

13. DATA REPORT: NEOGENE DIATOMS RECOVERED ON LEG 150X¹

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INTRODUCTION AND METHODS

This data report lists Neogene diatoms recovered from three drill sites along the New Jersey coastal plain (Atlantic City, Cape May, and Island Beach; Tables 1–3; see papers by Miller et al., 1994a, 1994b; Miller, et al., 1996). Our purpose was to characterize the diatoms at these sites and compare their occurrence with sediments of similar age from Leg 150 (Mountain, Miller, Blum, et al., 1994) and from the East Coast of the United States (Andrews, 1978, 1988). Ninety-seven samples were examined from Atlantic City, 103 from Cape May, and 79 from Island Beach. Sampling intervals ranged from 3 ft (0.93 m) to as much as 100 ft (31.2 m), but were generally within the range of 10 ft (3.1 m); sample size varied, but was on the order of 2–3 cm³. Diatom slides were prepared using the method described by Schrader (1974) and taxonomy followed Abbott, (1987a, 1987b), Andrews, (1978, 1988), Baldauf, (1984, 1986), and Burckle, (1972, 1978). Where a zonal designation was warranted, the schemes of Andrews (1988) and Burckle (1996) were used.

RESULTS

Atlantic City: The interval from 14 to 291 ft (4.3–90.9 m) is either barren of diatoms or contains few diatoms, none of which are age diagnostic. At and below a depth of 399 ft (124 m), diatoms are generally abundant. The joint occurrence of *Delphineis novaecaesaraea*, *Delphineis penelliptica*, and *Denticulopsis hustedtii* indicate an interval equivalent to the *Delphineis novaecaesaraea* and *Coscinodiscus* (now *Thalassiosira*) *yabei* Zones of Burckle (1996), even though the latter named taxon is not present. Further, this interval is equivalent to much of East Coast Diatom Zone (ECDZ) 6 and all of ECDZ 7 of Andrews (1988).

The top of the *Coscinodiscus lewisianus* Zone of Burckle (1996) occurs at a depth of 454 ft (141 m). This zone extends to at least 637 ft (199 m), but may very well occur below that. Below 199 m, diatom occurrence becomes sporadic, with most samples being barren. Andrews (1988), using second-order correlation, tied this last occurrence to the lower part of foraminiferal Zone N11 of Blow (1969), approximately equivalent to somewhere in Magnetochron 14 (C5AA; Berggren et al., 1985). The last occurrence of *Rhaphidodiscus marylandicus* at a depth of 473 ft (147 m) and the co-occurrence of *Delphineis novaecaesaraea* and *Delphineis penelliptica* suggest that the interval between 454 and 473 ft (141 and 147 m) ranges from the upper part of ECDZ 2 to the lowermost part of ECDZ 6 of Andrews (1988).

Island Beach: Diatoms are present in the Island Beach hole from the surface to a depth below 347 ft (108 m). Below this level, diatoms either are not present, are present in low numbers, or are in fragments. The topmost sample (79 ft [24 m]) contains abundant diatoms, but no age-diagnostic forms other than *Actinocyclus ingens* were identified.

This sample is tentatively placed in the upper Miocene. The samples below that level (88 ft [27 m]) to a depth of 347 ft (108 m) generally contain abundant diatoms, including sporadic occurrences of *C. lewisianus*, *D. novaecaesaraea*, *D. penelliptica*, and *Rhaphidodiscus marylandicus*. Burckle (1996) reported this latter species in his *C. lewisianus* Zone. The interval between 88 and 347 ft (27 and 108 m) is placed in the *C. lewisianus* Zone of Burckle (1996) and in the lower part of ECDZ 2 and possible ECDZ 1 of Andrews (1988).

Cape May: Diatoms are generally present in the upper part of the Cape May hole, although some samples were barren. Below a level of 750 ft (234 m), diatoms are generally not present, occurring in only a few samples. Those present in samples between the top of the hole and a depth of 412 ft (128 m) are generally near-shore, brackish water forms. Below that level, a number of zonal markers appear. The interval between 412 and 658 ft (128 and 205 m) contains *D. novaecaesaraea* and *D. penelliptica* as well as sporadic occurrences of *D. hustedtii*. This interval is probably equivalent to the *D. novaecaesaraea* and *C. yabei* Zones of Burckle (1996). The absence of *C. lewisianus* and the presence of the aforementioned taxa suggest that it is equivalent to most of the ECDZ 6 and all of ECDZ 7 of Andrews (1988). The last occurrence of *C. lewisianus* and *R. marylandicus* at 658 ft (205 m) indicates that this site penetrated into the *C. lewisianus* Zone of Burckle (1996) and ECDZ 1 and the lower half of ECDZ 2 of Andrews (1988).

