	10-12 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	1.44%	0.52%	16.95%	2.53%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	7.69%	3.11%	0.56%	1.01%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinooides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.96%	0.52%	0.00%	0.51%
<i>Bolivina lowmani</i>	10.10%	1.55%	3.39%	11.11%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	1.04%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	1.44%	1.55%	0.00%	0.00%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.48%	0.00%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.48%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.00%	0.52%	1.69%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	19.23%	12.44%	11.30%	16.67%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.00%	0.00%	0.51%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinooides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	3.11%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.48%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.96%	17.10%	1.13%	1.52%
<i>Eggerelloides scaber</i>	0.48%	0.52%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%

<i>Elphidium</i> sp.	0.48%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.48%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	29.33%	8.29%	57.06%	56.06%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	1.44%	0.00%	0.56%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	4.81%	0.52%	1.13%	3.03%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.48%	0.52%	0.00%	0.00%

<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	1.69%	0.51%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	18.27%	48.70%	0.00%	3.03%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.48%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.48%	0.00%	4.52%	3.54%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2005 MC1		2005 BC2	
	0-2 cm	4-6 cm	0-1 cm	3-4 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	4.62%	0.00%	4.62%	0.00%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	0.00%	54.04%	0.51%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.62%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.00%	0.00%	3.08%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina lowmani</i>	18.46%	6.83%	34.36%	9.62%
<i>Bolivina ordinaria</i>	3.08%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	1.24%	0.51%	3.85%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.00%	0.00%	1.03%	2.88%
<i>Bolivina subaenariensis mexicana</i>	1.54%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	18.46%	0.00%	1.03%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	1.54%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.62%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	6.15%	1.86%	17.95%	0.00%
<i>Cassidulina</i> cf. <i>C. minuta</i>	1.54%	0.00%	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	6.15%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	4.62%	0.00%	1.03%	21.15%
<i>Eggerelloides scaber</i>	0.00%	0.00%	2.05%	0.96%
<i>Elphidium excavatum</i>	0.00%	4.97%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.62%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium</i> sp.	0.00%	1.24%	0.00%	0.00%

<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	3.08%	1.86%	16.41%	0.96%
<i>Eponides regularis</i>	7.69%	0.62%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	3.08%	0.00%	0.51%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	1.54%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.62%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	1.54%	0.62%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.96%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	1.54%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.62%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	1.54%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	1.54%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	1.54%	0.62%	0.51%	0.00%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	1.54%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	1.92%
<i>Reophax</i> sp.	0.00%	0.00%	0.51%	0.00%

<i>Reophax</i> sp. A	0.00%	5.59%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	1.54%	1.24%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	3.08%	14.29%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	4.62%	1.24%	15.38%	57.69%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.62%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.00%	0.00%	0.51%	0.00%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2005 BC3		2007 BC3	
	0-1 cm	1-2 cm	2-4 cm	4-6 cm
<i>Ammobaculites</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	0.58%	0.00%	0.00%	9.09%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	23.12%	1.53%	0.00%	0.00%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoidea</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	8.67%	0.51%	2.08%	0.00%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.00%	1.02%	0.00%	0.00%
<i>Bolivina lowmani</i>	12.72%	6.12%	2.08%	15.15%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.58%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	5.20%	2.55%	2.08%	3.03%
<i>Bolivina subaenariensis mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.51%	0.00%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	1.16%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella morgani</i>	16.76%	26.02%	16.67%	1.01%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.00%	0.51%	0.00%	0.00%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.51%	0.00%	1.01%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	2.08%	0.00%
<i>Eggerella advena</i>	0.58%	1.53%	14.58%	4.04%
<i>Eggerelloides scaber</i>	8.09%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%

<i>Epistominella rugosa</i>	0.58%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	1.16%	0.51%	0.00%	0.00%
<i>Epistominella vitrea</i>	12.72%	25.51%	0.00%	24.24%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	4.17%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	1.01%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	1.73%	0.00%	0.00%	0.00%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	1.73%	0.00%	35.42%	3.03%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.00%	0.00%	0.00%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.51%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	2.89%	13.27%	4.17%	19.19%
<i>Nonionella</i> sp.	0.00%	0.51%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.00%	0.00%	0.00%	1.01%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	1.02%	0.00%	0.00%
<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%

<i>Reophax</i> sp. A	0.00%	0.51%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Saccammina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.00%	0.00%	0.00%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	1.73%	16.84%	10.42%	8.08%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	0.00%	0.51%	6.25%	10.10%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

Core ID Core Depth	2007 BC2			
	3-4 cm	8-9 cm	13-14 cm	15-16 cm
<i>Ammobaculites</i> sp. A	0.48%	0.00%	0.00%	0.00%
<i>Ammonia parkinsoniana</i>	0.00%	6.25%	0.48%	0.57%
<i>Ammonia</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammonia tepida</i>	3.81%	4.55%	2.88%	3.43%
<i>Ammotium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Ammotium</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoides mexicanum</i>	0.00%	0.00%	0.00%	0.00%
<i>Anomalinoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Arenoparrella mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Astacolus</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Asterigerina carinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina barbata</i>	0.48%	0.00%	0.00%	0.29%
<i>Bolivina</i> cf. <i>B. göesii</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina daggarius</i>	0.48%	0.00%	0.96%	1.71%
<i>Bolivina lowmani</i>	14.29%	14.20%	13.46%	11.14%
<i>Bolivina ordinaria</i>	0.00%	0.00%	0.00%	0.00%
<i>Bolivina paula</i>	0.48%	0.00%	0.00%	0.00%
<i>Bolivina</i> sp.	0.00%	0.00%	0.00%	0.29%
<i>Bolivina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bolivina striatula</i>	0.95%	1.14%	0.00%	1.14%
<i>Bolivina subaenariensis mexicana</i>	0.48%	0.00%	0.00%	0.00%
<i>Bolivina translucens</i>	0.00%	0.00%	1.44%	0.00%
<i>Bulimina aculeata</i>	0.00%	0.57%	0.00%	0.00%
<i>Bulimina</i> cf. <i>B. gibba</i>	0.00%	0.00%	0.00%	0.00%
<i>Bulimina marginata</i>	0.48%	0.57%	0.00%	0.00%
<i>Bulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Bulimina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Bulimina striata</i>	0.00%	0.00%	0.00%	0.00%
<i>Buliminella elegantissima</i>	0.00%	0.00%	0.96%	1.71%
<i>Buliminella morgani</i>	9.52%	7.95%	6.73%	10.29%
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.48%	1.14%	0.00%	1.71%
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.00%	0.00%	0.00%	0.00%
<i>Cassidulinoides tenuis</i>	0.00%	0.00%	0.00%	0.00%
<i>Cibicides fletcheri</i>	0.00%	0.00%	0.96%	0.00%
<i>Cibicides</i> sp.	0.48%	0.00%	0.48%	0.29%
<i>Cibicides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Cibicides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.00%	0.00%	0.00%	0.00%
<i>Dentalina</i> sp.	0.00%	0.00%	0.00%	0.00%

<i>Discammina</i> cf. <i>D. compressa</i>	0.00%	0.00%	0.00%	0.00%
<i>Eggerella advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Eggerelloides scaber</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium excavatum</i>	0.95%	1.14%	4.81%	2.29%
<i>Elphidium gunteri</i>	0.00%	0.00%	0.00%	0.00%
<i>Elphidium mexicanum</i>	0.00%	2.84%	0.48%	1.14%
<i>Elphidium poeyanum</i>	0.00%	0.00%	0.00%	0.29%
<i>Elphidium</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella rugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Epistominella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Epistominella vitrea</i>	47.62%	51.14%	53.85%	55.14%
<i>Eponides regularis</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides repandus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Eponides tumidulus</i>	0.00%	0.00%	0.00%	0.00%
<i>Eponides turgidus</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina laevis</i>	0.00%	0.00%	0.00%	0.29%
<i>Fissurina seguenziana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fissurina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina complanata</i>	0.00%	0.00%	0.48%	0.00%
<i>Fursenkoina mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Fursenkoina pontoni</i>	0.00%	0.00%	0.00%	0.29%
<i>Gaudryina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Gavelinopsis praegeri</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina mississippiensis</i>	0.00%	0.00%	0.00%	0.00%
<i>Globobulimina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Glomospira gordialis</i>	0.00%	0.00%	0.00%	0.00%
<i>Goesella mississippiensis</i>	0.48%	0.00%	0.00%	0.00%
<i>Hanzawaia strattoni</i>	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Haplophragmoides wilberti</i>	0.00%	0.00%	0.00%	0.00%
<i>Hopkinsina pacifica atlantica</i>	0.95%	0.00%	0.96%	0.00%
<i>Islandiella helenae australis</i>	0.00%	0.00%	0.00%	0.00%
<i>Jadammina macrescens</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> cf. <i>L. clavata</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Lagena</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> cf. <i>L. peregrina</i>	0.00%	1.14%	0.48%	0.00%
<i>Lenticulina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Lenticulina</i> sp. D	0.00%	0.00%	0.00%	0.00%

