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New deep water gastropods from the Bimini Shelf, Bimini Chain, Bahamas

Edward J. PETUCH

Department of Geography and Geology, Florida Atlantic University, Boca Raton, Florida 33431, USA

ABSTRACT. Recent deep water (300-400 m) dredgings along the Bimini Shelf, Bimini Chain, Great Bahama Bank, have uncovered a benthic community that contains twenty-eight species of gastropods. Of these, eight species were found to be new to science and include: *Serpulorbis* ***squamolineatus*** sp. nov. (Vermetidae), *Vermicularia* ***bathyalis*** sp. nov. (Turritellidae), *Antillophos* ***bahamasensis*** sp. nov., *Antillophos* ***freemani*** sp. nov., and ***Chickcharnea fragilis*** gen. et sp. nov. (all Buccinidae), *Persicula* ***bahamasensis*** sp. nov. (Marginellidae), *Olivella (Macgintiella)* ***biminiensis*** sp. nov. (Olividae), and *Polystira* ***starretti*** sp. nov. (Turridae). This benthic community was found to be dominated by the conid gastropod *Conus (Lindaconus) lindae* and the stylasterine hydrocoral *Stylaster laevigata* (which grew on the accumulated dead cone shells) and is here named the *Conus lindae-Stylaster laevigata* Community. The new buccinid genus ***Chickcharnea*** (type: *C.* ***fragilis*** sp. nov.) and the new conid subgenus ***Lindaconus*** subgen. nov. (type: *Conus lindae* Petuch, 1987) are described. The ecology and biogeographical affinities of the Bimini Shelf gastropod fauna are discussed.

The deep water areas (200-500 meters depths) along the western edge of the Great Bahamas Bank, bordering the Straits of Florida and the Santaren Strait, are still largely unexplored biologically. Particularly unstudied is the gastropod fauna, whose biodiversity and biogeographical affinities are still uncertain. Only two cursory studies have been focused on the gastropods of the western Bahamas deep water areas, one by Bayer (1971), which reported on new and unusual deep water species collected on the cruises of the University of Miami research vessel *R/V Gerda* (1963-1969) and one by myself (Petuch, 1987), which included the description of a number of new deep-water taxa. Both of these studies only hinted at the richness and endemism of the western Bahamas deep water malacofauna.

In May, 2000, the Florida State University System (Florida Institute of Oceanography) research vessel *R/V Bellows* undertook a one week survey of reef-dwelling cone shells, as part of a marine natural products collecting trip, along the Bimini Chain of islands. During off times, eight dredge hauls, using a one-meter Capetown fixed-frame dredge, were done in depths of 300-400 meters along the Bimini Wall and narrow Bimini Shelf (discussed in the next section). These trawls constituted the first attempt at a comprehensive survey of the deep water gastropod biodiversity of this portion of the western Bahamas. In total, twenty-eight species of gastropods were collected, of which eight were new to science. These new deep water Bahamian gastropods, which are described in the Systematic Section, include *Serpulorbis* ***squamolineatus*** sp. nov. (Vermetidae), *Vermicularia* ***bathyalis*** sp. nov. (Turritellidae), *Antillophos* ***bahamasensis*** sp. nov., *Antillophos* ***freemani*** sp. nov., and ***Chickcharnea fragilis*** gen. et sp. nov. (all Buccinidae), *Persicula* ***bahamasensis*** sp. nov. (Marginellidae), *Olivella (Macgintiella)* ***biminiensis*** sp. nov. (Olividae), and *Polystira* ***starretti*** sp. nov., (Turridae). A new genus of Buccinidae, ***Chickcharnea*** n. gen. (type species: *C.* ***fragilis*** sp. nov.) and a new subgenus of Conidae, ***Lindaconus*** subgen. nov. (type species: *Conus lindae* Petuch, 1987) are, likewise, described from the Bimini Shelf. Also encountered was a new benthic community dominated by cone shells and hydrocorals, and here named the *Conus lindae-Sylaster laevigata* Community. This new deep water ecosystem is described in the following section. The ecology and biogeographical affinities of this deep water assemblage are also discussed in the following sections.

Ecology and biogeographical affinities of the Bimini Shelf molluscan fauna

The area of the Bimini Wall, a sharp drop-off in close proximinty to the Bimini Chain of islands, and the narrow Bimini Shelf are some of the most biologically-unexplored regions of the Straits of Florida. Within one kilometer of the western shore of the Bimini Chain, Great Bahama Bank, the seafloor plummets, at a steep angle, from depths of 20-30 meters to over 250 meters. At that depth, a rubble talus slope, averaging 45°, extends for another one-half kilometer. At depths of 350-400 meters, the seafloor planes off to form the Bimini Shelf, a narrow ledge averaging only one kilometer in width.

At the western edge of the Bimini Shelf, the seafloor plummets abruptly to the base of the Straits of Florida, with depths of over 950 meters. Along the northern part of the Bimini Chain, off North and South Bimini Islands, the rubble talus slope is wider and the Bimini Wall has a less steep, gradually sloping angle. Farther south in the Bimini Chain, along the Cat Cays, Victory Cay, Ocean Cay, and Castle Rock, the Bimini Wall is much steeper and the talus slope has a much sharper angle. Sedimentologically, the northern and southern areas of the Bimini Shelf also differ, with the area off the Cat Cays and Victory Cay having a substrate composed of fine carbonate mud and with the area off North and South Bimini having a shell hash-carbonate gravel substrate. The two substrate types grade together off North Cat Cay.