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Table 1. Atlantic City diatoms.

Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments
14.0	<i>Cocconeis</i> spp. <i>Diploneis bombus</i> <i>Nitzschia granulata</i> <i>Thalassiosira oestrupii</i>	469.5	<i>Actinocyclus ingens</i> <i>Actinocyclus tenellus</i> <i>Actinopterychus senarius</i> <i>Cymatosira belgica</i> <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia sulcata</i>	569.7	<i>Actinopterychus senarius</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
19.5	<i>Nitzschia granulata</i>			575.8	<i>Melosira westii</i> <i>Paralia sulcata</i>
28.6	<i>Cocconeis</i> spp.			583.7	<i>Actinocyclus ingens</i> <i>Actinopterychus senarius</i> <i>Delphineis penelliptica</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
42.9	<i>Nitzschia granulata</i>	473.5	<i>Actinopterychus senarius</i> <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i>	591.4	<i>Diploneis bombus</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
48.9	<i>Cocconeis</i> sp.			607.8	<i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
67 to 291.1	No or few diatoms	481.7	<i>Actinopterychus senarius</i> <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Paralia coronata</i> <i>Paralia sulcata</i> <i>Rhaphidodiscus marylandicus</i>	619.8	<i>Actinopterychus senarius</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Xanthiopyxis oblonga</i>
399	<i>Actinocyclus ingens</i> ? <i>Actinocyclus tenellus</i> <i>Actinopterychus senarius</i> <i>Craspedodiscus coscinodiscus</i> <i>Delphineis novaecaesaraea</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Xanthiopyxis oblonga</i>	489.8	<i>Actinopterychus senarius</i> <i>Delphineis penelliptica</i>	629.9	<i>Actinocyclus ehrenbergii</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
406.1	<i>Actinopterychus senarius</i> <i>Craspedodiscus coscinodiscus</i> <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Thalassiosira lineata</i> <i>Xanthiopyxis oblonga</i>	495.9	<i>Actinopterychus senarius</i> <i>Coscinodiscus marginatus</i> <i>Melosira westii</i> <i>Cavitatus jouseana</i>	637.4	<i>Actinocyclus tenella</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
413.6	<i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i>	503.9	<i>Actinocyclus ingens</i> <i>Actinopterychus senarius</i> <i>Denticulopsis norvegica</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i>	644.1	Few diatom fragments
421.9	<i>Cymatosira belgica</i> (?) <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Denticulopsis hustedtii</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Triceratium subrotundum</i>	509.6	<i>Actinocyclus tenella</i> <i>Coscinodiscus lewisianus</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Rhizosolenia barboi</i>	650.9	<i>Melosira westii</i>
427.7	<i>Delphineis penelliptica</i> Few diatoms	521.1	<i>Paralia coronata</i> <i>Paralia sulcata</i>	659.6	<i>Actinocyclus ingens</i> <i>Actinocyclus tenellus</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i>
433	<i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i> <i>Thalassiosira lineata</i>	526	<i>Actinocyclus tenella</i> <i>Actinopterychus senarius</i> <i>Delphineis penelliptica</i> ? <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i> <i>Synedra caduceus</i>	663.8 to 750	No diatoms
441.6	Few diatom fragments Sponge spicules	539	<i>Actinocyclus tenella</i> <i>Melosira westii</i> <i>Xanthiopyxis oblonga</i>	755.9	<i>Actinopterychus senarius</i> <i>Delphineis novaecaesaraea</i> <i>Denticulopsis hustedtii</i> <i>Diploneis bombus</i>
448.4	<i>Delphineis novaecaesaraea</i> Few diatoms	551.1	<i>Actinocyclus ingens</i> <i>Actinopterychus senarius</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia coronata</i>	768.7	<i>Actinopterychus senarius</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Paralia sulcata</i>
454.1	<i>Coscinodiscus lewisianus</i> <i>Rhizosolenia barboi</i> few broken diatoms	564.1	<i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Synedra caduceus</i> (?)	776 to 977	No diatoms or few diatoms
457.8	<i>Actinocyclus ingens</i> <i>Actinopterychus senarius</i> <i>Coscinodiscus lewisianus</i> <i>Delphineis novaecaesaraea</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Xanthiopyxis oblonga</i>				

Table 2. Island Beach diatoms, Hole 1B.

Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments
79.8 to 79.9	<i>Actinocyclus tenellus</i> <i>Actinocyclus ingens</i> <i>Actinocyclus senarius</i> <i>Coscinodiscus radiatus</i> <i>Coscinodiscus oculus-iridus</i> <i>Craspedodiscus</i> sp. <i>Delphineis biseriata</i> <i>Delphineis ovata</i> <i>Delphineis surirella</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Thalassionema obtusa</i>	111.2 to 111.3	<i>Actinocyclus senarius</i> <i>Cymatogonia amblyoceras</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Stephanopyxis turris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	143.5 to 143.6	<i>Actinocyclus octonarius</i> <i>Asteromphalus imbricatus</i> <i>Aulacodiscus</i> sp. <i>Aulocoseira italica</i> <i>Coscinodiscus asteromphalus</i> <i>Coscinodiscus</i> cf. <i>C. lewisianus</i> <i>Coscinodiscus lewisianus</i> <i>Coscinodiscus perforatus</i> <i>Cymatosira belgica</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia complexa</i> <i>Paralia coronata</i> <i>Pleurosigma manni</i> <i>Pyxilla johnsoniana</i> <i>Rhaphoneis gemmifera</i> <i>Rhaphoneis scalaris</i> <i>Rhizosolenia barboi</i> <i>Stephanopyxis turris</i> <i>Thalassiosira eccentrica</i>
88	<i>Actinocyclus tenellus</i> <i>Actinocyclus ingens</i> <i>Actinocyclus octonarius</i> <i>Actinocyclus senarius</i> <i>Azpeitia nodulifera</i> <i>Coscinodiscus radiatus</i> <i>Coscinodiscus oculus-iridus</i> <i>Craspedodiscus</i> sp. <i>Delphineis biseriata</i> <i>Delphineis ovata</i> <i>Delphineis penelliptica</i> <i>Delphineis surirella</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Pleurosigma affine</i> var. <i>marylandica</i> <i>Rhaphidodiscus marylandicus</i> <i>Rhizosolenia styliformis</i> <i>Stephanopyxis turris</i> <i>Thalassionema obtusa</i> <i>Triceratium condecorum</i>	115.2 to 115.3	<i>Actinocyclus ingens</i> <i>Actinocyclus senarius</i> <i>Paralia sulcata</i> <i>Rhaphoneis scalaris</i> <i>Sceptroneis grandis</i> <i>Stephanopyxis</i> sp. <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	119.5 to 119.6	<i>Actinocyclus senarius</i> <i>Coscinodiscus perforatus</i> <i>Diploneis bombus</i> <i>Epithemia</i> sp. <i>Paralia sulcata</i> <i>Podosira stelligera</i> <i>Rhaphoneis scalaris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>
		123.6 to 123.7	<i>Actinocyclus ingens</i> <i>Diploneis bombus</i> <i>Mediaria splendida</i> <i>Paralia sulcata</i> <i>Rhaphoneis amphiceris</i> <i>Rhaphoneis scalaris</i> <i>Rhizosolenia styliformis</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	144.0 to 144.1	<i>Actinocyclus marylandicus</i> <i>Actinocyclus senarius</i> <i>Cavitatus jouseana</i> <i>Coscinodiscus lewisianus</i> <i>Coscinodiscus perforatus</i> <i>Cymatosira immunis</i> <i>Delphineis penelliptica</i> <i>Denticulopsis norvegica</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Rhaphoneis scalaris</i> <i>Sceptroneis grandis</i> <i>Stephanopyxis turris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>
