NEOGENE STRATIGRAPHY, BEDFORMS, AND SURFACE SEDIMENTS: NW FLORIDA STATE WATERS

by

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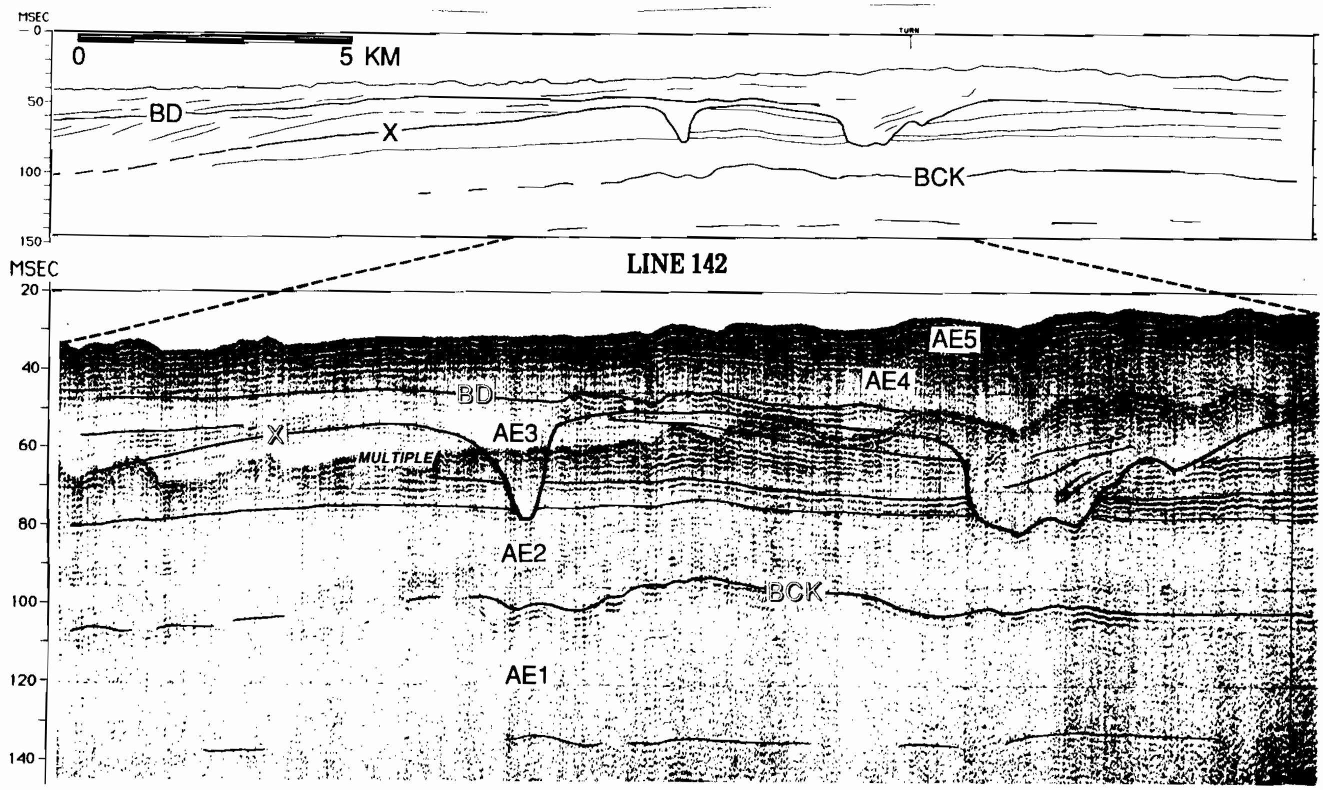

THE CENTER FOR NEARSHORE MARINE SCIENCE
OF THE
UNIVERSITY OF SOUTH FLORIDA
Dr. Larry J. Doyle, Director

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INTRODUCTION

This report centers on the results of an extensive high resolution seismic profiling, side scan sonar, and bottom sampling investigation of Florida state waters from Cape San Blas westward to the Alabama border (Figures 1 and 2). Sponsored by GECO Geophysical Company Inc. as part of their non-proprietary deep geophysical survey of the region, it represents an innovative and farsighted approach to establishing an environmental framework at the earliest stage of exploration in a sensitive frontier area. These data and interpretations will be of use to the industry in early recognition of points of potential environmental concern and will allow them to factor any potential problems into their economic calculations at an early stage in their exploration plans.

GEOLOGIC SETTING

The area of investigation lies in a transitional area between carbonate sediments of the Florida peninsula and terrigenous clastic sediments derived from the southern Appalachians to the north. The major structural elements within the study area are the Apalachicola Embayment, Chattahoochee Anticline, and the Mississippi Embayment (Figure 3). The axis of the Apalachicola Embayment and Chattahoochee Anticline plunge S-SW (Schmidt et al, 1982). This area also spans the transition between the West Florida Shelf and Mississippi-Alabama Shelf subprovinces identified by Martin and Bouma (1978). These two basic sedimentary provinces are reflected by the change in bathymetric trend of the shelf break seaward of Choctawahatchee Bay (Figure 1). For the purpose of discussion in this paper, the western part of the study area will be referred to as the northwest Florida shelf.

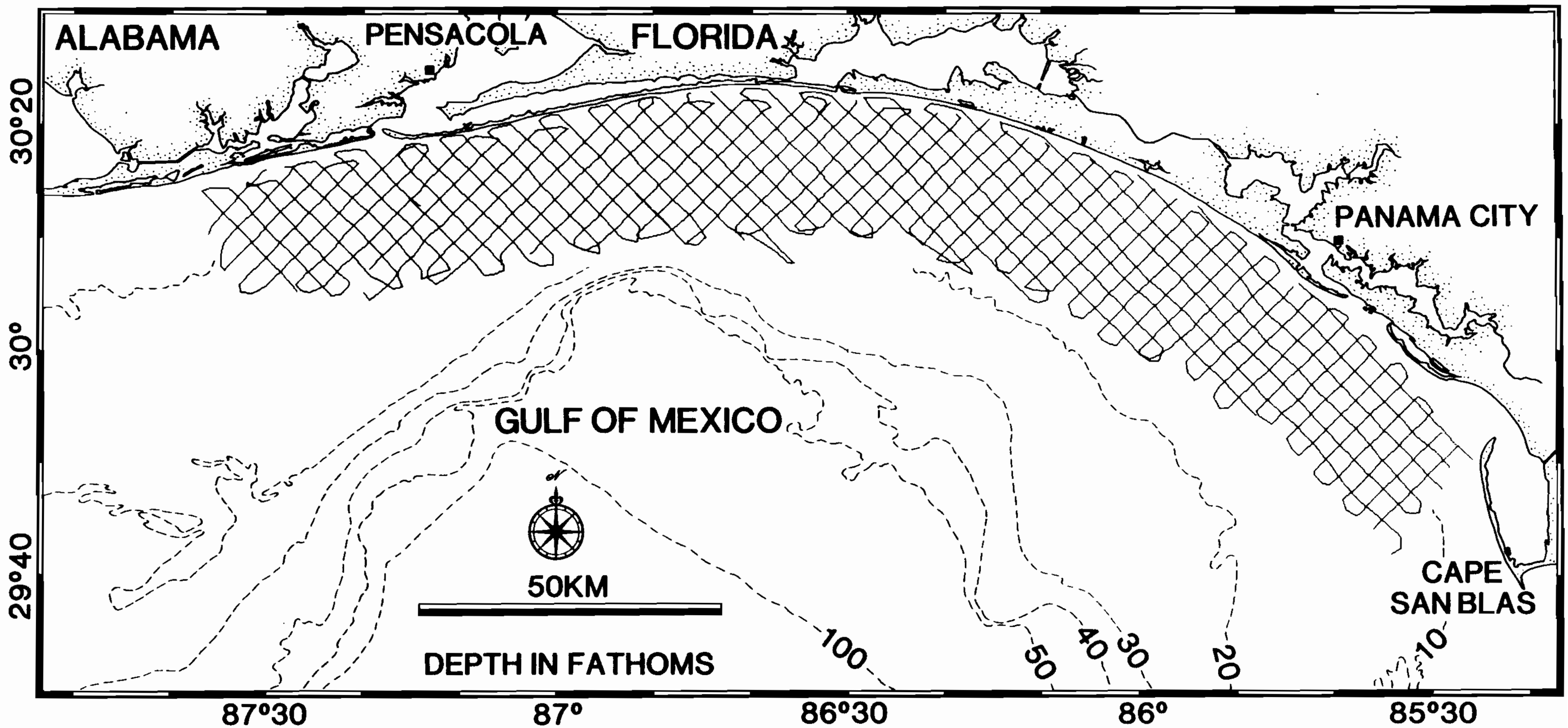


Figure 1. Study location and ship track. Line Spacing is 2 miles (3.2km).

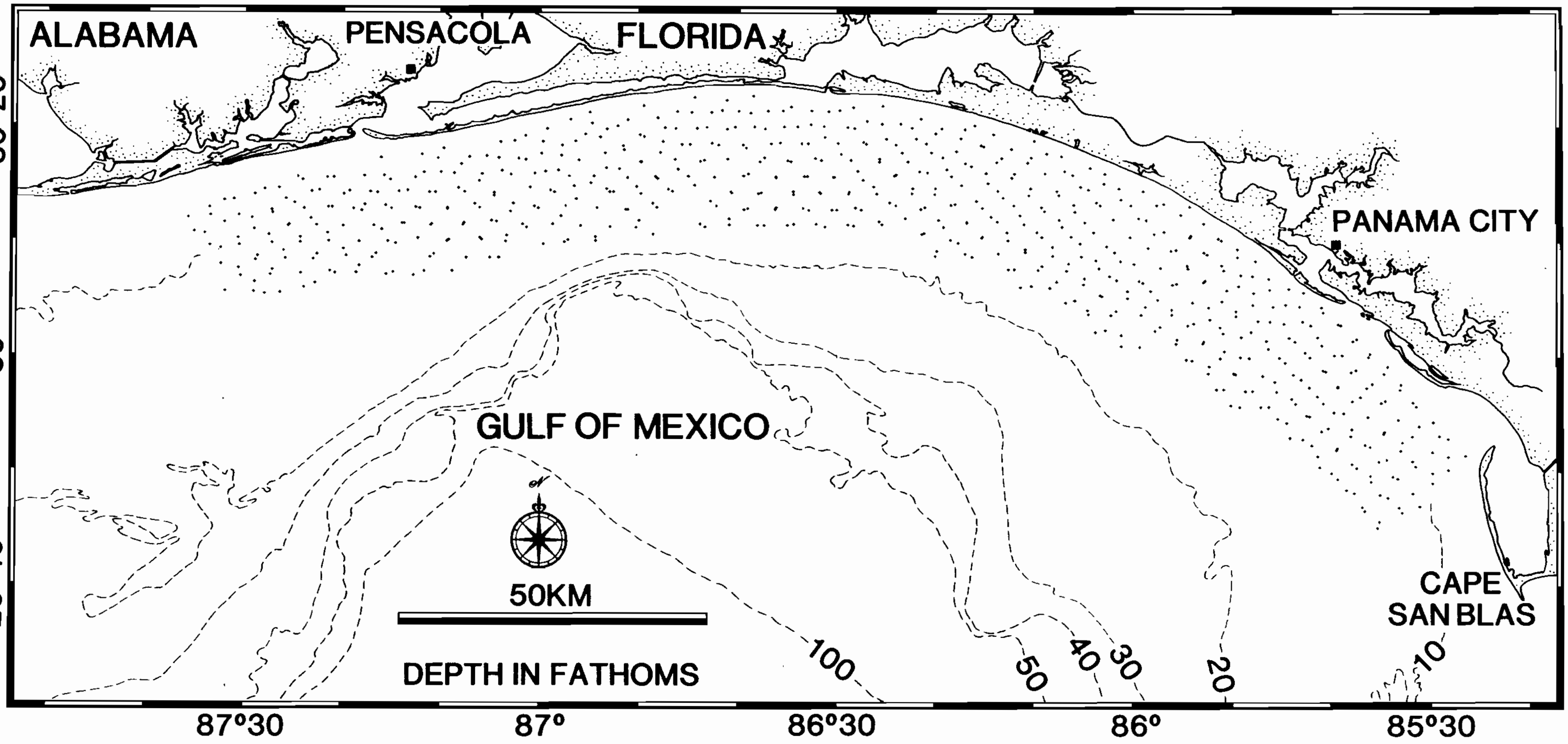


Figure 2. Surface sample locations.

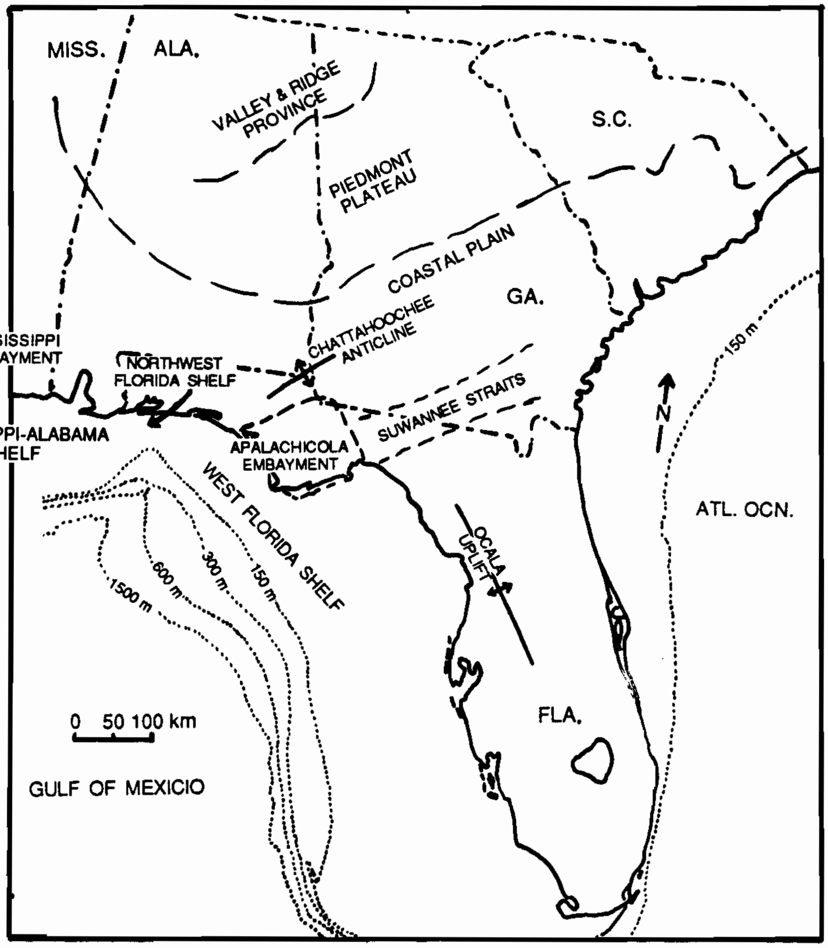


Figure 3. Geologic setting.

The western flank of the Apalachicola Embayment and northwest Florida shelf represent two distinct sedimentary provinces within the study area. The northwest Florida shelf is characterized by a thick accumulation of terrigenous clastic sequences that have built out in Miocene to Recent times (Marsh, 1966). To the east, the Apalachicola Embayment, which extends in the subsurface to the Ocala Uplift in Northern Florida, is now completely infilled by progradation of the Apalachicola River delta which presently forms a projecting cuspate foreland over the former axis of the Apalachicola Embayment (Schnable and Goodell, 1968; Schmidt, 1984).

The structural low of the Apalachicola Embayment is inherited from a deep-water strait that existed across northern Florida and southern Georgia between the Gulf of Mexico and the Atlantic Ocean from late Cretaceous to early Oligocene time. This deep water connection to the Atlantic has been referred to as the Suwannee Straits (or Suwannee Channel) in earlier studies by Dall and Harris (1892), Jordan (1954), Hull (1962), Antoine and Harding (1965), and Chen (1965). More recent work along the Atlantic margin by Popenoe et al, (1987) has distinguished a middle Eocene to early Oligocene expression of this passage called the Gulf Trough, a deep-water strait across northern Florida which acted as a boundary between carbonate facies to the south and terrigenous clastic facies to the north. In time, the carbonate environments of the Florida Panhandle were progressively overrun by the influx of terrigenous clastics from the north. Hence the study area falls within a transition zone between the Florida carbonates and terrigenous clastics derived from the southern Appalachians.

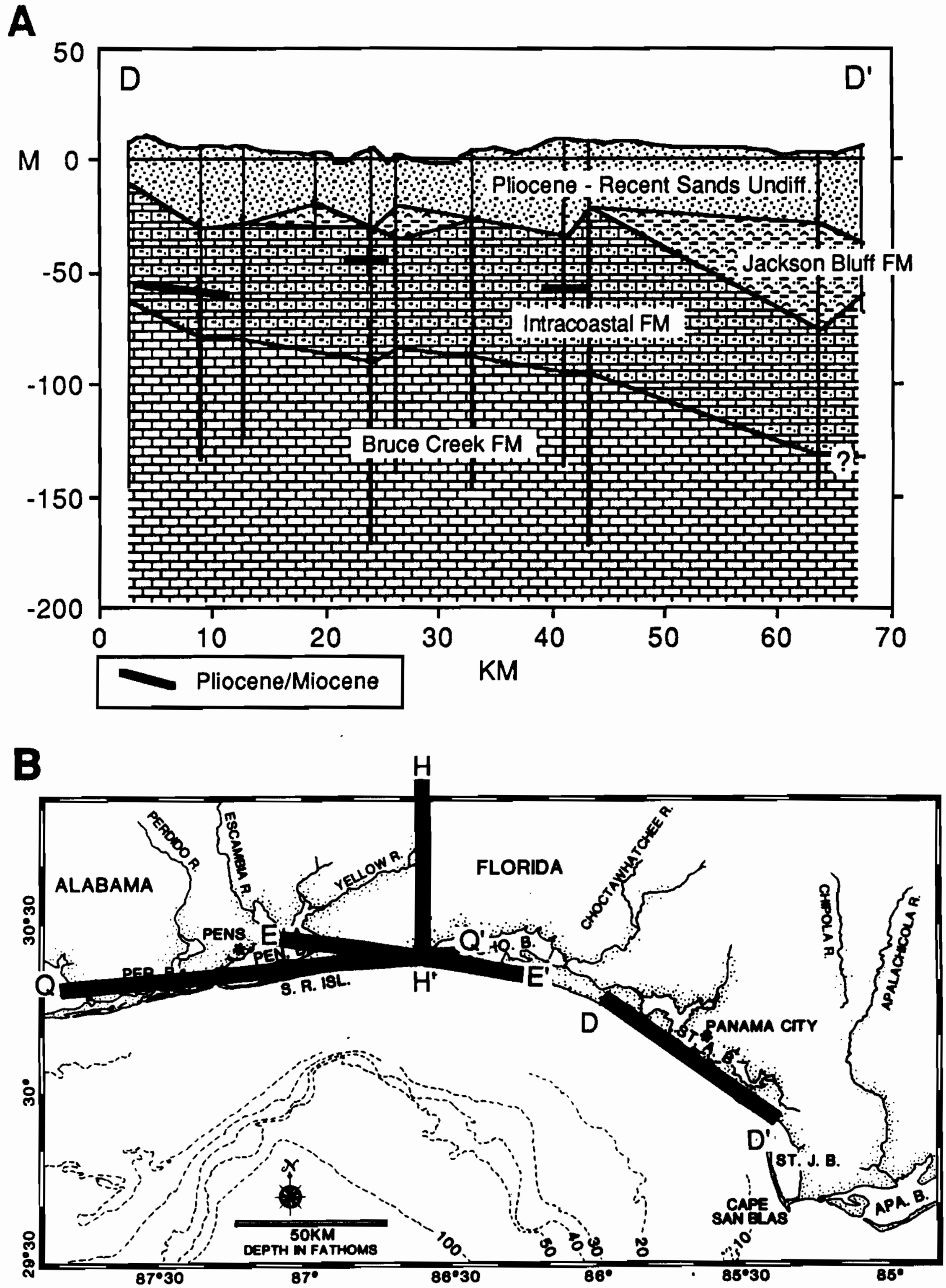


Figure 4. A) Coastal stratigraphic section D-D' from the western side of the Apalachicola Embayment. Modified from Schmidt and Clark (1980). Seismic reflection profiles in this study cover the same approximate depth range. B) Location of cross-sections in Figures 4-7.

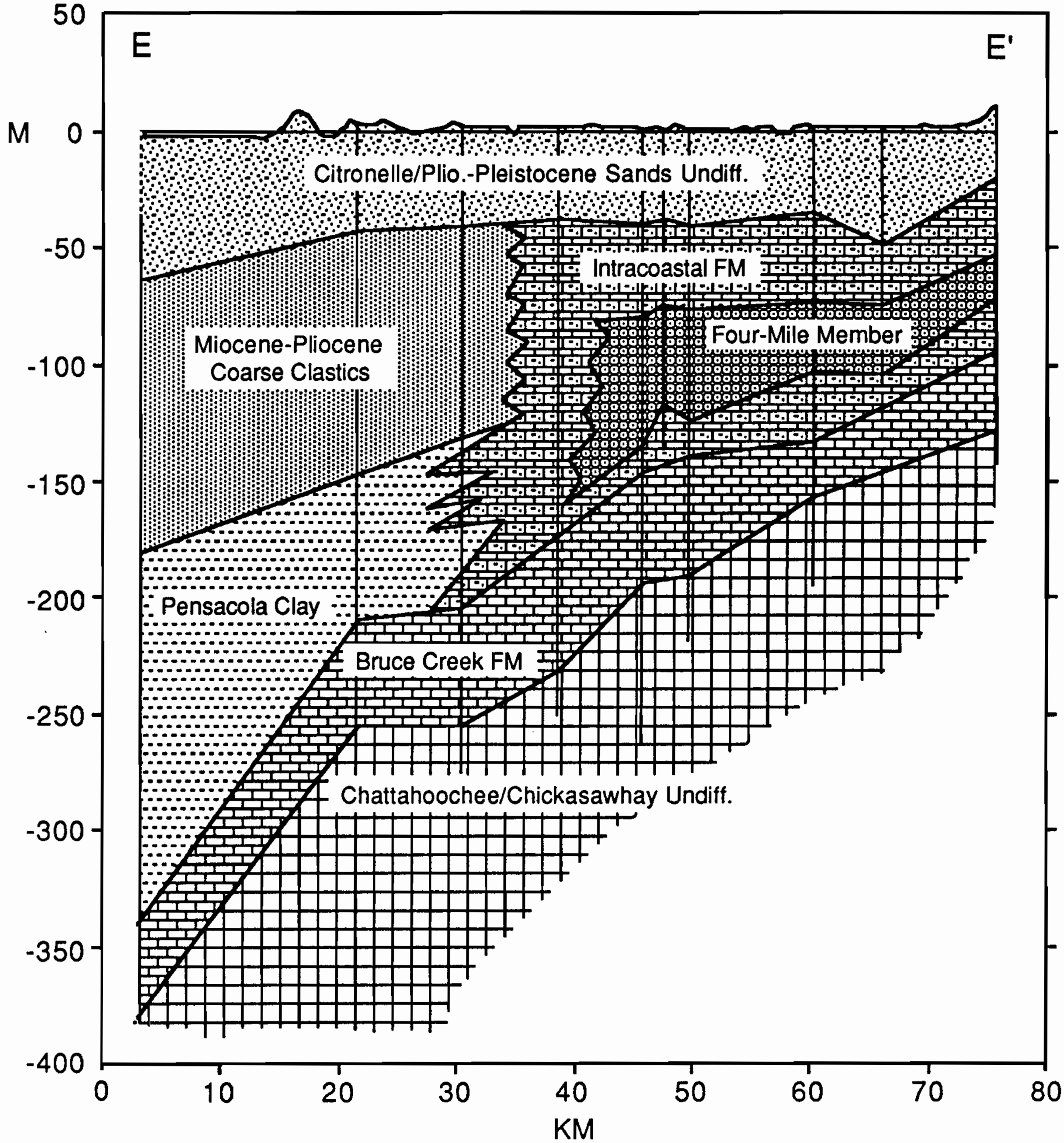


Figure 5. Stratigraphic cross-sections E-E' (Figure 4B) from the transitional area between Apalachicola Embayment and northwest Florida shelf (modified from Clark and Schmidt, 1982).

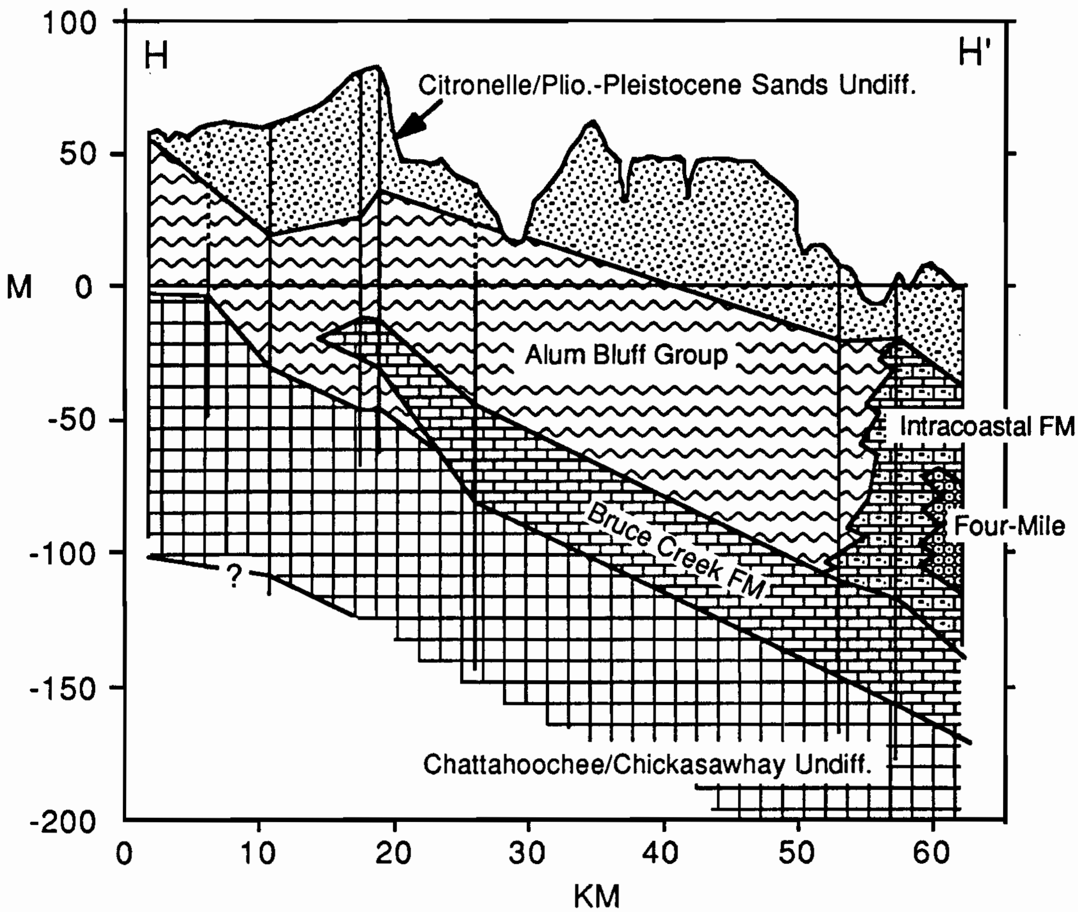


Figure 6. Cross-sections H-H' showing seaward dip of strata. Location in Figure 4B. Modified from Clark and Schmidt (1982).

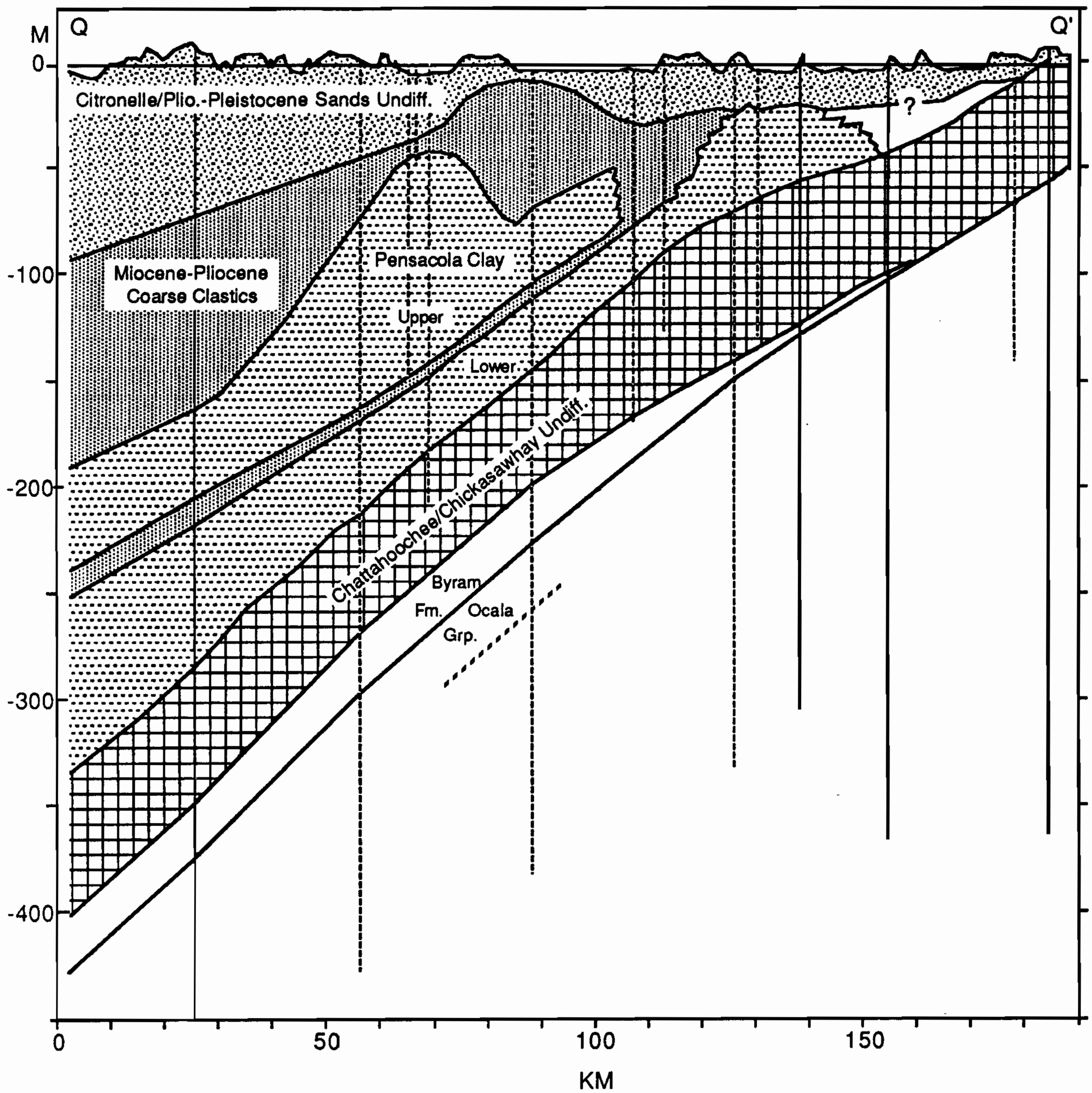


Figure 7. Representative stratigraphic cross-section for the northwest Florida shelf (modified from Marsh, 1966). Location in Figure 4B.

APALACHICOLA EMBAYMENT			
AGE	FORMATION	LITHOLOGY	SEIS.STRAT.
Pliocene-Recent	SANDS AND CLAY UNDIFF.		AE5
Pliocene	JACKSON BLUFF	Clayey, sandy, shell marl	AE4 < BD >
Middle Miocene - Pliocene	INTRACOASTAL	Sandy, argillacious, poorly consolidated, highly microfossiliferous calcarenite	AE3 < X > AE2 <BCK>
Middle Miocene	BRUCE CREEK LIMESTONE	Moderately to well indurated, granular to calcarenitic limestone	AE1
Oligocene - Early Miocene	CHATTAHOOCHEE / SUWANNEE	Well indurated packstone to wackestone, chalky, sucrosic, fossiliferous; often dolomitized and higly altered	

NORTHWEST FLORIDA SHELF	
NEOGENE STRATIGRAPHY	SEIS. STRAT. BOUNDARY / AGE
CITRONELLE / PLIOCENE-PLEISTOCENE SANDS UNDIFF.	C PLEISTOCENE ?
MIOCENE-PLIOCENE COARSE CLASTICS	E PLIOCENE ?
PENSACOLA CLAY	
BRUCE CREEK LIMESTONE	
CHATTAHOOCHEE / CHICKASAWHAY UNDIFF.	

Figure 8. Correlation between seismic stratigraphic framework in this study and local stratigraphic nomenclature. Sources of information include Marsh (1966), Schmidt and Clark (1980), and Schmidt (1984).

Eocene and Miocene age carbonate rocks crop out in northern Florida associated with the Chattahoochee Anticline and Ocala Uplift (Brooks, 1981). These rock units are onlapped by increasingly terrigenous clastic lithofacies toward the coast that generally dip southwest. The change from carbonate to terrigenous clastic sedimentation is well documented in studies based on outcrops, water well cuttings, and stratigraphic core tests (Schmidt and Clark, 1980; Clark and Schmidt, 1982; Schmidt et al, 1982; Schmidt, 1984).

Over the entire study area, six major lithostratigraphic formations within the depth range of seismic profiles have been identified in coastal borings. Selected cross-sections constructed from onshore well data by Marsh (1966), Clark and Schmidt (1982), and Schmidt (1984) summarize these basic trends (Figures 4-7). A summary of stratigraphic nomenclature and lithostratigraphy for the coastal areas within the range of this study is presented in Figure 8.

Within the Apalachicola Embayment, a succession of 4 principal formations includes the Bruce Creek Limestone (Middle Miocene), the Intracoastal FM (late-middle Miocene to Pliocene), the Jackson Bluff FM (Pliocene), and unconsolidated sands and clayey sands (Late Pliocene(?) to Recent), (Schmidt, 1984) (Figure 4). Within the Intracoastal FM a sandy, phosphatic sequence (Four-Mile Member) is of special interest because it correlates with a major hiatus observed in wells in the Apalachicola Embayment.

To the west, off Alabama and northwest Florida, the Bruce Creek Limestone is overlain by the Pensacola Clay (middle-late Miocene), Miocene-Pliocene coarse clastics, and Plio-Pleistocene undifferentiated sands of the Citronelle Formation (March, 1966; Clark and Schmidt, 1982)

(Figures 5 and 7). Overall, strata dip in a south and west direction (Figures 6 and 7).

METHODS

Thirty-two hundred trackline kilometers of high resolution single channel seismic reflection data (100-200 m penetration), side scan sonar data, PDR (precision depth recorder), and 681 surface sediment samples were collected in December, 1986 (Figures 1 and 2).

High Resolution Seismic Reflection Profiling

Seismic reflection data was acquired using a Geopulse profiling system which consisted of an ORE power supply, acoustic source, 20 element hydrophone array, receiver/filter/amplifier, and an EPC 1650 graphic recorder. The seismic profiles were recorded using a 125 ms sweep with band pass filters typically set for 500-2000 Hz. The raw unfiltered signal was also recorded on analog tape for later playback.

Five sequence boundaries distinguished by reflector terminations such as truncation, onlap, downlap, or toplap (Mitchum et al, 1977; Hubbard et al, 1985) were selected for mapping. Some of these boundaries matched major lithologic contacts projected from wells. Along the northwest Florida shelf area, the steeply dipping strata quickly passed through the range of the recording window (125 ms two-way-time). This necessitated mapping sequence boundaries of limited areal extent with the objective of obtaining the general structural trends of steeply dipping sequences. In the Apalachicola Embayment 5 seismic sequences labled AE1 to AE5 are distinguished (Figure 8).

Side Scan Sonar

Side scan sonar data were obtained at the same time and along the same track as the high resolution seismic profiles using an EG&G model 260 Sea Floor Mapping System. Data were recorded on digital tape as well as paper record. The sonographs were recorded with a horizontal range manually adjusted between 100-300 m on a side.

Sonographs were analyzed for bedform character and sediment textural variation. Since topographic features and textural properties produce similar acoustic signatures, sonographs were correlated with depth records as an aid in determining relief changes.

Surface Sediments

Surface sediments were collected every 2.4 km using an underway grab sampler. All sediment samples were analyzed using standard laboratory methods. Grain size, in 8 fractions from >-1 phi to <8 phi, was determined by sieve and pipette analysis (Folk, 1965). Statistical parameters of grain size (mean phi and standard deviation) were calculated by the method of moments (Folk, 1974). Carbonate content was determined by acid leaching (Milliman, 1974) using 10% HCl. Sediment constituents of selected high carbonate samples were identified under a light microscope. Where applicable, sediment samples were compared with sonographs in order to correlate evidence for textural variations and relative carbonate content.

Four computer-generated contour maps were constructed for mean ϕ, % carbonate, % mud, and standard deviation. The computer generated maps utilized an inverse-distance gridding process which tended to smooth the data, attenuating minimum or maximum valves and yielding smoothed contour maps. This was determined to be the best approach for contouring the surface sediment data due to the variability and density of data points which made hand contouring unrealistic. Actual posted values should be considered for a comparison. Hand editing of contours was done on maps where appropriate.

Navigation

Navigation was by LORAN C with positions taken every 10 minutes, at bottom sample stations, and to mark specific features or events as necessary.

SEISMIC STRATIGRAPHY

The lateral extent to which sequence boundaries were mapped was limited by 1) the seaward dip of boundaries below the depth range of seismic records (maximum of 160 millisecond below sea level), and 2) correlation problems caused both by poor seismic resolution in the transition area between the Apalachicola Embayment and northwest Florida shelf, and interference by bottom multiples. The estimated correlation of the seismic stratigraphic framework with the local stratigraphic nomenclature is shown in Figure 8. Figure 9 summarizes the general areas in which boundaries were mapped. The relative stratigraphic position of these horizons is only generally depicted in Figure 9. Some age control, discussed below, exists for BD, X, and BCK. No adequate control is available for C and E. Horizon C is further seaward and above both BD and E. A correlation of horizon E to Apalachicola Embayment horizons is only speculative but is probably close in time to horizon BD.

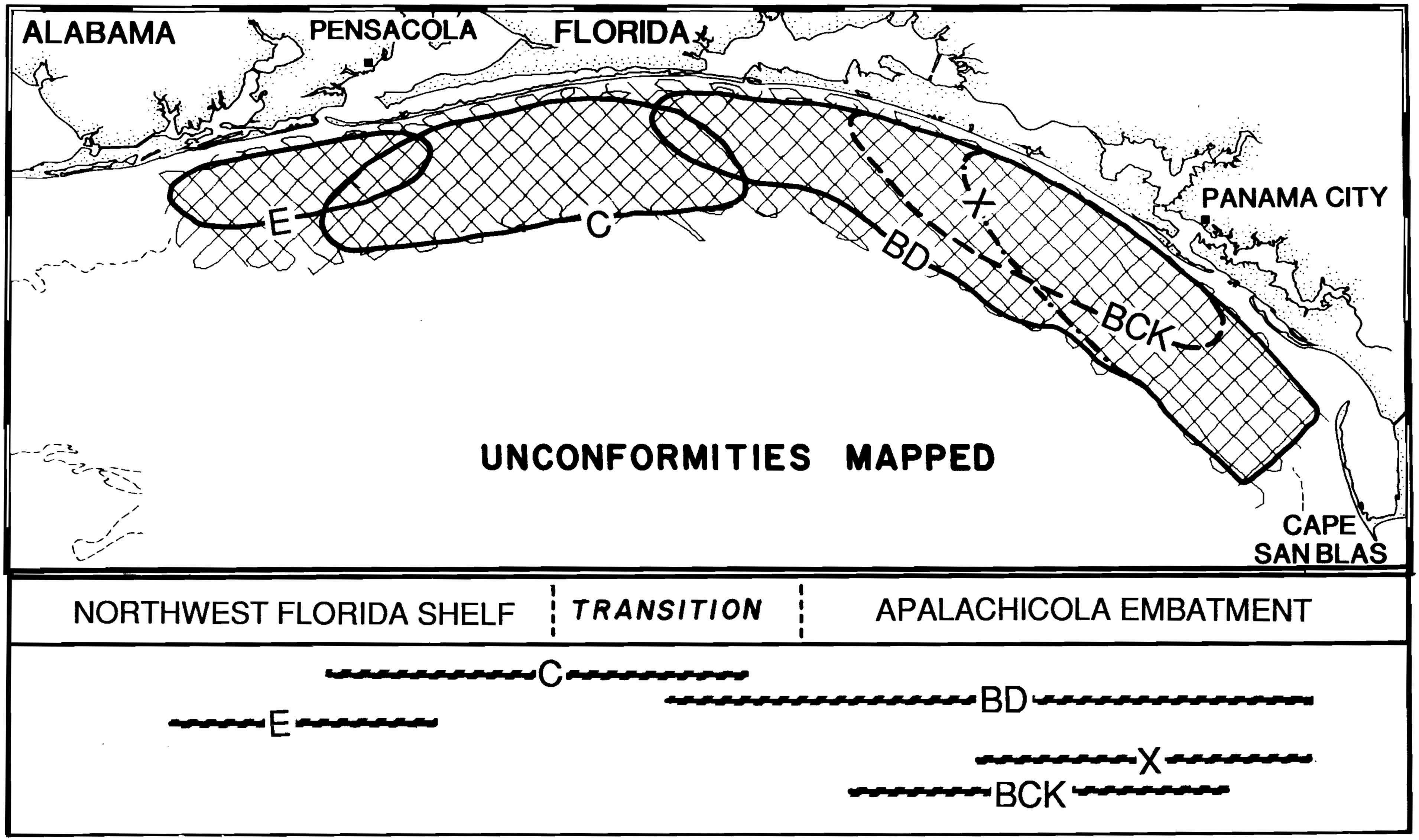


Figure 9. Spatial and relative temporal distribution of unconformities discussed in text.

The two sedimentary provinces, Apalachicola Embayment and northwest Florida shelf, are distinguished by different structural trends and thickness of Plio-Pleistocene clastic sequences. A poorly defined transition zone between the two areas is characterized by poor seismic resolution exhibiting reflection free or weakly chaotic, poorly resolved sequences. Hence the 3 major horizons picked within the Apalachicola Embayment cannot be carried further west with adequate confidence with the present data available. The location of seismic sections presented in the following sections is shown in Figure 10.

Apalachicola Embayment

Within the Apalachicola Embayment 5 seismic sequences AE1-AE5 are identified and 3 major horizons are mapped (Figure 8). The closest onshore well available for correlation with seismic data is well 8591 (Schmidt, 1984), approximately 1.1 km from line 125 (Figure 10). Lithostratigraphic boundaries in well 8591 agree well with seismic boundaries on line 125 (Figure 11). Correlation with well 8591 is supported by other coastal wells near seismic lines.

Only in the updip (nearshore) area of seismic control can a reflector which may mark the top of the Oligocene-early Miocene Chattahoochee/Suwannee Limestone be observed (Figure 11).

The Bruce Creek Formation (middle Miocene) is present within the lower range of the seismic records through much of the embayment (sequence AE1; Figures 11 and 12). The top of the Bruce Creek Formation identified in well 8591, correlates with a high-amplitude reflection on line 125. This horizon dips below the recording range going seaward and is lost due to poor resolution toward the west (Figures 12 and 13).

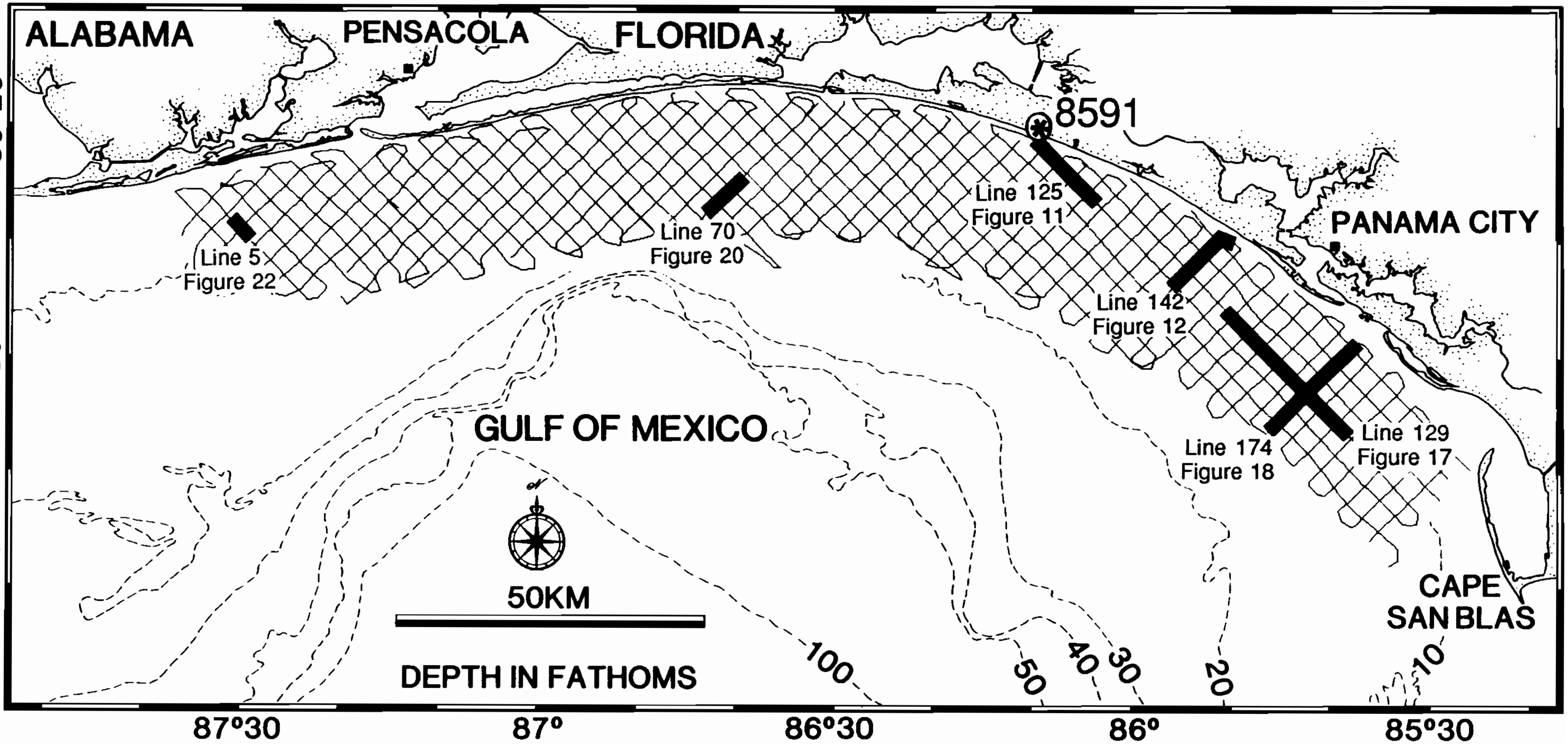


Figure 10. Well control and location of seismic lines discussed in text.

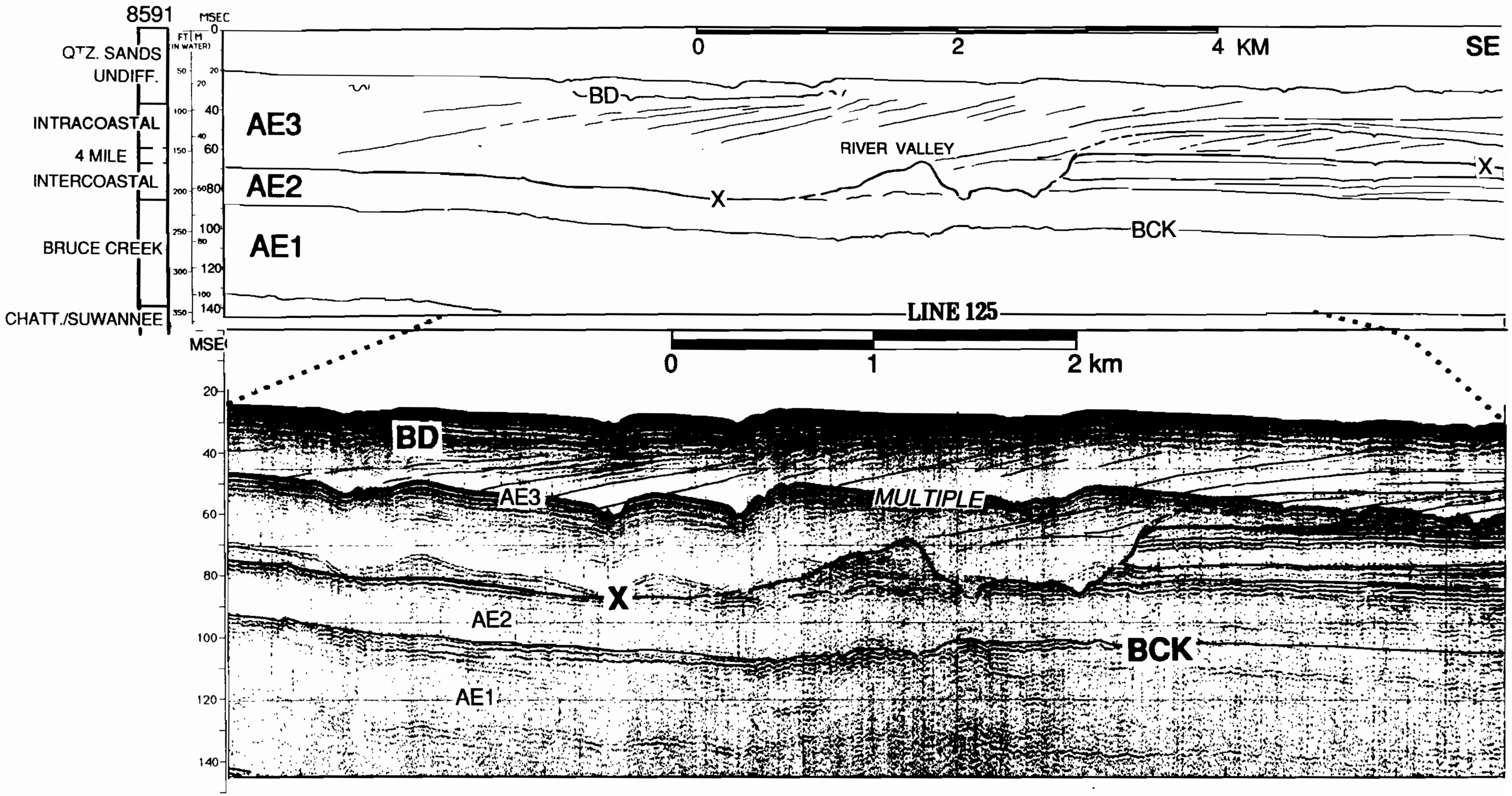


Figure 11. Interpretation of line 125 which is close to well 8591. The river valley erosion along unconformity X is shown. The section above the BD boundary is thin or absent in this area. The vertical scale of this and all other seismic records presented is in milliseconds two-way travel time. The well data is plotted at a scale corresponding to a constant velocity/depth conversion factor of 1500 meters/second.

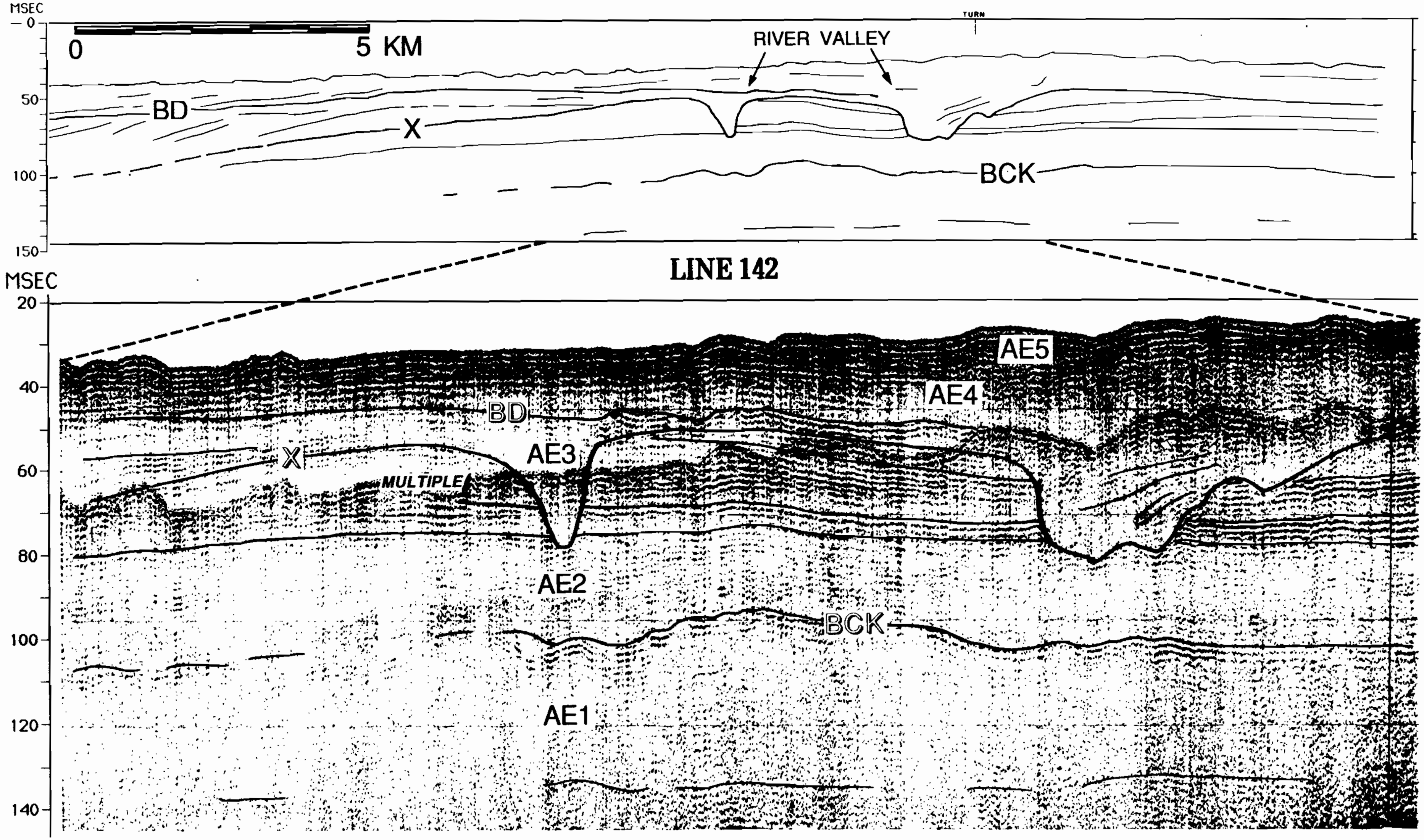


Figure 12. Interpretation of line 142. Note significant erosional relief of river valley and seaward thickening sequences above X. Vertical scale in milliseconds two-way travel time.

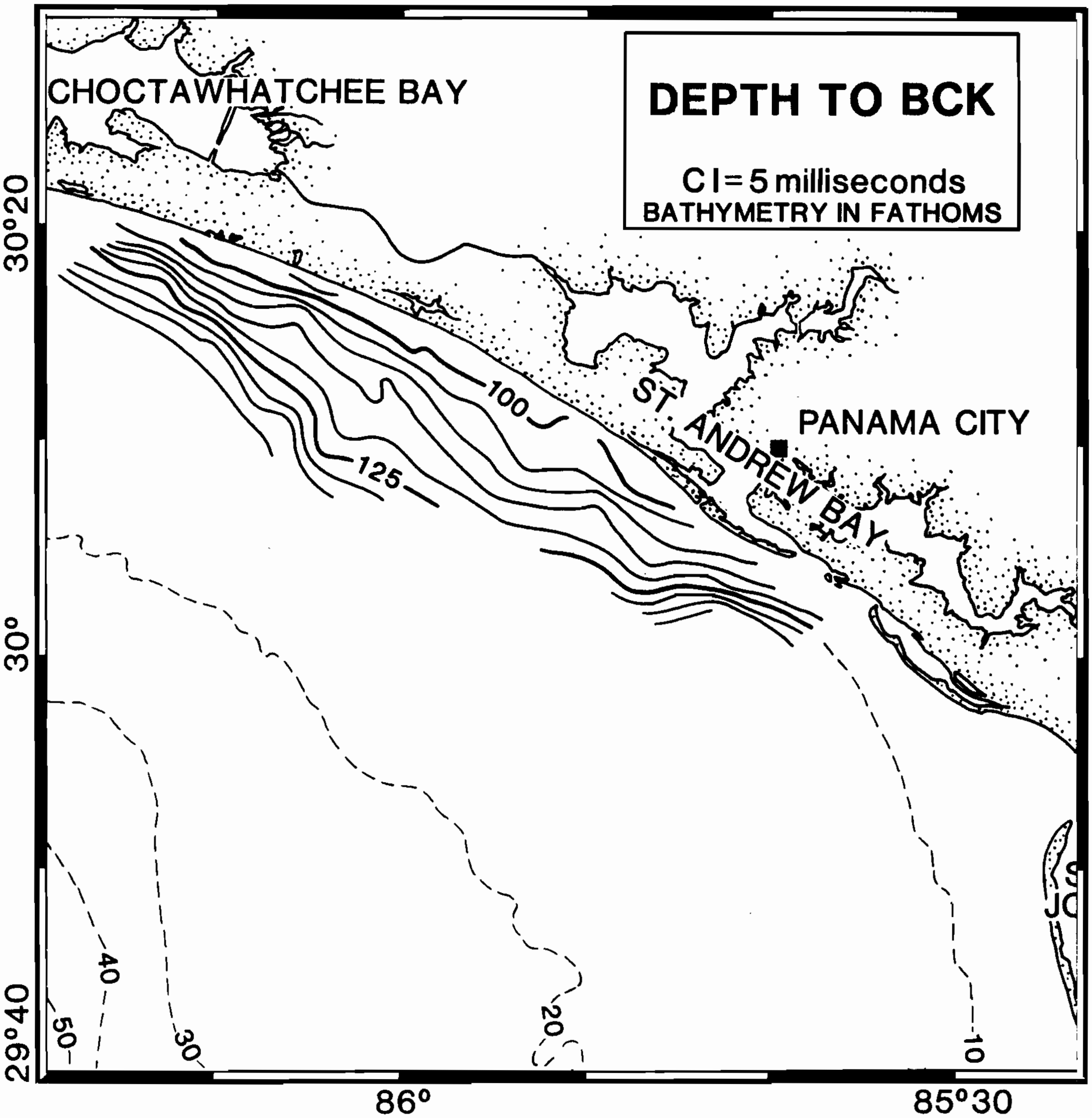


Figure 13. Structure contour map in milliseconds below sea level to the BCK unconformity (top of Bruce Creek Formation).

Sequence boundary X is the most prominent unconformity in the study area (Figures 11 and 12). This horizon is associated with entrenchment of a major river valley east of Panama City, incised into mostly parallel bedded Miocene(?) deposits (Figures 12 and 14). Low-amplitude prograding reflectors in the overlying sequence downlap on this unconformity. Correlation of line 125 to well 8591 indicates that this boundary is within the Intracoastal Formation. Schmidt and Clark (1980) have documented a major hiatus within the Intracoastal Formation in the late Miocene which may correlate with this unconformity. The four mile member of the Intracoastal Formation appears to have been deposited directly on top of this boundary. The timing and significance of river valley incision will be discussed later.

Depositional sequence AE2 (between BCK-X) appears to correlate with the lower Intracoastal Formation (Figure 11). The seismic facies character is mostly relatively flat lying parallel reflectors of mixed amplitude. Some unconformable low angle sequence boundaries are present within the AE2 depositional sequence (see right side of Figure 11 below X). However, limited observation of these stratal patterns make interpretation of differential deposition or progradation difficult. Toplap is suggested on some dip seismic sections for this sequence (Figure 12).