<i>Miliolinella subrotunda</i>	0.00%	0.00%	0.00%	0.00%
<i>Nonionella opima</i>	9.52%	0.00%	8.65%	6.29%
<i>Nonionella</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Nonionella turgida</i>	0.00%	0.00%	0.00%	0.00%
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina hexagona</i>	0.00%	0.00%	0.00%	0.00%
<i>Oolina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Oridorsalis umbonatus</i>	0.00%	0.00%	0.00%	0.00%
<i>Pyrgo</i> cf. <i>P. nasutus</i>	0.48%	0.00%	0.00%	0.00%
<i>Quinqueloculina jugosa</i>	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Quinqueloculina</i> sp. C	0.00%	0.00%	0.00%	0.00%
<i>Reophax bacillaris</i>	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Reophax</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Rosalina floridana</i>	0.00%	0.00%	0.00%	0.00%
<i>Rosalina</i> sp.	0.00%	0.00%	0.48%	0.00%
<i>Saccamina difflugiformis</i>	0.00%	0.00%	0.00%	0.00%
<i>Sagrina pulchella primitiva</i>	0.00%	0.57%	0.00%	0.29%
<i>Sigmoilina distorta</i>	0.00%	0.00%	0.00%	0.00%
<i>Spirobolivina</i> sp.	0.00%	0.00%	0.00%	0.00%
<i>Stetsonia minuta</i>	0.00%	0.57%	0.00%	0.00%
<i>Textularia candeina</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia earlandi</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia sagittula</i>	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Textularia</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Triloculina</i> sp. A	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> cf. <i>T. advena</i>	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. B	0.00%	0.00%	0.00%	0.00%
<i>Trochammina</i> sp. D	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina laevis</i>	0.00%	0.00%	0.00%	0.00%
<i>Uvigerina peregrina</i>	7.14%	6.25%	0.48%	1.43%
<i>Valvulinaria mexicana</i>	0.00%	0.00%	0.00%	0.00%
<i>Valvulinaria minuta</i>	0.48%	0.00%	0.96%	0.00%
<i>Valvulinaria</i> sp.	0.00%	0.00%	0.00%	0.00%

APPENDIX E: TRANSFORMED ABUNDANCE DATA

The 2-arcsine transformation was only applied to those species that made up at least 2% of the abundance of any one sample.

Sample ID	PNR1	PNR2	PNR3	PNR4	PNR5
Core Depth	0-1	0-1	0-1	0-1	0-1
	cm	cm	cm	cm	cm
<i>Ammonia parkinsoniana</i>	0.2100	0.4330	0.0000	0.0000	0.7045
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.2976	0.3948	0.0000	0.2013	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.4400
<i>Anomalinooides mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.2100	0.5325	0.4804	0.0000	0.0000
<i>Bolivina daggarius</i>	0.4224	0.0000	0.0000	0.0000	0.0000
<i>Bolivina lowmani</i>	0.5621	0.5014	0.5005	0.4048	0.0000
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000	0.3098
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.0000	0.1756	0.2756	0.2013	0.0000
<i>Bolivina subaenariensis mexicana</i>	0.3652	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.1375	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.4224	0.4330	0.5198	0.3192	0.0000
<i>Buliminella elegantissima</i>	0.2100	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.2100	0.4684	0.6560	0.5577	0.3098
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.5194	0.0000	0.1946	0.0000	0.3098
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.2100	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000	0.3098
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.2487	0.1375	0.2468	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.1756	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.2100	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.2100	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	0.9759	1.6478	1.3617	2.1002	0.0000
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.2976	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.2976	0.0000	0.2385	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.3098
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.3098

<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.7752	0.1756	0.3655	0.4297	0.0000
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.1423	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000	1.3791
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.3098
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.1756	0.1946	0.0000	0.0000
<i>Textularia earlandi</i>	0.2100	0.1756	0.0000	0.0000	0.5411
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.3098
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.1423	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.1375	0.0000	0.7045
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.4400
<i>Uvigerina peregrina</i>	0.8654	0.5325	0.8111	0.2013	0.0000
<i>Valvulinaria mexicana</i>	0.2100	0.0000	0.1375	0.0000	0.0000

Sample ID	2007 BC3	2007 BC3	2007 BC2
Core Depth	0-2 cm	1-2 cm	1-2 cm
<i>Ammonia parkinsoniana</i>	0.7045	0.0000	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	0.0000	0.0000
<i>Ammotium</i> sp.	0.4400	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.3538	0.1371
<i>Bolivina daggarius</i>	0.0000	0.1331	0.6229
<i>Bolivina lowmani</i>	0.0000	0.5211	0.5185
<i>Bolivina ordinaria</i>	0.3098	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.0000	0.2986	0.1371
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.1331	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.1371
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.0000	0.0000	0.1371
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.3098	0.6921	0.4368
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.3098	0.2309	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.3098	0.1331	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.2669	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.1331	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	0.0000	1.6151	1.7454
<i>Eponides regularis</i>	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.2669	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.3098	0.1331	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.3098	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.0000	0.5557	0.7828
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	1.3791	0.0000	0.0000
<i>Reophax</i> sp. A	0.3098	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.1371
<i>Textularia earlandi</i>	0.5411	0.2669	0.3373
<i>Textularia</i> sp. B	0.3098	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.7045	0.0000	0.0000
<i>Trochammina</i> sp. B	0.4400	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.0000	0.5031	0.0000
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000

Sample ID	S1	S13	S47	S53	S59	S61
Core Depth	0-1	0-1	0-1	0-1	0-1	0-1
	cm	cm	cm	cm	cm	cm
<i>Ammonia parkinsoniana</i>	0.0000	0.0000	0.5800	0.0000	0.0000	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.2248	0.0000	0.0000	0.0000
<i>Anomalinoides mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.3538	0.1371	0.0000	0.0000	0.0000	0.0000
<i>Bolivina daggarius</i>	0.1331	0.6229	0.0000	0.1955	0.2789	0.2402
<i>Bolivina lowmani</i>	0.5211	0.5185	1.3230	0.8152	0.4432	0.9056
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.2986	0.1371	0.0000	0.0000	0.0000	0.0000
<i>Bolivina subaenariensis mexicana</i>	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.1371	0.0000	0.0000	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.0000	0.1371	0.0000	0.0000	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.6921	0.4368	0.4804	0.8152	1.1264	0.3938
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.2309	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.2669	0.0000	0.0000	0.0000	0.1391	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.1588	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.6151	1.7454	0.2756	0.4828	0.3699	0.9177
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.2669	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.6863	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000	0.1391	0.0000
<i>Nonionella opima</i>	0.5557	0.7828	0.1588	1.8014	1.7603	1.5277
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.4228	0.1381	0.0000	0.3405
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.4525	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.1371	0.4804	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.2669	0.3373	0.3186	0.0000	0.0000	0.4181
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.7803	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.5031	0.0000	0.0000	0.0000	0.0000	0.1385
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2004 HI3		2004 HI4		2004 HI5	
	25-30 cm	30-35 cm	30-35 cm	35-40 cm	25-30 cm	30-35 cm
<i>Ammonia parkinsoniana</i>	0.3736	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	1.0272	0.6797	0.0000	0.1251	0.1281	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.3736	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.0000	0.0000	0.0000	0.4279	0.2262
<i>Bolivina daggarius</i>	0.0000	0.0000	0.2330	0.1770	0.1281	0.2774
<i>Bolivina lowmani</i>	0.3736	0.0000	0.5077	0.4365	0.2568	0.3206
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.5315	0.6797	0.2330	0.0000	0.1281	0.0000
<i>Bolivina striatula</i>	0.0000	0.0000	0.1901	0.1251	0.3865	0.0000
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.1129
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.0000	0.0000	0.0000	0.0000	0.4279	0.2997
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.7610	0.9818	0.9563	0.7800	0.9597	1.0872
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.0000	0.1343	0.2804	0.2222	0.2262
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.1598
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.0000	0.0000	0.1251	0.0000	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.7610	0.0000	0.0000	0.1251	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	0.8564	1.2310	1.7795	1.9721	1.4227	1.3655
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.3736	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.6549	0.9818	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.0000	0.0000	0.3820	0.4365	0.3642	0.7855
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000	0.2222	0.1598
<i>Textularia earlandi</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.0000	0.0000	0.3570	0.2169	0.7165	0.5358
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2005 BC2		2005 BC3	
	38-40 cm	40-42 cm	38-40 cm	40-42 cm
<i>Ammonia parkinsoniana</i>	0.0000	0.0000	0.0000	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	0.0000	0.0000	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.1588	0.1897	0.2031	0.2418
<i>Bolivina daggarius</i>	0.2756	0.1897	0.3530	0.4552
<i>Bolivina lowmani</i>	0.6456	0.5065	0.4725	0.3837
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.3742	0.3562	0.2877	0.2705
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.1207
<i>Bolivina translucens</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.1588	0.1340	0.2625	0.3205
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.8661	0.8511	0.8441	0.7722
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.0000	0.2031	0.1207
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.1588	0.0000	0.2031	0.1207
<i>Eggerelloides scaber</i>	0.0000	0.1340	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.7927	1.8479	1.4126	1.2642
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.1657	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.1946	0.3811	0.8802	1.0154
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.1340	0.0000	0.0000
<i>Textularia earlandi</i>	0.1122	0.1897	0.0000	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.3381	0.3006	0.4415	0.5868
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.1207