91.8 to 91.9	<i>Actinocyclus senarius</i> <i>Coscinodiscus oculus-iridus</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Pleurosigma</i> sp. <i>Thalassionema obtusa</i>	127.9 to 128	<i>Actinocyclus ingens</i> <i>Actinocyclus tenellus</i> <i>Actinocyclus senarius</i> <i>Asterolampra marylandica</i> <i>Coscinodiscus perforatus</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Epithemia</i> sp. <i>Lithodesmium</i> cf. <i>L. undulatum</i> <i>Rhaphidodiscus marylandicus</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	153.4	<i>Actinocyclus ingens</i> <i>Actinocyclus octonarius</i> <i>Actinocyclus senarius</i> <i>Aulocoseira granulata</i> <i>Aulocoseira italica</i> <i>Cavitatus jouseana</i> <i>Coscinodiscus endoi</i> <i>Coscinodiscus marginatus</i> <i>Craspedodiscus coscinodiscus</i> <i>Cymatosira belgica</i> <i>Delphineis ovata</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Pyxilla johnsoniana</i> <i>Rhaphidodiscus</i> cf. <i>R. marylandicus</i> <i>Rhaphoneis diamontella</i> <i>Rhaphoneis rhombica</i> <i>Rhizosolenia barboi</i> <i>Stephanopyxis turris</i>
95.0 to 95.1	No diatoms				
99.1 to 99.2	<i>Actinocyclus ingens</i> <i>Actinocyclus senarius</i> <i>Amphiceris</i> sp. <i>Anaulus</i> sp. <i>Azpeitia nodulifera</i> <i>Coscinodiscus marginatus</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Rhaphidodiscus marylandicus</i> <i>Rhaphoneis gemmifera</i> <i>Rhaphoneis</i> cf. <i>R. amphiceris</i> <i>Rhaphoneis amphiceris</i> <i>Sceptroneis grandis</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	132 to 132.1	<i>Asterolampra marylandica</i> <i>Coscinodiscus asteromphalus</i> <i>Coscinodiscus perforatus</i> <i>Delphineis penelliptica</i> <i>Denticula norvegica</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Rhaphoneis scalaris</i> <i>Rhaphoneis amphiceris</i> <i>Sceptroneis</i> sp. <i>Sceptroneis grandis</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	161.5 to 161.6	<i>Melosira westii</i> <i>Podosira stelligera</i> <i>Xanthiopyxis oblonga</i> <i>Coscinodiscus perforatus</i> <i>Triceratium condecorum</i>
103.2 to 103.3	<i>Actinocyclus ingens</i> <i>Actinocyclus senarius</i> <i>Coscinodiscus argus</i> <i>Diploneis bombus</i> <i>Delphineis</i> cf. <i>D. surirella</i> <i>Paralia sulcata</i> <i>Rhaphoneis amphiceris</i> <i>Rhaphoneis scalaris</i> <i>Stephanopyxis turris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	136.3 to 136.4	<i>Actinocyclus senarius</i> <i>Biddulphia</i> cf. <i>B. aurita</i> <i>Coscinodiscus lewisianus</i> <i>Coscinodiscus perforatus</i> <i>Delphineis penelliptica</i> <i>Denticulopsis norvegica</i> <i>Diploneis bombus</i> <i>Rhizosolenia miocenica</i> <i>Rhizosolenia styliformia</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	168.6 to 168.7	<i>Actinocyclus ehrenbergii</i> <i>Aulacodiscus</i> sp. <i>Coscinodiscus lewisianus</i> <i>Coscinodiscus</i> cf. <i>C. perforatus</i> <i>Delphineis</i> cf. <i>D. ovata</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Xanthiopyxis oblonga</i> <i>Xanthiopyxis ovalis</i> <i>Bolboforma</i> sp. (not a diatom)
107.5 to 107.6	<i>Actinocyclus australis</i> <i>Actinocyclus senarius</i> <i>Coscinodiscus marginatus</i> <i>Coscinodiscus radiatus</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Rhaphoneis gemmifera</i> <i>Sceptroneis grandis</i> <i>Stephanopyxis</i> sp. <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	140.2 to 140.3	<i>Actinocyclus tenellus</i> <i>Actinocyclus senarius</i> <i>Asterolampra marylandica</i> <i>Delphineis penelliptica</i> <i>Denticulopsis norvegica</i> <i>Epithemia</i> sp. <i>Rhaphoneis gemmifera</i> <i>Rhaphoneis amphiceris</i> <i>Rhizosolenia</i> cf. <i>R. miocenica</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	175.6 to 175.7 and 181.5 to 181.6	Diatom fragments or no diatoms

