

Family MELONGENIDAE Gill, 1867
Genus MELONGENA Schumacher, 1817

Melongena corona bispinosa (Philippi, 1844)

References: Petit, 1852: 157-159, pl. 8: 3; Pillsbry and Vanatta, 1934: 120-121, pl. 12: 8; Clench and Turner, 1956b: 180-182, pl. 106: 1, 2; Abbott, 1974: 221, pl. 12: 2435.

Description: The largest shell found is juvenile (ht 19.0 mm, diam. 15.5 mm). The somewhat faded, yellow shell bears a yellow-orange band on the shoulder of the body whorl. The protoconch consists of 1½ smooth whorls. There are 4½ postnuclear whorls which are shouldered and sculptured with axial and spiral threads and axial ribs. There are 10 axial ribs at the shoulder of each whorl and in the early whorls, the ribs are blunt, whereas in the last ½ whorl the ribs terminate in blunt, hollow spines. Also on this last ½ whorl, a row of scale-like spines begins to develop midway between the shoulder and the base of the shell. Scales representing former margins of the siphonal canal are developed at the base and similar small scales representing former margins of the anal canal are developed near the suture. The thin outer lip is crenulate. There is a well developed white callus on the parietal region.

Occurrence: One large juvenile specimen was recovered from Inglés Lagoon sediment (depth 70 cm) and a small juvenile specimen was taken from RL sediment of Core 18 (depth 10 cm).

Total number collected: 2.

Distribution: Yucatan.

Family NASSARIIDAE Iredale, 1916
Genus NASSARIUS Duméril, 1806

Nassarius albus (Say, 1826)

References: Dall and Simpson, 1901: 403; Abbott, 1954: 239, pl. 23:r, text fig. 53:a; Abbott, 1958: 75-76; Rice and Kornicker, 1962: 376, pl. 4: 2; Warmke and Abbott, 1962: 118, pl. 21:o; Gould, 1968: 9, fig. 1; Morris, 1973: 205, pl. 54: 19; Abbott, 1974: 224, no. 2458.

Description: The largest shell found (ht 9.5 mm, diam. 6 mm) is immature and has 6½ whorls. The 1½ nuclear whorls are white and sculptured with strong axial ribs (14 on the body whorl) which are crossed by moderately strong, rounded, spiral cords (12 on the body whorl). Parallel to and between the axial ribs are very fine axial lines. The parietal area is not well developed. The outer lip is thin but with a thickened varix behind and numerous denticles within.

Occurrence: Representatives of this species are found in some OL sediments and to a lesser extent in RL and TD sediments.

Total number collected: 15.

Distribution: Southeastern United States, Bermuda, the West Indies, south to Brazil.

Remarks: Specimens were compared with representatives of *N. albus* and *N. vibex* (Say, 1822) collected from beach drift at Naples, Florida, to aid in identification. *Nassarius ambiguus* (Pulteney, 1799) is a synonym.

Superfamily VOLUTACEA Rafinesque, 1815

Family OLIVIDAE Latreille, 1825

Genus OLIVELLA Swainson, 1831

Olivella dealbata (Reeve, 1850)

References: Olsson, 1956: 185-186, pl. 15: 6; Warmke and Abbott, 1962: 122-123, pl. 23: m; Odé, 1969b: 26; Andrews, 1971: 118-119, fig.; Abbott, 1974: 234, no. 2558.

Description: The largest shell found (ht 5.4 mm, diam. 2.2 mm) is immature and has 5 whorls. The smooth shell is glossy white. The suture is deeply channelled. The parietal region is weakly denticulate and the columella has a single basal fold. The outer lip is thin and smooth within.

Occurrence: Representatives of this species are found in OL and TD sediments and in some RL sediments.

Total number collected: 56.

Distribution: North Carolina, Florida, Texas and the West Indies.

Remarks: Identification of specimens was verified by Moore (1974, personal communication).

Olivella minuta (Link, 1807)

References: Olsson, 1956: 190, pl. 9: 1, 2, 12:2; Warmke and Abbott, 1965: 123, pl. 23: u; Odé, 1969b: 25; Andrews, 1971: 119; Morris, 1973: 222, pl. 61: 11; Abbott, 1974: 235, pl. 11: 2560.

Description: The largest shell found (ht 7.5 mm, diam. 3.4 mm) is smooth and has 5 whorls. The shell is white with a light brown band along the open, channelled suture and has a faint, zigzag brown pattern on the body whorl. The parietal area is denticulate. The outer lip is thin and smooth. When compared with specimens of *O. dealbata* from Nichupté Lagoon, representatives of *O. minuta* are larger, more ovate, the apex is more acute and the suture is channelled less deeply.

Occurrence: Representatives of this species are found in TD and OL sediments of Core 18 (depth 280 cm).

Total number collected: 11.

Distribution: Southern Texas and the West Indies, south to Brazil.

Family MARGINELLIDAE Fleming, 1828

Petit (1851: 38-59) presents a list of Marginellidae known at that time and includes author, synonyms and locality information. Coan (1965: 184-194) revised the classification of Pacific species. The classification outlined by Abbott (1974: 249-254) is followed here.

Genus MARGINELLA Lamarck, 1799

Marginella eburneola Conrad, 1834

References: Abbott, 1964: 254 text fig. 56: c; Warmke and Abbott, 1962: 127, pl. 23: a; Houbrick, 1968: 17; Morris, 1973: 232, pl. 64: 2; Abbott, 1974: 249, no. 2720.

Description: The small shell (ht 6 mm, diam. 3 mm) is yellow-tan and glossy. There are 3 whorls in the spire (ht 1.8 mm). The aperture is elongate with a

well developed posterior U-shaped notch. The outer lip is thickened and has 7 denticles within. There are 4 slanting folds on the columella.

Occurrence: Representatives of this species are found in some RL sediments and to a lesser extent, in some OL and TD sediments.

Total number collected: 39.

Distribution: North Carolina, south to the West Indies.

Remarks: *Marginella denticulata* Conrad, 1830, non Link, 1807, is a synonym.

Subgenus PRUNUM Herrmannsen, 1852

Marginella apicina Menke, 1828

References: Dall and Simpson, 1901: 393; Abbott, 1954: 257, pl. 11:n, text fig. 56: g; Andrews, 1971: 120; Morris, 1973: 232, pl. 64:9; Abbott, 1974: 250, pl. 11: 2730.

Description: The small shell (ht 9.5 mm, diam. 7 mm) has 3 whorls, a low spire (ht 0.4 mm) and a large body whorl. The body whorl is cream-colored with 3 wide orange-yellow bands which extend to the outer lip and terminate as darker orange dots. There is also a small orange dot at the basal lip. The nuclear whorl is also orange. The aperture is narrow and extends the length of the body whorl. The outer lip is thickened and notched at the base. There are 4 strong, slanting folds at the base of the columella.

Occurrence: Representatives of this species are found in RL and Inglés Lagoon sediments and to a much lesser extent in OL sediments (depth 0-190 cm).

Total number collected: 30.

Distribution: North Carolina, south to Florida, the Gulf States and the West Indies.

Marginella labiata Kiener, 1841

References: Abbott, 1954: 256, pl. 11: 1; Rice and Kornicker, 1965: 125, pl. 6: 8; Abbott, 1974: 250, pl. 11: 2725.

Description: The large, glossy shell (ht 26.5 mm, diam. 18 mm) has 5 whorls, a low spire (ht 1.5 mm) and a large body whorl. The apex is tan and free of callus. The body whorl is tan with 3 darker, subdued purple-brown spiral bands. There is an orange band tracing the exterior of the outer lip and an orange-tinted callus deposit on the shoulder of the body whorl near the outer lip margin. The interior of the outer lip is white and denticulate. The aperture is elongate and narrow (height 15.5 mm, greatest diam. 3 mm). There are 4 strong, slanting folds on the columella.

Juvenile specimens are comparable with specimens of *M. apicina* except that the spire is higher and color banding is different. In contrast to adult specimens of *M. labiata*, the body whorl is grayish with 4 brown spiral bands. Three of the bands on juvenile shells correspond with those on adult shells. The fourth band extends from the second columellar tooth to the base of the aperture. In adult shells, this region is orange and a continuation of the band along the outer lip.

Occurrence: Representatives of this species are found in very small numbers in OL and TD sediments.

Total number collected: 7.

Distribution: Eastern Mexico, from Yucatan to Central America.

Marginella roosevelti Bartsch and Rehder, 1939

References: Bayer, 1943: 114; Abbott, 1954: 256, pl. 11: o; Abbott, 1974: 250, pl. 11: 2724.

Description: The large shell (ht 19 mm, diam. 10 mm) is elongate and tan. All of the specimens are somewhat bleached; however, 2 faint orange spots are visible on the thickened outer lip. The apex is more than half covered with a callus. On the lower third of the columella are 4 strong, slanting teeth. The aperture is elongate and narrow (ht 18 mm, greatest diam. 1 mm). The outer lip is thickened and finely denticulate within.

Occurrence: Representatives of this species are found in very small numbers in some RL and OL sediments.

Total number collected: 6.

Distribution: The West Indies.

Remarks: *M. roosevelti* may be a color form of *M. carnea* (Storer, 1837) (Abbott, 1954: 254, pl. 11: k; Abbott, 1974: 250, pl. 11: 2723). The two species are separated by the larger size and the spots of color on the outer lip of shells of *M. roosevelti*. A comparison of the ratio of height to diameter may also be useful. Shells of *M. roosevelti* and shells from Nichupté Lagoon appear to be more elongate than those representing *M. carnea*.

Subgenus GIBBERULA Swainson, 1840

Marginella lavaléeana d'Orbigny, 1842

References: Abbott, 1954: 257-258, fig. 56:m; *Persicula minuta* (Pfeiffer, 1840); Perry and Schwengel, 1955: 173, pl. 53: 357; Abbott, 1958: 87; Warmke and Abbott, 1962: 128, pl. 23: d; Houbbrick, 1928: 17; Abbott, 1974: 251, no. 2747.

Description: The minute shell (ht 2 mm, diam. 1.2 mm) is smooth, usually glossy-white and sometimes transparent. The spire is very low and obtuse. The aperture is narrow and extends nearly the length of the body whorl. There are 4 teeth on the base of the columella. In transparent specimens, these teeth may be seen to extend into the very early whorls. The outer lip is thickened and weakly denticulate within.

Occurrence: Representatives of this species are found in some RL, OL and TD sediments.

Total number collected: 103.

Distribution: Bermuda, southern Florida and the West Indies.

Remarks: Identification of specimens was verified by Dr. D. R. Moore (personal communication, 1974).

Genus PERSICULA Schumacher, 1817

Persicula fluctuata (C. B. Adams, 1850)

References: Clench and Turner, 1950: 282, pl. 32: 3; *Marginella fluctuata* C. B. Adams; Abbott, 1958: 87, pl. 2: c; Warmke and Abbott, 1962: 128; Abbott, 1974: 252 no. 2749.

Description: The small shell (ht 3.5 mm, diam. 2.2 mm) is ovuliform, glossy and white with thin wavy longitudinal brown lines. The wavy brown lines are darkest at each crest, directed away from the outer lip, and sometimes irregular. The apex is very low and covered with a callus. The outer lip is sharp and bears about 20 fine serrations within. There are 7 folds on the base of the columella. The 2 most anterior folds are largest, the next 4 are

smaller and about equal in size, and the seventh fold is nearly obsolete.

Occurrence: Four specimens were taken from OL sediments of Cores 17 (depth 140 cm), 18 (depth 190 cm) and 111 (depth 205 cm).

Total number collected: 4.

Distribution: The West Indies.

Genus HYALINA Schumacher, 1817

Subgenus VOLVARINA Hinds, 1844

Hyalina avena (Kiener, 1834)

References: Abbott, 1954: 258, pl. 11: p, text fig. 56: i; Rice and Kornicker, 1962: 375, pl. 4: 8; Abbott, 1974: 252, pl. 11: 2757.

Description: The slender shell is small (ht 11.2 mm, diam. 4.6 mm) and a faded cream-color with 4 faint and narrow orange spiral bands. The acute spire is short (ht 1 mm) but prominent. The aperture is elongate and narrow. The white outer lip is thickened, curved and smooth within. There are 4 strong, slanting teeth on the lower portion of the columella.

Occurrence: Three specimens were taken from OL sediments of Core 24 (depth 125 cm) and TD sediments of Core 32.

Total number collected: 3.

Distribution: Bermuda, North Carolina, south to Brazil.

Remarks: Specimens are distinguished from shells of *H. albolineata* (below) by their larger size, more elongate shape and difference in color bands. Between the bands of color on specimens of *H. albolineata*, there are distinct white bands.

Hyalina albolineata (d'Orbigny, 1842)

References: Dall and Simpson, 1901: 394; Warmke and Abbott, 1962: 129, pl. 23: i; Morris 1973: 234, pl. 64: 15; Abbott, 1974: 253, no. 2761.

Description: The slender shell is small (ht 6 mm, diam. 3 mm) and white with 3 tan spiral bands. The spire is short (ht 0.7 mm) and the aperture extends the length of the body whorl. The outer lip is slightly thickened. There are 4 white, slanting folds on the lower portion of the columella.

Occurrence: Representatives of this species are found in relatively small numbers in some RL and OL sediments.

Total number collected: 15.

Distribution: Bermuda and the West Indies.

Hyalina pallida (Linnaeus, 1758)

References: Dall and Simpson, 1901: 395; Warmke and Abbott, 1962: 129, pl. 23: f; *H. tenuilabra* Tomlin, 1917, synonym; Morris, 1973: 235, pl. 64: 14; Abbott, 1974: 253, no. 2764.

Description: The subcylindrical shell is small (ht 10 mm, diam. 4.5 mm) glossy and cream-colored. The apex is nearly flat and the aperture extends the length of the body whorl. The outer lip is thin and sharp. The columella is curved, with 4 slanting folds on its lower portion.

Occurrence: Representatives of this species are found in relatively small numbers in some OL sediments.

Total number collected: 9.

Distribution: Southeastern Florida and the West Indies.

Genus GRANULINA Jousseaume, 1888

Granulina ovuliformis (d'Orbigny, 1841)

References: Dall and Simpson, 1901: 395; Abbott, 1954: 254, text fig. 56: O; Perry and Schwengel, 1955: 174, pl. 36: 246, *Bullata lacrimula* Gould, 1862, synonym; Abbott, 1958: 86; Warmke and Abbott, 1962: 128, pl. 23: e; Morris, 1973: 232, pl. 64: 13; Abbott, 1974: 254, no. 2774.

Description: The minute shell (ht 2 mm, diam. 1.4 mm) is globose, glossy-white and smooth. The shell exhibits involute coiling. The narrow aperture extends the total height of the shell. There are 4 teeth on the lower columella. The outer lip is thickened and finely denticulate within.

Occurrence: Representatives of this species are found in relatively small numbers in some RL sediments and to a lesser extent in OL sediments.

Total number collected: 31.

Distribution: North Carolina, south to Florida and the West Indies.

Remarks: Identification of specimens was verified by Dr. D. R. Moore (personal communication, 1974).

Genus MARGINELLOPSIS Bayay, 1911

Marginellopsis serrei Bayay, 1911

References: Warmke and Almodóvar, 1963: 167; Bock and Moore, 1971: 144; Moore, 1971a: 1, fig. 1; Moore, 1971b: 2, fig. 1; Abbott, 1974: 254, no. 2778.

Description: The sculptured, minute shell (ht 1 mm, diam. 0.8 mm) is marked with radial and spiral cords which intersect randomly to create a pitted surface. The aperture is narrow and elongate. The outer lip is thickened and smooth. There are 2 well developed and 2 weakly developed columellar folds.

Occurrence: Representatives of this species are found in RL, OL and TD sediments.

Total number collected: 117.

Distribution: West Indies, south to Brazil.

Remarks: Specimens were identified by Dr. D. R. Moore (personal communication, 1974).

Family MITRIDAE Swainson, 1831

Genus VEXILLUM Röding, 1798

Subgenus PUSIA Swinson, 1840

Vexillum albocinctum (C. B. Adams, 1845)

References: Clench and Turner, 1950: 253, pl. 36: 10, *Mitra albo-cincta*; Abbott, 1974: 239, no. 2623.

Description: The largest shell found (ht 9.4 mm, diam. 4 mm) is fusiform and has 5 postnuclear whorls. The apical whorl is missing but the second nuclear whorl is brown and smooth. The postnuclear whorls are brown with a narrow, white spiral band. Sculpture consists of 14 short, sharp axial ribs which are nearly bisected by the spiral band. The base of the shell is marked with 4 spiral ridges which extend to the columella, producing 4 strong columellar folds. On the body whorl, between the spiral band and the columellar folds, there is a very fine white spiral thread.

Occurrence: Three specimens were taken from OL sediments of Cores 17 (depth 90 cm) and 24 (depth 185 cm).

Total number collected: 3.

Distribution: Southeastern Florida and the West Indies.

Vexillum hanleyi (Dohrn, 1862)

References: Abbott, 1958: 83; Warmke and Abbott, 1962: 125, pl. 22:b; Abbott, 1974: 239, no. 2621.

Description: The largest shell found (ht 6.5 mm, diam. 2.6 mm) is fusiform and has 6½ whorls. The first ½ whorls are brown and smooth, whereas the remaining whorls are brown with a white spiral band. The postnuclear whorls are marked with short, broad, nodular axial ribs which are nearly covered by the white encircling band. The penultimate whorl bears 16 ribs which become obsolete below the periphery. Below the distinct suture are numerous axial crinkles. The outer lip is sharp, broadly notched above, where there is a thick, button-like parietal callus. There are fine serrations deep within the outer lip and 4 light brown columellar folds.

Occurrence: Representatives of this species are found in very small numbers in some RL and OL sediments.

Total number collected: 4.

Distribution: Southern Florida and the West Indies.

Genus *THALA* H. and A. Adams, 1853*Thala foveata* (Sowerby, 1874)

References: Dall, 1883: 327-328, pl. 10: 12, *Mitra floridana* Dall, 1883, synonym; Dall, 1889a: 110, pl. 48: 5; Abbott, 1974: 240, no. 2634.

Description: The largest shell found (ht 8.5 mm, diam. 2.9 mm) is fusiform and has 6 whorls. The nuclear whorl is smooth, transparent and brown. The remaining whorls are red-brown and sculptured with spiral and transverse cords of equal intensity which create a cancellate surface. Nodules are formed at the cord intersections. The principal spiral cords increase from 3 on the first postnuclear whorl to 14 on the fifth postnuclear whorl. The body whorl is comparatively large (ht 5.5 mm), making up about two-thirds of the total shell height. The aperture is elongate (height 3.8 mm) and narrow. The outer lip is thickened and has 11 denticles within. The base of the columella bears 4 brown folds.

Occurrence: Representatives of this species are found in relatively small numbers in some RL and OL sediments.

Total number collected: 16.

Distribution: Southern Florida and Bermuda.

Superfamily *CONACEA* Rafinesque, 1815Family *CONIDAE* Rafinesque, 1815Genus *CONUS* Linnaeus, 1758*Conus jaspideus* subsp. *stearnsii* Conrad, 1869

References: Clench, 1942: 9, pl. 5: 1-4; Olsson and Harbison, 1953: 174-175, pl. 26: 5; Abbott, 1954: 262, pl. 22: y; Perry and Schwengel, 1955: 180, pl. 37: 256; Abbott, 1958: 91; Morris, 1973: 239, pl. 66: 6; Abbott, 1974: 256, no. 2793.

Description: The largest shell (ht 13 mm, diam. 5.6 mm) is slender, juvenile and has 8 nearly flat-sided whorls. The shell is cream-colored with amber markings and numerous series of microscopic white spiral dashes. The spire is acute (mean spire angle 68°) and flat-sided. There are 12 spiral grooves on the lower half of the body whorl.

Occurrence: Representatives of this species are found in very small numbers in OL and TD sediments and to a lesser extent in some RL sediments.

Total number collected: 12.

Remarks: Specimens of *C. stearnsii* and *C. floridanus* Gabb, 1868, collected from beach drift at Naples, Florida were useful for comparison with the juvenile shells from Nichupté Lagoon.

Family *TURRIDAE* Swainson, 1840Subfamily *CLAVINAE* Powell, 1942Genus *NEODRILLIA* Bartsch, 1943*Neodrillia cydia* Bartsch, 1943

References: Bartsch, 1943: 84-90, pl. 7: 1, 2, 4, 6-8, *Neodrillia* species, synonyms; Abbott, 1958: 96; Warmke and Abbott, 1962: 136, pl. 25: s; Abbott, 1974: 271, no. 3020.

Description: The bleached, chalky-white shell is elongate (ht 14.5 mm, diam. 5 mm) and heavy. The nuclear whorls are smooth and the remaining 6 whorls are sculptured with prominent oblique, slightly curved, axial ribs (9 ribs on the body whorl) which are crossed by numerous fine spiral striae. The ribs are less pronounced at the suture which is distinct. The outer lip of the specimen is broken. The anterior canal is short and straight. There is a callus on the inner lip.

Occurrence: One specimen was recovered from OL sediments of Core 18 (depth 190 cm).

Total number collected: 1.

Distribution: Southern Florida and the West Indies.

Remarks: Abbott (1958: 96) states that the numerous species named by Bartsch represent only one variable species.

Genus *CRASSISPIRA* Swainson, 1840Subgenus *CRASSISPIRELLA* Bartsch and Rehder, 1939*Crassispira* sp., cf. *C. fuscescens* (Reeve, 1843)

References: Abbott, 1958: 94-95, includes synonymy; Warmke and Abbott, 1962: 134, pl. 25: w.

Description: The shiny, red-brown shell is of medium size (ht 11.5 mm, diam. 4 mm) and thick. The only specimen recovered from Nichupté Lagoon sediment is broken and probably lacks the first 3 whorls. The remaining 5 whorls each have about 14 axial ribs which are crossed by numerous thin, but strong, spiral threads. Where the axial ribs and spiral threads cross, small white nodules are formed. The suture is distinct and anteriorly bounded by a broad, smooth spiral cord and a concave band bearing 4 small spiral threads. Where the axial ribs and spiral threads cross, small white nodules are formed. The suture is distinct and anteriorly bounded by a broad, smooth spiral cord and a concave band bearing 4 small spiral threads. The aperture is short (ht 4 mm), has a U-shaped posterior notch and a straight anterior canal.