Core ID Core Depth	2007 BC3		2007 BC2	
	36-38 cm	44-46 cm	22-24 cm	32-34 cm
<i>Ammonia parkinsoniana</i>	0.0000	0.0000	0.0000	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.3009	0.0000	0.0000	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.0000	0.1308	0.1365
<i>Bolivina daggarius</i>	0.1500	0.3991	0.0000	0.1365
<i>Bolivina lowmani</i>	0.4536	0.4997	0.4759	0.3629
<i>Bolivina ordinaria</i>	0.0000	0.1872	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.1852	0.1932
<i>Bolivina striatula</i>	0.4786	0.1872	0.4569	0.2368
<i>Bolivina subaenariensis mexicana</i>	0.1500	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.1323	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.1308	0.1932
<i>Bulimina marginata</i>	0.0000	0.1323	0.2269	0.3062
<i>Buliminella elegantissima</i>	0.1500	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	1.0537	0.8623	0.7942	0.8179
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.0000	0.2269	0.1932
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.1500	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.3993	0.0000	0.0000	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.1308	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.2150	1.8677	1.4938	1.8007
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.3009	0.3991	0.6233	0.4121
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.8157	0.1872	0.0000	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.1308	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.4536	0.1323	0.7064	0.5526
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2004 HI3		2004 HI4		2004 HI5	
	0-2 cm	13-16 cm	2-4 cm	10-13 cm	0-2 cm	6-8 cm
<i>Ammonia parkinsoniana</i>	0.5911	0.0000	0.1349	0.0000	0.0000	0.4735
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.5690	0.3001	0.3837	0.4609	0.3853	0.7227
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.2206	0.0000	0.0000	0.0000	0.1448	0.1415
<i>Bolivina daggarius</i>	0.1559	0.0000	0.1349	0.2960	0.1448	0.1415
<i>Bolivina lowmani</i>	1.4676	1.8019	0.7158	0.0000	0.7709	0.5355
<i>Bolivina ordinaria</i>	0.5911	0.1496	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.1320	0.0000	0.1415
<i>Bolivina striatula</i>	0.0000	0.0000	0.1910	0.1320	0.0000	0.1415
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.5223	0.1496	0.0000	0.0000	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.3127	0.1496	0.0000	0.1868	0.1448	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.3027	0.0000	0.2050	0.3764
<i>Buliminella morgani</i>	0.3127	0.4772	0.5634	0.5831	0.4617	0.4275
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.1496	0.1910	0.0000	0.3250	0.1415
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.4149	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.3176
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.0000	0.0000	0.1320	0.0000	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.1559	0.0000	0.2341	0.0000	0.4847	0.6435
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.1448	0.1415
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.2003
<i>Epistominella vitrea</i>	0.1559	0.9577	1.6710	1.6143	1.5446	1.2974
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.1349	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.1349	0.2960	0.0000	0.0000
<i>Nonionella opima</i>	0.1559	0.0000	0.6732	0.7893	0.6760	0.5355
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.3245	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.3507	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.1496	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.1349	0.0000	0.2050	0.3764
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.2003
<i>Textularia earlandi</i>	0.5461	0.5238	0.0000	0.0000	0.1448	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.1349	0.4609	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.1559	0.0000	0.0000	0.1868	0.3250	0.1415
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2005 MC1		2005 BC2	
	18-20 cm	20-22 cm	17-18 cm	26-28 cm
<i>Ammonia parkinsoniana</i>	0.2097	0.0000	0.5461	0.3127
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	0.0000	0.0000	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina daggarius</i>	0.2710	0.0000	0.2705	0.0000
<i>Bolivina lowmani</i>	0.5746	0.0000	1.4064	0.3127
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.9273	0.1559	0.2206
<i>Bolivina striatula</i>	0.2422	0.0000	0.2206	0.2705
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.1559	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.1711	0.0000	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.5184	0.0000	0.4715	0.3837
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.0000	0.0000	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.1711	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.1711	0.0000	0.3127	0.7112
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.9273	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.9522	0.0000	1.3197	1.3694
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.9273	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.9273	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.1209	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.9273	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.5035	0.0000	0.0000	0.0000
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.1559	0.2705
<i>Reophax</i> sp. A	0.0000	0.0000	0.1559	0.1559
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.2097	0.0000	0.0000	1.2438
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.1711	0.0000	0.0000	0.0000
<i>Valvulinaria mexicana</i>	0.1711	0.0000	0.0000	0.0000

Core ID Core Depth	2005 BC3		2007 BC3	
	24-26 cm	32-34 cm	18-20 cm	30-32 cm
<i>Ammonia parkinsoniana</i>	0.0891	0.0000	0.8833	0.8282
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0891	0.0000	0.2782	0.4400
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0891	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.2363	0.2031	0.0000	0.0000
<i>Bolivina daggarius</i>	0.1261	0.3530	0.0000	0.0000
<i>Bolivina lowmani</i>	0.3349	0.4725	0.2782	0.3672
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.1261	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.2681	0.2877	0.2782	0.2396
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.3694	0.2625	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.8517	0.8441	1.0472	0.3397
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.2031	0.0000	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0891	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.1545	0.2031	0.3413	0.1381
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.1955
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.4913	1.4126	1.4552	1.9005
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0891	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.1657	0.2782	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.6922	0.8802	0.1964	0.3397
<i>Nonionella turgida</i>	0.0891	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.1784	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.1261	0.0000	0.0000	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.6475	0.4415	0.0000	0.0000
<i>Valvulinaria mexicana</i>	0.0891	0.0000	0.0000	0.0000

Core ID Core Depth	2005 MC1		2005 BC2		2005 BC3		2007 BC3	
	10-12 cm	14-16 cm	7-8 cm	9-10 cm	5-6 cm	7-8 cm	6-8 cm	10-12 cm
<i>Ammonia parkinsoniana</i>	0.5857	0.0000	0.2857	0.6239	0.2408	0.1441	0.8486	0.3192
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	0.0000	0.0000	0.0000	0.5621	0.3545	0.1505	0.2013
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina daggarius</i>	0.0000	0.0000	0.0000	0.1705	0.1964	0.1441	0.0000	0.1423
<i>Bolivina lowmani</i>	0.4111	0.0000	0.0000	0.6949	0.6467	0.2500	0.3703	0.6797
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.2039	0.0000	0.0000
<i>Bolivina striatula</i>	0.0000	0.0000	0.1646	0.2414	0.2408	0.2500	0.0000	0.0000
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.2897	0.0000	0.0000	0.0000	0.1388	0.0000	0.0000	0.0000
<i>Bulimina aculeata</i>	0.2897	0.0000	0.0000	0.0000	0.1388	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.1441	0.2611	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.0000	1.2310	0.0000	0.4543	0.9079	0.7208	0.6856	0.8411
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1423
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.6573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Cribratomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.3545	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000	0.1388	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.0000	0.7329	0.6239	0.1964	0.8526	0.2130	0.2468
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000	0.1388	0.1441	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.4111	0.0000	0.0000	0.0000	0.1388	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	0.0000	0.0000	0.2330	0.4863	1.1445	0.5841	1.7125	1.6923
<i>Eponides regularis</i>	0.5054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.1646	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000	0.2408	0.0000	0.1505	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	1.2310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.3303	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.2897	1.2310	0.0000	0.0000	0.4421	0.1441	0.2130	0.3499
<i>Nonionella turgida</i>	0.4111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.9480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.2330	0.3422	0.1388	0.1441	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.1646	0.2414	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.7837	0.0000	2.1419	1.5998	0.8833	1.5449	0.0000	0.3499
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.5054	0.0000	0.0000	0.0000	0.1388	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.2897	0.0000	0.0000	0.0000	0.1388	0.0000	0.4285	0.3783
<i>Valvulinaria mexicana</i>	0.2897	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2005 MC1		2005 BC2	
	0-2 cm	4-6 cm	0-1 cm	3-4 cm
<i>Ammonia parkinsoniana</i>	0.4330	0.0000	0.4330	0.0000
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.0000	1.6516	0.1433	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoides mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.0000	0.0000	0.3526	0.0000
<i>Bolivina daggarius</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina lowmani</i>	0.8883	0.5289	1.2526	0.6306
<i>Bolivina ordinaria</i>	0.3526	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.2234	0.1433	0.3948
<i>Bolivina striatula</i>	0.0000	0.0000	0.2029	0.3413
<i>Bolivina subaenariensis mexicana</i>	0.2487	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.8883	0.0000	0.2029	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.2487	0.0000	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.5014	0.2739	0.8750	0.0000
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.2487	0.0000	0.0000	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.5014	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.4330	0.0000	0.2029	0.9558
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.2874	0.1964
<i>Elphidium excavatum</i>	0.0000	0.4496	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.1578	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.2234	0.0000	0.0000
<i>Epistominella vitrea</i>	0.3526	0.2739	0.8342	0.1964
<i>Eponides regularis</i>	0.5621	0.1578	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.3526	0.0000	0.1433	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.0000	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.1578	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.2487	0.1578	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.1964
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.2487	0.1578	0.1433	0.0000
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.2487	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.2782
<i>Reophax</i> sp. A	0.0000	0.4774	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.3526	0.7752	0.0000	0.0000
<i>Textularia earlandi</i>	0.4330	0.2234	0.8061	1.7253
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.0000	0.0000	0.1433	0.0000
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2005 BC3		2007 BC3	
	0-1 cm	1-2 cm	2-4 cm	4-6 cm
<i>Ammonia parkinsoniana</i>	0.1522	0.0000	0.0000	0.6126
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	1.0032	0.2481	0.0000	0.0000
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoides mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.5978	0.1430	0.2897	0.0000
<i>Bolivina daggarius</i>	0.0000	0.2024	0.0000	0.0000
<i>Bolivina lowmani</i>	0.7293	0.5001	0.2897	0.7996
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.1522	0.0000	0.0000	0.0000
<i>Bolivina striatula</i>	0.4602	0.3208	0.2897	0.3499
<i>Bolivina subaenariensis mexicana</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.1430	0.0000	0.0000
<i>Bulimina aculeata</i>	0.0000	0.0000	0.0000	0.0000
<i>Bulimina marginata</i>	0.2155	0.0000	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.0000	0.0000
<i>Buliminella morgani</i>	0.8437	1.0706	0.8411	0.2013
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.0000	0.1430	0.0000	0.0000
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.1430	0.0000	0.2013
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.2897	0.0000
<i>Eggerella advena</i>	0.1522	0.2481	0.7837	0.4048
<i>Eggerelloides scaber</i>	0.5769	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	0.7293	1.0589	0.0000	1.0296
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.4111	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.2013
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.2641	0.0000	1.2748	0.3499
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.0000	0.0000	0.0000	0.0000
<i>Nonionella opima</i>	0.3417	0.7456	0.4111	0.9069
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.2024	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.1430	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.2641	0.8456	0.6573	0.5765
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.0000	0.1430	0.5054	0.6469
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000