A marked change to low-amplitude prograding reflectors and reflection free "channel-fill" occurs above the X sequence boundary (Figures 11 and 12). This depositional sequence, AE3, (between sequence boundaries X and BD) includes the upper Intracoastal Formation (including Four Mile Member) and probably the Jackson Bluff Formation identified in coastal wells (Schmidt and Clark, 1980; Schmidt, 1984)

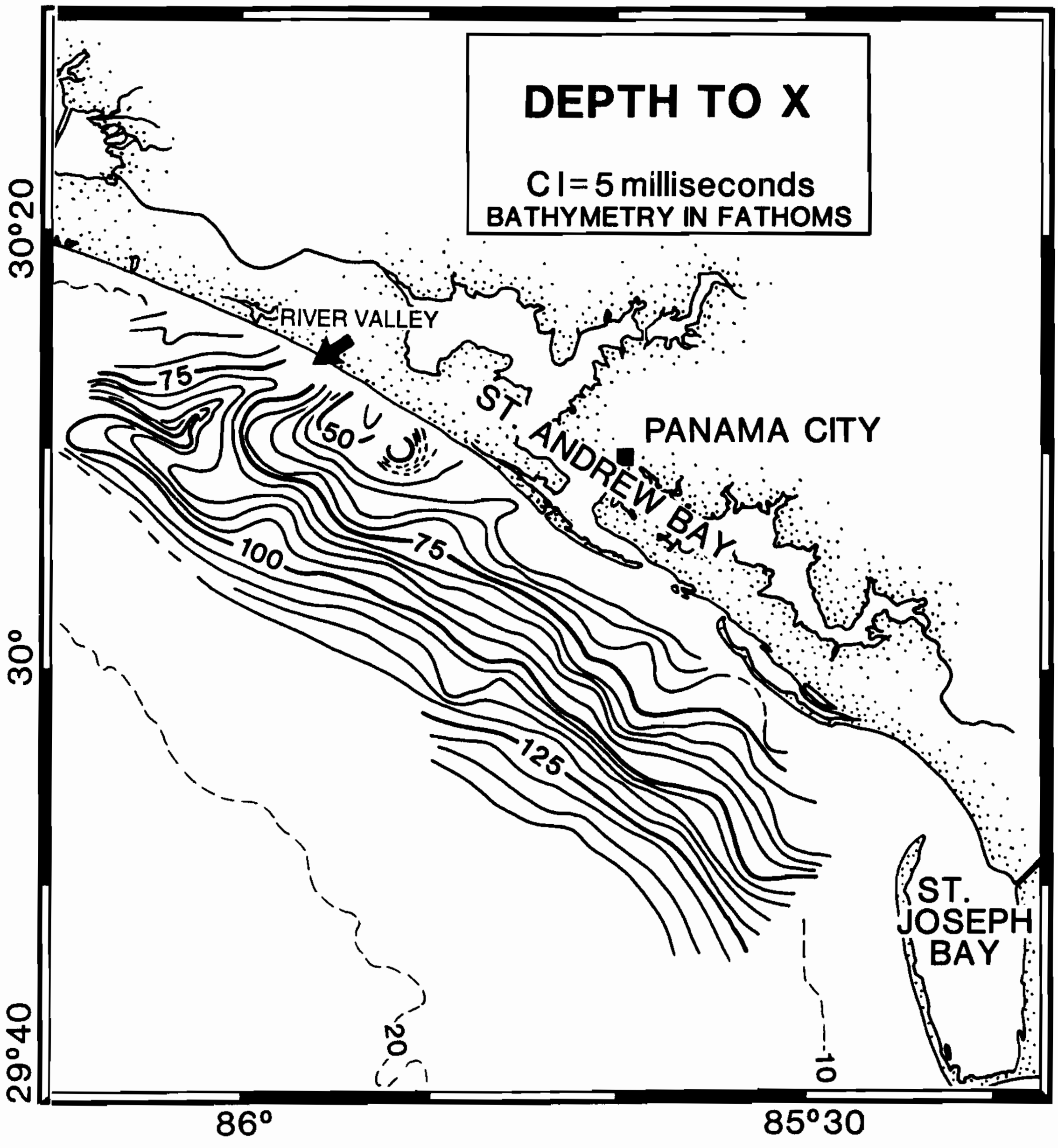


Figure 14. Structure contour map in milliseconds below sea level to the X unconformity. Note erosional valley west of Panama City.

(Figure 11). Within the Apalachicola Embayment a generally seaward or SW progradation is observed within the AE3 depositional sequence (Figure 12). However, a distinctly northern progradation is found to fill the X-unconformity river valley and areas due north (Figures 11 and 15).

The BD sequence boundary is so named because it is the base of a major phase of deltaic progradation in the Apalachicola Embayment (Figures 16, 17 and 18). Toward the NW this boundary is onlapped and rises toward the seafloor (Figure 17). The shallowing of BD may reach a point between St. Andrew Bay and Choctawhatchee Bay where pre-BD sediments are exposed on the seafloor and provide a relic sediment source to the inner shelf sand sheet (see section on surface sediments).

Post-BD sediments indicate a complex history of fluvial channel cutting during sea level lowstands and channel infilling during relative high-stands. Widespread shelf progradation by fluvial-deltaic processes is also indicated.

The BD-seafloor sequence can be divided into at least two main subsequences, AE4 and AE5 (Figure 17). The lower subsequence AE4 is distinguished by widespread tangential oblique layers interpreted to be delta front progradation linked to distributary channel systems (Figures 17 and 18). The deltaic sequences are best observed west of the Apalachicola cuspate foreland and seaward of Pensacola Bay. Post-BD depocenters correlate with these thick deltaic deposits (Figures 17 and 19). The upper subsequence AE5 is interpreted to be largely reworked sediment in which the modern seafloor morphology has developed. Other subsequences observed at the seaward end of lines are seen to pinch-out between these two main units, suggesting a more complete stratigraphic section exists further offshore.

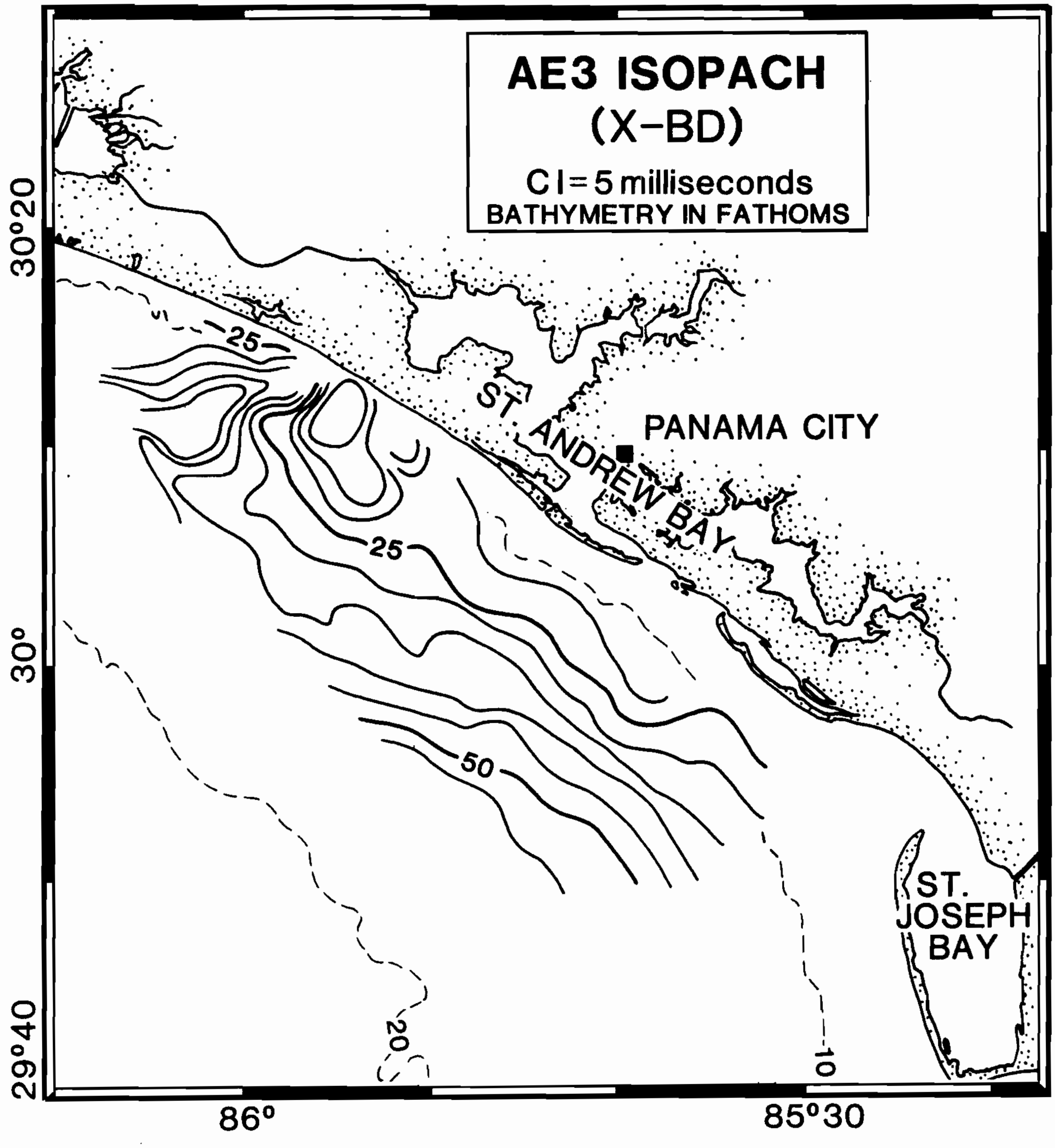


Figure 15. Isopach in milliseconds of sequence AE3 (X-BD).

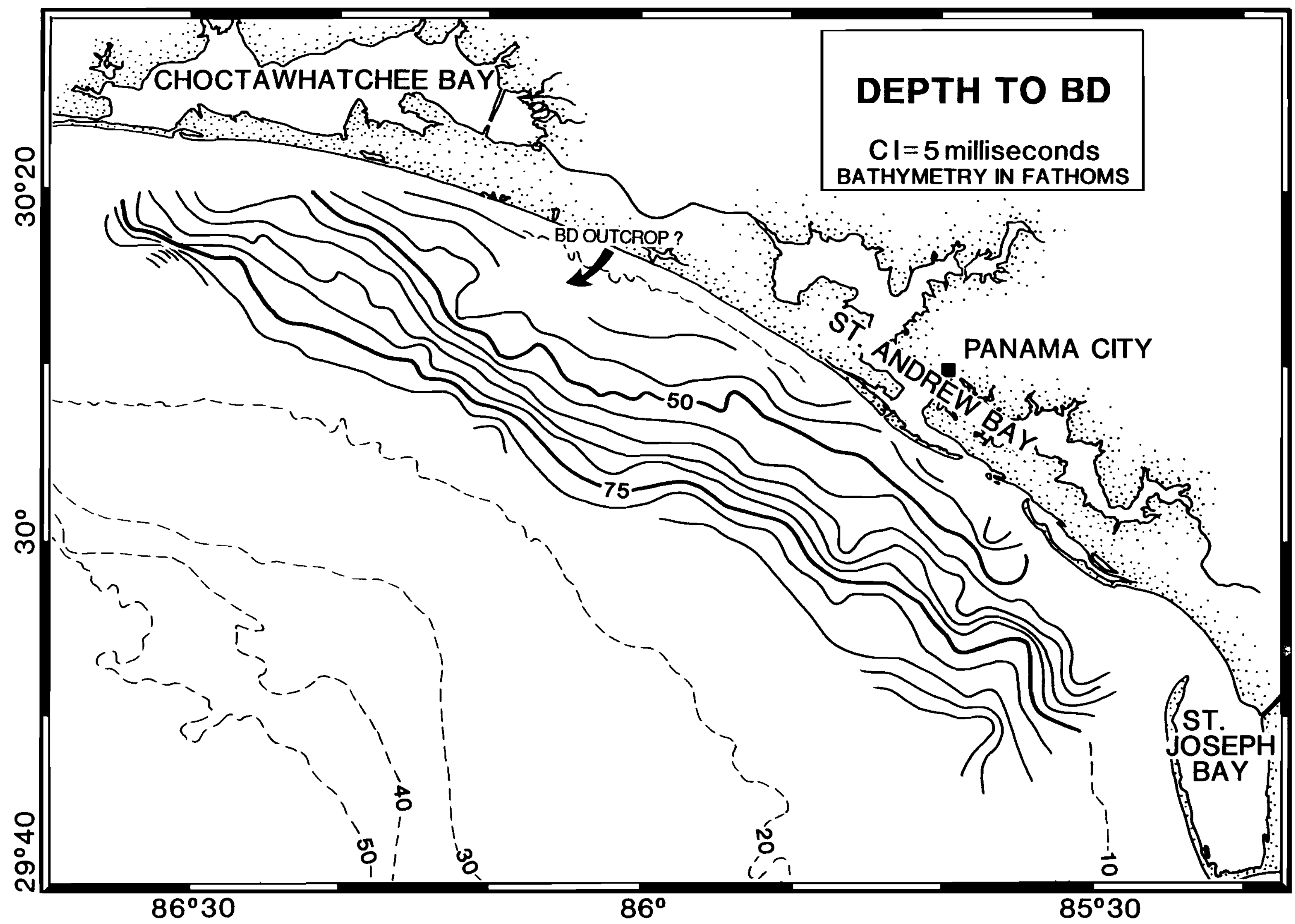


Figure 16. Structure contour map to BD at the base of deltaic sequence in the Apalachicola Embayment. The shallowing of this horizon in the nearshore zone west of Panama City corresponds with underlying large-scale northward prograding clinoforms - see Figure 11, line 125. Contours are in milliseconds two-way time below sea level.

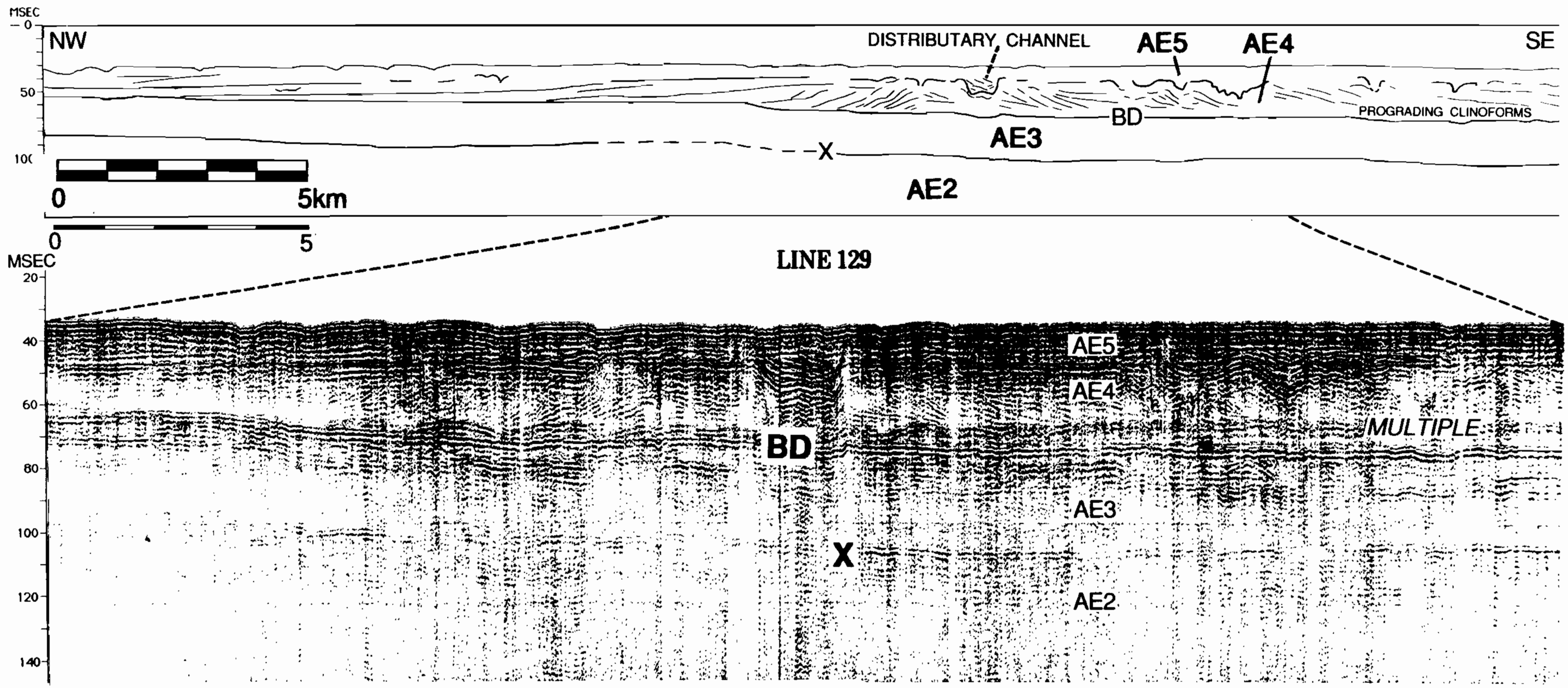


Figure 17. Interpretation of line 129. This is a strike section across a major delta lobe (lobe 4b in Figure 25) of the paleo-Apalachicola River. Vertical scale in milliseconds two-way travel time.

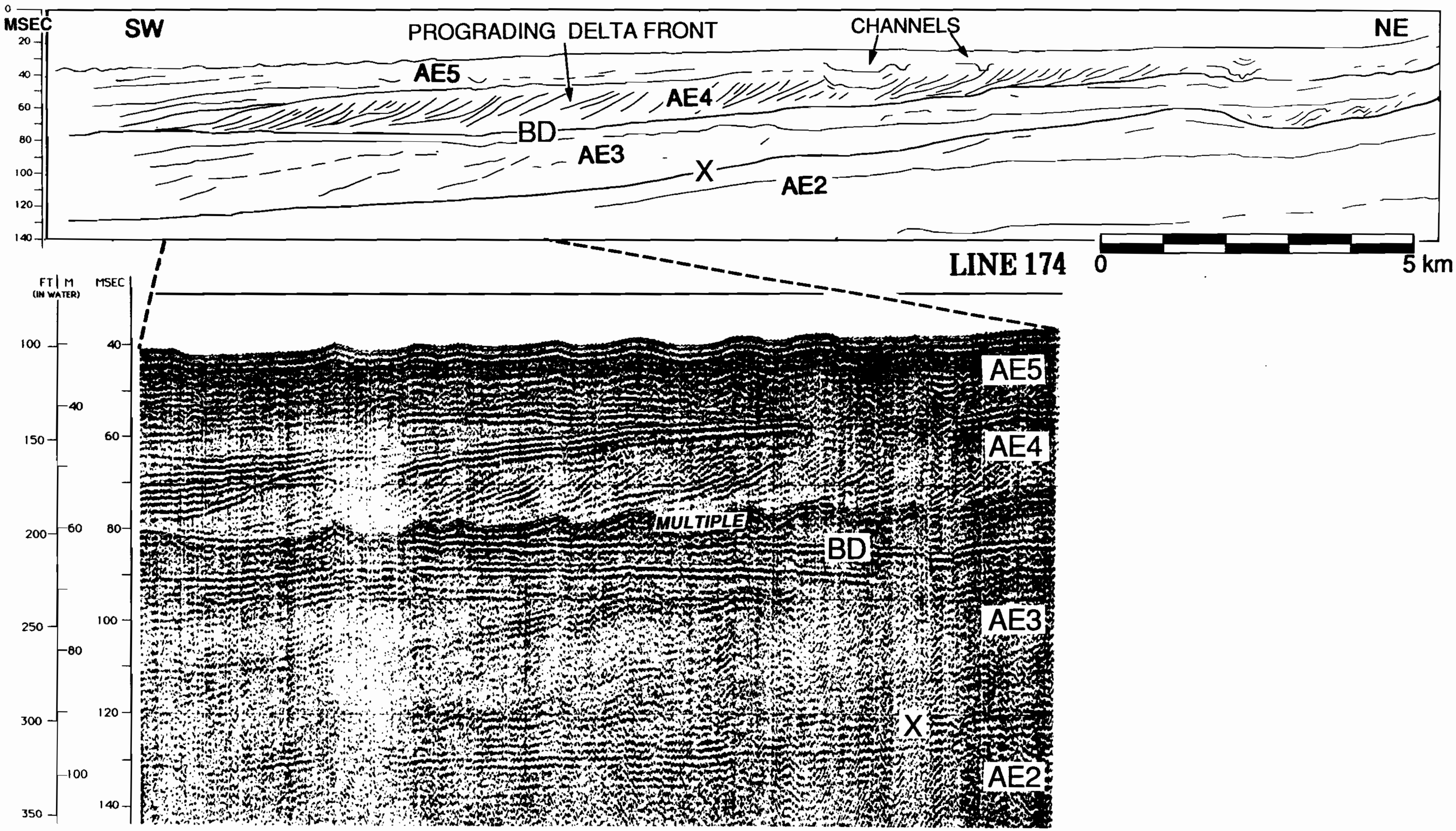


Figure 18. Interpretation of line 174 showing seaward prograding delta front. Vertical scale in milliseconds two-way travel time.

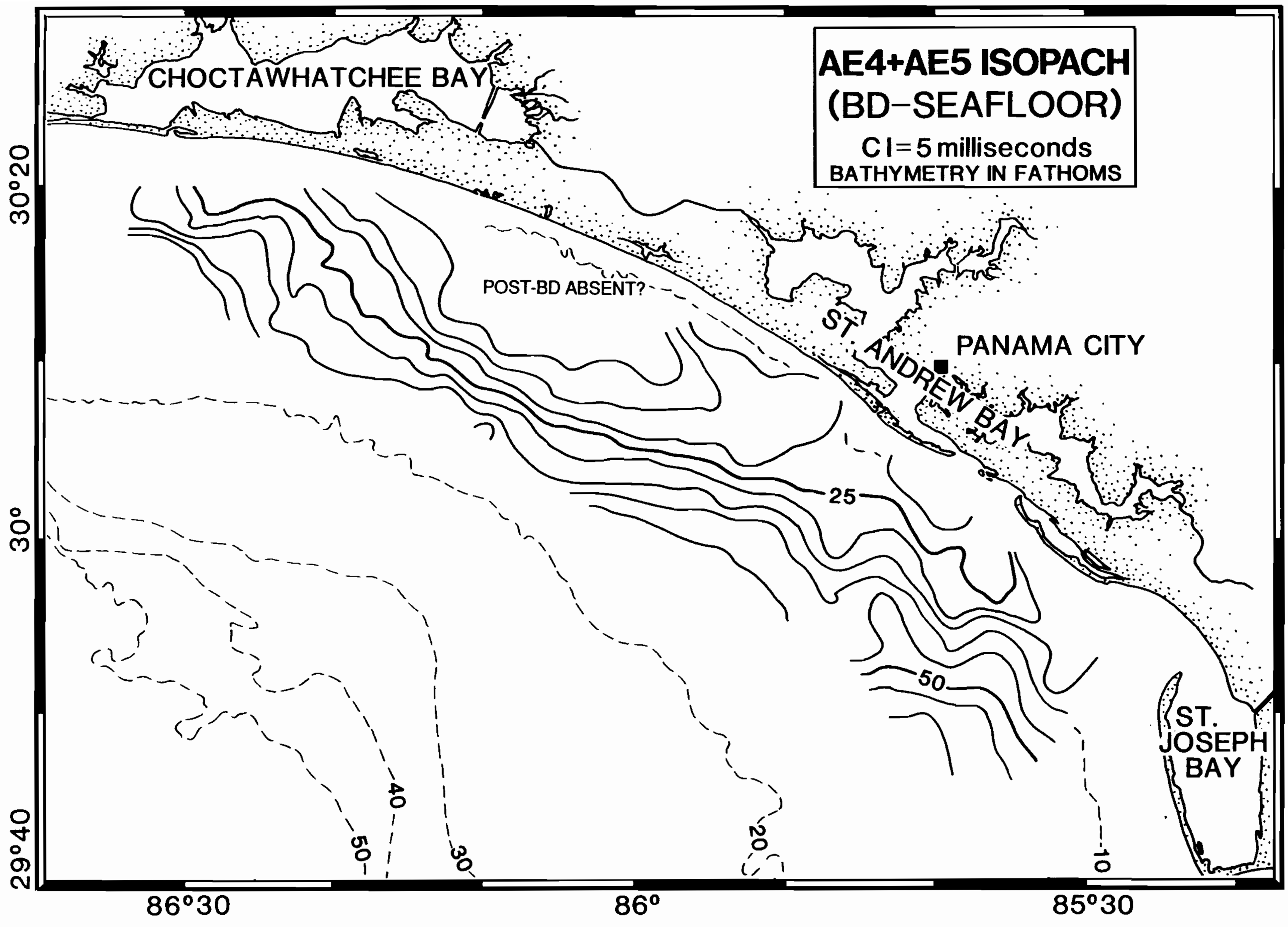


Figure 19. Isopach map of post-BD sediments (sequences AE4 and AE5). Contours in milliseconds. The two thicker areas greater than 40 milliseconds are related to deltaic complexes. To the north, this sequence thins and may be absent nearshore.

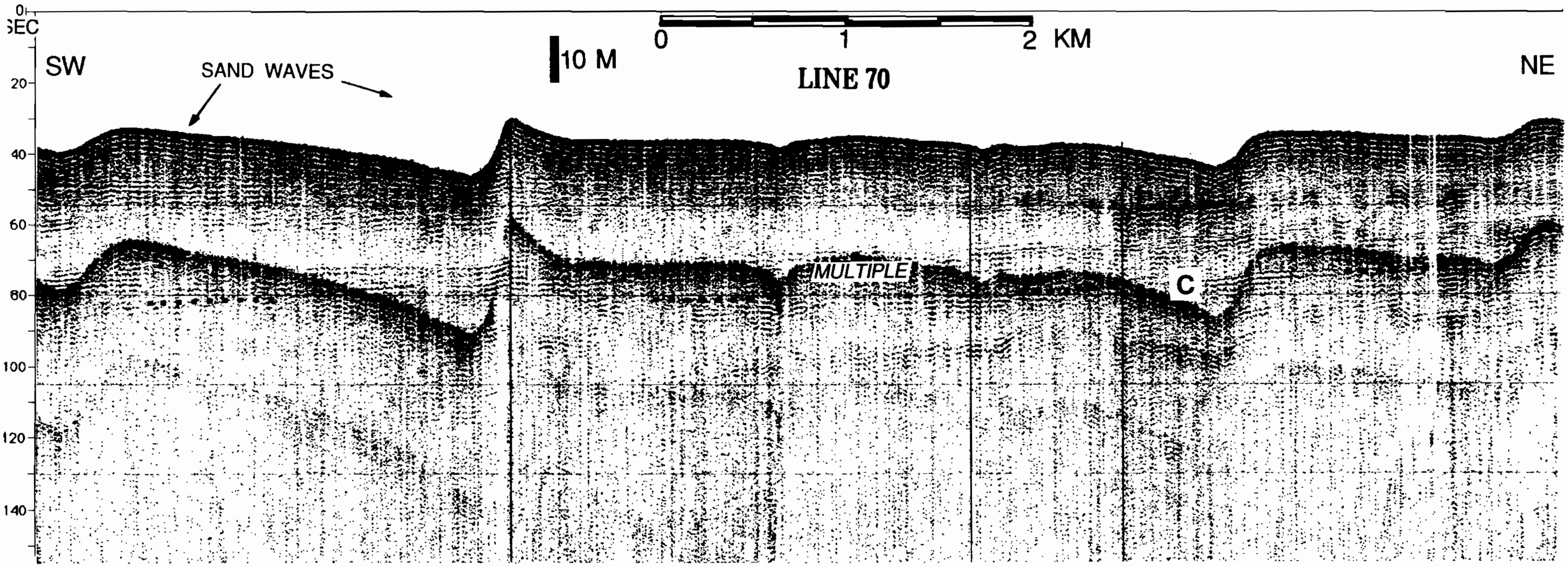


Figure 20. Interpretation of line 70 in the transitional area. Very large sandwaves are common in this area. Vertical scale in milliseconds two-way travel time.

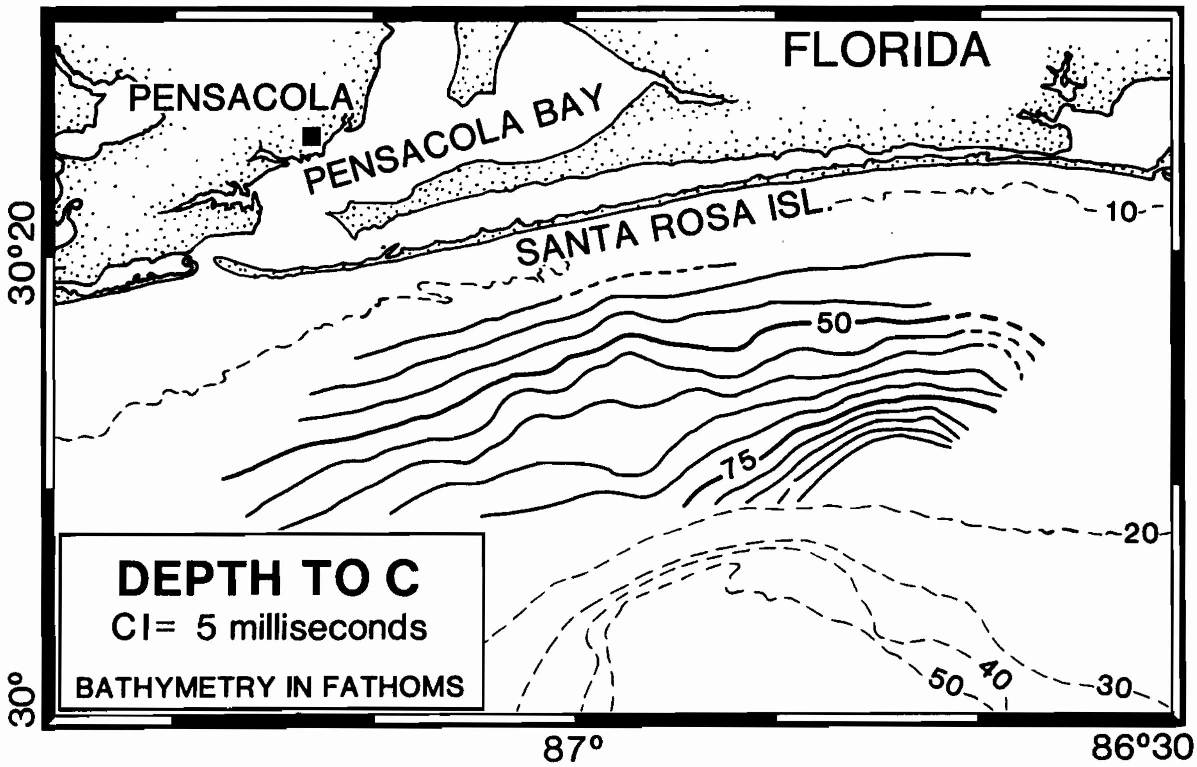


Figure 21. Structure contour map on horizon C. Contours are in milliseconds two-way time below sea level. An abrupt change in the trend of the paleo-shelf is revealed.

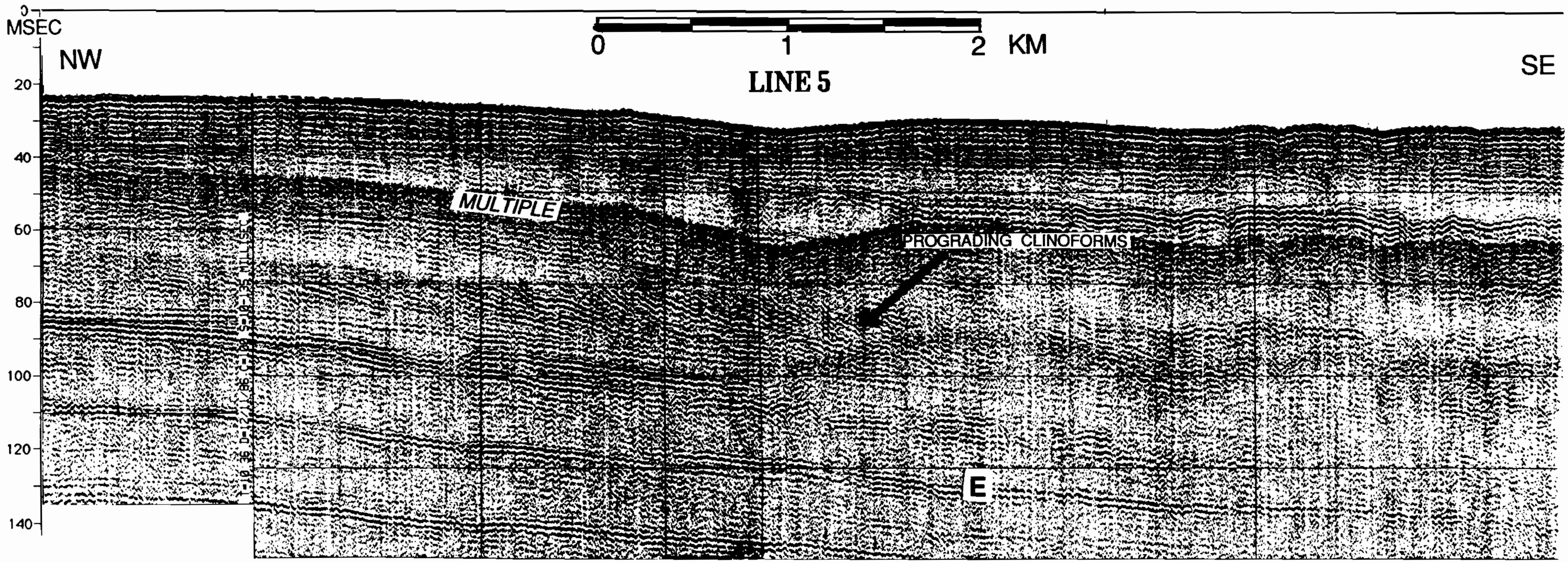


Figure 22. Portion of line 5 showing unconformity E. Vertical scale in milliseconds two-way time.

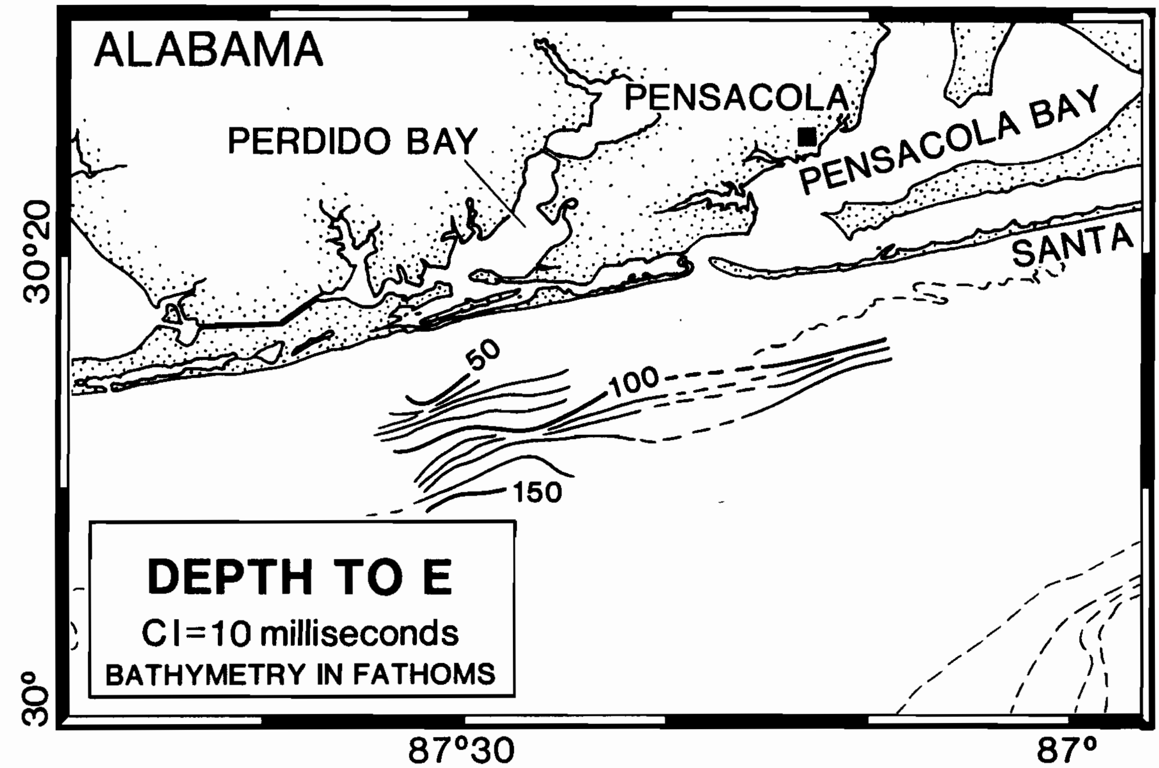


Figure 23. Structure contour map on E. Contours in milliseconds.

Northwest Florida Shelf and Transition Area

Moving west from the Apalachicola Embayment, seismic resolution is severely degraded and sequence boundaries identified within the Apalachicola Embayment are lost due to poor quality data. There is some indication that the BD boundary steepens significantly and trends into the coastline at the northern mapped limit (Figure 16). Consequently a shallower and further seaward sequence boundary "C" was established that could be mapped across this transitional area of poor seismic control (Figure 20). The structure contour map of horizon C reveals a change in depositional strike toward the west Florida shelf (Figure 21).

The poor seismic resolution in the transitional area is characterized by reflection free and chaotic facies with few well defined reflection horizons. This may be a consequence of the transition between the Apalachicola Embayment and Mississippi Embayment, and might reflect more uniform deposition, resulting in weak seismic discontinuities. Hence, depositional sequences are poorly resolved acoustically. Lithology may also be a factor since the seismic facies and surface sediments suggest a more coarsely grained section.

Moving into the northwest Florida shelf area, seismic resolution improves again while C becomes difficult to map. Hence another sequence boundary "E" was chosen that lies closer inshore (Figures 9 and 22). E is a boundary below stacked sequences of seaward thickening prograding fluvial(?) systems. Selection of E for mapping purposes is arbitrary, and was chosen because it can be followed a reasonable distance within the limits imposed by steeply dipping strata and the subbottom limit of seismic records (Figure 23). Several intervals of prograding sigmoid and oblique clinoforms characteristic of delta front progradation are observed above horizon E within the rapidly thickening section (Figure 22).

The correlation of horizon E to boundaries in the Apalachicola Embayment is uncertain. E may be close in time to BD, however, lack of well control in the northwest Florida region and expansion of the stratigraphic section to the west makes any correlation speculative.

Fluvial-Deltaic Systems

The occurences of fluvial channels and delta lobes are mapped within the post-BD or post-E sequences (Figures 24 and 25). Only the most obvious channel features were mapped, and they may occur at different stratigraphic levels along or above boundaries BD and E. Most are along the basal boundaries of sequences AE4 and AE5. In several areas, especially near the present coastline, it is apparent that repeated channeling has occurred. Figure 24 shows the distribution of identifiable channels along with areas of oblique clinoforms interpreted as prograding delta front deposits.

In some cases the channels reflect the extension of river systems during sea level lowstands and subaerial exposure of the shelf. In other cases the channels are clearly identifiable as distributary channels within prograding delta lobes, deposited under fluvial-marine conditions (Figure 17). The complexity of channels and data coverage make detailed correlations of individual channels difficult. Also the time-stratigraphic relationship of the 4 major systems outlined below is uncertain. A more detailed study including extended seismic coverage to beyond the shelf break is needed to better determine the lateral and temporal relationships of the fluvial and deltaic systems.

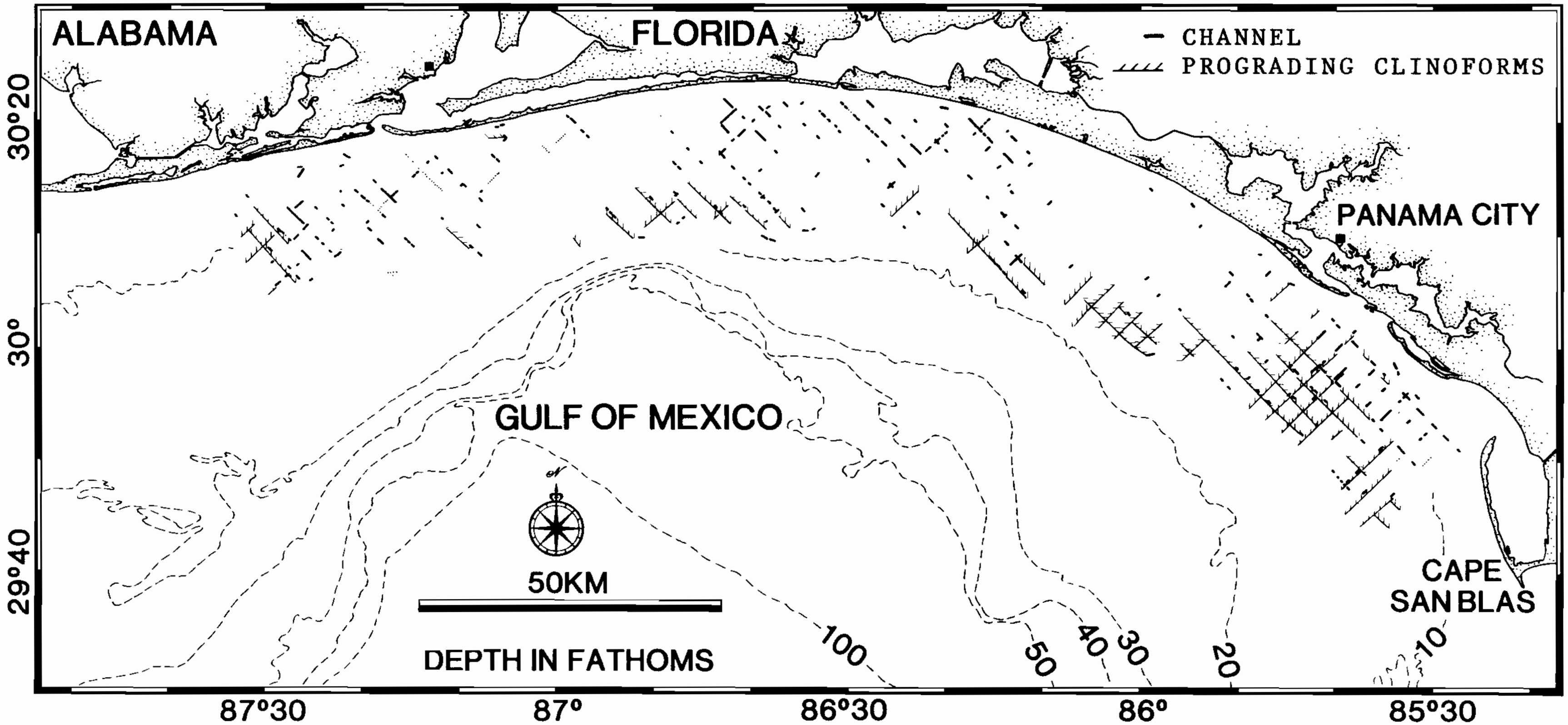


Figure 24. Occurrence of channels and prograding clinoforms interpreted to be delta lobes. The hactured pattern for clinoforms indicates downlap direction.

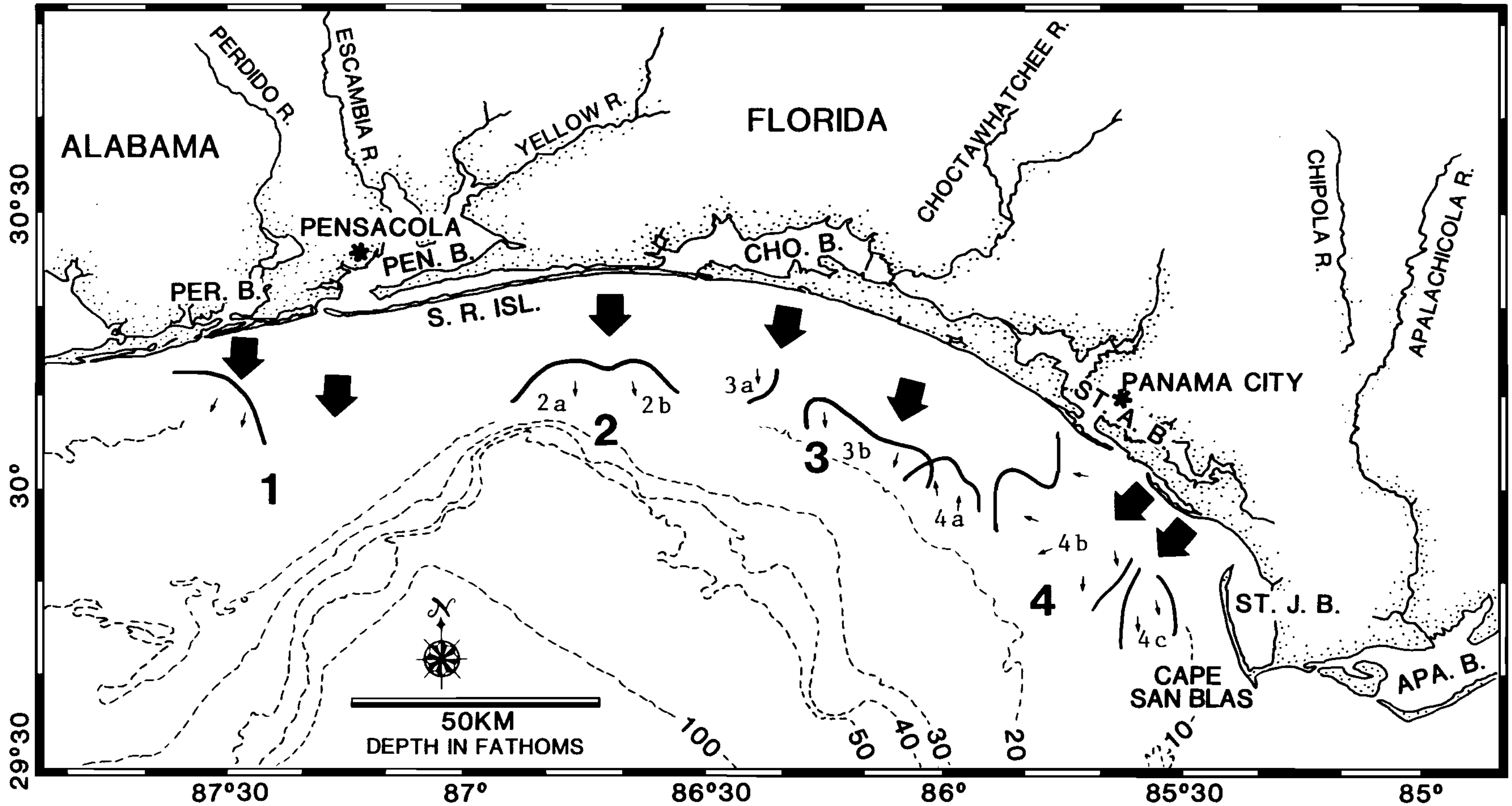


Figure 25. Summary of fluvial-deltaic systems. Large arrows mark areas of major channel systems. Small arrows indicate direction of delta progradation. Identification of distinct delta lobes is indicated by letter designations (e.g., 3a and 3b). PER.B. = Perdido Bay, PEN.B. = Pensacola Bay, CHO.B. = Choctawatchee Bay, ST.A.B. = St. Andrews Bay, ST.J.B. = St. Joseph Bay, APA.B. = Apalachicola Bay, S.R.ISL. = Santa Rosa Island.

It is apparent from the distribution of channels and delta lobes that fluvial activity is focused in 4 major areas or "fluvial systems" identified below. The locations of bays and river systems are shown in Figure 25 along with a summary interpretation.

1) Perdido Bay System: This concentration of fluvial channels is observed at the western-most extent of the study area off Alabama. Channels occur seaward of Perdido and Pensacola Bays and represent extensions of the Perdido and Escambia River systems. The eastern side of at least one seaward prograding delta lobe is observed (Figures 24 and 25).

2) Santa Rose Island System: This fluvial system seaward of the east end of Santa Rosa Island is closest to the present inlet to Choctawhatchee Bay. A well-defined series of channels led to a 35 km wide delta complex. This system could be related to either the paleo-Escambia-Yellow River system or the paleo-Choctawhatchee River sytem. However, it is possible that this system and the next system further east (east Choctawhatchee Bay system) are really one large fluvial system related to the Choctawhatchee River.

3) East Choctawhatchee Bay System: A significant section of large channels and delta lobes is developed seaward of eastern Choctawhatchee Bay to west St. Andrew Bay. Two separate delta lobes (3a and 3b) are identified.

4) Apalachicola River System: The best developed system of delta lobes and distributary channel systems is found within the Apalachicola Embayment above sequence boundary BD. At least 3 delta lobes (4a, 4b, and 4c) or phases of deltaic development

are observed for the lower AE4 subsequence of the BD-seafloor section (Figure 25).

For most of the study area, only the inner (landward) portion of the delta complexes are within the survey area. Thus, further development and more extensive deltaic systems are indicated to be further offshore, especially in the northwest Florida shelf area. Only one delta lobe (4b) in the Apalachicola Embayment appears to fall mostly within the limits of the study area.

DISCUSSION

Stratigraphic information from onshore wells provides some insight on lithostratigraphy and ages of sequence boundaries. The correlation between seismic line 125 and well 8591 provides good control for the Apalachicola Embayment (Figure 11). Other well interpretations by Schmidt (1984) are quite consistent with the sequences observed in seismic profiles. To the west, the limitations in seismic interpretations combined with limited well control for the coastal areas make correlations more speculative. Other limitations in well control are due to the traditional lithostratigraphic method often applied in correlation of onshore well data, resulting in some clearly diachronous formations, while other biostratigraphically based formations do have chronostratigraphic significance (Clark and Schmidt, 1980; Schmidt, 1984). The correlations between the seismic data and well data suggested here must be considered approximate until an offshore well can be sited on an appropriate seismic line.

Within the Apalachicola Embayment, the BCK boundary is well correlated to the top of the Bruce Creek Formation at well 8591 (Figure

11). The relatively flat lying acoustic facies is consistent with the lithologic descriptions for Bruce Creek Formation - a moderately to well indurated, granular to calcarenitic limestone (e.g., Schmidt, 1984). The high-amplitude reflection from this boundary is also consistent with a change from the poorly consolidated overlying Intracoastal Formation to the top of the Bruce Creek limestone.

The seismic sequence between BCK and X would appear to correspond with the lower Intracoastal Formation at well 8591 (Figure 11). However the major seismic facies change occurs above the X unconformity, with the Four Mile Member being the initial unit deposited on the X unconformity. The complexity of depositional sequences found on line 125 away from well 8591 raises several questions regarding the correlation of these seismic sequences to lithostratigraphic formations identified in onshore wells.

The most obvious change in seismic facies occurs not at the Bruce Creek/Intracoastal boundary identified at well 8591, but across the X unconformity which appears to correlate with a late Miocene hiatus within the Intracoastal Formation (Schmidt and Clark, 1980; Schmidt, 1984) (Figures 11 and 12). A seismic facies interpretation of the reflection character between BCK and X would suggest a depositional environment more similar to the Bruce Creek Formation for the lower Intracoastal, with broad prograding clinoforms of the post-X (AE3) sequence corresponding to the upper Intracoastal Formation. Hence, a more pronounced difference in lithofacies and depositional environment would be indicated between a lower and upper Intracoastal Formation subdivided at the X-unconformity.

The X sequence boundary is the most pronounced erosional unconformity identified within the study. This is primarily due to the erosional downcutting of a major river valley west of Panama City (Figure 14). The timing of this erosional event appears to correspond to a late Miocene hiatus observed in well studies (Clark and Schmidt, 1980). Several factors are as yet unresolved regarding the timing and significance of horizon X. Two sea level lowstands at 10.5 and 5.5 ma (Haq et al, 1987) may be a factor in forming this major sequence boundary. A second unknown factor would be the timing of shifts in drainage patterns of the paleo-Apalachicola River. The river valley erosion is most likely a response to a combination of sea level lowstand, plus a time when the Apalachicola River had shifted to the western edge of the Apalachicola Embayment. Thirdly, the trend of the eroded valley may correspond with a deeper fault trace detected in deep seismic data. A fault trace through this area was also suggested by Barnett (1975).

The AE3 seismic sequence is characterized by broad prograding clinoforms that fit well the suggested paleo-environment of open marine conditions and relatively higher sea levels highstands of the late Miocene and early Pliocene (Schmidt, 1984; Haq et al, 1987). The depth to horizon BD agrees well with the depth to the top of the Intracoastal Formation in wells (Schmidt, 1984). In addition the occurence of the Jackson Bluff Formation in wells is consistent with the northwestward pinch-out of the lower BD-SFC subsequence found in the Apalachicola Embayment. Therefore we correlate BD with the base of the Jackson Bluff Formation of late Pliocene age.

The BD-SF seismic sequence is divided into 2 major subsequences, AE4 and AE5. Sequence AE4 consists of a single(?) depositional sequence dominated by progration of a major paleo-Apalachicola River delta along the western flank of the Apalachicola Embayment. A central distributary channel which divides southward from northward prograding oblique clinoforms is observed on several seismic lines (Figures 17 and 24). Assuming BD is late Pliocene in age, this deltaic sequence may represent a latest Pliocene phase of sediment input in response to the onset of more vigorous northern hemisphere glaciation. However the initiation and demise of this deltaic complex may simply reflect a major shift in the course of the paleo-Apalachicola River, independent of sea level controls.

The uppermost sequence below the seafloor is generally reflection free and is the unit within which the modern seafloor morphology is developed. This sequence is believed to reflect Pleistocene deposits reworked during repeated sea level fluctuations. Along both the Apalachicola Embayment and northwest Florida inner shelves, the Pleistocene section may be relatively thin, with most deposition having occurred or been preserved further seaward, nearer the shelf break.

To the west along the northwest Florida shelf, the correlation between the seismic boundaries mapped and onshore data is speculative because of the steep dip of strata in this area. Lithostratigraphic units found in the Apalachicola Embayment above the Bruce Creek limestone become replaced by different formations off Alabama (Figure 5). Horizon C across the transition area most likely is within the Pleistocene section and may correlate to the AE4/AE5 subsequence boundary in the Apalachicola Embayment. Horizon E may correlate to the base of the Citronelle/Plio-Pleistocene sands as mapped by Marsh (1966) (Figure 7).

SURFACE SEDIMENTS

Doyle and Sparks (1980) called the sedimentary cover of the west Florida continental shelf the west Florida sand sheet. Figure 2 shows the locations of the surface samples collected in this investigation. Densest of all the collection patterns in the eastern Gulf to date, this network promises to add a great deal of detail to our understanding of the sand sheet. Figures 26-34 show the relationships among the various measurements of texture and composition.

Figures 26 and 27 show the distribution of grain size in the study area. Percent mud, shown in Figure 26, clearly reveals the fact that the surface is predominantly a sand sheet. Microscopic examination and percent carbonate determinations (Figure 29) reveal that the sand is dominantly quartz. A single large area of shelf mud is present south of Panama City and northwest of Cape San Blas.

Details of the texture of the surface sediments are shown in Figures 27-29. Most of the inner shelf here is veneered with a sheet of medium quartz sand. A patch of very coarse sand is present on the outer portion of the study area, just south of the eastern edge of Pensacola Bay. Patches of coarse sand occur on the shelf between Choctawhatchee Bay and Panama City. Coarse patches correspond with patches of relatively high carbonate content (Figure 29) and with side scan sonar interpretations of outcrop areas.

The area of fine grained sediment to the west of Cape San Blas is also shown in more detail in Figure 28. It is low in carbonate and side scan sonar and high resolution seismic reflection profiles of the area do not indicate the presence of outcrops. Perhaps the mud is the result of a shadow zone in the lee of Cape San Blas or of a local depositional center resulting from some peculiarity in shelf circulation.

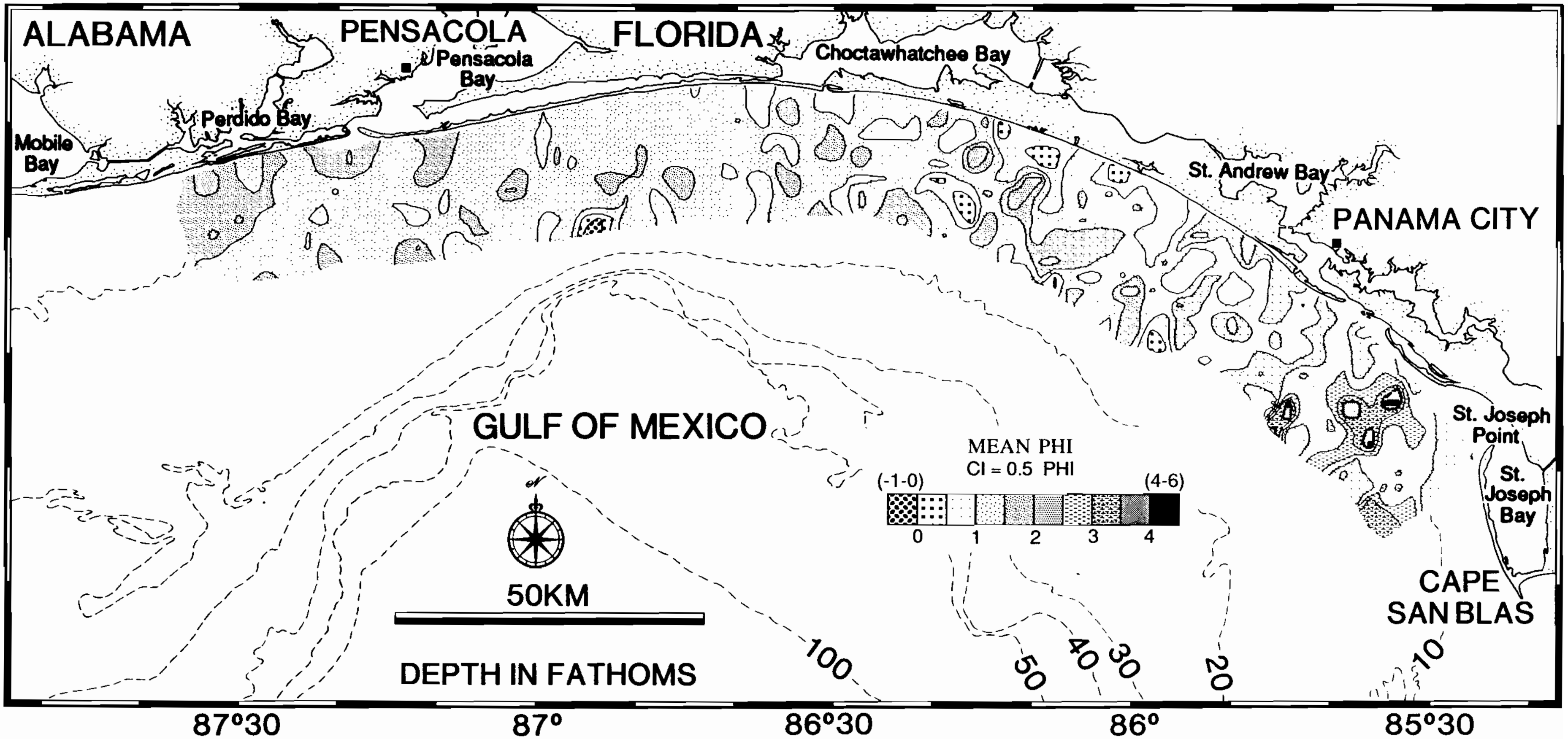


Figure 26. Mean grain size (phi) of surface sediments. The dominant texture is 1-2 phi, medium sand (see also Figure 30). Mud is significant only in the eastern end of the study area.

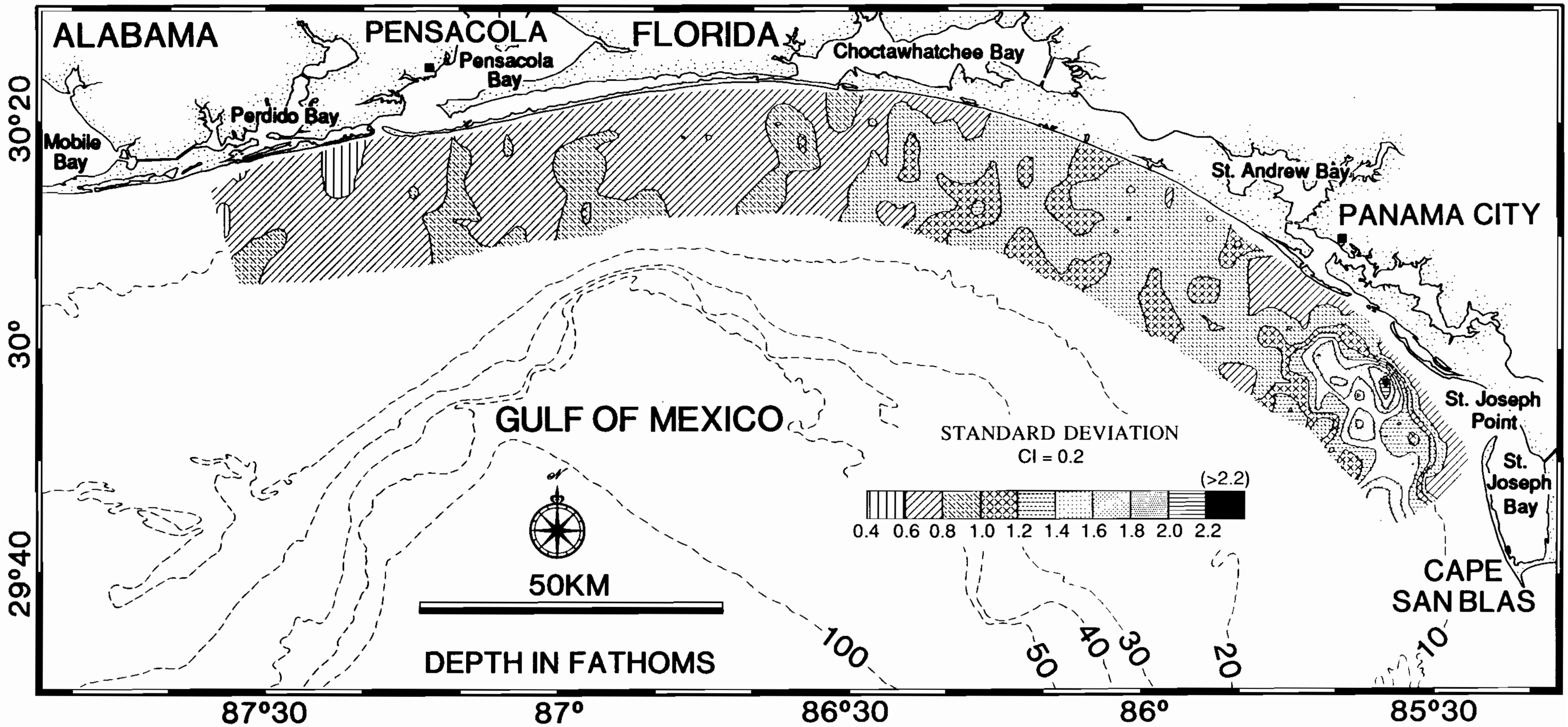


Figure 27. Standard deviation of grain size in surface sediments.