Occurrence: One specimen was taken from OL sediment of Core 24 (depth 260 cm).

Total number collected: 1.

Distribution: Florida Keys and the West Indies.

Remarks: The specimen from Nichupté Lagoon is comparable to *C. cubana* Melvill, 1923 (Abbott, 1974: 273, no. 3052) and its synonym *C. mesoleuca* Rehder (1943: 202-203, pl. 20: 15). Also, the specimen may be compared with *Drillia* (*Clathrodrillia*) *solida* (C. B. Adams, 1850) (Clench and Turner, 1950: 342-343, pl. 29: 8, *Pleurotoma solida* C. B. Adams, 1850; Abbott, 1974: 270: no. 2997) and its synonym *Drillia*

ebenina Dall (1890: 33, pl. 2: 8). Abbott (1958: 94) places *solida* and *ebenina* in synonymy with *C. fuscescens* but later (Abbott, 1974: 270) mentions *fulvenscens*. (spelling?) as similar but separate and belonging in the genus *Crassispira*.

Without verified comparative material and a clear understanding of the status of *C. fuscescens* and similar species, the identity of the specimen from Nichupté Lagoon cannot be established.

Subgenus MONILISPIRA Bartsch and Rehder, 1939

Crassispira leucocyma (Dall, 1883)

References: Dall, 1883: 328-329, pl. 10: 8, *Drillia leucocyma*; Dall, 1889a: 96, pl. 48: 7; Abbott, 1954: 271, text fig. 57: d; Perry and Schwengel, 1955: 183, pl. 38: 263; Abbott, 1958: 95; Warmke and Abbott, 1962: 135, pl. 25: q; Morris, 1973: 246, pl. 68: 6; Abbott, 1974: 273, no. 3067.

Description: The brown shell (ht 10 mm, diam. 3.5 mm) has 8 whorls. The first 2 whorls are smooth and brown. The postnuclear whorls are sculptured with spiral and axial cords. The spiral cords consist of a strong thread between the upper inconspicuous suture and a broad, spirally striated fasciole which is followed by 2 (on the first postnuclear whorl) to 3 strong spiral rounded threads. The spiral cords are crossed by growth striae and 10 short, yellow axial ribs which begin at the fasciole and end above the suture. On the base of the shell, the spiral threads are nodulose. The aperture is narrow, notched posteriorly and has a short, straight anterior canal.

Occurrence: Representatives of this species are found in very small numbers in the RL and OL sediments of Cores 111, 18 and 24 and TD sediments of Core 32.

Total number collected: 15.

Distribution: Southern Florida and the West Indies.

Remarks: One of the juvenile shells has the same size and characteristics described by Dall (1883: 328-329).

Subfamily MANGELIINAE Fischer, 1887

Genus MANGELIA Risso, 1826

Mangelia bartletti (Dall, 1889)

References: Dall, 1889a: 100, pl. 12: 6, 14: 5, 8, *Cythara bartletti*; Abbott, 1958: 97, pl. 3: s; Warmke and Abbott, 1962: 137, pl. 25: f; Abbott, 1974: 278, no. 3159.

Description: The small, white shell (ht 6 mm, diam. 2.5 mm) has 5 whorls and is juvenile. The nuclear whorl is smooth, the first postnuclear whorl is marked with 10 thin, axial ribs, and the remaining whorls are sculptured with 12 to 18 axial ribs and very fine growth lines which are crossed by 10 to 12 weaker spiral striae. The aperture is elongate. The outer lip is broken.

Occurrence: Representatives of this species are found in relatively small numbers in some OL and TD sediments.

Total number collected: 9.

Distribution: Bermuda, southern Florida and the West Indies.

Mangelia biconica C. B. Adams, 1850

References: Clench and Turner, 1950: 260, pl. 32:

2; Abbott, 1958: 98, pl. 3: p; Warmke and Abbott, 1962: 137, pl. 25: k.

Description: The small shell (ht 5.8 mm, diam. 2.8 mm) is white with yellow-brown bands on the shoulders of the whorls and the middle of the body whorl. The 1½ nuclear whorls are smooth whereas the remaining 4 whorls are sculptured with 14 narrow axial ribs which are crossed by fine spiral striae (12 to 14 on the body whorl). The outer lip is thin with a thickened rib behind and curved within.

Occurrence: Representatives of this species are found in very small numbers in some RL and OL sediments.

Total number collected: 6.

Distribution: North Carolina, south to the West Indies, Gulf of Mexico, south to Yucatan.

Genus PYRGOCYTHARA Woodring, 1928

Pyrgocythara sp.

Description: The golden brown shell is small (ht 7 mm, diam. 3 mm), elongate-ovate and has 6 whorls. The first 12 whorls are smooth and dark brown and the next whorl is marked with 10 thin, closely-spaced axial riblets, which are followed by the postnuclear sculpture. The postnuclear whorls are marked with 12, increasing to 16, strong axial ribs and finer spiral threads. There is a prominent spiral cord just anterior (toward the base) to the shoulder of each whorl which is very slightly nodulose at the rib intersections. In addition to this cord, there are numerous spiral threads. In some specimens, the shoulder area is lighter in color than the rest of the shell. The spire is about half the height of the shell. The aperture is small (ht 2.8 mm), oval and channeled anteriorly and posteriorly. Anterior to the well developed U-shaped posterior notch, there is a denticle. The outer lip is sharp with a varix directly behind it.

Occurrence: Representatives of this species are found in small numbers in some RL and OL sediments.

Total number collected: 11.

Remarks: The specimens from Nichupté Lagoon are comparable to *P. hemphilli* Bartsch and Rehder (1939: 132-133, pl. 17: 2; Abbott, 1974: 284, no. 3305), described from western Florida. Although they may represent juveniles of this species, specimens from Nichupté Lagoon appear to be wider and have a few more ribs per whorl than specimens described as *P. hemphilli*.

Subclass OPISTHOBANCHIA Milne-Edwards, 1848

Order PYRAMIDELLOIDA Gray, 1840

Superfamily PYRAMIDELLACEA Gray, 1840

Family PYRAMIDELLIDAE Gray, 1840

Genus PYRAMIDELLA Lamarck, 1799

Subgenus LONGCHAEUS Mörch, 1875

Pyramidella crenulata (Holmes, 1859)

References: Dall, 1890-1903: 247-248, with synonym list; Andrews, 1971: 127, fig.; Odé, 1971-1972: 32; Morris, 1973: 256, pl. 71: 6; Abbott, 1974: 291, no. 3462.

Description: The glossy-white shell is medium-sized (ht 7.2 mm, diam. 3.8 mm), elongate conic and has 10 flat-sided postnuclear whorls. The suture is distinct, deep and marked with microscopic axial scratches. The anterior margin of the sutural chan-

nel is also crenulate. The base of the shell is rounded. The body whorl bears a crenulated spiral channel which extends to the mid-outer lip. Another, smaller crenulated spiral channel extends from above the upper columellar fold to the base of the outer lip. The outer lip is thin and smooth within. The columella has 3 folds. The posterior fold is strong and nearly perpendicular, whereas the anterior folds are weak and oblique. The inner lip is reflected over the umbilical region.

Occurrence: One specimen was taken from TD sediments of Core 32.

Total number collected: 1.

Distribution: South Carolina to Texas and the West Indies.

Subgenus STYLOPSIS A. Adams, 1860

Pyramidella sp.

Plate I, fig. 5

Reference: Adams, 1860: 406, *Stylopsis*.

Description: The minute shell (ht 2 mm, diam. 0.46 mm) is translucent white and smooth except for microscopic growth striae. The upturned, sinistral protoconch forms a blunt apex and the 5 postnuclear whorls are swollen, yet laterally compressed. The sutures are moderately impressed. The body whorl is elongate, whereas the aperture is elongate-oval and somewhat produced anteriorly. There is no umbilical depression and no columellar fold. The inner lip is reflected slightly and a callus is formed on the columella.

Occurrence: Representatives of this species are found in RL sediments of Cores 23 and 24.

Total number collected: 5.

Remarks: Specimens resemble the figure of *Stylopsis octona* Guppy 1896 (Guppy and Dall, 1896: 317, pl. 27: 8), a smaller shell (ht 1.25 mm, diam. 0.3 mm) from the Oligocene deposits of Trinidad. Also specimens from Nichupté Lagoon may be compared with *P. resticula* Dall, 1889 (Dall, 1889b: 338), a larger shell (ht 3.5 mm, diam. 0.7 mm) with 8 whorls, from the Recent of Florida. Representatives of *P. resticula* are described as being covered with fine, even, microscopic spiral grooves, lacking on shells from Nichupté Lagoon.

Subfamily OOSTOMIINAE Pelsener, 1928

Genus OOSTOMIA Fleming, 1813

Subgenus OOSTOMIA Fleming, 1813

Oostomia laevigata d'Orbigny, 1842

References: Clench and Turner, 1850: 322, pl. 40: 4, *O. ovuloides* C. B. Adams, 1850, synonym; Warmke and Abbott, 1962: 147, pl. 26: k; Abbott, 1974: 291-292, no. 3473.

Description: The white, glossy shell is small (ht 2.9 mm, diam. 1.2 mm), has 5 postnuclear whorls and is elongate-oval. The whorls are moderately rounded but not inflated. The suture is lightly impressed. There is an oblique fold near the insertion of the twisted columella. In broken specimens, this fold is seen as a ridge extending into previous whorls. In specimens from Nichupté Lagoon, the height to diameter ratio is a fairly consistent 2.4/1.

One specimen from Back-Lagoon Marsh area (Core 111) possessed similar dimensions and shape, but was dull light brown with a brown columellar fold. This shell was comparable to representatives of *Sayella livida* Rehder (1935: 129-130, pl. 7: 7; Abbott, 1974: 300, no. 3649).

Occurrence: Representatives of this species are found in very small numbers in some RL, OL, TD and Inglés Lagoon sediments.

Total number collected: 18.

Distribution: North Carolina, south to Florida and the West Indies. Brazil.

Remarks: Identification of specimens was verified by Dr. D. R. Moore (personal communication, 1974).

Rehder (1935: 130) reported *S. livida* as 'very close' to *Sayella hemphilli* (Dall, 1883: 286, pl. 18: 11; Dall, 1885a: 286, pl. 18: 11; Dall, 1889a: 92, pl. 47: 11; Odé, 1971-1972: 28; Abbott, 1974: 300, no. 3650). Odé (1971-1972: 26) places *O. laevigata* in the genus *Sayella* and further states that the difference between *S. livida* and *laevigata* is difficult to discern (Odé, 1971-1972: 28).

Subgenus MENESTHO Müller, 1842

Oostomia impressa (Say, 1822)

References: Say, 1822: 244, *Turbonilla impressa*; Dall, 1889: 130, pl. 52: 11; Abbott, 1954: 288, text fig. 62: i; Perry and Schwengel, 1955: 122, pl. 23: 162; Wells, 1959: 140-144; Andrews, 1971: 130, fig.; Odé, 1970b: 61, fig.; Odé, 1971-1972: 8; Abbott, 1974: 294, no. 3522.

Description: The small, white shell (ht 4 mm, diam. 1.7 mm) is elongate-conic and has 5 postnuclear, flat-sided whorls. The whorls are marked by deep, spiral grooves (3 grooves per whorl) which bear microscopic, axial scratches. The sutures are channeled. The aperture is oval. The outer lip is thin and reflects the external sculpture. The inner lip is thickened and reflected over the umbilical region. There is a strong columellar tooth near the point of insertion.

Occurrence: Representatives of this species are recovered from most RL sediments. One specimen was found in OL sediment of Core 24 (depth 185 cm).

Total number collected: 39.

Distribution: Massachusetts, south to the Gulf of Mexico.

Remarks: Identification of the specimens was verified by Moore (personal communication, 1974).

Subgenus EVALEA A. Adams, 1860

Oostomia sp.

Description: The largest shell found (ht 2.5 mm, diam. 1.2 mm) is small, white, elongate-conic and probably juvenile. The nuclear whorls are immersed obliquely. There are 4.5 well rounded, slightly inflated, postnuclear whorls. The surface of the shell is marked with exceedingly fine spiral striae and retractive growth lines. Four coarse spiral threads are present on the basal periphery. The suture is impressed. The aperture is oval. The outer lip is thin and the thin inner lip is reflected over the open umbilicus. A few specimens bear a spiral thread posterior to the suture, creating a slightly shouldered appearance. There is a very low fold on the columella, near insertion.

Occurrence: Representatives of this species are found in some RL sediments and to a lesser extent, in some OL sediments.

Total number collected: 15.

Remarks: The unshouldered specimens may represent examples of *O. ryclea* (Bartsch, in Dall, 1927a: 85) from Georgia, whereas the obsoletely shouldered

shells are comparable to *O. virginica* (Henderson and Bartsch, 1914: 418, pl. 13: 3; Abbott, 1974: 296, no. 3546) from Virginia and *O. ryalea* (Bartsch, in Dall, 1927a: 85-86) from Florida.

Genus SAYELLA Dall, 1885

Odé (1971-1972: 25-26) provides a list of species, often placed in other genera or families, which belong in the genus *Sayella*. The history of this genus is confused and complex. Individuals of *Sayella* are variable and perhaps the multitude of species described may be more properly placed in fewer species, when a detailed study of the animal and shell is accomplished (Odé, 1971-1972: 28-29). Such a study is beyond the scope of this project. Observations and tentative assignment to species, based only on shell characters, is given below.

Sayella livida Rehder, 1935

Remarks: See *Odostomia laevigata* (d'Orbigny, 1842).

Sayella sp., cf. *S. crosseana* (Dall, 1885)

References: Dall, 1885a: 286, pl. 18: 10; Dall, 1889a: 92, pl. 47: 10; Odé, 1971-1972: 30-31, fig. 19; Abbott, 1974: 300, no. 3651.

Description: The small, slender, white shell (ht 2.4 mm; diam. 0.8 mm) has 5 postnuclear whorls. The columella is twisted and a small, oblique fold is present near its insertion. The base is umbilicated. Most of the specimens have distinct sutures but nearly flat-sided whorls. Some of the shells, having slightly rounded whorls, resemble dwarfed, slender *S. laevigata*. In specimens from Nichupté Lagoon, the height to diameter ratio varies from 2.45/1 to 3/1.

Occurrence: One specimen was taken from RL sediment of Core 17 (depth 0-15 cm) and one specimen was taken from Inglés Lagoon sediment (depth 5 cm).

Total number collected: 2.

Distribution: Florida Keys, the Gulf of Mexico and the West Indies.

Sayella sp., cf. *S. fusca* (C. B. Adams, 1839)

References: Dall, 1889a: 130, pl. 52: 15; Bartsch, 1909: 73, pl. 11: 4; Clench and Turner, 1950: 283-285, pl. 38: 20-21; Odé, 1971-1972: 30, fig. 17; Abbott, 1974: 300, no. 3648.

Description: The white, stubby shell is small (ht 3.7 mm, diam. 1.6 mm), elongate-conic and has 6 postnuclear whorls. The sutures are distinct. The aperture is oval and slightly pinched above. The inner lip is thin and reflected over the umbilicus.

Occurrence: One specimen was found in RL sediments of Core 24 (depth 0-5 cm).

Total number collected: 1.

Distribution: Prince Edward Island, south to Florida and the Gulf of Mexico.

Subfamily TURBONILLINAE Simroth, 1907

Genus TURBONILLA Risso, 1826

Subgenus CARELIOPSIS Mörch 1875

Turbonilla bermudensis Dall and Bartsch, 1911

Plate I, figures 3, 4

Reference: Dall and Bartsch, 1911: 279, pl. 35: 4.

Description: The minute, white shell (ht 2.2 mm, diam. 0.6 mm) is elongate-conic in shape. The 1½

nuclear whorls are planorboid, well rounded and have an axis at right angles to the succeeding 6 postnuclear whorls. The postnuclear whorls are slightly shouldered and marked with finely incised, wavy, spiral threads. There are 26 spiral threads on the penultimate whorl. The sutures are well impressed. The aperture is elongate-oval (ht 0.6 mm). The outer lip is thin and the inner lip is slightly curved and reflected over the base.

Occurrence: Representatives of this species are found in relatively small numbers in RL, OL and TD sediments.

Total number collected: 79.

Distribution: Bermuda.

Remarks: Specimens from Nichupté Lagoon were compared with the type specimen from the U.S. National Museum (USNM no. 221614).

Subgenus STRIOTURBONILLA Sacco, 1892

Turbonilla sp., cf. *T. pyrrrha* Bush, 1899

References: Bush, 1899: 160-162, pl. 8: 1; Odé, 1971-1972: 77; Abbott, 1974: 303, no. 3691.

Description: The small, translucent-white shell (ht 4.5 mm, diam. 1.2 mm) is needle-shaped and has 9 whorls. The nuclear whorl is prominent and slightly oblique. The postnuclear whorls are evenly rounded and increase in size gradually. The mean angle of divergence is 16°. The sutures are distinct. Sculpture consists of delicate axial ribs (28 ribs on the penultimate whorl), between which are fine spiral striae. The aperture is oval and the lip is thin. There is a faint columellar fold. The body whorl shows evidence of damage and repair.

Occurrence: One specimen was recovered from TD sediments of Core 32.

Total number collected: 1.

Distribution: The West Indies.

Remarks: Bush (1899: 160-162) describes several varieties of this variable species and the variety most like the shell from Nichupté Lagoon sediments is figured by Bush (1899, pl. 8: 1).

Specimens are also comparable with *C. puncta* C. B. Adams, 1850 (Verrill and Bush, 1900: 530, pl. 64: 19, 19a; Clench and Turner, 1950: 332-333) except that the whorls of specimens from Nichupté Lagoon are more rounded. Unfortunately, the type specimens for both *latior* and *puncta* are lost.

Turbonilla (?) sp.

Description: The white shell is small and broken (ht 4 mm, diam. 1.2 mm, decollate), consisting of only 5 whorls, including the body whorl and aperture. The whorls are nearly flat-sided and marked with 16, increasing to 20, prominent axial ribs with numerous, very fine, even spiral striae in the intercostal spaces. The spiral striae do not cross over the ribs. The axial ribs continue over the periphery of the body whorl and gradually disappear near the aperture, whereas the spiral striae are very fine, but not diminished on the base of the body whorl. The sutures are impressed. The outer lip is rounded and sharp. The columella is slightly twisted.

Occurrence: Two specimens were taken from RL and OL sediments of Core 17 (depth 15 cm, 140 cm).

Total number collected: 2.

Remarks: Specimens from Nichupté Lagoon may be compared with descriptions of *T. insularis* Dall and Simpson (1901: 415, pl. 53: 21) from Puerto Rico.

The 12 to 13 postnuclear whorls of *T. insularis* (ht 7.1 mm, diam. 1.8 mm) are marked with 16, increasing to 28 axial ribs with 11 even, spiral striae in the intercostal spaces.

Subgenus CHEMNITZIA d'Orbigny, 1839

Turbonilla heilprini (Bush, 1899)

References: Bush, 1899: 146, 167-168, 172, pl. 8: 3; Verrill and Bush, 1900: 528, pl. 65: 12; Odé, 1971-1972: 50, 63.

Description: The small shell (ht 2.8 mm, diam. 0.7 mm) is slender, elongate-conic and white. The 1½ whorl protoconch is smooth and slightly oblique. The 7 postnuclear whorls taper gradually and are moderately convex. Sutures are distinct and straight. Sculpture consists of straight, nearly perpendicular, rounded axial ribs (16 ribs on the body whorl) and between the ribs are smooth interspaces which terminate at the periphery of the body whorl with square-cut ends. Except for the ribs, the shell is smooth. The aperture is oval and external sculpture is seen within. The outer lip is thin and the inner lip is thickened and reflected slightly.

Occurrence: Representatives of this species are found in relatively small numbers in some OL and TD sediments and to a lesser extent in some RL sediments.

Total number collected: 17.

Distribution: Bermuda, southern Florida, the Gulf of Mexico and the West Indies.

Turbonilla unilirata Bush, 1899

References: Bush, 1899: 146, 165, 173, pl. 8: 6; Warmke and Abbott, 1962: 149; Odé, 1971-1972: 37, fig. 62.

Description: The small shell (ht 2.2 mm, diam. 0.7 mm) is slender, elongate and white. The protoconch of 1½ whorls is small, smooth and nearly perpendicular to the shell axis. The 6 postnuclear whorls are marked with slightly oblique, axial ribs (18 on the body whorl). Between the ribs are wider interspaces which terminate at the periphery of the body whorl with square-cut ends. The interspaces are smooth except for one spiral thread located below the suture, which crosses the ribs. The aperture is subangulate. The outer lip is broken. The inner lip is straight and slightly reflected.

Occurrence: Representatives of this species are found in very small numbers in some RL and OL sediments.

Total number collected: 4.

Distribution: North Carolina, south to the West Indies.

Remarks: Specimens were identified by Odé (1972, personal communication).

Order CEPHALASPIDEA Fischer, 1883
Superfamily ACTEONACEA d'Orbigny, 1842
Family ACTEOCINIDAE Pilsbry, 1921
Genus ACTEOCINA Gray, 1847

Acteocina candei (d'Orbigny, 1842)

References: Dall, 1889a: 84, pl. 41: 13, *Tornatina candei*; Dall and Simpson, 1901: 363, pl. 57: 7, juvenile; Warmke and Abbott, 1962: 143, pl. 27: g; Wells and Wells, 1962: 87-93, figs. 4, 7-10, 12; Abbott, 1974: 313, no. 3919.

Description: The small shell (ht 3.5 mm, diam. 1.6 mm) is white and smooth, except for microscopic growth lines. The spire is elevated and projecting. The shell is spindle-shaped, that is, the greatest diameter is midway between the tapering spire and base. The suture is channeled. The elongate aperture tapers posteriorly.

Occurrence: Representatives of this species are found in nearly all RL, OL and TD sediments.

Total number collected: 217.

Distribution: North Carolina, south to Argentina.