Core ID Core Depth	2007 BC2			
	3-4 cm	8-9 cm	13-14 cm	15-16 cm
<i>Ammonia parkinsoniana</i>	0.0000	0.5054	0.1388	0.1513
<i>Ammonia</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Ammonia tepida</i>	0.3929	0.4297	0.3413	0.3725
<i>Ammotium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Anomalinoidea mexicanum</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina barbata</i>	0.1381	0.0000	0.0000	0.1070
<i>Bolivina daggarius</i>	0.1381	0.0000	0.1964	0.2626
<i>Bolivina lowmani</i>	0.7752	0.7729	0.7513	0.6807
<i>Bolivina ordinaria</i>	0.0000	0.0000	0.0000	0.0000
<i>Bolivina</i> sp.	0.0000	0.0000	0.0000	0.1070
<i>Bolivina striatula</i>	0.1955	0.2136	0.0000	0.2142
<i>Bolivina subaenariensis mexicana</i>	0.1381	0.0000	0.0000	0.0000
<i>Bolivina translucens</i>	0.0000	0.0000	0.2408	0.0000
<i>Bulimina aculeata</i>	0.0000	0.1509	0.0000	0.0000
<i>Bulimina marginata</i>	0.1381	0.1509	0.0000	0.0000
<i>Buliminella elegantissima</i>	0.0000	0.0000	0.1964	0.2626
<i>Buliminella morgani</i>	0.6275	0.5718	0.5249	0.6530
<i>Cassidulina</i> cf. <i>C. minuta</i>	0.1381	0.2136	0.0000	0.2626
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.0000	0.0000	0.0000	0.0000
<i>Cibicides</i> sp.	0.1381	0.0000	0.1388	0.1070
<i>Cribrostomoides</i> cf. <i>C. jeffreysii</i>	0.0000	0.0000	0.0000	0.0000
<i>Discammina</i> cf. <i>D. compressa</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerella advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Eggerelloides scaber</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium excavatum</i>	0.1955	0.2136	0.4421	0.3035
<i>Elphidium gunteri</i>	0.0000	0.0000	0.0000	0.0000
<i>Elphidium mexicanum</i>	0.0000	0.3387	0.1388	0.2142
<i>Elphidium</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Epistominella vitrea</i>	1.5232	1.5935	1.6478	1.6738
<i>Eponides regularis</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides repandus</i>	0.0000	0.0000	0.0000	0.0000
<i>Eponides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Eponides turgidus</i>	0.0000	0.0000	0.0000	0.0000
<i>Gaudryina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Globobulimina</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Glomospira gordialis</i>	0.0000	0.0000	0.0000	0.0000
<i>Goesella mississippiensis</i>	0.1381	0.0000	0.0000	0.0000
<i>Hanzawaia strattoni</i>	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp.	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Haplophragmoides wilberti</i>	0.0000	0.0000	0.0000	0.0000
<i>Hopkinsina pacifica atlantica</i>	0.1955	0.0000	0.1964	0.0000
<i>Nonionella opima</i>	0.6275	0.0000	0.5972	0.5068
<i>Nonionella turgida</i>	0.0000	0.0000	0.0000	0.0000
<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina jugosa</i>	0.0000	0.0000	0.0000	0.0000

<i>Quinqueloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Quinqueloculina</i> sp. C	0.0000	0.0000	0.0000	0.0000
<i>Reophax bacillaris</i>	0.0000	0.0000	0.0000	0.0000
<i>Reophax</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Rosalina floridana</i>	0.0000	0.0000	0.0000	0.0000
<i>Sigmoilina distorta</i>	0.0000	0.0000	0.0000	0.0000
<i>Textularia earlandi</i>	0.0000	0.0000	0.0000	0.0000
<i>Textularia</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Triloculina</i> sp. A	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> cf. <i>T. advena</i>	0.0000	0.0000	0.0000	0.0000
<i>Trochammina</i> sp. B	0.0000	0.0000	0.0000	0.0000
<i>Uvigerina peregrina</i>	0.5411	0.5054	0.1388	0.2396
<i>Valvulinaria mexicana</i>	0.0000	0.0000	0.0000	0.0000

APPENDIX F: ANOVA OUTPUT GRAPHS

The following are graphs output by ANOVA for those species which returned a significant difference ($p < 0.1$) between hurricane and non-hurricane units.

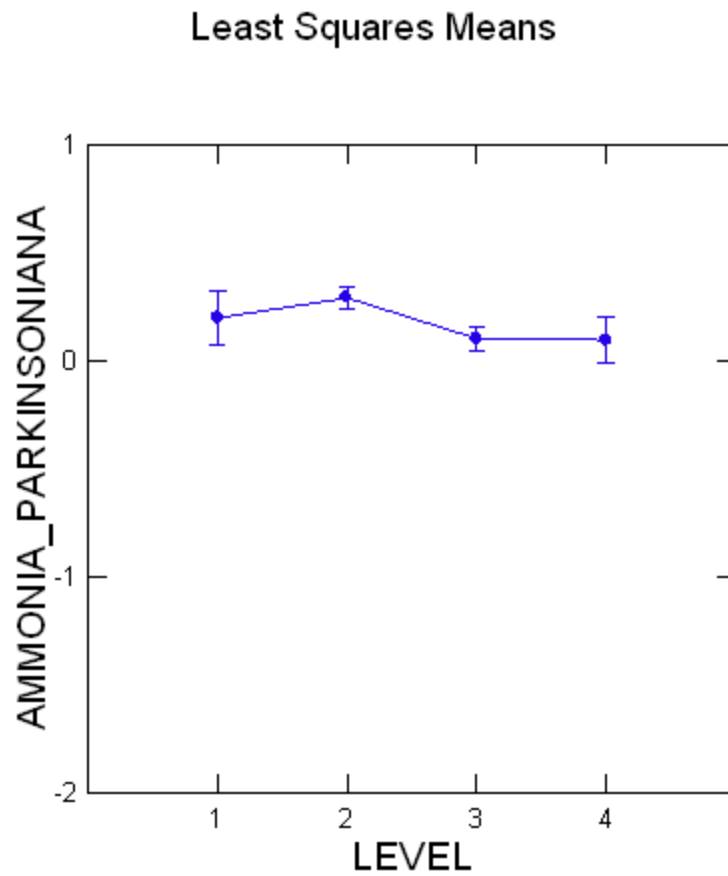


Figure 1. ANOVA output graph for *Ammonia parkinsoniana*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

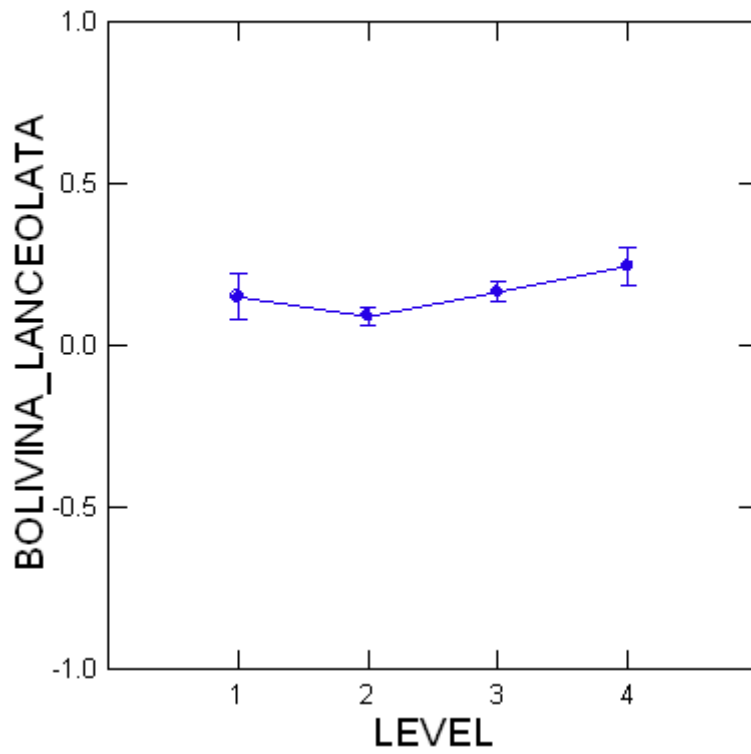


Figure 2. ANOVA output graph for *Bolivina daggarius* (*B. lanceolata* was changed to *B. daggarius*). The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

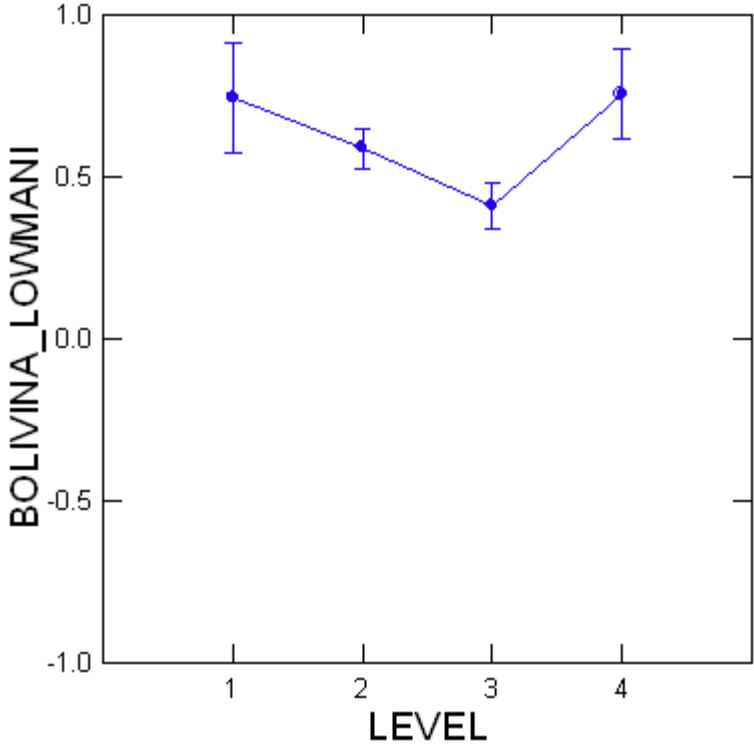


Figure 3. ANOVA output graph for *Bolivina lowmani*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