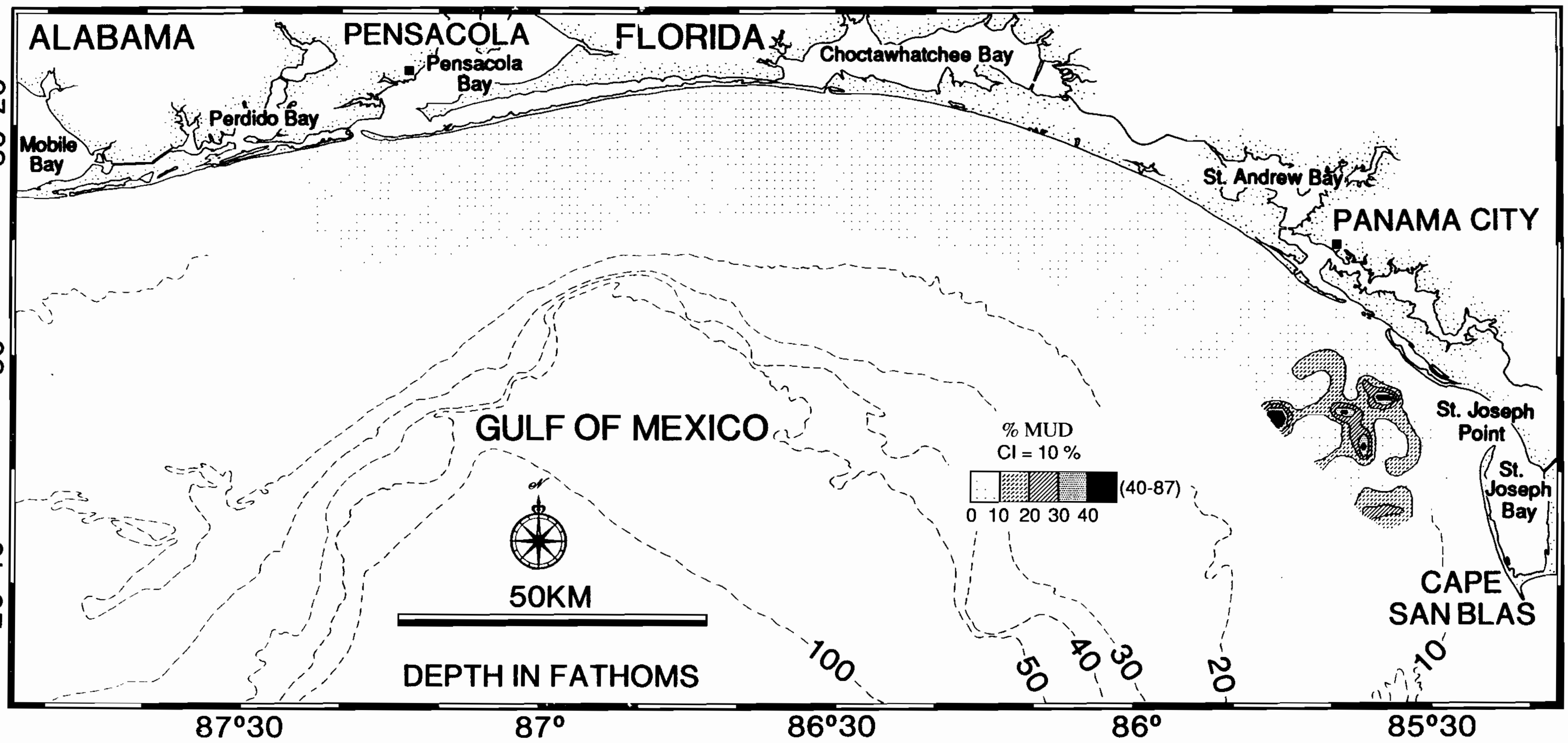


Figure 28. % Mud in surface sediments.

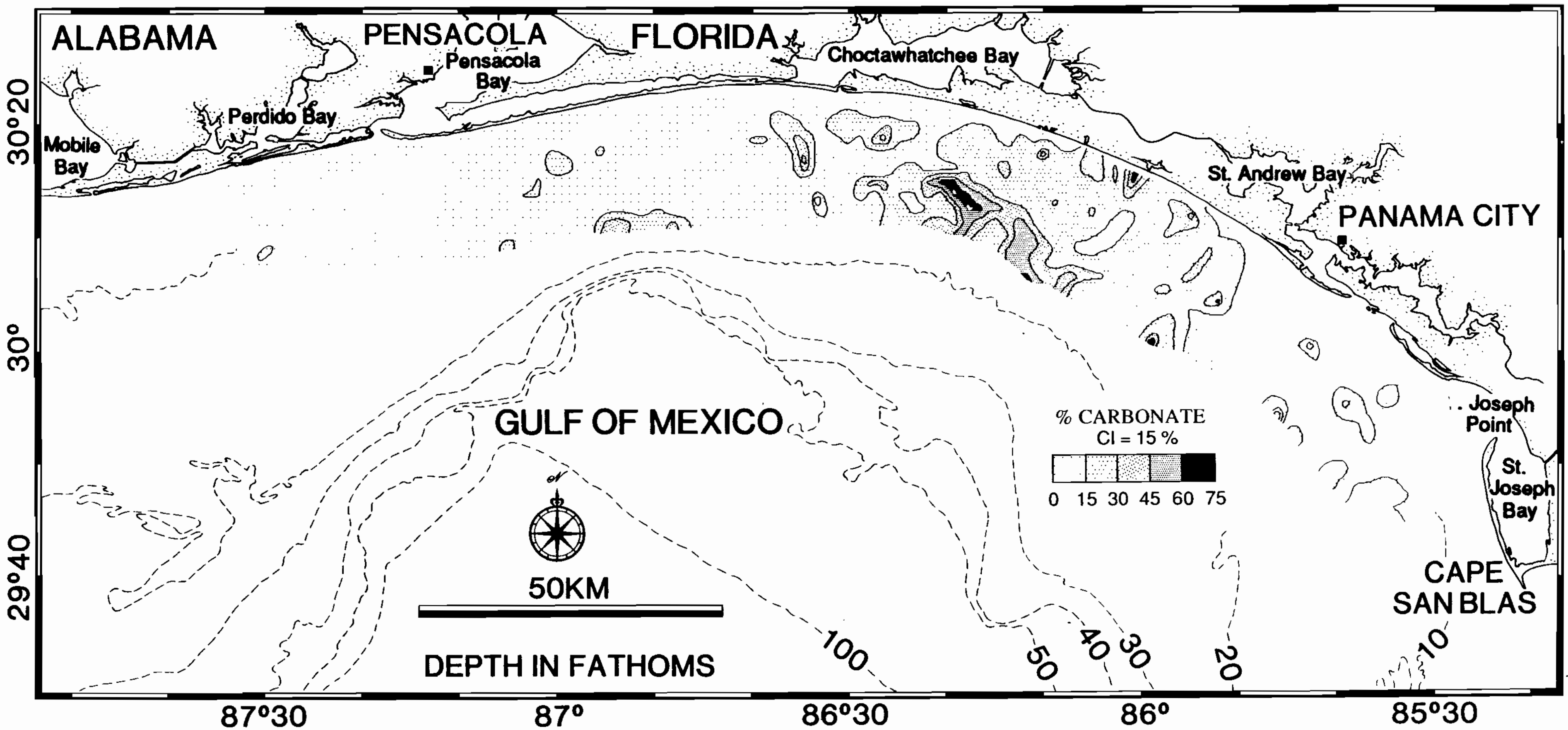


Figure 29. % Carbonate in surface sediments.

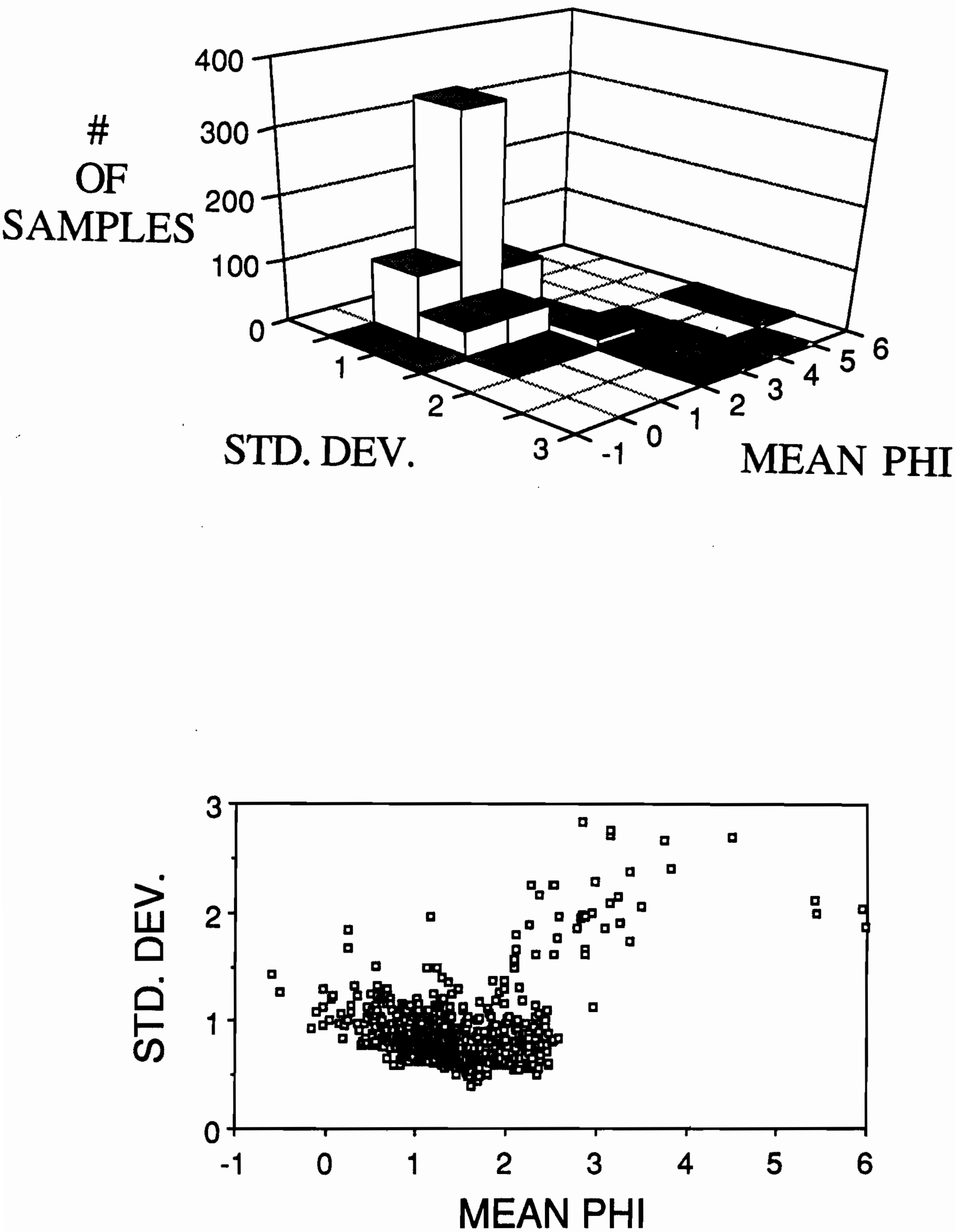


Figure 30. Plot of standard deviation versus mean phi for all samples.

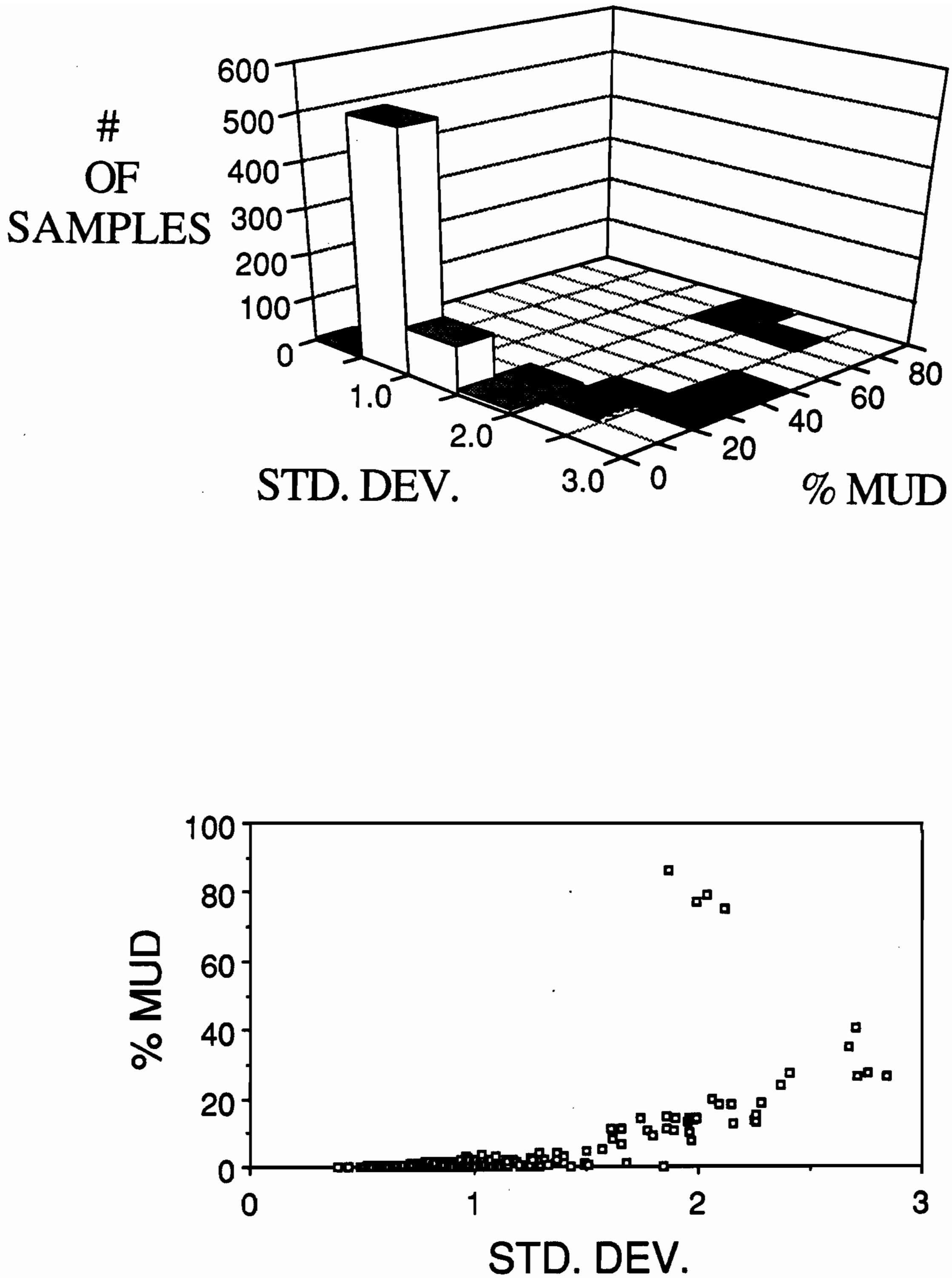


Figure 31. Plot of standard deviation versus % mud.

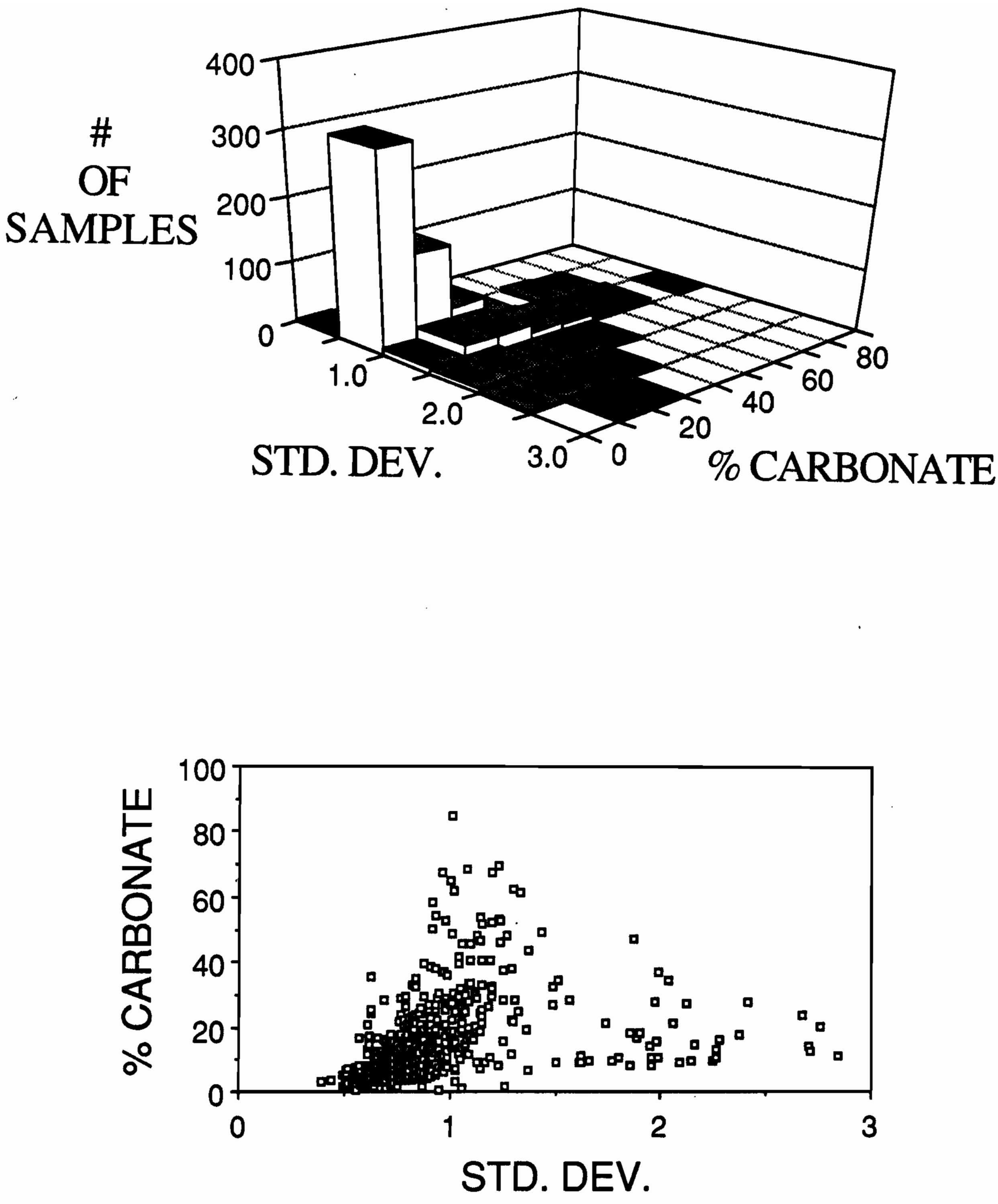
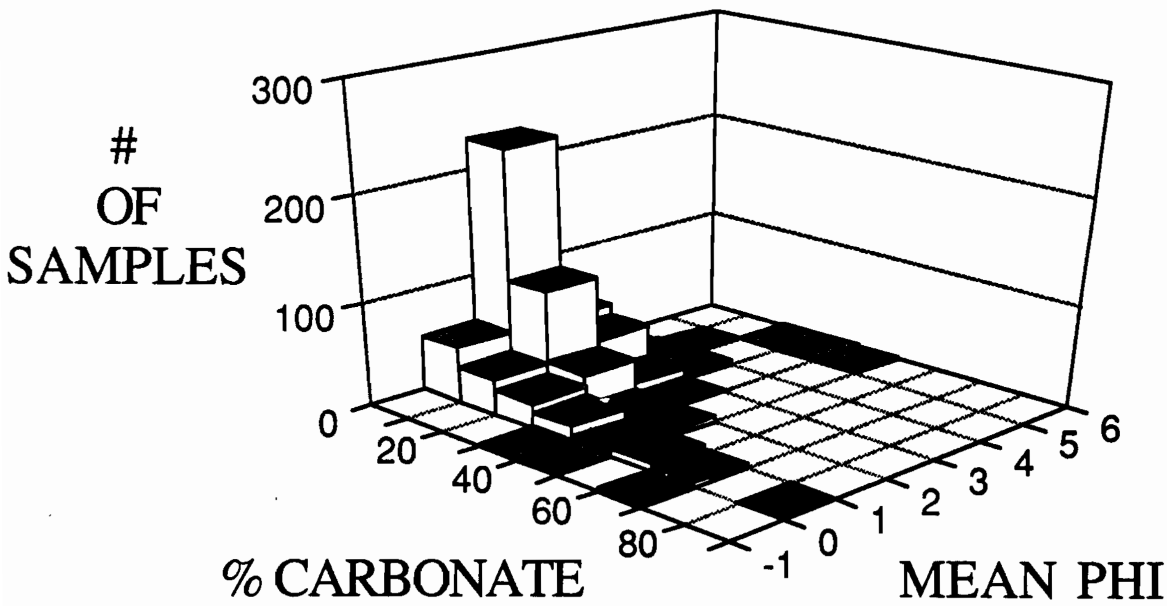


Figure 32. Plot of standard deviation versus % carbonate.



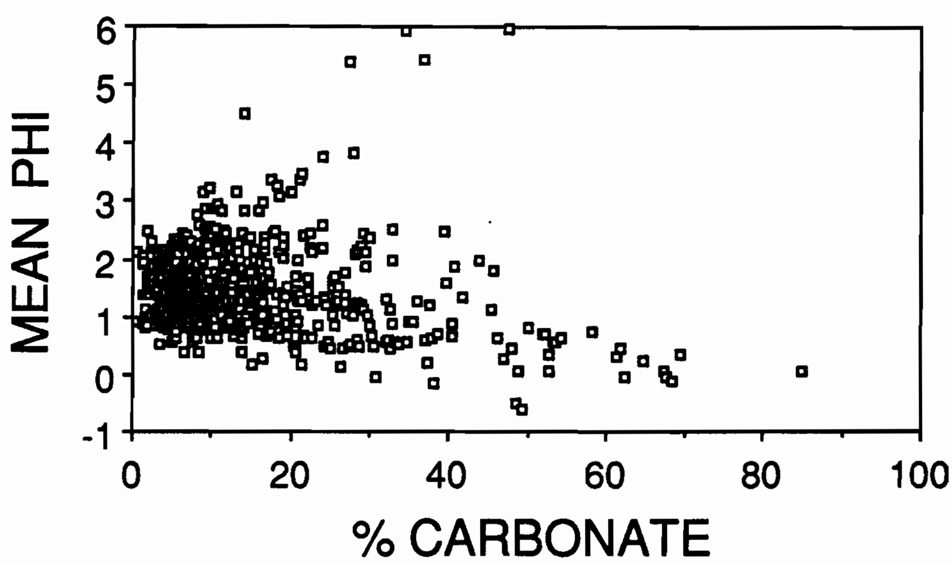
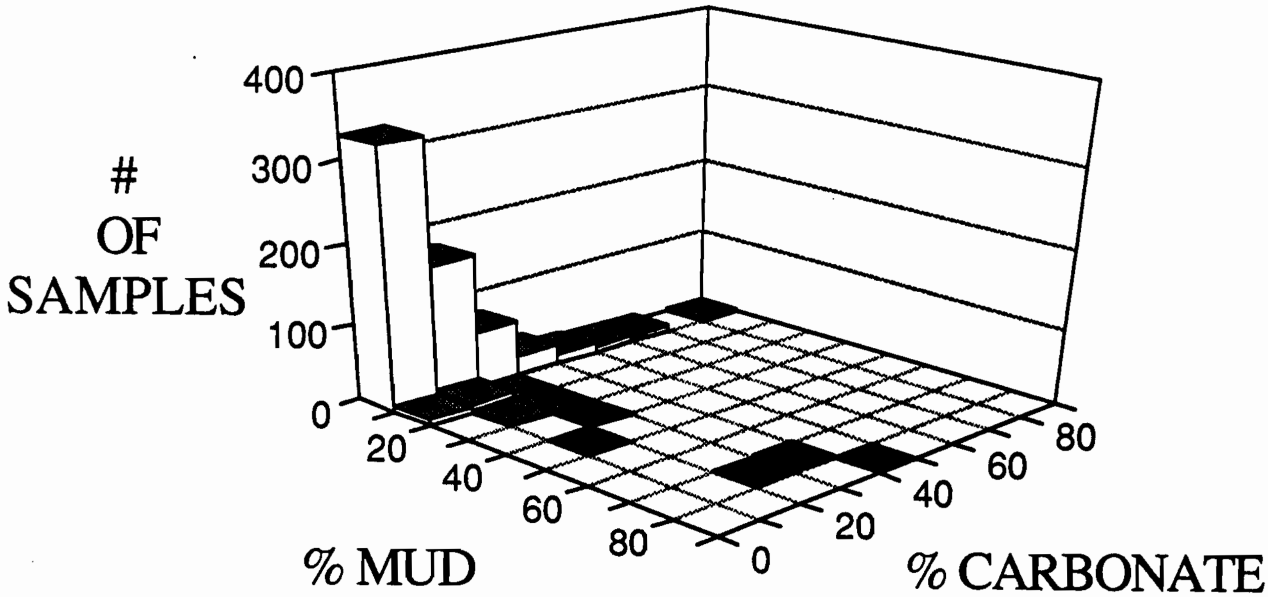


Figure 33. Plot of % carbonate versus mean phi.



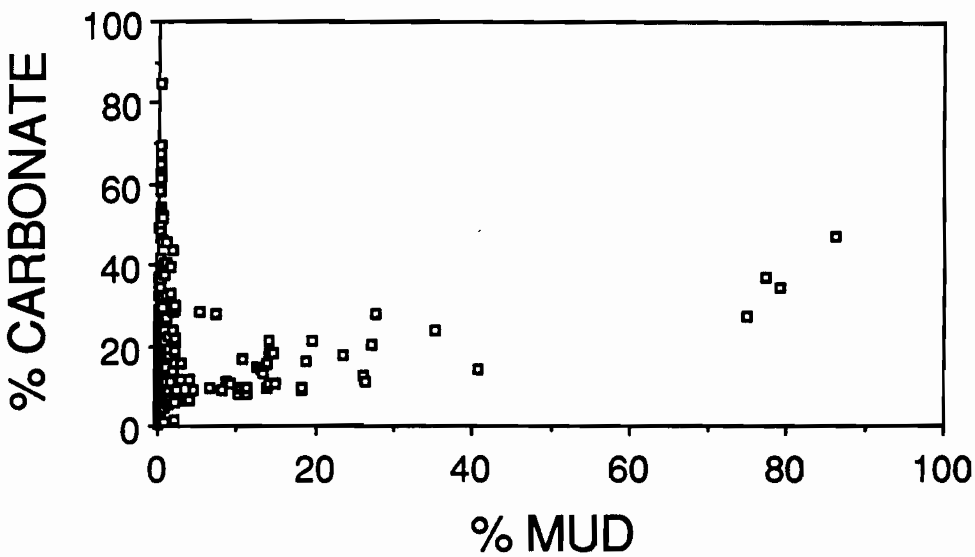


Figure 34. Plot of % mud versus % carbonate.

Figure 30 shows that the sand sheet is by and large moderately sorted to moderately well sorted, although poorly sorted to very poorly sorted bodies are also present. The mud patch falls in the latter category. Figure 31 shows two representations of the relationships between standard deviation and mud content. It is clear, especially from Figure 31b, that the samples containing a high percentage of mud are the most poorly sorted in the whole study area. This relationship results from a mixture of fines and sand, further strengthening the suggestion that mud is being deposited west of Cape San Blas at the present time.

Figures 32-34 show the relationships between percent carbonate and standard deviation, mean phi, and percent mud respectively. Interestingly, there is no apparent relationship between carbonate content and any of the three parameters, suggesting that the carbonate particles act as clastics, like the quartz. It further suggests that samples high in carbonate content do not have appreciably different textural characteristics than those low in carbonate.

SIDE SCAN SONAR INTERPRETATION OF BEDFORMS

The northwest Florida inner shelf displays a moderately complex array of bedforms which have been divided into Zones A, B, C, and D as seen in Figure 35. The divisions are based primarily upon side scan sonograph interpretations. These acoustic images provide information on the configuration and dimensions of sand waves, sand ribbons, megaripples, and other bedforms. Data from depth records were utilized to determine bedform symmetry and height. Figure 36 shows the geographic locations of selected sonographs representative of the study

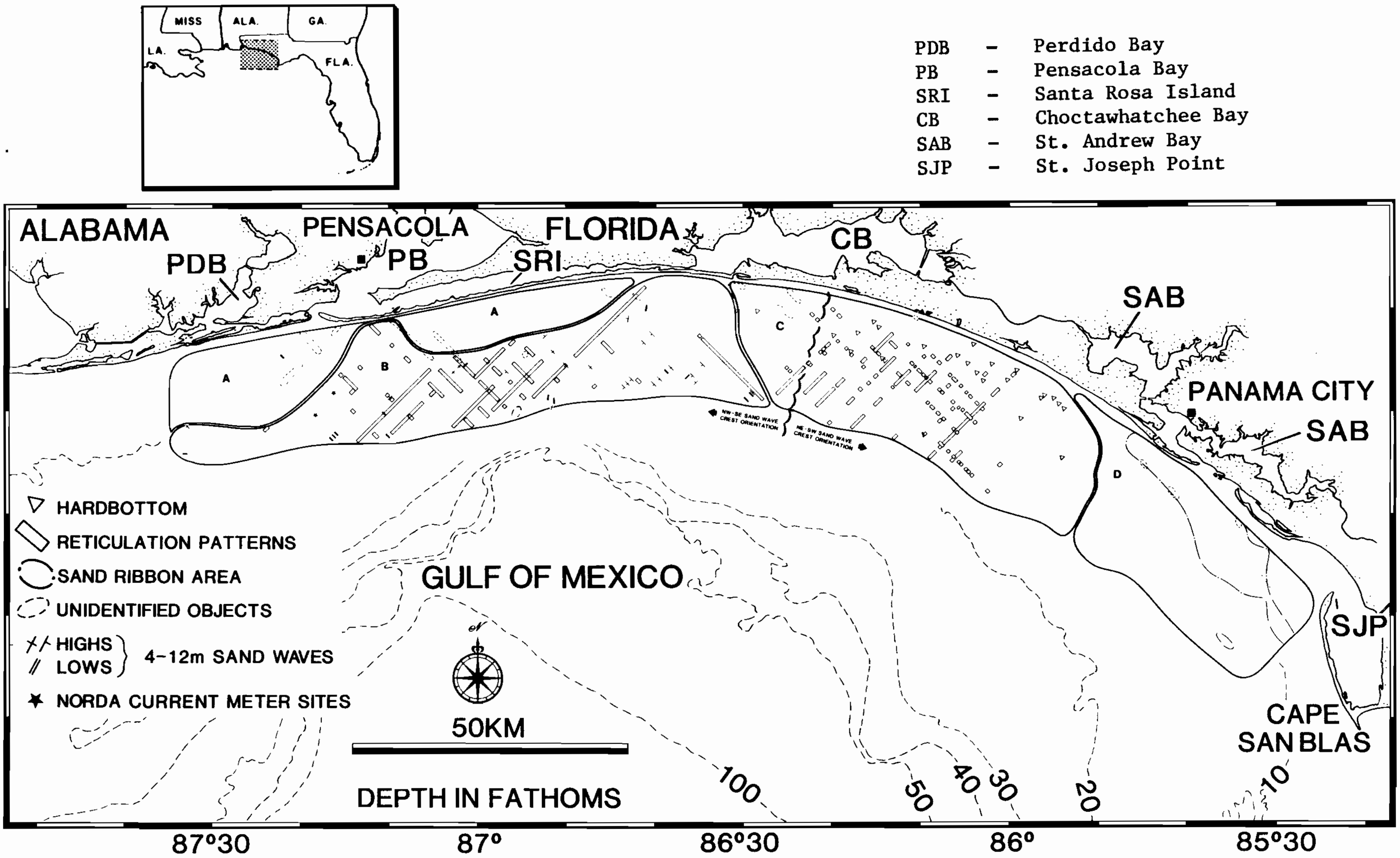


Figure 35. The study area is divided into four zones based on side scan sonograph interpretation. Sand waves, 1-3 m in height, dominate the bottom topography but are not indicated.

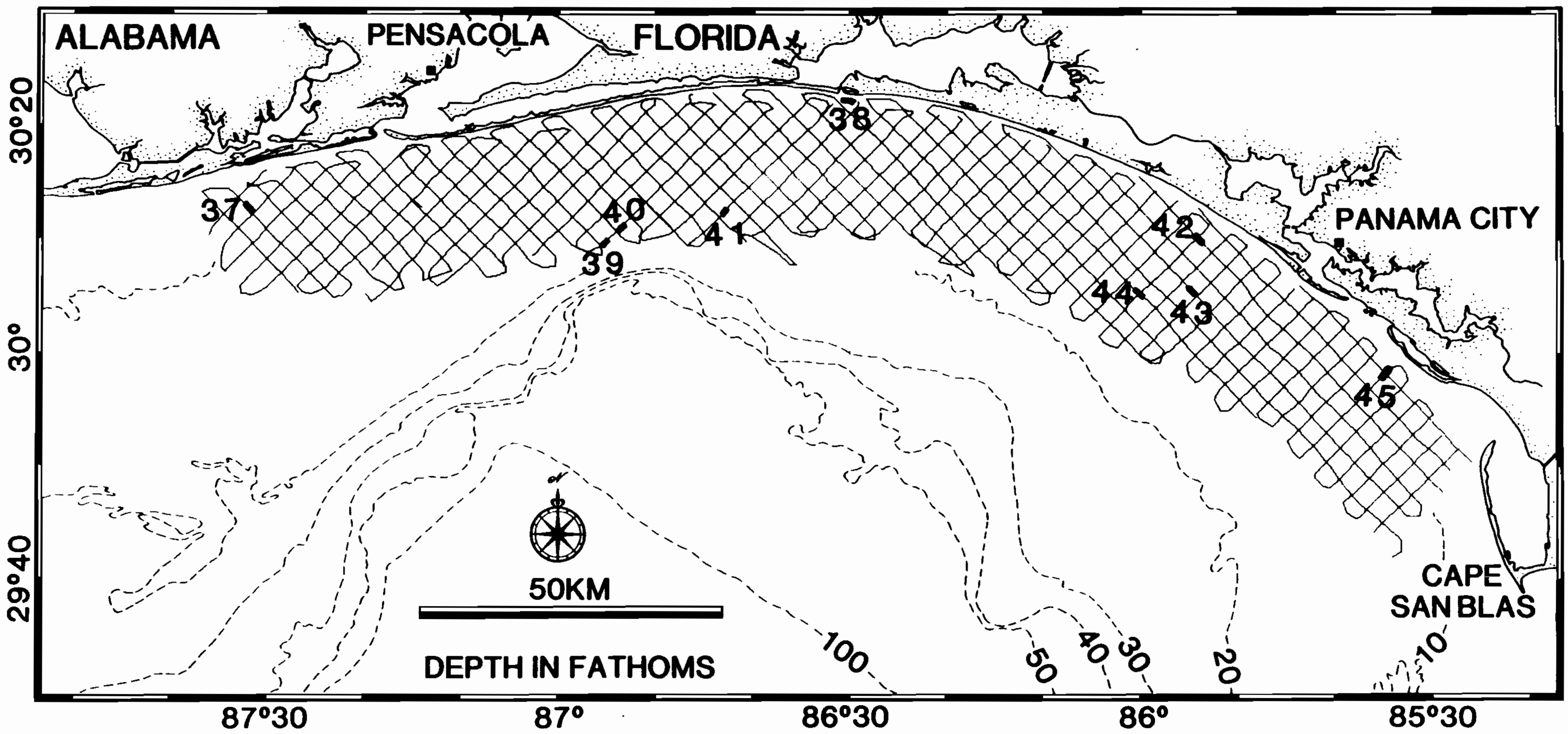


Figure 36. Cruise tacklines and selected sonograph sites shown in Figures 37-45. Numbers refer to figures in text.

area. In each of the sonographs (Figures 37-45) the towfish advanced from left to right during data collection.

Two primary patterns of sand wave orientation are observed within the study area and are separated by the wavy line in Figure 35. Sand wave crests display a distinct NW-SE orientation west of Choctawhatchee Bay. East of Choctawhatchee Bay, wave crests generally trend NE-SW. A counter-clockwise circulation pattern over the shelf during the winter is hypothesized to account for this shift in sand wave orientation and is supported by earlier studies (Leipper, 1954; U.S. EPA, 1988).

Zone A

Zone A includes the inner shelf off Pensacola Bay and along most of Santa Rosa Island. Sonographs here show predominantly low relief swells with sand waves 1-3 m in height. Some areas display a mottled appearance caused by megaripples or small sand waves 10-50 m long with wavelengths up to 5 m (Figure 37), by mixed bottom sediment types, or some combination of both. The MAFLA (1975-76) study found a similar mottled bottom signature in the Big Bend region (where the panhandle coast curves south to the peninsular coast), and between Tampa Bay and Charlotte Harbor. However these areas were thought to represent dense, living epibenthic communities. Sediment analyses in Zone A show consistently low carbonate percentages ($\leq$15%) and primarily medium size sand grains (Figures 26 and 29).

Large unidentified objects are also found nearshore in this area. They are highly reflective, often roughly circular, and 5-25 m in diameter (Figure 38).

A NORDA current meter study for the U.S. EPA (1988) showed weak currents generally parallel to the coast, with a dominant westward flow.

Figure 37. Sinuous megaripples less than 1 m in height and 10-50 m in length produce a mottled appearance on the sonograph (top). Textural analysis of surface sediment sample #355 nearby showed predominantly medium sand-sized material.

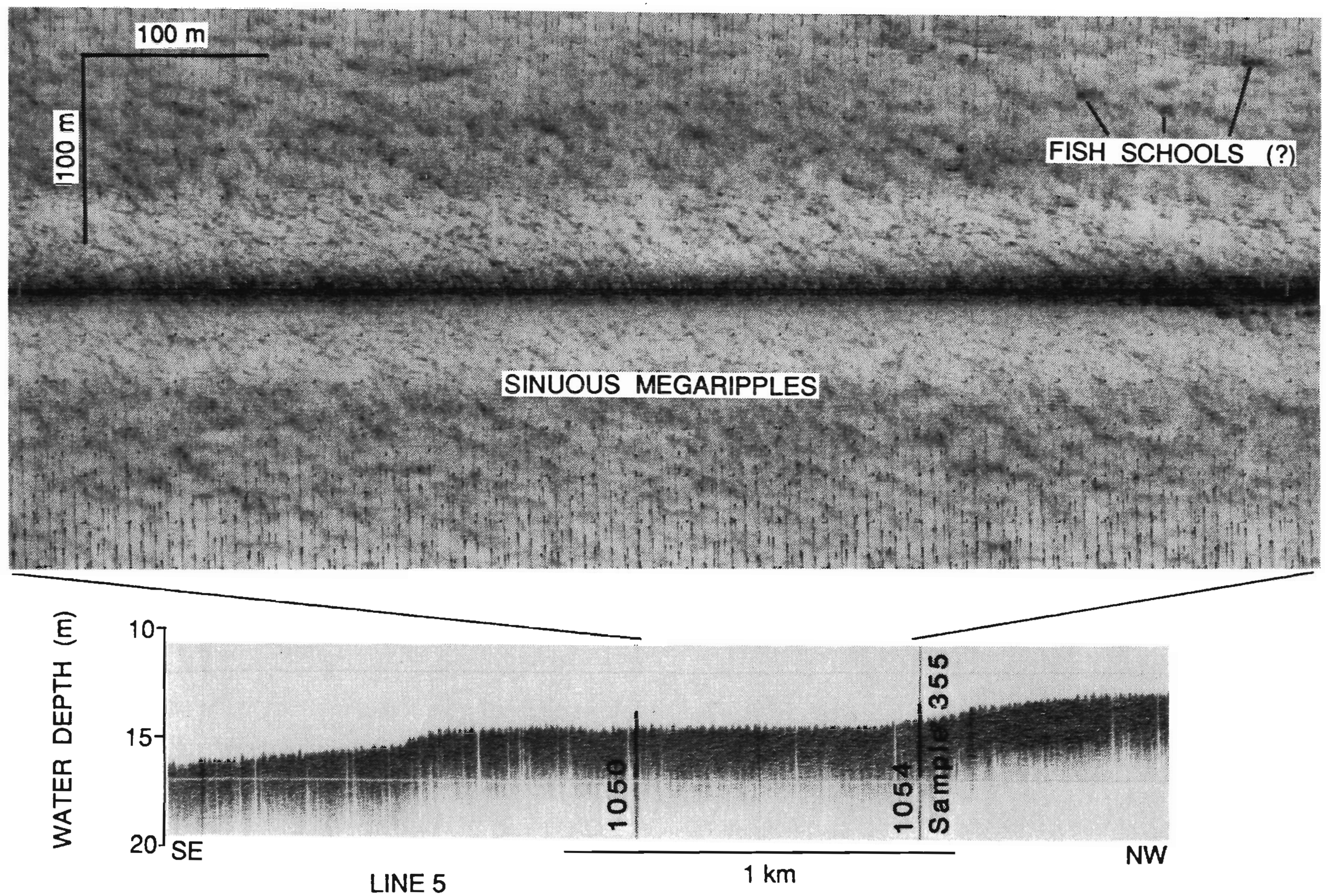
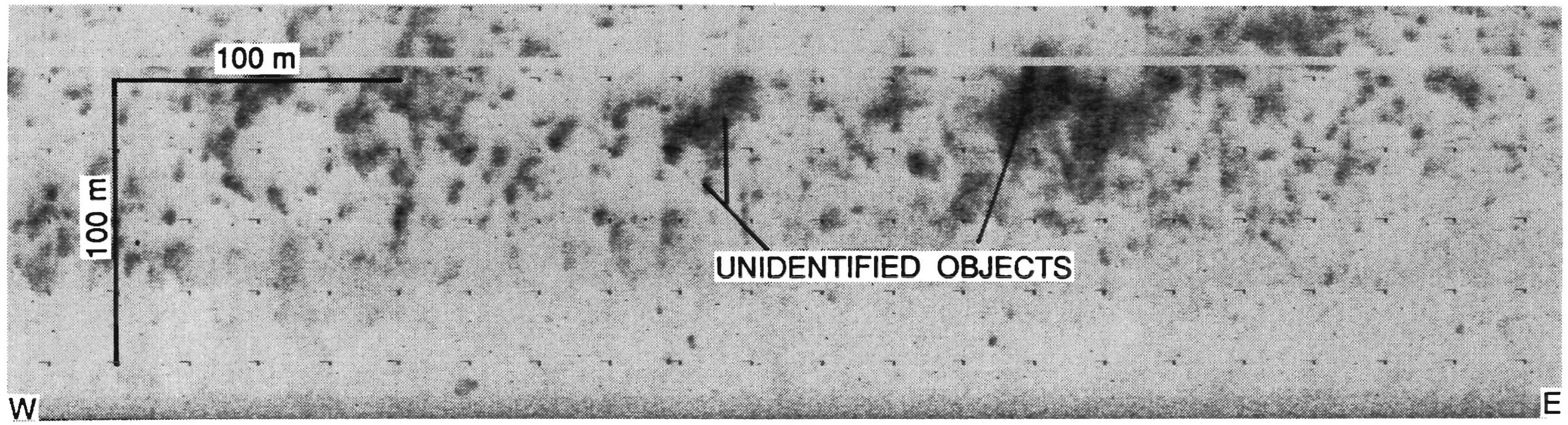

100 m
100 m
FISH SCHOOLS (?)
SINUOUS MEGARIPPLES
WATER DEPTH (m)
10
15
20
SE
NW
1050
1054
Sample 355
1 km
LINE 5

Figure 38. Dark (highly reflective) objects of varying sizes and spacing occur near shore along much of the study area. Both sonographs were recorded in transit from line 70 to line 74 within 2 km of the Choctawhatchee Bay Inlet, in 10-15 m water depths.


100 m
100 m
UNIDENTIFIED OBJECTS
W
E

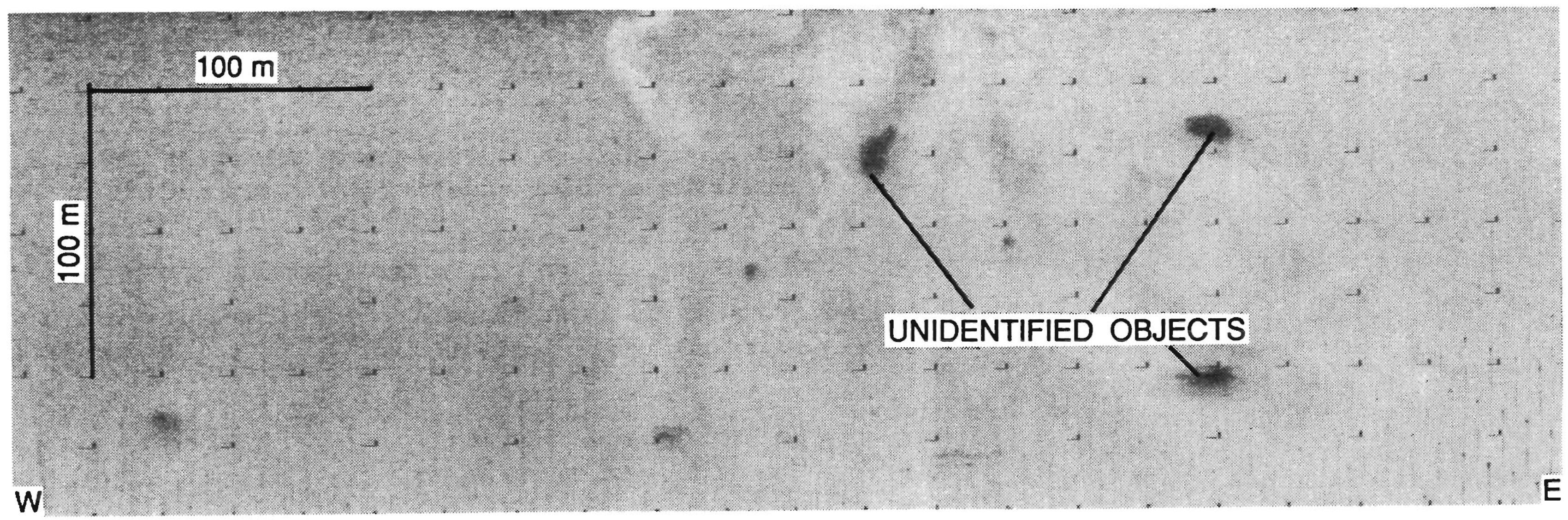

100 m
100 m
UNIDENTIFIED OBJECTS
W
E

Figure 39. Coarse sand ribbons less than 1 m in height are adjacent to topographically higher bedforms of low reflectivity. These sand ribbons may be formed by higher velocity currents of 1 m/s (Kenyon 1970).

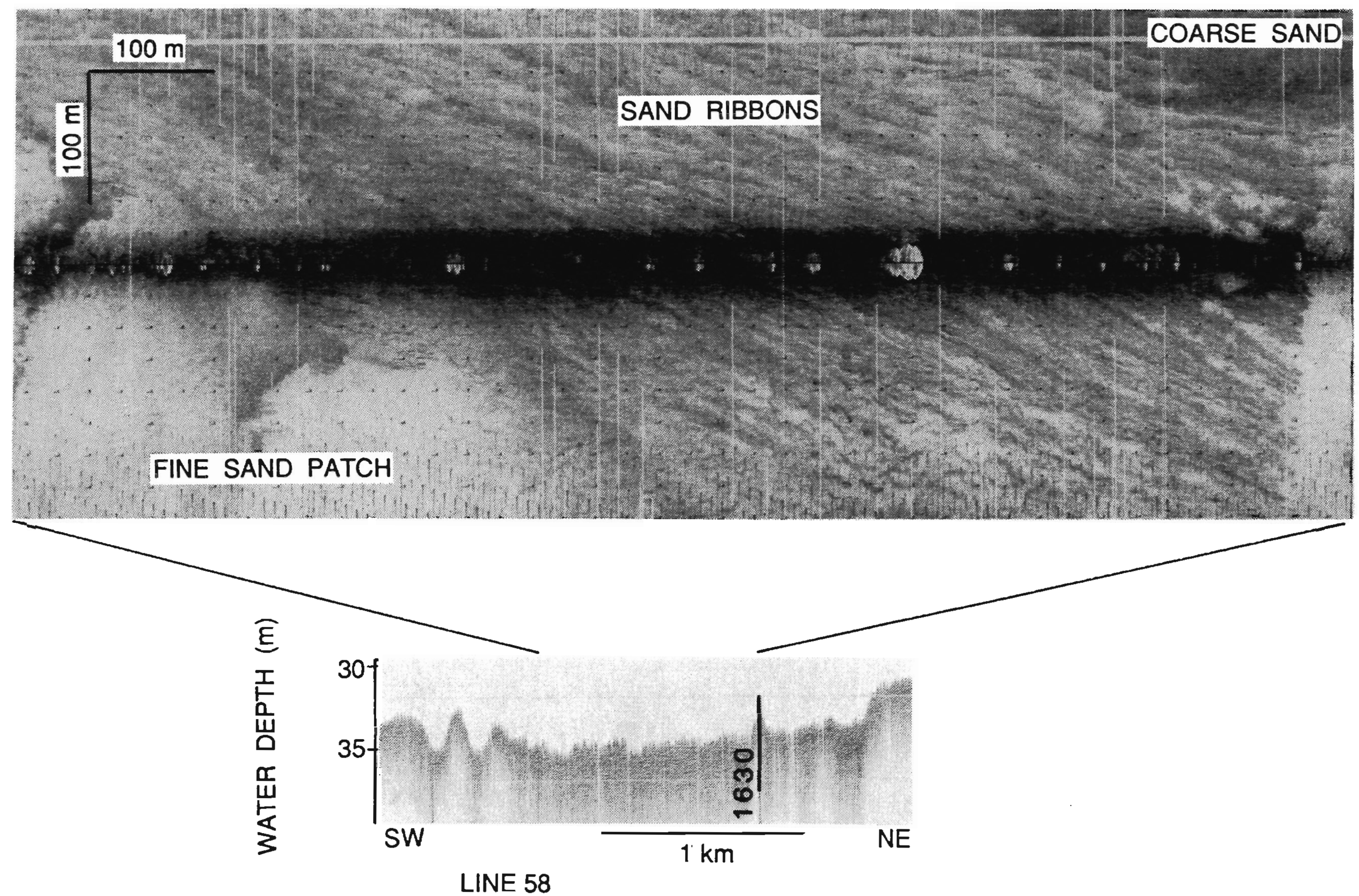

COARSE SAND
SAND RIBBONS
100 m
100 m
FINE SAND PATCH
WATER DEPTH (m)
30
35
1630
SW
1 km
NE
LINE 58

Figure 40. A distinct contrast in reflectivity is visible between the very coarse sand (sample 469) background and the smaller (possibly mobile) patches of finer sand-sized material.

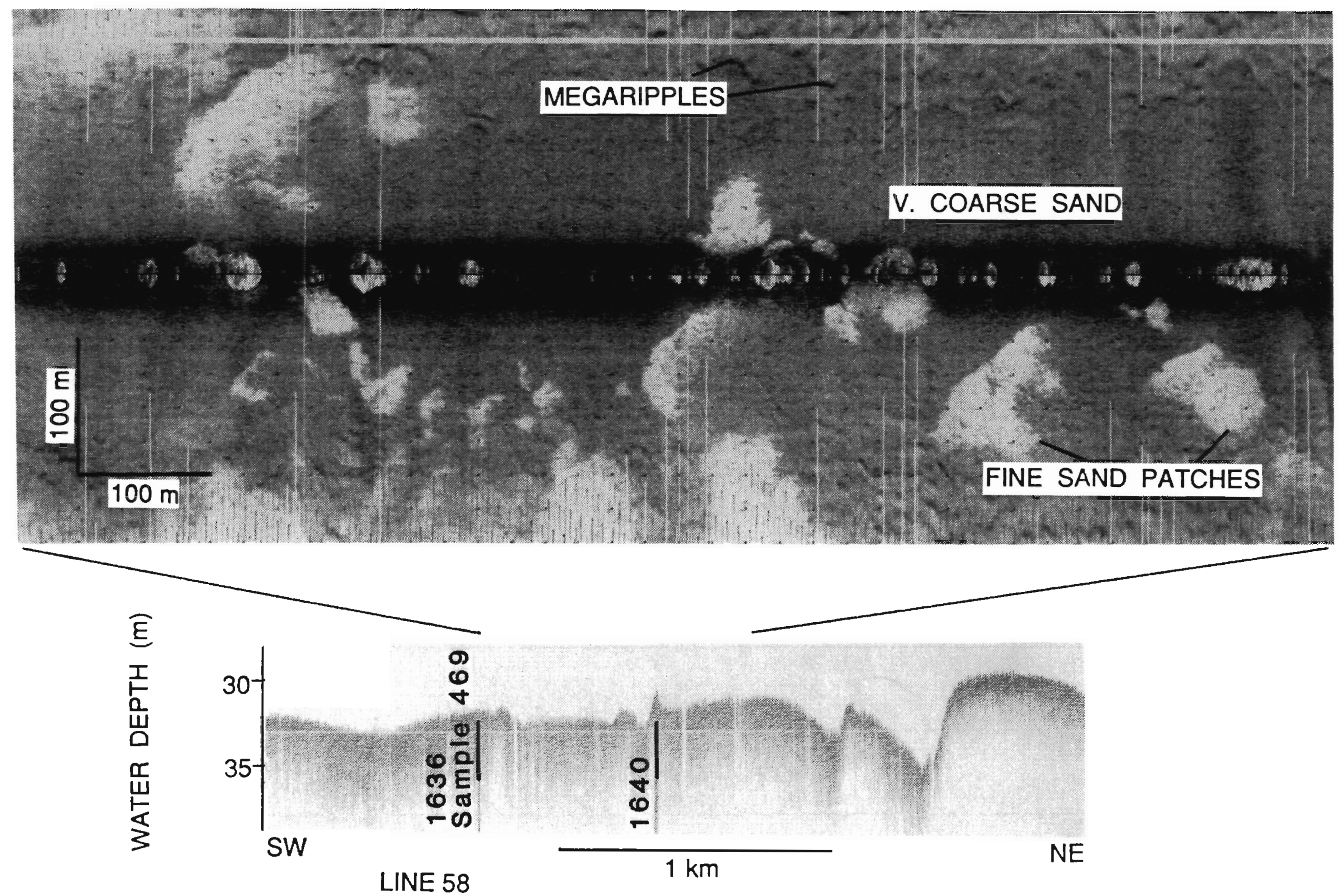
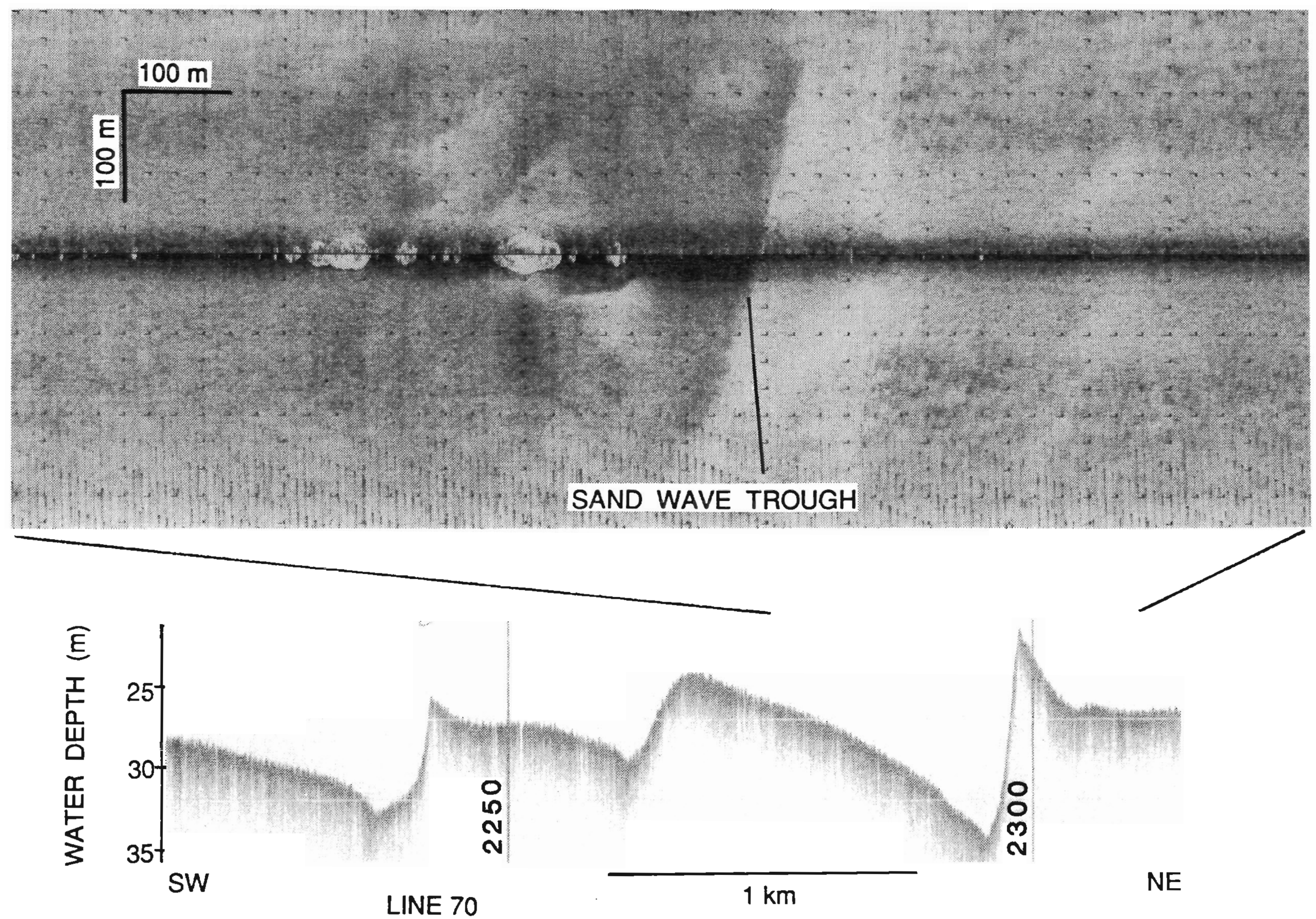
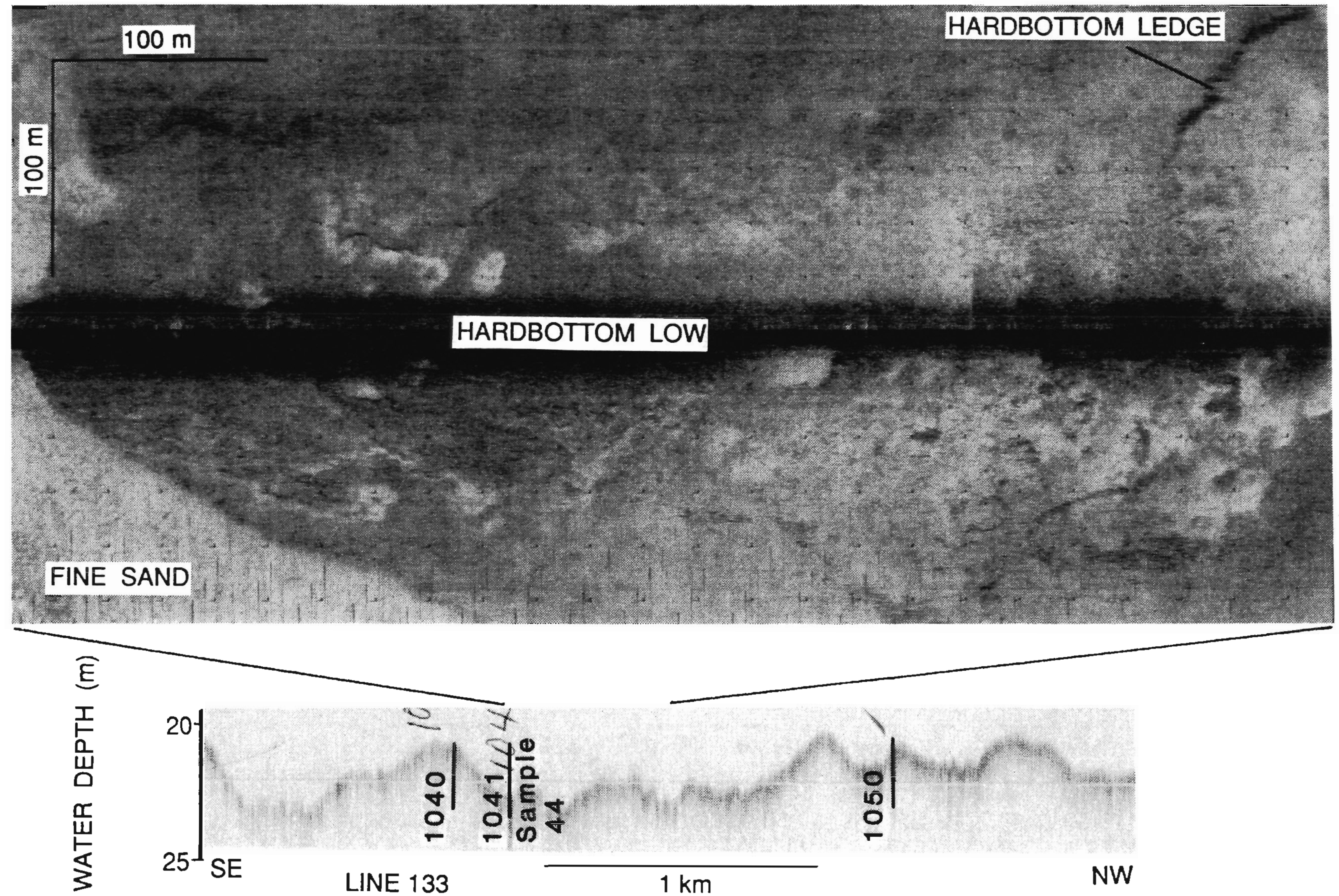

MEGARIPPLES
V. COARSE SAND
FINE SAND PATCHES
100 m
100 m
WATER DEPTH (m)
30
35
1636
Sample 469
1640
SW
NE
LINE 58
1 km

Figure 41. This 12 m sand wave trends generally NW. Bedform asymmetry here indicates sediment transport offshore.