Remarks: Identification of specimens was verified by Dr. D.R. Moore (personal communication, 1973).

Acteocina canaliculata (Say, 1826)

References: Verrill, 1873: 663, pl. 25: 160, *Utriculus canaliculata*; Dall, 1889a: 84, pl. 52: 27; Dall, 1922: 96; Abbott, 1954: 280, pl. 26: x; Abbott, 1958: 101; Wells and Wells, 1962: 87-93, figs. 1-3, 5-6, 11, 13-16.

Description: The small shell (ht 3.5 mm, diam. 1.7 mm) is white and smooth, except for microscopic growth lines. The spire is generally low, but its height is somewhat variable. The shell is cylindrical with straight sides and the body whorl is shouldered. The suture is channeled. The aperture is elongate and the outer lip is sometimes slightly sinuous.

Occurrence: Representatives of this species are found only in the BLM sediments of Core 113 and in sediments from the brackish Inglés Lagoon. (Core 26).

Total number collected: 95.

Distribution: Massachusetts, south to the West Indies.

Superfamily CYLICHNACEA A. Adams, 1850

Family CYLICHNIDAE A. Adams, 1850

Genus CYLICHNA Lován, 1846

Cylichna sp.

Description: The small, white shell (ht 5 mm, diam. 2.5 mm) is cylindrical with straight, flat sides and a depressed spire. The aperture is narrow, longer than the body whorl and slightly widening anteriorly. The surface of the shell is marked with incised, wavy, spiral striae and very fine growth lines. The columella is short, smooth and thinly callused. The outer lip is sharp.

Occurrence: Representatives of this species are found in very small numbers in some RL sediments and to a lesser extent, in some OL sediments.

Total number collected: 8.

Remarks: Specimens from Nichupté Lagoon are very much like *C. krebsi* Mörch, 1874 (Warmke and Abbott, 1962: 144, pl. 27: b) except that they are nearly twice the size of specimens described as *C. krebsi*.

Superfamily BULLACEA Rafinesque, 1815

Family BULLIDAE Rafinesque, 1815

Genus BULLA Linnaeus, 1758

Bulla striata Bruguière, 1792

References: Abbott, 1954: 277, pl. 13: p; Perry and Schwengel, 1955: 193, pl. 39: 281; Warmke and Abbott, 1962: 141, pl. 27: e; Andrews, 1971: 134, fig.; Morris, 1973: 264, pl. 72: 22; Abbott, 1974: 319, pl. 10: 4000.

Description: The largest shell found (ht 15.5 mm, diam. 9.5 mm) is white with purplish brown mottlings.

The solid shell is oval with a sunken spire. The surface of the shell is glossy and smooth except for a few spiral striae near the apical end and fine spiral grooves (less than 10) toward the base. The aperture is narrow, longer than the body whorl and becomes wider anteriorly. The outer lip is sharp. The parietal area is covered with a white callus.

Occurrence: Representatives of this species are found in most Inglés Lagoon and RL sediments and to a lesser extent, in OL and TD sediments.

Total number collected: 43.

Distribution: Coastal Gulf of Mexico and the West Indies.

Remarks: The specimens may be considered the Caribbean form or subspecies of the species *Bulla umbilicata* Röding (*B. occidentalis* A. Adams; 1850 is a synonym).

Family HAMINOEIDAE Pilsbry, 1895
Genus ATYS Montfort, 1810

Marcus (1970: 928) reviews the problem of separating shells resembling *Atys riiseana* and *A. caribaea* using only shell characters. This problem of differentiation was also encountered with shells from Nichupté Lagoon. Unfortunately, all of the specimens are small and perhaps immature. No soft part information is available. Although the shape of specimens is slightly variable (perhaps a factor of growth), the shells lack the incised spiral striae over the entire shell, characteristic of *A. caribaea* (d'Orbigny, 1841) (Abbott, 1958: 100; Rice and Kornicker, 1962: 378, pl. 3: 3; Warmke and Abbott, 1962: 143, pl. 27: q; Marcus, 1970: 933-935, fig. 19; Morris, 1973: 264-265, pl. 72: 15), and will be, with some question, called *A. riiseana*. Without comparative material and soft part data, this identification cannot be made with certainty.

Atys sp., cf. *A. riiseana* Mörch, 1875

References: Abbott, 1954: 278, text fig. 59: c (incorrectly labeled *A. caribaea*, Abbott, 1958: 99); Warmke and Abbott, 1962: 143-143, pl. 27: i; Marcus, 1970: 930-933, fig. 10; Abbott, 1974: 320, no. 4008.

Description: The translucent-white shell is small (ht 6 mm, diam. 3 mm) and elongate-oval. The central portion of the shell is rather smooth, lacking the finely incised spiral striae characteristic of *A. caribaea*. The columella is straight, thickened and the inner lip is reflected, partially concealing the narrow, but distinct umbilicus. Numerous, finely incised spiral grooves are present on both ends of the shell.

Occurrence: Representatives of this species are found in relatively small numbers in some OL and TD sediments. Two specimens were taken from RL sediments of Cores 23 (depth 10 cm) and 24 (depth 35 cm).

Total number collected: 23.

Distribution: Southeastern Florida and the West Indies, south to Brazil.

Genus HAMINOEA Turton and Kingston, 1830

Haminoea elegans (Gray, 1825)

References: Dall and Simpson, 1901: 364; Abbott, 1954: 279; Abbott, 1958: 101; Warmke and Abbott, 1962: 141-142, pl. 27: m; Marcus and Marcus, 1963b: 6; Marcus and Marcus, 1967: 601; Morris, 1973: 265, pl. 72: 19.

Description: The small, white shell (ht 6 mm, diam. 4 mm) is very thin and fragile. It is difficult to recover undamaged specimens from the sediment. The shell is oval but rounded anteriorly and posteriorly. The surface of the shell is marked with fine, wavy, spiral lines. The outer lip arises on the left side of the apical perforation.

Occurrence: Representatives of this species are found in relatively small numbers in some OL sediments. Fragmental and juvenile specimens were taken from the RL sediments of Cores 30 and 23.

Distribution: Texas, Florida, the West Indies to Brazil.

Total number collected: 12.

Remarks: Identification of specimens was facilitated by comparison with representatives of *H. succinea* (Conrad, 1846) from Naples, Florida beach drift. Specimens of *H. succinea* are less obese, have more numerous and finer spiral striae and the outer lip arises on the right side of the apical perforation.

Order THECOSOMATA Blainville, 1824

Family CUVIERIDAE Gray, 1840

Subfamily CAVOLINIINAE H. and A. Adams, 1854

Genus CAVOLINIA Abildgaard, 1791

Cavolinia longirostris (Blainville, 1821)

References: Dall, 1889a: 82; Abbott, 1954: 296, text fig. 64: v; Warmke and Abbott, 1962: 152 text fig. 22: v; Andrews, 1971: 138; Morris, 1973: 275, pl. 75: 4; Abbott, 1974, pl. 327, no. 4062.

Description: The small shell (longitudinal measurement 4 mm) is white and inflated. The ventral face of the shell is rounded and marked with faint, concentric threads. The dorsal face of the shell has 3 longitudinal ribs, the central rib extending in front into a long beak. The spines are short and truncated.

Occurrence: One specimen was taken from TD sediments of Core 32 (depth 190 cm).

Total number collected: 1.

Distribution: Worldwide, pelagic (50° N to 50° S).

Subfamily CLIONAE Jeffreys, 1869

Genus CRESEIS Rang, 1828

Creseis sp.

Description: The minute shell (length 3 mm) is a fragmental, straight, slender, glassy, fragile cone.

Occurrence: Two very small specimens were taken from TD sediments of Core 32.

Total number collected: 2.

Remarks: Although only 1/10 the length, the shells from Nichupté Lagoon are comparable to and may represent fragmental or juvenile specimens of *Creseis acicula* (Rang, 1828) (Abbott, 1974: 325, no. 4048).

Subclass PULMONATA Cuvier, 1817

Order BASOMMATOPHORA Kaferstein, 1864

Superfamily MELAMPIDACEA Stimpson, 1851

Family MELAMPIDAE Stimpson, 1851

Genus MELAMPUS Montfort, 1810

Melampus coffeus (Linnaeus, 1758)

References: Crosse and Fischer, 1882: 178, pl. 8: 11, 12; Dall, 1889a: 92; pl. 47: 3; von Martens, 1890-1901: 558-559; Fluck, 1905: 80; Coomans, 1958: 103, pl. 11: top left; Holle and Dineen, 1959: 50,

pl. 5: 1; Warmke and Abbott, 1962: 153, pl. 28: p.; Houbrick, 1968: 18; Abbott, 1974: 332, no. 4088.

Description: The largest specimen found is small (ht 11 mm, diam. 7 mm), brown with four narrow cream-colored spiral bands. The aperture is elongate with a columellar fold, a double fold on the upper parietal wall and fourteen teeth on the inside of the outer lip.

Occurrence: Representatives of this species were found only in the BLM sediments of Core 112 (depth 40 cm).

Total number collected: 4.

Distribution: Bermuda, southern Florida, the West Indies, south to Brazil.

Remarks: Identification of specimens from Nichupté Lagoon was verified by comparison with material at the Museums of Zoology, University of Michigan and the Ohio State University.

Genus DETRACIA Gray, in Turton, 1840

Detracia bullaoides (Montagu, 1808)

References: Dall, 1889a: 92 pl. 47:7; Warmke and Abbott, 1962: 153, pl. 28: o; Abbott, 1974: 332, no. 4092.

Description: The one shell found is small (ht 5.5 mm, diam. 3.0 mm), has 7 whorls (body whorl ht 4.5 mm), and is probably juvenile. The shell is tan with 4 darker brown bands on the body whorl. The aperture is elongate with a columellar fold and three small teeth (lower tooth largest) on the lower inside of the outer lip.

Occurrence: One specimen was recovered from the BLM sediments of Core 112 (depth 40 cm).

Total number collected: 1.

Distribution: Bermuda, southern Florida and the northern West Indies.

Remarks: The specimen was compared with material from Florida at the Ohio State University Museum of Zoology.

Subfamily PEDIPEDINAE Crosse and Fischer, 1880

Genus MARINULA King and Broderip, 1832

Marinula succinea (Pfeiffer, 1854)

References: Dall, 1885a: 279, pl. 18: 4, *Pedipes elongatus*; synonym; Clench, 1964: 125; Abbott, 1974: 333, no. 4100.

Description: The small shell (ht 4 mm, diam. 2 mm) is white to tan and has 4 whorls. The spire is blunt. The aperture is elongate (ht 2.5 mm) and the outer lip is sharp and pinched above and rounded below. The callused columella bears a strong tooth which slants downward. There is a double fold on the parietal area and the posterior fold (or middle tooth) is stronger than the anterior fold.

Occurrence: Two specimens were taken from the BLM sediments of Core 112 (depth 40-75 cm).

Total number collected: 2.

Distribution: Georgia, south to the northern West Indies.

Genus BLAUNERIA Shuttleworth, 1854

Blauneria heteroclita (Montagu, 1808)

References: Binney, 1865: 21, fig. 22, *B. pellucida* Pfeiffer, 1854; Crosse and Fischer, 1882: 179, pl. 8: 8; von Martens, 1890-1901: 563-564; Abbott, 1974: 334, no. 4104.

Description: The largest shell found (ht 6 mm) has 8 whorls. The thin, white shell is oblong and sinistral. The narrow, elongate aperture has a strong columellar fold.

Occurrence: Representatives of this species are found only in the BLM sediments of Core 112 (depth 0-75 cm).

Total number collected: 24.

Distribution: Bermuda, Florida, Gulf of Mexico, the West Indies, south to Brazil.

Remarks: Identification of specimens was confirmed by comparison with collections at the University of Michigan, Museum of Zoology.

Superfamily ANCYLACEA Rafinesque, 1815

Family ANCYLIDAE Rafinesque, 1815

Genus FERRISSIA Walker, 1903

Ferrissia sp., cf. *F. excentrica* (Morelet, 1851)

References: Bourguignat, 1853: 175; Pilsbry, 1889: 64, pl. I: 4; von Martens, 1890-1901: 402-403; Walker, 1903: 27-28, pl. I: 19-21; Walker, 1918: 120; Wurtz, 1951: 125; Basch, 1963: 426-428.

Description: The two shells found are small (length 4 mm, diam. 2.5 mm, alt. 1 mm), white and depressed, subquadrate patelliform in outline. The summit of the shell is anterior to the apex which is blunt, directed posteriorly and to the right (when the anterior portion of the shell is directed away from the observer). The nuclear whorls of the shell are smooth whereas the postnuclear whorls are marked with numerous radial striae. The striae are visible on the inside of the shell.

Representatives of *Ferrissia* from Nichupté Lagoon are similar to descriptions of some specimens that have been assigned to *Ferrissia excentrica* (Morelet, 1851). Descriptions of *F. excentrica* are quite variable in regard to diagnostic shell characteristics. For example, all of the above references except Pilsbry (1889) and Wurtz (1951) state the size of representatives of this species to be 7 mm X 4.5 mm X 2.0 mm. Pilsbry (1889: 64), however, reports the dimensions as 4 mm X 3 mm X 1.1 mm, similar to those of specimens from Nichupté Lagoon. Specimens from Nichupté Lagoon conform to descriptions of *F. excentrica* in general shape and position of the blunt apex.

Von Martens (1890-1901: 402, pl. 21: 11, 12) described a new species, *Ancylus papillaris*, which he concluded to be closely related to *F. excentrica*. Wurtz (1951: 130) listed *A. papillaris* von Martens as a species unassigned to a genus, perhaps because of inaccessibility of the von Martens type material. Representatives of *A. papillaris* are small (length 4.4 mm, diam. 2.9 mm, alt. 1.4 mm) and representatives of *Ferrissia* from Nichupté Lagoon are similar to descriptions of *A. papillaris* (von Martens, 1890-1901: 402) which may be a smaller form of *F. excentrica*.

Pilsbry (1913: 668-671, pl. 26: 4-8) describes a new species of *Gundlachia*, *G. bakeri*, from Brazil and mentions the resemblance of non-septate forms of this species to *Ancylus* (= *Ferrissia*) *excentrica* Morelet (Pilsbry, 1913: 671). Pilsbry (1913: 671; 1924: 55-57) maintains that *Gundlachia* is a distinct genus and that the ability to form septa is a valid taxonomic character. Dall (1904: 97-98), however, considers the genus *Gundlachia* an *Ancylus* that develops a septum to survive the winter. Basch (1959a:

1-9) outlines the history of the genus *Gundlachia* and concludes that its status is unclear. Perhaps *G. bakeri* is a form of *F. excentrica* that sometimes develops a septum in response to environmental stress.

Occurrence: Two specimens were recovered from the BLM sediments of Core 113 (depth 0-10 cm).

Total number collected: 2.

Distribution: Texas, Florida, West Indies, Mexico, Central America and Brazil (?).

Family PLANORBIDAE Rafinesque, 1815
Genus BIOMPHALARIA Preston, 1910

The history of the generic name *Biomphalaria* Preston, 1910 is complex. Wright (1962: 32-41) proposed to the International Commission on Zoological Nomenclature that the names *Planorbina* Haldeman, 1842, *Taphius* H. and A. Adams, 1855, and *Armigerus* Clessin, 1884, be suppressed, placed among Rejected and Invalid Generic Names in Zoology and replaced by the name *Biomphalaria*. The Commission (Opinion 735) acted upon the proposition and suppressed the names *Planorbina*, *Taphius* and *Armigerus*. Most workers have accepted the decision of the Commission and some also regard *Australorbis* Pilsbry, 1934 and *Tropicorbis* Brown and Pilsbry, 1914 as synonymous with *Biomphalaria* Preston, 1910 (Paraense, 1958: 65-80; Harry, 1962: 35; Chrosiecowski, 1968: 4-5).

Biomphalaria havanensis (Pfeiffer, 1839)

References: Baker, 1945: 497, pl. 130: 18-28; Paraense and Deslandes, 1958: 87-91, fig. 1; Harry and Hubendick, 1964: 46-48, figs. 99-104 (?), 139-143.

Description: The largest shell (of a total of three specimens) is small (greatest diameter 6.5 mm, apertural height 2.5 mm), has 3½ whorls and is planispirally coiled. The shell is light tan, smooth and has very fine growth lines and microscopic spiral striae. Both sides of the shell are broadly and shallowly concave. The whorls are rounded. The center of the right side (that is, with coiling in a clockwise direction) is more deeply depressed than that of the left. Sutures on both the right and left sides of the shell are deeply impressed. The aperture is nearly even with the right side of the shell and expands very slightly beyond the left side.

The ratio of shell dimensions of specimens from Nichupté Lagoon conforms with ratios determined from dimensions given by Harry and Hubendick (1964: 51, Table I) for *Taphius* (= *Biomphalaria*) *havanensis*. Harry (1962: 45) compiled a synonymy list for *T. havanensis*. Some workers consider *B. havanensis* a synonym of *B. peregrinus* (Harry and Hubendick, 1964: 48) but Paraense (1966: 292), on the basis of radula studies, considers the two distinct. Specimens from Nichupté Lagoon are less like representatives of *B. peregrinus* (Baker, 1945, pl. 130: 38-41, 135: 1-4) than those of *B. havanensis* and some synonyms (Baker, 1945 pl. 128: 26-33; *Tropicorbis obstructus* (Morelet, 1849); pl. 129: 1-3, 5-7; 10-15, *T. orbiculus* (Morelet, 1948) = *Planorbis liebmanni* Dunker, 1856; pl. 130: 18-28, *T. havanensis* (Pfeiffer, 1839); pl. 132: 15-21, *T. riisei* (Dunker); Paraense and Deslandes, 1958: 91, fig. 1).

Specimens from Nichupté Lagoon also resemble figures of *Planorbis* (= *Biomphalaria*) *fieldii* Tryon, 1863: 146, pl. 1: 4-5; von Martens, 1890-1901: 394-395, pl. 21: 6; Baker, 1945: 501, pl. 132: 24-30).

Occurrence: One specimen was recovered from the sediment of Inglés Lagoon (Core 26, depth 70 cm) and two specimens were taken from the BLM sediment of Core 113 (depth 170 cm).

Total number collected: 3.

Distribution: Southern Florida, Louisiana, Texas, West Indies, Mexico, Central America and most of South America.

Family PHYSIDAE Fitzinger, 1833
Genus PHYSA Draparnaud, 1801

Physa marmorata Guilding, 1828

References: Clench, 1930: 301-315; Clench, 1936: 337-338, pl. 25: 6, *Aplexa marmorata*; Harry and Hubendick, 1964: 13-15, fig. 72, 110.

Description: The small tan, fragile shell (ht 9 mm, greatest diam. 5.1 mm, apertural height 7.0 mm) has 3½ whorls. Coiling is sinistral. The aperture is elongate, rounded below and forming an acute angle above. The outer lip is thin and easily broken. The columellar and parietal regions are covered by a white callus. The columellar lip is a low ridge. The apex is smooth and the sutures are indistinct.

The ratio of shell dimensions of specimens from Nichupté Lagoon conforms with ratios determined from dimensions given by Clench (1936, pl. 25: 6 and Harry and Hubendick (1964: 13).

Occurrence: Representatives of this species were recovered only from BLM sediments of Core 113 (depth 0-55 cm).

Total number collected: 12.

Distribution: West Indies, south to Brazil.

Order STYLOMMATOPHORA A. Schmidt, 1856
Family PUPILLIDAE Turton, 1831
Genus GASTROCOPTA Wollaston, 1878

Gastrocopta pellucida (Pfeiffer, 1841)

References: Pilsbry, 1916-1918: 75-82, pl. 15: 1-5, 7-13, pl. 16, pl. 17: 1-3, 8; Pilsbry, 1930: 298; van der Schalie, 1948: 41-42, pl. 3: 6; Harry, 1950: 22-23; Haas 1960: 10, pl. 3: a-c; Coomans, 1967b: 131.

Description: The brown or, in some cases, white shell is small (ht 2.2 mm, diam. 1.0 mm), subcylindrical and has 4 whorls. The whorls are marked with minute, oblique transverse striae. The body whorl is flattened over the palatal plicae and has, in most specimens, a moderately developed crest behind the lip. The peristome is greatly expanded, is thin at the edge, but has a thin callous rim within. The angulo-parietal lamella is bifid, consisting of two laminae: the left lamina enters deeply and the outer extension of the left lamina is joined to the right lamina which extends outward toward the outer lip. The columellar lamella is strong and enters, and, in some specimens, has a low tubercle just below it. The basal plicae and upper palatal plicae are short. The lower palatal plicae is long and enters deeply.

There is considerable variation of form among previously reported representatives of *G. pellucida* and its subspecies and varieties (Pilsbry, 1890: 44, pl. 1: g-k; Pilsbry, 1900a: 498, pl. 62: 7; Pilsbry, 1903: 765; Vanatta, 1912: 17, pl. 2; Pilsbry, 1916-1918: 75-82, pls. 15: 1-5, 7-13, pl. 16, pl. 17: 1-3, 8; Pilsbry, 1948: 913-916, figs. 494-

495). This variation of form is also observed in specimens from Nichupté Lagoon. Most specimens found are of the form described above (21 of 25) and closely resemble representatives of the subspecies *G. p. hordeacella* (Pilsbry 1890) (Pilsbry, 1890: 44-45, pl. 1: g-k; Pilsbry, 1900b: 594, pl. 22: 3; Haas, 1960: 18, pl. 3: a).

Three specimens lack a bilobed angulo-parietal lamella. The lamella appears bilobed in front view but sinuous and not bilobed when viewed from below. These specimens are similar to *G. riograndensis* (Sterki, Pilsbry, 1917) (Pilsbry, 1916-1918: 69, pl. 12: 9-10; Pilsbry, 1948: 911, fig. 492: 9-10) but probably represent a form of *G. pellucida*.