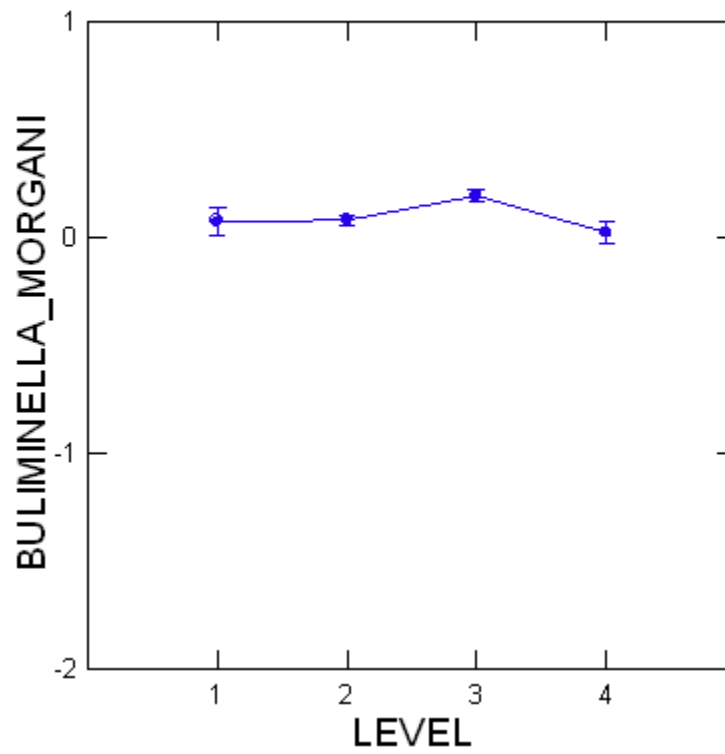


Figure 4. ANOVA output graph for *Buliminella morgani*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

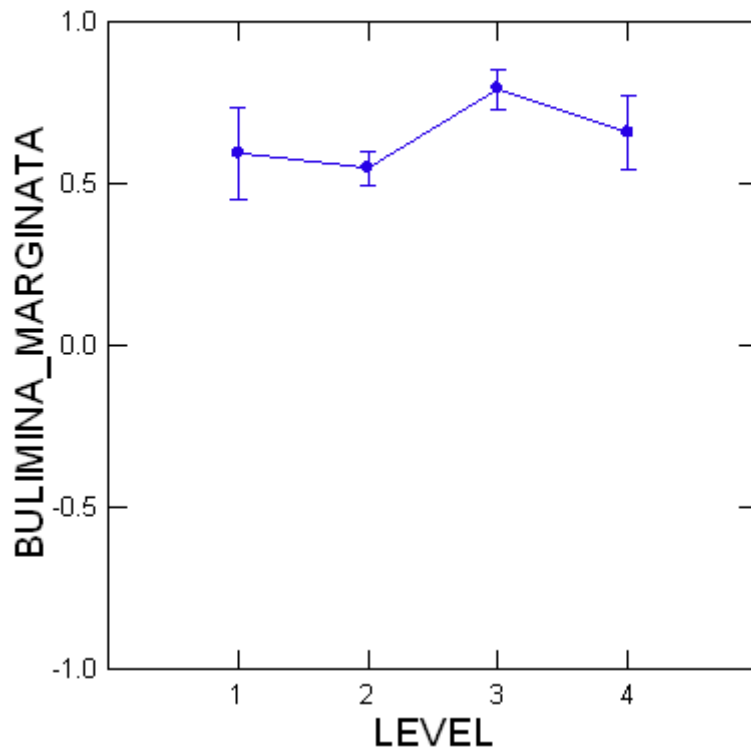


Figure 5. ANOVA output graph for *Bulimina marginata*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

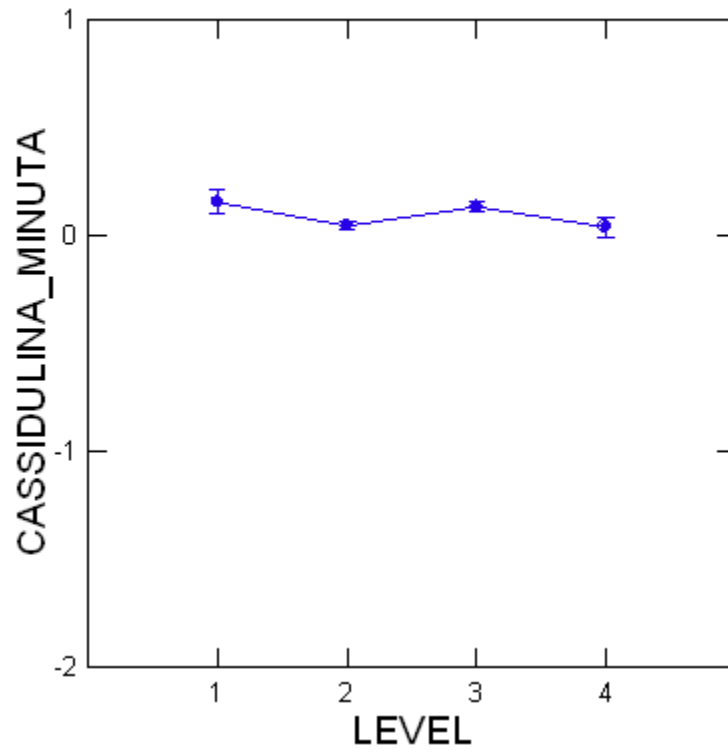


Figure 5. ANOVA output graph for *Cassidulina* cf. *C. minuta*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

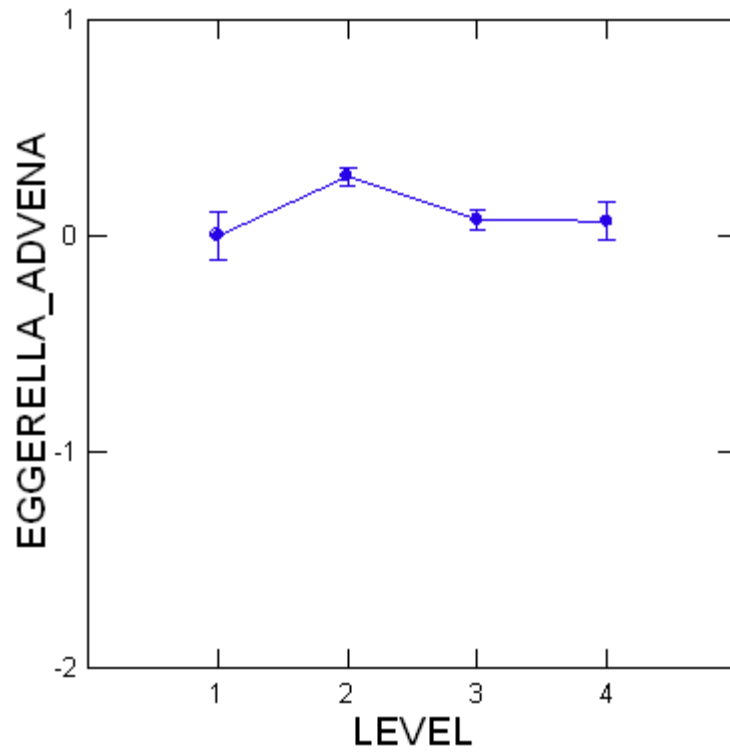


Figure 6. ANOVA output graph for *Eggerella advena*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

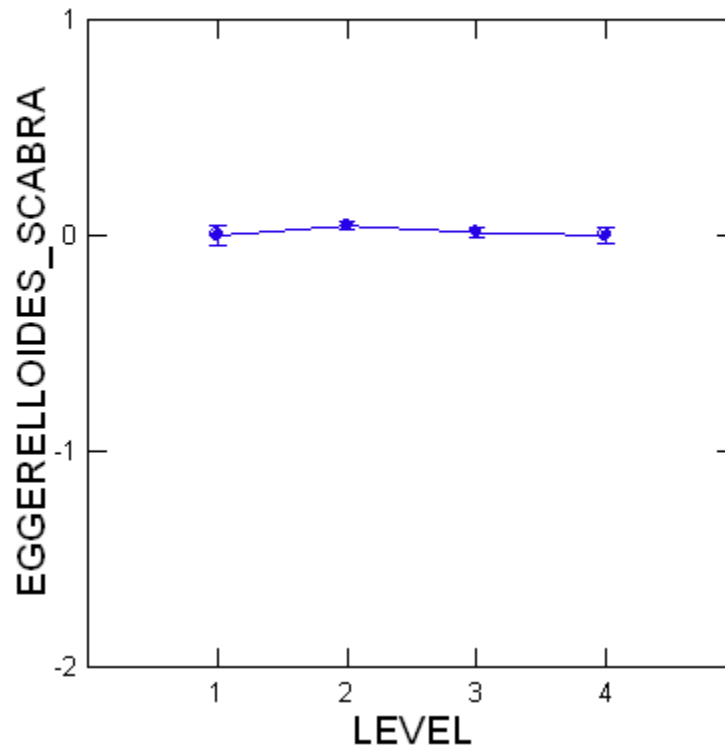


Figure 7. ANOVA output graph for *Eggerelloides scaber*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