100 m
100 m
SAND WAVE TROUGH
WATER DEPTH (m)
25
30
35
SW
LINE 70
2250
1 km
2300
NE

Figure 42. Hardbottom areas are topographically lower than adjacent sand waves and correspond to higher carbonate percentages in surface sediments.



100 m
100 m
HARDBOTTOM LEDGE
HARDBOTTOM LOW
FINE SAND
WATER DEPTH (m)
20
25
SE
LINE 133
1040
1041
Sample
44
1050
1 km
NW

Figure 43. A patchy acoustic signature produced by textural variations in surface sediments and topographic changes is common in Zone C.

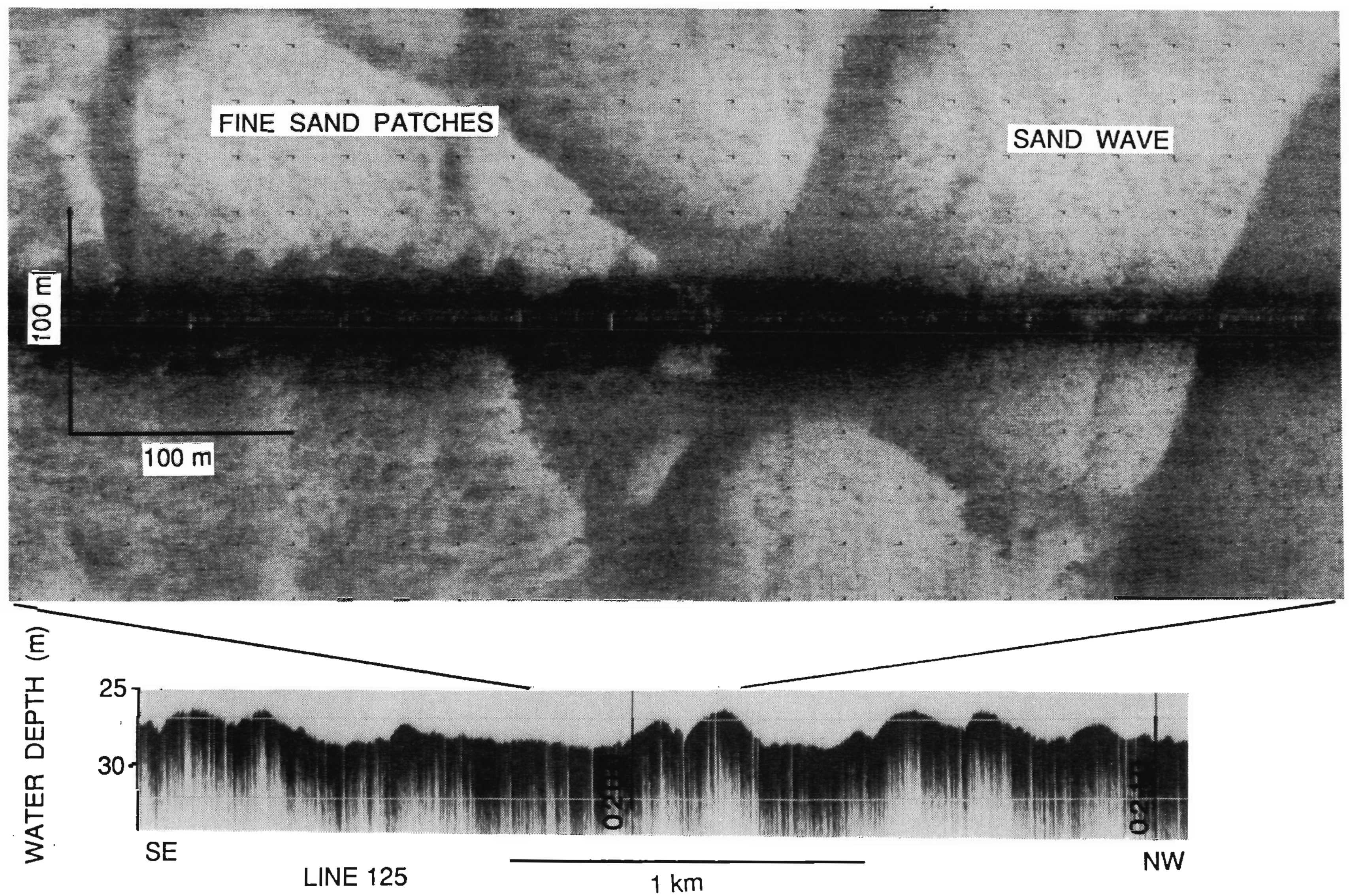

FINE SAND PATCHES
SAND WAVE
100 m
100 m
WATER DEPTH (m)
25
30
SE
NW
LINE 125
1 km

Figure 44. Web-like reticulation patterns, which may be lunate megaripples, are superimposed upon sand waves.

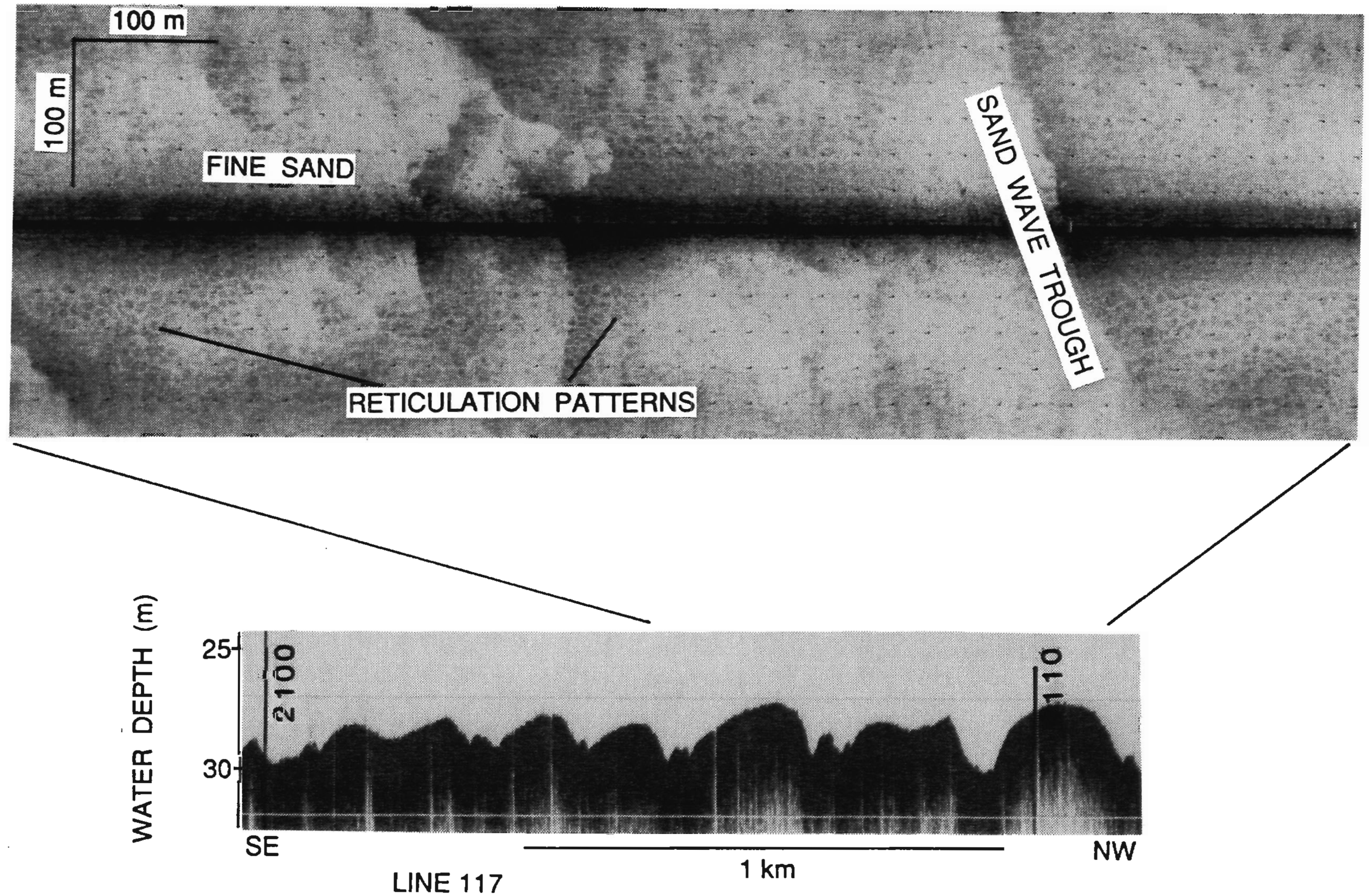
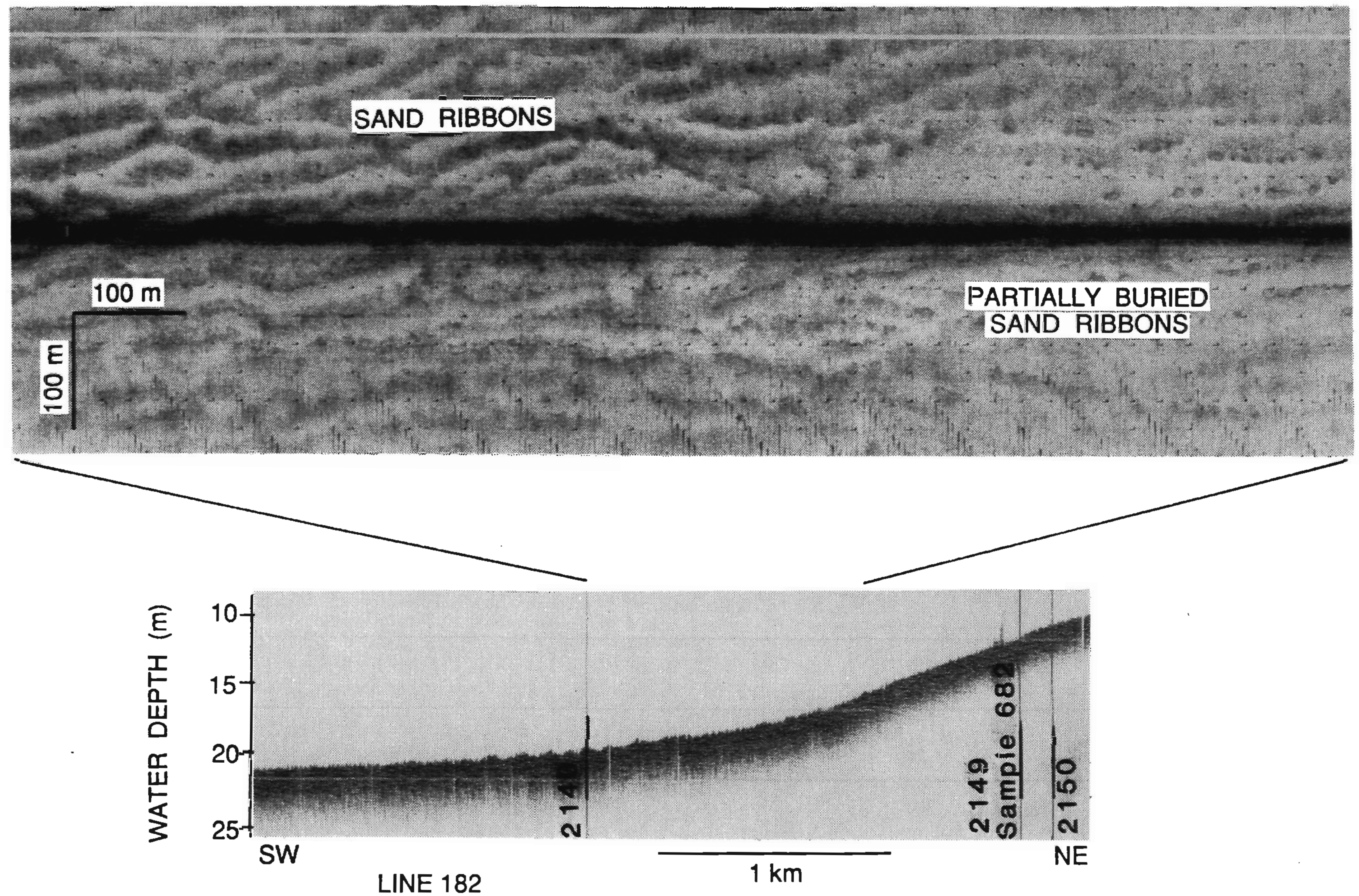

100 m
100 m
FINE SAND
SAND WAVE TROUGH
RETICULATION PATTERNS
WATER DEPTH (m)
25
30
2100
110
SE
NW
1 km
LINE 117

Figure 45. Sand ribbons, perpendicular to shore and parallel to the bed load transport path of tidal currents, are storm-generated. Sediment transported from the shore area (right to left) seems to be levelling the bedforms downslope.


SAND RIBBONS
100 m
100 m
PARTIALLY BURIED
SAND RIBBONS
WATER DEPTH (m)
10
15
20
25
2149
Sampie 682
2150
SW
NE
LINE 182
1 km

The mean resultant flow varied between 1 and 6 cm/s. Currents were strongly non-tidal and appeared to be wind-driven.

Zone B

Zone B is similar to Zone A with flat topography over much of the area, and most bedforms ranging from 1-3 m in height. Surface sediments contain $\leq$15% carbonate except at isolated sites where up to 60% carbonate was recorded (Figure 29). These high carbonate sites correspond to patches of coarse to very coarse grained sediments surrounded by medium size sand which dominate the area (Figures 26, 39, and 40). In Figure 39 the coarse sands form parallel sand ribbons 800 m in length with 10 m wavelengths bounded by finer grained sand waves. These sand ribbons resemble those described by Kenyon (1970) from European tidal seas.

Small areas of patchy surface sediment type are scattered throughout and are usually associated with sand waves. Large areas of mottled appearance are attributed to sinuous megaripples with crest lengths ranging 15-50 m, heights 0.5 m or less, and wavelengths 15-25 m.

Web-like reticulation patterns are a dominant feature in this area. Individual reticulation rings are polygonal to rounded with diameters ranging from 5-7 m. The MAFLA (1975-76) study noted a reticulated bottom pattern near the Florida Middle Ground and interpreted it as lunate or lingoid megaripples.

A University of Georgia (1983) study also interpreted similar features on side scan sonographs off the Georgia coast. Reticulation rings there were observed as oval in shape with the long axis length ranging from 5-30 m. The web-like pattern is observed on numerous adjacent tracklines in both the University of Georgia (1983) report and this study. A towed underwater television and minisub observations in the former report failed to distinguish and identify these features, suggesting they may be some kind of acoustic artifact. However, the large size of the bottom features and the oblique viewing angle of the underwater television and minisub may have prevented direct observation of the reticulation patterns.

Sonographs of the New York Bight apex (Stubblefield et al, 1977; Swift et al, 1983) reveal hummocks and swales which are circular to elliptical in plain view and which may be analogous to the reticulation patterns observed in this study. These hummocks and swales were the surface expression of hummocky cross-stratification that may have been the product of a storm event (Harms et al, 1975).

Sand waves 4-12 m in height are also present in Zone B. These waves generally trend NW, with leeward slopes up to about 10° and bedform asymmetry indicating sediment transport offshore (Figures 20 and 41). Most occur 12-25 km offshore in 25-35 m water depths (Figure 35).

Zone C

Zone C encompasses approximately one-third of the entire study area and is characterized by hard bottoms, reticulation patterns, sand waves, and patchy reflectivity largely attributed to variations in surface sediment texture. Localized hardbottoms are found mainly within 10 km of shore in 20-30 m water depths (Figure 42). Although a complete mosaic cannot be constructed to determine the areal extent of these hardbottoms, some are estimated to extend several hundred meters. Their distinctive acoustic signature is a very dark irregular outline forming a ledge-like perimeter and/or clusters of dark linear structures 10-50 m in length (Figure 42). Hardbottom areas correspond to thinning of the Plio-Pleistocene clastics as seen on shallow seismic profiles (Figures 11 and 19).

PDR records provide supporting evidence of the hardbottom interpretations. The depth records typically displayed irregular sawtooth forms up to 1 m in height, with hardbottom areas topographically low in relation to surrounding bedforms (Figure 42). In contrast, Mearns (1986) used positive surface relief (greater than 0.5 m) as his main criterion in identifying hardbottoms in Onslow Bay, North Carolina.

Crustose red coralline algae were dominant in a number of surface sediment samples taken in the vicinity of hardbottoms. The algae, which deposit calcium carbonate in the form of calcite, were of the rigid branching habit (Wray, 1978). Coralline algae in bottom sediment samples collected near shore were fresh and often intact, as opposed to highly weathered and fragmented coralline algae in samples taken farther from shore. This trend indicates possible offshore transport.

Percentages of carbonate in surface sediments are highest ($\geq$40%) in Zone C, centered near hardbottom areas and along the seaward edge of the survey area (Figure 29).

Patchy areas, often indicative of textural variations in sediments, cover most of Zone C. These patches are usually rounded, of low reflectivity, surrounded by a dark, highly reflective background. The low reflectivity is indicative of finer-grained sediment and/or lower compaction with high reflectivity attributed to coarse sediment and/or greater compaction (Figure 43). The patchy acoustic areas correspond to significant variations in grain size as seen in Figure 26. Mean phi size varies from 0.0 to 2.5 (coarse to fine sand-sized material) in this zone.

Sand waves up to 3 m in height are common and contribute to the patchy reflectivity changes as the towfish encountered slope angle variations. In the western portion of Zone C, the orientation of sand wave crests is variable, signifying a change in current directions affecting the seafloor.

Reticulation patterns are found superimposed upon sand waves and patchy areas in this zone (Figure 44). These average 7 m in wavelength and are most clearly defined within areas of higher (darker) reflectivity (Figure 44).

Zone D

Zone D is bordered along its northern and eastern boundaries by St. Andrew Bay and St. Joseph Spit. Surface sediment analyses showed 41 samples with greater than 5% mud-sized material, and all were collected from Zone D (Figures 26, 28, and 31). Mud content is a good indication of a low-energy environment; sonographs and depth records over most of the area clearly support this assumption. Surface sediments also contain less carbonate than Zone C to the west (Figure 29).

Sand ribbons are present in an extensive band (30 km wide) perpendicular to shore in water depths to 20 m. Figure 45 shows the anastomozing sand ribbons with wavelengths of 25-40 m. Bottom profiles indicate ribbon heights up to one meter. The sand ribbon area is up to 10 km in length. Sonographs show the shoreward end of these sand ribbons apparently blanketed by sediment transported offshore, leaving only the topographically highest points exposed as darker rounded forms aligned along the same orientation (Figure 45).

Kenyon's (1970) study of European tidal seas described four types of sand ribbons. His type B most closely resembles those seen in this survey. A typical maximum near-surface current velocity in the area of type B sand ribbons is 2 knots (1 m/s), according to Kenyon (1970). In the normally low energy environment of Zone D, currents reaching this velocity would only be generated by high energy events such as storms.

Sonographs over the remainder of Zone D show (1) flat seafloor with mottled appearance caused by megaripples, and (2) low-relief symmetrical sand waves with well-defined superimposed megaripples. Some bedform crests in the section trend NNE-NNW with superimposed megaripples that seem to display arbitrary positioning on the sand wave flanks. This randomness may reflect the presence of two separate flow regimes.

CONCLUSIONS

The major conclusions are:

1) Two principle sedimentary provinces, the Apalachicola Embayment and northwest Florida shelf, are distinguished by different structural trends and thickness of Plio-Pleistocene clastic sequences. The clastic fill on the west Florida shelf is much thicker in association with an extended shelf.

2) A transition from middle Miocene carbonates to terrigenous clastic sequences is observed vertically and laterally from east to west. The vertical transition correlates with a change from relatively flat lying reflection units to prograding clinoform patterns, and then

chaotic and reflection free sequences.

3) A major late Miocene erosional unconformity and river valley entrenchment is found west of Panama City. This unconformity is the most pronounced within the study area and corresponds with a change from relatively flat sequences to prograding fill sequences.

4) The latest infilling of the western Apalachicola Embayment is distinguished by a major phase of deltaic deposition apparently in the late Pliocene or early Pleistocene (depositional sequence AE4).

5) Four major fluvial-deltaic systems are identified based on channel cutting and delta lobe deposits in the shallow post-BD (Plio-Pleistocene) portion of the seismic records. More extensive deltaic deposits are expected to extend across the shelf seaward of the study area.

6) Modern bedforms on the seafloor are developed within an uppermost reworked layer of shelf sediments ranging 0-30 meters in thickness. No evidence was found of preserved bedforms in the subsurface.

7) A quartz sand veneer, the West Florida sand sheet, covers the inner shelf. A muddy patch, probably the result of a shadow zone due to local current patterns, is found south of Panama City and west of Cape San Blas. High carbonate areas correspond to hardbottoms and to thinning of the Pleistocene section near the coastline.

8) Relatively few outcrops or hardbottom areas were detected and some of those may be ephemeral, alternately covered and exposed as bedforms migrate during storms.

9) Sand waves, a dominant bedform, appear stationary under present hydrodynamic conditions. If sand waves in this study are migrating, the

topographically low hardbottoms adjacent to the sand waves are exposed only temporarily and may be buried by the Pleistocene sand sheet during the next frontal passage.

10) Megaripples do migrate in response to higher velocity currents associated with storms. When superimposed on sand waves, they may indicate an additional flow regime different from the one forming the sand wave.

11) Reticulation patterns may be the product of storm events. Alternatively, they may be an artifact in the side scan record caused by water surface reflections.

In summary, the inner shelf off northwest Florida is normally a low energy environment in which high energy events such as storms, frontal passages, and hurricanes occur. The surface morphology of the inner shelf reflects the influence of both high and low energy conditions.

In the subsurface, regressive erosional unconformities bound depositional sequences deposited during relatively high sea-level stands. The present, relatively sediment starved, clastic depositional regime is the latest phase in a complex and varied history that includes widespread fluvial-deltaic systems and open marine shelf deposits underlain by carbonate sequences.

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APPENDIX I

Navigation

APPENDIX I

Navigation
Florida State Waters Survey
December, 1986

EXPLANATION:
SOL = Start of line.
EOL = End of line.

(Note: Navigation for line 137 available only at sample stations)

DATE	TIME	LATITUDE	LONGITUDE	Station #
3		29.8347	85.4692	1 SOL 137
3		29.8598	85.4965	2
3		29.8842	85.5283	3
3		29.9077	85.5527	4
3		29.9327	85.5800	5
3		29.9548	85.6062	6
3		29.9773	85.6323	7
3		30.0023	85.6605	8
3		30.0277	85.6885	9
3		30.0508	85.7133	10
3		30.0758	85.7418	11
3		30.0975	85.7683	12
3		30.1178	85.7960	13
3		30.1448	85.8222	14
3		30.1692	85.8487	15
3		30.1938	85.8762	16
3		30.2188	85.9005	17

(begin routine navigation)

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
3	2220	30.1045	85.7277	SOL 141
3	2230	30.0955	85.7157	
3	2240	30.0875	85.7033	
3	2250	30.0790	85.6912	
3	2300	30.0697	85.6802	
3	2310	30.0597	85.6700	
3	2320	30.0498	85.6592	
3	2330	30.0403	85.6485	
3	2340	30.0308	85.6378	
3	2350	30.0210	85.6273	
4	0000	30.0113	85.6170	
4	0010	30.0015	85.6068	
4	0020	29.9918	85.5957	
4	0030	29.9823	85.5847	
4	0040	29.9727	85.5737	
4	0050	29.9628	85.5628	
4	0100	29.9528	85.5518	
4	0110	29.9432	85.5408	
4	0120	29.9335	85.5298	
4	0130	29.9238	85.5187	
4	0140	29.9140	85.5080	
4	0150	29.9045	85.4970	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
4	0200	29.8948	85.4862	
4	0210	29.8848	85.4762	
4	0220	29.8755	85.4660	
4	0230	29.8665	85.4550	
4	0240	29.8570	85.4443	
4	0250	29.8482	85.4337	
4	0253	29.8458	85.4303	EOL 141
4	0420	29.8032	85.4822	SOL 133
4	0430	29.8115	85.4915	
4	0440	29.8200	85.5017	
4	0450	29.8288	85.5118	
4	0500	29.8382	85.5218	
4	0510	29.8475	85.5322	
4	0520	29.8572	85.5423	
4	0530	29.8668	85.5530	
4	0540	29.8763	85.5642	
4	0550	29.8858	85.5755	
4	0600	29.8955	85.5865	
4	0610	29.9057	85.5970	
4	0620	29.9153	85.6078	
4	0630	29.9247	85.6185	
4	0640	29.9345	85.6298	
4	0650	29.9428	85.6398	
4	0700	29.9525	85.6510	
4	0710	29.9623	85.6618	
4	0720	29.9722	85.6728	
4	0730	29.9820	85.6838	
4	0740	29.9918	85.6945	
4	0750	30.0018	85.7053	
4	0800	30.0118	85.7167	
4	0810	30.0208	85.7287	
4	0820	30.0300	85.7407	
4	0830	30.0390	85.7527	
4	0840	30.0482	85.7643	
4	0850	30.0575	85.7763	
4	0900	30.0668	85.7887	
4	0910	30.0775	85.7985	
4	0920	30.0888	85.8078	
4	0930	30.1005	85.8168	
4	0940	30.1115	85.8272	
4	0950	30.1218	85.8388	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
4	1000	30.1320	85.8505	
4	1010	30.1423	85.8625	
4	1020	30.1525	85.8745	
4	1030	30.1625	85.8867	
4	1040	30.1727	85.8990	
4	1050	30.1835	85.9113	
4	1100	30.1955	85.9252	
4	1110	30.2080	85.9387	
4	1120	30.2202	85.9528	
4	1130	30.2332	85.9667	
4	1140	30.2462	85.9810	
4	1150	30.2588	85.9955	
4	1155	30.2647	86.0042	EOL 133
4	1250	30.2873	86.0868	SOL 129
4	1300	30.2768	86.0685	
4	1310	30.2625	86.0532	
4	1320	30.2485	86.0378	
4	1330	30.2345	86.0220	
4	1340	30.2207	86.0063	
4	1350	30.2070	85.9907	
4	1400	30.1933	85.9750	
4	1410	30.1798	85.9592	
4	1420	30.1662	85.9433	
4	1430	30.1530	85.9285	
4	1440	30.1418	85.9157	
4	1450	30.1303	85.9027	
4	1500	30.1188	85.8900	
4	1510	30.1077	85.8773	
4	1520	30.0960	85.8647	
4	1530	30.0847	85.8520	
4	1540	30.0732	85.8395	
4	1550	30.0622	85.8272	
4	1600	30.0503	85.8145	
4	1610	30.0390	85.8025	
4	1620	30.0273	85.7902	
4	1630	30.0158	85.7778	
4	1640	30.0060	85.7637	
4	1650	29.9963	85.7497	
4	1700	29.9858	85.7363	
4	1710	29.9738	85.7243	
4	1720	29.9618	85.7123	
4	1730	29.9503	85.6997	
4	1740	29.9398	85.6868	
4	1750	29.9295	85.6738	
4	1800	29.9188	85.6612	
4	1810	29.9082	85.6487	
4	1820	29.8973	85.6363	
4	1830	29.8862	85.6242	
4	1840	29.8747	85.6123	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
4	1850	29.8627	85.6010	
4	1900	29.8510	85.5890	
4	1910	29.8395	85.5773	
4	1920	29.8282	85.5655	
4	1930	29.8165	85.5537	
4	1940	29.8048	85.5417	
4	1950	29.7935	85.5292	
4	2000	29.7822	85.5170	EOL 129
4	2010	29.7677	85.5187	
4	2020	29.7660	85.5302	
4	2030	29.7685	85.5402	SOL 125
4	2040	29.7738	85.5485	
4	2050	29.7803	85.5560	
4	2100	29.7897	85.5655	
4	2110	29.7998	85.5770	
4	2120	29.8102	85.5887	
4	2130	29.8198	85.6010	
4	2140	29.8292	85.6133	
4	2150	29.8385	85.6235	
4	2200	29.8448	85.6312	
4	2210	29.8500	85.6365	
4	2220	29.8582	85.6445	
4	2230	29.8678	85.6563	
4	2240	29.8778	85.6680	
4	2250	29.8882	85.6793	
4	2300	29.8982	85.6907	
4	2310	29.9083	85.7023	
4	2320	29.9190	85.7135	
4	2330	29.9293	85.7243	
4	2340	29.9403	85.7355	
4	2350	29.9505	85.7470	
5	0000	29.9612	85.7585	
5	0010	29.9720	85.7707	
5	0020	29.9828	85.7828	
5	0030	29.9935	85.7953	
5	0040	30.0035	85.8078	
5	0050	30.0137	85.8207	
5	0100	30.0237	85.8333	
5	0110	30.0340	85.8457	
5	0120	30.0450	85.8572	
5	0130	30.0563	85.8687	
5	0140	30.0677	85.8802	
5	0150	30.0795	85.8920	
5	0200	30.0903	85.9035	
5	0210	30.1008	85.9162	
5	0220	30.1118	85.9283	
5	0230	30.1230	85.9405	
5	0240	30.1342	85.9527	
5	0250	30.1448	85.9655	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
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5	0310	30.1675	85.9900	
5	0320	30.1783	86.0028	
5	0330	30.1890	86.0157	
5	0340	30.2002	86.0287	
5	0350	30.2120	86.0413	
5	0400	30.2235	86.0542	
5	0410	30.2348	86.0672	
5	0420	30.2460	86.0798	
5	0430	30.2575	86.0925	
5	0440	30.2692	86.1053	
5	0450	30.2800	86.1183	
5	0500	30.2912	86.1310	
5	0510	30.3017	86.1442	
5	0520	30.3130	86.1575	
5	0526	30.3205	86.1657	EOL 125
5	0540	30.3282	86.1880	
5	0550	30.3333	86.2055	
5	0600	30.3382	86.2230	
5	0610	30.3425	86.2408	
5	0620	30.3307	86.2363	SOL 121
5	0630	30.3207	86.2198	
5	0640	30.3093	86.2047	
5	0650	30.2973	86.1895	
5	0700	30.2855	86.1748	
5	0710	30.2735	86.1598	
5	0720	30.2615	86.1448	
5	0730	30.2480	86.1315	
5	0740	30.2348	86.1177	
5	0750	30.2220	86.1037	
5	0800	30.2088	86.0900	
5	0810	30.1958	86.0762	
5	0820	30.1828	86.0625	
5	0830	30.1698	86.0488	
5	0840	30.1573	86.0357	
5	0850	30.1445	86.0223	
5	0900	30.1317	86.0092	
5	0910	30.1192	85.9958	
5	0920	30.1083	85.9813	
5	0930	30.0975	85.9667	
5	0940	30.0858	85.9513	
5	0950	30.0753	85.9378	
5	1000	30.0640	85.9238	
5	1010	30.0522	85.9107	
5	1020	30.0403	85.8973	
5	1030	30.0283	85.8840	
5	1040	30.0165	85.8708	
5	1050	30.0045	85.8578	
5	1100	29.9928	85.8447	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
5	1110	29.9810	85.8313	
5	1120	29.9690	85.8187	
5	1130	29.9568	85.8058	
5	1140	29.9447	85.7933	
5	1150	29.9335	85.7797	
5	1200	29.9223	85.7655	
5	1210	29.9112	85.7512	
5	1220	29.9007	85.7365	
5	1230	29.8882	85.7233	
5	1240	29.8757	85.7105	
5	1250	29.8627	85.6978	
5	1300	29.8497	85.6853	
5	1310	29.8367	85.6727	
5	1320	29.8235	85.6603	
5	1330	29.8098	85.6487	
5	1340	29.7967	85.6363	
5	1350	29.7857	85.6222	
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5	1410	29.7643	85.5925	
5	1420	29.7543	85.5782	
5	1430	29.7440	85.5633	
5	1434	29.7393	85.5568	EOL 121
5	1440	29.7310	85.5513	
5	1450	29.7140	85.5510	
5	1500	29.7068	85.5660	
5	1720	29.9105	85.7990	SOL 117
5	1726	29.9175	85.8067	
5	1730	29.9213	85.8110	
5	1740	29.9315	85.8233	
5	1750	29.9422	85.8355	
5	1800	29.9530	85.8467	
5	1810	29.9642	85.8580	
5	1820	29.9747	85.8695	
5	1830	29.9845	85.8825	
5	1840	29.9938	85.8953	
5	1850	30.0042	85.9073	
5	1900	30.0152	85.9195	
5	1910	30.0260	85.9312	
5	1920	30.0377	85.9427	
5	1930	30.0497	85.9537	
5	1940	30.0620	85.9650	
5	1950	30.0740	85.9768	
5	2000	30.0847	85.9903	
5	2010	30.0950	86.0043	
5	2020	30.1053	86.0178	
5	2030	30.1160	86.0315	
5	2040	30.1272	86.0442	
5	2050	30.1390	86.0565	
5	2100	30.1512	86.0687	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
5	2110	30.1632	86.0817	
5	2120	30.1745	86.0953	
5	2130	30.1858	86.1095	
5	2140	30.1973	86.1238	
5	2150	30.2085	86.1378	
5	2200	30.2198	86.1520	
5	2210	30.2318	86.1658	
5	2220	30.2442	86.1792	
5	2230	30.2568	86.1928	
5	2240	30.2693	86.2063	
5	2250	30.2822	86.2197	
5	2300	30.2950	86.2333	
5	2310	30.3068	86.2465	
5	2320	30.3188	86.2603	
5	2330	30.3302	86.2743	
5	2340	30.3420	86.2882	
5	2350	30.3542	86.3018	
5	2353	30.3585	86.3065	EOL 117
6	0000	30.3623	86.3188	
6	0010	30.3660	86.3387	
6	0020	30.3695	86.3588	
6	0030	30.3613	86.3708	SOL 113
6	0040	30.3515	86.3543	
6	0050	30.3408	86.3383	
6	0100	30.3287	86.3238	
6	0110	30.3167	86.3098	
6	0120	30.3058	86.2967	
6	0130	30.2947	86.2833	
6	0140	30.2825	86.2707	
6	0150	30.2717	86.2580	
6	0200	30.2607	86.2445	
6	0210	30.2495	86.2320	
6	0220	30.2380	86.2195	
6	0230	30.2268	86.2073	
6	0240	30.2160	86.1945	
6	0250	30.2055	86.1820	
6	0300	30.1947	86.1700	
6	0310	30.1840	86.1582	
6	0320	30.1737	86.1465	
6	0330	30.1633	86.1347	
6	0340	30.1532	86.1230	
6	0350	30.1427	86.1117	
6	0400	30.1327	86.0998	
6	0410	30.1230	86.0885	
6	0420	30.1137	86.0780	
6	0430	30.1040	86.0680	
6	0440	30.0947	86.0572	
6	0450	30.0858	86.0463	
6	0500	30.0762	86.0353	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
6	0510	30.0660	86.0245	
6	0520	30.0558	86.0135	
6	0530	30.0460	86.0022	
6	0540	30.0367	85.9912	
6	0550	30.0263	85.9792	
6	0600	30.0163	85.9673	
6	0607	30.0082	85.9590	EOL 113
6	0620	29.9900	85.9658	
6	0630	29.9907	85.9818	
6	0640	29.9990	85.9965	
6	0650	30.0093	86.0092	SOL 109
6	0700	30.0207	86.0208	
6	0710	30.0313	86.0330	
6	0720	30.0420	86.0450	
6	0730	30.0527	86.0577	
6	0740	30.0630	86.0705	
6	0750	30.0735	86.0832	
6	0800	30.0840	86.0960	
6	0810	30.0950	86.1083	
6	0820	30.1060	86.1198	
6	0830	30.1172	86.1318	
6	0840	30.1292	86.1450	
6	0850	30.1393	86.1562	
6	0900	30.1507	86.1683	
6	0910	30.1615	86.1810	
6	0920	30.1720	86.1940	
6	0930	30.1828	86.2073	
6	0940	30.1933	86.2202	
6	0950	30.2045	86.2332	
6	1010	30.2268	86.2575	
6	1020	30.2385	86.2695	
6	1030	30.2498	86.2818	
6	1040	30.2615	86.2940	
6	1050	30.2728	86.3067	
6	1100	30.2843	86.3190	
6	1110	30.2958	86.3315	
6	1120	30.3070	86.3447	
6	1130	30.3180	86.3575	
6	1140	30.3290	86.3710	
6	1150	30.3397	86.3837	
6	1200	30.3503	86.3968	
6	1210	30.3613	86.4095	
6	1220	30.3722	86.4220	
6	1222	30.3745	86.4245	EOL 109
6	1230	30.3777	86.4380	
6	1239	30.3787	86.4553	
6	1250	30.3777	86.4748	
6	1300	30.3663	86.4662	SOL 105
6	1310	30.3562	86.4537	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
6	1320	30.3455	86.4408	
6	1330	30.3350	86.4282	
6	1340	30.3243	86.4153	
6	1350	30.3140	86.4028	
6	1400	30.3035	86.3898	
6	1410	30.2933	86.3772	
6	1420	30.2827	86.3645	
6	1430	30.2710	86.3537	
6	1440	30.2595	86.3425	
6	1450	30.2485	86.3305	
6	1500	30.2377	86.3177	
6	1510	30.2262	86.3058	
6	1520	30.2150	86.2937	
6	1530	30.2043	86.2808	
6	1540	30.1935	86.2682	
6	1550	30.1827	86.2555	
6	1600	30.1715	86.2430	
6	1610	30.1602	86.2307	
6	1620	30.1490	86.2182	
6	1630	30.1375	86.2050	
6	1640	30.1273	86.1933	
6	1650	30.1163	86.1812	
6	1700	30.1053	86.1690	
6	1710	30.0945	86.1560	EOL 105
6	1720	30.0803	86.1568	
6	1730	30.0757	86.1732	
6	1740	30.0813	86.1895	
6	1750	30.0927	86.2013	
6	1800	30.1028	86.2135	
6	1810	30.1133	86.2260	
6	1830	30.1342	86.2517	SOL 101
6	1840	30.1448	86.2643	
6	1850	30.1553	86.2770	
6	1900	30.1668	86.2890	
6	1910	30.1780	86.3008	
6	1920	30.1893	86.3132	
6	1930	30.2005	86.3253	
6	1940	30.2115	86.3375	
6	1950	30.2227	86.3495	
6	2000	30.2338	86.3617	
6	2010	30.2452	86.3740	
6	2020	30.2565	86.3863	
6	2030	30.2678	86.3987	
6	2040	30.2793	86.4112	
6	2050	30.2910	86.4238	
6	2100	30.3028	86.4363	
6	2110	30.3148	86.4488	
6	2120	30.3262	86.4620	
6	2130	30.3372	86.4763	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
6	2140	30.3478	86.4902	
6	2150	30.3585	86.5043	
6	2200	30.3697	86.5187	
6	2210	30.3813	86.5317	EOL 101
6	2220	30.3847	86.5508	
6	2230	30.3873	86.5703	
6	2239	30.3848	86.5877	SOL 97
6	2250	30.3730	86.5793	
6	2300	30.3653	86.5655	
6	2310	30.3555	86.5535	
6	2320	30.3455	86.5418	
6	2330	30.3355	86.5303	
6	2340	30.3253	86.5183	
6	2350	30.3157	86.5073	
7	0000	30.3062	86.4963	
7	0010	30.2965	86.4860	
7	0020	30.2870	86.4752	
7	0030	30.2775	86.4650	
7	0040	30.2688	86.4538	
7	0050	30.2598	86.4430	
7	0100	30.2503	86.4327	
7	0110	30.2412	86.4225	
7	0120	30.2325	86.4123	
7	0130	30.2242	86.4025	
7	0140	30.2143	86.3915	
7	0150	30.2053	86.3820	
7	0200	30.1962	86.3715	
7	0210	30.1868	86.3600	
7	0220	30.1768	86.3493	
7	0230	30.1673	86.3382	
7	0240	30.1583	86.3275	
7	0250	30.1488	86.3178	
7	0301	30.1395	86.3063	EOL 97
7	0310	30.1320	86.2987	
7	0320	30.1240	86.2913	
7	0330	30.1183	86.2877	
7	0340	30.1238	86.3003	
7	0350	30.1328	86.3167	
7	0400	30.1420	86.3330	
7	0410	30.1510	86.3492	
7	0420	30.1602	86.3657	
7	0430	30.1693	86.3818	
7	0440	30.1785	86.3980	
7	0446	30.1842	86.4072	SOL 93
7	0450	30.1890	86.4127	
7	0500	30.2012	86.4260	
7	0510	30.2127	86.4398	
7	0520	30.2245	86.4533	
7	0530	30.2363	86.4668	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
7	0540	30.2482	86.4803	
7	0550	30.2600	86.4940	
7	0600	30.2718	86.5075	
7	0610	30.2837	86.5207	
7	0620	30.2953	86.5342	
7	0630	30.3073	86.5475	
7	0640	30.3188	86.5608	
7	0650	30.3303	86.5745	
7	0700	30.3420	86.5878	
7	0710	30.3540	86.6008	
7	0720	30.3655	86.6143	
7	0730	30.3772	86.6277	
7	0740	30.3885	86.6423	
7	0741	30.3900	86.6443	EOL 93
7	0750	30.3915	86.6618	
7	0800	30.3913	86.6828	
7	0810	30.3842	86.6890	SOL 89
7	0820	30.3773	86.6787	
7	0830	30.3687	86.6682	
7	0840	30.3595	86.6582	
7	0850	30.3507	86.6477	
7	0900	30.3422	86.6377	
7	0910	30.3337	86.6283	
7	0920	30.3257	86.6193	
7	0930	30.3178	86.6108	
7	0940	30.3100	86.6027	
7	0950	30.3027	86.5937	
7	1000	30.2950	86.5853	
7	1010	30.2882	86.5767	
7	1020	30.2805	86.5668	
7	1030	30.2730	86.5580	
7	1040	30.2652	86.5505	
7	1050	30.2573	86.5428	
7	1100	30.2492	86.5323	
7	1110	30.2393	86.5192	
7	1120	30.2297	86.5082	
7	1130	30.2183	86.4967	
7	1140	30.2073	86.4848	
7	1150	30.1965	86.4720	
7	1200	30.1852	86.4598	EOL 89
7	1210	30.1708	86.4597	
7	1220	30.1723	86.4832	
7	1230	30.1802	86.5007	
7	1233	30.1853	86.5058	SOL 85
7	1240	30.1932	86.5158	
7	1250	30.2050	86.5302	
7	1300	30.2172	86.5440	
7	1310	30.2290	86.5580	
7	1320	30.2410	86.5720	
7	1330	30.2530	86.5860	
7	1340	30.2650	86.6000	
7	1350	30.2777	86.6132	
7	1400	30.2897	86.6263	
7	1410	30.3018	86.6393	
7	1420	30.3132	86.6533	
7	1430	30.3247	86.6672	
7	1440	30.3362	86.6803	
7	1450	30.3478	86.6933	
7	1500	30.3598	86.7067	
7	1510	30.3712	86.7215	
7	1520	30.3817	86.7347	
7	1523	30.3862	86.7400	EOL 85
7	1542	30.3838	86.7750	
7	1543	30.3835	86.7772	
7	1544	30.3830	86.7790	
7	1600	30.3703	86.7777	SOL 81
7	1610	30.3637	86.7645	
7	1620	30.3547	86.7513	
7	1630	30.3435	86.7393	
7	1640	30.3335	86.7283	
7	1650	30.3230	86.7162	
7	1700	30.3125	86.7040	
7	1710	30.3020	86.6917	
7	1720	30.2913	86.6797	
7	1730	30.2803	86.6677	
7	1740	30.2700	86.6553	
7	1750	30.2595	86.6432	
7	1800	30.2492	86.6312	
7	1810	30.2392	86.6192	
7	1820	30.2292	86.6072	
7	1830	30.2188	86.5952	
7	1840	30.2078	86.5833	
7	1841	30.2065	86.5818	
7	1850	30.1970	86.5715	
7	1900	30.1855	86.5600	EOL 81
7	1910	30.1753	86.5665	
7	1920	30.1777	86.5857	
7	1930	30.1823	86.6047	
7	1940	30.1943	86.6182	SOL 77
7	1950	30.2067	86.6315	
7	2000	30.2187	86.6452	
7	2010	30.2303	86.6592	
7	2020	30.2418	86.6730	
7	2030	30.2535	86.6870	
7	2040	30.2650	86.7010	
7	2050	30.2770	86.7142	
7	2100	30.2895	86.7270	
7	2110	30.3017	86.7402	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID	DATE	TIME	LATITUDE	LONGITUDE	LINE ID
7	2120	30.3128	86.7545		8	0540	30.1887	86.7122	
7	2130	30.3247	86.7680		8	0550	30.2000	86.7257	
7	2140	30.3367	86.7817		8	0600	30.2118	86.7383	
7	2150	30.3488	86.7950		8	0610	30.2237	86.7520	
7	2200	30.3603	86.8080		8	0620	30.2357	86.7655	
7	2210	30.3717	86.8210		8	0630	30.2478	86.7790	
7	2214	30.3765	86.8263	EOL 77	8	0650	30.2728	86.8057	
7	2220	30.3778	86.8383		8	0700	30.2843	86.8198	
7	2230	30.3757	86.8585		8	0710	30.2953	86.8343	
7	2240	30.3645	86.8605	SOL 73	8	0720	30.3073	86.8478	
7	2250	30.3545	86.8510		8	0730	30.3192	86.8608	
7	2300	30.3448	86.8405		8	0740	30.3303	86.8730	
7	2310	30.3353	86.8300		8	0750	30.3420	86.8860	
7	2320	30.3258	86.8202		8	0800	30.3532	86.8988	
7	2330	30.3175	86.8090		8	0810	30.3645	86.9118	
7	2340	30.3080	86.7987		8	0811	30.3658	86.9132	EOL 69
7	2350	30.2990	86.7882		8	0820	30.3637	86.9298	
8	0000	30.2900	86.7775		8	0829	30.3602	86.9462	
8	0010	30.2807	86.7668		8	0832	30.3568	86.9480	SOL 65
8	0020	30.2717	86.7560		8	0840	30.3490	86.9397	
8	0030	30.2630	86.7460		8	0850	30.3375	86.9263	
8	0040	30.2540	86.7357		8	0900	30.3265	86.9127	
8	0050	30.2450	86.7250		8	0910	30.3153	86.8997	
8	0100	30.2362	86.7143		8	0920	30.3038	86.8865	
8	0110	30.2277	86.7042		8	0930	30.2923	86.8738	
8	0120	30.2192	86.6940		8	0940	30.2803	86.8618	
8	0130	30.2107	86.6845		8	0950	30.2685	86.8490	
8	0140	30.2023	86.6750		8	1000	30.2562	86.8365	
8	0150	30.1932	86.6647		8	1010	30.2435	86.8245	
8	0158	30.1858	86.6558	EOL 73	8	1020	30.2320	86.8108	
8	0220	30.1725	86.6425		8	1030	30.2210	86.7965	
8	0230	30.1665	86.6362		8	1040	30.2097	86.7820	
8	0240	30.1610	86.6298		8	1050	30.1977	86.7687	
8	0250	30.1558	86.6230		8	1057	30.1878	86.7605	EOL 65
8	0301	30.1502	86.6155		8	1100	30.1838	86.7577	
8	0310	30.1453	86.6095		8	1110	30.1695	86.7477	
8	0320	30.1400	86.6025		8	1120	30.1590	86.7603	
8	0330	30.1338	86.5948		8	1130	30.1612	86.7825	
8	0340	30.1340	86.6043		8	1142	30.1757	86.7993	
8	0350	30.1427	86.6157		8	1150	30.1868	86.8103	
8	0400	30.1497	86.6260		8	1200	30.1982	86.8232	
8	0420	30.1627	86.6502		8	1210	30.2097	86.8358	
8	0430	30.1683	86.6610		8	1220	30.2208	86.8485	
8	0440	30.1750	86.6730		8	1230	30.2322	86.8613	
8	0450	30.1792	86.6857		8	1240	30.2433	86.8742	
8	0500	30.1738	86.6892		9	0436	30.1877	86.8110	SOL 61
8	0510	30.1673	86.6837		9	0450	30.2018	86.8280	
8	0530	30.1808	86.6977		9	0500	30.2132	86.8400	
8	0537	30.1857	86.7083	SOL 69	9	0510	30.2243	86.8525	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
9	0520	30.2355	86.8652	
9	0530	30.2465	86.8780	
9	0540	30.2575	86.8912	
9	0550	30.2685	86.9042	
9	0600	30.2798	86.9167	
9	0610	30.2912	86.9292	
9	0620	30.3023	86.9425	
9	0630	30.3130	86.9567	
9	0640	30.3245	86.9693	
9	0650	30.3362	86.9817	
9	0700	30.3467	86.9948	
9	0704	30.3508	87.0003	EOL 61
9	0710	30.3502	87.0113	
9	0720	30.3463	87.0292	
9	0725	30.3418	87.0335	
9	0730	30.3375	87.0298	SOL 57
9	0740	30.3272	87.0208	
9	0750	30.3172	87.0100	
9	0800	30.3062	86.9975	
9	0810	30.2952	86.9848	
9	0820	30.2843	86.9722	
9	0830	30.2733	86.9595	
9	0840	30.2620	86.9462	
9	0850	30.2502	86.9332	
9	0900	30.2388	86.9200	
9	0910	30.2275	86.9065	
9	0920	30.2157	86.8933	
9	0930	30.2038	86.8800	
9	0940	30.1918	86.8665	
9	0945	30.1857	86.8588	EOL 57
9	1000	30.1642	86.8628	
9	1010	30.1663	86.8805	
9	1013	30.1685	86.8865	SOL 53
9	1020	30.1762	86.8980	
9	1030	30.1898	86.9115	
9	1040	30.2030	86.9262	
9	1050	30.2158	86.9412	
9	1100	30.2290	86.9558	
9	1110	30.2420	86.9705	
9	1120	30.2550	86.9855	
9	1130	30.2680	87.0000	
9	1140	30.2805	87.0138	
9	1150	30.2917	87.0265	
9	1200	30.3030	87.0392	
9	1210	30.3140	87.0530	
9	1220	30.3258	87.0685	
9	1228	30.3358	87.0813	EOL 53
9	1230	30.3367	87.0833	
9	1240	30.3327	87.1003	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
9	1250	30.3290	87.1160	
9	1256	30.3243	87.1217	SOL 49
9	1300	30.3208	87.1173	
9	1310	30.3138	87.1045	
9	1320	30.3058	87.0930	
9	1332	30.2950	87.0818	
9	1342	30.2880	87.0728	
9	1352	30.2788	87.0617	
9	1400	30.2692	87.0513	
9	1410	30.2583	87.0420	
9	1420	30.2482	87.0318	
9	1430	30.2388	87.0207	
9	1440	30.2288	87.0097	
9	1450	30.2180	86.9968	
9	1500	30.2063	86.9835	
9	1510	30.1943	86.9695	
9	1520	30.1837	86.9572	
9	1530	30.1723	86.9433	
9	1541	30.1597	86.9290	EOL 49
9	1550	30.1473	86.9270	
9	1600	30.1500	86.9458	
9	1610	30.1552	86.9652	
9	1617	30.1607	86.9793	SOL 45
9	1630	30.1763	86.9973	
9	1640	30.1888	87.0125	
9	1650	30.2015	87.0272	
9	1700	30.2140	87.0418	
9	1710	30.2265	87.0562	
9	1720	30.2388	87.0710	
9	1730	30.2517	87.0858	
9	1740	30.2648	87.1000	
9	1750	30.2775	87.1148	
9	1800	30.2895	87.1300	
9	1810	30.3020	87.1448	
9	1820	30.3148	87.1600	
9	1823	30.3197	87.1653	EOL 45
9	1830	30.3200	87.1780	
9	1840	30.3172	87.1987	
9	1845	30.3135	87.2048	SOL 41
9	1850	30.3073	87.1987	
9	1900	30.2955	87.1860	
9	1910	30.2843	87.1723	
9	1920	30.2733	87.1580	
9	1930	30.2625	87.1443	
9	1940	30.2512	87.1310	
9	1950	30.2395	87.1177	
9	2000	30.2285	87.1040	
9	2010	30.2167	87.0910	
9	2020	30.2043	87.0785	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
9	2111	30.1425	87.0093	EOL 41
9	2120	30.1297	87.0093	
9	2130	30.1275	87.0307	
9	2140	30.1353	87.0483	
9	2146	30.1428	87.0580	SOL 37
9	2150	30.1482	87.0633	
9	2200	30.1620	87.0768	
9	2210	30.1752	87.0915	
9	2220	30.1870	87.1057	
9	2230	30.1987	87.1203	
9	2240	30.2100	87.1343	
9	2250	30.2222	87.1490	
9	2300	30.2337	87.1637	
9	2310	30.2452	87.1787	
9	2320	30.2578	87.1923	
9	2330	30.2698	87.2063	
9	2340	30.2818	87.2208	
9	2350	30.2935	87.2353	
10	0000	30.3047	87.2487	EOL 37
10	0010	30.2990	87.2643	
10	0020	30.2892	87.2763	SOL 33
10	0030	30.2773	87.2652	
10	0040	30.2653	87.2530	
10	0050	30.2547	87.2397	
10	0100	30.2443	87.2265	
10	0110	30.2337	87.2135	
10	0120	30.2223	87.2012	
10	0130	30.2110	87.1887	
10	0140	30.1998	87.1758	
10	0150	30.1885	87.1630	
10	0200	30.1772	87.1502	
10	0210	30.1657	87.1370	
10	0220	30.1548	87.1240	
10	0230	30.1438	87.1115	
10	0231	30.1420	87.1095	EOL 33
10	0240	30.1348	87.1008	
10	0250	30.1282	87.0927	
10	0300	30.1203	87.0930	
10	0310	30.1142	87.1098	
10	0320	30.1132	87.1272	
10	0325	30.1197	87.1333	SOL 29
10	0330	30.1253	87.1390	
10	0340	30.1382	87.1513	
10	0350	30.1490	87.1645	
10	0400	30.1597	87.1782	
10	0410	30.1707	87.1913	
10	0420	30.1825	87.2042	
10	0430	30.1942	87.2172	
10	0440	30.2055	87.2307	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
10	0450	30.2165	87.2443	
10	0500	30.2265	87.2572	
10	0730	30.2168	87.2383	
10	0740	30.2265	87.2538	
10	0750	30.2372	87.2683	
10	0800	30.2485	87.2818	
10	0810	30.2598	87.2947	
10	0820	30.2712	87.3068	
10	0840	30.2948	87.3307	
10	0842	30.2975	87.3333	EOL 29
10	0850	30.2992	87.3465	
10	0900	30.2972	87.3655	
10	0910	30.2943	87.3838	
10	0913	30.2908	87.3858	SOL 25
10	0920	30.2858	87.3748	
10	0930	30.2755	87.3602	
10	0940	30.2630	87.3470	
10	0950	30.2512	87.3337	
10	1000	30.2393	87.3202	
10	1010	30.2275	87.3063	
10	1020	30.2160	87.2923	
10	1030	30.2045	87.2772	
10	1040	30.1947	87.2635	
10	1050	30.1815	87.2500	
10	1100	30.1687	87.2357	
10	1110	30.1577	87.2222	
10	1120	30.1470	87.2075	
10	1122	30.1427	87.2045	
10	1130	30.1342	87.1943	
10	1138	30.1218	87.1872	EOL 25
10	2050	30.1072	87.2342	
10	2057	30.1187	87.2343	SOL 21
10	2100	30.1233	87.2375	
10	2110	30.1365	87.2517	
10	2120	30.1488	87.2643	
10	2130	30.1593	87.2750	
10	2140	30.1695	87.2862	
10	2150	30.1798	87.2970	
10	2200	30.1900	87.3083	
10	2210	30.1998	87.3202	
10	2220	30.2098	87.3320	
10	2230	30.2193	87.3440	
10	2240	30.2285	87.3560	
10	2250	30.2372	87.3677	
10	2300	30.2462	87.3787	
10	2310	30.2585	87.3918	
10	2321	30.2723	87.4068	
10	2329	30.2818	87.4177	EOL 21
10	2340	30.2787	87.4405	SOL 17