One specimen is white, cylindrical and has no crest behind the outer lip. The angulo-parietal lamella, columellar lamella and lower palatal plicae are weak, thin, blade-like and enter. The basal plicae and upper palatal plicae are very small. The shell is comparable to a form of *G. p. hordeacella* (Pilsbry, 1890) from Key West, Florida (Vanatta, 1912, pl. 2: 16), but the teeth are more blade-like than is characteristic of that subspecies. In this way the specimen resembles *G. p. parvidens* (Sterki, 1899) (Pilsbry, 1900b: 594, pl. 22: 2; Pilsbry, 1916-1918: 80-82, pl. 17: 8). Also, this specimen is similar to a form of *G. pentodon* (Say, 1821) (Vanatta and Pilsbry, 1906: 123-124, pl. 4: 20, 23 (only); Pilsbry, 1916-1918: pl. 28-31, pl. 3: 2, 3, pl. 4: 15, pl. 5: 28-41; Pilsbry, 1948: 886-889, fig. 477: 2, 3, 5, 6) but lacks the crest and is slightly larger (ht 2 mm, diam. 1 mm) and more cylindrical than is usual for *G. pentodon*.

Occurrence: Representatives of this species were recovered from the BLM sediments of Cores 112 and 113.

Total number collected: 11.

Distribution: Florida, Texas west to California, Mexico, West Indies.

Family SUCCINEIDAE Beck, 1837
Genus SUCCINEA Draparnaud, 1801

References: von Martens, 1890-1901: 330-341; Pilsbry, 1926a: 102-103; Bequaert and Clench, 1933: 537; Richards, 1937: 255; Pilsbry, 1948: 771-847; van der Schalie, 1948: 43-44; Harry, 1950: 22, fig. 2.

Succinea sp. 1

Description: The shell is opaque, white, ovate, small (ht 3.6 mm, diam. 3.0 mm, apertural ht 2.5 mm) and has 2 whorls. The body whorl and aperture are expanded. Only two juvenile specimens have been found so further classification is not possible.

Occurrence: Two specimens were taken from the BLM sediments of Core 113 (depth 170 cm).

Total number collected: 2.

Distribution: Nichupté Lagoon.

Succinea sp. 2

Description: This shell is translucent gray, more elongate and slightly larger (ht 4.0 mm, diam. 2.5 mm, apertural height 3.0 mm) than *Succinea* sp. 1. It also has 2 whorls and is not mature. The aperture is elongate, oval and extends 13 mm below the body whorl.

Occurrence: One specimen was recovered from the BLM sediment of Core 112 (depth 30 cm).

Total number collected: 1.

Distribution: Nichupté Lagoon.

Family ACHATINIDAE Swainson, 1840
Genus LAMELLAXIS Strebel and Pfeffer, 1882

Lamellaxis micra (d'Orbigny, 1835)

References: Pilsbry, 1906: 193-198, pl. 27: 56, 28: 59-60, 62, *Opeas micra* (includes synonymy list and varieties through 1900); Pilsbry, 1926b: 130; Richards, 1937: 254; Baker, 1945: 90, *Lamellaxis micra*; van der Schalie, 1948: 53-54, pl. 4: 12, *L. micra margaritacens* (Shuttleworth, 1854); Harry, 1950: 18; Wurtz, 1950: 95-110.

Description: The small shell (ht 3.9 mm, diam. 1.5 mm) has 5 whorls that taper gradually to an obtuse apex. The first two whorls are smooth, whereas the remaining whorls are marked with widely spaced, fine transverse striae. The aperture is small (ht 1.0 mm) and oval. The columella is straight. The inner lip is narrowly folded back and covers the umbilicus.

Occurrence: Two specimens were taken from BLM sediments of Core 112 (depth 0-5 cm).

Total number collected: 2.

Distribution: Bermuda, South Carolina, south to Bolivia.

Family POLYGYRIDAE Pilsbry, 1895
Genus POLYGYRA Say, 1818

Polygyra cereolus carpenteriana (Bland, 1860)

References: Pilsbry, 1940: 582-586, fig. 379: k; Harry, 1950: 8.

Description: The small shell (ht 2.1 mm, diam. 6 mm) is discoidal umbilicate, brown and marked with fine transverse striae. The shell has 5 whorls. The outer and basal margins of the aperture are reflected and thickened within. The one specimen found was damaged such that the parietal margin cannot be described.

Occurrence: Two specimens were taken from the BLM sediments of Core 112 (depth 0-30 cm).

Total number collected: 2.

Distribution: Southern Florida, eastern Mexico, Yucatan.

Family SAGDIDAE Pilsbry, 1895
Genus THYSANOPHORA Strebel and Pfeffer, 1880

Thysanophora sp., cf. *T. conspurcatella* (Morelet, 1851)

References: Pilsbry, 1891b: 315; Baker, 1922: 56; Pilsbry, 1926a: 77, 120-121, fig. 8a; Baker, 1927: 240; Goodrich and van der Schalie, 1937: 26.

Description: The small shell (ht 2.5 mm, diam. 4.3 mm) has 4½ whorls. The spire is low and the first 1½ whorls are smooth. The remaining whorls are marked with oblique transverse threads and growth lines. The adult body whorl is slightly flattened and slopes inward below the shoulder. The aperture is subtriangular in outline.

Adult specimens from Nichupté Lagoon differ from described *T. conspurcatella* by their larger size (*T. conspurcatella* ht 2 mm, diam. 3.5 mm, 3½ whorls, Pilsbry, 1926a, pl. 121). Also the first 1½ whorls are smooth, whereas in described *T. conspurcatella*, only the initial one-third whorl is smooth (Pilsbry, 1926: 121).

Occurrence: Representatives of this species were taken from the BLM sediments of Core 112 (depth 0-30 cm).

Total number collected: 4.

Distribution: Yucatan, Guatemala.

CLASS SCAPHOPODA Bronn, 1862
 Family SIPHONODONTALIIDAE Simroth, 1895
 Genus CADULUS Philippi, 1844

Cadulus carolinensis Bush, 1885

References: Bush, 1885: 471, pl. 45: 19; Dall, 1889a: 78, pl. 41: 19; Abbott, 1954: 327, text fig. 69: a; Perry and Schwengel, 1955: 101, pl. 45: 316; Andrews, 1971: 145-146, fig.; Morris, 1973: 283, pl. 74: 20; Abbott, 1974: 389, no. 4544.

Description: The small, white shell (length 5 mm) is smooth, tubular and slightly swollen posteriorly from the middle. There are 4 shallow slits in the apex which gives the edge a scalloped appearance.

Occurrence: Representatives of this species were recovered from the OL sediments of Cores 18 (depth 280 cm) and 24 (depth 185-240 cm) and TD sediments of Core 32 (depth 190 cm).

Total number collected: 4.

Distribution: North Carolina, south to Florida and Texas.

Family DENTALIIDAE Gray, 1834
 Genus DENTALIUM Linnaeus, 1758

Dentalium antillarum d'Orbigny, 1842

References: Abbott, 1954: 330; Warmke and Abbott, 1962: 224, text fig. 34: f.

Description: One broken specimen was recovered from the sediment. This white fragment is small (length 8 mm, diam. 2 mm) and broken at both ends. The surface is marked with strong, longitudinal ribs (12 ribs increasing to 18) and microscopic transverse striae between the ribs.

Occurrence: One specimen was taken from the OL sediments of Core 23 (depth 120 cm) and TD sediments of Core 32 (depth 125 cm).

Total number collected: 2.

Distribution: Southern Florida to the West Indies.

CLASS POLYPLACOPHORA Blainville, 1816
 Order NEOLORICATA Bergenhayn, 1955
 Family ISCHNOCHITONIDAE Dall, 1889
 Genus ISCHNOCHITON Gray, 1847

Ischnochiton sp., cf. *I. papillosus* (C.B. Adams, 1845)

References: Clench and Turner, 1950: 322, pl. 42: 4; *Chiton papillosus*; Warmke and Abbott, 1962: 217, text fig. 32: a; Kaas, 1972: 87-89, pl. 6: t; Abbott, 1974: 394 no. 4612.

Description: The small, dissociated valves (intermediate valve width 2.5 mm, length 1.0 mm) are marked with even pits on the upper surface. Color varies from olive-green to brown with white dorsal stripe extending across the central area of most intermediate valves. Some valves are green or brown with white mottlings. Many head and tail valves found are olive-green to orange-brown with white granules. The insertion plates are very narrow and smooth and the head and tail valves each have about 10 slits, whereas the intermediate valves each have one slit on either side of the valve.

Occurrence: Representatives of this species were recovered from most RL sediments.

Total number collected: 81 valves.

Distribution: Florida and the West Indies.

Remarks: Isolated valves were counted, thus the

true number of individuals is not indicated. Of the 24 valves recovered from the RL sediments of Core 18 (depth 0-10 cm), 3 valves were tail valves. The intermediate valve was most commonly encountered.

Family ACANTHOCHITONIDAE Pilsbry, 1893
 Genus ACANTHOCHITONA Gray, 1821

Acanthochitona sp., cf. *A. pygmaea* (Pilsbry, 1893)

References: McGinty, 1937: 141; Moore, 1960: 69, text fig. 43: 2, 3; Kaas, 1972: 49-50, figs. 82-89; Morris, 1973: 279, pl. 76: 7; Abbott, 1974: 406, no. 4757.

Description: The intermediate valve is small (width 3.3 mm) and arched. The jugum is white, wide, triangular and covered with 7 well defined, granule, longitudinal riblets. The latero-pleural areas are variegated brown and white and covered with large, round flattened granules (granule diam. 0.1 mm).

Occurrence: Two intermediate valves were recovered from the OL sediments of Cores 18 (depth 190 cm) and 17 (depth 115 cm).

Total number collected: 2 valves.

Distribution: Eastern Florida, the West Indies, south to Columbia.

Genus CRASPEDOCHITON Shuttleworth, 1853

Craspedochiton sp., cf. *C. hemphilli* (Pilsbry, 1893)

References: Pilsbry, 1893: 32; *Acanthochitona hemphilli*; Warmke and Abbott, 1962: 216, text fig. 32f; Righi, 1968: 75, figs. 73-82; Kaas, 1972: 38-41, pl. 2: 1, 2; Abbott 1974: 407, no. 4763.

Description: The larger of 2 intermediate valves recovered from the sediment is small (length 3.8 mm, diam. 4.5 mm), bleached white and worn smooth; however, several diagnostic characteristics may be noted. The heart-shaped valve is bisected by the narrow, straight-sided, slightly elevated jugal band. The insertion plates are large and single-slitted.

Occurrence: Two intermediate valves were taken from the OL sediment of Core 17 (depth 115 cm).

Total number collected: 2 valves.

Distribution: Lower Florida Keys and the West Indies.

CLASS BIVALVIA Linnaeus, 1758
 Order NUCULOIDA Dall, 1889
 Family NUCULIDAE Gray, 1824
 Genus NUCULA Lamarck, 1799

Nucula sp.

Description: The minute shell (length 2 mm, ht 1.5 mm) is ovate, white and sometimes translucent. The exterior surface of the shell is marked with fine concentric growth lines and microscopic radial striae. The interior is iridescent and marked with anterior and posterior muscle scars. The hinge bears 5 anterior and 8 posterior chevron-shaped teeth. The ventral margin is finely crenulate within.

Occurrence: Representatives of this species are found in relatively small numbers in most TD and OL sediments and to a lesser extent, in some RL sediments.

Total number collected: 63.

Remarks: The specimens resemble miniature *N. aegensis* Jeffreys, 1879 (Dall, 1889a: 42; Warmke and

Abbott, 1962: 155, text fig. 23; Abbott, 1974: 410, no. 4791) reported from North Carolina, south to the West Indies and Brazil.

ORDER ARCOIDA Stoliczka, 1871
Family ARCIDAE Lamarck, 1809
Subgenus BARBATIA Gray, 1842

Barbatia cancellaria (Lamarck, 1819)

References: Abbott, 1954: 343, pl. 27: q; Abbott, 1958: 110; Warmke and Abbott, 1962: 158, pl. 30: j; Rice and Kornicker, 1965: 132, pl. 10: 5, 6; Stanley, 1970: 122, pl. 4: 5-8; Andrews, 1971: 150, fig.; Morris, 1973: 10, pl. 10: 12; Abbott, 1974: 421-422, no. 4966.

Description: The largest specimen found (length 8 mm, ht 4 mm) is a worn, red-brown left valve with a white ray extending from the umbo to the ventral margin. The shell is obliquely rectangular and rounded at both ends. External sculpture consists of numerous finely beaded ribs (slightly eroded) and irregular concentric growth lines. The hinge is straight with a narrow ligament area and small teeth which are obliquely inclined to the anterior.

Occurrence: Representatives of this species are found in very small numbers in TD and OL sediments of Cores 32, 33 and 24. One specimen was taken from RL sediments of Core 23 (depth 10 cm).

Total number collected: 6.

Distribution: Southern Florida, the West Indies and the Gulf of Mexico, south to Brazil.

Remarks: Formerly listed as *Arca barbata* Linné (Dall, 1889a: 40), but this name refers to a Mediterranean species.

Subgenus ACAR Gray, 1857

Barbatia sp., cf. *B. domingensis* (Lamarck, 1819)

References: Abbott, 1954: 343, pl. 27: u; Perry and Schwengel, 1955: 37, pl. 3: 11; Abbott, 1958: 111; Warmke and Abbott, 1962: 158, pl. 30: d; Bretsky, 1967: 14; 2 figs., 2 tables; Stanley, 1970: 123, pl. 5: 3, 4; Andrews, 1971: 151, fig.; Morris, 1973: 10, pl. 10: 13; Abbott, 1974: 422, no. 4967.

Description: The largest shell found is a minute, juvenile, but distinctive, right valve (length 3.8 mm, ht 1.2 mm) and specimens are numerous enough to warrant description. The white shell is rectangular with the straight, posterior end larger (ht 2 mm) than the rounded, anterior end (ht 1.5 mm). The surface of the shell is finely (initial 0.5 mm), developing to coarsely reticulate with prominent beads. There is a ridge of stronger beads extending from the posterior point toward the umbo. The hinge line is straight with a long, narrow ligament posterior to the beak and a few teeth obliquely inclined to the center. The ventral margin is crenulate.

Occurrence: Representatives of this species are taken in very small numbers from TD and OL sediments of Cores 32, 24 and 30.

Distribution: Bermuda, North Carolina to Texas, south to the West Indies and Brazil.

Order MYTILOIDA Férussac, 1822
Superfamily MYTILACEA Rafinesque, 1815
Family MYTILIDAE Rafinesque, 1815
Subfamily MYTILINAE Rafinesque, 1815
Genus BRACHIDONTES Swinson, 1840
Subgenus NORNOMYA Mörch, 1853

Brachidontes exustus (Linnaeus, 1758)

References: Abbott, 1954: 352-353, pl. 35: j; Perry and Schwengel, 1955: 52, pl. 7: 35; Richards, 1962: 56, pl. 4: 13, 14; Warmke and Abbott, 1962: 162, pl. 31: f; Stanley, 1970: 133-134, pl. 8: 4-6; Andrews, 1971: 156-157, fig.; Odum and Heald, 1972: 690; Morris, 1973: 18, pl. 12: 14; Abbott, 1974: 429, pl. 20: 5044.

Description: The largest specimen found (length 7 mm, ht 14 mm) is equivalve and inequilateral. The exterior of the valve is marked with numerous fine, sometimes wavy, axial ribs. Most shells are yellow-brown and juvenile. The interior is iridescent white, flushed with brown and sometimes purple. In each valve, there are 2 to 4 small anterior teeth and 6 smaller teeth beyond the ligament.

Occurrence: Representatives of this species are taken in relatively large numbers from Inglés Lagoon and RL sediments and to a far lesser extent, from TD and OL sediments.

Total number collected: 1,122.

Distribution: North Carolina to Texas, south to the West Indies. Brazil to Uruguay.

Subfamily CRENELLINAE Gray, 1840
Genus CRENELLA Brown, 1827

Crenella divaricata (d'Orbigny, 1853)

References: Abbott, 1954: 351; Keen, 1958: 50, fig. 88; Warmke and Abbott, 1962: 161, text fig. 26; Abbott, 1974: 431, no. 5053.

Description: The small shell (length 2.4 mm, ht 3 mm) is white, oval and inflated (diam. 1 mm). The exterior surface of the valves is marked with fine, bifurcate, radiating ribs and finer concentric striae. The hinge line is characteristic and well illustrated by Warmke and Abbott (1962: 161, text fig. 26). The ventral margin is crenulate.

Occurrence: Representatives of this species are found in sediments near the tidal channel which allows influx of more normal marine waters into the lagoon. Specimens were taken from OL and TD sediments, and to a lesser extent, RL sediments of Cores 30, 23, 24 and 32.

Total number collected: 94.

Distribution: North Carolina, south to the West Indies.

Remarks: Keen (1958: 50) lists the West Coast range of this species as southern California to Peru and comments that future study may show the West Coast species as distinct and separate from the eastern form.

Genus MUSCULUS Röding, 1798

Musculus lateralis (Say, 1822)

References: Say, 1822: 264, *Mytilus lateralis* (sic) Abbott, 1954: 355, text fig. 75: c; Abbott, 1958: 114; Richards, 1962: 57, pl. 5, 7, 8; Warmke and Abbott, 1962: 163, pl. 31: c; Andrews, 1971: 158, fig.; Morris, 1973: 20, pl. 13: 1; Abbott, 1974: 432, no. 5069.

Description: The largest specimen found (length 4 mm) is juvenile, white and fragile. The exterior of the shell is marked with fine growth striae and small radial ribs at both ends. The central area of the valve has fine growth striae only. There are no hinge teeth. The interior of the valve is iridescent.

Occurrence: Single representatives of this species were taken from RL sediments of Core 17 (depth 30 cm) and RL and OL sediments of Core 24 (depths 35 and 125 cm).

Total number collected: 3.

Distribution: North Carolina, south to the West Indies.

Remarks: The ecology and commensal activity of this species are discussed by Bertrand (1971: 23-29).

Subfamily MODIOLINAE Keen, 1958
Genus MODIOLUS Lamarck, 1799

Modiolus modiolus squamosus Beuportuy, 1967

References: Abbott, 1974: 435, no. 5089.

Description: The only specimen recovered is large (length 15.5 mm, ht 28 mm) and brown. The anterior ventral area is dark brown whereas the rest of the valve is covered by the periostracum, but lighter brown beneath. The interior of the shell is dull purple with a darker bluish purple area corresponding to the dark brown area on the exterior. The anterior margin is smooth and there is a ligamental groove posterior to the umbones.

Occurrence: One complete specimen, filled with mud and detritus, was taken from RL sediments of Core 18 (depth 10 cm).

Total number collected: 1.

Order PTERIODA Newell, 1965
Superfamily PTERIACEA Gray, 1847
Family PTERIIDAE Gray, 1847
Genus PINCTADA Röding, 1798

Pinctada imbricata Röding, 1798

References: Dall and Simpson, 1901: 463, *Pteria radiata*, synonym; Abbott, 1954:359, pl. 35: c; Perry and Schwengel, 1955:41, pl. 4: 18; Abbott, 1958: 115; Rice and Kornicker, 1962: 380, pl. 6: 6, 9; Warmke and Abbott, 1962: 166, pl. 32: b; Stanley, 1970: 136-137, pl. 11: 5-7; Andrews, 1971: 162-163, fig.; Morris, 1973: 25, pl. 15: 1; Abbott, 1974: 440, pl. 20: 5122.

Description: Specimens recovered from Nichupté Lagoon sediments are generally fragmentary and fragile. The largest specimen found (length 19 mm, ht 15 mm) is a left valve, white and devoid of periostracum. The periostracum observed adhering to some specimens is brown to greenish brown to green. Two valves recovered have greenish brown periostracum which is marked by white, radiating, irregular dashes. The hinge lines of all specimens observed are straight with pseudocardinal and lateral teeth in each valve. The left valve has a single lateral tooth and the right valve has a double lateral. There is a byssal gape under the anterior wing of the right valve. The interior of the shell is highly nacreous and a nearly central muscle scar is present.

Occurrence: Fragmentary representatives of this species are found in most RL sediments and to a lesser extent, in OL and TD sediments.

Total number collected: 82.

Distribution: Bermuda, South Carolina to Texas and the West Indies, south to Brazil.

Remarks: A similar bivalve, *Pteria colymbus* (Röding, 1798), is described as often occurring with *Pinctada imbricata* and having a brown periostracum with broken radial lines of cream color (Andrews,

1971: 162). The diagnostic characters of shell shape and wing development are useless for the fragments of hinge lines recovered from Nichupté Lagoon; however, hinge characteristics proved most useful. There are 2 cardinal and 1 lateral teeth in each valve of specimens of *P. colymbus* (Abbott, 1954:359, pl. 35: d; Perry and Schwengel, 1955:41, pl. 4: 17; Warmke and Abbott, 1962:165, pl. 31: i; Morris, 1973: 24-25, pl. 15:2). With this distinctive characteristic of hinge development, specimens from Nichupté Lagoon are identified as *Pteria imbricata*.

Family PECTINIDAE Rafinesque, 1815
Subfamily PECTININAE Rafinesque, 1815
Genus LYROPECTEN Conrad, 1862

Lyropecten antillarum (Récluz, 1853)

References: Récluz, 1853: 153-154, pl. 5: 1, *Pecten antillarum*; Dall and Simpson, 1901:466; Abbott, 1954: 366, pl. 34: g, left; Abbott, 1958: 116, pl. 4: m, map 3; Warmke and Abbott, 1962: 169, pl. 33: f; Abbott, 1974: 448-449, no. 5203.

Description: One slightly damaged left valve was recovered from Nichupté Lagoon sediment. The valve is small (length 16 mm, ht 18 mm) and nearly flat (width 1.5 mm). The auricles are uneven and together measure 80 per cent of the valve length. The exterior of the valve is marked by eleven wide, low, moderately rounded radial ribs crossed by closely spaced, microscopic growth striae. The shell is faded, light yellow and mottled with white.

Occurrence: One valve was taken from OL sediments of Core 24 (depth 240 cm).

Total number collected: 1.

Distribution: Bermuda, southeastern Florida and the West Indies.