Table 2 (continued).

Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments
191.0 to 191.1	<i>Actinocyclus australis</i> <i>Cavitatus jouseana</i> <i>Coscinodiscus marginatus</i> <i>Delphineis</i> cf. <i>D. ovata</i> <i>Delphineis penelliptica</i> <i>Denticulopsis norvegica</i> <i>Paralia complexa</i> <i>Paralia coronata</i> <i>Pleurosigma marylandica</i> <i>Stephanopyxis turris</i> <i>Xanthiopyxis oblonga</i> <i>Xanthiopyxis ovalis</i>	340.9 to 341.0	<i>Cymatogonia amblyoceros</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i> <i>Diploneis</i> cf. <i>D. bombus</i> <i>Paralia sulcata</i>
200.3 to 200.4 and 265.0 to 265.1	Diatom fragments or no diatoms	347.8 to 348.0	<i>Actinocyclus ingens</i> <i>Diploneis</i> sp. <i>Rhizosolenia styliformis</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>
274.5 to 274.6	<i>Actinocyclus octonarius</i> <i>Actinocyclus tenellus</i> <i>Diplomenora cocconeiformis</i> <i>Coscinodiscus</i> cf. <i>C. monicae</i> <i>Cymatosira belgica</i> <i>Delphineis novaecaesaraea</i> <i>Dimmerogramma elliptica</i> <i>Diplomenora cocconeiformis</i> <i>Paralia complexa</i> <i>Paralia coronata</i> <i>Pyxilla johnsoniana</i> <i>Rhizosolenia praebarboi</i> <i>Stephanopyxis turris</i> <i>Triceratium condecorum</i> <i>Triceratium tessellatum</i> <i>Xanthiopyxis oblonga</i> <i>Bolboforma</i> sp. (not a diatom)	355.0 to 355.1	No diatoms
284.2 to 284.3 and 317.0 to 317.1	Diatom fragments or no diatoms	365.0 to 365.1	<i>Paralia</i> sp. <i>Thalassionema nitzschioides</i> Few diatoms
320.0 to 320.2	<i>Rhizosolenia styliformis</i> Diatom fragments	375.0 to 375.1 and 488.0 to 488.1	Diatom fragments or no diatoms
326.0 to 326.1	<i>Actinocyclus senarius</i> <i>Paralia sulcata</i> <i>Rhaphoneis gemmifera</i> <i>Rhaphoneis rhombicus</i> <i>Rhaphidodiscus</i> cf. <i>R. marylandicus</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>	494.8 to 495.0 and 509.0 to 509.1	No diatoms
333.0 to 333.2	<i>Actinocyclus tenellus</i> <i>Actinocyclus senarius</i> <i>Cocconeis</i> sp. <i>Coscinodiscus lewisianus</i> <i>Coscinodiscus perforatus</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Epithemia</i> sp. <i>Paralia sulcata</i> <i>Rhaphoneis scalaris</i> <i>Sceptroneis grandis</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i> <i>Thalassiosira</i> sp.	517.0 to 517.1	<i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i> Diatom fragments Pollen and spores common
		529.4 to 529.5	Diatom fragments
		539.0 to 539.1	<i>Coscinodiscus perforatus</i> <i>Diploneis</i> cf. <i>D. bombus</i> <i>Rhaphoneis scalaris</i> <i>Rhaphoneis</i> sp. <i>Thalassionema nitzschioides</i>
		542.8 to 542.9	<i>Diploneis</i> cf. <i>D. bombus</i> <i>Paralia sulcata</i> <i>Rhaphoneis</i> sp. <i>Thalassionema nitzschioides</i> <i>Thalassionema obtusa</i>
		548.2 to 548.4 and 667.7 to 667.8	No diatoms

Table 3. Cape May diatoms.