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
10	2350	30.2718	87.4570	
11	0000	30.2605	87.4447	
11	0010	30.2500	87.4310	
11	0020	30.2393	87.4180	
11	0030	30.2285	87.4052	
11	0040	30.2180	87.3925	
11	0050	30.2075	87.3798	
11	0100	30.1977	87.3673	
11	0110	30.1880	87.3553	
11	0120	30.1788	87.3435	
11	0130	30.1688	87.3330	
11	0140	30.1590	87.3223	
11	0150	30.1490	87.3117	
11	0200	30.1392	87.3013	
11	0210	30.1290	87.2908	
11	0220	30.1195	87.2802	EOL 17
11	0250	30.0963	87.2685	
11	0300	30.0938	87.2830	
11	0310	30.1028	87.3013	
11	0320	30.1110	87.3195	
11	0329	30.1202	87.3328	SOL 13
11	0340	30.1325	87.3453	
11	0350	30.1435	87.3563	
11	0400	30.1555	87.3695	
11	0410	30.1675	87.3830	
11	0420	30.1798	87.3973	
11	0430	30.1917	87.4115	
11	0440	30.2025	87.4247	
11	0450	30.2135	87.4388	
11	0500	30.2245	87.4528	
11	0510	30.2358	87.4662	
11	0520	30.2475	87.4797	
11	0525	30.2525	87.4863	EOL 13
11	0530	30.2525	87.4965	
11	0540	30.2470	87.5168	
11	0550	30.2435	87.5373	
11	0600	30.2490	87.5375	
11	0610	30.2447	87.5212	SOL 9
11	0620	30.2352	87.5080	
11	0630	30.2238	87.4980	
11	0640	30.2137	87.4858	
11	0650	30.2033	87.4743	
11	0700	30.1923	87.4627	
11	0710	30.1817	87.4512	
11	0720	30.1713	87.4398	
11	0731	30.1603	87.4275	
11	0741	30.1508	87.4168	
11	0751	30.1430	87.4083	
11	0800	30.1353	87.4005	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
11	0810	30.1275	87.3917	
11	0820	30.1178	87.3788	
11	0830	30.1085	87.3663	
11	0836	30.1013	87.3597	EOL 9
11	0840	30.0963	87.3613	
11	0850	30.0838	87.3753	
11	0900	30.0825	87.3913	
11	0910	30.0973	87.4065	
11	0913	30.1020	87.4112	SOL 5
11	0920	30.1098	87.4200	
11	0930	30.1210	87.4320	
11	0940	30.1328	87.4447	
11	0950	30.1435	87.4568	
11	1000	30.1540	87.4695	
11	1010	30.1642	87.4822	
11	1020	30.1745	87.4953	
11	1030	30.1842	87.5078	
11	1040	30.1955	87.5198	
11	1050	30.2062	87.5302	
11	1100	30.2173	87.5407	
11	1110	30.2280	87.5522	
11	1120	30.2373	87.5648	
11	1123	30.2402	87.5683	EOL 5
11	1130	30.2412	87.5808	
11	1140	30.2402	87.5997	
11	1150	30.2363	87.6150	SOL 1
11	1200	30.2250	87.6028	
11	1210	30.2145	87.5908	
11	1220	30.2043	87.5783	
11	1230	30.1950	87.5657	
11	1240	30.1847	87.5535	
11	1250	30.1738	87.5423	
11	1300	30.1632	87.5308	
11	1310	30.1523	87.5193	
11	1320	30.1420	87.5078	
11	1330	30.1323	87.4955	
11	1340	30.1218	87.4833	
11	1350	30.1110	87.4717	
11	1400	30.0998	87.4600	EOL 1
11	1410	30.0887	87.4488	
11	1540	30.1725	87.6032	
11	1548	30.1840	87.5993	SOL 2
11	1600	30.1977	87.5863	
11	1610	30.2073	87.5738	
11	1620	30.2182	87.5625	
11	1630	30.2288	87.5520	
11	1640	30.2387	87.5405	
11	1650	30.2482	87.5283	
11	1700	30.2592	87.5175	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
11	1707	30.2672	87.5097	EOL 2
11	1710	30.2683	87.5047	
11	1730	30.2728	87.4703	
11	1740	30.2722	87.4552	SOL 6
11	1750	30.2595	87.4658	
11	1800	30.2482	87.4798	
11	1810	30.2357	87.4932	
11	1820	30.2232	87.5072	
11	1830	30.2107	87.5213	
11	1840	30.1980	87.5355	
11	1850	30.1855	87.5505	
11	1900	30.1735	87.5647	
11	1907	30.1645	87.5747	EOL 6
11	1910	30.1600	87.5778	
11	1920	30.1428	87.5817	
11	1930	30.1258	87.5830	
11	1938	30.1197	87.5760	SOL 10
11	1940	30.1217	87.5737	
11	1950	30.1337	87.5605	
11	2000	30.1438	87.5485	
11	2010	30.1532	87.5373	
11	2020	30.1630	87.5263	
11	2030	30.1730	87.5158	
11	2040	30.1835	87.5052	
11	2050	30.1933	87.4943	
11	2100	30.2027	87.4830	
11	2110	30.2113	87.4713	
11	2120	30.2207	87.4590	
11	2130	30.2303	87.4475	
11	2140	30.2398	87.4360	
11	2150	30.2503	87.4245	
11	2200	30.2605	87.4132	
11	2210	30.2715	87.4012	EOL 10
11	2220	30.2772	87.3863	
11	2230	30.2802	87.3693	
11	2240	30.2827	87.3527	
11	2250	30.2788	87.3442	SOL 14
11	2300	30.2663	87.3575	
11	2310	30.2548	87.3720	
11	2320	30.2427	87.3857	
11	2330	30.2300	87.3988	
11	2340	30.2177	87.4128	
11	2350	30.2058	87.4270	
12	0000	30.1940	87.4412	
12	0010	30.1820	87.4550	
12	0020	30.1695	87.4687	
12	0030	30.1580	87.4818	
12	0040	30.1448	87.4957	
12	0050	30.1337	87.5092	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
12	0100	30.1223	87.5232	
12	0110	30.1107	87.5373	
12	0119	30.0993	87.5498	EOL 14
12	0130	30.0870	87.5482	
12	0145	30.0858	87.5257	
12	0150	30.0895	87.5188	
12	0200	30.0962	87.5048	
12	0204	30.0997	87.4998	SOL 18
12	0210	30.1062	87.4932	
12	0220	30.1150	87.4807	
12	0230	30.1258	87.4685	
12	0240	30.1367	87.4558	
12	0250	30.1475	87.4437	
12	0300	30.1585	87.4313	
12	0310	30.1693	87.4185	
12	0320	30.1800	87.4058	
12	0330	30.1910	87.3932	
12	0340	30.2018	87.3815	
12	0350	30.2127	87.3698	
12	0400	30.2228	87.3588	
12	0410	30.2325	87.3482	
12	0420	30.2418	87.3370	
12	0430	30.2522	87.3247	
12	0440	30.2617	87.3122	
12	0450	30.2712	87.3007	
12	0500	30.2807	87.2890	
12	0510	30.2932	87.2762	
12	0520	30.3048	87.2643	
12	0521	30.3060	87.2632	EOL 18
12	0530	30.3068	87.2467	
12	0540	30.3063	87.2288	
12	0550	30.2980	87.2242	SOL 22
12	0600	30.2855	87.2358	
12	0610	30.2728	87.2497	
12	0620	30.2603	87.2622	
12	0630	30.2480	87.2775	
12	0640	30.2360	87.2932	
12	0650	30.2237	87.3088	
12	0700	30.2098	87.3245	
12	0710	30.1963	87.3403	
12	0720	30.1832	87.3560	
12	0730	30.1695	87.3707	
12	0740	30.1563	87.3832	
12	0751	30.1420	87.3972	
12	0800	30.1327	87.4090	
12	0810	30.1225	87.4232	
12	0820	30.1122	87.4373	
12	0830	30.1002	87.4497	
12	0831	30.0988	87.4507	EOL 22

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
12	0840	30.0910	87.4433	
12	0850	30.0880	87.4262	
12	0900	30.0932	87.4112	
12	0907	30.0982	87.4008	SOL 26
12	0910	30.1017	87.3972	
12	0920	30.1135	87.3867	
12	0930	30.1243	87.3747	
12	0940	30.1343	87.3608	
12	0950	30.1447	87.3475	
12	1000	30.1543	87.3352	
12	1010	30.1632	87.3238	
12	1020	30.1725	87.3135	
12	1030	30.1822	87.3033	
12	1040	30.1918	87.2928	
12	1050	30.2022	87.2812	
12	1100	30.2103	87.2712	
12	1110	30.2197	87.2597	
12	1120	30.2297	87.2487	
12	1130	30.2402	87.2373	
12	1140	30.2517	87.2257	
12	1150	30.2613	87.2157	
12	1200	30.2717	87.2043	
12	1210	30.2818	87.1927	
12	1220	30.2922	87.1810	
12	1230	30.3023	87.1688	
12	1240	30.3123	87.1565	
12	1244	30.3172	87.1505	EOL 26
12	1250	30.3183	87.1418	
12	1300	30.3173	87.1238	
12	1310	30.3162	87.1057	
12	1313	30.3132	87.1025	SOL 30
12	1320	30.3063	87.1118	
12	1330	30.2953	87.1258	
12	1340	30.2835	87.1393	
12	1350	30.2718	87.1520	
12	1400	30.2603	87.1653	
12	1410	30.2492	87.1780	
12	1420	30.2385	87.1905	
12	1430	30.2280	87.2025	
12	1440	30.2173	87.2148	
12	1450	30.2068	87.2273	
12	1500	30.1958	87.2395	
12	1510	30.1850	87.2512	
12	1520	30.1742	87.2630	
12	1530	30.1640	87.2757	
12	1540	30.1540	87.2880	
12	1550	30.1438	87.3002	
12	1600	30.1337	87.3122	
12	1610	30.1227	87.3242	EOL 30

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
12	1640	30.0880	87.3348	
12	1650	30.0758	87.3247	
12	1700	30.0843	87.3120	
12	1710	30.0938	87.2993	
12	1720	30.1028	87.2883	
12	1730	30.1138	87.2798	
12	1737	30.1218	87.2738	SOL 34
12	1740	30.1247	87.2710	
12	1750	30.1338	87.2597	
12	1800	30.1415	87.2490	
12	1820	30.1660	87.2298	
12	1830	30.1763	87.2165	
12	1840	30.1862	87.2023	
12	1850	30.1980	87.1898	
12	1900	30.2093	87.1768	
12	1910	30.2207	87.1638	
12	1920	30.2322	87.1503	
12	1930	30.2440	87.1370	
12	1940	30.2553	87.1237	
12	1950	30.2668	87.1098	
12	2000	30.2780	87.0960	
12	2010	30.2898	87.0823	
12	2020	30.3022	87.0682	
12	2030	30.3145	87.0542	
12	2040	30.3267	87.0398	EOL 34
12	2050	30.3310	87.0182	
12	2100	30.3338	86.9950	
12	2110	30.3297	86.9833	SOL 38
12	2120	30.3195	86.9983	
12	2130	30.3082	87.0117	
12	2140	30.2968	87.0253	
12	2150	30.2853	87.0390	
12	2200	30.2735	87.0522	
12	2210	30.2613	87.0647	
12	2220	30.2495	87.0772	
12	2230	30.2383	87.0905	
12	2240	30.2277	87.1033	
12	2250	30.2163	87.1163	
12	2300	30.2052	87.1295	
12	2310	30.1938	87.1425	
12	2320	30.1827	87.1555	
12	2330	30.1717	87.1688	
12	2340	30.1603	87.1823	
12	2350	30.1488	87.1958	
13	0000	30.1367	87.2080	
13	0010	30.1247	87.2208	
13	0013	30.1203	87.2253	EOL 38
13	0020	30.1100	87.2255	
13	0030	30.1007	87.2105	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
13	0042	30.1090	87.1932	
13	0050	30.1157	87.1837	
13	0110	30.1320	87.1618	SOL 42
13	0120	30.1422	87.1503	
13	0130	30.1528	87.1390	
13	0140	30.1633	87.1273	
13	0150	30.1742	87.1148	
13	0200	30.1848	87.1023	
13	0210	30.1960	87.0898	
13	0220	30.2067	87.0772	
13	0230	30.2178	87.0642	
13	0240	30.2292	87.0510	
13	0250	30.2402	87.0377	
13	0300	30.2510	87.0252	
13	0310	30.2635	87.0107	
13	0320	30.2758	86.9960	
13	0330	30.2877	86.9813	
13	0340	30.3003	86.9665	
13	0350	30.3128	86.9515	
13	0400	30.3257	86.9372	
13	0410	30.3378	86.9232	
13	0420	30.3503	86.9088	
13	0430	30.3623	86.8962	EOL 42
13	0440	30.3678	86.8823	
13	0451	30.3720	86.8662	
13	0500	30.3757	86.8518	
13	0510	30.3778	86.8377	
13	0530	30.3683	86.8383	SOL 46
13	0540	30.3578	86.8525	
13	0550	30.3458	86.8657	
13	0600	30.3335	86.8793	
13	0610	30.3223	86.8932	
13	0620	30.3097	86.9055	
13	0630	30.2980	86.9190	
13	0640	30.2855	86.9330	
13	0650	30.2740	86.9470	
13	0700	30.2633	86.9612	
13	0710	30.2525	86.9747	
13	0720	30.2403	86.9880	
13	0730	30.2290	87.0018	
13	0740	30.2173	87.0152	
13	0750	30.2057	87.0292	
13	0800	30.1940	87.0427	
13	0810	30.1820	87.0565	
13	0820	30.1703	87.0700	
13	0830	30.1585	87.0835	
13	0840	30.1460	87.0965	
13	0841	30.1440	87.0980	EOL 46
13	0851	30.1293	87.0973	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
13	0928	30.1448	87.0490	SOL 50
13	0930	30.1462	87.0460	
13	0940	30.1545	87.0380	
13	0950	30.1637	87.0287	
13	1000	30.1718	87.0180	
13	1010	30.1797	87.0073	
13	1020	30.1880	86.9962	
13	1030	30.1970	86.9852	
13	1040	30.2065	86.9747	
13	1050	30.2170	86.9630	
13	1101	30.2297	86.9497	
13	1111	30.2395	86.9387	
13	1121	30.2510	86.9255	
13	1130	30.2635	86.9122	
13	1140	30.2752	86.8990	
13	1150	30.2872	86.8843	
13	1200	30.2992	86.8697	
13	1210	30.3115	86.8545	
13	1220	30.3238	86.8390	
13	1230	30.3363	86.8235	
13	1240	30.3498	86.8077	
13	1250	30.3627	86.7932	
13	1255	30.3693	86.7853	EOL 50
13	1300	30.3713	86.7747	
13	1309	30.3725	86.7538	
13	1320	30.3693	86.7352	SOL 54
13	1330	30.3572	86.7518	
13	1340	30.3435	86.7673	
13	1350	30.3298	86.7828	
13	1400	30.3160	86.7985	
13	1410	30.3027	86.8143	
13	1420	30.2892	86.8300	
13	1430	30.2752	86.8453	
13	1440	30.2618	86.8607	
13	1450	30.2488	86.8762	
13	1500	30.2360	86.8920	
13	1510	30.2232	86.9075	
13	1520	30.2098	86.9217	
13	1530	30.1965	86.9360	
13	1540	30.1838	86.9513	
13	1550	30.1717	86.9667	
13	1554	30.1663	86.9728	EOL 54
13	1600	30.1577	86.9727	
13	1610	30.1507	86.9523	
13	1620	30.1587	86.9323	
13	1624	30.1628	86.9260	SOL 58
13	1630	30.1700	86.9165	
13	1640	30.1820	86.9015	
13	1650	30.1947	86.8872	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
13	1700	30.2077	86.8725	
13	1710	30.2203	86.8577	
13	1720	30.2327	86.8442	
13	1730	30.2450	86.8308	
13	1740	30.2570	86.8167	
13	1750	30.2687	86.8023	
13	1800	30.2807	86.7888	
13	1810	30.2935	86.7745	
13	1820	30.3048	86.7615	
13	1830	30.3158	86.7490	
13	1840	30.3272	86.7365	
13	1850	30.3387	86.7238	
13	1900	30.3500	86.7112	
13	1910	30.3623	86.6978	
13	1920	30.3730	86.6850	EOL 58
13	1931	30.3730	86.6630	
13	1940	30.3707	86.6467	
13	1950	30.3638	86.6375	SOL 62
13	2000	30.3565	86.6550	
13	2010	30.3450	86.6668	
13	2020	30.3325	86.6800	
13	2030	30.3208	86.6927	
13	2040	30.3088	86.7062	
13	2050	30.2972	86.7198	
13	2100	30.2852	86.7337	
13	2110	30.2740	86.7473	
13	2120	30.2625	86.7610	
13	2130	30.2512	86.7742	
13	2140	30.2400	86.7873	
13	2150	30.2290	86.8005	
13	2200	30.2180	86.8135	
13	2210	30.2070	86.8262	
13	2220	30.1963	86.8393	
13	2227	30.1888	86.8482	
13	2230	30.1855	86.8517	EOL 62
13	2240	30.1742	86.8633	
13	2250	30.1687	86.8557	
13	2300	30.1707	86.8398	
13	2310	30.1745	86.8252	
13	2320	30.1787	86.8110	
13	2330	30.1870	86.7973	SOL 66
13	2340	30.1965	86.7852	
13	2350	30.2060	86.7733	
14	0000	30.2160	86.7617	
14	0010	30.2265	86.7503	
14	0020	30.2370	86.7387	
14	0030	30.2478	86.7267	
14	0040	30.2583	86.7152	
14	0050	30.2688	86.7030	
14	0100	30.2790	86.6910	
14	0110	30.2895	86.6790	
14	0120	30.3002	86.6670	
14	0130	30.3102	86.6548	
14	0140	30.3203	86.6423	
14	0150	30.3307	86.6297	
14	0200	30.3403	86.6175	
14	0210	30.3507	86.6048	
14	0220	30.3613	86.5933	
14	0230	30.3725	86.5812	
14	0236	30.3793	86.5738	EOL 66
14	0240	30.3798	86.5662	
14	0250	30.3755	86.5453	
14	0300	30.3672	86.5400	
14	0310	30.3548	86.5543	
14	2157	30.1650	86.7777	
14	2200	30.1620	86.7793	
14	2220	30.1792	86.7568	
14	2228	30.1873	86.7467	SOL 70
14	2240	30.1980	86.7345	
14	2250	30.2080	86.7242	
14	2300	30.2185	86.7125	
14	2310	30.2295	86.7007	
14	2320	30.2395	86.6880	
14	2330	30.2500	86.6755	
14	2340	30.2608	86.6632	
14	2350	30.2720	86.6508	
15	0000	30.2825	86.6382	
15	0010	30.2933	86.6250	
15	0020	30.3043	86.6117	
15	0030	30.3148	86.5980	
15	0040	30.3257	86.5845	
15	0050	30.3362	86.5718	
15	0100	30.3473	86.5593	
15	0110	30.3585	86.5462	
15	0120	30.3703	86.5327	EOL 70
15	0140	30.3740	86.4880	
15	0144	30.3690	86.4883	SOL 74
15	0150	30.3615	86.4960	
15	0200	30.3495	86.5102	
15	0210	30.3367	86.5248	
15	0220	30.3238	86.5397	
15	0230	30.3108	86.5547	
15	0240	30.2980	86.5698	
15	0250	30.2850	86.5848	
15	0300	30.2720	86.5998	
15	0310	30.2590	86.6152	
15	0320	30.2457	86.6302	
15	0330	30.2323	86.6453	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
15	0340	30.2192	86.6605	
15	0350	30.2063	86.6757	
15	0400	30.1930	86.6902	
15	0404	30.1867	86.6970	EOL 74
15	0410	30.1785	86.6957	
15	0420	30.1757	86.6737	
15	0430	30.1833	86.6523	
15	0433	30.1865	86.6482	SOL 78
15	0440	30.1943	86.6395	
15	0450	30.2053	86.6247	
15	0500	30.2163	86.6098	
15	0510	30.2280	86.5955	
15	0520	30.2400	86.5820	
15	0530	30.2523	86.5685	
15	0540	30.2640	86.5557	
15	0550	30.2760	86.5422	
15	0600	30.2882	86.5285	
15	0610	30.3003	86.5148	
15	0620	30.3125	86.5005	
15	0630	30.3242	86.4857	
15	0640	30.3362	86.4703	
15	0650	30.3488	86.4557	
15	0700	30.3618	86.4413	EOL 78
15	0710	30.3627	86.4173	
15	0720	30.3603	86.3945	
15	0722	30.3568	86.3955	SOL 82
15	0730	30.3512	86.4108	
15	0740	30.3382	86.4267	
15	0750	30.3225	86.4393	
15	0800	30.3093	86.4543	
15	0810	30.2955	86.4693	
15	0820	30.2825	86.4855	
15	0830	30.2692	86.5005	
15	0840	30.2562	86.5162	
15	0850	30.2435	86.5318	
15	0900	30.2310	86.5478	
15	0910	30.2187	86.5635	
15	0920	30.2050	86.5778	
15	0930	30.1922	86.5915	
15	0933	30.1880	86.5955	EOL 82
15	0940	30.1813	86.5880	
15	0950	30.1822	86.5663	
15	1000	30.1870	86.5468	SOL 86
15	1010	30.2000	86.5337	
15	1020	30.2108	86.5192	
15	1030	30.2222	86.5043	
15	1041	30.2358	86.4882	
15	1050	30.2470	86.4747	
15	1100	30.2580	86.4612	
15	1110	30.2702	86.4465	
15	1120	30.2827	86.4320	
15	1130	30.2953	86.4180	
15	1140	30.3080	86.4035	
15	1150	30.3213	86.3883	
15	1200	30.3338	86.3738	
15	1210	30.3467	86.3585	
15	1216	30.3545	86.3492	EOL 86
15	1230	30.3530	86.3158	
15	1235	30.3490	86.3080	SOL 90
15	1240	30.3413	86.3150	
15	1250	30.3278	86.3303	
15	1300	30.3150	86.3465	
15	1310	30.3018	86.3623	
15	1320	30.2888	86.3782	
15	1330	30.2755	86.3935	
15	1340	30.2623	86.4090	
15	1350	30.2490	86.4245	
15	1400	30.2352	86.4397	
15	1410	30.2217	86.4552	
15	1420	30.2082	86.4703	
15	1430	30.1950	86.4852	
15	1437	30.1858	86.4955	EOL 90
15	1440	30.1807	86.4975	
15	1450	30.1732	86.4765	
15	1502	30.1803	86.4535	
15	1507	30.1872	86.4452	SOL 94
15	1510	30.1907	86.4412	
15	1520	30.2035	86.4267	
15	1530	30.2155	86.4122	
15	1540	30.2275	86.3967	
15	1550	30.2403	86.3810	
15	1600	30.2532	86.3663	
15	1610	30.2660	86.3522	
15	1620	30.2788	86.3373	
15	1630	30.2915	86.3225	
15	1640	30.3038	86.3078	
15	1650	30.3168	86.2932	
15	1700	30.3290	86.2787	
15	1710	30.3413	86.2642	
15	1714	30.3458	86.2590	EOL 94
15	1744	30.3283	86.2273	SOL 98
15	1750	30.3210	86.2360	
15	1800	30.3082	86.2522	
15	1810	30.2950	86.2688	
15	1820	30.2823	86.2853	
15	1830	30.2692	86.3012	
15	1840	30.2562	86.3172	
15	1850	30.2423	86.3328	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID	DATE	TIME	LATITUDE	LONGITUDE	LINE ID
17	0216	30.0105	85.9448	SOL 150	17	1022	29.9880	85.8188	
17	0220	30.0152	85.9410		17	1030	29.9755	85.8335	
17	0230	30.0247	85.9257		17	1040	29.9635	85.8478	
17	0240	30.0358	85.9118		17	1050	29.9513	85.8625	
17	0250	30.0492	85.8980		17	1056	29.9435	85.8698	EOL 162
17	0300	30.0603	85.8845		17	1100	29.9367	85.8710	
17	0310	30.0725	85.8705		17	1110	29.9217	85.8620	
17	0321	30.0860	85.8553		17	1120	29.9213	85.8463	SOL 166
17	0330	30.0970	85.8427		17	1130	29.9337	85.8317	
17	0340	30.1092	85.8295		17	1140	29.9462	85.8163	
17	0350	30.1215	85.8150		17	1150	29.9585	85.8010	
17	0400	30.1328	85.7995		17	1200	29.9710	85.7852	
17	0410	30.1453	85.7852	EOL 150	17	1210	29.9840	85.7702	
17	0420	30.1365	85.7685		17	1220	29.9977	85.7553	
17	0430	30.1232	85.7607	SOL 154	17	1230	30.0107	85.7407	
17	0440	30.1097	85.7753		17	1240	30.0237	85.7257	
17	0450	30.0968	85.7917		17	1250	30.0367	85.7105	
17	0500	30.0848	85.8062		17	1300	30.0507	85.6943	
17	0510	30.0723	85.8202		17	1310	30.0630	85.6807	
17	0520	30.0605	85.8338		17	1313	30.0673	85.6758	EOL 166
17	0530	30.0483	85.8480		17	1320	30.0667	85.6642	
17	0540	30.0365	85.8627		17	1330	30.0590	85.6463	
17	0550	30.0238	85.8763		17	1336	30.0520	85.6422	SOL 170
17	0600	30.0120	85.8908		17	1340	30.0465	85.6487	
17	0610	30.0002	85.9058		17	1350	30.0330	85.6643	
17	0620	29.9887	85.9203	EOL 154	17	1400	30.0193	85.6795	
17	0630	29.9735	85.9168		17	1410	30.0068	85.6942	
17	0640	29.9623	85.9042		17	1420	29.9947	85.7088	
17	0643	29.9643	85.8975	SOL 158	17	1430	29.9822	85.7227	
17	0650	29.9730	85.8887		17	1440	29.9702	85.7368	
17	0700	29.9828	85.8747		17	1450	29.9587	85.7513	
17	0710	29.9958	85.8617		17	1500	29.9463	85.7647	
17	0720	30.0078	85.8477		17	1510	29.9348	85.7793	
17	0730	30.0183	85.8323		17	1520	29.9227	85.7918	
17	0740	30.0300	85.8178		17	1525	29.9175	85.7988	EOL 170
17	0750	30.0418	85.8035		17	1530	29.9108	85.7955	
17	0800	30.0535	85.7892		17	1546	29.8987	85.7718	SOL 174
17	0810	30.0652	85.7745		17	1553	29.9085	85.7623	
17	0820	30.0775	85.7597		17	1600	29.9165	85.7508	
17	0830	30.0902	85.7467		17	1610	29.9247	85.7387	
17	0837	30.1003	85.7368	EOL 158	17	1620	29.9362	85.7243	
17	0902	30.0850	85.7035	SOL 162	17	1630	29.9498	85.7113	
17	0910	30.0753	85.7162		17	1640	29.9628	85.6973	
17	0920	30.0627	85.7308		17	1650	29.9743	85.6817	
17	0930	30.0492	85.7442		17	1700	29.9863	85.6663	
17	0940	30.0373	85.7597		17	1710	29.9995	85.6520	
17	0950	30.0248	85.7743		17	1720	30.0123	85.6378	
17	1002	30.0102	85.7920		17	1730	30.0243	85.6233	
17	1012	30.0002	85.8042		17	1734	30.0292	85.6178	EOL 174

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
17	1740	30.0267	85.6095	
17	1759	30.0105	85.5940	SOL 178
17	1810	29.9963	85.6085	
17	1820	29.9837	85.6222	
17	1830	29.9713	85.6358	
17	1840	29.9593	85.6502	
17	1850	29.9475	85.6645	
17	1900	29.9355	85.6788	
17	1910	29.9237	85.6930	
17	1920	29.9118	85.7068	
17	1930	29.8997	85.7202	
17	1940	29.8878	85.7337	
17	1950	29.8758	85.7468	EOL 178
17	2000	29.8615	85.7392	
17	2010	29.8523	85.7253	SOL 182
17	2020	29.8647	85.7088	
17	2030	29.8782	85.6933	
17	2040	29.8917	85.6777	
17	2050	29.9048	85.6620	
17	2100	29.9182	85.6463	
17	2110	29.9320	85.6295	
17	2120	29.9450	85.6138	
17	2130	29.9582	85.5982	
17	2140	29.9717	85.5835	
17	2150	29.9855	85.5692	EOL 182
17	2200	29.9882	85.5522	
17	2210	29.9742	85.5425	
17	2216	29.9663	85.5408	SOL 186
17	2220	29.9613	85.5450	
17	2230	29.9490	85.5580	
17	2240	29.9373	85.5725	
17	2250	29.9253	85.5862	
17	2300	29.9147	85.6005	
17	2310	29.9033	85.6140	
17	2320	29.8915	85.6272	
17	2330	29.8800	85.6400	
17	2340	29.8692	85.6532	
17	2350	29.8580	85.6667	
18	0000	29.8467	85.6792	
18	0010	29.8358	85.6927	
18	0016	29.8288	85.7008	EOL 186
18	0020	29.8222	85.6998	
18	0030	29.8102	85.6833	
18	0035	29.8088	85.6732	SOL 190
18	0040	29.8147	85.6658	
18	0050	29.8268	85.6513	
18	0100	29.8397	85.6378	
18	0110	29.8517	85.6238	
18	0120	29.8633	85.6095	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
18	0130	29.8750	85.5947	
18	0140	29.8873	85.5808	
18	0150	29.8995	85.5667	
18	0200	29.9120	85.5527	
18	0210	29.9243	85.5383	
18	220	29.93667	85.524	
18	222	29.93917	85.521167	EOL 190
18	230	29.933	85.510167	
18	240	29.918	85.4985	
18	242	29.91483	85.498	SOL 194
18	250	29.90617	85.508667	
18	300	29.89433	85.522833	
18	310	29.8825	85.537	
18	320	29.87	85.551	
18	330	29.85783	85.564667	
18	340	29.8455	85.5785	
18	350	29.83367	85.593167	
18	400	29.822	85.607167	
18	410	29.81	85.621	
18	420	29.79833	85.6345	
18	430	29.78617	85.649833	EOL 194
18	440	29.77217	85.645	
18	450	29.763	85.626833	
18	452	29.76483	85.622833	SOL 198
18	500	29.77467	85.612167	
18	510	29.78733	85.598667	
18	520	29.79983	85.584167	
18	530	29.81167	85.5695	
18	540	29.8235	85.555	
18	550	29.836	85.540667	
18	600	29.84883	85.526833	
18	610	29.86067	85.512333	
18	620	29.87267	85.4975	
18	630	29.88483	85.483	EOL 198
18	650	29.86683	85.4545	SOL 202
18	700	29.855	85.4675	
18	710	29.843	85.481167	
18	720	29.83117	85.4955	
18	731	29.818	85.5115	
18	741	29.806	85.524667	
18	750	29.79467	85.537	
18	800	29.7825	85.551	
18	810	29.77067	85.5655	
18	820	29.75933	85.580333	
18	830	29.74733	85.594667	
18	833	29.74383	85.598	EOL 202

APPENDIX II

Surface Sediment Grain Size Data

Station locations given in appendix III. The correspondence between the phi scale and size class (Folk, 1974) is provided below:

phi	size class
	Granule and large
-1	-----------------------
	Very coarse sand
0	-----------------------
	Coarse sand
1	-----------------------
	Medium sand
2	-----------------------
	Fine sand
3	-----------------------
	Very fine sand
4	-----------------------
	Coarse silt
5	-----------------------
	Medium - very fine silt
8	-----------------------
	Clay

APPENDIX II

Florida State Waters - Bottom Sediment Grain Size Data

Weight Percent

Sta.#	Phi Interval >-1	-1-0 VCS	0-1 CS	1-2 MS	2-3 FS	3-4 VFS	4-8 SILT	<8 CLAY
1	0.14	0.53	9.55	68.55	20.77	0.45	0.02	0.00
2	1.33	0.55	6.24	49.35	40.71	1.62	0.16	0.04
3	0.16	0.25	2.18	11.64	70.47	4.06	7.50	3.75
4	1.11	0.27	2.20	20.03	55.68	6.61	8.26	5.83
5	0.04	0.18	2.77	31.59	46.64	5.00	7.95	5.83
6	0.16	2.04	23.08	39.06	7.54	1.83	15.55	10.73
7	1.46	1.03	10.69	54.83	26.49	1.46	2.52	1.51
8	0.28	0.18	4.27	28.73	44.81	8.54	7.91	5.27
9	0.70	1.14	5.31	21.82	59.55	3.27	5.32	2.90
10	0.56	0.80	4.69	53.69	38.85	1.40	0.02	0.00
11	2.47	5.12	44.15	34.44	13.04	0.73	0.05	0.01
12	0.25	0.82	11.70	68.20	18.06	0.91	0.05	0.01
13	0.51	1.80	33.86	54.48	6.80	2.52	0.04	0.01
14	1.85	2.02	4.10	8.14	74.51	8.76	0.50	0.12
15	2.89	8.33	50.63	32.68	4.71	0.58	0.15	0.04
16	2.25	4.34	24.86	52.45	12.36	3.65	0.07	0.02
17	0.27	0.42	10.77	58.98	28.49	1.04	0.02	0.01
18	0.47	1.81	30.41	53.77	13.32	0.21	0.01	0.00
19	0.02	0.15	1.22	23.43	68.22	6.90	0.05	0.01
20	0.65	0.66	5.47	31.85	55.75	5.33	0.23	0.06
21	1.72	4.43	31.59	50.11	10.74	1.22	0.15	0.04
22	0.58	0.78	3.67	21.85	57.76	14.68	0.54	0.13
23	0.12	0.20	2.51	30.31	64.89	1.84	0.10	0.03
24	0.06	0.22	3.80	43.06	52.06	0.64	0.14	0.03
25	0.01	0.19	2.60	35.47	55.18	6.47	0.06	0.01
26	0.03	0.06	2.42	75.18	21.81	0.44	0.04	0.01
27	5.83	0.86	3.63	34.77	53.63	1.20	0.06	0.02
28	3.33	0.34	2.23	28.79	57.11	8.19	0.02	0.01
29	0.10	0.28	2.61	52.30	43.59	1.03	0.07	0.02
30	0.41	1.19	10.90	45.47	29.32	8.38	1.92	2.40
31	0.09	0.24	3.22	19.38	69.37	6.85	0.67	0.17
32	0.86	0.52	4.42	46.65	38.99	6.59	1.57	0.39
33	0.02	0.01	2.16	40.87	34.08	4.16	10.39	8.31
34	0.25	0.44	1.49	27.69	66.95	2.71	0.38	0.09
35	0.34	1.21	11.65	39.80	16.89	2.85	15.73	11.54
36	1.00	0.15	3.24	37.84	45.16	2.35	4.20	6.06
37	10.54	21.88	38.08	14.15	12.58	2.10	0.53	0.13
38	0.24	0.68	5.94	65.31	23.99	3.72	0.09	0.02
39	0.21	0.84	5.48	80.30	12.41	0.56	0.16	0.04
40	1.88	4.51	51.83	36.37	5.03	0.31	0.05	0.01
41	4.59	19.98	59.84	14.33	0.98	0.18	0.08	0.02
42	5.08	13.42	26.98	34.35	19.06	0.87	0.19	0.05
43	0.64	1.60	5.12	17.95	66.94	7.31	0.44	0.00
44	0.02	0.25	0.95	11.13	76.99	10.18	0.39	0.10
46	5.80	15.49	60.10	15.68	2.64	0.21	0.07	0.02
47	3.46	11.05	58.05	24.67	2.52	0.14	0.08	0.02
48	2.94	4.88	6.46	16.74	53.46	13.62	1.52	0.38
49	4.65	39.57	41.32	12.40	1.97	0.07	0.02	0.01
50	1.65	6.82	13.99	56.99	19.73	0.70	0.11	0.03
51	3.63	23.63	46.46	22.57	0.13	3.44	0.12	0.03

/------------------	Phi Interval	--------------------------\						
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
52	1.94	11.47	44.31	38.54	3.45	0.21	0.07	0.02
53	0.83	0.85	3.69	25.39	64.49	4.33	0.34	0.08
54	1.38	24.03	55.61	16.33	2.07	0.47	0.09	0.02
55	0.44	1.32	6.17	38.54	51.60	1.48	0.36	0.09
56	3.64	14.79	46.27	27.44	6.84	0.73	0.23	0.06
57	0.47	3.19	22.38	58.27	9.27	6.22	0.16	0.04
58	0.06	0.22	1.68	24.48	71.65	1.66	0.21	0.05
59	4.91	1.32	16.66	61.99	14.55	0.43	0.13	0.03
60	2.86	11.25	50.22	29.69	2.18	3.40	0.32	0.08
61	0.48	1.20	4.82	29.33	50.26	3.41	7.00	3.50
62	0.49	1.04	4.37	51.46	41.22	0.91	0.41	0.10
63	2.07	3.22	6.62	54.31	30.44	2.26	0.86	0.22
64	1.66	2.00	12.03	59.75	13.58	9.00	1.59	0.40
65	0.00	0.00	0.00	0.83	6.24	13.74	61.13	18.06
66	0.29	0.63	1.77	75.54	19.25	2.15	0.29	0.07
67	0.00	0.03	0.19	17.99	62.77	8.06	7.47	3.49
68	2.64	1.72	10.15	65.08	17.38	1.83	0.95	0.24
69	0.49	0.41	1.80	54.94	35.40	6.05	0.72	0.18
70	2.19	23.59	48.68	16.09	4.82	2.56	1.65	0.41
71	0.56	1.83	10.77	43.91	33.90	5.06	3.18	0.79
72	0.09	0.55	4.89	46.07	37.22	2.44	6.17	2.57
73	0.25	0.55	1.84	37.93	49.65	7.66	1.69	0.42
74	0.44	0.61	2.01	31.90	61.58	2.17	1.03	0.26
75	2.68	1.34	8.14	40.86	34.39	1.96	7.60	3.04
76	0.47	0.88	3.46	27.18	62.47	4.10	1.14	0.29
77	1.99	4.57	23.22	55.61	7.70	6.19	0.58	0.15
79	2.73	5.89	30.50	42.95	17.34	0.47	0.10	0.02
80	0.01	0.34	3.41	54.84	37.16	1.83	1.94	0.48
81	1.08	5.15	17.47	53.57	21.21	1.18	0.27	0.07
82	1.93	2.17	11.00	36.66	36.80	6.31	3.08	2.05
83	5.78	21.86	44.62	24.05	0.83	2.70	0.14	0.03
84	1.46	5.04	36.98	47.35	8.23	0.74	0.15	0.04
87	1.00	16.55	45.30	31.90	4.92	0.25	0.05	0.01
88	0.13	0.92	4.76	45.91	46.41	1.55	0.26	0.07
89	4.78	15.54	57.51	20.14	0.70	1.27	0.05	0.01
90	5.61	24.79	39.81	23.77	5.60	0.28	0.11	0.03
91	2.32	17.73	55.03	21.67	3.04	0.18	0.02	0.01
92	0.13	1.15	27.39	59.10	10.43	1.47	0.27	0.07
93	4.35	18.41	63.94	10.56	1.99	0.56	0.15	0.04
94	3.78	16.12	46.53	28.37	4.58	0.42	0.16	0.04
95	1.46	17.05	54.05	24.95	0.18	2.25	0.05	0.01
97	2.80	5.17	7.63	41.29	42.09	0.83	0.15	0.04
98	0.35	1.34	6.20	56.56	34.16	1.24	0.11	0.03
99	0.13	1.13	16.24	66.94	8.09	7.26	0.17	0.04
100	0.30	0.80	3.54	41.42	52.18	1.52	0.19	0.05
101	2.99	9.29	33.17	39.11	14.59	0.70	0.12	0.03
102	15.33	24.35	43.84	11.31	4.70	0.35	0.09	0.02
103	5.09	17.86	46.96	18.38	9.41	1.63	0.54	0.13
104	1.27	2.30	7.00	45.15	40.74	2.96	0.46	0.11
105	1.03	3.97	28.75	55.63	4.85	5.47	0.25	0.06
106	0.53	3.00	22.32	65.87	7.78	0.43	0.06	0.02
107	3.09	3.58	21.21	53.68	17.50	0.64	0.24	0.06
108	5.68	1.54	7.47	65.22	11.53	7.87	0.56	0.14
109	0.24	0.62	4.26	60.24	33.78	0.73	0.11	0.03
110	8.04	11.18	48.90	24.95	6.43	0.40	0.08	0.02
111	0.62	1.20	5.11	53.10	28.25	11.38	0.28	0.07
112	0.30	0.64	1.65	27.76	65.34	3.57	0.59	0.15
113	0.32	0.65	1.91	20.87	70.91	3.73	1.28	0.32

/------------------	Phi Interval	------------------------\						
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
114	4.98	13.74	35.65	39.26	0.15	5.93	0.23	0.06
115	0.52	1.16	4.94	75.54	14.44	1.71	1.35	0.34
116	0.63	0.50	3.15	11.33	53.63	16.02	10.32	4.42
117	0.35	0.32	1.94	4.66	43.89	34.84	9.34	4.67
118	0.26	0.30	1.03	53.93	42.85	1.29	0.27	0.07
119	0.47	0.58	3.01	58.28	35.68	1.73	0.20	0.05
120	0.31	1.22	13.40	61.46	15.38	7.93	0.24	0.06
121	0.88	4.97	42.73	42.37	8.03	0.80	0.17	0.04
122	2.68	6.95	28.66	48.50	1.19	11.69	0.27	0.07
123	7.49	26.70	28.30	25.66	10.51	1.02	0.25	0.06
124	1.42	5.95	28.70	51.35	10.90	1.29	0.30	0.08
125	0.91	2.24	5.21	11.36	0.91	79.33	0.02	0.01
126	4.35	10.30	20.22	55.08	9.56	0.36	0.10	0.03
127	0.75	2.90	15.53	52.69	27.41	0.58	0.10	0.03
128	0.05	0.40	1.67	24.62	54.90	17.93	0.34	0.09
129	4.08	11.62	36.28	39.68	7.46	0.59	0.23	0.06
130	11.50	7.71	26.29	44.95	8.93	0.48	0.10	0.03
131	0.74	1.86	6.19	29.99	49.97	11.01	0.19	0.05
132	10.49	15.45	47.88	20.42	5.26	0.38	0.10	0.03
133	0.26	0.98	9.95	68.72	18.85	1.09	0.12	0.03
134	0.02	0.20	1.14	17.94	66.62	13.34	0.58	0.15
135	0.68	2.71	15.89	66.52	13.67	0.45	0.06	0.02
136	0.96	6.70	46.02	40.93	5.02	0.27	0.08	0.02
137	0.36	0.81	2.91	39.19	44.97	11.05	0.57	0.14
138	1.97	12.10	59.67	23.43	2.52	0.22	0.07	0.02
139	2.42	1.27	3.32	17.07	63.64	10.07	1.77	0.44
140	7.28	7.32	38.58	36.83	9.11	0.55	0.26	0.06
141	1.34	1.67	8.28	20.16	61.85	5.74	0.76	0.19
142	1.51	5.11	27.09	51.45	13.41	1.07	0.29	0.07
143	5.21	5.97	30.59	49.80	7.54	0.62	0.21	0.05
144	0.84	1.25	6.31	33.18	56.42	1.61	0.30	0.08
145	1.17	1.79	6.47	35.76	51.08	3.11	0.50	0.13
146	2.95	2.69	9.40	45.43	28.32	10.78	0.35	0.09
147	1.34	1.24	3.87	72.32	20.43	0.63	0.14	0.04
148	6.59	3.84	14.16	48.65	25.32	1.13	0.25	0.06
149	1.15	3.02	6.20	36.26	41.37	11.51	0.39	0.10
150	1.23	3.66	17.15	58.99	18.16	0.63	0.14	0.04
151	0.39	1.09	6.46	67.57	23.48	0.75	0.21	0.05
152	0.44	1.59	8.46	54.24	22.54	12.37	0.30	0.07
153	10.35	32.35	35.90	13.46	6.71	0.95	0.23	0.06
154	0.09	0.74	3.42	26.65	62.23	6.00	0.70	0.18
155	8.87	21.54	38.16	24.77	0.05	6.27	0.28	0.07
156	5.65	39.58	36.20	13.92	3.84	0.55	0.21	0.05
157	3.89	35.91	36.65	19.39	3.47	0.47	0.18	0.04
158	1.68	8.18	32.18	45.68	0.30	11.68	0.24	0.06
159	0.71	3.35	30.58	52.15	12.20	0.74	0.22	0.05
160	0.71	1.45	12.72	59.91	24.41	0.59	0.16	0.04
161	3.87	10.50	30.72	47.87	0.12	6.64	0.23	0.06
162	5.86	24.59	51.49	13.95	3.68	0.31	0.09	0.02
163	0.71	5.22	34.85	52.93	5.96	0.25	0.07	0.02
164	0.18	1.49	35.75	53.97	0.18	8.35	0.06	0.02
165	0.83	3.17	59.34	30.27	6.03	0.27	0.07	0.02
166	0.47	1.18	7.74	67.80	21.87	0.83	0.09	0.02
167	10.73	17.58	38.87	28.77	3.37	0.48	0.16	0.04
168	100.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
169	0.54	1.43	27.41	63.59	6.60	0.28	0.12	0.03
170	4.66	30.34	35.44	23.18	5.75	0.49	0.11	0.03
171	2.99	14.92	44.21	33.26	3.80	0.56	0.20	0.05

	Phi Interval							
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
172	28.25	27.36	23.10	14.20	6.14	0.66	0.24	0.06
173	0.28	0.58	3.50	65.77	28.51	0.96	0.32	0.08
174	4.14	8.37	27.09	44.59	13.43	1.78	0.47	0.12
175	3.33	6.39	19.38	48.32	20.57	1.69	0.26	0.07
176	17.41	1.81	12.14	46.54	17.74	3.37	0.80	0.20
177	1.06	5.17	28.96	54.29	8.74	1.26	0.41	0.10
178	3.82	3.65	17.90	53.51	19.57	1.18	0.30	0.07
179	2.31	4.94	26.12	53.64	11.94	0.72	0.27	0.07
180	0.91	1.72	21.28	66.42	8.73	0.64	0.23	0.06
181	2.22	20.45	45.74	25.14	5.86	0.42	0.14	0.04
182	4.74	10.02	24.80	25.14	29.80	4.40	0.89	0.22
183	0.21	0.77	6.11	66.78	25.18	0.72	0.19	0.05
184	0.37	1.08	6.44	71.19	20.07	0.69	0.13	0.03
185	9.55	16.61	48.97	21.81	2.67	0.25	0.11	0.03
186	2.31	9.62	43.51	35.68	7.55	0.96	0.30	0.07
187	0.01	0.13	1.47	79.28	18.84	0.24	0.02	0.01
188	2.61	12.15	46.27	34.85	3.72	0.29	0.09	0.02
189	0.71	1.56	3.38	26.79	60.56	5.65	1.08	0.27
190	0.72	1.11	10.72	74.61	12.47	0.32	0.04	0.01
191	0.40	0.68	3.77	19.76	70.08	4.74	0.46	0.11
192	1.04	6.86	40.18	43.77	7.21	0.66	0.22	0.06
193	0.37	1.44	4.17	49.28	41.66	2.38	0.55	0.14
194	0.52	0.26	1.71	13.00	78.63	5.21	0.53	0.13
195	6.11	9.05	23.40	38.67	19.06	3.00	0.57	0.14
196	0.70	4.30	27.17	57.63	9.28	0.60	0.25	0.06
197	0.22	0.73	2.18	9.94	77.61	8.04	1.03	0.26
198	0.33	0.50	4.12	63.38	30.70	0.74	0.19	0.05
199	23.85	24.67	37.27	10.53	3.10	0.37	0.17	0.04
200	0.13	0.87	16.41	71.91	10.39	0.22	0.06	0.02
201	0.28	0.99	12.73	69.64	15.47	0.70	0.15	0.04
202	0.58	3.16	21.23	62.09	12.61	0.26	0.06	0.02
203	0.29	0.77	2.00	18.00	75.83	2.75	0.29	0.07
204	1.53	7.40	52.30	35.50	2.85	0.31	0.09	0.02
205	0.28	3.13	61.20	31.81	3.27	0.26	0.05	0.01
206	0.96	4.48	46.75	43.20	4.30	0.20	0.09	0.02
207	0.86	2.53	16.80	62.85	16.19	0.61	0.14	0.03
208	1.79	8.38	42.90	40.18	6.26	0.36	0.11	0.03
209	0.45	2.72	27.13	59.96	8.97	0.52	0.20	0.05
210	1.62	3.94	15.74	55.70	21.97	0.80	0.18	0.04
211	0.39	1.31	14.69	68.46	14.74	0.32	0.07	0.02
212	0.84	2.02	28.78	57.37	10.58	0.26	0.12	0.03
213	1.46	10.49	45.44	37.12	5.04	0.30	0.11	0.03
214	0.94	3.51	48.26	40.99	6.00	0.18	0.08	0.02
215	0.40	1.96	26.64	62.93	7.65	0.31	0.10	0.03
216	0.60	2.76	30.99	57.95	6.89	0.66	0.12	0.03
217	0.40	0.81	5.31	60.21	31.78	1.21	0.23	0.06
218	0.93	1.52	9.86	72.30	14.81	0.46	0.09	0.02
219	3.73	13.33	38.80	38.14	5.09	0.60	0.24	0.06
220	0.97	2.25	31.04	58.86	6.56	0.22	0.07	0.02
221	2.01	6.33	38.99	45.28	6.87	0.38	0.11	0.03
222	0.40	1.33	18.35	69.78	9.45	0.49	0.16	0.04
223	0.25	0.50	58.80	33.51	6.57	0.30	0.06	0.02
224	1.23	3.25	26.45	58.41	10.09	0.41	0.13	0.03
225	1.49	3.96	29.08	55.94	8.77	0.58	0.14	0.03
226	0.26	2.40	45.58	46.45	5.17	0.10	0.02	0.01
227	0.84	1.60	14.18	65.07	17.93	0.29	0.07	0.02
228	0.70	1.28	13.59	74.60	9.31	0.38	0.12	0.03
229	15.51	4.57	39.09	29.80	9.81	0.97	0.19	0.05

/------------------	Phi Interval	------------------------\						
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
230	0.49	1.71	15.52	58.32	22.59	1.10	0.22	0.05
231	2.95	7.47	35.75	46.73	6.46	0.51	0.12	0.03
232	0.83	4.62	47.94	41.51	4.72	0.29	0.08	0.02
233	0.52	3.50	28.81	59.17	7.49	0.40	0.09	0.02
234	0.36	1.46	17.63	65.70	14.09	0.59	0.14	0.04
235	0.63	0.89	7.07	79.07	11.84	0.41	0.08	0.02
236	1.35	3.08	15.57	68.46	10.94	0.40	0.16	0.04
237	1.45	6.08	35.59	49.90	6.52	0.38	0.07	0.02
238	0.79	2.93	46.09	42.35	7.54	0.25	0.05	0.01
239	0.08	0.56	16.26	57.74	24.41	0.80	0.12	0.03
240	1.54	4.32	39.33	49.60	4.92	0.23	0.05	0.01
241	1.85	2.88	45.02	42.38	7.62	0.19	0.05	0.01
242	1.42	6.28	28.67	54.10	8.88	0.50	0.12	0.03
243	1.37	1.37	14.62	65.85	15.98	0.67	0.11	0.03
244	0.47	0.92	9.74	73.48	14.96	0.37	0.05	0.01
245	0.74	1.82	24.92	58.59	13.37	0.46	0.08	0.02
246	2.37	1.41	15.43	64.64	14.81	1.14	0.16	0.04
247	0.33	2.47	46.64	44.52	5.87	0.14	0.02	0.01
249	0.18	0.13	1.06	22.83	73.09	2.56	0.12	0.03
250	0.14	0.58	16.67	67.78	14.43	0.35	0.05	0.01
251	0.27	1.35	13.56	65.41	18.98	0.33	0.08	0.02
252	0.61	2.38	33.00	55.72	8.01	0.21	0.06	0.02
253	1.09	5.52	38.66	47.85	6.56	0.25	0.07	0.02
254	0.16	0.82	69.85	24.24	4.70	0.20	0.02	0.01
255	0.53	0.67	16.89	58.82	22.14	0.85	0.08	0.02
256	2.14	8.57	42.78	41.50	4.71	0.22	0.06	0.02
257	2.38	7.22	44.13	37.06	8.74	0.33	0.11	0.03
258	1.18	7.49	38.13	48.74	4.27	0.14	0.04	0.01
259	0.31	0.51	7.07	71.69	19.84	0.45	0.11	0.03
260	1.32	3.98	44.96	43.49	5.97	0.19	0.07	0.02
262A	0.55	4.66	29.99	52.37	10.76	1.38	0.23	0.06
263	11.04	3.47	29.57	44.17	10.71	0.85	0.15	0.04
264	0.20	0.37	8.08	72.52	18.34	0.40	0.07	0.02
265	0.32	0.66	13.71	68.46	16.42	0.34	0.08	0.02
266	0.62	3.46	30.39	59.62	5.41	0.37	0.11	0.03
267	1.94	8.45	42.34	39.16	7.57	0.37	0.13	0.03
268	2.01	6.32	38.06	46.83	6.51	0.21	0.05	0.01
269	0.30	2.40	41.59	48.83	6.44	0.39	0.05	0.01
270	0.16	0.78	29.81	60.99	8.07	0.15	0.03	0.01
271	2.45	8.75	47.65	38.15	2.53	0.32	0.13	0.03
272	0.14	0.57	3.18	21.83	69.62	4.19	0.37	0.09
273	13.26	19.37	41.19	16.91	8.39	0.69	0.16	0.04
276	70.28	0.35	3.69	21.01	4.26	0.32	0.08	0.02
278	2.58	5.72	30.39	54.00	6.67	0.47	0.14	0.03
279	4.33	12.12	37.16	41.39	4.73	0.19	0.06	0.02
280	0.75	2.04	27.71	61.86	7.28	0.26	0.08	0.02
281	1.38	0.77	17.86	67.48	12.15	0.26	0.08	0.02
282	1.38	1.64	21.60	64.73	10.35	0.21	0.07	0.02
283	2.27	3.03	26.99	59.22	8.08	0.31	0.07	0.02
284	2.83	5.77	26.06	55.58	8.87	0.69	0.17	0.04
286	0.25	0.90	10.21	72.66	15.55	0.35	0.08	0.02
287	10.12	2.94	34.43	43.88	8.12	0.41	0.08	0.02
288	0.57	1.89	21.84	58.18	16.49	0.77	0.21	0.05
289	0.73	2.89	60.17	30.84	4.94	0.34	0.07	0.02
290	0.27	1.20	13.74	69.91	14.01	0.66	0.16	0.04
291	1.93	1.67	11.51	67.72	16.27	0.63	0.22	0.05
292	0.13	0.84	33.89	59.20	5.82	0.08	0.03	0.01
293	2.39	4.76	28.35	57.13	6.60	0.50	0.21	0.05

/------------------	Phi Interval	------------------------\						
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
294	0.16	0.73	21.76	68.48	8.39	0.40	0.06	0.02
295	0.22	0.66	9.61	66.37	21.74	1.33	0.06	0.01
296	0.81	1.84	20.41	64.66	11.74	0.47	0.06	0.02
297	2.53	3.66	11.19	28.56	45.33	6.70	1.62	0.40
298	0.32	1.18	37.69	55.55	5.15	0.09	0.02	0.01
299	0.81	1.93	22.11	67.65	7.17	0.24	0.07	0.02
300	2.03	6.05	31.42	52.30	7.66	0.38	0.13	0.03
301	0.28	0.39	2.73	54.37	41.10	1.03	0.08	0.02
303	0.74	2.18	19.28	59.89	17.04	0.74	0.12	0.03
304	0.29	0.62	1.80	26.24	68.28	2.48	0.24	0.06
305	1.00	6.62	49.98	36.41	5.63	0.28	0.05	0.01
306	5.95	7.89	32.33	47.42	6.19	0.19	0.02	0.01
307	0.47	1.22	4.26	46.62	43.49	3.57	0.30	0.07
308	0.12	0.26	6.54	79.18	13.52	0.34	0.03	0.01
310	0.44	1.09	16.27	56.42	24.82	0.88	0.06	0.02
311	5.29	3.91	21.67	55.29	13.00	0.70	0.12	0.03
312	0.34	1.31	36.79	46.44	14.74	0.31	0.06	0.02
313	0.54	2.21	14.83	62.98	18.35	0.94	0.12	0.03
314	1.43	3.50	35.91	51.84	6.80	0.38	0.11	0.03
315	2.08	4.38	61.09	27.17	4.92	0.28	0.06	0.01
316	3.56	12.06	32.79	41.32	9.67	0.44	0.13	0.03
317	6.53	14.11	46.03	28.74	3.75	0.67	0.13	0.03
318	3.54	13.45	43.43	32.96	6.23	0.28	0.09	0.02
319	3.26	13.23	45.03	34.77	3.48	0.16	0.05	0.01
320	0.58	1.60	7.76	58.73	29.57	1.43	0.26	0.07
321	0.12	0.29	9.20	63.06	26.72	0.50	0.09	0.02
322	0.02	0.13	9.34	75.59	14.55	0.32	0.05	0.01
323	0.00	0.05	4.12	76.64	18.29	0.82	0.06	0.02
324	0.49	2.34	66.90	24.93	5.23	0.10	0.02	0.00
325	0.97	2.54	25.93	60.55	9.65	0.28	0.06	0.02
326A	0.43	3.59	40.81	50.90	4.14	0.10	0.03	0.01
327	0.69	2.51	20.67	61.28	14.21	0.49	0.13	0.03
328	1.29	1.28	2.48	12.73	68.07	12.26	1.51	0.38
329	0.31	2.20	22.85	64.08	10.16	0.31	0.06	0.02
330	1.67	2.79	37.92	45.67	11.60	0.27	0.07	0.02
331	0.09	0.47	21.98	67.22	9.99	0.18	0.05	0.01
332	0.22	1.11	40.11	54.45	3.41	0.64	0.05	0.01
333	0.46	0.34	12.49	74.47	11.98	0.23	0.02	0.01
334	0.34	0.26	7.66	65.34	25.87	0.48	0.03	0.01
335	0.41	1.61	30.62	60.96	6.23	0.14	0.03	0.01
336	0.65	0.62	20.00	68.62	9.93	0.15	0.02	0.01
337	0.40	0.30	10.55	66.18	21.97	0.48	0.09	0.02
338	0.15	0.45	23.72	69.14	6.36	0.15	0.03	0.01
339	3.45	6.42	30.28	51.73	7.93	0.15	0.03	0.01
340	0.65	2.09	25.19	62.98	8.91	0.11	0.05	0.01
341	3.37	5.58	42.83	44.33	3.49	0.31	0.06	0.02
342	0.26	0.73	3.07	81.12	14.49	0.29	0.02	0.01
343	0.10	0.14	7.80	73.02	18.62	0.27	0.04	0.01
344	0.16	1.23	16.37	64.88	16.97	0.32	0.05	0.01
345	0.91	1.81	45.14	44.90	7.05	0.15	0.03	0.01
346	0.05	0.19	8.97	72.20	17.78	0.68	0.11	0.03
347	0.99	0.48	19.79	61.99	15.94	0.72	0.08	0.02
348	1.38	1.61	41.62	44.07	10.97	0.30	0.06	0.01
349	2.69	3.66	24.27	59.87	8.87	0.47	0.13	0.03
350	0.67	1.77	26.46	61.99	8.36	0.60	0.13	0.03
352	0.66	1.79	28.90	57.96	10.28	0.34	0.05	0.01
353	0.10	0.30	1.49	43.41	52.33	1.70	0.53	0.13
354	0.03	0.16	0.65	12.83	75.28	10.66	0.31	0.08

/------------------	Phi Interval	-------------------------					\	
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
355	4.78	2.63	34.05	39.10	18.25	1.07	0.09	0.02
356	0.10	0.06	0.86	39.81	58.47	0.63	0.05	0.01
357	3.91	4.54	18.87	44.77	26.74	1.03	0.11	0.03
358	0.11	0.18	4.12	74.20	20.93	0.45	0.02	0.01
359	0.04	0.15	1.00	35.99	61.52	1.19	0.09	0.02
360	5.29	5.80	14.94	60.84	11.45	1.39	0.24	0.06
361	0.22	0.55	6.66	62.47	29.32	0.60	0.13	0.03
362	0.59	1.17	7.33	61.34	28.15	1.07	0.28	0.07
363	0.11	0.20	2.90	58.06	37.54	1.09	0.09	0.02
364	0.01	0.10	1.73	37.83	59.33	0.95	0.04	0.01
365	0.07	0.13	2.45	32.51	63.57	1.21	0.05	0.01
366	0.33	0.71	11.85	71.41	15.37	0.32	0.02	0.00
367	0.09	0.10	2.48	40.07	56.09	1.10	0.06	0.01
368	0.02	0.12	0.82	35.32	62.38	1.24	0.09	0.02
371	0.68	2.37	4.44	57.17	32.82	2.11	0.34	0.08
372	1.31	2.48	9.95	71.75	13.48	0.92	0.09	0.02
373	0.05	0.18	4.33	52.91	40.91	1.48	0.12	0.03
374	0.08	0.44	8.31	64.76	25.76	0.55	0.08	0.02
375	0.19	0.39	51.85	42.17	5.30	0.09	0.01	0.00
376	0.27	0.65	19.89	65.91	12.65	0.57	0.05	0.01
377	0.01	0.08	3.27	36.90	56.39	3.17	0.15	0.04
378	0.00	0.04	2.17	84.35	13.23	0.21	0.00	0.00
379	1.10	0.62	19.32	69.34	9.25	0.33	0.03	0.01
380	0.51	0.78	21.06	66.79	10.58	0.26	0.01	0.00
381	3.30	3.84	29.56	52.68	10.02	0.48	0.10	0.03
382	12.43	6.80	32.46	43.02	4.80	0.37	0.08	0.02
383	2.68	3.86	22.35	59.00	10.85	0.99	0.21	0.05
384	7.21	5.02	24.83	54.97	6.98	0.77	0.17	0.04
386	0.93	3.42	32.67	57.67	4.96	0.27	0.06	0.02
387	3.30	5.41	33.26	52.08	5.18	0.57	0.16	0.04
388	0.32	0.66	9.90	66.55	21.75	0.69	0.11	0.03
389	1.82	2.75	24.00	59.92	10.84	0.55	0.09	0.02
390	0.69	0.99	18.24	68.34	11.23	0.44	0.06	0.02
391	0.88	1.33	62.33	29.34	6.00	0.12	0.00	0.00
392	0.05	0.14	1.74	24.36	71.49	2.07	0.12	0.03
393	0.04	0.22	4.87	51.12	41.79	1.88	0.06	0.02
394	0.23	0.43	12.68	79.08	7.02	0.54	0.02	0.00
395	0.67	4.04	39.77	47.53	7.81	0.17	0.01	0.00
396	0.82	1.88	36.14	55.80	5.14	0.22	0.02	0.00
397	1.31	3.25	54.01	36.78	4.44	0.17	0.03	0.01
398	1.46	1.36	16.04	63.90	16.75	0.38	0.08	0.02
399	0.40	0.47	3.44	53.30	41.21	1.08	0.08	0.02
400	1.22	2.42	51.07	38.23	6.46	0.47	0.10	0.03
401	2.19	2.09	26.96	58.46	9.66	0.47	0.13	0.03
402	0.08	0.23	4.96	69.61	24.34	0.67	0.09	0.02
403	0.37	2.58	45.58	46.34	4.88	0.21	0.03	0.01
404	0.15	0.51	3.31	16.16	71.33	7.63	0.73	0.18
405	0.10	0.95	25.61	66.49	6.58	0.23	0.03	0.01
406	0.24	0.89	24.12	66.16	8.22	0.28	0.06	0.02
407	0.17	1.98	43.02	49.01	5.58	0.17	0.05	0.01
408	1.40	3.01	27.09	56.05	11.94	0.41	0.08	0.02
409	0.55	2.17	24.30	61.13	11.41	0.44	0.01	0.00
410	1.57	3.35	40.93	48.56	5.39	0.16	0.02	0.01
411	0.09	0.29	3.30	49.22	45.51	1.55	0.04	0.01
412	0.18	0.69	14.45	73.33	11.07	0.26	0.02	0.00
413	2.87	4.48	19.65	58.57	13.57	0.67	0.16	0.04
414	0.18	0.94	7.19	60.92	29.06	`1.54	0.14	0.03
415	0.25	0.87	13.24	62.48	22.47	0.58	0.09	0.02