Superfamily ANOMIACEA Rafinesque, 1815
Family ANOMIIDAE Rafinesque, 1815
Genus ANOMIA Linnaeus, 1758

Anomia simplex d'Orbigny, 1845

References: Dall, 1889a:32, pl. 53: 1, 2; Abbott, 1954: 372, pl. 35:k; Perry and Schwengel, 1955: 51, pl. 6: 32; Warmke and Abbott, 1962: 172, pl. 34: h; Stanley, 1970: 144, pl. 14:1-3; Andrews, 1971: 167-168; Morris, 1973:38, pl. 18: 6; Abbott, 1974: 451, pl. 20: 5232.

Description: The largest specimen found (length 16 mm, ht 16 mm) is an irregular, subcircular, moderately convex (diam. 6 mm) upper (free, left) valve. The exterior of the shell is wrinkled and yellow-cream in color. The interior is nacreous and marked by a nearly central, oblong callus on which there are 3 small muscle scars and above which there is one larger muscle scar. Close above and to the left of the larger muscle scar is a pit-shaped resilifer (fossette).

The juvenile valve proved to be a problem in identification until the adult was found and used for comparison. Small, translucent-white juvenile shells are circular (length 5 to 10 mm) and thin but not fragile. The most noticeable characteristic is the elongate triangular callus, the apex of which extends to the resilifer. This triangular callus is also seen on the umbo of the adult shell. The callus is on the interior of the shell but is visible from the outside. Juvenile shells differ from the adult mainly by being thinner, flatter and smooth.

Occurrence: Juvenile representatives of this species were recovered in very small numbers from some Inglés Lagoon, RL and OL sediments. The single adult valve found was taken from RL sediments of Core 23 (depth 30 cm).

Total number collected: 9.

Distribution: Eastern United States, Gulf of Mexico, the West Indies, south to Brazil.

Superfamily LIMACEA Rafinesque, 1815

Family LIMIDAE Rafinesque, 1815

Genus LIMA Bruguière, 1797

Subgenus LIMARIA Link, 1807

Lima pellucida C. B. Adams, 1846

References: Clench and Turner, 1950: 324, pl. 43: 8, 9; Abbott, 1954: 370; Abbott, 1958: 117; Warmke and Abbott, 1962: 171, pl. 34:e; Rice and Kornicker, 1965: 134, pl. 11: 11, 12; Andrews, 1971: 169, fig.; Morris, 1973: 33, pl. 18: 2; Abbott, 1974: 453, no. 5243.

Description: The small, fragile valve (length 12 mm, ht 14 mm, diam. 4 mm) is translucent-white and obliquely oval. The exterior of the valve is marked with very fine radial striae. The hinge is straight and short (length 3 mm) and the auricles are small.

Occurrence: One unweathered valve was recovered from RL sediments of Core 18 (depth 10 cm).

Total number collected: 1.

Distribution: Bermuda, North Carolina to Florida, Texas, south to Brazil.

Genus LIMATULA Wood, 1839

Limatula sp., cf. *L. hendersoni* Olsson and McGinty, 1958

References: Olsson and McGinty, 1958: 47, pl. 4: 6; Warmke and Abbott, 1962: 172; Abbott, 1974: 454, no. 5261.

Description: The largest specimen found is minute (length 1.4 mm, ht 2.3 mm) and translucent white. The shell is elongate, convex and nearly equilateral. The exterior of the shell is marked with 12 to 20 low, radial ribs, crossed by very fine growth striae. The 2 middle ribs are stronger than the others and between them lies a median furrow or sulcus. The ribs become obsolete anteriorly and posteriorly. The hinge line is short (length 0.6 mm) and bears a triangular resilifer.

Occurrence: Representatives of this minute bivalve were found only in the TD sediments of Core 32.

Total number collected: 15.

Distribution: Florida and the West Indies.

Remarks: Olsson and McGinty (1958: 47) do not describe the shell as having a median furrow, but do note that median ribs are larger than marginal ribs.

A shell of similar shape and possessing a median furrow is *L. subovata* (Jeffreys, 1876: 427-428; Abbott, 1974: 454 no. 5264) from Massachusetts. Abbott places this species in the genus *Limea*. This designation is not followed here because unlike *subovata*, representatives of *Limea* have short denticles on each side of the hinge line. Jeffreys (1876: 427) describes the hinge line of *subovata* as smooth and compares it with *subauriculata* (Montagu, 1808). Specimens from Nichupté Lagoon have wider and less numerous ribs (12 to 20 ribs) than do representatives of *subovata* (50 ribs). The dimensions of the shell of *subovata* (length 3.6 mm, ht 6.3 mm) is nearly

three times that of the largest shell from Nichupté Lagoon.

Order VENEROIDEA H. and A. Adams, 1856

Superfamily LUCINACEA Fleming, 1828

Family LUCINIDAE Fleming, 1828

Genus LINGA de Gregorio, 1884

Linga pensylvanica (Linnaeus, 1758)

References: Deshayes, 1861: 317, pl. 13: 1; Dall and Simpson, 1901: 493; Abbott, 1954: 385, pl. 38: b; Abbott, 1958: 119; Rice and Kornicker, 1962: 381, pl. 8: 6; Warmke and Abbott, 1962: 176, pl. 36: a; Stanley, 1970: 152-153, pl. 18: 1-4; Morris, 1973: 48, pl. 21: 15; Abbott, 1974: 458, pl. 22: 5282.

Description: The largest shell found (length 21 mm, ht 21 mm, diam. 6.4 mm) is a right valve. The white shell is nearly circular and inflated. The beak is elevated and arches anteriorly over the large heart-shaped lunule. There is a distinct radial furrow which extends from behind the beak to the posterior ventral margin where it terminates forming a sinus. The exterior of the shell is marked with regular concentric ridges. The ligament is immersed. On the left valve, there are 2 strong cardinal teeth and one anterior and 2 posterior lateral tooth. In the right valve there is a bifid cardinal tooth, an elevated anterior, and double posterior lateral teeth.

Occurrence: Representatives of this species are found primarily in TD sediments but also in some RL and OL sediments.

Total number collected: 13.

Distribution: Southeastern United States to the West Indies.

Genus PARVILUCINA Dall, 1901

Parvilucina multilineata (Tuomey and Holmes, 1857)

References: Dall, 1901c: 825, pl. 39: 2, *Phacoides crenella* Dall, synonym; Abbott, 1954: 386-387, text fig. 78: f; Perry and Schwengel, 1955: 64, pl. 40: 291; Andrews, 1971: 175, fig.; Morris, 1973: 47, pl. 21: 10; Abbott, 1974: 459, no. 5290.

Description: The white shell is small (length 6 mm, ht 5 mm, diam. 1.6 mm), obese and nearly circular. The surface of the shell is very finely sculptured with numerous, fine concentric growth threads and finer radial threads. In both valves, there are 2 cardinal and strong anterior and posterior lateral teeth. In the right valve, the lateral teeth are developed in pairs, the dorsal lateral teeth (both anterior and posterior) are strong whereas the ventral lateral teeth are weak. The interior margin of the shell is finely crenulate.

Occurrence: Representatives of this species are found in some RL and OL sediments.

Total number collected: 30.

Distribution: North Carolina to Florida, Texas, and Brazil.

Remarks: Evidence of periods of halted growth (irregular hump mentioned by Abbott, 1954: 387) is observed on valves from Nichupté Lagoon.

Subgenus CAVILINGA Chavan, 1937

Parvilucina blanda (Dall, in Dall and Simpson, 1901)

References: Dall and Simpson, 1901: 493-494, pl. 58: 13, *Phacoides trisulcatus* Conrad var. *blandus* Dall; Warmke and Abbott, 1962: 176, pl. 36: d; Ab-

bott, 1974: 459, no. 5294 (photo no. 5294 is not this species).

Description: The white shell is small (length 5 mm, ht 6 mm, diam. 1.8 mm) and obliquely subtriangular in outline. The beak is elevated and arches anteriorly over the deep lunule. The surface of the shell is marked with numerous even, concentric ridges and grooves. On most valves found, 3 to 4 of the grooves are deeper than the others. One smaller left valve (ht 4 mm) is marked with 5 deeper grooves. In the left valve, there are 2 cardinal teeth and 2 anterior and 2 posterior lateral teeth. In the right valve, there are 2 cardinal teeth and single anterior and posterior lateral teeth. The interior margin is finely denticulate.

Occurrence: Representatives of this species are found in sediments near the mangrove channel which allows influx of more normal marine waters into the lagoon. Specimens were taken from RL, OL and TD sediments of Cores 23, 24 and 32.

Total number collected: 31.

Distribution: The West Indies.

Remarks: Most of the valves found have been bored.

Genus CODAKIA Scopoli, 1777

Subgenus CTENA Mörch, 1860

Codakia orbiculata (Montagu, 1808)

References: Dall and Simpson, 1901: 491; Abbott, 1954: 391, pl. 30: L; Perry and Schwengel, 1955: 66, pl. 11: 68; Abbott, 1958: 120, pl. 4: r; Warmke and Abbott, 1962: 178, pl. 36: h; Rice and Kornicker, 1965: 134-135, pl. 12: 11, 12; Abbott, 1974: 460, no. 5300.

Description: The small, white shell (length 7.5 mm, ht 6 mm, diam. 2 mm) is suborbicular and compressed. The beak is sharp and arches slightly anteriorly over the elongate lunule. The shell is marked by radial ribs which are crossed by fine concentric threads. In the left valve, there are 2 cardinal teeth and 2 anterior and 2 posterior lateral teeth. In the right valve, there are 2 cardinal teeth and single anterior and posterior lateral teeth.

Occurrence: Representatives of this species are found in some RL, OL and TD sediments.

Total number collected: 47.

Distribution: Bermuda, south to Brazil.

Genus LUCINA Bruguière, 1797

Lucina pectinata (Gmelin, 1791)

References: Dall and Simpson, 1901: 493; Abbott, 1954: 388, pl. 38: g; Perry and Schwengel, 1955: 65, pl. 11: 64; Warmke and Abbott, 1962: 177, pl. 36: b; Stanley, 1970: 149-150, pl. 16: 1-3; Andrews, 1971: 176, fig.; Morris, 1973: 47-48, pl. 21: 12; Abbott, 1974: 460, pl. 22: 5305.

Description: The shell is of medium size (length 19 mm, ht 16 mm), rounded trigonal and compressed. The shell is marked with unequally spaced, moderately sharp, concentric ridges. The beak is sharp and arches anteriorly over the high blade-like lunule. The posterior dorsal slope is rostrate, whereas the anterior dorsal slope is less rostrate. The arched beaks are more prominent and cardinal teeth more obvious in juvenile shells. In the left valve, there are 2 cardinal teeth, of which the anterior tooth is stronger, and double anterior and posterior lateral teeth. The ventral anterior lateral is high

and strong. In the right valve there is one cardinal and single anterior and posterior lateral teeth.

Occurrence: Two hinge line fragments were taken from BLM sediments of Core 113 (depth 105 cm) and one worn specimen was found in RL sediments of Core 24 (depth 5 cm).

Total number collected: 3.

Distribution: North Carolina to the West Indies, Texas, south to Central America and Brazil.

Subgenus LUCINISCA Dall, 1901

Lucina nassula Conrad, 1846

References: Conrad, 1846: 24; Abbott, 1954: 388; Perry and Schwengel, 1955: 64, pl. 11: 65; Richards, 1962: 61, pl. 7: 14, 15; Morris, 1973: 47, pl. 21: 8; Abbott, 1974: 460, no. 5306.

Description: The white shell is nearly circular and moderately inflated (length 11 mm, ht 10.4 mm, diam. 3 mm). The surface of the shell is marked by strong, closely spaced concentric and radial ribs, creating a reticulate network. The concentric ribs are blade-like and crenulate. In the right valve, there is a strong cardinal tooth and an elevated and split anterior lateral tooth and a strong, split posterior lateral tooth. In the left valve, there are 2 cardinal teeth, of which the anterior is stronger and both anterior and posterior lateral teeth. The anterior muscle scar is elongate whereas the posterior muscle scar is subtriangular. The pallial line is simple and deeply impressed. The ventral margin is crenulate within and beaded without.

Occurrence: Representatives of this species are found in some RL, OL and TD sediments.

Total number collected: 78.

Distribution: North Carolina to Texas and the West Indies.

Subgenus CALLUCINA Dall, 1901

Lucina sp., cf. *L. radians* Conrad, 1841

References: Dall and Simpson, 1901: 494; Warmke and Abbott, 1962: 177, pl. 36: j; Abbott, 1974: 461, no. 5311.

Description: The largest shell found (length 4.5 mm, ht 4 mm, diam. 1.2 mm) is a white juvenile, nearly circular and compressed left valve. The shell is marked with very fine and closely spaced concentric ridges. The beak arches anteriorly over the deep lunule. In this left valve there are 2 cardinal teeth and strong anterior and posterior lateral teeth. The pallial line is impressed. The ventral margin is crenulate within.

Occurrence: Single isolated valves were taken from the RL sediments of Core 17 (depth 15 cm), OL sediments of Core 24 (depth 185 cm). Three specimens were taken from the TD sediments of Core 32.

Total number collected: 5.

Distribution: Bermuda, North Carolina to Florida and the West Indies.

Remarks: The shell externally resembles a small *Dosinia*.

Subfamily DIVARICELLINAE Gilbert, 1967

Genus DIVARICELLA von Martens, 1880

Subgenus DIVALINGA Chavan, 1951

Divaricella quadrisulcata (d'Orbigny, 1842)

References: Dall, 1901b: 815; Dall and Simpson,

1901:494; Clench and Turner, 1950: 255-256, pl. 46: 1, 2, *Lucina americana* C. B. Adams, 1852, synonym; Abbott, 1954:391, pl. 30:m; Abbott, 1958: 121; Rice and Kornicker, 1962: 382, pl. 8: 3; Richards, 1962: 62, pl. 7:28, 29; Warmke and Abbott, 1962: 179, pl. 36: 1; Stanley, 1970: 153, pl. 15: 6, 7; Morris, 1973: 50, pl. 21: 5; Abbott, 1974: 462, no. 5331.

Description: The white shell is nearly circular (length 16 mm, ht 15.5 mm, diam. 5.5 mm) and moderately inflated. Surface ornamentation is distinct. In addition to growth lines, there are chevron-shaped ridges whose peaks align from the beak to the anterior margin. There are 2 cardinal teeth in each valve. Lateral teeth are absent. The valve margins are finely crenulate.

Occurrence: Representatives of this species are found only in the TD sediments of Core 32.

Total number collected: 6.

Distribution: Massachusetts, south to Brazil.

Family UNGULINIDAE H. and A. Adams, 1857
Genus DIPLODONTA Bronn, 1831

Diplodonta nucleiformis (Wagner, 1838)

References: Wagner, 1838: 52, pl. I: 4, *Mysia nucleiformis*; Dall, 1901b:793; Dall and Simpson, 1901: 495; Warmke and Abbott, 1962: 175, pl. 35: j; Morris, 1973: 44, pl. 20: 22; Abbott, 1974: 465, no. 5369.

Description: The small white shell (length 9 mm, ht 8.2 mm, diam. 3.2 mm) is orbicular and moderately inflated. The external sculpture consists only of fine concentric striae. The two shells found are left valves. In the left valve there is an anterior bifid cardinal tooth, a thin, elongate posterior cardinal tooth and no lateral teeth. The pallial line is simple and continuous. The ligament is external.

Occurrence: Single representatives of this species were found in some sediments near the mangrove channel which allows the influx of more normal marine waters into the lagoon. One valve was taken from the RL sediments of Core 24 (depth 5 cm) and one was taken from the TD sediments of Core 32 (depth 160 cm).


Total number collected: Two left valves.

Distribution: North Carolina, south to Brazil.

Superfamily CYRENOIDACEA Olsson, 1961
Family CYRENOIDIDAE H. and A. Adams, 1857
Genus CYRENOIDA de Joannis, 1835

Cyrenoida floridana Dall, 1896

References: Dall, 1889a: 50; Dall, 1896a: 52; Rhoads, 1899: 48; Dall, 1901b: 817, 829, pl. 42: 7; Altana, 1968: 157; Moore, 1969b: 517-518, fig. E22; Abbott, 1974: 466, no. 5383.

Description: The largest shell found is a right valve (length 7 mm, ht 6.2 mm, diam. 1.7 mm). The silky, white valve is nearly circular, thin and smooth with fine growth striae. In some specimens, the tan periostracum is adhering in small patches. The right valve has 2 and the left valve has 1  shaped cardinal lamina. In other words, the anterior cardinal teeth form posterior bent portions of their own original anterior lateral teeth. In the right valve, the ventral cardinal lamina is shorter and less developed than the dorsal. In the left valve, the posterior cardinal 'hook' is bifid. An elongate, external ligament enfolds a smaller resilium. The inner ventral margin is smooth.

Occurrence: Representatives of this species are found only in the BLM sediments of Cores 111, 112 and 113.

Total number collected: 17.

Distribution: Georgia and Florida.

Remarks: Identification of specimens was verified by Dr. D. R. Moore (personal communication, 1974).

Specimens from Nichupté Lagoon may also be compared with *C. americana* Morelet, 1851 (Dall and Simpson, 1901: 494, pl. 58: 5); from Puerto Rico, which is distinguished from *C. floridana* by being larger, less delicate and more quadrate (Dall, 1901b: 817). However, reported measurements do not bear out this comparison: *C. americana*, reported length: 15 mm; *C. floridana*, reported length: 13.5 mm. Also, comparison of the figures of each species indicates that shells of *C. floridana* are posteriorly more quadrate than those of *C. americana*.

Specimens from Nichupté Lagoon may also be compared with *C. guatemalensis* Pilsbry, 1919 (p. 221-222, pl. 11:9) except that *C. guatemalensis* is more orbicular and has numerous small calcareous lumps on the interior of the valve.

Superfamily GALEOMMATACEA Gray, 1840
Family LASAEIDAE Gray, 1847
Genus ERYCINA Lamarck, 1805

Erycina sp., cf. *E. fernandina* Dall, 1899

Plate I, figs. 6, 7

References: Dall, 1899: 887, pl. 88: 6; Abbott, 1974: 468, no. 5405, the American species are with question placed in this genus.

Description: The white shell is small (length 3 mm, height 2.1 mm, diameter 0.5 mm), subquadrate, and inequilateral. The dorsal and ventral margins are subparallel. The anterior portion of the shell is extended and the umbo is very low, inconspicuous and placed near the posterior portion of the shell. The exterior of the shell is marked only by fine incremental lines of growth. The hinge of the right valve consists of a strong, oblique anterior cardinal tooth, which Dall termed a conspicuous hook on the anterior lateral tooth, and strong elongate lateral teeth which form sockets with the valve margin. The resilifer is a well developed, triangular pit. The hinge of the left valve consists of a smaller, oblique cardinal tooth (nearly parallel with the hinge), a minute cardinal tooth below the beak, a weak elongate anterior lateral tooth and a weak, short posterior lateral tooth.

Occurrence: Representatives of this species are found in very small numbers in some OL sediments near the tidal channel which allows the influx of more normal marine waters into the lagoon (Cores 30 and 23) and in TD sediments of Core 32.

Total number collected: 8.

Distribution: This species was described from dredged coralgal sand, off Fernandina, Florida.

Family LEPTONIDAE Gray, 1847
Subfamily MONTACUTINAE Clark, 1855
Genus MYSELLA Angas, 1877

References: Moore, 1969b: 531; Abbott, 1974: 473; Keen and Coan, 1974: 101.

Description: The white, translucent shell is small, compressed, elliptical and inequilateral. The beak is distinct, well rounded and placed near the posterior portion of the shell. The shell is

smooth with faint growth lines. On the hinge of the right valve there are, on either side of the beak, 2 short, triangular teeth, which are separated by a V-shaped notch, the sides of which are nearly perpendicular. These 2 teeth are strong and anterior tooth is slightly larger than the posterior. Above the teeth is a groove to receive the left valve margin. The hinge of the left valve is similar in structure but the teeth are very weak and inconspicuous and the angle formed by them is obtuse. The resilium in each valve is small, but distinct and triangular.

Mysella sp. 1

Description: In addition to the preceding comments, it is possible to make the following observations: The dorsal and ventral margins of the small shell (length 2.4 mm, ht 1.6 mm) are nearly parallel. The anterior margin of the shell is evenly rounded, whereas the posterior margin is less fully rounded.

Occurrence: Representatives of this species are found in very small numbers in some RL, OL and TD sediments.

Total number collected: 34.

Remarks: Specimens from Nichupté Lagoon are comparable with *Mysella planulata* (Stimpson, 1857 (Abbott, 1974: 473, no. 5443) which is known from Nova Scotia to Texas and the West Indies. *M. fragilis* Verrill and Bush (1898: 780, pl. 92: 8) is a synonym.

Mysella sp. 2

Description: The small shell (length 2.4 mm, ht 1.6 mm) is similar to *Mysella* sp. 1 in dimensions and hinge structure but not shape. The anterior margin of the shell (ht 1.6 mm) is rounded and wider than the posterior (ht 1.1 mm). The thickness of the shell is diminished at the free margins so that a flange-like structure is developed.

Occurrence: Representatives of this species are found in relatively small numbers in most RL sediments and to a lesser extent in some TD sediments.

Total number collected: 27.

Remarks: Specimens from Nichupté Lagoon are comparable with figures of *M. ovata* Jeffreys, 1881 (Verrill and Bush, 1898: 781, pl. 92: 10, shell with iron oxide encrustation: not Jeffreys, 1881: 698, pl. 61: 4) and *M. barbadensis* Dall, 1889 (p. 892, pl. 87: 3; Abbott, 1974: 474, no. 5455) except that specimens from Nichupté Lagoon are less ovate, the beak is not placed as near the posterior margin and the latter is better developed and rounded.

Mysella sp. 3

Description: A single left valve was recovered from Nichupté Lagoon sediments, but its differences with the above described specimens make it distinctive. This shell is slightly larger (length 2.5 mm, ht 1.8 mm) than *Mysella* sp. 1. The posterior margin of the valve is more quadrate. The exterior margin of the shell is marked with evenly spaced, comparatively strong, concentric ridges.

Occurrence: One left valve was recovered from RL sediments of Core III (depth 130 cm).

Total number collected: 1.