Depth (ft)	Taxonomic comments	Depth (ft)	Taxonomic comments
19.0	<i>Actinoptychus senarius</i> <i>Coscinodiscus marginatus</i> <i>Paralia sulcata</i> <i>Rhaphoneis amphicerus</i> <i>Thalassiosira eccentrica</i>	451.0	<i>Delphineis novacaesaraea</i> <i>Denticulopsis hustedtii</i> <i>Melosira westii</i>
34.2	Rare diatom fragments Few sponge spicules Opal phytoliths	463.0	<i>Delphineis novacaesaraea</i> <i>Paralia sulcata</i>
44.8	<i>Actinoptychus senarius</i> <i>Coscinodiscus marginatus</i> <i>Paralia coronata</i> <i>Paralia sulcata</i> <i>Rhaphoneis amphicerus</i>	469.5	<i>Actinoptychus senarius</i> <i>Delphineis novacaesaraea</i>
54.2 to 84	Few diatom fragments	485.0	<i>Delphineis novacaesaraea</i> <i>Denticulopsis hustedtii</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Rhaphoneis amphicerus</i>
91.9	<i>Actinoptychus senarius</i> <i>Coscinodiscus obscurus</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i> <i>Rhaphoneis amphicerus</i>	492.0	<i>Actinoptychus senarius</i> <i>Coscinodiscus marginatus</i> <i>Delphineis novacaesaraea</i> <i>Denticulopsis hustedtii</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Thalassiosira lineata</i>
101.9	<i>Diploneis bombus</i> <i>Paralia sulcata</i>	532.0	<i>Actinoptychus senarius</i> Diatoms rare
111.9	<i>Actinoptychus senarius</i> <i>Rhaphoneis lancetulla</i> <i>Pleurosigma</i> sp. <i>Nitzschia granulata</i>	541.9	Rare diatom fragments
121.9	<i>Actinoptychus senarius</i> <i>Nitzschia granulata</i> <i>Rhaphoneis amphicerus</i> <i>Rhaphoneis lancetulla</i> <i>Thalassiosira lineata</i>	561.0	<i>Diploneis bombus</i> Diatom fragments
131.9	<i>Diploneis bombus</i> <i>Nitzschia granulata</i> <i>Rhaphoneis lancetulla</i>	593.9	<i>Actinoptychus senarius</i> <i>Diploneis bombus</i> <i>Paralia sulcata</i>
161.9 to 171.9	No diatoms or rare diatom fragments	610.0	<i>Paralia coronata</i>
181.9	<i>Nitzschia granulata</i> Rare diatom fragments	624.5 to 647	No diatoms
185.9	Rare diatom fragments Opal phytoliths	658.2	<i>Actinoptychus senarius</i> <i>Coscinodiscus lewistianus</i> <i>Delphineis penelliptica</i> <i>Melosira westii</i> <i>Paralia coronata</i> <i>Rhaphidodiscus marylandicus</i>
196.1	<i>Rhaphoneis lancetulla</i> Rare diatom fragments	675.0	No diatoms
211.9 to 262	No diatoms	690.9	<i>Actinoptychus senarius</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia coronata</i>
277	<i>Actinoptychus senarius</i> <i>Rhaphoneis lancetulla</i>	712.0	No diatoms
288	<i>Rhaphoneis amphicerus</i> Rare diatoms	741.1	<i>Coscinodiscus marginatus</i> <i>Delphineis novacaesaraea</i> <i>Delphineis penelliptica</i> <i>Diploneis bombus</i> <i>Melosira westii</i>
293.1	<i>Nitzschia granulata</i> Rare diatoms	752.5 to 922.01	No diatoms
302.1	<i>Nitzschia granulata</i> <i>Rhaphoneis lancetulla</i>	1045	<i>Cavitatus jouseana</i> <i>Diploneis bombus</i> <i>Melosira westii</i> <i>Paralia sulcata</i> <i>Xanthiopyxis bombus</i>
313.3	<i>Diploneis bombus</i> <i>Rhaphoneis lancetulla</i>	1061 to 1247.9	No diatoms
325.0 to 391.6	No diatoms or rare diatoms	1253.9	<i>Paralia sulcata</i> <i>Sceptroneis caduceus</i>
402.5	<i>Actinoptychus senarius</i> <i>Melosira westii</i> <i>Rhaphoneis rhombica</i>	1261.9	<i>Melosira westii</i> <i>Paralia sulcata</i> <i>Sceptroneis caduceus</i>
412.6	<i>Actinocyclus tenella</i> <i>Paralia sulcata</i> <i>Rhaphoneis lancetulla</i> <i>Delphineis novacaesaraea</i>	1300 to 1480	No diatoms
428.0	<i>Actinoptychus senarius</i>		
440.0	<i>Actinoptychus senarius</i> <i>Coscinodiscus marginatus</i> <i>Craspedodiscus coscinodiscus</i> <i>Delphineis novacaesaraea</i> <i>Melosira westii</i>		