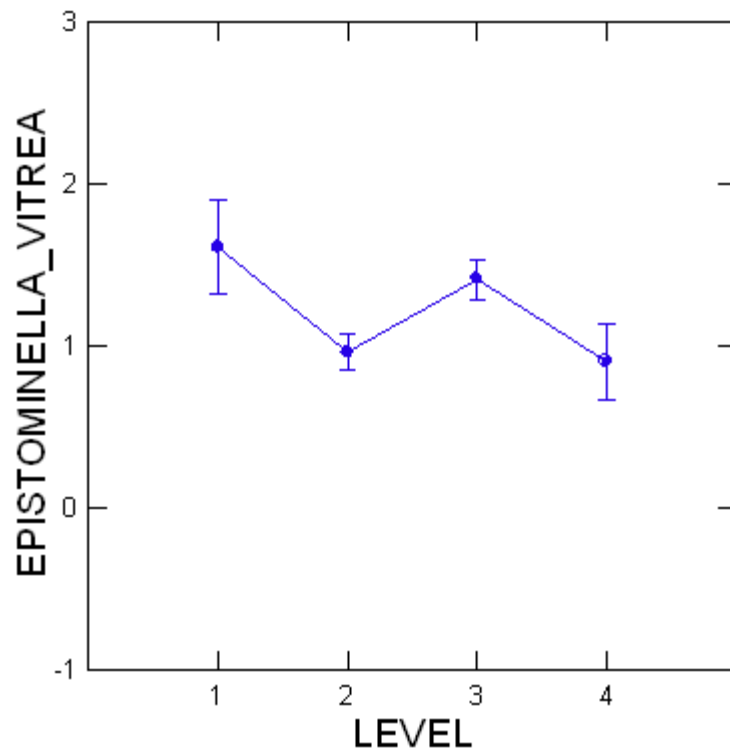


Figure 8. ANOVA output graph for *Epistominella vitrea*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

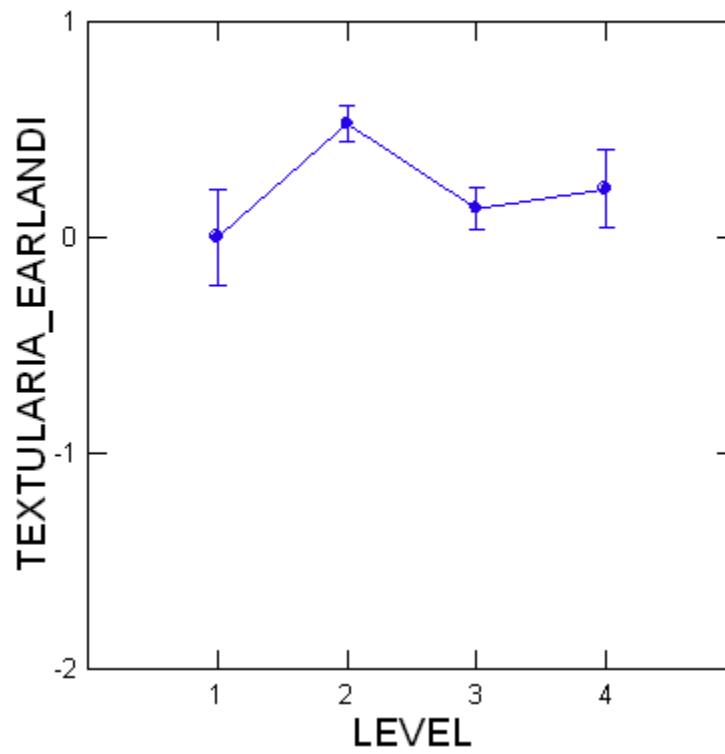


Figure 9. ANOVA output graph for *Textularia earlandi*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

Least Squares Means

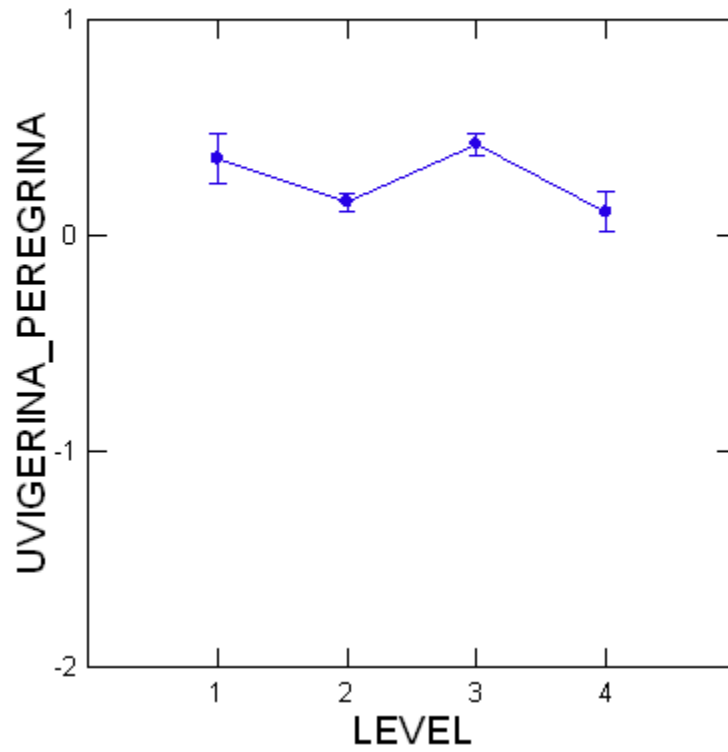


Figure 10. ANOVA output graph for *Uvigerina peregrina*. The levels are 1-bioturbated unit, 2-hurricane units, 3-pre- and post-hurricane units, and 4-flood unit.

APPENDIX G: ANOVA OUTPUT TABLES

This appendix contains all data calculated during ANOVA for all species tested (those that made up at least 5% of any one sample).

<i>Ammonia parkinsoniana</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.519	3	0.173	2.636	0.058
	Error	3.81	58	0.066		

<i>Ammonia tepida</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.537	3	0.179	1.915	0.137
	Error	5.419	58	0.093		

<i>Bolivina barbata</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.08	3	0.027	1.189	0.322
	Error	1.296	58	0.022		

<i>Bolivina daggarius</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.156	3	0.052	2.62	0.059
	Error	1.154	58	0.02		

<i>Bolivina lowmani</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.877	3	0.292	2.543	0.065
	Error	6.668	58	0.115		

<i>Bolivina ordinaria</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.01	3	0.003	0.345	0.793
	Error	0.576	58	0.01		

<i>Bolivina striatula</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value

	LEVEL	0.086	3	0.029	1.404	0.251
	Error	1.184	58	0.02		
<hr/>						
<i>Bolivina translucens</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.052	3	0.017	0.843	0.476
	Error	1.181	58	0.02		
<hr/>						
<i>Buliminella morgani</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.225	3	0.075	4.18	0.01
	Error	1.041	58	0.018		
<hr/>						
<i>Bulimina marginata</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.769	3	0.256	3.141	0.032
	Error	4.733	58	0.082		
<hr/>						
<i>Cassidulina cf. C. minuta</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.129	3	0.043	3.501	0.021
	Error	0.71	58	0.012		
<hr/>						
<i>Cassidulina cf. C. neocarinata</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.052	3	0.017	1.292	0.286
	Error	0.783	58	0.014		
<hr/>						
<i>Eggerella advena</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.706	3	0.235	4.975	0.004
	Error	2.743	58	0.047		
<hr/>						
<i>Eggerelloides scaber</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.02	3	0.007	0.827	0.485

	Error	0.478	58	0.008		
<i>Elphidium excavatum</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.218	3	0.073	2.932	0.041
	Error	1.437	58	0.025		
<i>Epistominella vitrea</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	3.776	3	1.259	3.731	0.016
	Error	19.565	58	0.337		
<i>Eponides regularis</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.026	3	0.009	0.914	0.44
	Error	0.546	58	0.009		
<i>Glomospira gordialis</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.018	3	0.006	0.412	0.745
	Error	0.833	58	0.014		
<i>Goesella mississippiensis</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.045	3	0.015	0.413	0.744
	Error	2.086	58	0.036		
<i>Hanzawaia strattoni</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.011	3	0.004	0.214	0.886
	Error	0.994	58	0.017		
<i>Haplophragmoides</i> sp. A	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.038	3	0.013	0.334	0.801
	Error	2.208	58	0.038		

<i>Haplophragmoides</i> sp. B	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.067	3	0.022	2.67	0.056
	Error	0.484	58	0.008		
<i>Nonionella opima</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	2.721	3	0.907	6.912	0
	Error	7.61	58	0.131		
<i>Quinqueloculina</i> sp. A	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.028	3	0.009	0.567	0.639
	Error	0.95	58	0.016		
<i>Reophax bacillaris</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.034	3	0.011	0.304	0.823
	Error	2.143	58	0.037		
<i>Reophax</i> sp. A	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.027	3	0.009	0.893	0.45
	Error	0.585	58	0.01		
<i>Sigmoilina distorta</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	0.029	3	0.01	0.538	0.658
	Error	1.034	58	0.018		
<i>Textularia earlandi</i>	Source	Type III SS	df	Mean Squares	F-ratio	p-value
	LEVEL	2.519	3	0.84	4.236	0.009

	Error	11.497	58	0.198		
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<i>Triloculina</i> sp. B	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.003	3	0.001	0.233	0.873
	Error	0.253	58	0.004		

<i>Trochammina</i> cf. <i>T. advena</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.066	3	0.022	1.009	0.395
	Error	1.259	58	0.022		

<i>Trochammina</i> sp. B	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	0.006	3	0.002	0.594	0.621
	Error	0.185	58	0.003		

<i>Uvigerina peregrina</i>	Source	Type III SS	df	Mean Squares	F- ratio	p- value
	LEVEL	1.082	3	0.361	6.924	0
	Error	3.02	58	0.052		

APPENDIX H: ADDITIONAL DISCRIMINANT ANALYSIS RESULTS

Three discriminant analyses were performed to determine whether the four types of units (bioturbated unit, hurricane units, pre- and post-hurricane units, and flood unit) were statistically distinguishable based on their foraminiferal assemblages using taxa that made up at least 2%, 5% and 10% of the assemblage of any one sample. The discriminant analyses using the >2% and >10% datasets were eliminated from the main text for brevity, but their results are reported in this appendix.