	/------------------ Phi Interval					------------------------\	
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
416	0.91	4.82	27.36	57.87	8.50	0.41	0.10	0.03
417	0.19	0.96	9.29	69.55	19.09	0.70	0.18	0.05
418	0.58	2.85	40.52	49.19	6.64	0.18	0.03	0.01
419	0.14	0.76	18.65	66.61	13.25	0.43	0.13	0.03
420	0.41	2.32	19.19	63.10	14.07	0.70	0.17	0.04
421	6.50	15.46	52.00	19.54	6.04	0.40	0.05	0.01
422	4.59	5.82	41.63	41.63	5.37	0.67	0.22	0.05
423	1.17	4.66	30.08	50.89	12.31	0.72	0.14	0.04
424	3.60	1.07	15.98	71.70	7.41	0.18	0.04	0.01
425	2.10	2.36	18.30	59.50	16.73	0.76	0.20	0.05
426	0.37	1.61	31.49	53.76	12.18	0.42	0.13	0.03
427	1.03	3.98	58.37	28.92	7.34	0.26	0.08	0.02
428	1.05	2.74	25.88	55.72	13.98	0.50	0.09	0.02
429	0.91	1.77	14.57	71.08	10.95	0.50	0.19	0.05
430	0.63	1.50	55.08	37.58	4.99	0.16	0.05	0.01
431	0.30	1.03	16.68	71.84	9.43	0.45	0.21	0.05
432	0.88	1.47	4.03	30.52	57.29	4.79	0.81	0.20
433	1.00	3.41	55.75	33.79	5.68	0.28	0.07	0.02
434	0.31	1.54	8.28	57.09	31.28	1.23	0.21	0.05
435	0.29	1.27	18.56	71.01	8.16	0.51	0.16	0.04
436	0.79	3.19	44.69	41.93	9.04	0.26	0.09	0.02
437	1.14	2.91	27.53	59.32	8.42	0.47	0.17	0.04
438	0.12	0.64	1.52	8.84	71.98	15.16	1.39	0.35
439	0.41	1.40	19.45	67.67	10.67	0.32	0.06	0.02
440	10.65	16.91	40.44	28.01	3.51	0.30	0.15	0.04
441	1.49	5.47	34.61	50.67	7.24	0.39	0.10	0.03
442	1.07	2.58	33.63	55.39	7.13	0.16	0.04	0.01
443	0.30	1.34	12.70	56.27	28.35	0.81	0.19	0.05
444	0.64	3.99	33.92	51.30	9.74	0.29	0.09	0.02
445	2.04	4.12	41.15	42.20	10.04	0.31	0.12	0.03
447	1.18	6.75	34.13	51.93	5.19	0.52	0.23	0.06
448	0.55	2.32	35.51	48.36	12.42	0.66	0.15	0.04
449	1.51	3.60	28.65	56.19	9.02	0.71	0.25	0.06
450	2.55	4.04	33.43	54.36	5.07	0.40	0.12	0.03
451	4.83	6.70	41.72	37.79	8.32	0.53	0.10	0.03
452	4.30	9.54	44.51	34.34	6.14	0.83	0.27	0.07
453	0.35	0.75	19.03	65.46	13.67	0.53	0.17	0.04
454	0.41	0.86	10.27	64.42	23.07	0.73	0.19	0.05
455	0.91	2.93	24.95	59.80	10.80	0.45	0.12	0.03
456	0.48	1.19	11.43	71.32	14.59	0.70	0.24	0.06
457	0.74	2.91	35.57	50.78	9.64	0.26	0.07	0.02
458	1.63	4.32	29.47	52.49	11.00	0.75	0.28	0.07
459	0.85	6.28	38.17	48.14	6.08	0.34	0.11	0.03
460	0.54	4.35	55.93	34.96	4.00	0.15	0.06	0.01
461	0.93	3.70	37.23	50.83	6.89	0.30	0.09	0.02
462	0.66	3.67	32.42	55.02	7.79	0.31	0.11	0.03
463	0.10	0.59	2.69	63.49	32.08	0.87	0.15	0.04
464	1.06	1.35	20.77	63.43	12.57	0.57	0.21	0.05
465	0.37	0.78	6.40	51.05	39.93	1.16	0.25	0.06
466	0.44	1.67	37.34	48.30	11.76	0.37	0.09	0.02
467	1.08	2.51	34.81	50.28	9.94	1.10	0.22	0.06
468	3.15	5.34	49.15	39.26	2.76	0.23	0.09	0.02
469	11.47	26.37	46.65	12.71	2.47	0.23	0.08	0.02
470	0.59	1.14	18.00	69.05	10.66	0.39	0.13	0.03
471	0.60	4.18	48.72	37.33	8.10	0.89	0.15	0.04
472	0.30	0.95	18.75	68.64	11.03	0.26	0.05	0.01
473	0.18	0.68	21.41	67.60	9.71	0.33	0.07	0.02
474	0.93	2.82	11.90	63.63	17.81	2.46	0.35	0.09

Sta.#	Phi Interval >-1	-1-0 VCS	0-1 CS	1-2 MS	2-3 FS	3-4 VFS	4-8 SILT	<8 CLAY
475	1.00	4.88	49.83	36.91	7.01	0.27	0.09	0.02
476	0.35	1.73	26.19	58.51	12.64	0.41	0.13	0.03
477	0.78	4.11	40.22	49.51	4.79	0.39	0.16	0.04
478	0.52	2.37	63.20	29.39	4.34	0.14	0.04	0.01
479	2.52	7.19	42.95	40.70	6.35	0.18	0.09	0.02
480	0.45	5.05	32.79	55.07	6.18	0.33	0.11	0.03
481	4.69	7.77	45.27	35.34	6.39	0.41	0.10	0.03
482	0.54	1.47	16.96	64.94	15.56	0.39	0.11	0.03
483	0.54	0.80	8.99	69.01	19.78	0.69	0.15	0.04
484	0.20	3.35	70.62	22.41	3.27	0.13	0.03	0.01
485	1.02	2.37	22.40	52.97	19.52	1.42	0.24	0.06
486	0.16	2.03	22.35	68.91	6.16	0.25	0.12	0.03
487	10.27	9.79	46.32	28.39	4.65	0.39	0.15	0.04
488	1.86	3.84	33.72	42.94	14.44	2.20	0.80	0.20
489	0.66	1.80	24.81	61.65	10.36	0.53	0.16	0.04
490	2.02	4.66	56.01	29.24	7.32	0.55	0.16	0.04
491	1.21	1.15	10.13	63.51	23.02	0.79	0.16	0.04
492	0.41	0.98	7.47	77.34	13.06	0.51	0.18	0.05
493	1.26	8.18	58.20	27.54	4.32	0.36	0.11	0.03
494	24.95	9.92	20.22	26.53	16.72	1.31	0.28	0.07
495	0.60	2.49	23.53	61.15	11.66	0.39	0.15	0.04
496	0.83	5.75	54.99	32.08	6.11	0.16	0.06	0.02
497	0.85	4.53	56.53	32.80	4.72	0.37	0.16	0.04
498	2.51	9.37	47.91	36.11	3.84	0.15	0.09	0.02
499	0.83	6.66	70.28	18.60	3.37	0.19	0.06	0.02
500	22.60	31.82	32.58	10.28	2.11	0.39	0.18	0.05
501	0.62	1.09	3.36	62.42	30.88	1.23	0.32	0.08
502	1.99	16.33	62.47	15.17	3.53	0.43	0.07	0.02
503	5.06	7.30	34.89	39.99	11.05	1.37	0.27	0.07
504	2.47	3.08	28.18	58.26	7.36	0.49	0.14	0.04
505	3.18	7.49	48.08	35.76	5.07	0.35	0.05	0.01
506	4.74	7.50	43.79	40.11	3.41	0.33	0.10	0.03
507	0.35	0.97	4.44	20.86	66.12	6.40	0.69	0.17
508	0.79	3.22	37.63	47.24	10.74	0.28	0.08	0.02
509	1.11	1.42	1.91	20.89	71.01	3.09	0.45	0.11
510	1.12	2.58	17.93	62.11	15.62	0.51	0.10	0.03
511	1.00	3.06	45.07	44.89	5.69	0.23	0.05	0.01
512	1.02	3.55	26.39	58.28	9.79	0.70	0.22	0.06
513	16.69	28.19	40.70	12.64	1.34	0.29	0.12	0.03
514	0.98	1.64	14.82	72.86	9.38	0.23	0.06	0.02
515	0.26	1.13	21.36	65.22	11.60	0.29	0.12	0.03
516	0.52	1.88	22.15	57.21	17.27	0.76	0.18	0.04
517	0.32	1.70	59.74	33.79	4.31	0.10	0.03	0.01
518	0.16	0.66	11.30	63.21	23.16	1.33	0.15	0.04
519	0.54	1.22	2.29	13.96	70.31	10.86	0.66	0.16
520	0.61	9.80	52.73	28.90	7.43	0.38	0.12	0.03
521	1.37	2.38	8.70	24.75	58.14	3.97	0.56	0.14
522	1.04	4.09	25.88	55.18	13.13	0.52	0.13	0.03
523	0.51	1.37	28.76	58.59	10.39	0.25	0.10	0.03
524	1.65	11.37	29.56	35.99	16.15	2.33	2.36	0.59
525	0.92	4.62	31.36	56.63	6.02	0.32	0.10	0.03
526	0.40	2.36	40.46	50.98	5.56	0.16	0.05	0.01
527	0.30	1.31	17.80	69.94	10.20	0.33	0.09	0.02
528	0.37	2.05	21.34	65.26	10.51	0.32	0.12	0.03
529	4.38	4.65	12.57	44.13	32.24	1.74	0.23	0.06
530	5.85	9.19	40.06	31.05	12.60	0.92	0.26	0.06
531	1.33	2.49	13.39	62.14	19.89	0.51	0.20	0.05
532	4.25	17.37	35.50	32.05	10.20	0.48	0.13	0.03

Sta.#	Phi Interval >-1	-1-0 VCS	0-1 CS	1-2 MS	2-3 FS	3-4 VFS	4-8 SILT	<8 CLAY
533	1.07	8.31	46.38	38.30	5.46	0.32	0.13	0.03
534	2.61	2.03	25.00	57.57	12.08	0.48	0.18	0.04
535	2.28	5.30	14.05	42.29	33.52	2.18	0.30	0.08
536	0.91	1.54	9.72	42.05	40.80	4.08	0.73	0.18
537	5.47	17.37	51.58	22.89	2.20	0.34	0.12	0.03
538	1.04	21.22	56.62	18.22	2.59	0.22	0.08	0.02
539	1.26	1.55	20.01	62.37	13.08	1.27	0.37	0.09
540	13.79	21.93	41.99	17.82	3.91	0.41	0.12	0.03
541	0.21	1.29	4.42	10.18	71.74	10.29	1.50	0.37
542	1.89	6.40	48.48	35.57	6.82	0.70	0.12	0.03
543	14.26	27.83	27.10	22.55	7.05	0.94	0.21	0.05
544	3.79	2.72	33.68	52.36	6.97	0.32	0.12	0.03
545	2.51	16.11	48.54	26.42	5.81	0.42	0.16	0.04
546	2.33	5.59	11.54	23.57	49.59	6.45	0.75	0.19
547	1.98	7.47	25.45	44.70	18.98	1.18	0.20	0.05
548	22.96	25.75	30.65	14.94	5.05	0.47	0.15	0.04
550	1.70	5.22	29.39	49.51	12.42	1.24	0.41	0.10
551	1.38	26.46	56.73	12.69	2.36	0.25	0.10	0.03
552	26.58	17.98	33.92	15.78	5.14	0.40	0.16	0.04
553	1.82	5.25	26.51	40.45	23.05	2.29	0.50	0.13
554	1.85	5.10	54.54	34.22	3.77	0.35	0.13	0.03
555	0.24	0.81	3.32	33.74	52.15	7.75	1.59	0.40
556	39.56	6.89	15.57	21.57	13.62	2.03	0.61	0.15
557	8.28	16.73	37.31	24.22	11.94	1.12	0.32	0.08
558	2.31	12.42	43.92	35.58	4.92	0.48	0.29	0.07
559	0.34	1.98	7.65	58.47	27.68	2.79	0.87	0.22
560	0.28	1.17	3.00	26.30	65.81	2.78	0.53	0.13
561	0.12	0.31	1.33	12.57	71.05	12.94	1.35	0.34
562	0.68	1.86	5.07	16.40	61.64	12.27	1.66	0.41
563	0.35	0.39	1.46	12.15	83.26	2.11	0.21	0.05
564	10.74	30.84	45.11	10.66	2.00	0.36	0.23	0.06
565	0.79	11.15	58.06	26.32	3.32	0.23	0.11	0.03
566	3.66	7.64	7.68	13.38	59.39	6.38	1.50	0.38
567	2.70	11.70	24.76	43.63	16.41	0.53	0.21	0.05
568	12.77	15.69	31.82	27.85	9.91	1.42	0.43	0.11
569	0.24	0.81	5.32	28.22	61.38	3.46	0.47	0.12
570	1.11	3.21	12.61	37.75	39.16	5.21	0.76	0.19
572	8.40	14.05	35.46	34.64	5.74	1.16	0.44	0.11
573	0.14	1.15	3.24	9.31	74.00	10.50	1.34	0.33
574	1.05	2.44	16.82	54.78	22.50	1.62	0.63	0.16
575	3.34	7.09	30.18	33.80	22.33	2.46	0.64	0.16
576	3.66	2.62	9.49	71.33	12.17	0.53	0.15	0.04
577	4.43	15.39	34.10	32.98	11.86	0.92	0.26	0.06
578	2.23	13.88	54.89	24.98	3.64	0.28	0.09	0.02
579	20.87	20.60	27.77	20.74	9.01	0.62	0.31	0.08
580	1.34	3.12	20.18	44.83	28.24	1.74	0.44	0.11
581	9.74	15.19	41.02	27.59	5.50	0.67	0.24	0.06
582	17.70	2.61	8.30	35.33	33.44	2.30	0.26	0.06
583	0.23	1.60	13.07	55.58	26.53	2.37	0.50	0.13
584	0.27	1.51	4.41	31.63	56.99	4.69	0.40	0.10
585	12.02	40.73	32.33	11.98	2.24	0.47	0.19	0.05
586	11.12	15.63	39.65	26.25	6.26	0.79	0.23	0.06
587	0.98	3.61	11.56	28.00	46.19	8.17	1.20	0.30
588	0.09	0.85	8.57	54.65	34.63	1.08	0.11	0.03
591	0.74	6.27	30.11	44.97	16.27	1.29	0.28	0.07
593	0.71	3.56	25.62	55.19	13.60	1.08	0.20	0.05
594	0.27	0.57	4.95	68.04	25.03	1.05	0.08	0.02
596	0.38	5.14	34.28	49.78	9.57	0.63	0.17	0.04

	Phi Interval						
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
597	5.64	7.01	23.09	33.80	28.44	1.62	0.32	0.08
598	49.97	21.18	14.69	8.22	5.34	0.43	0.14	0.04
599	1.41	4.19	23.92	52.89	16.09	1.21	0.23	0.06
600	2.75	10.28	45.81	33.24	7.08	0.58	0.20	0.05
601	0.88	3.52	18.93	66.06	10.04	0.40	0.13	0.03
602	2.29	12.53	59.96	19.39	5.31	0.39	0.10	0.03
603	1.48	4.68	20.60	57.85	13.66	1.40	0.26	0.06
604	7.29	24.09	37.78	22.37	7.87	0.40	0.16	0.04
605	10.24	11.18	49.88	22.23	5.75	0.53	0.16	0.04
606	13.60	16.01	36.41	30.02	3.32	0.37	0.21	0.05
607	0.66	2.53	8.57	39.42	46.24	2.18	0.32	0.08
608	5.55	6.14	26.06	39.95	20.40	1.50	0.33	0.08
610	0.05	0.92	3.68	19.52	63.38	11.01	1.14	0.28
611	1.34	2.94	9.18	50.14	34.10	1.92	0.30	0.08
612	1.33	3.75	13.72	55.99	24.17	0.81	0.18	0.05
613	17.14	13.26	33.15	26.41	9.42	0.44	0.15	0.04
614	0.24	0.89	3.32	64.31	30.56	0.54	0.12	0.03
615	11.73	1.36	6.88	42.35	35.55	1.92	0.17	0.04
616	1.93	3.76	19.12	57.87	15.25	1.58	0.39	0.10
617	7.70	4.48	36.65	45.60	5.13	0.27	0.13	0.03
618	4.30	20.50	42.72	27.32	4.57	0.41	0.15	0.04
619	16.49	44.13	30.83	6.83	1.29	0.27	0.13	0.03
620	0.13	0.45	2.19	27.23	67.05	2.53	0.34	0.08
621	0.03	1.65	21.78	28.52	33.89	1.59	6.75	5.79
622	5.75	12.43	29.53	33.46	16.93	1.40	0.41	0.10
623	4.93	9.44	18.39	43.60	22.25	1.07	0.26	0.07
625	0.97	0.01	0.16	11.24	76.48	9.76	1.10	0.28
626	3.45	15.89	47.59	27.81	4.21	0.75	0.24	0.06
627	8.93	52.57	27.07	8.44	2.00	0.73	0.21	0.05
628	0.16	0.56	2.45	18.29	71.09	6.35	0.87	0.22
629	0.43	1.37	14.04	68.70	14.35	0.87	0.18	0.05
630	8.29	23.40	30.14	25.80	10.30	1.61	0.37	0.09
631	2.03	13.31	55.11	24.81	4.25	0.32	0.14	0.04
632	0.11	0.43	3.45	30.61	62.94	2.26	0.16	0.04
633	0.28	2.02	35.28	51.94	9.72	0.64	0.09	0.02
634	1.07	0.72	6.62	44.36	45.44	1.43	0.29	0.07
635	0.47	1.90	37.98	52.06	7.12	0.41	0.05	0.01
636	1.00	4.11	35.42	47.50	11.04	0.66	0.22	0.05
637	0.23	0.59	1.12	13.72	79.91	3.81	0.50	0.12
638	0.77	8.99	37.09	44.19	7.72	0.83	0.33	0.08
639	1.16	5.04	43.97	43.97	5.04	0.58	0.20	0.05
640	1.48	10.66	62.10	19.30	5.80	0.51	0.12	0.03
641	1.47	13.25	60.11	21.70	3.09	0.29	0.08	0.02
642	1.39	3.64	20.86	58.85	14.12	0.80	0.27	0.07
644	0.19	0.43	1.60	11.56	84.14	2.03	0.05	0.01
645	0.07	0.17	5.07	50.93	40.29	2.85	0.50	0.12
646	1.86	8.96	50.83	33.52	4.40	0.37	0.05	0.01
647	1.14	4.81	55.20	32.46	5.90	0.36	0.10	0.03
648	50.21	0.63	3.54	18.33	25.63	1.46	0.17	0.04
649	1.42	2.68	13.52	56.99	23.00	1.38	0.80	0.20
650	0.31	0.55	3.07	84.76	10.59	0.46	0.20	0.05
651	0.58	0.65	7.25	64.27	24.79	1.98	0.38	0.10
652	2.77	6.64	19.96	49.58	19.22	1.40	0.34	0.09
653	1.60	5.60	39.80	45.11	6.97	0.66	0.21	0.05
654	0.33	0.89	2.72	20.07	72.09	3.24	0.52	0.13
655	0.62	1.85	20.90	62.04	13.00	0.97	0.50	0.13
656	1.74	2.32	19.16	57.92	18.11	0.51	0.20	0.05
657	2.63	8.38	44.15	38.72	5.72	0.24	0.13	0.03

/------------------			Phi Interval			---------------------------\		
	>-1	-1-0	0-1	1-2	2-3	3-4	4-8	<8
Sta.#		VCS	CS	MS	FS	VFS	SILT	CLAY
658	0.14	0.64	4.33	23.68	66.16	4.53	0.43	0.11
659	0.32	0.92	4.77	20.24	68.50	4.69	0.45	0.11
660	0.08	0.32	3.10	37.21	56.35	2.11	0.67	0.17
661	1.46	0.46	5.80	54.40	21.94	0.97	7.99	6.99
662	0.00	0.21	2.72	27.24	51.28	4.56	8.20	5.79
663	5.42	0.62	1.94	17.03	67.29	6.23	1.18	0.30
664	5.87	4.62	40.26	37.52	10.58	0.78	0.29	0.07
665	0.00	0.02	0.10	1.65	4.08	8.06	72.64	13.45
666	0.23	0.56	2.33	21.07	70.34	4.05	1.13	0.28
667	0.23	0.45	1.27	20.49	73.30	3.34	0.73	0.18
668	0.04	0.36	2.09	77.33	19.50	0.40	0.21	0.05
669	0.33	0.46	4.07	36.06	56.44	2.04	0.48	0.12
670	3.70	1.53	14.61	60.10	18.54	1.21	0.24	0.06
671	0.13	0.35	3.44	48.86	45.81	1.19	0.17	0.04
672	0.41	1.77	20.36	57.67	17.76	1.30	0.58	0.15
673	0.06	0.43	4.46	65.58	22.15	0.78	2.51	4.02
674	0.33	0.33	1.99	23.77	44.60	5.36	14.07	9.55
675	0.13	0.53	5.19	53.28	38.54	1.34	0.79	0.20
676	3.46	11.81	49.78	22.82	2.80	1.90	4.46	2.97
677	0.42	0.49	1.64	27.28	66.23	2.73	0.96	0.24
678	0.78	1.78	5.26	56.58	33.49	1.56	0.43	0.11
679	0.00	0.01	0.01	5.63	9.19	7.89	70.39	6.88
680	0.32	0.91	1.90	13.55	72.93	8.88	1.22	0.30
681	0.05	0.27	9.11	44.57	17.73	2.04	14.63	11.60
682	0.00	0.07	0.93	69.24	29.28	0.40	0.07	0.02
683	0.11	0.35	18.05	58.52	22.63	0.20	0.12	0.03
684	0.06	0.01	0.03	5.41	13.56	5.96	65.59	9.37
685	0.41	0.08	0.77	20.59	55.94	4.04	11.30	6.88
686	0.68	0.02	0.67	7.89	36.50	13.59	21.61	19.04
687	0.07	0.07	0.45	30.30	54.28	3.70	5.32	5.80
688	0.30	0.08	0.87	14.72	63.19	2.47	9.93	8.44
689	3.20	1.97	10.09	57.27	25.26	1.55	0.53	0.13
690	1.13	1.50	15.34	64.07	16.75	0.82	0.32	0.08
691	0.14	0.05	0.63	33.33	59.72	2.61	2.82	0.71
692	0.00	0.01	0.16	25.86	66.23	4.56	2.55	0.64
694	0.06	0.24	2.56	40.92	55.56	0.54	0.10	0.03
695	0.23	0.44	3.44	26.22	68.10	1.36	0.16	0.04
697	0.28	1.69	16.43	53.23	12.48	2.66	6.37	6.86
698	0.47	0.94	11.26	56.87	19.31	2.05	5.75	3.35
699	2.03	3.46	25.27	54.73	9.02	2.72	2.23	0.56
700	0.33	0.42	3.01	8.08	42.68	17.92	15.74	11.81
701	0.09	0.28	1.60	11.08	44.20	23.09	12.29	7.37
702	1.20	0.88	3.49	12.70	68.48	10.42	2.27	0.57
703	0.27	0.92	10.84	46.05	24.28	3.81	6.43	7.41
705	0.15	0.31	2.91	39.98	55.61	0.86	0.14	0.04
706	0.14	0.13	2.43	50.85	45.73	0.63	0.08	0.02
707	0.64	1.23	16.04	52.33	28.28	1.32	0.12	0.03
708	0.16	0.30	2.47	63.27	31.27	1.77	0.61	0.15
709	0.07	0.12	1.85	35.27	21.23	6.33	23.09	12.04
710	0.56	0.24	1.57	7.85	53.30	22.45	7.74	6.29

APPENDIX III

Bottom sample parameters mapped
(mean phi, standard deviation, %mud, % carbonate)

APPENDIX III

FLA. STATE WATERS - BOTTOM SAMPLES

EXPLANATION:
Mean = Mean Phi
S.D. = Standard Deviation
% MUD = Silt + Clay

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
1	29.8347	85.4692	1.61	0.59	0.02	2.40
2	29.8598	85.4965	1.84	0.79	0.20	4.74
3	29.8842	85.5283	2.87	1.66	11.24	9.81
4	29.9077	85.5527	2.94	1.99	14.10	10.76
5	29.9327	85.5800	2.83	1.98	13.78	15.88
6	29.9548	85.6062	2.84	2.84	26.28	11.33
7	29.9773	85.6323	1.85	1.37	4.03	6.84
8	30.0023	85.6605	2.82	1.95	13.18	13.99
9	30.0277	85.6885	2.52	1.62	8.22	9.13
10	30.0508	85.7133	1.84	0.68	0.02	5.51
11	30.0758	85.7418	1.03	0.91	0.06	16.11
12	30.0975	85.7683	1.56	0.64	0.07	6.32
13	30.1178	85.7960	1.23	0.75	0.05	6.02
14	30.1448	85.8222	2.31	0.95	0.62	10.85
15	30.1692	85.8487	0.81	0.86	0.18	14.09
16	30.1938	85.8762	1.30	0.94	0.08	13.69
17	30.2188	85.9005	1.68	0.67	0.03	5.60
18	30.0930	85.7113	1.28	0.72	0.02	3.33
19	30.0717	85.6818	2.31	0.59	0.06	2.44
20	30.0462	85.6542	2.09	0.80	0.29	6.91
21	30.0225	85.6283	1.19	0.87	0.19	8.06
22	29.9985	85.6025	2.34	0.88	0.67	5.41
23	29.9745	85.5752	2.16	0.61	0.13	3.71
24	29.9508	85.5487	2.00	0.63	0.17	4.26
25	29.9272	85.5218	2.15	0.66	0.07	4.65
26	29.9032	85.4945	1.70	0.49	0.05	1.71
27	29.8787	85.4688	1.84	1.04	0.08	11.55
28	29.8552	85.4412	2.11	0.93	0.03	5.21
29	29.8155	85.4960	1.93	0.61	0.08	4.48
30	29.8398	85.5235	2.08	1.50	4.33	9.18
31	29.8632	85.5483	2.33	0.75	0.84	5.87
32	29.8875	85.5773	2.04	1.03	1.97	6.66
33	29.9122	85.6045	2.99	2.28	18.70	16.39
34	29.9352	85.6303	2.22	0.67	0.47	5.90
35	29.9575	85.6562	3.15	2.76	27.27	20.10
36	29.9797	85.6808	2.58	1.96	10.26	8.35
37	30.0065	85.7100	0.57	1.32	0.67	24.80
38	30.0278	85.7373	1.74	0.69	0.11	5.69
39	30.0510	85.7680	1.57	0.55	0.20	5.29
40	30.0757	85.7965	0.89	0.76	0.07	6.64
41	30.1038	85.8193	0.38	0.78	0.10	8.24
42	30.1265	85.8442	1.03	1.15	0.23	25.20
43	30.1495	85.8710	2.25	0.88	0.44	19.12
44	30.1738	85.9003	2.48	0.61	0.49	11.49
46	30.2220	85.9547	0.45	0.84	0.09	32.70
47	30.2428	85.9773	0.63	0.80	0.10	13.89
48	30.2768	86.0685	2.15	1.31	1.90	28.51
49	30.2540	86.0438	0.18	0.84	0.03	15.20
50	30.2305	86.0168	1.39	0.90	0.14	14.63
51	30.2037	85.9863	0.53	0.99	0.14	27.62
52	30.1805	85.9597	0.81	0.82	0.09	20.69

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
53	30.1555	85.9308	2.17	0.79	0.42	16.60
54	30.1332	85.9055	0.46	0.79	0.11	26.52
55	30.1088	85.8783	1.97	0.80	0.45	20.98
56	30.0818	85.8485	0.73	0.98	0.28	13.94
57	30.0600	85.8245	1.43	0.89	0.20	12.65
58	30.0367	85.7995	2.24	0.58	0.26	6.04
59	30.0115	85.7718	1.32	0.91	0.16	6.09
60	29.9913	85.7428	0.80	0.99	0.40	10.33
61	29.9672	85.7172	2.56	1.77	10.50	9.72
62	29.9430	85.6902	1.88	0.76	0.51	7.12
63	29.9202	85.6623	1.71	1.02	1.08	13.97
64	29.8945	85.6325	1.71	1.17	1.99	8.89
65	29.8715	85.6085	5.94	2.04	79.19	34.51
66	29.8478	85.5850	1.71	0.64	0.36	7.19
67	29.8253	85.5618	2.88	1.61	10.96	9.11
68	29.7822	85.5170	1.56	0.99	1.19	7.71
69	29.7733	85.5477	1.98	0.84	0.90	4.39
70	29.7953	85.5713	0.68	1.30	2.07	21.63
71	29.8188	85.5990	1.98	1.29	3.97	11.49
72	29.8383	85.6232	2.33	1.62	8.74	11.21
73	29.8683	85.6563	2.22	0.97	2.12	5.95
74	29.8918	85.6833	2.18	0.83	1.28	5.74
75	29.9150	85.7090	2.26	1.89	10.64	16.72
76	29.9393	85.7343	2.21	0.89	1.43	6.42
77	29.9643	85.7618	1.35	1.05	0.73	10.11
79	30.0010	85.8178	1.18	0.96	0.12	9.62
80	30.0347	85.8460	1.99	0.97	2.42	8.93
81	30.0563	85.8683	1.44	0.91	0.34	16.44
82	30.0795	85.8968	2.08	1.57	5.14	28.18
83	30.1073	85.9233	0.51	1.02	0.17	30.62
84	30.1313	85.9493	1.09	0.84	0.19	15.86
87	30.2018	86.0303	0.74	0.84	0.07	13.94
88	30.2268	86.0582	1.94	0.72	0.33	16.26
89	30.2500	86.0843	0.51	0.85	0.07	24.23
90	30.2730	86.1102	0.51	1.01	0.14	27.35
91	30.2992	86.1413	0.56	0.80	0.03	5.07
92	30.3168	86.1618	1.35	0.75	0.33	3.95
93	30.3268	86.2308	0.40	0.81	0.19	6.54
94	30.3062	86.2010	0.66	0.93	0.20	19.52
95	30.2855	86.1748	0.62	0.83	0.06	8.11
97	30.2382	86.1208	1.68	1.01	0.19	22.28
98	30.2130	86.0942	1.77	0.71	0.14	14.94
99	30.1830	86.0620	1.55	0.81	0.21	9.18
100	30.1623	86.0407	2.00	0.70	0.24	15.50
101	30.1402	86.0177	1.06	1.00	0.15	27.11
102	30.1123	85.9867	0.17	1.06	0.11	21.49
103	30.0978	85.9668	0.68	1.15	0.67	40.48
104	30.0702	85.9308	1.84	0.92	0.57	13.91
105	30.0468	85.9042	1.28	0.92	0.31	10.59
106	30.0233	85.8783	1.29	0.68	0.08	7.56
107	29.9997	85.8517	1.33	0.94	0.30	6.24
108	29.9763	85.8260	1.53	1.13	0.70	9.14
109	29.9508	85.7990	1.80	0.64	0.13	6.11
110	29.9282	85.7723	0.62	1.00	0.10	18.66
111	29.9050	85.7422	1.93	0.90	0.34	7.00
112	29.8800	85.7153	2.22	0.74	0.74	7.16
113	29.8562	85.6908	2.32	0.84	1.61	7.36
114	29.8308	85.6663	0.85	1.12	0.28	30.12
115	29.8068	85.6428	1.68	0.90	1.69	11.02

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
116	29.7817	85.6158	3.09	1.86	14.75	18.43
117	29.7607	85.5862	3.37	1.74	14.00	21.15
118	29.9287	85.8195	1.95	0.65	0.33	5.55
119	29.9540	85.8472	1.85	0.69	0.25	6.98
120	29.9768	85.8720	1.66	0.86	0.31	5.91
121	29.9965	85.8985	1.05	0.83	0.22	6.36
122	30.0208	85.9252	1.26	1.15	0.34	21.35
123	30.0458	85.9507	0.60	1.20	0.31	32.42
124	30.0738	85.9765	1.21	0.91	0.38	22.81
125	30.0972	86.0068	2.97	1.12	0.03	0.00
126	30.1193	86.0357	1.07	0.98	0.13	17.51
127	30.1428	86.0602	1.56	0.82	0.13	17.13
128	30.1673	86.0863	2.40	0.78	0.43	10.05
129	30.1912	86.1162	0.88	1.00	0.29	17.68
130	30.2142	86.1453	0.84	1.15	0.13	23.43
131	30.2382	86.1727	2.11	0.91	0.23	13.37
132	30.2637	86.2003	0.46	1.03	0.13	25.09
133	30.2875	86.2257	1.59	0.65	0.15	11.73
134	30.3108	86.2515	2.45	0.72	0.73	17.66
135	30.3345	86.2795	1.42	0.71	0.08	6.47
136	30.3507	86.3537	0.94	0.77	0.10	7.75
137	30.3290	86.3288	2.15	0.87	0.71	15.49
138	30.3035	86.2938	0.64	0.76	0.09	22.01
139	30.2815	86.2695	2.32	1.14	2.21	18.97
140	30.2567	86.2408	0.87	1.07	0.32	14.75
141	30.2347	86.2162	2.13	1.00	0.95	18.64
142	30.2093	86.1868	1.26	0.91	0.37	20.84
143	30.1848	86.1592	1.02	0.98	0.26	20.68
144	30.1625	86.1333	2.00	0.82	0.38	12.17
145	30.1385	86.1068	1.97	0.91	0.63	4.48
146	30.1157	86.0802	1.79	1.11	0.44	16.47
147	30.0915	86.0530	1.62	0.69	0.18	16.48
148	30.0682	86.0263	1.38	1.12	0.31	20.29
149	30.0187	86.0185	2.01	1.02	0.49	18.96
150	30.0418	86.0443	1.42	0.82	0.18	19.05
151	30.0647	86.0722	1.67	0.68	0.26	12.70
152	30.0840	86.0960	1.86	0.94	0.37	16.02
153	30.1115	86.1255	0.28	1.14	0.28	46.90
154	30.1345	86.1507	2.24	0.80	0.88	18.97
155	30.1598	86.1788	0.57	1.23	0.35	53.39
156	30.1847	86.2098	0.24	1.00	0.27	64.82
157	30.2073	86.2362	0.35	0.98	0.22	52.73
158	30.2300	86.2607	1.22	1.13	0.30	29.01
159	30.2537	86.2860	1.26	0.82	0.27	23.16
160	30.2767	86.3110	1.59	0.75	0.20	8.38
161	30.3008	86.3378	1.02	1.09	0.28	27.81
162	30.3220	86.3628	0.37	0.91	0.11	13.77
163	30.3432	86.3885	1.09	0.74	0.09	12.39
164	30.3690	86.4192	1.28	0.86	0.08	5.11
165	30.3682	86.4688	0.89	0.72	0.08	10.06
166	30.3483	86.4445	1.63	0.66	0.11	8.34
167	30.3220	86.4128	0.49	1.07	0.20	24.74
168	30.3008	86.3870			0.00	
169	30.2742	86.3563	1.26	0.67	0.16	5.79
170	30.2490	86.3312	0.47	1.02	0.14	61.78
171	30.2247	86.3040	0.73	0.92	0.25	58.28
172	30.2008	86.2768	-0.04	1.30	0.30	62.31
173	30.1783	86.2505	1.77	0.67	0.40	9.39
174	30.1545	86.2242	1.14	1.10	0.59	45.53

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
175	30.1308	86.1975	1.33	1.04	0.33	41.83
176	30.1062	86.1698	1.12	1.49	0.99	32.52
177	30.1495	86.2687	1.21	0.89	0.52	25.73
178	30.1692	86.2917	1.37	1.00	0.37	18.33
179	30.1932	86.3177	1.22	0.91	0.34	19.09
180	30.2217	86.3487	1.34	0.73	0.29	10.65
181	30.2418	86.3705	0.64	0.93	0.18	54.28
182	30.2688	86.4000	1.35	1.36	1.11	19.22
183	30.2927	86.4260	1.70	0.65	0.23	4.98
184	30.3180	86.4523	1.63	0.63	0.17	25.42
185	30.3388	86.4792	0.43	0.97	0.14	20.59
186	30.3622	86.5097	0.92	0.95	0.37	15.55
187	30.3697	86.5745	1.68	0.44	0.03	3.71
188	30.3438	86.5403	0.76	0.85	0.11	9.97
189	30.3240	86.5172	2.20	0.94	1.35	22.49
190	30.3000	86.4898	1.48	0.61	0.05	6.68
191	30.2747	86.4615	2.26	0.76	0.57	6.89
192	30.2525	86.4352	1.03	0.85	0.28	4.50
193	30.2293	86.4092	1.92	0.82	0.69	16.98
194	30.2060	86.3828	2.39	0.69	0.66	11.21
195	30.1822	86.3545	1.19	1.25	0.71	37.66
196	30.1588	86.3280	1.24	0.80	0.31	16.50
197	30.1968	86.4223	2.46	0.78	1.29	22.43
198	30.2212	86.4663	1.77	0.65	0.23	5.16
199	30.2445	86.4762	-0.03	1.12	0.21	30.79
200	30.2673	86.5030	1.43	0.58	0.08	2.95
201	30.2940	86.5330	1.52	0.65	0.18	4.07
202	30.3155	86.5575	1.34	0.72	0.08	10.67
203	30.3397	86.5858	2.29	0.65	0.36	10.68
204	30.3640	86.6132	0.82	0.76	0.11	8.06
205	30.3850	86.6388	0.86	0.64	0.07	2.94
206	30.3795	86.6828	0.97	0.73	0.11	3.71
207	30.3638	86.6637	1.44	0.76	0.17	7.97
208	30.3402	86.6358	0.93	0.84	0.14	12.34
209	30.3155	86.6088	1.27	0.74	0.25	5.80
210	30.2908	86.5808	1.46	0.88	0.22	13.85
211	30.2675	86.5528	1.47	0.65	0.09	8.27
212	30.2435	86.5255	1.27	0.74	0.15	5.46
213	30.2192	86.4977	0.86	0.83	0.13	9.98
214	30.1952	86.4705	0.99	0.74	0.11	5.77
215	30.1950	86.5188	1.27	0.67	0.13	6.05
216	30.2185	86.5460	1.21	0.73	0.15	5.75
217	30.2423	86.5738	1.78	0.70	0.28	6.75
218	30.2663	86.6015	1.51	0.67	0.12	7.01
219	30.2905	86.6277	0.81	0.97	0.30	11.83
220	30.3147	86.6558	1.19	0.70	0.09	9.70
221	30.3378	86.6828	1.01	0.84	0.14	6.87
222	30.3615	86.7102	1.39	0.66	0.20	9.11
223	30.3832	86.7377	0.97	0.67	0.08	5.77
224	30.3632	86.7657	1.25	0.78	0.16	6.63
225	30.3392	86.7350	1.19	0.81	0.17	7.75
226	30.3170	86.7098	1.04	0.66	0.03	6.76
227	30.2938	86.6832	1.49	0.71	0.09	6.43
228	30.2695	86.6555	1.43	0.63	0.15	4.30
229	30.2450	86.6270	0.68	1.23	0.24	7.87
230	30.2238	86.6013	1.56	0.78	0.27	7.86
231	30.1985	86.5732	0.99	0.89	0.15	4.07
232	30.1975	86.6217	0.96	0.73	0.10	8.12
233	30.2220	86.6497	1.21	0.72	0.11	4.42

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
234	30.2445	86.6770	1.45	0.69	0.18	4.10
235	30.2683	86.7057	1.52	0.57	0.10	6.57
236	30.2917	86.7300	1.37	0.75	0.20	11.74
237	30.3155	86.7588	1.06	0.80	0.08	4.53
238	30.3405	86.7868	1.04	0.74	0.07	4.47
239	30.3727	86.8228	1.59	0.71	0.15	4.71
240	30.3513	86.8488	1.03	0.75	0.07	6.07
241	30.3277	86.8228	1.02	0.78	0.06	3.31
242	30.3048	86.7958	1.15	0.83	0.15	7.41
243	30.2798	86.7665	1.47	0.74	0.14	6.48
244	30.2570	86.7397	1.53	0.60	0.06	6.00
245	30.2338	86.7120	1.34	0.74	0.10	6.40
246	30.2075	86.6815	1.43	0.82	0.20	9.13
247	30.1965	86.7222	1.04	0.67	0.03	4.56
249	30.2503	86.7825	2.27	0.56	0.16	5.56
250	30.2702	86.8038	1.47	0.61	0.06	2.14
251	30.2908	86.8295	1.53	0.67	0.10	8.78
252	30.3147	86.8570	1.19	0.70	0.08	3.63
253	30.3395	86.8843	1.05	0.77	0.09	4.32
254	30.3637	86.9122	0.83	0.60	0.03	1.77
255	30.3528	86.9452	1.55	0.73	0.10	3.90
256	30.3313	86.9200	0.89	0.82	0.08	3.74
257	30.3045	86.8882	0.94	0.88	0.14	16.20
258	30.2817	86.8637	0.98	0.76	0.05	5.32
259	30.2552	86.8360	1.62	0.60	0.13	3.45
260	30.2303	86.8100	1.00	0.75	0.09	4.97
262A	30.2063	86.8330	1.24	0.84	0.28	14.74
263	30.2220	86.8503	0.94	1.14	0.19	6.91
264	30.2483	86.8812	1.60	0.57	0.08	3.48
265	30.2517	86.8857	1.52	0.63	0.10	5.32
266	30.2707	86.9075	1.18	0.71	0.14	7.69
267	30.2935	86.9330	0.94	0.87	0.17	17.88
268	30.3157	86.9610	1.00	0.81	0.06	6.01
269	30.3398	86.9875	1.10	0.69	0.06	3.54
270	30.3307	87.0238	1.27	0.62	0.04	5.61
271	30.3045	86.9967	0.82	0.81	0.16	5.06
272	30.2793	86.9673	2.26	0.70	0.46	11.66
273	30.2567	86.9405	0.41	1.17		
276	30.1825	86.9053	-0.60	1.43	0.10	49.45
278	30.2280	86.9558				
279	30.2512	86.9825	0.81	0.92	0.08	6.57
280	30.2750	87.0092	1.24	0.69	0.10	28.49
281	30.2977	87.0347	1.40	0.70	0.10	6.60
282	30.3222	87.0657	1.32	0.72	0.09	4.57
283	30.3012	87.0888	1.19	0.79	0.09	5.93
284	30.2790	87.0630	1.15	0.90	0.21	5.18
286	30.2280	87.0100	1.54	0.60	0.10	7.94
287	30.2013	86.9785	0.89	1.06	0.10	1.18
288	30.1783	86.9523	1.42	0.78	0.26	5.59
289	30.1730	86.9950	0.88	0.70	0.09	3.44
290	30.1967	87.0230	1.49	0.66	0.20	16.91
291	30.2208	87.0510	1.48	0.79	0.27	8.08
292	30.2430	87.0773	1.20	0.61	0.04	7.85
293	30.2658	87.1023	1.14	0.85	0.27	3.93
294	30.2900	87.1322	1.36	0.60	0.08	4.20
295	30.3130	87.1593	1.63	0.64	0.07	3.34
296	30.3040	87.1965	1.37	0.70	0.08	6.22
297	30.2777	87.1657	1.93	1.26	2.02	1.28
298	30.2548	87.1365	1.14	0.62	0.03	14.85

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
299	30.2320	87.1097	1.30	0.66	0.09	9.08
300	30.2067	87.0817	1.10	0.85	0.16	6.82
301	30.1857	87.0570	1.89	0.63	0.10	2.65
303	30.1538	87.0697	1.43	0.76	0.15	0.00
304	30.1805	87.0992	2.21	0.66	0.30	8.20
305	30.2038	87.1278	0.90	0.77	0.07	3.55
306	30.2260	87.1553	0.91	0.95	0.03	0.60
307	30.2497	87.1848	1.94	0.79	0.37	14.57
308	30.2708	87.2090	1.57	0.49	0.04	5.13
310	30.2737	87.2612	1.57	0.74	0.08	2.32
311	30.2503	87.2358	1.20	0.98	0.15	8.41
312	30.2272	87.2075	1.25	0.76	0.08	4.81
313	30.2033	87.1812	1.50	0.74	0.15	3.12
314	30.1793	87.1537	1.11	0.77	0.14	17.96
315	30.1542	87.1243	0.80	0.75	0.07	3.97
316	30.1350	87.1487	0.94	0.99	0.17	10.57
317	30.1592	87.1787	0.62	0.97	0.16	9.84
318	30.1823	87.2050	0.76	0.92	0.11	9.28
319	30.2048	87.2317	0.73	0.86	0.06	5.56
320	30.2303	87.2593	1.71	0.77	0.33	3.44
321	30.2505	87.2840	1.68	0.63	0.11	5.98
322	30.2267	87.3123	1.56	0.52	0.06	2.60
323	30.2730	87.3572	1.66	0.51	0.08	6.79
324	30.2478	87.3295	0.82	0.64	0.02	1.55
325	30.2232	87.3003	1.27	0.72	0.08	13.94
326A	30.1962	87.2657	1.05	0.67	0.04	3.82
327	30.1762	87.2428	1.38	0.75	0.16	1.54
328	30.1345	87.1942	2.43	1.01	1.89	13.90
329	30.1337	87.2482	1.33	0.67	0.08	4.00
330	30.1607	87.2758	1.14	0.81	0.09	14.66
331	30.2288	87.3562	1.37	0.60	0.06	2.00
332	30.2520	87.3847	1.12	0.63	0.06	1.52
333	30.2732	87.4080	1.48	0.56	0.03	7.41
334	30.2578	87.4408	1.68	0.61	0.04	2.55
335	30.2367	87.4143	1.22	0.64	0.04	0.00
336	30.2137	87.3865	1.37	0.62	0.03	1.27
337	30.1912	87.3583	1.61	0.64	0.11	4.58
338	30.1677	87.3313	1.32	0.56	0.04	0.00
339	30.1432	87.3048	1.05	0.87	0.04	1.49
340	30.1333	87.3460	1.28	0.68	0.07	9.66
341	30.1615	87.3758	0.90	0.82	0.08	3.83
342	30.1862	87.4045	1.60	0.49	0.03	0.00
343	30.2027	87.4252	1.61	0.54	0.05	2.07
344	30.2258	87.4543	1.49	0.66	0.07	0.00
345	30.2497	87.4827	1.06	0.71	0.04	5.38
346	30.2422	87.5170	1.60	0.58	0.14	3.61
347	30.2148	87.4873	1.44	0.72	0.10	8.72
348	30.1897	87.4598	1.13	0.78	0.07	6.55
349	30.1662	87.4340	1.21	0.84	0.17	7.37
350	30.1188	87.3798	1.28	0.71	0.16	11.15
352	30.1388	87.4535	1.27	0.71	0.07	12.46
353	30.1595	87.4790	2.07	0.70	0.67	1.18
354	30.1850	87.5112	2.48	0.60	0.39	1.75
355	30.2087	87.5342	1.17	1.01	0.12	0.00
356	30.2310	87.5593	2.09	0.55	0.07	3.26
357	30.2160	87.5953	1.40	1.03	0.13	2.84
358	30.1935	87.5670	1.67	0.51	0.03	1.92
359	30.1707	87.5410	2.13	0.56	0.11	0.57
360	30.1427	87.5107	1.23	1.02	0.30	15.20

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
15	1900	30.2282	86.3467	
15	1910	30.2150	86.3613	
15	1920	30.2023	86.3757	
15	1930	30.1912	86.3885	
15	1935	30.1848	86.3965	EOL 98
15	1940	30.1802	86.3952	
15	1950	30.1680	86.3817	
15	1956	30.1618	86.3725	SOL 102
15	2000	30.1663	86.3675	
15	2010	30.1798	86.3557	
15	2020	30.1908	86.3432	
15	2030	30.2017	86.3295	
15	2040	30.2127	86.3158	
15	2050	30.2240	86.3020	
15	2100	30.2355	86.2880	
15	2110	30.2473	86.2737	
15	2120	30.2592	86.2597	
15	2130	30.2713	86.2452	
15	2140	30.2832	86.2310	
15	2150	30.2952	86.2160	
15	2200	30.3080	86.2018	
15	2208	30.3183	86.1907	EOL 102
15	2221	30.3120	86.1625	
15	2227	30.3068	86.1558	SOL 106
15	2230	30.3025	86.1592	
15	2240	30.2888	86.1725	
15	2250	30.2767	86.1877	
15	2300	30.2645	86.2028	
15	2310	30.2517	86.2175	
15	2320	30.2390	86.2323	
15	2330	30.2262	86.2465	
15	2340	30.2137	86.2622	
15	2350	30.2015	86.2767	
16	0000	30.1888	86.2908	
16	0010	30.1760	86.3050	
16	0020	30.1638	86.3200	
16	0030	30.1518	86.3343	
16	0038	30.1410	86.3468	EOL 106
16	0040	30.1390	86.3487	
16	0050	30.1358	86.3295	
16	0100	30.1357	86.3082	
16	0107	30.1417	86.2980	SOL 110
16	0110	30.1445	86.2950	
16	0120	30.1545	86.2818	
16	0130	30.1647	86.2690	
16	0140	30.1750	86.2563	
16	0150	30.1855	86.2435	
16	0200	30.1967	86.2313	
16	0210	30.2078	86.2185	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
16	0220	30.2190	86.2053	
16	0230	30.2297	86.1918	
16	0240	30.2403	86.1782	
16	0250	30.2522	86.1655	
16	0300	30.2638	86.1523	
16	0310	30.2753	86.1393	
16	0320	30.2870	86.1260	
16	0329	30.2975	86.1138	EOL 110
16	0342	30.2923	86.0888	
16	0350	30.2850	86.0793	SOL 114
16	0400	30.2720	86.0922	
16	0410	30.2607	86.1067	
16	0420	30.2480	86.1207	
16	0430	30.2357	86.1347	
16	0440	30.2235	86.1493	
16	0450	30.2112	86.1635	
16	0500	30.1992	86.1787	
16	0510	30.1870	86.1927	
16	0520	30.1747	86.2063	
16	0530	30.1628	86.2205	
16	0540	30.1510	86.2340	
16	0550	30.1392	86.2478	EOL 114
16	0600	30.1240	86.2433	
16	0611	30.1188	86.2232	
16	0615	30.1240	86.2172	SOL 118
16	0620	30.1295	86.2113	
16	0630	30.1412	86.1978	
16	0640	30.1527	86.1842	
16	0650	30.1637	86.1703	
16	0700	30.1743	86.1567	
16	0710	30.1855	86.1423	
16	0720	30.1973	86.1273	
16	0730	30.2088	86.1133	
16	0740	30.2215	86.1005	
16	0750	30.2333	86.0862	
16	0800	30.2455	86.0722	
16	0810	30.2582	86.0575	
16	0820	30.2703	86.0428	EOL 118
16	0830	30.2652	86.0248	
16	0840	30.2545	86.0117	SOL 122
16	0850	30.2408	86.0280	
16	0900	30.2290	86.0435	
16	0910	30.2162	86.0592	
16	0920	30.2025	86.0737	
16	0940	30.1755	86.1040	
16	0950	30.1623	86.1192	
16	1000	30.1495	86.1343	
16	1010	30.1368	86.1495	
16	1020	30.1240	86.1652	

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
16	1030	30.1110	86.1815	
16	1040	30.0990	86.1958	EOL 122
16	1050	30.0940	86.1813	
16	1100	30.0925	86.1617	
16	1106	30.0932	86.1495	SOL 126
16	1110	30.0973	86.1452	
16	1120	30.1092	86.1322	
16	1130	30.1208	86.1188	
16	1140	30.1325	86.1050	
16	1150	30.1443	86.0905	
16	1200	30.1565	86.0758	
16	1210	30.1687	86.0610	
16	1220	30.1810	86.0462	
16	1230	30.1933	86.0310	
16	1240	30.2058	86.0168	
16	1250	30.2178	86.0048	
16	1300	30.2310	85.9908	
16	1310	30.2430	85.9750	EOL 126
16	1334	30.2293	85.9362	SOL 130
16	1340	30.2222	85.9460	
16	1350	30.2097	85.9627	
16	1400	30.1962	85.9780	
16	1410	30.1828	85.9935	
16	1420	30.1705	86.0088	
16	1430	30.1588	86.0227	
16	1440	30.1467	86.0367	
16	1450	30.1342	86.0508	
16	1500	30.1220	86.0660	
16	1510	30.1092	86.0813	
16	1520	30.0965	86.0953	
16	1530	30.0842	86.1087	
16	1540	30.0725	86.1232	EOL 130
16	1550	30.0577	86.1160	
16	1615	30.0525	86.0975	SOL 134
16	1630	30.0707	86.0750	
16	1640	30.0827	86.0603	
16	1650	30.0947	86.0458	
16	1700	30.1075	86.0315	
16	1710	30.1197	86.0180	
16	1720	30.1315	86.0033	
16	1730	30.1440	85.9878	
16	1740	30.1572	85.9745	
16	1750	30.1693	85.9592	
16	1800	30.1823	85.9438	
16	1810	30.1955	85.9292	
16	1822	30.2115	85.9112	EOL 134
16	1830	30.2085	85.8978	
16	1840	30.1962	85.8823	
16	1842	30.1925	85.8825	SOL 138

DATE	TIME	LATITUDE	LONGITUDE	LINE ID
16	1852	30.1818	85.8937	
16	1900	30.1682	85.9095	
16	1910	30.1548	85.9257	
16	1920	30.1412	85.9412	
16	1930	30.1280	85.9567	
16	1940	30.1148	85.9730	
16	1950	30.1015	85.9897	
16	2000	30.0887	86.0062	
16	2010	30.0762	86.0225	
16	2020	30.0615	86.0368	
16	2031	30.0467	86.0523	
16	2040	30.0347	86.0658	
16	2043	30.0298	86.0720	EOL 138
16	2050	30.0227	86.0660	
16	2100	30.0153	86.0495	
16	2105	30.0140	86.0402	SOL 142
16	2110	30.0197	86.0338	
16	2120	30.0327	86.0195	
16	2130	30.0458	86.0053	
16	2140	30.0587	85.9902	
16	2150	30.0707	85.9747	
16	2200	30.0832	85.9590	
16	2210	30.0957	85.9438	
16	2220	30.1088	85.9290	
16	2230	30.1218	85.9138	
16	2240	30.1348	85.8983	
16	2250	30.1482	85.8827	
16	2300	30.1612	85.8670	
16	2310	30.1742	85.8513	
16	2315	30.1808	85.8435	EOL 142
16	2320	30.1778	85.8348	
16	2330	30.1660	85.8167	
16	2334	30.1613	85.8172	SOL 146
16	2340	30.1543	85.8262	
16	2350	30.1417	85.8408	
17	0000	30.1288	85.8550	
17	0010	30.1165	85.8698	
17	0020	30.1040	85.8848	
17	0030	30.0912	85.8988	
17	0040	30.0795	85.9138	
17	0050	30.0668	85.9282	
17	0100	30.0538	85.9422	
17	0110	30.0417	85.9575	
17	0120	30.0293	85.9722	
17	0130	30.0165	85.9870	
17	0138	30.0058	85.9992	EOL 146
17	0141	30.0023	86.0017	
17	0153	29.9940	85.9820	
17	0200	29.9973	85.9698	

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
361	30.1215	87.4850	1.73	0.65	0.17	0.00
362	30.1052	87.4675	1.71	0.74	0.35	4.53
363	30.1952	87.5850	1.87	0.60	0.11	4.06
364	30.2193	87.5580	2.10	0.56	0.05	2.26
365	30.2405	87.5340	2.13	0.58	0.07	2.28
366	30.2567	87.4655	1.52	0.59	0.02	2.14
367	30.2187	87.5087	2.06	0.59	0.07	4.68
368	30.1752	87.5587	2.14	0.55	0.11	0.00
371	30.1477	87.5402	1.78	0.81	0.42	6.73
372	30.1762	87.5092	1.47	0.72	0.12	1.82
373	30.1987	87.4843	1.90	0.64	0.15	3.64
374	30.2225	87.4530	1.68	0.62	0.10	2.09
375	30.2425	87.4297	1.02	0.62	0.01	2.24
376	30.2695	87.3998	1.42	0.64	0.06	3.97
377	30.2730	87.3463	2.10	0.65	0.18	5.78
378	30.2530	87.3710	1.61	0.39	0.00	3.14
379	30.2272	87.3985	1.36	0.64	0.04	3.92
380	30.2047	87.4248	1.37	0.62	0.01	1.85
381	30.1790	87.4548	1.14	0.88	0.13	13.68
382	30.1543	87.4822	0.73	1.10	0.10	17.50
383	30.1315	87.5080	1.26	0.89	0.27	8.66
384	30.1095	87.5348	1.03	1.02	0.21	13.57
386	30.1078	87.4865	1.14	0.71	0.08	6.15
387	30.1323	87.4573	1.03	0.87	0.21	14.47
388	30.1553	87.4313	1.62	0.65	0.14	6.00
389	30.1785	87.4042	1.28	0.79	0.12	9.16
390	30.2035	87.3762	1.40	0.65	0.08	4.04
391	30.2285	87.3493	0.89	0.67	0.00	3.95
392	30.2527	87.3203	2.24	0.56	0.15	4.88
393	30.2737	87.2942	1.91	0.64	0.08	3.02
394	30.2993	87.2667	1.44	0.51	0.02	2.89
395	30.2682	87.2512	1.08	0.73	0.01	2.93
396	30.2488	87.2732	1.13	0.66	0.02	3.25
397	30.2315	87.2952	0.91	0.70	0.04	6.94
398	30.2022	87.3305	1.45	0.75	0.11	6.21
399	30.1803	87.3562	1.88	0.65	0.11	7.04
400	30.1532	87.3835	0.98	0.76	0.13	7.95
401	30.1330	87.4050	1.24	0.80	0.17	6.01
402	30.1067	87.4403	1.71	0.57	0.12	8.10
403	30.1138	87.3998	1.04	0.67	0.04	3.58
404	30.1365	87.3543	2.36	0.77	0.91	10.95
405	30.1580	87.3267	1.29	0.59	0.04	4.11
406	30.1787	87.3042	1.33	0.62	0.08	6.42
407	30.2012	87.2790	1.09	0.66	0.07	4.34
408	30.2260	87.2497	1.26	0.79	0.10	12.00
409	30.2523	87.2220	1.32	0.69	0.01	8.22
410	30.2782	87.1940	1.03	0.73	0.03	9.91
411	30.2987	87.1700	1.95	0.62	0.05	5.45
412	30.2995	87.1178	1.45	0.56	0.02	3.80
413	30.2775	87.1428	1.29	0.90	0.20	13.95
414	30.2493	87.1750	1.73	0.69	0.17	11.36
415	30.2265	87.2012	1.59	0.68	0.12	8.84
416	30.2038	87.2277	1.20	0.77	0.13	10.06
417	30.1780	87.2558	1.60	0.65	0.23	12.20
418	30.1560	87.2823	1.09	0.70	0.04	6.37
419	30.1330	87.3097	1.44	0.65	0.16	8.10
420	30.1313	87.2593	1.42	0.74	0.22	10.65
421	30.2010	87.1833	0.55	0.95	0.06	7.54
422	30.2253	87.1550	0.91	0.93	0.27	11.93