Remarks: The shell is very similar to *M. casta* Verrill and Bush, 1898 (p. 781, pl. 94: 5; Abbott,

1974: 472-473, no. 5450) except that the specimen from Nichupté Lagoon is more rounded anterodorsally. *M. casta* was described from shells dredged in 14-17 fathoms off Cape Hatteras.

Superfamily CARDITACEA Fleming, 1820

Family CARDITIDAE Fleming, 1820

Subfamily CARDITAMERINAE Chavan, 1967

Genus CARDITAMERA Conrad, 1838

Carditamera floridana Conrad, 1838

References: Abbott, 1954: 378, pl. 30: a; Perry and Schwengel, 1955: 60, pl. 10: 56; Moore, 1969b: 549, fig. E49: 6; Stanley, 1970: 147-148, pl. 14: 11-13; Andrews, 1971: 179-180; Morris, 1973: 43, pl. 20: 8; Abbott, 1974: 476, pl. 21: 5478.

Description: The largest specimen found (length 10.5 mm, ht 7.5 mm, diam. 3.2 mm) is juvenile and white with light orange-brown concentric bars. The solid, compressed shell is equivalve, inequilateral and subrectangular, with the beak positioned anterior to the center of the shell. There are 18 strong, radiating, beaded ribs. The beaks nearly touch when the valves are together. The ligament is external and the escutcheon is very small. The small, heart-shaped lunule is deeply indented under the beaks. The right valve has a strong triangular cardinal tooth which becomes elongate and narrow posteriorly. The left valve has 2 diverging cardinal teeth. The anterior tooth is short and high whereas the posterior tooth is long and narrow. Both valves have one short and high anterior lateral tooth and a long and narrow posterior lateral tooth.

Occurrence: Representatives of this species are found in most RL sediments and to a lesser extent in some OL sediments.

Total number collected: 82.

Distribution: Southern Florida, Texas, south to Mexico.

Remarks: Juvenile specimens from Nichupté Lagoon were compared with adult specimens collected in the Florida Keys.

Genus PLEUROMERIS Conrad, 1867

Pleuromeris tridentata (Say, 1826)

References: Abbott, 1954: 380; Perry and Schwengel, 1955: 60, pl. 10: 57; Morris, 1973: 44, pl. 20: 10; Abbott, 1974: 477, no. 5489.

Description: The largest shell found (length 4 mm, ht 4 mm) is trigonal and white with an orange-brown umbonal region. More commonly encountered is the juvenile, red-brown shell (length 2.6 mm, ht 2.7 mm). The shell surface is marked with about 16 strong, radiating, beaded ribs. The ribs become broader and more flattened toward the ventral margin. The beaks are close and point slightly to the anterior. The escutcheon is small and narrow and the small lunule is oval and slightly impressed. The right valve has a strong, triangular, bilobed cardinal tooth, whereas the left valve bears a large socket and 2 diverging cardinal teeth flanking the socket. The right valve has a low anterior lateral tooth and socket and a low posterior lateral tooth. In the left valve there is a smaller anterior lateral tooth and a low posterior lateral tooth with socket.

Occurrence: Representatives of this species are

found in relatively large numbers in TD sediments of Core 32 and to a lesser extent, in some RL and OL sediments near the tidal channel which allows the influx of more normal marine waters into the lagoon.

Total number collected: 103.

Distribution: North Carolina, south to Florida.

Remarks: Specimens from Nichupté Lagoon were compared with shells from beach drift samples collected at Naples, Florida.

This species was formerly placed in the genus *Venericardia*.

Family CONDYLOCARDIIDAE Bernard, 1897

Genus CARDITOPSIS E. A. Smith, 1881

Carditopsis smithii (Dall, 1896)

References: Bernard, 1896: 169-207, fig. 5; Dall, 1896b: 16, fig. 4, *Carditella smithii*; Pilsbry and Olsson, 1946: 6-7, pl. 1: 9, 10, *Condylocardia floridensis*, synonym; Abbott, 1958: 118; Moore, 1969b: 558-559, fig. E50; Waller, 1973: 48, figs. 18-19; Abbott, 1974: 479, no. 5511.

Description: The minute, translucent, yellow-orange shell (length 1.3 mm; ht 1.26 mm) is solid, trigonal and nearly equilateral. The umbo bears a prodissoconch which is surrounded by a raised edge. The external surface has 11 beaded radial ribs. Each valve has an internal resilium pit bordered by small cardinal teeth and a single distal, strong lateral socket. In addition, the right valve has a strong anterior lateral tooth and the left valve has a posterior lateral tooth.

Occurrence: Representatives of this minute species are found in relatively small numbers in some RL, OL and TD sediments.

Total number collected: 22.

Distribution: Bermuda and the West Indies.

Family CRASSATELLIDAE Férussac, 1822

Genus CRASSINELLA Guppy, 1874

Crassinella lunulata (Conrad, 1834)

References: Verrill and Bush, 1900: 518, pl. 63: 11; Dall and Simpson, 1901: 497, *C. guadeloupensis* (d'Orbigny, 1846) form of *C. lunulata*; Clench and Turner, 1950: 322, pl. 44: 5-6, *Thetis parva* C. B. Adams, 1845, synonym; Warmke and Abbott, 1962: 173, pl. 35: k; Harry, 1966: 65-89, figs. 1, 5-7, 9, 13, 15-17 (fig. 16 is very close to specimens from Nichupté Lagoon); Moore, 1969b: 577, fig. 377; 4; Abbott, 1974: 482, no. 5540.

Description: The small shell (length 2.6 mm, ht 2 mm) is moderately thick, subtriangular and strongly compressed. The beak is acute and strongly opisthogyrous. The anterior margin of the shell is straight, whereas the posterior margin is strongly concave. The ventral margin is evenly rounded. Both the long and shallow lunule and wider escutcheon are well defined. The shell is marked with 11 strong, concentric ridges and innumerable evenly spaced, microscopic radial striae. The left valve has an elongate triangular anterior cardinal tooth and a posterior cardinal tooth which bends around the posterior margin of the resilium is present. There is a straight, deep and narrow groove and associated obsolete lateral tooth, along the posterior dorsal margin. This groove receives the posterior dorsal margin of the right valve and the ob-

solete lateral tooth fits into a poorly defined depression in the right valve (Harry, 1966: 74). There is a shallow groove along the ventral margin of the shell.

Occurrence: Representatives of this species are found only in the TD sediments of Core 32.

Total number collected: 4.

Distribution: Massachusetts, south to Florida, the West Indies and Brazil.

Remarks: Harry (1966: 65) recognizes only 2 biological species (*C. lunulata* and *C. martiniquensis* (d'Orbigny, 1842)) of the 9 nominal species of *Crassinella* described from the Western Atlantic and includes a synonymy list and study of the genus (Harry, 1966: 67-71).

Superfamily CARDIACEA Oken, 1818

Family CARDIIDAE Oken, 1818

Subfamily FRAGINAE Stewart, 1930

Genus AMERICARDIA Stewart, 1930

Americardia guppyi (Thiele, 1910)

References: Thiele, 1910: 129-130, pl. 9: 25; McLean, 1939: 166, pl. 25: 7, 8; Clench and Smith, 1944: 19-20, pl. 11: 3, 4, *Trigoniocardia antillarum* (d'Orbigny, 1942) (really *guppyi*); Abbott, 1958: 124-125, pl. 4: o, q; Warmke and Abbott, 1962: 183, pl. 38: a; Abbott, 1974: 484, no. 5561.

Description: The small, white shell (length 4.9 mm, ht 4.4 mm) is subquadrate, rounded anteriorly and truncated posteriorly and moderately inflated. The surface of the shell is marked with about 30 strong, finely imbricate, radial ribs. The right valve has a strong triangular cardinal tooth and short anterior and posterior lateral teeth with associated sockets. The left valve has 2 divergent cardinal teeth, a short, high anterior lateral tooth with associated socket and an elongate posterior lateral tooth.

Occurrence: Representatives of this species are found in relatively small numbers in TD and OL sediments and to a lesser extent, in some RL sediments.

Total number collected: 48.

Distribution: Abbott, (1958: 125) removes the confusion regarding *A. guppyi* and *Trigoniocardia antillarum* (d'Orbigny, 1842).

Subfamily LAEVICARDIINAE Keen, 1936

Genus LAEVICARDIUM Swainson, 1840

Laevicardium mortoni (Conrad, 1830)

References: Conrad, 1830b: 259-260, pl. 11: 5-7, *Cardium mortoni*; Dall, 1901a: 388; McLean, 1939: 170-171, pl. 25: 3, 6; Clench and Smith, 1944: 27, pl. 12: 6, 7; Abbott, 1954: 400, pl. 39: L; Perry and Schwengel, 1955: 68, pl. 13: 76; Baker and Merrill, 1965: 104; Stanley, 1970: 156, pl. 19: 9-11; Andrews, 1971: 182, fig.; Morris, 1973: 56, pl. 23: 10; Abbott, 1974: 486, no. 5573.

Description: The largest shell found (length 21 mm, ht 21 mm) is a cream-colored left valve with brown, zigzag markings. Other specimens lack the markings and a few are brown. The shell is subtriangular and moderately inflated. The exterior of the shell is marked with very fine concentric striae and is microscopically papillose. The interior of the shell is marked with fine radial ribs. The ligament is long and external. The lunule and escutcheon are not defined. The right valve has 2 strong, cardinal teeth (the posterior tooth is lar-

ger and triangular), 2 anterior lateral teeth (the dorsal tooth is thin and blade-like and the ventral tooth is high and strong), and one elongate, posterior lateral tooth with associated groove. The left valve has 2 strong cardinal teeth (the anterior tooth is larger and triangular), one anterior lateral tooth with associated groove and one elongate, posterior lateral tooth.

Occurrence: Representatives of this species are found in most Inglés Lagoon and RL sediments and to a lesser extent, in some OL sediments.

Total number collected: 160.

Distribution: Massachusetts, south to Guatemala.

Family MESODESMATIDAE Gray, 1839

Subfamily ERVILIINAE Dall, 1895

Genus ERVILIA Turton, 1822

Ervilia concentrica (Holmes, 1860)

References: Dall, 1896c: 26; Dall and Simpson, 1901: 474, pl. 58:12; Warmke and Abbott, 1962: 205; Davis, 1967: 231-241, fig. 1, 2; left, pl. 1: 3, 4, 2: 1-8; Andrews, 1971: 137-188, fig.; Abbott, 1974: 493, no. 5616.

Description: The small, white shell (length 4.5 mm, ht 3 mm) is equilateral, subtrigonal and not inflated. The posterior margin is narrower than the rounded anterior margin. The exterior surface of the shell is marked with regular, concentric ridges. Radial striae are present on the posterior surface of each valve. There is a large resilifer in each valve. The right valve has a strong cardinal tooth anterior to the resilifer and a socket posterior to the resilifer. The left valve has a smaller cardinal tooth posterior to the resilifer and a socket anterior to the resilifer. In the right valve there is an anterior-dorsal marginal groove and in the left valve there is a posterior-dorsal ridge to correspond with the groove. The pallial sinus is deep and narrow.

Occurrence: Representatives of this species are found in TD sediments of Core 32. One specimen was taken from OL sediments of Core 23 (depth 150 cm).

Total number collected: 16.

Distribution: Bermuda, North Carolina, south to Florida and the West Indies to Brazil.

Remarks: Identification of specimens was verified by Moore (personal communication, 1974).

Ervilia nitens (Montagu, 1806)

References: Dall, 1896c: 25-26; Warmke and Abbott, 1962: 205, pl. 43: b; Morris, 1973: 72, pl. 30: 7; Abbott, 1974: 493, no. 5617.

Description: The small white shell (length 3.2 mm, ht 2.1 mm) is oval and not inflated. The beaks are placed slightly to the anterior. Many of the specimens are white with a rose flush on the umbones and posterodorsal margin of the shell. The hinge line and interior of the valve are similar to those described above for *E. concentrica*. The exterior of the shell is marked with microscopic, radial striae and very irregular concentric ridges.

Occurrence: Representatives of this species are found in TD sediments of Core 32 and to a lesser extent, in some OL sediments of Core 23 and 24.

Total number collected: 20.

Distribution: Bermuda, Florida and the West Indies.

Superfamily TELLINACEA Blainville, 1814

Family TELLINIDAE Blainville, 1814

Subfamily TELLININAE Blainville, 1814

Genus TELLINA Linnaeus, 1758

Subgenus ANGULUS Muhlfield, 1811

Tellina mera Say, 1834

References: Dall, 1900: 296, pl. 2: 11, *T. pro-mera*, synonym; Abbott, 1958: 134, pl. 5: a, b, *T. guadeloupensis* (sic) non d'Orbigny, 1842; Warmke and Abbott, 1962: 193, pl. 40: c; Boss, 1968: 304-306, pl. 152: 4, 153: 1; Abbott, 1974: 501, no. 5677.

Description: Specimens vary in size from large adult shells (length 21.5 mm, ht 17.5 mm, diam. 4 mm) to juvenile shells. The shell is dull (sometimes iridescent), white, rounded subtrigonal and solid. The pointed beaks, placed posterior to the center of the shell, point toward each other and touch when the valves are together. The valves are anteriorly rounded, posteriorly blunt and slightly produced, and slightly twisted to the right. The shell is smooth with fine growth striae. The right valve has an elongate, anterior cardinal tooth, skewed, bifid posterior cardinal tooth, a strong anterior lateral tooth with socket, which is proximal to the cardinal complex, and a weak, blade-like posterior lateral tooth with socket. The left valve has an anterior bifid cardinal tooth and a weak posterior blade-like cardinal tooth. The lateral teeth in the left valve are obsolete. The pallial sinus is equal in both valves, rises from the small, posterior adductor scar and descends gently toward, but does not meet, the elongate, irregular, anterior adductor muscle scar. The sinus is broadly rounded anteriorly, then parallel to the pallial line until about the middle of the ventral margin, where it joins the pallial line which extends nearly to the posterior adductor muscle scar.

Occurrence: Representatives of this species are found in relatively large numbers in RL sediments, to a lesser extent in most OL and Inglés Lagoon sediments, and one specimen was taken from TD sediments of Core 32.

Total number collected: 159.

Distribution: Bermuda, Southern Florida, the West Indies, south to Brazil.

Subgenus SCISSULA Dall, 1900

Tellina similis Sowerby, 1806

References: Olsson and Harbison, 1953: 127, pl. 14: 8; Abbott, 1954: 426, pl. 40: m, text fig. 86: e; Perry and Schwengel, 1955: 82, pl. 43: 305; Abbott, 1958: 133, pl. 5: h, i; Warmke and Abbott, 1962: 192, pl. 40: n; Boss, 1968: 328-331, pl. 160: 1, 2; Stanley, 1970: 179, pl. 32: 1-7; Morris, 1973: 76, pl. 28: 4; Abbott, 1974: 503, pl. 23: 5696.

Description: The largest specimen found (length 22.75 mm, height 13 mm) is elongate-subquadrate and white, with a suffusion of yellow on the umbo. The beak is opisthogyrous and placed slightly posterior to the middle of the shell. The shell is marked with weak, concentric growth striae (striae are strongest on the posterior part of the right valve) and oblique to these growth lines are fine striae which are especially well developed on the anterior portion of the valves. The well developed escut-

cheon is broad and short. In the right valve there is a skewed, posterior, bifid cardinal tooth whose posterior lobe is larger, an anterior laminate cardinal tooth and a strong anterior lateral tooth which is proximal to the cardinal complex. In the left valve, there is an elongate anterior, bifid cardinal tooth, a posterior, laminate cardinal tooth and no true lateral teeth.

Occurrence: Representatives of this species are found in relatively small numbers in most OL and TD sediments and to a lesser extent, in some RL sediments.

Total number collected: 29.

Distribution: Bermuda, eastern Florida, south to the West Indies and Panama.

Tellina candeana d'Orbigny, 1842

References: Olsson and Harbison, 1953: 127-128, pl. 14:4; Abbott, 1958: 133-134, pl. 5: e, f; Warmke and Abbott, 1962: 193, pl. 40: j; Boss, 1968: 336-338, pl. 162: 2; Morris, 1973: 73, pl. 28: 13; Abbott, 1974: 503, no. 5698.

Description: The largest specimen found (length 11 mm, ht 7.5 mm) is elongate-subtrigonal and white. The blunt beak is opisthogyrous and placed posterior to the middle of the shell. The shell is marked with concentric growth striae and oblique fine striae. In the right valve, there is a slightly skewed, posterior, bifid cardinal tooth whose posterior lobe is larger, an anterior cardinal tooth, a strong, elongate, anterior lateral tooth which is proximal to the cardinal teeth and a smaller posterior lateral tooth which is distal to the cardinal teeth. In the left valve there is an elongate, anterior bifid cardinal tooth, a posterior laminate cardinal tooth and no true lateral teeth.

Occurrence: Representatives of this species are found in very small numbers in some OL and TD sediments.

Total number collected: 5.

Distribution: Bermuda, southern Florida, south to the West Indies.

Remarks: *T. candeana* may be separated from *T. similis* (above) by the difference in shape (subtrigonal versus subquadrate) and the presence of a posterior lateral tooth in the right valve of *T. candeana* (absent in *T. similis*).

Family SEMELIDAE Stoliczka, 1870
Genus CUMINGIA Sowerby, 1833

Cumingia tellinoides (Conrad, 1830)

References: Conrad, 1830b: 258, pl. 11: 2, 3, *Maetra tellinoides*; Dall, 1889a: 62, pl. 56: 14; Perry and Schwengel, 1955: 85-86, pl. 17: 107; Stanley, 1970: 177, pl. 31: 1-3; Andrews, 1971: 201-202; Morris, 1973: 85, pl. 29: 10; Abbott, 1974: 514, no. 5798.

Description: The largest specimen found (length 16 mm, ht. 9.5 mm) is elongate-trigonal. The thin white shell is marked with fine, slightly raised, concentric striae. The anterior margin is rounded and the posterior margin is slightly pointed. The beak is placed just posterior to the middle of the shell. In each valve, there is a large spoon-shaped resilifer (chondrophore) below the beak. In the right valve there is a small cardinal tooth anterior to the resilifer and strong anterior and posterior lateral teeth with associated sockets. In

the left valve there is a small, but distinct, cardinal tooth anterior to the resilifer and very weak lateral teeth.

Occurrence: Representatives of this species are found in relatively small numbers in most RL sediments and to a lesser extent, in some OL sediments. Single valves were taken from BLM sediments of Core 112 (depth 5 cm) and Inglés Lagoon sediment.

Total number collected: 89.

Distribution: Nova Scotia, south to Cuba, Texas.

Remarks: Specimens from Nichupte Lagoon are more rounded posteriorly than representatives of the subspecies *vanhyningi* Rehder (1939: 19-20, pl. 6: 13, 14).

Family SOLECURTIDAE d'Orbigny, 1846
Genus TAGELUS Gray, 1847

Tagelus divisus (Spengler, 1794)

References: Dall, 1889a: 58, pl. 56: 5; Abbott, 1954: 440-441, pl. 30: g; Perry and Schwengel, 1955: 87, pl. 17: 111; Warmke and Abbott, 1962: 202, pl. 42: 1; Stanley, 1970: 174-175, pl. 29: 7, 8; Andrews, 1971: 200, fig.; Morris, 1973: 83, pl. 31: 1; Abbott, 1974: 516, no. 5816.

Description: The largest specimen found (length 29 mm, ht 11 mm) is white with some light brown periostracum adhering to the anterior and posterior dorsal margins of the shell. The valve is worn but a lighter ray extends mid-shell, from the beak to the ventral margin. The shell is flattened, elongate-cylindrical and gaping both anteriorly and posteriorly. Each valve has 2 cardinal teeth (the anterior tooth is projecting) and no lateral teeth. The pallial line is well marked and has a deep sinus.

Occurrence: One valve was recovered from OL sediments of Core 24 (depth 240 cm).

Total number collected: 1.

Distribution: Massachusetts, south to Brazil.

Family CORBICULIDAE Gray, 1847
Genus POLYMESODA Rafinesque, 1820
Subgenus PSEUDOCYRENA Bourguignat, 1854

Polymesoda maritima (d'Orbigny, 1842)

References: Conrad, 1846: 23, pl. I: 1, *Cyrena floridana*, synonym; Abbott, 1954: 381, pl. 30: y; Perry and Schwengel, 1955: 59, pl. 9: 53; Andrews, 1971: 205, fig.; Morris, 1973: 40, pl. 19: 10; Abbott, 1974: 521, no. 5851.

Description: The largest specimen found (length 24 mm, ht 18.5 mm) is trigonal and inequilateral. The beak is anterior to the middle of the shell. The interior and exterior of the smooth shell are purple-brown with some concentric white bands. The right valve has 3 cardinal teeth, of which the anterior is simple and blade-like, the middle and posterior teeth are bifid; it also has strong, double anterior and posterior lateral teeth with associated sockets. The left valve has 3 cardinal teeth, of which the anterior and middle teeth are bifid and the posterior tooth is simple and blade-like; it also has strong, single anterior and posterior lateral teeth with sockets. The pallial sinus is very narrow and deep and situated near the posterior muscle scar.

Occurrence: Representatives of this species are found in large numbers in the BLM sediments of Cores

111 and 113. Four specimens were taken from sediments of Inglés Lagoon (Core 26, depth 70 cm).

Total number collected: 204.

Distribution: Florida and Texas.

Superfamily VENERACEA Rafinesque, 1815
Family VENERIDAE Rafinesque, 1815
Subfamily CHIONINAE Frizzell, 1936
Genus CHIONE Mühlfeld, 1811

Chione cancellata (Linnaeus, 1767)

References: Dall, 1890-1903: 1290-1291; Dall and Simpson, 1901: 483-484; Abbott, 1954: 407, pl. 39: h; Perry and Schwengel, 1955: 73, pl. 14: 86; Abbott, 1958: 129; Rice and Kornicker, 1962: 383, pl. 8: 4; Richards, 1962: 64, pl. 9: 2; Warmke and Abbott, 1962: 185, pl. 4: f, ei: o; Moore, 1969b: 686, pl. E150: 1; Moore and Lopez, 1959: 131-148; Stanley, 1970: 161, pl. 22: 3-5; Andrews, 1971: 210, fig.; Morris, 1973: 59-60, pl. 25: 2; Abbott, 1974: 523, pl. 23: 5865.