The discriminant analysis utilizing those taxa comprising 2% or more of the assemblage of any one sample used 51 variables ($p = 51$ species), 62 observations ($n = 62$ samples), and four groups ($h = 4$ unit types). As p is greater than h , three canonical discriminant functions ($h - 1 = 3$) were possible.

The first canonical discriminant function (CDF) 1 (Table 1) explains 71.3% of the variance, and clearly distinguishes the bioturbated unit and the flood unit but not the hurricane and pre- and post- hurricane (Table 2, Fig. 1). The separation along CDF1 is due, in large part, to *Ammotium* sp., *Reophax bacillaris*, *Elphidium gunteri*, *Haplophragmoides* sp. B, and *Globobulimina* sp (Tables 2). CDF 2 (Table 2), explaining 17.2% of the variance, contrasts the flood unit from the bioturbated unit (Figure 1A). Separation along CDF2 is mostly due to *Glomospira gordialis*, *Globobulimina* sp. and *Elphidium gunteri*. Separation along CDF3, which separates the hurricane from pre- and post-hurricane units, is due to *Globobulimina* sp. and *Quinqueloculina* sp. A. Plots of CDF1 vs. CDF2 and CDF1 vs. CDF3 with 95% confidence circles show that all units are distinguishable (Figs. 1A and 1B, respectively). Species contributing to discrimination are listed in Table 3. Tables 4 through 6 summarize the species which contributed most to the discrimination of these units using the 2% dataset, where they

were found in this study, and where they have been recorded in other studies.

TABLE 1. Canonical discriminant functions and corresponding eigenvalues for analysis using species that comprise 2% or more of any one sample of the four unit types: bioturbated unit, hurricane, pre- and post- hurricane, and flood units.

Function	Eigenvalue	% of Variance	Cumulative %
1	58.359	71.3%	71%
2	14.099	17.2%	89%
3	9.419	11.5%	100%

TABLE 2. Canonical scores of group (unit type) means (using species that comprise 2% or more of any one sample).

Unit	Function		
	1	2	3
Bioturbated hurricane unit	-24.656	6.646	-0.375
Flood unit	-8.536	-9.341	3.491
Hurricane units	3.971	1.759	2.188
Pre- and post-hurricane units	1.396	-1.06	-3.867

The discriminant analysis using taxa which make up 10% or more of the assemblage of any one sample used 21 variables ($p = 21$ species), 62 observations ($n = 62$ samples), and four groups ($h = 4$ unit types). As p is greater than h , three canonical discriminant functions ($h - 1 = 3$) were possible. The eigenvalues (Table 7) and group means (Table 8) yielded by this analysis were very similar to those yielded by the >5% dataset (See main text Tables 4 and 5). The plots of CDF1 vs. CDF2 and CDF1 vs. CDF3 were also similar to those of the >5% dataset, although the units are closer together.

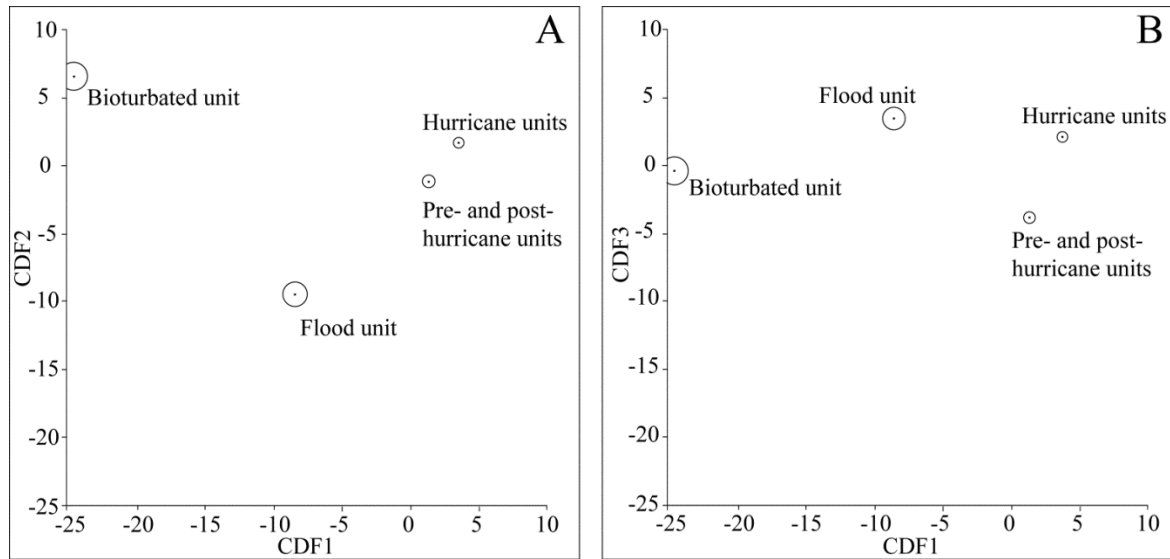


FIGURE 1. Plot of canonical discriminant functions (CDF) using the dataset of species that comprise at least 2% of any one sample. Points represent group centroids; circles represent 95% confidence intervals. A) CDF1 versus CDF2; B) CDF1 versus CDF3.

The species contributing most to the discrimination (Table 9) along CDF1 were *Glomospira gordialis*, *Hanzawaia strattoni*, *Nonionella opima*, *Trochammina* cf. *T. advena*, and *Uvigerina peregrina*. Those contributing most to the discrimination along CDF2 were *G. gordialis*, *Haplophragmoides* sp. A, *N. opima*, and *T.* cf. *T. advena*. The species contributing most to the discrimination along CDF3 were *G. gordialis*, *Haplophragmoides* sp. B, *N. opima*, and *T.* cf. *T. advena*. All of these species, with the exception of *U. peregrina*, were already found to be important in the discrimination between the units of the discriminant analyses using the >2% and >5% datasets. Tables 10 through 12 summarize the species which contributed most to the discrimination of these units using the 10% dataset, where they were found in this study, and where they have been recorded in other studies.

TABLE 3. Standardized discriminant function coefficients for variables (species that make up 2% or more of any one sample) used in the discriminant analysis. Boxes indicate those species which contribute most to separation along canonical discrimination functions.

	Function				Function		
	1	2	3		1	2	3
<i>Ammonia parkinsoniana</i>	0.686	1.105	0.013	<i>Elphidium mexicanum</i>	-5.152	0.088	0.588
<i>Ammonia</i> sp.	-1.128	-0.725	-0.4	<i>Elphidium</i> sp.	2.238	1.336	-1.491
<i>Ammonia tepida</i>	3.655	2.98	0.796	<i>Epistominella vitrea</i>	1.304	2.303	0.029
<i>Ammotium</i> sp.	-21.486	-4.894	0.144	<i>Eponides regularis</i>	-2.785	-1.481	-0.048
<i>Anomalinoidea mexicana</i>	4.948	-4.905	2.687	<i>Eponides repandus</i>	5.953	2.943	-2.072
<i>Bolivina barbata</i>	-2.448	-3.738	1.577	<i>Eponides</i> sp.	6.374	3.302	0.15
<i>Bolivina daggarius</i>	1.5	0.284	-0.23	<i>Eponides turgidus</i>	1.132	0.226	0.432
<i>Bolivina lowmani</i>	-0.05	1.441	0.82	<i>Gaudryina</i> sp.	-5.583	2.275	-3.173
<i>Bolivina ordinaria</i>	1.222	0.914	-1.978	<i>Globobulimina</i> sp.	-12.083	6.357	-4.856
<i>Bolivina</i> sp.	-1.802	0.432	1.318	<i>Glomospira gordialis</i>	-9.427	10.687	2.524
<i>Bolivina striatula</i>	0.53	1.496	-1.522	<i>Goesella mississippiensis</i>	-1.255	-0.328	2.607
<i>Bolivina subaenariensis mexicana</i>	-2.982	-1.761	0.805	<i>Haplophragmoides</i> sp.	1.44	2.395	-0.044
<i>Bolivina translucens</i>	-0.532	-0.473	-0.572	<i>Haplophragmoides</i> sp. A	1.061	0.868	-2.354
<i>Bulimina aculeata</i>	0.518	-1.285	0.093	<i>Haplophragmoides</i> sp. B	13.311	1.582	0.746
<i>Bulimina marginata</i>	-0.441	2.116	-0.468	<i>Hopkinsina pacifica atlantica</i>	-2.677	1.376	-0.576
<i>Buliminella elegantissima</i>	1.336	0.549	-1.489	<i>Nonionella opima</i>	-0.063	0.44	0.575
<i>Buliminella morgani</i>	2.089	1.108	-0.105	<i>Nouria</i> cf. <i>N. polymorphinoides</i>	0.054	-0.046	-0.401
<i>Cassidulina</i> cf. <i>C. minuta</i>	-1.621	0.969	-1.09	<i>Quinqueloculina</i> sp. A	7.022	2.568	3.308
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	1.966	0.186	2.163	<i>Quinqueloculina</i> sp. C	1.008	-0.218	-2.203
<i>Cibicides</i> sp.	-4.758	-0.014	0.06	<i>Reophax bacillaris</i>	19.225	4.735	0.078
<i>Cribratomoides</i> cf. <i>C. jefferysi</i>	-0.033	-0.292	-0.089	<i>Reophax</i> sp. A	-5.03	1.012	-0.603
<i>Discamina</i> cf. <i>D. compressa</i>	-4.308	-0.808	0.204	<i>Rosalina floridana</i>	4.114	-1.351	0.645
<i>Eggerella advena</i>	1.934	0.853	-0.14	<i>Textularia earlandi</i>	-4.707	-0.048	1.523
<i>Eggerelloides scaber</i>	1.844	1.699	-1.677	<i>Triloculina</i> sp. A	-1.449	-1.527	1.839
<i>Elphidium excavatum</i>	2.341	1.917	0.704	<i>Uvigerina perigrina</i>	4.383	2.439	-2.081