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
423	30.2498	87.1268	1.22	0.85	0.18	10.01
424	30.2753	87.0962	1.29	0.76	0.06	6.89
425	30.2987	87.0692	1.40	0.85	0.24	11.54
426	30.3228	87.0413	1.28	0.74	0.17	4.66
427	30.3210	86.9932	0.89	0.76	0.10	9.48
428	30.2962	87.0235	1.31	0.79	0.12	11.76
429	30.2738	87.0487	1.42	0.70	0.23	10.68
430	30.2477	87.0763	0.96	0.67	0.06	4.93
431	30.2258	87.1023	1.42	0.65	0.27	9.15
432	30.2013	87.1305	2.12	0.92	1.02	15.38
433	30.1788	87.1568	0.91	0.73	0.09	9.54
434	30.1555	87.1853	1.73	0.75	0.26	14.59
435	30.1298	87.2132	1.38	0.64	0.20	8.53
436	30.1825	87.1018	1.07	0.77	0.11	7.69
437	30.2065	87.0743	1.24	0.77	0.22	11.10
438	30.2317	87.0450	2.58	0.84	1.73	23.91
439	30.2557	87.0167	1.38	0.64	0.08	9.39
440	30.2780	86.9902	0.49	1.06	0.19	24.50
441	30.3018	86.9620	1.09	0.81	0.13	12.84
442	30.3222	86.9367	1.16	0.71	0.05	6.21
443	30.3482	86.9087	1.65	0.75	0.23	12.64
444	30.3438	86.8650	1.17	0.77	0.11	11.11
445	30.3267	86.8953	1.06	0.85	0.15	12.99
447	30.2705	86.9483	1.07	0.83	0.29	13.09
448	30.2483	86.9763	1.23	0.79	0.19	8.70
449	30.2247	87.0038	1.22	0.83	0.31	11.65
450	30.2015	87.0310	1.07	0.81	0.15	4.34
451	30.1775	87.0592	0.90	0.95	0.13	13.42
452	30.1542	87.0858	0.83	0.98	0.34	20.33
453	30.2137	86.9640	1.44	0.68	0.22	7.28
454	30.2383	86.9370	1.63	0.70	0.24	9.63
455	30.2612	86.9118	1.29	0.76	0.15	10.20
456	30.2832	86.8863	1.52	0.68	0.29	8.74
457	30.3083	86.8553	1.17	0.75	0.09	9.07
458	30.3297	86.8290	1.21	0.88	0.35	13.38
459	30.3545	86.7997	1.04	0.78	0.14	7.26
460	30.3622	86.7423	0.88	0.68	0.07	5.42
461	30.3395	86.7693	1.11	0.75	0.12	6.01
462	30.3202	86.7910	1.17	0.74	0.13	7.58
463	30.2917	86.8283	1.81	0.61	0.19	13.22
464	30.2680	86.8507	1.38	0.75	0.26	10.49
465	30.2477	86.8748	1.85	0.74	0.31	7.80
466	30.2252	86.9027	1.21	0.75	0.11	6.59
467	30.1987	86.9307	1.20	0.82	0.28	11.34
468	30.1760	86.9583	0.84	0.79	0.11	7.79
469	30.1767	86.9055	0.20	0.96	0.10	37.27
470	30.1977	86.8812	1.40	0.66	0.16	10.68
471	30.2213	86.8540	1.02	0.80	0.18	9.25
472	30.2443	86.8290	1.40	0.62	0.07	4.65
473	30.2673	86.8013	1.38	0.61	0.09	6.69
474	30.2935	86.7718	1.55	0.85	0.44	12.41
475	30.3158	86.7463	0.96	0.77	0.11	7.35
476	30.3410	86.7185	1.34	0.72	0.17	10.26
477	30.3653	86.6920	1.06	0.75	0.20	7.42
478	30.3607	86.6435	0.85	0.65	0.05	11.65
479	30.3397	86.6700	0.92	0.84	0.11	9.58
480	30.3148	86.6972	1.13	0.74	0.13	9.60
481	30.2927	86.7225	0.83	0.92	0.13	16.17
482	30.2695	86.7502	1.46	0.70	0.14	7.77

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
483	30.2475	86.7758	1.60	0.66	0.19	7.60
484	30.2252	86.8025	0.76	0.60	0.04	4.31
485	30.1962	86.8368	1.44	0.86	0.30	20.68
486	30.3107	86.6518	1.31	0.63	0.15	24.32
487	30.3380	86.6182	0.60	1.04	0.19	28.34
488	30.3640	86.5882	1.27	1.06	0.99	13.78
489	30.1998	86.7303	1.32	0.73	0.20	13.91
490	30.2257	86.7025	0.88	0.83	0.20	19.53
491	30.2467	86.6773	1.60	0.75	0.21	15.61
492	30.2720	86.6482	1.55	0.60	0.23	5.51
493	30.2952	86.6205	0.77	0.77	0.14	13.05
494	30.3173	86.5927	0.56	1.51	0.35	34.67
495	30.3405	86.5650	1.33	0.74	0.19	15.94
496	30.3637	86.5383	0.88	0.75	0.08	8.69
497	30.3640	86.4915	0.88	0.75	0.21	9.65
498	30.3400	86.5188	0.80	0.82	0.11	19.23
499	30.3158	86.5468	0.68	0.66	0.08	12.86
500	30.2898	86.5773	-0.10	1.08	0.23	68.50
501	30.2682	86.6020	1.78	0.73	0.40	14.88
502	30.2435	86.6307	0.54	0.78	0.09	3.49
503	30.2210	86.6563	1.01	1.06	0.34	19.41
504	30.1987	86.6817	1.18	0.82	0.18	9.47
505	30.1977	86.6325	0.84	0.84	0.07	8.28
506	30.2203	86.6028	0.82	0.88	0.13	9.99
507	30.2462	86.5732	2.26	0.84	0.86	12.27
508	30.2682	86.5490	1.15	0.78	0.10	4.86
509	30.2918	86.5225	2.22	0.81	0.56	13.02
510	30.3155	86.4948	1.41	0.77	0.13	13.93
511	30.3378	86.4663	1.02	0.72	0.06	16.39
512	30.3435	86.4197	1.26	0.80	0.28	12.70
513	30.3147	86.4465	0.05	1.01	0.15	48.93
514	30.2910	86.4727	1.39	0.64	0.08	6.65
515	30.2660	86.5020	1.39	0.66	0.15	4.18
516	30.2457	86.5270	1.42	0.78	0.22	6.02
517	30.2225	86.5563	0.91	0.63	0.04	35.42
518	30.1975	86.5838	1.64	0.69	0.19	6.25
519	30.1987	86.5333	2.40	0.83	0.82	21.55
520	30.2192	86.5060	0.85	0.82	0.15	12.15
521	30.2417	86.4788	2.02	0.99	0.69	12.58
522	30.2630	86.4528	1.28	0.82	0.17	9.36
523	30.2877	86.4245	1.29	0.70	0.13	6.95
524	30.3125	86.3963	1.29	1.40	2.96	0.00
525	30.3370	86.3682	1.14	0.75	0.13	13.08
526	30.3365	86.3185	1.10	0.67	0.07	7.57
527	30.3145	86.3453	1.40	0.63	0.12	5.48
528	30.2885	86.3767	1.35	0.68	0.15	5.27
529	30.2702	86.3977	1.52	1.09	0.29	19.57
530	30.2420	86.4305	0.90	1.09	0.32	32.92
531	30.2190	86.4560	1.50	0.80	0.26	10.52
532	30.1972	86.4808	0.79	1.05	0.16	13.67
533	30.2015	86.4268	0.91	0.81	0.17	20.99
534	30.2245	86.3985	1.27	0.85	0.22	9.73
535	30.2493	86.3688	1.58	1.04	0.38	39.79
536	30.2722	86.3432	1.88	0.96	0.91	11.92
537	30.2945	86.3172	0.51	0.89	0.15	20.25
538	30.3210	86.2860	0.51	0.77	0.10	28.83
539	30.3408	86.2628	1.41	0.82	0.46	8.85
540	30.3102	86.2477	0.28	1.08	0.16	16.42
541	30.2862	86.2787	2.44	0.94	1.87	29.14

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
542	30.2673	86.3030	0.92	0.84	0.15	35.01
543	30.2410	86.3325	0.35	1.23	0.27	69.53
544	30.2192	86.3552	1.08	0.86	0.15	17.88
545	30.1858	86.8092	0.69	0.91	0.20	38.53
546	30.1838	86.3497	1.88	1.19	0.94	40.72
547	30.2033	86.3255	1.26	0.99	0.25	35.93
548	30.2262	86.2978	0.06	1.20	0.19	67.48
550	30.2710	86.2437	1.23	0.95	0.51	11.30
551	30.2928	86.2168	0.40	0.78	0.13	20.70
552	30.2923	86.1677	0.07	1.24	0.19	52.62
553	30.2695	86.1950	1.38	1.06	0.63	25.97
554	30.2448	86.2233	0.85	0.77	0.16	13.85
555	30.2210	86.2512	2.22	0.98	1.99	29.09
556	30.1992	86.2775	0.24	1.68	0.77	0.00
557	30.1747	86.3048	0.71	1.20	0.40	52.31
558	30.1517	86.3327	0.82	0.92	0.36	50.24
559	30.1540	86.2810	1.76	0.90	1.09	26.99
560	30.1768	86.2523	2.19	0.77	0.67	24.03
561	30.2000	86.2258	2.53	0.82	1.68	33.00
562	30.2233	86.1982	2.36	1.07	2.07	29.98
563	30.2477	86.1693	2.36	0.57	0.27	16.65
564	30.2700	86.1437	0.15	0.98	0.29	26.41
565	30.2940	86.1160	0.72	0.75	0.14	7.68
566	30.2667	86.0978	1.98	1.37	1.88	43.78
567	30.2432	86.1245	1.13	1.04	0.26	29.29
568	30.2198	86.1515	0.64	1.29	0.54	37.91
569	30.1953	86.1815	2.14	0.79	0.58	29.62
570	30.1720	86.2078	1.82	1.06	0.95	45.62
572	30.1315	86.2073	0.72	1.15	0.55	51.91
573	30.1553	86.1790	2.48	0.88	1.67	39.43
574	30.1775	86.1510	1.55	0.93	0.79	17.37
575	30.2013	86.1203	1.27	1.18	0.80	26.15
576	30.2237	86.0960	1.38	0.84	0.19	21.15
577	30.2447	86.0717	0.87	1.10	0.32	40.39
578	30.2682	86.0435	0.65	0.82	0.11	10.82
579	30.2470	86.0190	0.31	1.33	0.39	61.42
580	30.2223	86.0507	1.54	0.98	0.55	25.37
581	30.1967	86.0785	0.58	1.10	0.30	33.27
582	30.1773	86.1002	1.23	1.49	0.32	27.02
583	30.1493	86.1332	1.68	0.85	0.63	16.60
584	30.1290	86.1575	2.11	0.81	0.50	22.65
585	30.1043	86.1882	0.05	1.01	0.24	84.86
586	30.1030	86.1377	0.55	1.14	0.29	53.60
587	30.1282	86.1087	1.98	1.15	1.49	32.91
588	30.1487	86.0837	1.77	0.70	0.14	10.49
591	30.2225	85.9993	1.26	0.93	0.35	15.65
593	30.2228	85.9432	1.32	0.82	0.24	20.96
594	30.1998	85.9722	1.71	0.61	0.10	20.62
596	30.1537	86.0275	1.16	0.81	0.22	11.80
597	30.1303	86.0543	1.30	1.20	0.40	32.14
598	30.1082	86.0810	-0.50	1.27	0.18	48.45
599	30.0817	86.1102	1.33	0.89	0.29	20.96
600	30.0707	86.0737	0.85	0.93	0.26	25.47
601	30.0910	86.0488	1.33	0.74	0.16	15.69
602	30.1133	86.0242	0.65	0.83	0.13	22.83
603	30.1367	85.9948	1.34	0.89	0.32	24.29
604	30.1593	85.9702	0.52	1.09	0.20	33.68
605	30.1823	85.9425	0.55	1.05	0.20	32.00
606	30.2075	85.9142	0.46	1.13	0.26	47.98

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
607	30.1770	85.8982	1.87	0.88	0.40	29.38
608	30.1565	85.9225	1.21	1.14	0.41	24.50
610	30.1088	85.9790	2.37	0.90	1.42	19.13
611	30.0872	86.0068	1.71	0.90	0.38	25.63
612	30.0635	86.0340	1.52	0.86	0.23	26.12
613	30.0380	86.0605	0.50	1.25	0.18	28.42
614	30.0335	86.0175	1.77	0.62	0.15	17.13
615	30.0630	85.9837	1.46	1.29	0.22	22.18
616	30.0852	85.9550	1.39	0.93	0.49	26.79
617	30.1067	85.9300	0.88	0.98	0.16	0.00
618	30.1293	85.9035	0.60	0.97	0.19	37.05
619	30.1518	85.8768	-0.16	0.93	0.16	38.03
620	30.1720	85.8527	2.21	0.67	0.42	12.38
621	30.1572	85.8212	2.36	2.16	12.54	14.90
622	30.1343	85.8478	1.01	1.20	0.51	29.69
623	30.1117	85.8747	1.24	1.14	0.33	0.00
625	30.0627	85.9317	2.50	0.80	1.38	17.96
626	30.0397	85.9592	0.67	0.95	0.29	30.38
627	30.0160	85.9865	-0.04	0.96	0.27	67.63
628	30.0262	85.9225	2.35	0.78	1.09	14.56
629	30.0503	85.8953	1.49	0.69	0.23	10.23
630	30.0725	85.8693	0.64	1.24	0.47	46.22
631	30.0980	85.8407	0.68	0.84	0.18	16.90
632	30.1197	85.8162	2.14	0.66	0.21	7.56
633	30.1390	85.7915	1.21	0.73	0.12	9.44
634	30.1135	85.7708	1.89	0.81	0.36	0.00
635	30.0932	85.7955	1.15	0.69	0.07	4.59
636	30.0673	85.8252	1.17	0.85	0.27	7.99
637	30.0442	85.8522	2.38	0.64	0.62	11.68
638	30.0207	85.8792	1.04	0.90	0.41	9.37
639	29.9982	85.9075	1.00	0.80	0.24	8.93
640	29.9872	85.8693	0.70	0.81	0.15	15.83
641	30.0093	85.8443	0.63	0.76	0.10	5.55
642	30.0295	85.8173	1.35	0.85	0.34	10.17
644	30.0728	85.7643	2.35	0.51	0.06	5.35
645	30.0993	85.7368	1.94	0.75	0.62	7.34
646	30.0727	85.7192	0.81	0.80	0.07	4.31
647	30.0477	85.7455	0.89	0.76	0.13	6.61
648	30.0242	85.7745	0.24	1.84	0.21	0.00
649	29.9992	85.8035	1.58	0.97	1.00	11.11
650	29.9773	85.8305	1.58	0.52	0.26	7.31
651	29.9547	85.8575	1.71	0.76	0.48	8.27
652	29.9308	85.8343	1.33	1.03	0.43	15.45
653	29.9510	85.8097	1.04	0.85	0.26	11.35
654	29.9732	85.7817	2.26	0.74	0.65	8.40
655	29.9985	85.7537	1.42	0.82	0.63	8.16
656	30.0218	85.7270	1.41	0.84	0.25	14.11
657	30.0452	85.6998	0.88	0.86	0.16	7.07
658	30.0645	85.6782	2.22	0.75	0.54	6.09
659	30.0457	85.6490	2.23	0.78	0.57	9.41
660	30.0163	85.6820	2.11	0.75	0.83	5.25
661	29.9995	85.7020	2.51	2.26	14.98	10.44
662	29.9752	85.7300	2.88	1.96	13.98	10.53
663	29.9507	85.7592	2.18	1.19	1.48	10.80
664	29.9280	85.7853	0.97	1.04	0.36	18.17
665	29.9112	85.7577	5.98	1.87	86.10	47.46
666	29.9333	85.7268	2.32	0.82	1.42	9.13
667	29.9558	85.7045	2.32	0.71	0.92	6.29
668	29.9795	85.6753	1.69	0.54	0.27	5.31

Sta. #	LAT	LONG	Mean	S.D.	% MUD	% CaCO3
669	30.0028	85.6473	2.08	0.76	0.60	5.35
670	30.0250	85.6218	1.44	0.93	0.30	8.66
671	30.0042	85.5993	1.95	0.65	0.22	4.10
672	29.9810	85.6242	1.49	0.87	0.73	10.38
673	29.9565	85.6547	2.10	1.66	6.53	9.57
674	29.9332	85.6810	3.37	2.37	23.62	17.60
675	29.9133	85.7045	1.90	0.80	0.98	8.02
676	29.8842	85.7370	1.15	1.97	7.44	28.12
677	29.8718	85.6998	2.24	0.80	1.20	7.16
678	29.8960	85.6718	1.78	0.82	0.54	11.21
679	29.9180	85.6457	5.43	1.99	77.27	36.91
680	29.9413	85.6175	2.44	0.85	1.52	6.29
681	29.9605	85.5950	3.15	2.71	26.23	12.93
682	29.9843	85.5697	1.79	0.51	0.09	3.90
683	29.9585	85.5468	1.55	0.69	0.15	3.04
684	29.9350	85.5745	5.41	2.12	74.96	27.54
685	29.9120	85.6033	3.14	2.09	18.17	8.95
686	29.8853	85.6333	4.51	2.70	40.65	14.14
687	29.8643	85.6582	2.78	1.86	11.12	8.05
688	29.8400	85.6865	3.24	2.15	18.37	9.60
689	29.8222	85.6563	1.58	0.98	0.67	15.21
690	29.8440	85.6325	1.49	0.79	0.39	10.28
691	29.8692	85.6013	2.32	1.03	3.53	6.90
692	29.8905	85.5765	2.41	0.96	3.18	6.66
694	29.9330	85.5275	2.04	0.60	0.13	2.29
695	29.8987	85.5170	2.17	0.65	0.21	4.11
697	29.8497	85.5730	2.27	2.26	13.22	13.19
698	29.8270	85.6005	2.10	1.80	9.10	10.72
699	29.8032	85.6283	1.40	1.25	2.79	15.66
700	29.7765	85.6102	3.83	2.41	27.55	27.95
701	29.8000	85.5833	3.49	2.06	19.66	21.54
702	29.8233	85.5547	2.45	1.09	2.84	11.71
703	29.8467	85.5287	2.53	2.25	13.84	9.85
705	29.8833	85.4840	2.04	0.63	0.18	4.25
706	29.8535	85.4687	1.94	0.60	0.10	1.28
707	29.8300	85.4962	1.61	0.80	0.16	5.82
708	29.8018	85.5287	1.85	0.73	0.76	6.16
709	29.7807	85.5523	3.76	2.67	35.13	24.05
710	29.7522	85.5885	3.26	1.90	14.04	18.24

APPENDIX IV

Posted Values

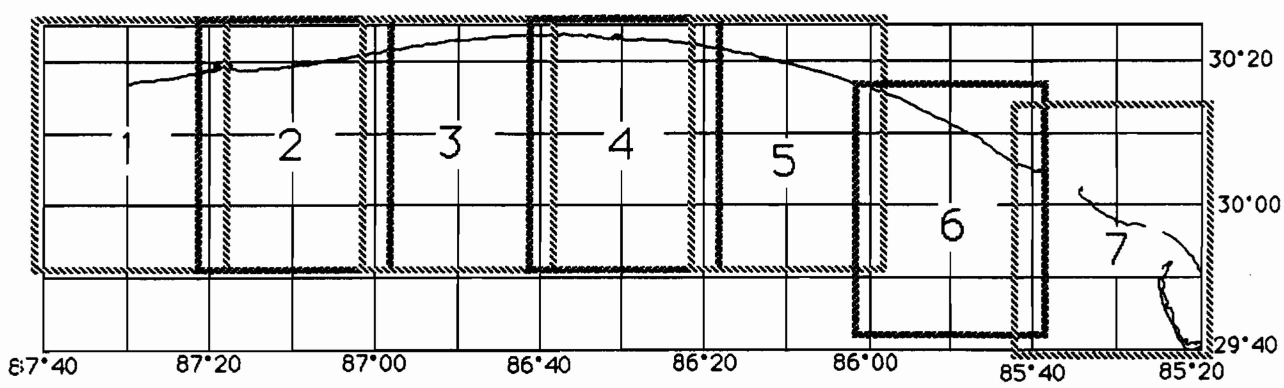
IV.A - Mean Phi

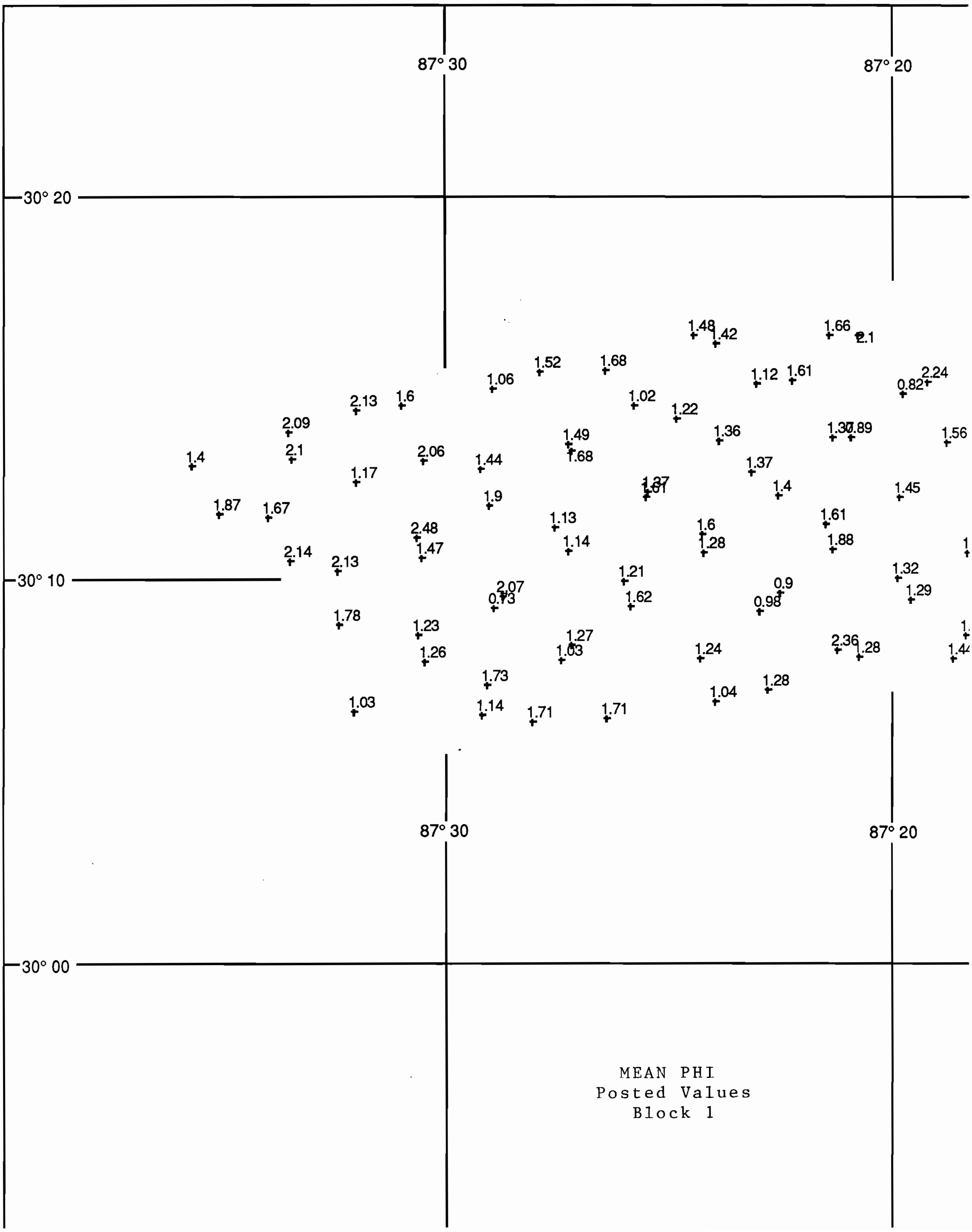
IV.B - Standard Deviation

IV.C - % Mud (only values of ≥1% carbonate in blocks 2 and 4-7 are shown).

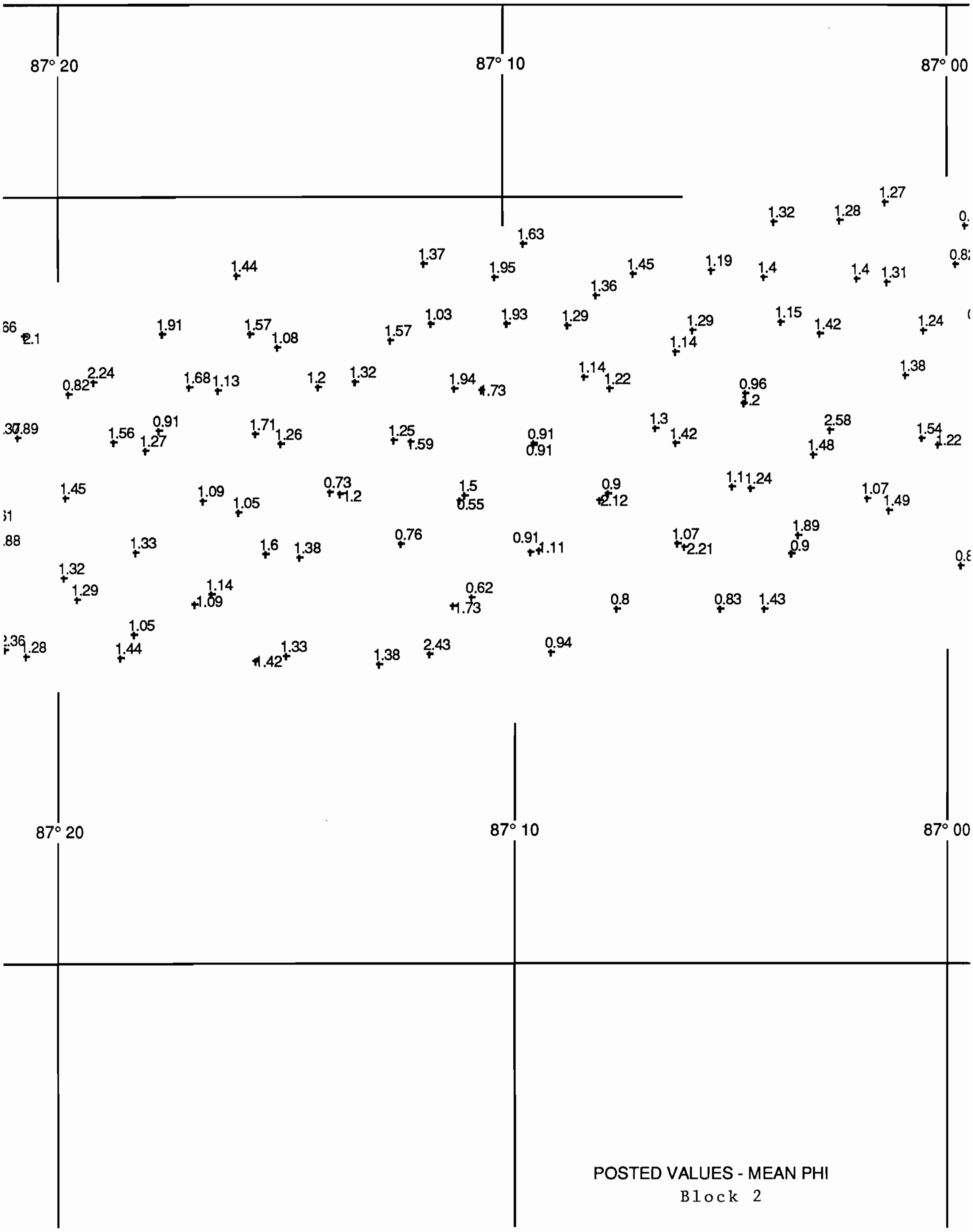
IV.D - % Carbonate

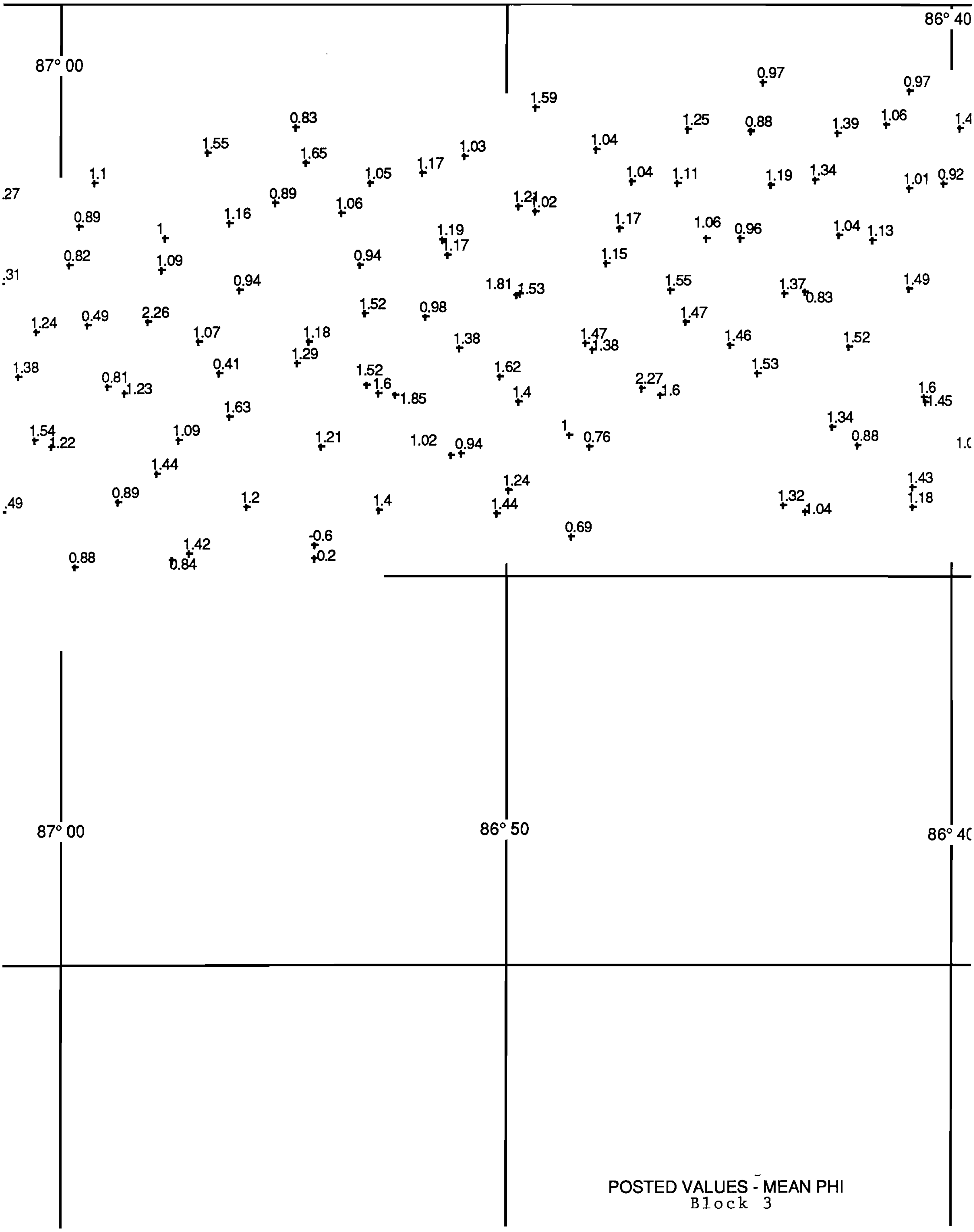
Posted values are presented in slightly overlapping blocks shown below. The block number is indicated on each sheet.



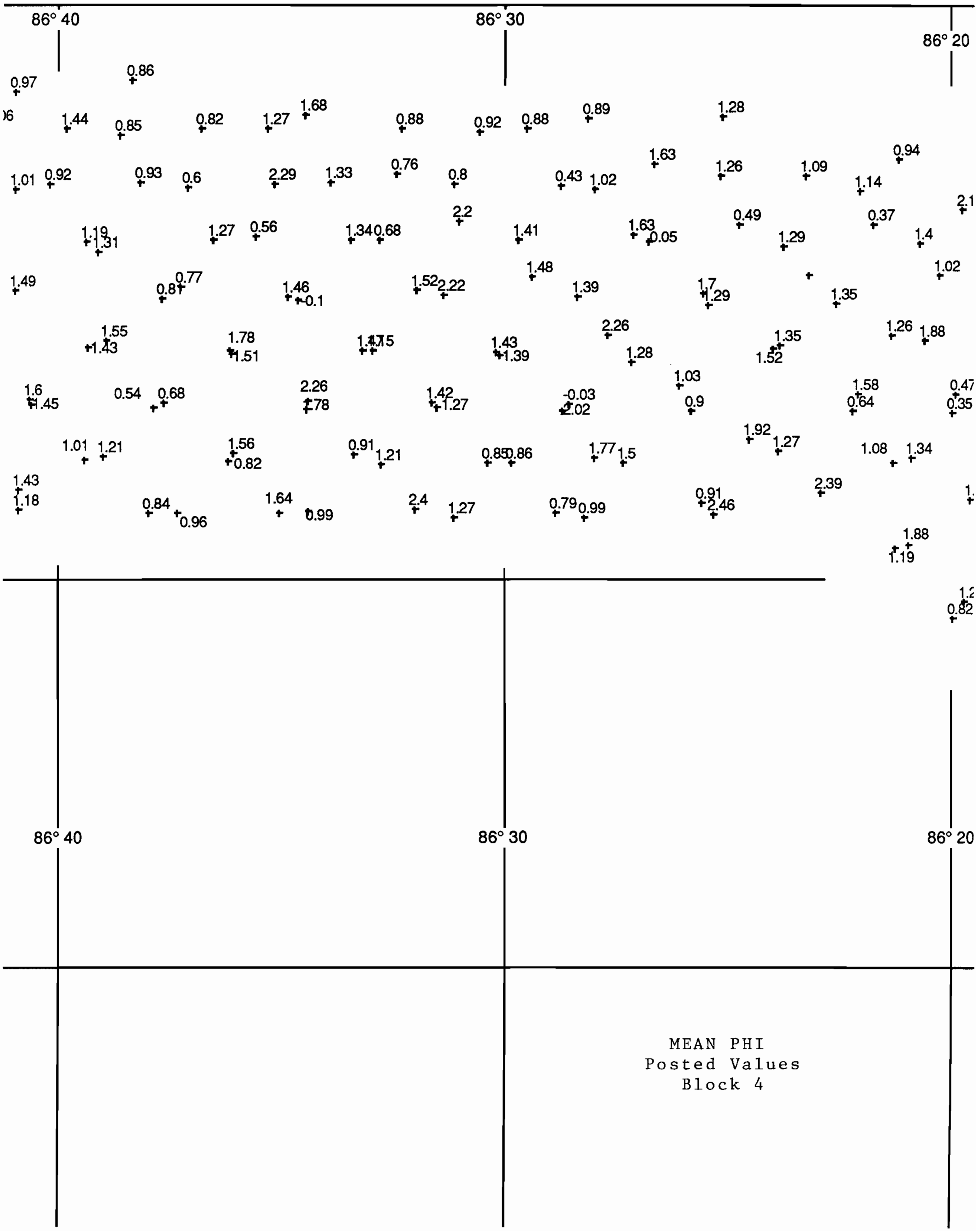


MEAN PHI
Posted Values
Block 1

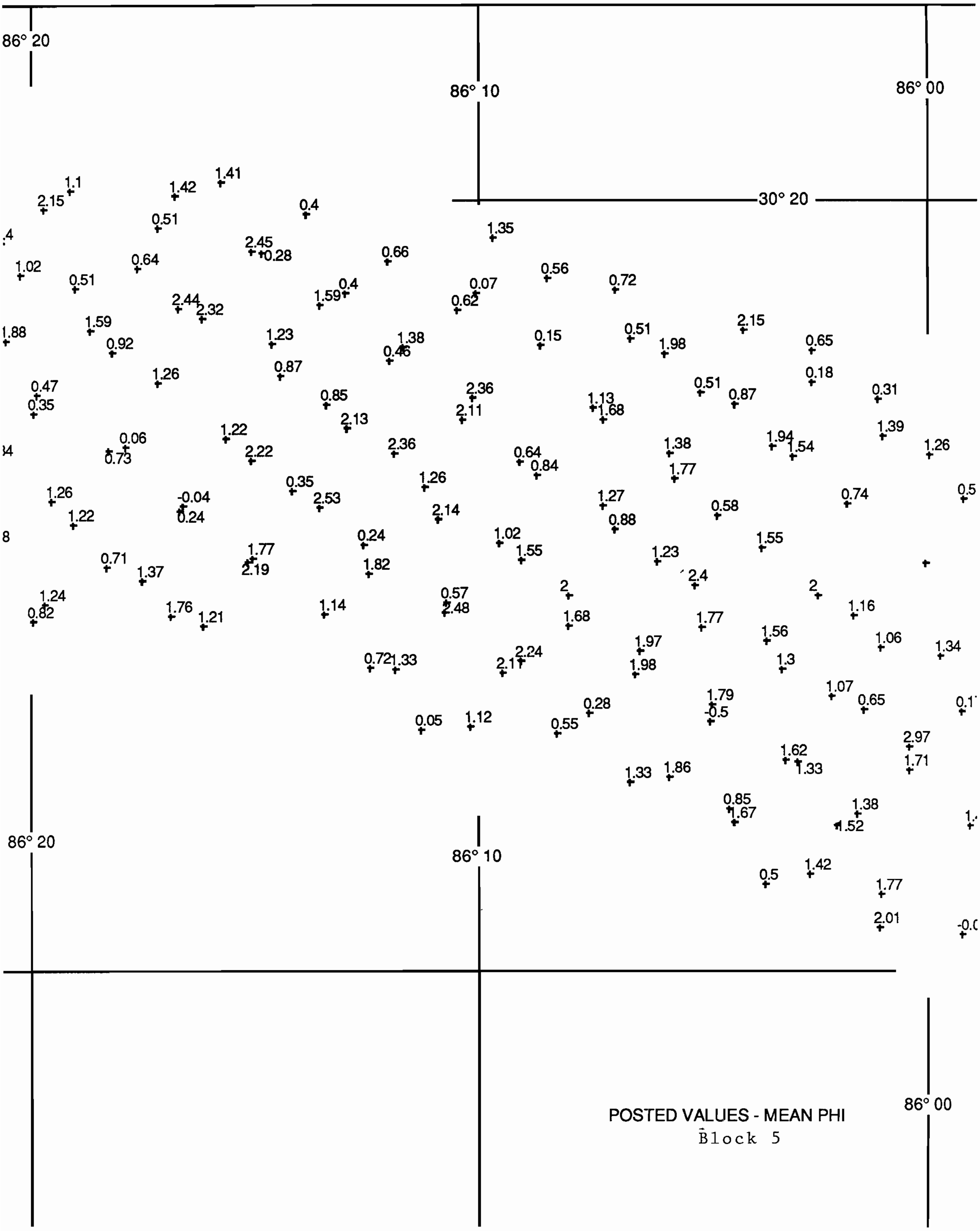

87° 20
87° 10
87° 00
POSTED VALUES - MEAN PHI
Block 2



POSTED VALUES - MEAN PHI
Block 3



MEAN PHI
Posted Values
Block 4



POSTED VALUES - MEAN PHI
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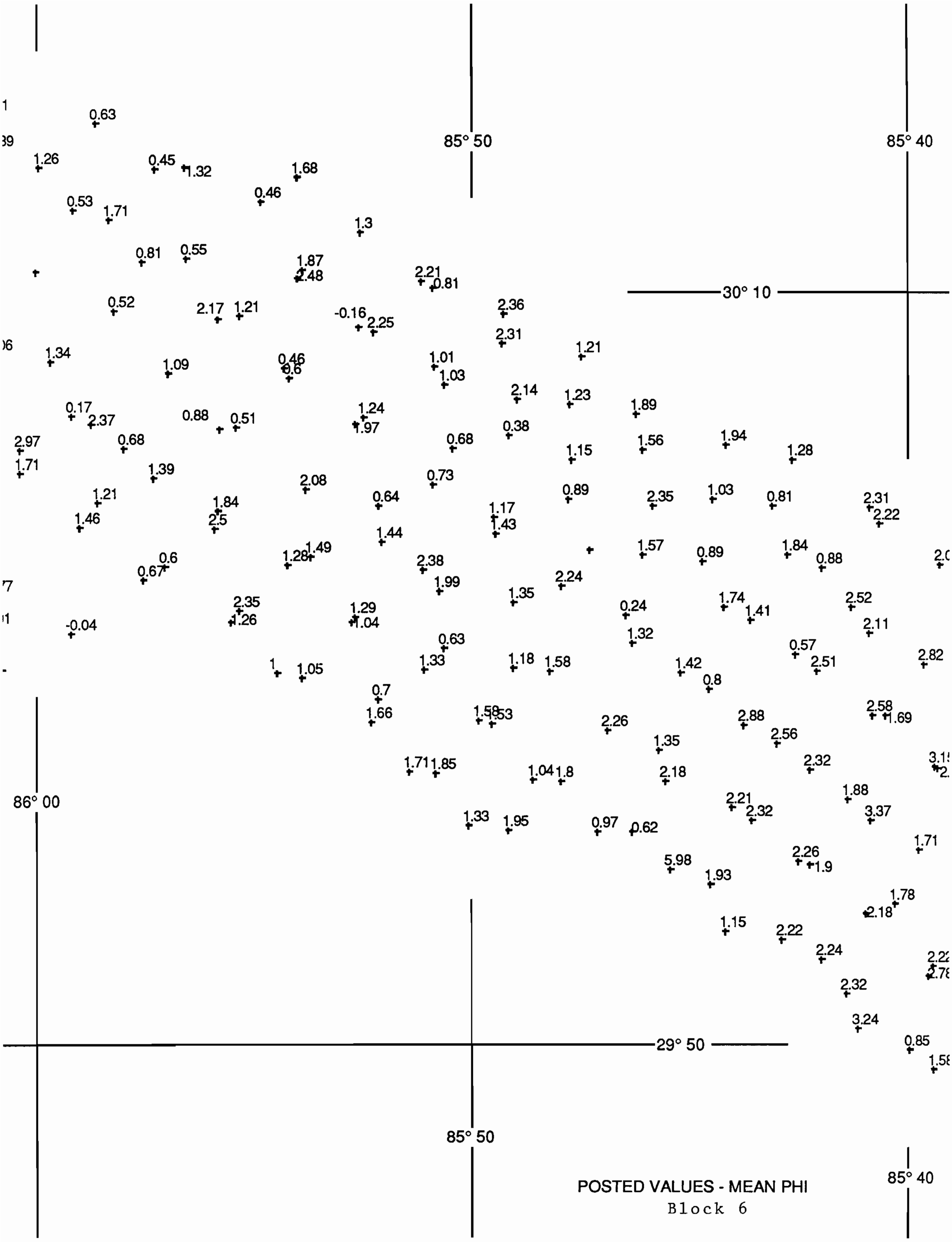
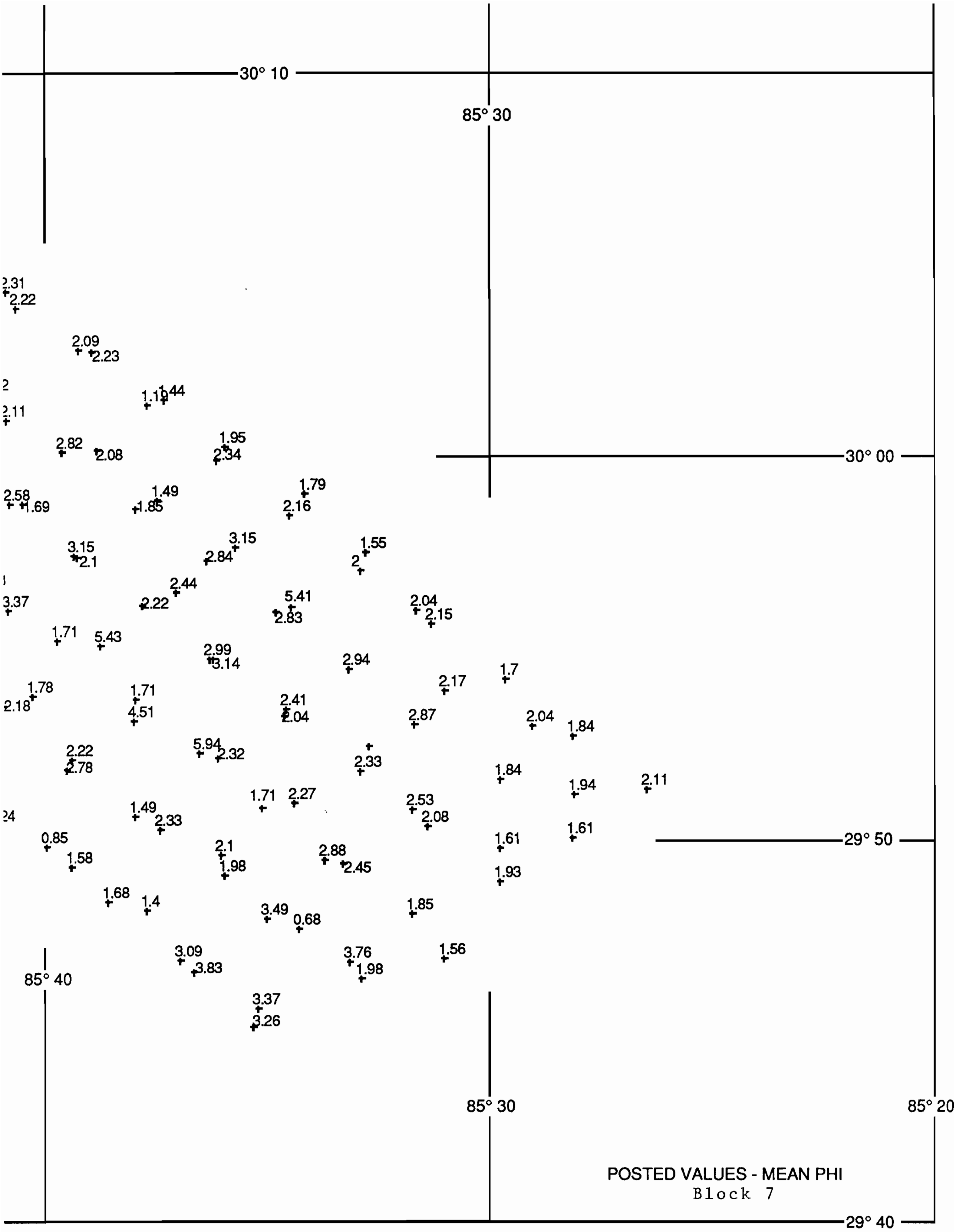


POSTED VALUES - MEAN PHI
Block 6


30° 10
85° 30
30° 00
29° 50
85° 40
85° 30
85° 20
29° 40
2.31
2.22
2.09
2.23
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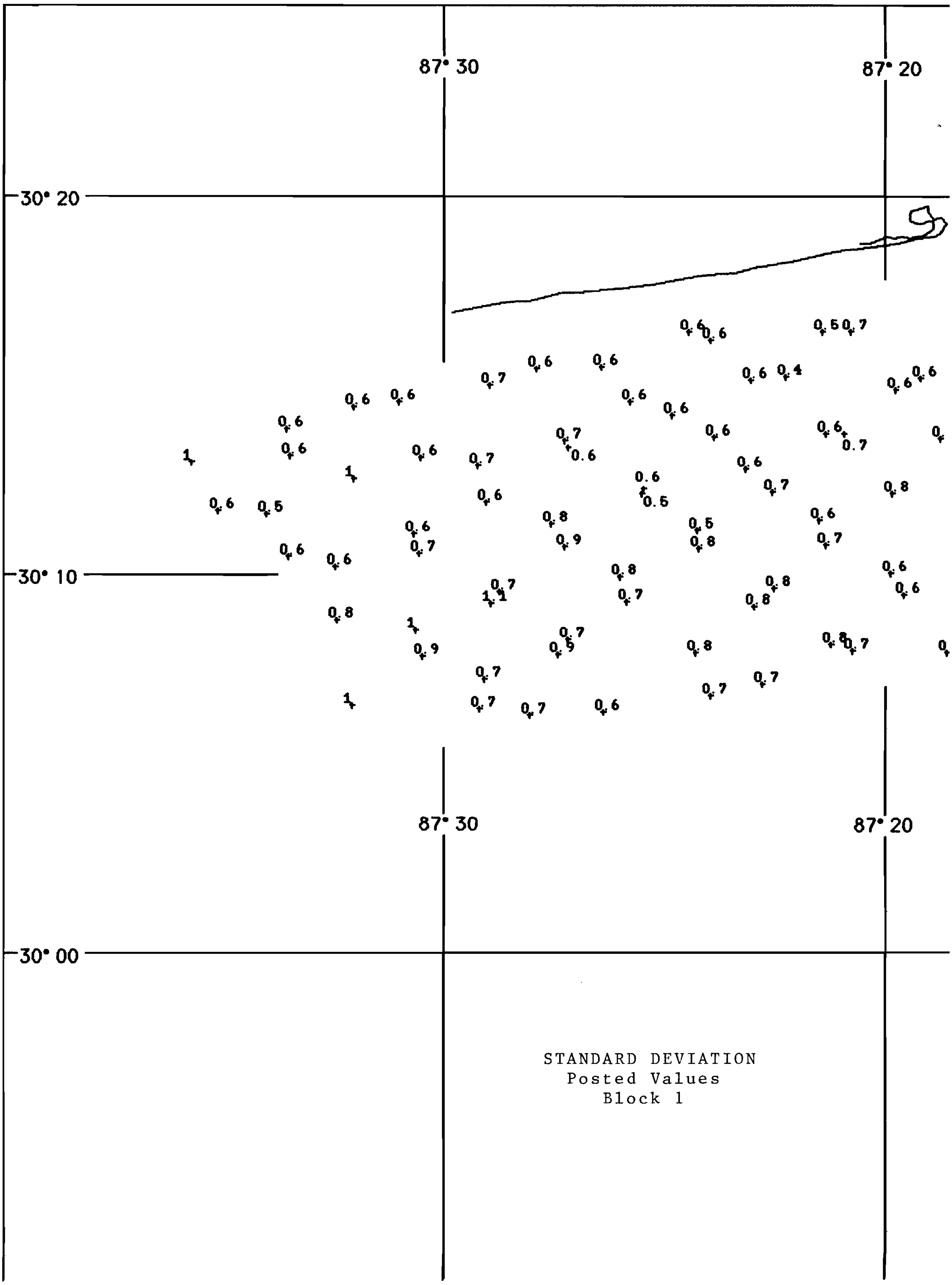
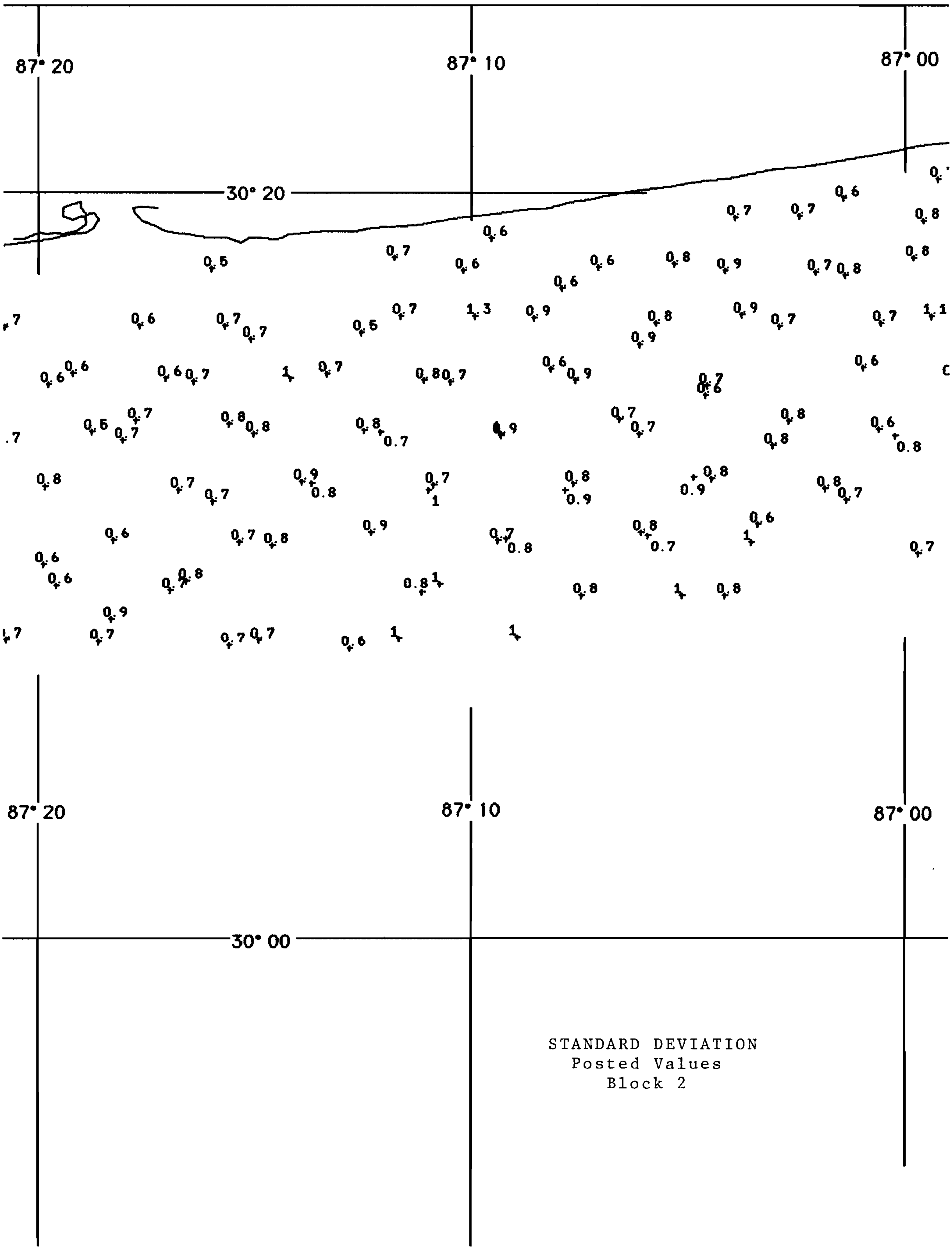
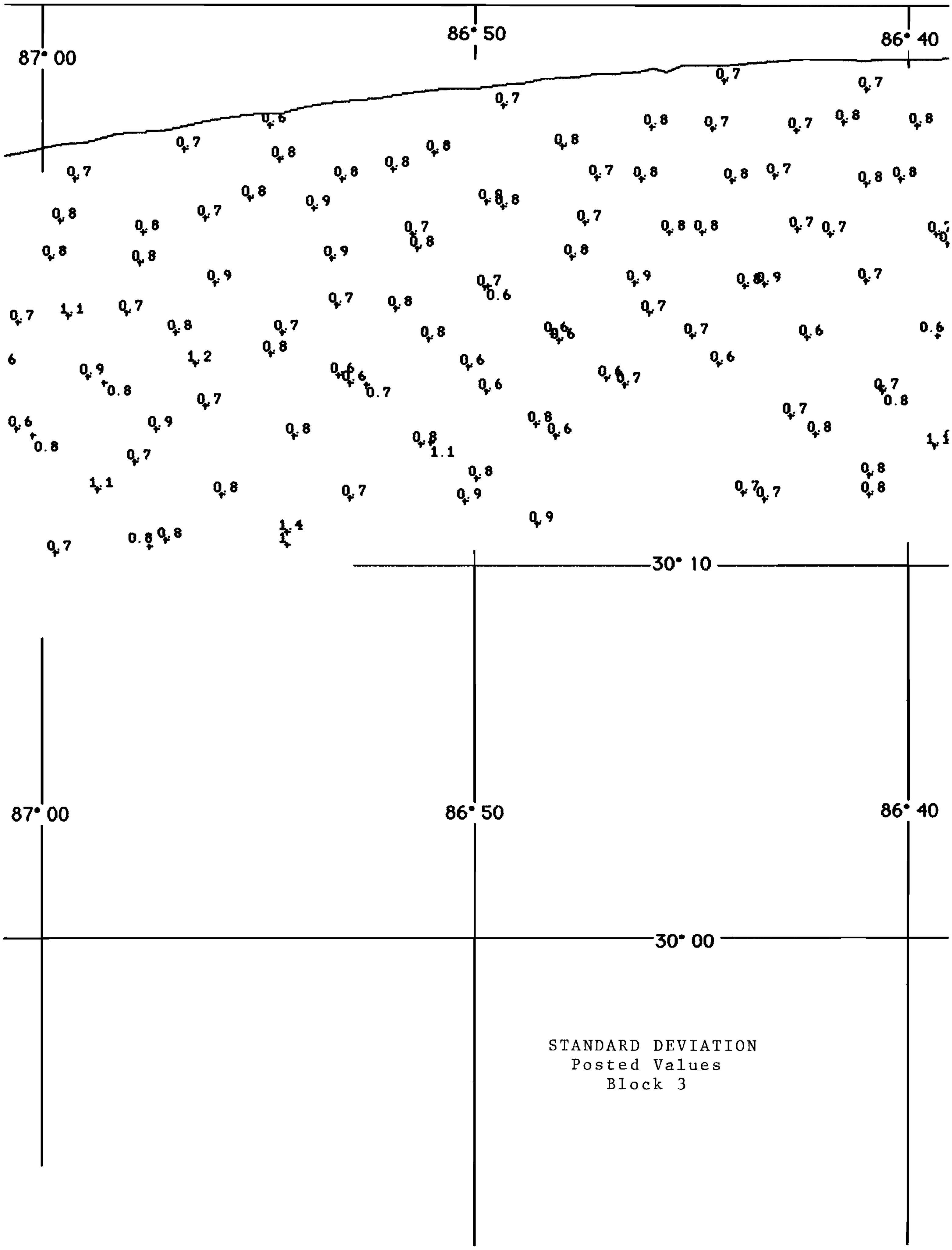
1.44
2.11
2.82
2.08
1.95
2.34
2.58
1.69
1.49
1.85
1.79
2.16
3.15
2.1
3.15
2.84
1.55
2
2.44
3.37
2.22
5.41
2.83
2.04
2.15
1.71
5.43
2.99
3.14
2.94
1.78
2.18
1.71
4.51
2.41
2.04
2.17
1.7
2.87
2.04
1.84
2.22
2.78
5.94
2.32
2.33
1.84
1.94
2.11
1.71
2.27
1.49
2.33
2.53
2.08
0.85
1.58
2.1
1.98
2.88
2.45
1.61
1.61
1.93
1.68
1.4
3.49
0.68
1.85
3.09
3.83
3.76
1.98
1.56
3.37
3.26
POSTED VALUES - MEAN PHI
Block 7