Description: The specimens are subtrigonal, solid and variable size (largest shell: length 24.5 mm, ht 19.5 mm). Juvenile shells are usually rounded-trigonal, whereas adults are subtrigonal with a slightly rostrate posterior margin. Most of the valves are cream-colored with a violet to brown interior. Some valves have a pink, orange or tan umbonal area. The beaks are placed anterior to the middle of the shell and point anteriorly, toward the compressed, heart-shaped brown lunule. The escutcheon is flat, long, smooth, V-shaped and marked with brown stripes. The largest shell has 7 stripes on the escutcheon. The exterior of the shell is marked with concentric, lamellar ridges (maximum number of ridges in shells from Nichupté Lagoon: 16) and moderately developed, regular radial ribs. Where the radial ribs cross the concentric ridges, crenulations are formed on the elevated, concentric, lamellar ridges. There are 3 cardinal teeth in each valve. The anterior tooth is short and high, the middle tooth is strong, triangular and sometimes grooved, and the posterior tooth is strong and elongate. The pallial sinus is short and angular. The inner margin of the valve is crenulate.

Occurrence: Representatives of this species are found in most RL sediments and to a lesser extent, in OL and TD sediments.

Total number collected: 301.

Distribution: North Carolina to Florida, Texas and the West Indies. Brazil.

Chione sp.

Description: Specimens resemble miniature representatives of *Chione cancellata*, both internally and externally. The largest shell (length 4 mm, ht 3.4 mm) is cream-colored with brown rays, rounded-trigonal and the beaks are slightly anterior to the middle of the shell. Sculpture consists of concentric ridges and radial threads. Although the radial threads are comparable, the concentric ridges are finer and more numerous than those observed for the typical shells of *C. cancellata*. The concentric ridges on the posterior slope are slightly lamellate. Where the radial threads cross the ridges, very fine crenulations are formed on the lower edge of each ridge. The pallial sinus is small. The inner ventral margin is crenulate.

Occurrence: Representatives of this species are

found primarily in TD and OL sediments and to a lesser extent, in RL sediments.

Total number collected: 58.

Remarks: Shells from Nichupté Lagoon may represent juvenile specimens of *C. intapurpurea* (Conrad, 1849) (Warmke and Abbott, 1962: 186, pl. 38: n; Andrews, 1971: 212, fig.; Abbott, 1974: 523, pl. 24: 5867) which has been reported from North Carolina to Texas, south to Brazil.

Genus ANOMALOCARDIA Schumacher, 1817

Anomalocardia auferiana (d'Orbigny, 1842)

References: Conrad, 1846: 24, pl. 1: 13, *Venus cuneimeris*, synonym; Dall, 1903: 359, 376; Abbott, 1954: 409, pl. 39: j; Perry and Schwengel, 1955: 75, pl. 14: 91; Stanley, 1970: 163, pl. 21: 8, 9; Andrews, 1971: 209-210, fig.; Morris, 1973: 62, pl. 24: 1; Abbott, 1974: 525, no. 5887.

Description: The shell is trigonal and extended posteriorly. Size appears to be environmentally diagnostic: the largest shell from lagoonal sediments (length 12 mm, ht 8.5 mm) is larger than the largest shell from more brackish conditions (length 5.2 mm, ht 3.8 mm). The shell color varies from cream-colored to tan with brown rays. The interior of the shell is marked with small, but distinct, rounded, concentric ridges. The lunule is impressed, whereas the escutcheon is wide, elongate, depressed and devoid of ridges. There are 3 cardinal teeth in either valve. The pallial sinus is small. The interior margin is crenulate.

Occurrence: Representatives of this species are found in very large numbers in Inglés Lagoon and most BLM sediments and to a lesser extent in some RL sediments.

Total number collected: 1,211.

Distribution: Southern Florida, Texas, the West Indies, south to Central America.

Subfamily MERETRICINAE Gray, 1847

Genus TRANSENELLA Dall, 1883

Transennella cubaniana (d'Orbigny, 1845)

References: Dall and Simpson, 1901: 486, *Meretrix cubaniana*; Dall, 1903: 367; Perry and Schwengel, 1955: 71, pl. 13: 79; Warmke and Abbott, 1962: 187, pl. 39: d; Abbott, 1974: 529, no. 5920.

Description: The small, rounded trigonal shell (length 6.4 mm, ht 5.3 mm) is white and some shells have pink or orange beak areas. The beaks are high and slightly turned forward over the well defined lunule. The exterior of the shell is marked with fine, concentric ridges. There are 3 cardinal teeth in either valve. In the right valve, the 2 anterior cardinal teeth are blade-like and close together and larger. The right valve has 2 anterior lateral teeth and a posterior groove. The dorsal anterior lateral tooth is short and high and the ventral anterior lateral tooth is thick and elongate. In the left valve, the cardinal teeth are blade-like and the middle tooth is stronger and triangular. The anterior lateral tooth is high, with a dorsal groove and a weak posterior lateral tooth. The inner margin of both valves is tangentially grooved.

Occurrence: Representatives of this species are found in relatively large numbers in most TD sediments and to a lesser extent in OL sediments near

the tidal channel which allows the influx of more normal marine waters into the lagoon.

Total number collected: 249.

Distribution: Southern Florida to the West Indies.

Subfamily PITARINAE Stewart, 1930
Genus PITAR Römer, 1857

Pitar fulminata (Menke, 1828)

References: Dall, 1890-1903: 1264-1266, generic description and history; Dall, 1903: 353-354; Abbott, 1954: 414, pl. 39: d; Abbott, 1958: 131, pl. 4: 4, f; Abbott, 1974: 530, pl. 24: 5930.

Description: The cream-colored shell with light brown zigzag markings is small (length 10.5 mm, ht 8.7 mm), rounded-trigonal and nearly equilateral. The shell is smooth with fine, irregular concentric striae. Each valve has 3 cardinal teeth. The anterior cardinal tooth is small and curved, the middle cardinal tooth is triangular and straight and the posterior cardinal tooth is elongate, narrow, larger and grooved. In each valve are 2 anterior lateral teeth and a posterior lateral tooth. The dorsal anterior lateral tooth is short and high and the ventral anterior lateral tooth is elongate. In the left valve, the narrow anterior cardinal tooth is joined dorsally to the larger, wedge-shaped, median cardinal tooth. The posterior cardinal tooth is elongate and grooved. The anterior lateral tooth is short and weak and the hinge bears a posterior lateral groove. A dorsal posterior marginal groove is in the right valve and a dorsal, anterior marginal groove in the left valve. The interior ventral margins are smooth. The pallial sinus is deep and extends nearly to the middle of the valve.

Occurrence: Representatives of this species are found in relatively small numbers in TD and most OL sediments and to a far lesser extent in some RL sediments near the tidal channel.

Total number collected: 22.

Distribution: Bermuda, North Carolina, south to Florida and the West Indies, Brazil.

Subfamily GEMMINAE Dall, 1902
Genus GEMMA Deshayes, 1853

Gemma gemma (Totten, 1834)

References: Dall, 1890-1903: 1329-1332, pl. 24: 1-4; Dall, 1903: 365; Abbott, 1954: 418-419, pl. 38: k, text fig. 84; Sellmer, 1967: 137-223, 51 figs.; Moore, 1969b: 681, pl. E147: 6; Shulenberger, 1970: 163-170, 6 figs.; Narchi, 1971: 866-885, fig. 2; Morris, 1973: 67, pl. 24: 11; Abbott, 1974: 534, no. 5967.

Description: The small, white (commonly purplish) shell (length 1.6 mm, ht 1.7 mm) is rounded trigonal and subequilateral. The glossy shell is marked with numerous, fine, concentric lines. The shell has no escutcheon but has an external ligament and a large lunule. The right valve has 3 divergent cardinal teeth (the central tooth is large and triangular), an elongate anterior lateral tooth and a posterior lateral groove. The left valve has 3 divergent, laminate cardinal teeth, an elongate posterior tooth and an anterior lateral groove; Moore (1969b: 681) does not regard the laterals as true lateral teeth. The pallial sinus is small, but distinct. The inner ventral margin is crenulate.

Occurrence: Representatives of this species are found locally in large numbers in some Inglés Lagoon, BLM, RL sediments and to a lesser extent in OL and TD sediments.

Total number collected: 1,041.

Distribution: Nova Scotia, south to the West Indies.

Remarks: Identification of the specimens was verified by Dr. D. R. Moore (personal communication, 1974). Dall (1890-1903: 1331-1332) discusses the species *G. gemma* and the variety *purpurea* (Lea, 1842). The specimens from Nichupté Lagoon are too small to make the distinction between the species and its variety without verified comparative material.

Genus PARASTARTE Conrad, 1862

Parastarte triquetra (Conrad, 1846)

References: Conrad, 1846: 24, pl. I: 6; *Astarte triquetra*; Dall, 1883: 339-340, pl. 10: 1-3; Dall, 1889a: 48, pl. 49: 6-8; Dall, 1890-1903: 1333; Dall, 1903: 365; Abbott, 1954: 419, text fig. 85; Perry and Schwengel, 1955: 75, pl. 14: 92; Warmke and Abbott, 1962: 190, pl. 39: 1; Moore, 1969b: 681, pl. E147: 1; Morris, 1973: 67, pl. 24: 8; Abbott, 1974: 534, no. 5969.

Description: The small, white, rarely brown, shell (length 2.3 mm, diam. 0.6 mm) is trigonal and equilateral. The shell is smooth, except for occasional growth striae. The shell has a short external ligament, a large lunule and no escutcheon. The right valve has a strong central cardinal tooth, with 2 smaller cardinal teeth flanking it. The left valve has 2 strong, diverging cardinal teeth. The dorsal margins are more feebly grooved than in specimens of *G. gemma*. The pallial line is sharply flexed but there is no true sinus. The inner, ventral margin is crenulate.

Occurrence: Representatives of this species were found in relatively large numbers in the BLM sediment of Core 113 (depth 85-105 cm) and to a lesser extent in some RL sediments of Core 111.

Total number collected: 79.

Distribution: Florida, south to the West Indies.

Remarks: Specimens of *P. triquetra* were separated from specimens of *G. gemma* by their different overall shape and lack of pallial sinus. Also, cardinal teeth of shells of *G. gemma* are more curved, while those in shells of *P. triquetra* are straight.

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APPENDIX A

Sample	Split	Weight g	Sample Depth cm	Sample	Split	Weight g	Sample Depth cm
111-0	1/2	13.1	15	17-0	1	44.0	15
111-1	1/2	13.0	30	17-1	1/2	15.1	30
111-2	1	11.8	80	17-2	1/2	19.0	55
111-3	1	18.2	105	17-3	1/2	14.4	90
111-4	1/2	19.0	130	17-4	1	24.0	115
111-5	1	46.2	155	17-5	1	45.8	140
111-6	1/2	21.4	180	17-6	1	32.7	170
111-7	1/2	18.2	205	17-7	1	39.0	190
111-8	1/2	16.6	230	17-8	1	51.2	220
111-9	1/2	19.0	255	17-9	1	54.4	260
111-10	1/2	14.1	280	17-10	1	29.4	280
112-0	1	15.4	5	30-0	1	16.3	5
112-1	1	14.7	30	30-1	1	19.0	30
112-2	1	12.8	40	30-2	1	14.1	40
112-3	1	5.8	75	30-3	1	17.0	60
112-4	1	6.8	100	30-4	1	20.4	70
112-5	1	20.0	120	23-0	1/2	29.0	10
112-6	1	6.3	140	23-1	1	35.5	30
113-0	1	17.5	10	23-2	1/2	35.3	55
113-1	1	25.2	55	23-3	1/2	28.5	90
113-2	1	22.6	85	23-4	1/2	34.8	120
113-3	1	24.3	105	23-5	1	67.9	150
113-4	1	17.0	130	24-0	1/2	16.8	5
113-5	1	10.9	155	24-1	1/2	23.3	35
113-6	1	10.0	170	24-2	1/2	22.1	125
26-0	1/2	24.6	5	24-3	1	55.5	185
26-1	1/4	12.1	10	24-4	1/2	25.6	240
26-2	1/2	22.7	30	24-5	1	46.8	260
26-3	1/4	15.5	40	32-0	1/4	16.5	5
26-4	1/2	14.5	70	32-1	1/4	13.0	20
18-0	1	100.0	10	32-2	1	84.3	65
18-1	1/4	25.5	190	32-3	1/4	17.5	100
18-2	1/4	27.8	280	32-4	1	54.5	125
				32-5	1/2	37.3	160
				32-6	1/4	23.5	190

Table 5. Sample Data.

TABLE 6

	26				111 (upper)		112 (upper)					113						
	0	1	2	3	0	1	0	1	2	3	4	0	1	2	3	4	5	6
	<i>Acteocina canaliculata</i>	18	13	23	17	-	-	-	-	-	-	-	-	1	3	20	-	-
<i>Alvania suberiana</i>	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Anomalocardia suberiana</i>	673	151	133	119	-	2	-	5	-	-	-	-	38	15	13	-	-	-
<i>Anomia simplex</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Assiminea succinea</i>	2	2	2	3	-	-	12	8	5	48	-	22	16	1	7	8	5	-
<i>Blaugastrea havanensis</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Blaugastrea heteroclitia</i>	-	-	-	-	-	-	9	2	11	2	-	-	-	-	-	-	-	-
<i>Brachidontes exustus</i>	86	79	83	6	1	-	3	1	-	-	-	-	-	-	-	-	-	-
<i>Bulla striata</i>	3	1	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Bullacea</i> spp. (juveniles)	13 [†]	1 [†]	3 [†]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cerithidea costata</i>	72	4	4	24	45	47	7	2	2	14	-	-	154	42	121	4	-	-
<i>Crepidula</i> spp. (juveniles)	-	-	3 [†]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cumingia tellinoidea</i>	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Cyrenoida floridana</i>	-	-	-	-	1	-	1	-	-	1	-	7	2	-	3	1	-	1
<i>Detracia bullaoides</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
<i>Diatoma varium</i>	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ferrissia</i> cf. <i>excentrica</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
<i>Finella dubia</i>	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Gastrocopta pellucida</i>	-	-	-	-	-	-	6	4	-	-	-	1	-	-	-	-	-	-
<i>Gemma gemma</i>	15	7	21	91	-	-	-	-	-	-	-	-	1	8	43	-	-	-
<i>Henrya goldmani</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-
<i>Levicardium mortoni</i>	70	21	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lacellaxia micra</i>	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Lucina pectinata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 ^a	-	-	-
<i>Marginella apicina</i>	-	-	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Marginella</i> spp. (juveniles)	1 [†]	2 [†]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Marinula succinea</i>	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
<i>Meloceras nitidum</i>	4	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
<i>Melampus coffeus</i>	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
<i>Melampus hispidus</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Neritina virginica</i>	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
<i>Oboloma laevigata</i>	2	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Parastarte triquetra</i>	-	-	-	-	-	-	-	-	-	-	-	-	54	9	-	-	-	-
<i>Physa sarsaparilla</i>	-	-	-	-	-	-	-	-	-	-	-	11	1	-	-	-	-	-
<i>Polygyra carpenteriana</i>	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
<i>Polyneoda maritima</i>	-	-	-	4	67	23	-	-	-	-	-	-	87	6	17	-	-	-
<i>Pyrgophorus coronatus</i>	-	-	-	-	1	-	6	5	12	13	-	182	143	69	232	77	15	63
<i>Sayella</i> cf. <i>croceana</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Succinea</i> sp. 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Succinea</i> sp. 2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Tellina nera</i>	13	1	1	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-
<i>Thyasophora</i> cf. <i>conspurcatella</i>	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-
<i>Tricolia affinis</i>	-	-	-	-	-	-	1*	-	-	-	-	-	-	-	-	-	-	-
<i>Truncatella barbadosis</i>	-	-	-	-	-	-	6	1	-	-	-	-	-	-	-	-	-	-
<i>Truncatella caribaeensis</i>	-	-	-	-	-	-	1	1	3	-	-	-	-	-	-	-	-	-
<i>Truncatella pulchella</i>	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-
<i>Truncatella form bilabiata</i>	-	-	-	-	-	-	8	1	-	-	-	-	-	-	-	-	-	-
<i>Truncatella scalaris clathrus</i>	-	-	-	-	-	-	4	2	5	1	-	-	-	-	-	-	-	-

* = fragmental or abraded specimens.

† = juvenile specimens.

Table 6. Sample by sample species distribution in Inglés Lagoon (Core 26) and the Back-Lagoon Marsh.

TABLE 7

	112		111								17											
	(lower)		(lower)																			
	5	6	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
Acanthochitona cf. pygmaea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Acmaea pulcherrima	-	-	-	1	1	-	3	2	4	1	2	-	-	-	2	1	6	-	2	3	3	3
Acteocina candei	29	19	-	-	1	-	-	-	-	1	3	-	-	-	-	8	1	1	-	-	-	-
Alvania suberiana	-	-	-	-	-	-	-	1	-	-	4	-	-	1	-	-	-	-	-	-	1	-
Americardia guppyi	-	-	-	1	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Amphithalamus cf. valloii	-	-	-	-	4	-	12	9	3	6	11	10	9	27	62	38	12	2	-	-	-	-
Anachis sparsa	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-
Anomalocardia suberiana	41	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anomia simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Assiminea succinea	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Astraea americana	-	-	-	-	-	-	-	-	4	-	-	-	-	-	1	2	-	-	-	-	-	-
Astraea phoebia	-	-	-	-	-	-	-	-	-	-	1*	-	-	-	-	-	-	-	-	-	-	-
Atys cf. riiacana	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	1	3	4	1	-
Barlecia sp.	-	-	1	-	10	-	11	2	4	6	2	6	-	1	3	9	10	2	3	-	-	1
Brachidontes exustus	12	6	2	-	2	-	-	-	-	-	-	78	32	66	3	-	3	1	-	-	-	-
Bulla striata	-	5	-	-	1	-	-	-	-	-	2	-	-	1	2	-	-	1	-	-	-	-
Euliacea spp. (juveniles)	39#	15#	-	-	8#	-	-	-	-	-	4#	-	-	-	1#	1#	-	2#	2#	-	5#	
Carditamera floridana	-	-	3	-	9	-	4	-	-	-	19	14	5	1	-	6	-	-	1	1	1	-
Carditopsis smithii	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Cerithiopsis greenii	-	-	-	-	-	-	-	-	2	-	5	-	-	1	-	-	-	-	-	-	-	-
Cerithiopsis sp. 1	-	-	-	2	-	-	-	-	-	-	7	3	4	2	4	1	-	-	-	-	-	-
Cerithiopsis sp. 2	-	-	-	-	-	-	1	-	-	-	3	-	1	-	-	-	-	-	-	-	-	-
Cerithium algicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Cerithium elburneum	-	1	1	-	10	-	5	-	-	2	18	5	2	3	-	5	-	1	-	-	-	-
Cerithium litteratum	-	-	-	6#	12#	2	-	-	1	10	-	-	-	-	-	2	-	-	-	-	-	-
Cerithium lutosum	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	3	-
Cerithium muscorum	-	-	-	2	1	-	-	-	-	-	14	-	1	-	4	-	-	-	-	-	-	-
Cerithium spp. (juveniles)	8#	-	-	12#	2#	5#	-	1#	4#	-	24#	6#	9#	-	3#	-	1#	-	-	-	2#	-
Chione cancellata	-	-	4	-	16	5	1	-	2	1	20	26	21	5	2	26	3	1	-	-	-	-
Chione sp.	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Codakia orbiculata	-	-	-	-	2	-	-	-	1	2	-	-	1	-	-	-	-	-	-	-	-	-
Columbella mercatoria	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	2	-	-
Conus stearnsi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cosmioconcha nitens	-	-	-	1	-	1	1	-	-	-	2	4	2	4	1	3	2	-	1	1	2	-
Craspedochiton cf. hemphilli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Crassispira leucocyma	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crepidula convexa	2	2	-	-	-	-	-	-	-	1	1	3	6	-	-	-	-	-	-	-	1	-
Crepidula plana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Crepidula spp. (juveniles)	22#	19#	-	2#	17#	3#	1#	-	-	1#	27#	5#	8#	-	-	-	1#	5#	3#	4#	-	-
Cuminzia tellinoides	-	-	-	-	-	1	1	-	1	2	11	1	4	1	-	6	2	1	2	1	-	-
Cylichna sp.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Diastoma varius	-	-	-	1	-	-	-	-	-	-	61	5	20	2	2	13	1	-	-	-	-	-
Diastoma sp.	-	-	-	-	-	-	-	-	-	-	27	2	20	-	-	-	-	-	-	-	-	-
Diodora cayenensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1*	-	-	-	-	-	-	-
Epitonium achinaticostum	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Finella dubia	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