TABLE 4. Summary of species contributing to the discrimination of unit types along CDF1 using the dataset consisting of species which comprise 2% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 1 (Separates bioturbated and flood unit from pre and post-hurricane and hurricane units)		
Species	Occurrence	Species habitat
<i>Ammotium</i> sp.	Only one specimen, in PNR 5 (shallowest surface sample)	Tidal marshes, brackish lagoons, estuaries (Murray, 2006)
<i>Elphidium gunteri</i>	One specimen in PNR1 (deepest surface sample); one specimen in each hurricane unit in core MC1 (core group 3; shallow)	Coastal, shelf (Culver and Buzas, 1981a)
<i>Globobulimina</i> sp.	One specimen, one MC1 Katrina sample (shallow core group)	Deep infaunal, shelf (Murray, 2006)
<i>Haplophragmoides</i> sp. B	One flood sample (S47) contains 18 specimens, otherwise only one other specimen in PNR 5	Marshes to bathyal (Murray, 2006)
<i>Reophax bacillaris</i>	Fairly common; most abundant species in PNR 5 (shallowest surface sample) and otherwise only occurs in hurricane samples	

TABLE 5. Summary of species contributing to the discrimination of unit types along CDF2 using the dataset consisting of species which comprise 2% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 2 (Separates bioturbated and flood units)		
Species	Occurrence	Species habitat
<i>Elphidium gunteri</i>	See table 4	
<i>Glomospira gordialis</i>	One in one MC1 Ivan sample (core group 3; shallow), one in 2005 BC3 Ivan sample (core group 1; deep)	Slope (Culver and Buzas, 1981a)

TABLE 6. Summary of species contributing to the discrimination of unit types along CDF3 using the dataset consisting of species which comprise 2% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 3 (Separates pre- and post-hurricane and hurricane units)		
Species	Occurrence	Species habitat
<i>Globobulimina</i> sp.	See table 4	
<i>Quinqueloculina</i> sp. A	Occurs in hurricane units only; 10 in one MC1 Katrina sample (core group 3; shallow), 6 in one HI4 Ivan sample (core group 2; mid depth)	Hypersaline lagoons, marine marshes, shelf (Murray, 2006)

TABLE 7. Canonical discriminant functions and corresponding eigenvalues for analysis using species that comprise 10% or more of any one sample of the four unit types: bioturbated unit, hurricane, pre- and post- hurricane, and flood units.

Function	Eigenvalue	% of Variance	Cumulative %
1	2.539	60.2%	60%
2	1.389	32.9%	93%
3	0.292	6.9%	100%

TABLE 8. Canonical scores of group (unit type) means.

Unit	Function		
	1	2	3
Bioturbated hurricane unit	-0.931	0.751	-1.934
Flood unit	2.059	-3.093	-0.225
Hurricane units	1.118	0.778	0.143
Pre- and post-hurricane units	-1.917	-0.354	0.218

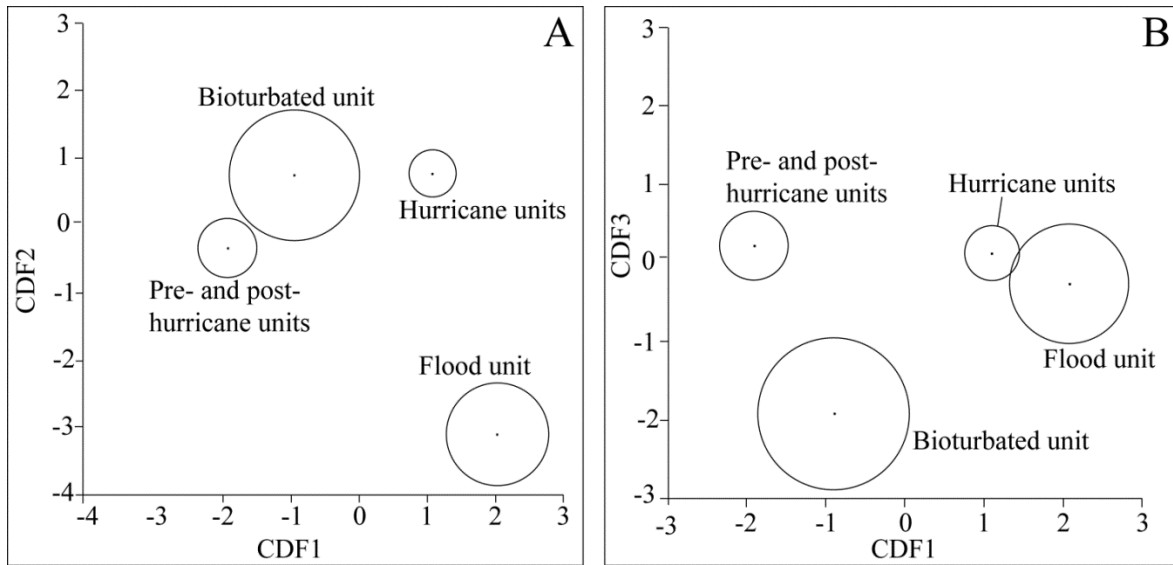


FIGURE 2. Plot of canonical discriminant functions (CDF) using the dataset of species that comprise at least 10% of any one sample. Points represent group centroids; circles represent 95% confidence intervals. A) CDF1 versus CDF2; B) CDF1 versus CDF3.

TABLE 9. Standardized discriminant function coefficients for variables (species that make up 10% or more of any one sample) used in the discriminant analysis. Boxes indicate those species which contribute most to separation along canonical discrimination functions.

	Function		
	1	2	3
<i>Ammonia parkinsoniana</i>	0.699	0.216	0.14
<i>Ammonia tepida</i>	-0.036	0.557	-0.115
<i>Bolivina lowmani</i>	0.671	-0.283	-0.115
<i>Bolivina translucens</i>	-0.458	0.313	-0.623
<i>Buliminella morgani</i>	-0.039	0.081	0.327
<i>Cassidulina</i> cf. <i>C. neocarinata</i>	0.245	-0.047	0.69
<i>Eggerella advena</i>	0.195	0.091	0.089
<i>Elphidium excavatum</i>	0.064	0.202	-0.757
<i>Epistominella vitrea</i>	0.183	-0.195	0.032
<i>Glomospira gordialis</i>	1.58	0.934	-0.195
<i>Goesella mississippiensis</i>	0.598	0.121	0.066
<i>Hanzawaia strattoni</i>	-0.956	-0.454	0.074
<i>Haplophragmoides</i> sp. A	-0.126	-0.773	0.445
<i>Haplophragmoides</i> sp. B	0.401	0.084	-0.653
<i>Nonionella opima</i>	0.966	-0.917	-0.034
<i>Quinqueloculina</i> sp. A	0.609	0.466	-0.285
<i>Reophax bacillaris</i>	0.099	0.302	0.201
<i>Sigmoilina distorta</i>	0.709	-0.395	0.702
<i>Textularia earlandi</i>	0.65	-0.004	0.122
<i>Trochammina</i> cf. <i>T. advena</i>	-0.886	-0.924	0.269
<i>Uvigerina peregrina</i>	-0.885	0.199	-0.142

TABLE 10. Summary of species contributing to the discrimination of unit types along CDF1 using the dataset consisting of species which comprise 10% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 1 (Separates bioturbated and pre- and post hurricane units from flood and hurricane units)		
Species	Occurrence	Species habitat
<i>Glomospira gordialis</i>	See table 5	
<i>Hanzawaia strattoni</i>	One specimen in one 2007 BC3 post-hurricane sample (core group 2, mid-depth) and one each in the Rita and Ivan deposits in MC1 (core group 3; shallow)	Inner shelf (Culver and Buzas, 1981a)
<i>Nonionella opima</i>	Ubiquitous, but especially abundant in the flood deposit	Shelf and slope (Culver and Buzas, 1981a); Low DO tolerant (Blackwelder and others, 1996)
<i>Trochammina</i> cf. <i>T. advena</i>	Rare, except in PNR5 (shallowest surface sample), one Katrina sample in MC1 (core group 3; shallow), and in the flood sample S47 (closest flood sample to Southwest Pass)	Shelf and slope (Culver and Buzas, 1981a)
<i>Uvigerina peregrina</i>	Occurs in all units, but is most common in the pre- and post- hurricane units, especially in the deeper-water core groups and surface samples.	Slope (Culver and Buzas, 1981)

TABLE 11. Summary of species contributing to the discrimination of unit types along CDF2 using the dataset consisting of species which comprise 10% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 2 (Separates flood unit from all other units)		
Species	Occurrence	Species habitat
<i>Glomospira gordialis</i>	See table 5	
<i>Haplophragmoides</i> sp. A	See table 4	
<i>Nonionella opima</i>	See table 10	
<i>Trochammina</i> cf. <i>T. advena</i>	See table 10	

TABLE 12. Summary of species contributing to the discrimination of unit types along CDF3 using the dataset consisting of species which comprise 10% or more of any one sample, as well as their occurrence in this study and their typical habitats in the Gulf of Mexico.

CDF 3 (Separates pre- and post- hurricane unit from the bioturbated unit)		
Species	Occurrence	Species habitat
<i>Glomospira gordialis</i>	See table 4	
<i>Haplophragmoides</i> sp. B	See table 4	
<i>Nonionella opima</i>	See table 10	
<i>Trochammina</i> cf. <i>T. advena</i>	See table 10	