STANDARD DEVIATION
Posted Values
Block 1



STANDARD DEVIATION
Posted Values
Block 2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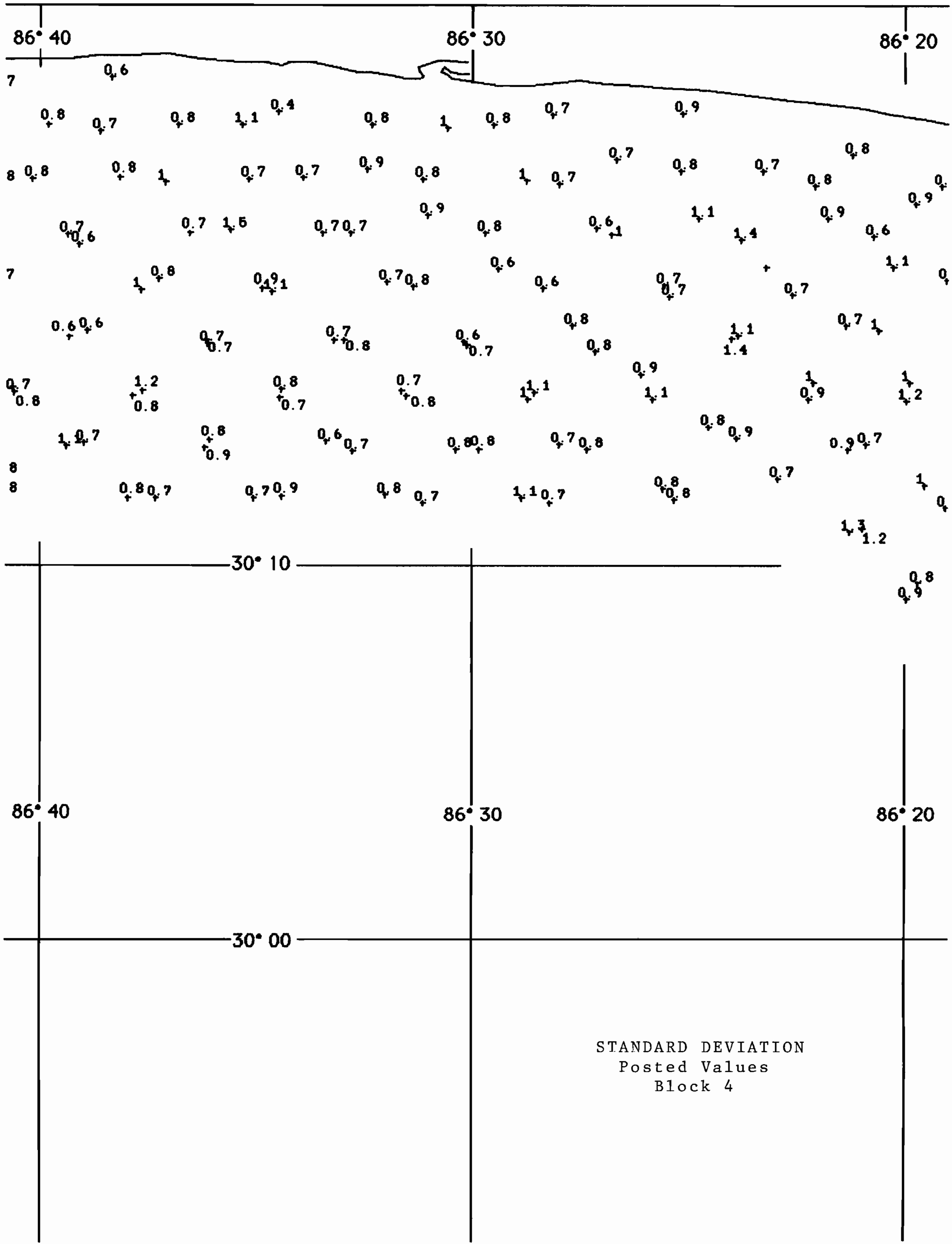
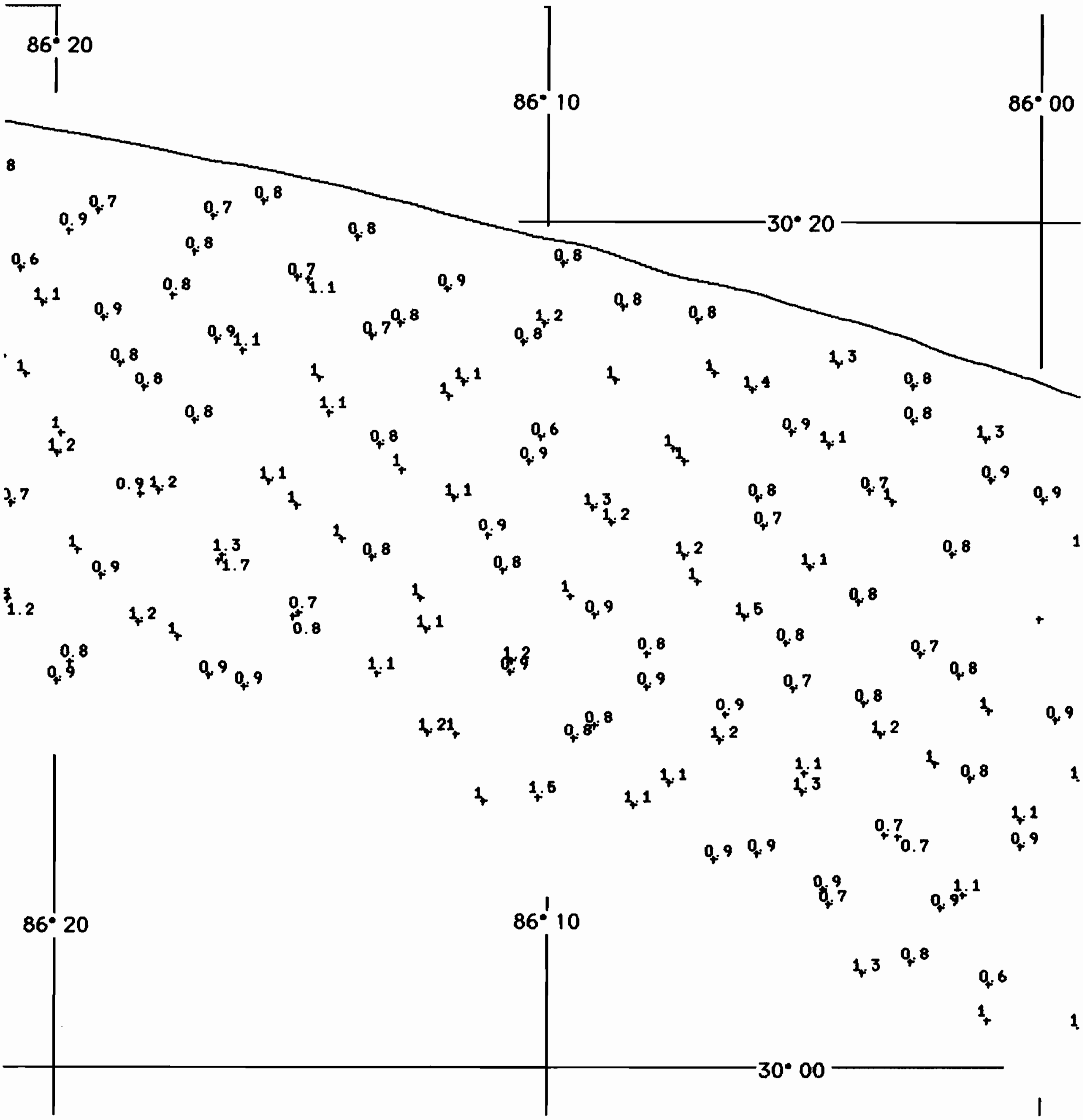
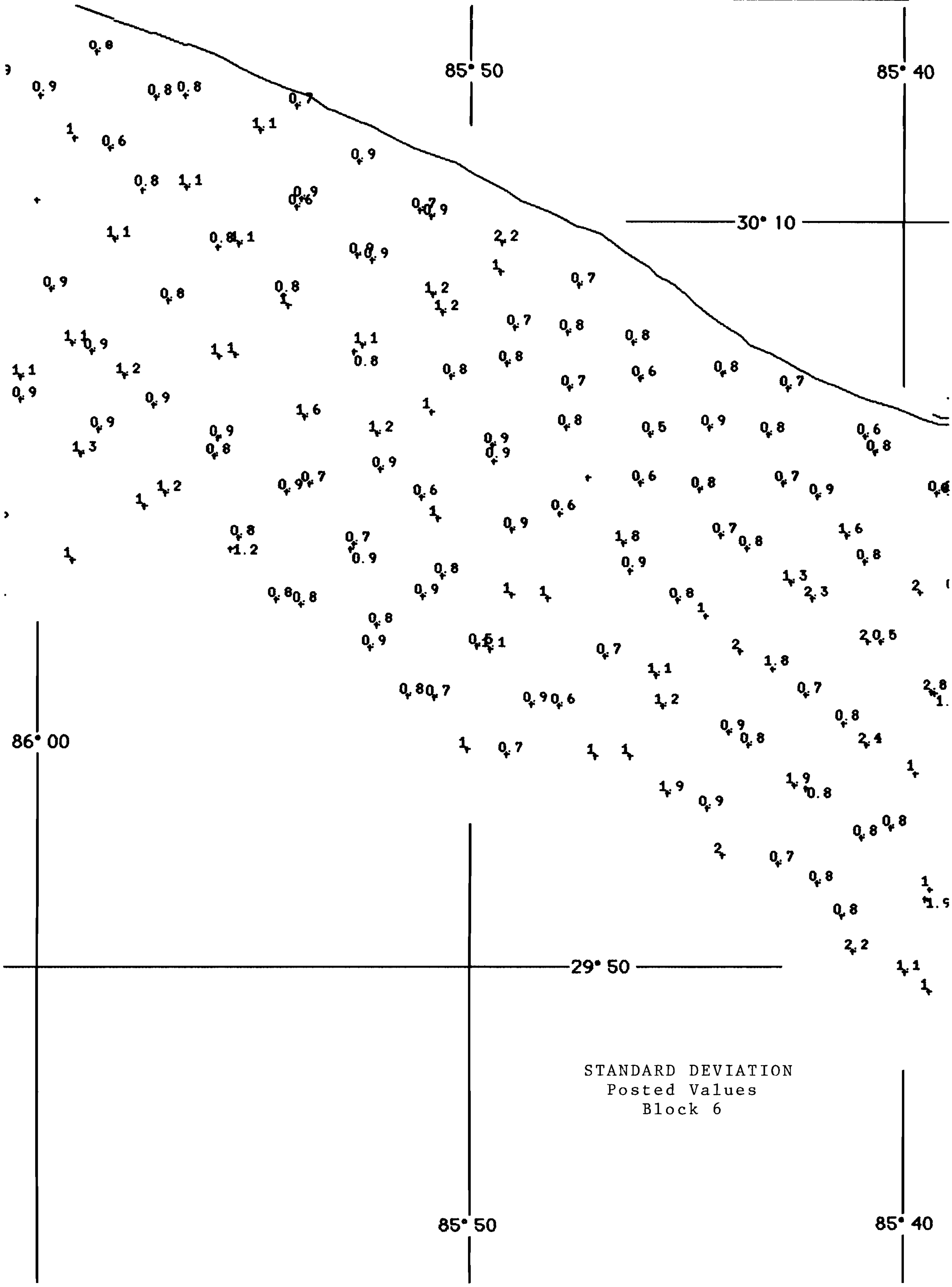
86° 50
86° 40
30° 10
87° 00
86° 50
86° 40
30° 00
STANDARD DEVIATION
Posted Values
Block 3



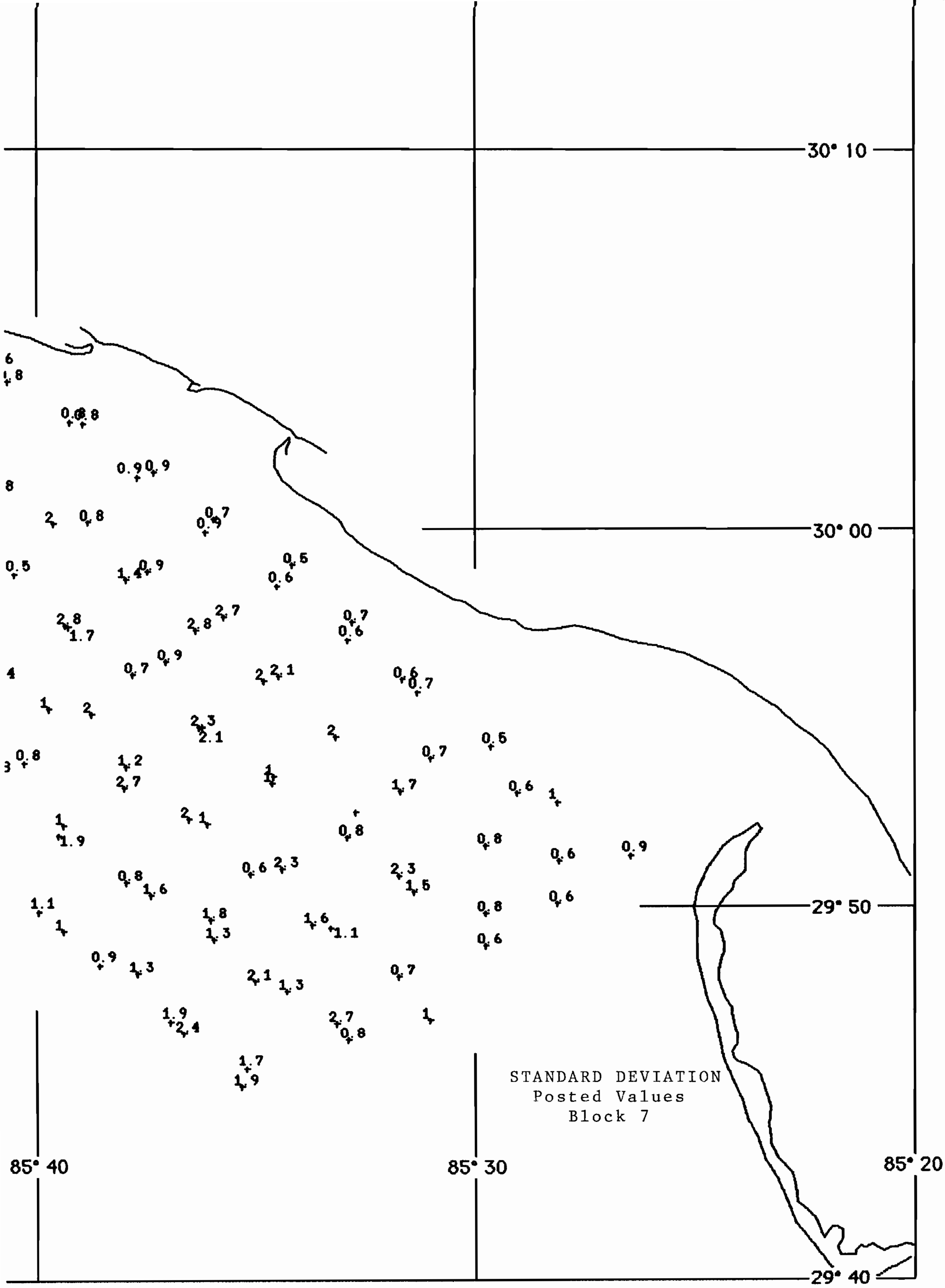
86° 40
86° 30
86° 20
30° 10
30° 00
STANDARD DEVIATION
Posted Values
Block 4



STANDARD DEVIATION
Posted Values
Block 5



STANDARD DEVIATION
Posted Values
Block 6



STANDARD DEVIATION
Posted Values
Block 7
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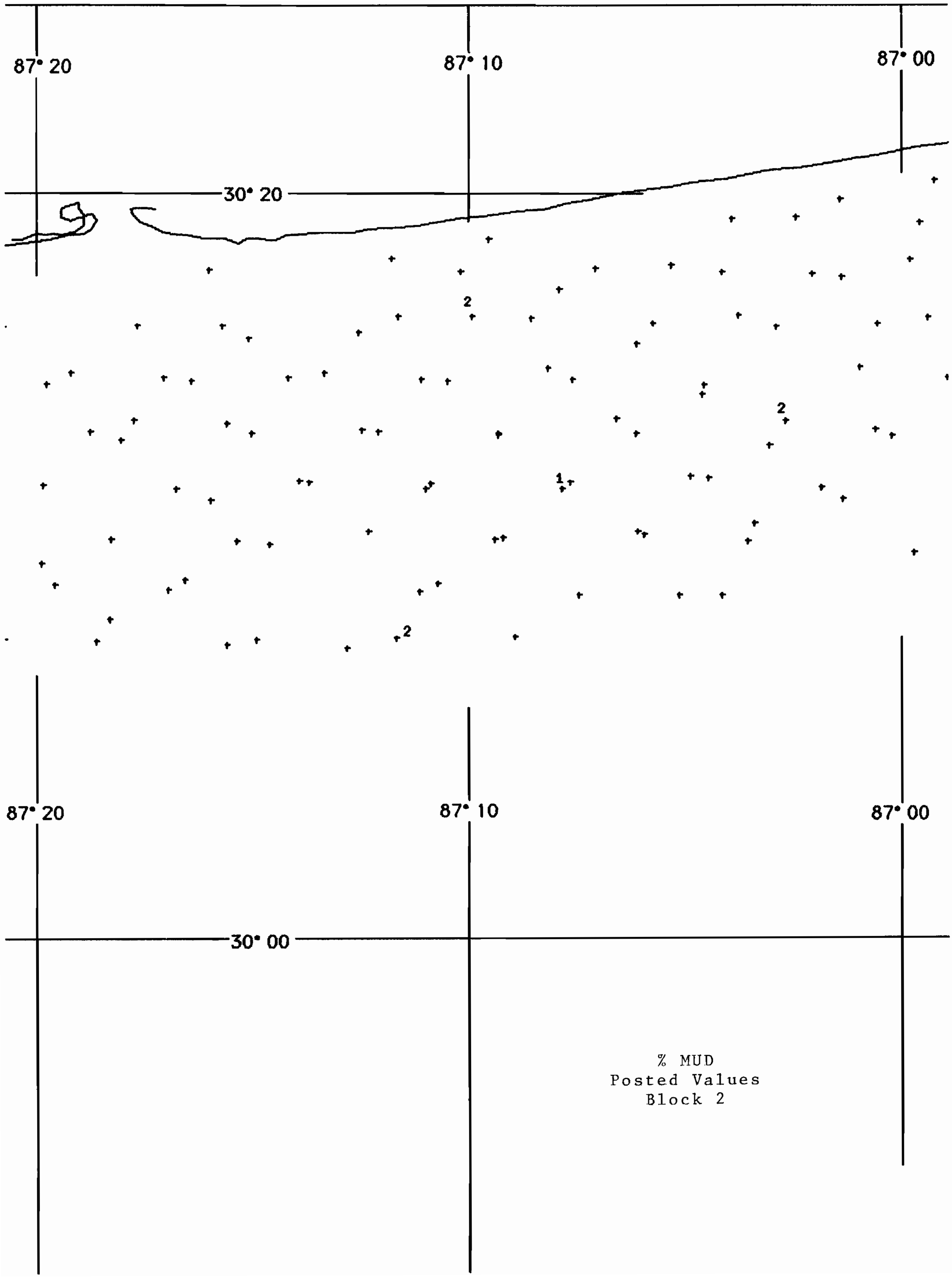
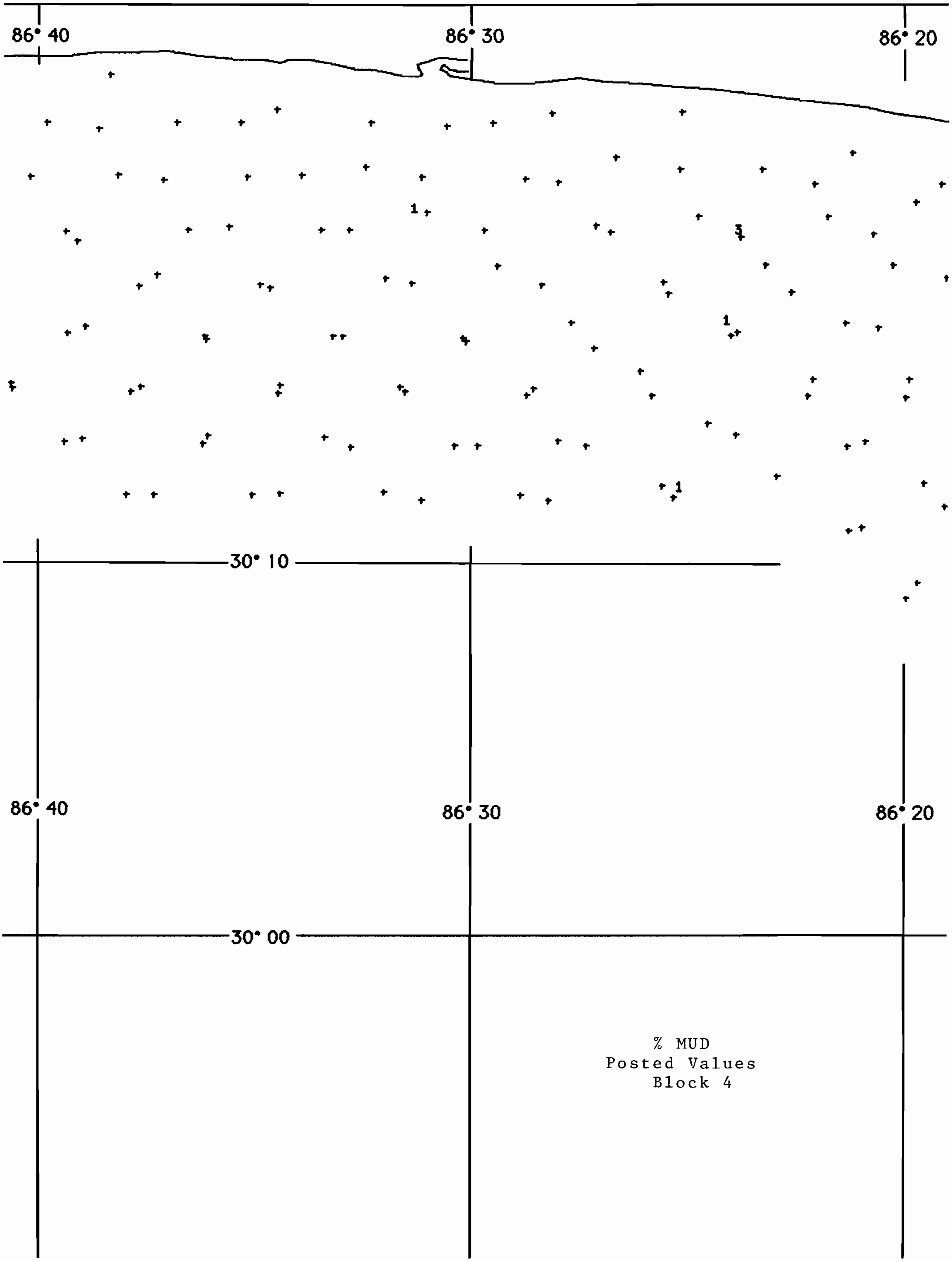
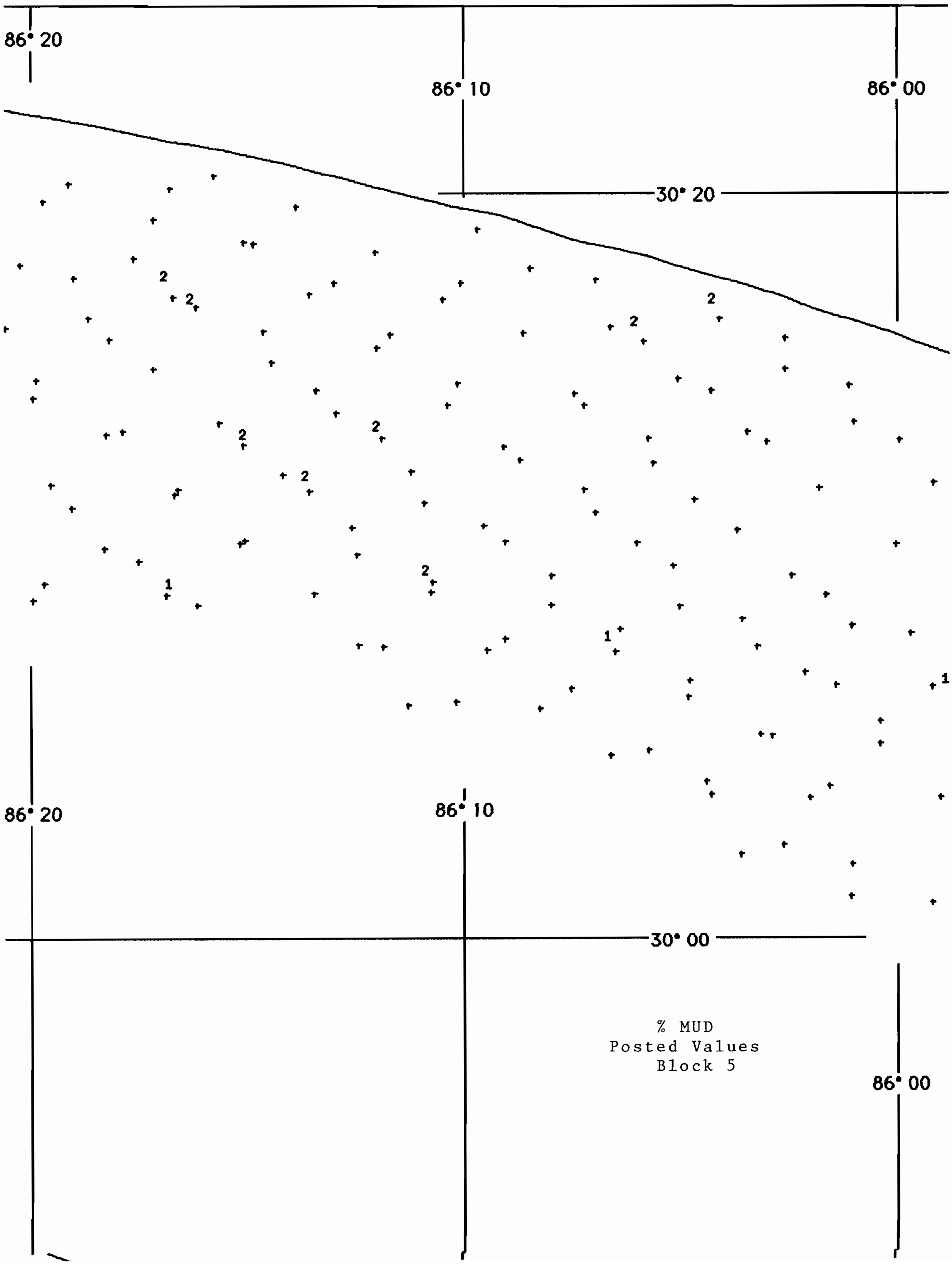
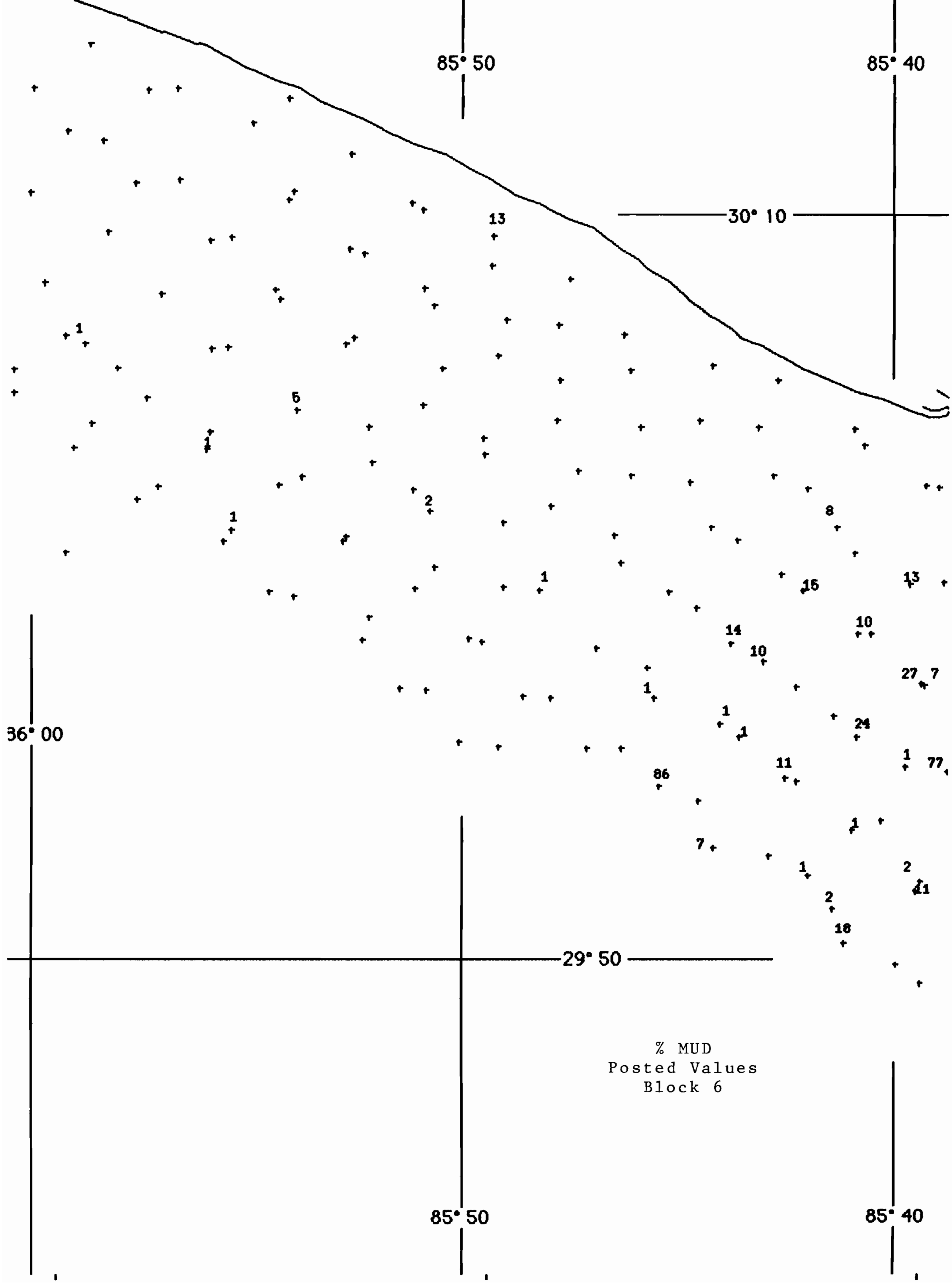
30° 00
29° 50
29° 40
85° 40
85° 30
85° 20


87° 20
87° 10
87° 00
30° 20
2
2
1
2
87° 20
87° 10
87° 00
30° 00
% MUD
Posted Values
Block 2


86° 40
86° 30
86° 20
1
3
1
1
30° 10
86° 40
86° 30
86° 20
30° 00
% MUD
Posted Values
Block 4



% MUD
Posted Values
Block 5


85° 50
85° 40
30° 10
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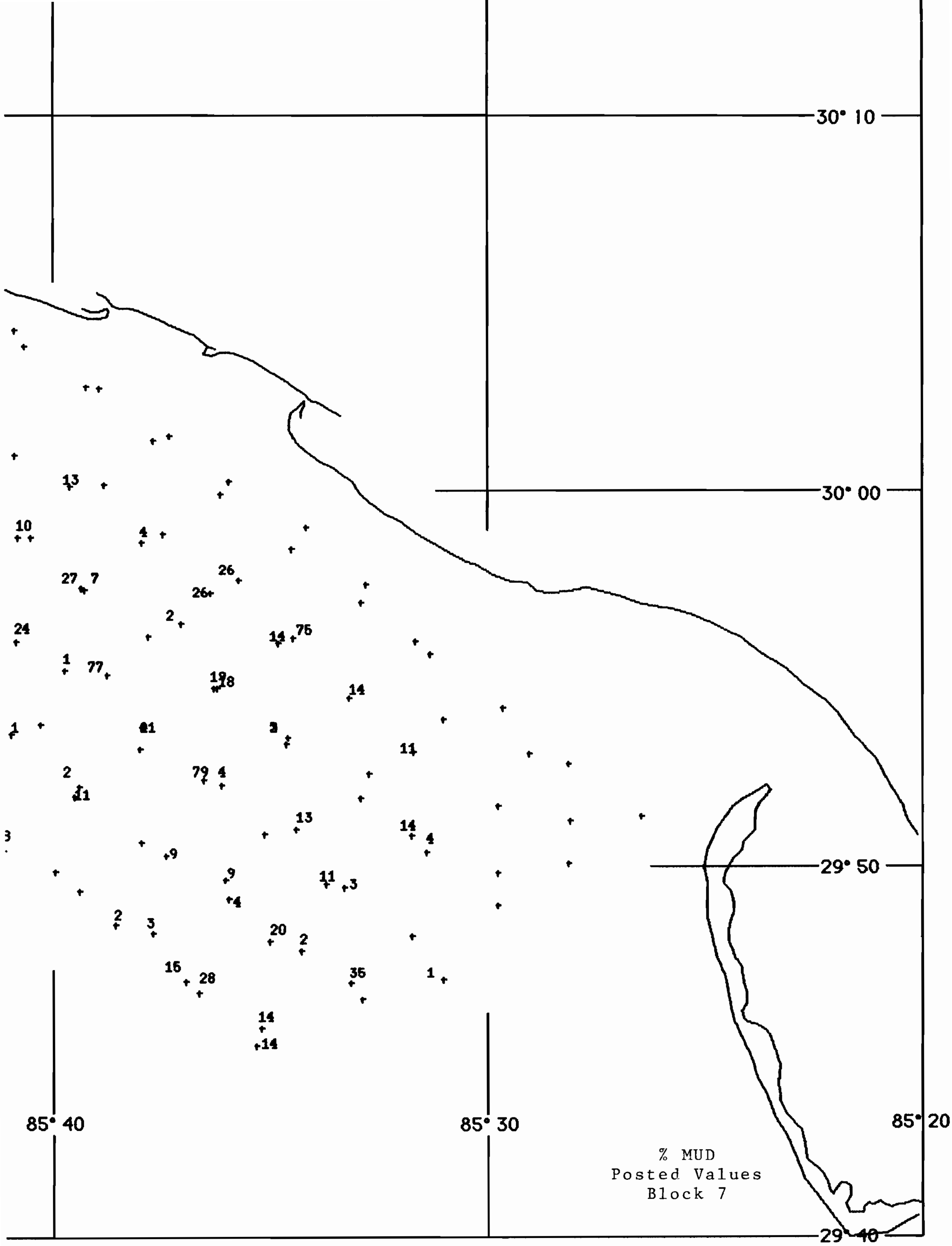
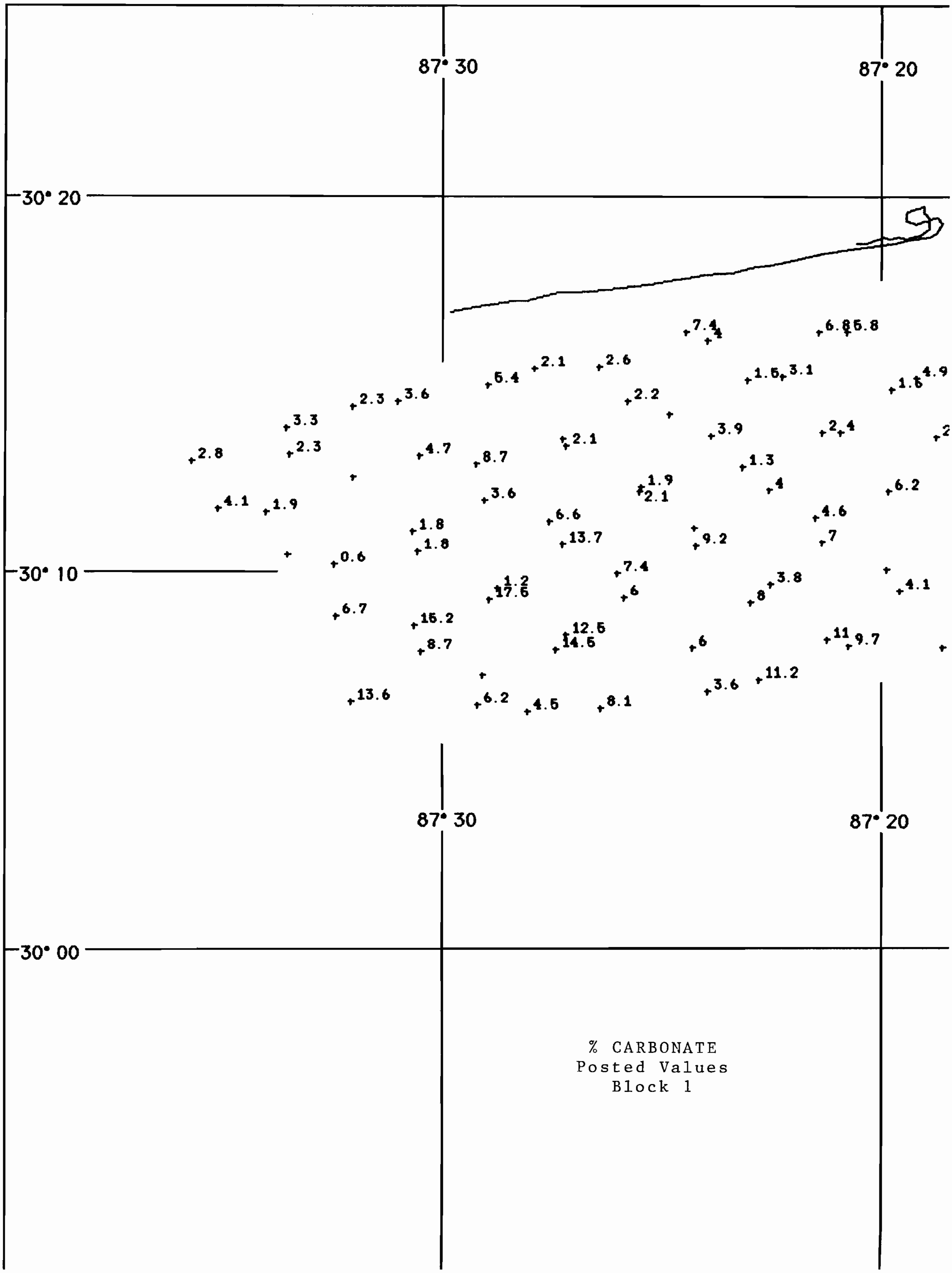
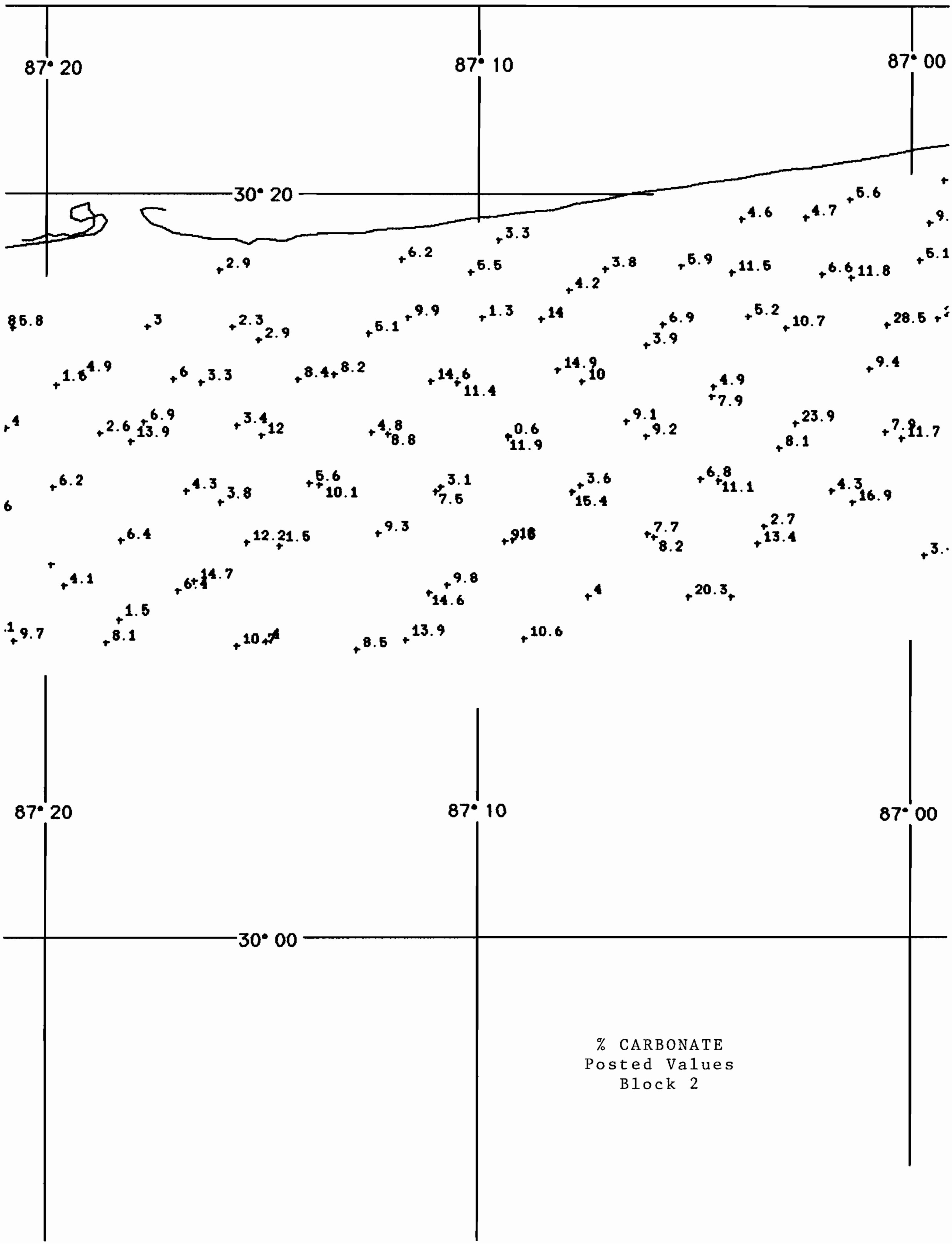
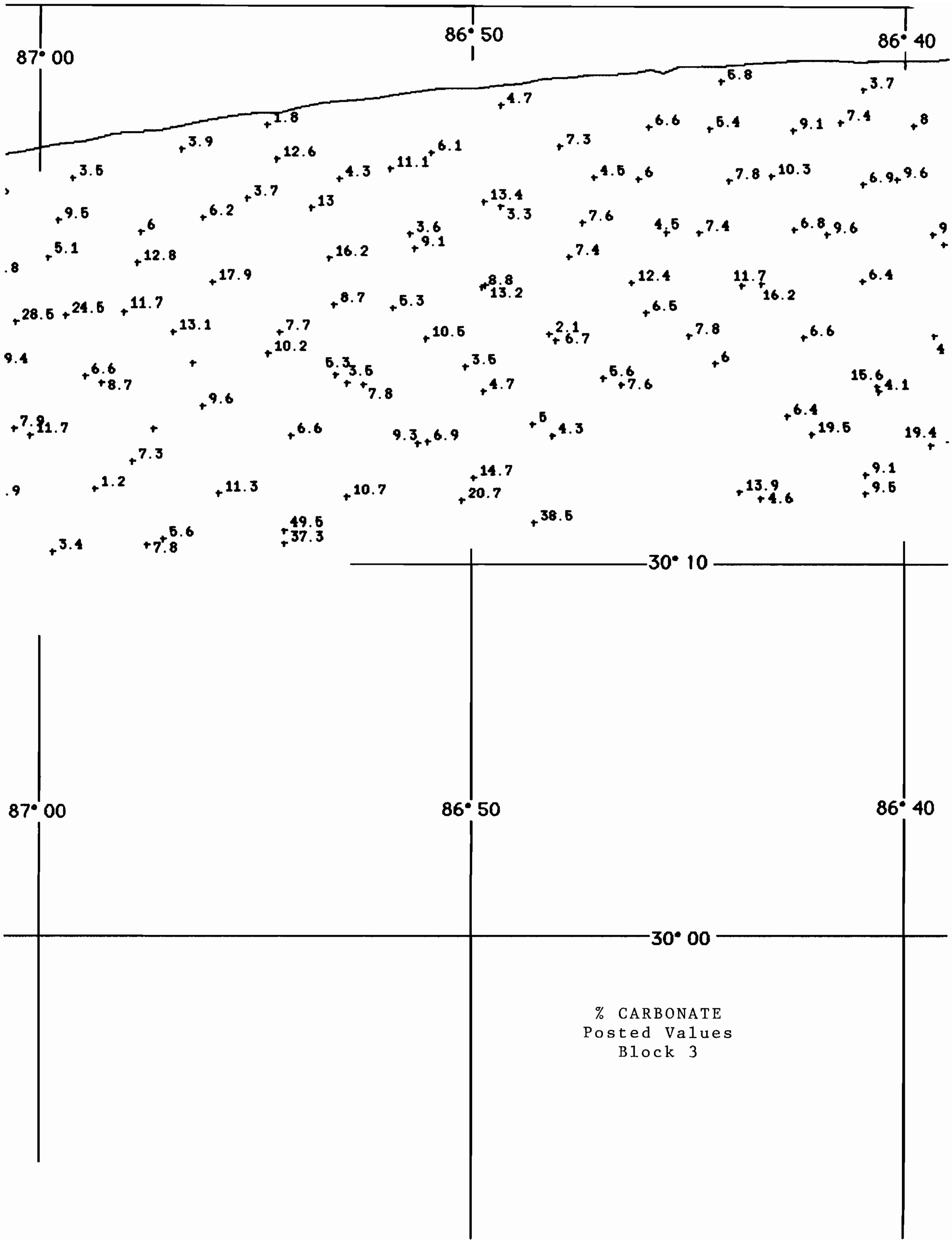
29° 50
% MUD
Posted Values
Block 6


30° 10
30° 00
29° 50
29° 40
85° 40
85° 30
85° 20
% MUD
Posted Values
Block 7

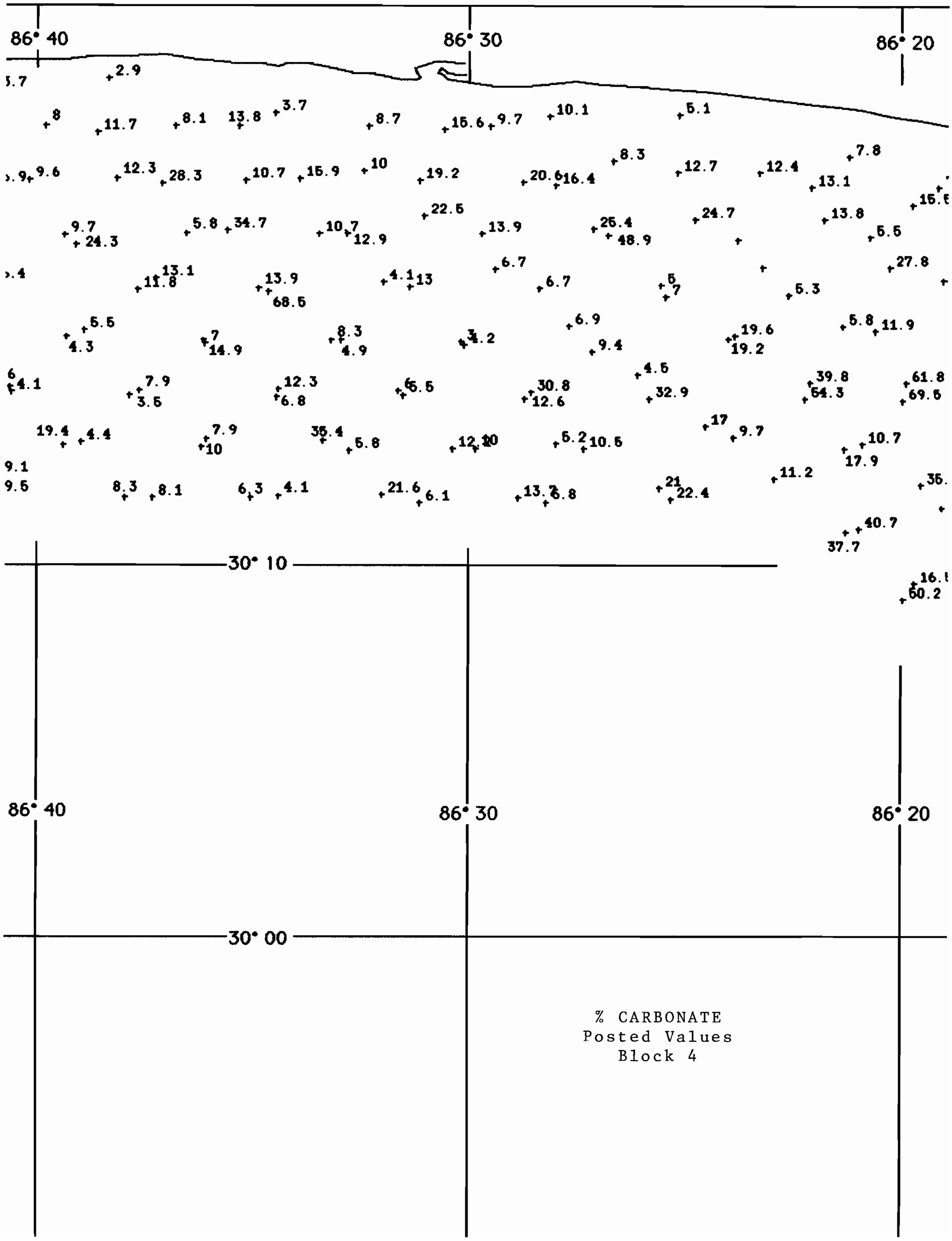

87° 30
87° 20
30° 20
30° 10
30° 00
87° 30
87° 20
% CARBONATE
Posted Values
Block 1

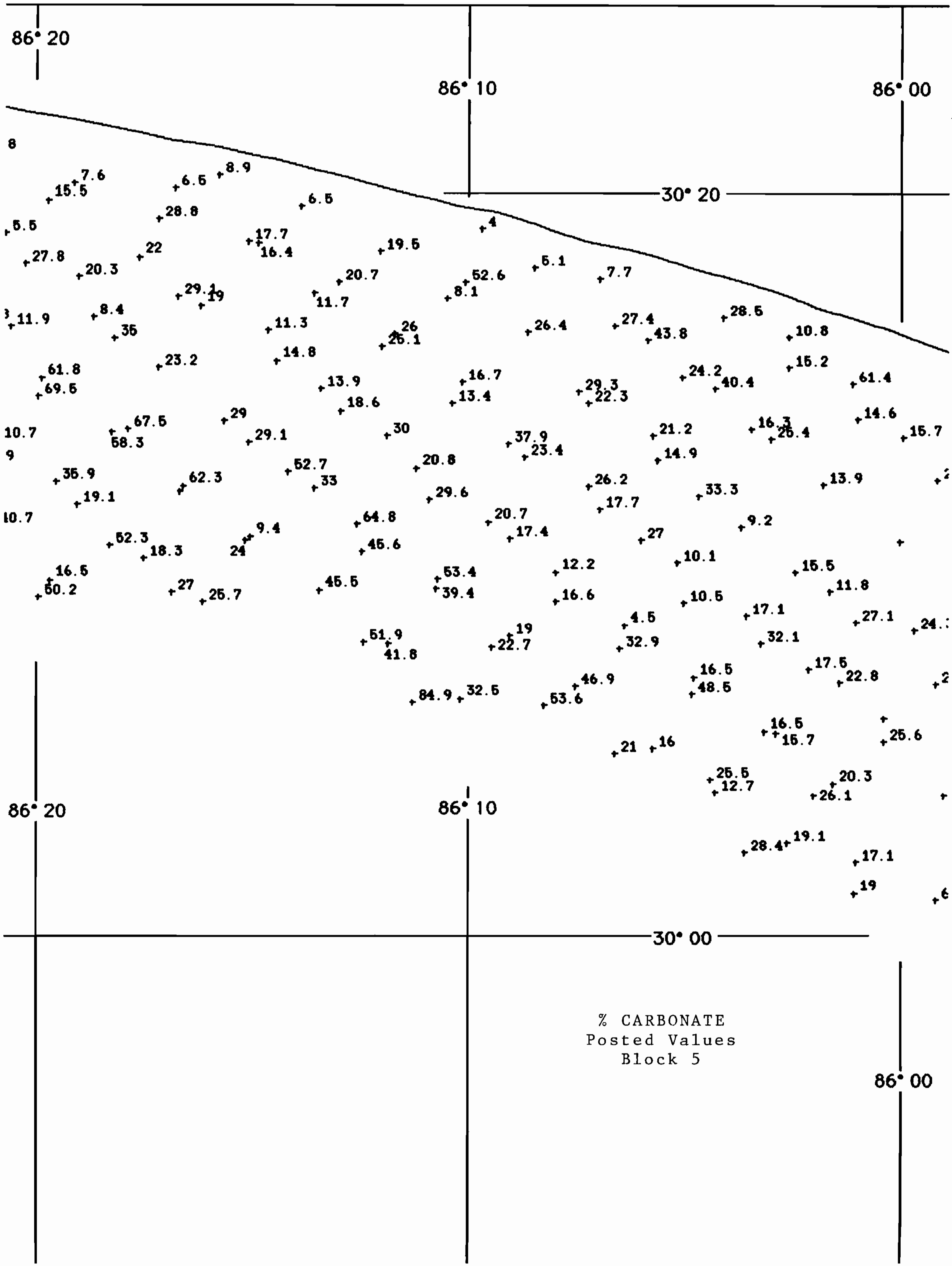


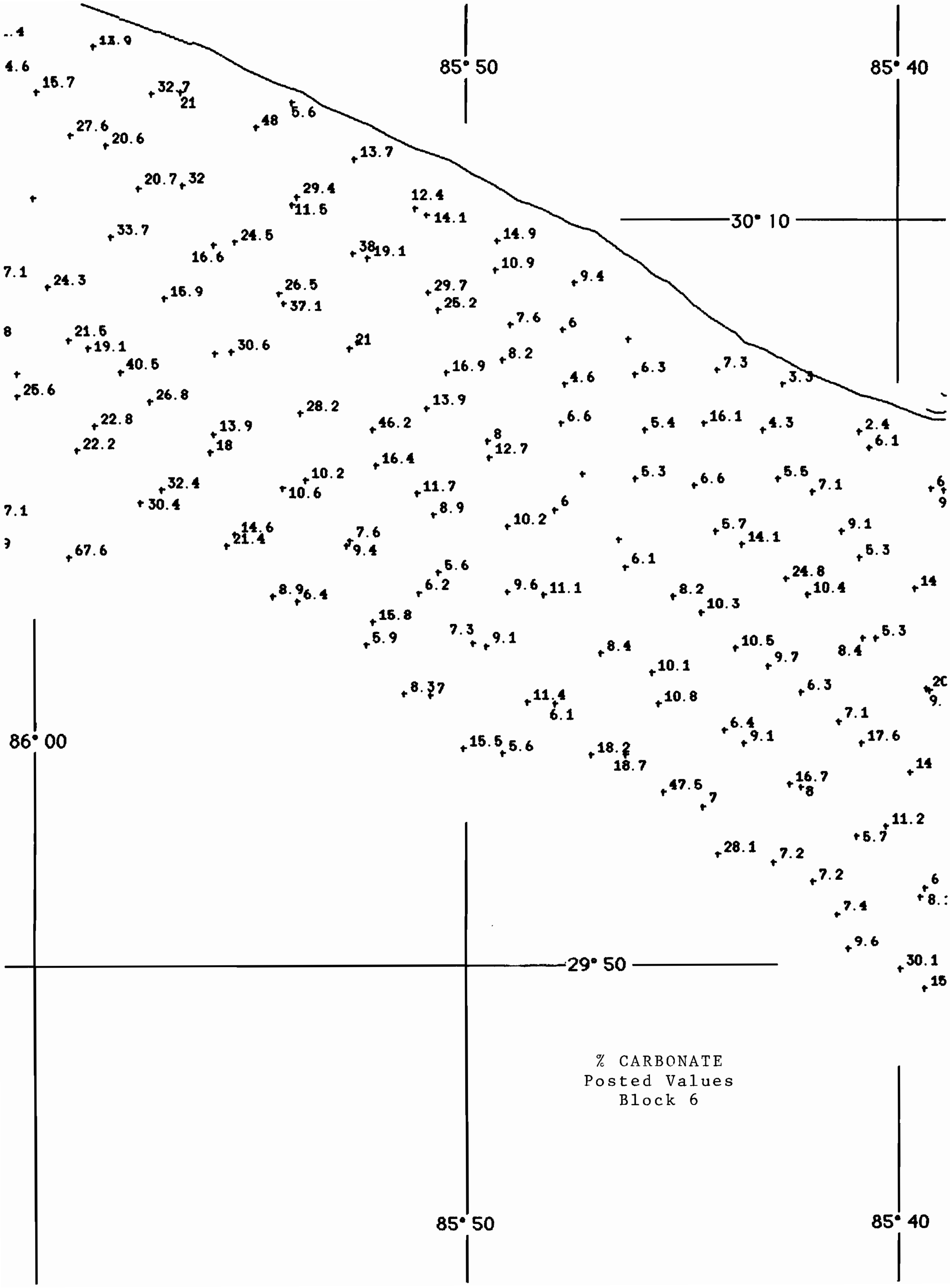
% CARBONATE
Posted Values
Block 2

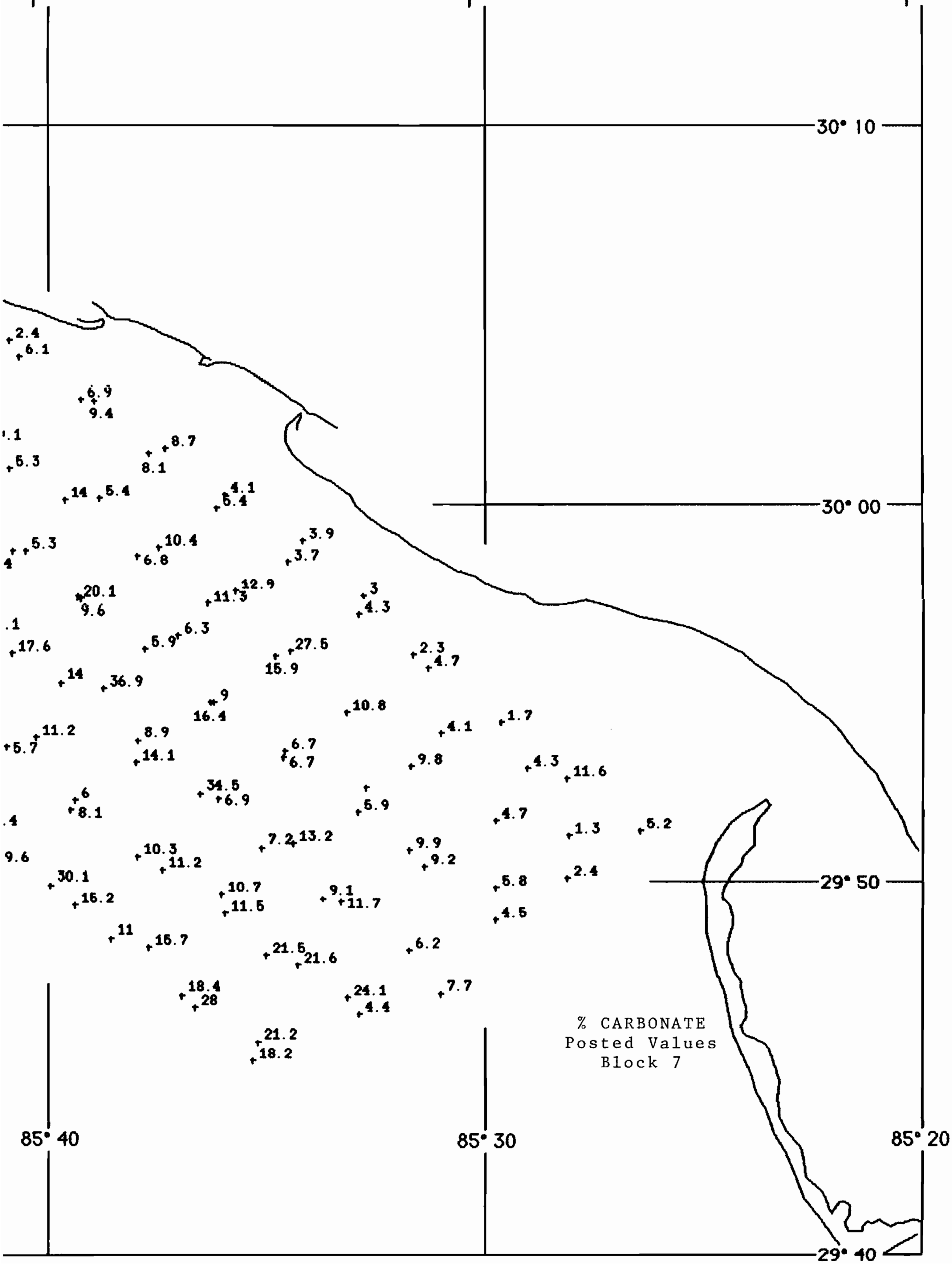


% CARBONATE
Posted Values
Block 3


86° 40
86° 30
86° 20
30° 10
30° 00
% CARBONATE
Posted Values
Block 4


86° 20
86° 10
86° 00
30° 20
30° 00
8
7.6
15.5
6.5
8.9
6.5
28.8
5.5
17.7
16.4
19.5
4
27.8
20.3
22
5.1
7.7
52.6
20.7
29.1
19
8.1
11.7
11.9
8.4
36
11.3
26
26.1
26.4
27.4
43.8
28.5
10.8
14.8
23.2
61.8
69.5
13.9
16.7
13.4
29.3
22.3
24.2
40.4
15.2
61.4
18.6
10.7
67.5
58.3
29
29.1
30
37.9
23.4
21.2
14.9
16.3
26.4
14.6
15.7
9
36.9
19.1
62.3
52.7
33
20.8
29.6
26.2
17.7
33.3
13.9
10.7
64.8
20.7
17.4
27
9.2
52.3
18.3
9.4
24
45.6
12.2
10.1
16.5
15.5
50.2
27
25.7
45.5
53.4
39.4
16.6
10.5
11.8
17.1
4.5
27.1
24.
19
51.9
41.8
22.7
32.9
32.1
16.5
48.5
17.5
22.8
46.9
84.9
32.5
53.6
16.5
15.7
25.6
21
16
25.5
12.7
20.3
26.1
28.4
19.1
17.1
19
% CARBONATE
Posted Values
Block 5


85° 50
85° 40
30° 10
86° 00
29° 50
% CARBONATE
Posted Values
Block 6
85° 50
85° 40


30° 10
30° 00
29° 50
29° 40
85° 40
85° 30
85° 20
% CARBONATE
Posted Values
Block 7
2.4
6.1
6.9
9.4
.1
5.3
8.7
8.1
14
5.4
4.1
5.4
5.3
4
10.4
6.8
3.9
3.7
20.1
9.6
11.3
12.9
3
4.3
.1
17.6
5.9
6.3
27.5
15.9
2.3
4.7
14
36.9
9
16.4
10.8
11.2
5.7
8.9
14.1
6.7
6.7
4.1
1.7
9.8
4.3
11.6
6
8.1
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5.9
4.7
.4
9.6
10.3
11.2
7.2
13.2
9.9
9.2
1.3
5.2
30.1
15.2
10.7
11.5
9.1
11.7
5.8
2.4
4.5
11
15.7
21.5
21.6
6.2
18.4
28
24.1
4.4
7.7
21.2
18.2