	112		111								17												
	(lower)		(lower)																				
	5	6	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10	
<i>Gemma parva</i>	531	213	3	-	32	1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Granulina ovuliformis</i>	-	-	-	-	1	-	-	-	-	-	-	2	-	1	-	-	-	-	-	1	1	-	-
<i>Heminoe elegans</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1
<i>Henrya goldmani</i>	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Hyalina albolineata</i>	-	-	-	-	-	-	1	1	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-
<i>Hyalina pallida</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-	-
<i>Ischnochiton cf. papilloeus</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Laevicardium mortoni</i>	4	2	-	-	-	-	-	-	-	-	-	3	3	4	-	-	-	-	-	-	-	-	-
<i>Linga pensylvanica</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Lucina nasula</i>	-	-	-	-	3	-	2	3	1	1	2	4	2	3	3	-	3	-	-	-	-	-	-
<i>Lucina cf. radians</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Manzella biconica</i>	-	-	-	-	1	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Marginella apicina</i>	-	-	1	-	2	-	2 ^b	-	-	-	-	5	1	2	-	-	1	-	-	-	-	-	-
<i>Marginella eburneola</i>	-	-	-	-	-	-	-	-	-	1	2	4	-	-	-	-	1	1	-	-	-	-	-
<i>Marginella labiata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
<i>Marginella lavalleana</i>	1	1	-	1	12	2	7	-	2	-	-	2	7	3	1	-	-	-	-	2	-	-	1
<i>Marginella roosevelti</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-
<i>Marginella</i> spp. (juveniles)	5 ^b	5 ^b	-	-	19 ^b	-	-	1 ^b	2 ^b	-	-	11 ^b	-	-	1 ^b	1 ^b	-	-	2 ^b	-	-	-	-
<i>Marginellopsis serrei</i>	-	-	-	2	10	-	-	-	-	1	1	1	1	1	1	1	2	1	-	-	1	1	-
<i>Meloceras cornucopias</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2
<i>Meloceras nitidum</i>	2	8	-	1	16	-	-	-	-	1	150	52	45	13	12	95	4	2	11	1	-	-	-
<i>Melanella</i> sp.	-	-	-	-	-	-	-	-	-	14	1	-	-	-	1	1	-	-	-	-	-	-	-
<i>Mitrella argus</i>	-	-	-	-	-	3	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
<i>Mitrella nycetis</i>	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	-	-	-	1	1	-	-	1
<i>Modiolus nodulus</i>	4	4	1	1	31	3	4	3	-	1	2	61	9	10	1	5	11	1	5	-	-	1	-
<i>Musculus lateralis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<i>Myrella</i> sp. 1	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	1	-
<i>Myrella</i> sp. 2	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Myrella</i> sp. 3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Nassarius albus</i>	-	-	-	-	3	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Neritina virginea</i>	-	-	1 ^b	-	1 ^b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Nucula</i> sp.	-	-	-	-	-	2	-	-	-	3	5	-	-	-	-	-	3	-	-	-	-	-	-
<i>Ostomia impressa</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
<i>Ostomia laevigata</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
<i>Ostomia</i> sp.	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	1	-	1	-	-	-	-
<i>Olivella dualbata</i>	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	1	2	1	4	-	-
<i>Parastarte triquetra</i>	-	-	7	-	1	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Parvilucina multilineata</i>	-	-	-	-	-	-	-	-	-	-	-	13	1	1	-	-	-	-	-	-	-	-	-
<i>Perrinitula fluctuata</i>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
<i>Pinctada labricata</i>	-	-	-	-	-	2	-	1	1	-	12	1	5	2	-	9	-	-	-	-	-	2	1
<i>Pitar fulminata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
<i>Pyrgocythara</i> sp.	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Rissoella caribaea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Rissoina bryerea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Rissoina cancellata</i>	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Rissoina multicostrata</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Rissoina striosa</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Sayella cf. croceana</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Smaragdia viridensario</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	112		111								17												
	(lower)		(lower)																				
	5	6	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10	
<i>Tegula fasciata</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-
<i>Tellina condeana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Tellina nera</i>	2	2	1	1	9	-	4	-	-	-	1	3	5	3	1	2	13	3	4	5	4	-	-
<i>Tellina similis</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	4	-	-	-	-	-	-
<i>Thala foveata</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	-	-	1	-
<i>Tricolia affinis</i>	-	-	-	-	2	-	12	3	5	10	6	13	4	3	6	9	10	1	-	-	-	-	-
<i>Tricolia bella</i>	-	-	-	-	4	-	9	-	1	6	4	-	-	-	-	2	-	-	-	-	-	-	-
<i>Triphora nigrocincta</i>	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-
<i>Triphora sp.</i>	3	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Turbonilla bermudensis</i>	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	2	-	-	-	-	-	-
<i>Turbonilla heilprini</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
<i>Turbonilla unilirata</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Turbonilla sp.</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
<i>Vermicularia spirata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-
<i>Vexillum albocinctum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Vexillum hanleyi</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Vitrinella helicoidea</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Zebina browniana</i>	-	-	-	-	3	-	10	1	4	8	3	10	6	6	1	3	12	7	5	2	-	-	3
Miscellanecus gastropods	-	-	-	-	-	-	5 [♂]	-	1 [♂]	2 [♂]	2 [♂]	2 [♂]	1 [♂]	3 [♂]	5 [♂]	2 [♂]	2 [♂]	8 [♂]	5 [♂]	1 [♂]	3 [♂]	-	
Miscellanecus bivalves	-	-	-	-	-	-	2 [♂]	-	1 [♂]	-	-	3 [♂]	2 [♂]	5 [♂]	1 [♂]	1 [♂]	5 [♂]	4 [♂]	2 [♂]	2 [♂]	2 [♂]	1 [♂]	

* = fragmental or abraded specimens.

♂ = juvenile specimens.

Table 7. Sample by sample species distribution in Cores 112 (lower), 111 (lower), 17.

TABLE 8

	18			30					23					24					32									
	0	1	2	0	1	2	3	4	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	6	
<i>Acanthochitona</i> cf. <i>pygmaea</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Acteocina pulcherrima</i>	-	7	6	14	15	26	8	27	10	-	1	3	-	-	1	28	2	9	9	14	4	-	1	1	1	-	-	-
<i>Acteocina candel</i>	2	8	1	34	3	5	5	5	2	10	4	4	8	13	-	1	-	-	4	3	3	1	5	19	4	1	9	
<i>Alaba incerta</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	1	1	2	
<i>Alvania auberiana</i>	3	-	2	23	4	-	4	8	2	-	3	5	2	5	-	4	-	2	1	3	-	1	1	1	-	1	4	
<i>Americardia guppyi</i>	-	1	2	-	-	1	-	-	2	-	1	2	5	13	-	-	2	1	-	1	-	1	2	4	1	2	2	
<i>Amphithalamus</i> cf. <i>valliei</i>	9	27	1	4	2	3	2	35	16	-	3	-	-	-	-	9	5	-	5	1	-	1	-	1	1	-	-	
<i>Aradus sparsa</i>	3	1	-	-	-	-	-	-	1	2	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	1	
<i>Anomalocardia auberiana</i>	2	1	-	2	-	-	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Aradia simplex</i>	-	-	10	10	10	-	-	-	-	1	10	10	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	
<i>Anticlinax pilobryi</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	
<i>Anticlinax</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Astraea americana</i>	5	6	3	2	-	-	1	5	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
<i>Astraea phodlia</i>	-	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Alys cf. rissana</i>	-	-	3	-	-	1	-	-	1	-	-	-	-	1	-	1	1	1	2	-	-	-	-	-	-	1	1	
<i>Barbatia cancellaria</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	2	-	-	1	-	-	-	-	1	
<i>Barbatia</i> cf. <i>domingensis</i>	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	1	-	-	-	-	-	
<i>Bariceia</i> sp.	31	16	-	25	11	15	2	5	-	-	3	2	-	-	10	152	-	3	-	1	-	-	-	-	-	-	-	
<i>Brachidontes exustus</i>	133	-	-	96	3	4	-	3	47	285	9	4	3	4	13	49	-	-	1	-	-	-	1	3	-	-	-	
<i>Bulla striata</i>	2	2	2	5	-	-	-	-	1	3	-	1	-	-	4	2	-	1	-	2	-	-	-	1	-	-	-	
<i>Bullacea</i> spp. (juveniles)	3	2	7	30	1	7	-	-	9	23	-	-	2	8	6	4	-	-	-	-	2	-	-	2	-	-	1	
<i>Cadulus carolinensis</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	
<i>Caecum floridanum</i>	-	1	-	1	-	1	-	-	1	-	2	3	3	7	-	1	-	-	-	-	2	-	1	3	-	-	-	
<i>Caecum imbricatum</i>	-	-	-	1	1	-	2	5	-	-	4	5	3	16	-	2	-	1	1	-	5	3	8	7	5	4	6	
<i>Caecum pulchellum</i>	-	-	-	4	-	7	3	3	4	-	2	5	4	17	1	4	-	-	-	-	-	-	1	-	-	-	-	
<i>Carditamera floridana</i>	3	1	-	2	-	-	-	-	4	1	1	1	2	-	-	-	-	3	-	-	-	-	-	-	-	-	-	
<i>Carditopsis smithii</i>	-	-	-	3	-	-	1	-	2	-	-	-	-	-	-	-	4	3	1	1	-	-	2	3	-	-	-	
<i>Cassidina luteirostris</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
<i>Cerithiopsis greeni</i>	1	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Cerithiopsis</i> sp. 1	2	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	
<i>Cerithiopsis</i> sp. 2	2	2	-	2	1	-	-	-	-	-	-	-	-	-	-	5	-	1	-	1	-	-	-	-	-	-	-	
<i>Cerithiopsis</i> sp. 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	
<i>Cerithium algicola</i>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1	
<i>Cerithium obsoletum</i>	5	5	2	24	1	11	1	8	5	29	5	4	3	-	6	7	2	-	-	12	1	-	1	1	-	-	-	
<i>Cerithium litteratum</i>	-	2	2	-	1	-	-	2	3	-	3	10	5	-	-	-	1	1	3	1	5	4	-	1	6	2	5	
<i>Cerithium lutesum</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1	3	1	1	1	4	
<i>Cerithium muscarum</i>	4	-	-	5	-	-	-	-	2	2	1	-	-	-	10	1	-	-	-	-	-	-	-	-	-	-	-	
<i>Cerithium</i> spp. (juveniles)	3	8	5	48	-	-	-	-	37	116	-	-	-	-	6	5	12	4	16	8	2	6	1	2	5	-	8	
<i>Chione cancellata</i>	7	7	3	15	3	2	-	4	9	2	11	19	6	8	-	15	1	4	3	8	8	6	4	7	4	-	12	
<i>Chione</i> sp.	-	-	-	-	-	-	-	-	3	-	-	-	1	4	-	-	3	7	8	10	-	-	3	6	5	4	2	
<i>Codakia orbiculata</i>	2	-	-	4	2	4	3	2	2	2	-	-	1	-	-	1	-	3	5	1	-	1	-	3	2	-	3	
<i>Columbella mercatoria</i>	4	1	-	-	-	1	-	1	2	-	-	-	-	2	-	-	-	-	1	2	-	-	-	-	1	-	-	
<i>Conus stearnii</i>	1	1	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-	1	1	-	-	-	-	
<i>Cosmioconcha nitens</i>	-	4	3	1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	
<i>Crassineila lunulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	
<i>Crassispira fuscescens</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Crassispira leucocyma</i>	2	1	-	-	-	-	-	-	-	-	-	-	-	-	4	3	-	-	-	1	1	-	-	-	1	-	-	
<i>Cranolia divaricata</i>	-	-	-	1	-	2	-	-	4	-	5	4	8	7	-	-	1	3	1	4	4	5	7	4	8	4	22	

	18			30					23					24					32									
	0	1	2	0	1	2	3	4	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	6	
<i>Crepidula convexa</i>	7	-	1	3	-	-	-	-	8	-	-	-	-	-	2	3	-	-	1	-	-	-	-	-	-	-		
<i>Crepidula plana</i>	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	2	2	7	7	10	-	-	-	2	-	1	1	
<i>Crepidula</i> spp. (juveniles)	11#	1#	1#	4#	2#	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2#		
<i>Crescia</i> sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-		
<i>Crucibulum striatum</i>	-	-	-	-	-	-	-	1	4	4	1	3	-	-	7	4	-	2	1	1	-	-	-	-	-	-		
<i>Cumingia tellinoides</i>	13	2	6	3	-	1	-	1	4	4	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Cyllicina</i> sp.	-	-	-	5	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-		
<i>Dentalium antillarum</i>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-		
<i>Diatoma varium</i>	151	10	-	63	3	2	-	-	17	186	6	3	1	2	55	35	-	-	-	-	1	-	-	7	2	2	3	
<i>Diodora dysoni</i>	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	
<i>Diplodonta nucleiformis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	4	-	1	-	
<i>Divaricella quadrisulcata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	
<i>Emarginula pumila</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	
<i>Eplonium echinaticostum</i>	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	2	3	2	3	3	
<i>Ervilia concentrica</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	2	-	1	-	3	3	4	1	4	
<i>Ervilia nitens</i>	-	-	-	-	-	-	1	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	1	2	-	-	1	
<i>Erycina</i> cf. <i>fernandina</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	1	
<i>Finella dubia</i>	-	-	-	1	3	-	-	-	-	-	-	-	-	-	21	4	-	-	-	1	3	1	6	7	2	1	3	
<i>Gemma gemma</i>	-	-	-	-	2	-	-	-	3	-	1	2	-	2	21	4	-	-	-	-	1	-	-	-	-	-	-	
<i>Granulina ovaliformis</i>	1	1	1	4	4	-	1	-	-	3	-	-	-	-	2	7	-	-	-	1	-	-	-	-	-	-	-	
<i>Haminoea elegans</i>	-	1	-	1	-	-	-	-	1*	-	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Henrya polidmani</i>	7	-	-	2	-	1	-	-	2	-	-	2	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	
<i>Hyalina albolineata</i>	1	3	-	2	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
<i>Hyalina arena</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	
<i>Hyalina pallida</i>	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	
<i>Ischnochiton</i> cf. <i>papillosus</i>	24	-	-	16	1	-	-	-	14	17	-	-	-	-	2	6	-	-	-	-	-	-	-	-	-	-	-	
<i>Levinscardium mortoni</i>	6	-	-	15	-	-	-	2	4	3	1	2	2	2	4	2	-	1	-	-	-	-	-	-	-	-	-	
<i>Lima pellucida</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	
<i>Limatula</i> cf. <i>hendersoni</i>	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2	3	2	1	4	
<i>Linga pennsylvanica</i>	-	-	-	-	1	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	1	1	-	-	-	
<i>Littorpa melanostoma</i>	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	
<i>Lucina nassula</i>	3	2	4	2	3	2	1	3	2	-	3	2	-	-	-	-	3	5	6	7	-	-	-	-	-	-	-	
<i>Lucina pectinata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	-	-	-	
<i>Lucina</i> cf. <i>radiana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	
<i>Lyropecten antillarum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	1	-	1	1	1	-	
<i>Mangelia bartlettii</i>	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Mangelia biconica</i>	-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	4	-	-	-	-	-	-	-	-	-	-	-	
<i>Marginella apicina</i>	3	1	-	3	-	-	-	-	-	-	4	-	-	-	6	7	-	-	1	-	-	-	-	-	-	-	-	
<i>Marginella eburneola</i>	1	-	-	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Marginella labiata</i>	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Marginella lavalleana</i>	5	-	3	2	1	-	-	1	3	1	1	1	3	5	4	-	-	-	-	2	10	2	1	2	6	-	2	6
<i>Marginella roosevelti</i>	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
<i>Marginella</i> spp. (juveniles)	7#	-	1#	2#	-	2#	-	1#	11#	10#	-	-	-	-	8#	1#	-	1#	-	-	-	-	-	1#	-	-	-	
<i>Marginella</i> sp. (<i>screei</i>)	2	6	1	3	2	4	1	5	3	-	2	1	2	-	3	4	2	8	11	18	5	3	4	2	-	1	1	
<i>Meloceras cornucopias</i>	-	5	4	3	4	5	2	1	5	4	1	-	1	3	5	-	-	-	1	2	4	2	2	2	-	-	2	
<i>Meloceras nitidum</i>	104	33	15	580	209	128	83	85	63	592	70	53	30	39	520	329	1	3	-	3	-	-	-	-	-	-	-	
<i>Melanella</i> sp.	-	3	1	-	-	-	-	2	1	-	1	1	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	
<i>Melongena bispinosa</i>	1#	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Mitrella argus</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Mitrella bycteis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	

	18			30					23						24					32							
	0	1	2	0	1	2	3	4	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5	6
<i>Modiolus squamosus</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Modiolus modiolus</i>	46	18	4	38	1	8	1	10	37	12	4	2	3	3	34	46	4	3	8	2	3	3	2	1	1	-	1
<i>Musculus lateralis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
<i>Myella</i> sp. 1	-	-	1	11	1	3	-	-	-	-	3	2	-	-	1	2	-	2	-	-	-	-	1	-	-	-	-
<i>Myella</i> sp. 2	15	-	-	2	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
<i>Nassarius albus</i>	-	2	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	-	1	1	-	-	-	-
<i>Nedrillia cydia</i>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Nucula</i> sp.	4	-	2	3	-	4	2	1	-	-	3	2	-	1	-	-	4	1	2	11	1	2	2	2	1	1	1
<i>Ostomia impressa</i>	5	-	-	-	-	-	-	-	1	25	-	-	-	-	5	-	-	1	-	-	-	-	-	-	-	-	-
<i>Ostomia laevigata</i>	-	2	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	-	-	-
<i>Ostomia</i> sp.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Olivella dealbata</i>	-	5	-	-	-	1	1	1	2	-	3	1	-	7	-	-	-	-	-	-	8	1	2	-	4	4	70
<i>Olivella minuta</i>	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	1	1	-
<i>Pachystremieus ornatus</i>	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pachystremieus pulchellus</i>	-	-	-	-	-	-	-	-	8	-	10	7	3	10	-	-	-	1	2	-	-	2	-	1	-	-	-
<i>Parvilucina blanda</i>	-	-	-	-	-	-	-	-	2	-	1	1	2	4	-	-	1	1	-	-	-	1	4	3	3	2	6
<i>Parvilucina multilineata</i>	-	-	-	2	-	3	-	2	-	-	6	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
<i>Parviturbo</i> cf. <i>reideri</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
<i>Peristoma fluctuata</i>	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pinctada imbricata</i>	11	3	2	2	1	2	1	-	7	3	4	4	-	-	2	3	-	-	-	-	-	-	-	1	-	-	-
<i>Pitar fulminata</i>	-	2	1	-	2	-	-	-	2	-	-	1	2	2	1	-	1	1	-	-	-	-	-	3	3	-	-
<i>Pleuromeris tridentata</i>	-	-	-	1	-	-	-	-	1	-	4	3	5	2	-	-	4	2	2	2	9	4	12	15	9	7	21
<i>Pyramidella crenulata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Pyramidella</i> sp.	-	-	-	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pyrgocythara</i> sp.	-	1	-	2	1	-	-	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-
<i>Rissoella caribaea</i>	-	-	-	-	-	-	-	4	2	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-
<i>Rissoina bryerea</i>	2	-	-	3	-	-	2	2	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
<i>Rissoina cancellata</i>	-	-	-	1	-	-	-	1	1	-	-	1	-	-	-	-	1	2	1	5	2	-	1	-	-	-	-
<i>Rissoina catheyana</i>	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Rissoina multicosata</i>	-	-	-	-	3	1	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
<i>Rissoina striosa</i>	6	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Sayella fusca</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Saxrodia viridemaris</i>	-	1	-	-	1	-	-	-	1	-	2	-	2	-	-	-	-	-	1	3	1	-	2	1	1	-	1
<i>Solariorbia</i> cf. <i>terminalis</i>	-	-	-	-	-	-	-	-	-	10	-	-	-	-	2	-	1	1	1	-	-	-	-	-	-	-	-
<i>Tagelus diviaus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Tegula fasciata</i>	-	1	-	2	-	3	-	1	1	-	1	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
<i>Telostoma</i> cf. <i>clavium</i>	-	-	-	-	-	-	-	1	-	1	3	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
<i>Telostoma</i> cf. <i>megastoma</i>	1	-	1	-	1	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
<i>Tellina candeana</i>	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<i>Tellina mera</i>	7	9	8	9	2	3	-	3	2	5	4	3	2	2	5	7	-	2	2	-	-	-	1	-	-	-	-
<i>Tellina similis</i>	3	-	2	1	2	-	1	-	2	-	1	-	1	1	-	-	-	2	2	1	-	-	-	2	-	-	1
<i>Thais foveata</i>	1	-	-	-	-	-	-	-	4	-	-	-	-	-	5	-	1	1	-	-	-	-	-	-	-	-	-
<i>Transennella cubaniana</i>	-	-	-	-	-	-	2	1	-	6	12	3	15	-	-	1	-	4	6	11	4	27	42	27	16	72	-
<i>Tricolia affinis</i>	139	6	2	37	10	6	4	3	27	64	12	8	23	1	54	43	-	1	-	4	4	5	12	21	9	10	18
<i>Tricolia bella</i>	2	3	-	6	-	4	-	2	9	-	6	4	2	1	-	10	4	5	2	7	4	-	2	7	-	2	3
<i>Triphora nigrocineta</i>	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
<i>Triphora turriethomae</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
<i>Triphora</i> sp.	5	-	-	-	-	1	-	-	1	-	1	-	-	-	6	4	2	-	-	-	-	-	-	-	-	-	-
<i>Truncatella bilabiata</i>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-

	18		30		23		24		32													
	0	1	2	3	4	0	1	2	3	4	5	6										
<i>Turbonilla bermudensis</i>	8	1	16	1	10	8	17	2	1	2	1	2	1									
<i>Turbonilla hellprini</i>	-	3	-	2	1	1	-	-	-	-	-	-	-									
<i>Turbonilla cf. pyrha</i>	-	-	-	-	-	-	-	-	-	-	-	-	-									
<i>Turbonilla unilirata</i>	-	-	-	-	-	-	-	1	-	-	-	-	1									
<i>Verruculosa spirata</i>	-	-	-	-	-	-	3φ	1	-	-	3	1	-									
<i>Vexillum albocinctum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-									
<i>Vexillum hanleyi</i>	-	1	-	-	-	-	-	1	-	-	-	-	-									
<i>Vitrinella floridana</i>	1	-	-	-	-	-	1	3	-	-	-	-	-									
<i>Vitrinella helicoides</i>	-	-	-	-	-	-	-	2	-	-	-	-	-									
<i>Zebina browniana</i>	35	10	-	-	-	1	4	2	1	-	3	2	3	4	25	5	4	5	4	1	3	
Miscellaneous gastropods	3φ	3φ	1φ	-	-	-	14φ	2*	-	1*	3*	4*	1*	2*	1*	8*	6*	3*	23*	1*	1*	4*
Miscellaneous bivalves	-	-	-	-	-	-	1φ	10φ	1*	-	5*	2*	1*	2*	-	4*	7*	1*	5*	2*	-	3*

* = fragmental or abraded specimens.
 φ = juvenile specimens.

Table 8. Sample by sample species distribution in Cores 18, 30, 23, 24, 32.

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