Of the two substrate types encountered along the Bimini Shelf, the fine carbonate mud of the southern area contained the great majority of the gastropod species. In the first four trawls, which were all from 300-400 m depths just southwest of Victory Cay, Bimini Chain (25°45.95'N, 79°17.17'W to 25°28.50'N, 79°17.23'W), twenty-six species of gastropods were collected. These are listed in Appendix 1. Of these, the cone shell *Conus (**Lindaconus**) lindae* (Fig. 3G, 3H, 3I, 3J, 3K) was the most abundant mollusk, with twenty specimens having been brought up in one dredge haul alone (trawl #4, at 25°28.50'N, 79°17.23'W, 400 m depth). With the exception of one specimen, all *C. lindae* were collected dead. The dead cones appear to be only partially buried in the fine mud. This accumulated *Conus* pavement is the main hard substrate for the attachment of a number of cnidarians and poriferans, principally the hydrocoral *Stylaster laevigata* Cairns, 1986 (Fig. 3K, 3P), the branching scleractinian *Oculina* sp., and an undescribed raspailiid demosponge (Fig. 3O). Since the hydrocorals were observed to be the most abundant invertebrate encountered along with the cones, this new Bahamian ecosystem is here named the *Conus lindae-Stylaster laevigata* Community. Also encountered in this newly-discovered community are numerous caryophyllid solitary corals, several irregular echinoids, and abundant small white ophiuroids.

Only two gastropods were found to be abundant along the Bimini Shelf, the before-mentioned *Conus lindae* and the buccinid *Antillophos **freemani*** sp. nov. (Fig. 2C, 2D). Broken fragments of *Oliva (Strephona) bahamasensis* (Fig. 3A,3B) were also commonly encountered in most dredge hauls, indicating a high predation rate on that species (judging from the breakage pattern, possibly rays or some other elasmobranch). *Antillophos **freemani*** sp. nov. and *Oliva bahamasensis,* along with *Eudolium thompsoni* and *Polystira **starretti*** sp. nov. (Fig. 3L, 3M, 3N), were the only gastropods found to occur along the entire Bimini Shelf, being found in both the soft bottom *Conus lindae-Stylaster laevigata* Community and on the northern shell hash-gravel bottoms (Appendix 1). The xenophorid *Tugurium caribbeum* and the fasciolariid *Fusinus halistreptus* (Fig. 2H) were also common in some dredge hauls, being represented mostly by dead, broken specimens. A list of all gastropod species collected from the Bimini Shelf is given in Appendix 1. Interestingly enough, bivalves were essentially absent from the *Conus lindae-Stylaster laevigata* Community, with the exception of two specimens of the diplodontid clam *Diplodonta nucleiformis* being taken in Trawl #4 (UF279232).

Although containing several classic deep water (200-1000 m depths) genera such as *Entemnotrochus* (the broken specimen illustrated here undoubtedly tumbled down the talus slope from rocky cliffs at 200-300 m depths and does not actually live in this soft-bottom community), *Eudolium*, and *Tugurium*, the *Conus lindae-Stylaster laevigata* Community has a distinctive shallow water (0-100 m depths) appearance. The presence of intertidal and shallow subtidal genera such as *Serpulorbis*, *Vermicularia*, *Naticarius*, *Polinices*, *Trivia*, *Latirus*, *Persicula*, *Oliva*, and *Olivella* show that the Bimini Shelf ecosystem most probably derived from shallow water, coral reef-associated communities. During the Pleistocene, particularly the Kansan and Illinoian Glacial Stages (800,000 and 200,000 years B.P., respectively), sea levels dropped as much as 250 m and the Bimini Shelf would have contained a shallow water, coral reef environment (see Petuch, 1997, fig. 9). Since the end of the Wisconsinan Glacial Stage (75,000-10,000 years B.P.), the oceans have risen to their interglacial levels but water temperatures have remained warm enough, at the 300-400 m depth range, to allow reef-associated groups to persist and evolve into new species complexes. As pointed out by Sverdrup, Johnson, and Fleming (1942: fig. 184) the fast-moving Florida Current dips eastward as it passes through the Straits of Florida. Because of this dip, the Bimini Shelf ecosystems are bathed in warm (18°C at 400 m), surface-derived water while compa-

РИС. 1. Брюхоногие моллюски из сообщества *Conus lindae-Stylaster laevigata* с шельфа Бимини. **A.** *Entemnotrochus adansonianus* (Crosse et Fischer, 1861), сломанный ювенильный экземпляр, диаметром 60 мм, упавший со склона стены Бимини. **B.** Увеличенный последний оборот голотипа *Serpulorbis **squamolineatus*** sp. nov., показана деталь скульптуры чешуйчатого ребра; **C.** *Vermicularia **bathyalis*** sp. nov. (экземпляр справа), дорсальный вид голотипа, длина 62 мм (с прикрепленным голотипом *Serpulorbis **squamolineatus*** sp. nov. слева); **D.** *Vermicularia **bathyalis*** sp. nov., вентральный вид голотипа, длина 62 мм; **E.** Увеличенные обороты завитка голотипа *Vermicularia **bathyalis*** sp. nov., показаны белые верхние обороты; **F.** *Serpulorbis **squamolineatus*** sp. nov. (экземпляр справа), вентральный вид голотипа, наибольшая длина 60 мм (с приросшим голотипом *Vermicularia **bathyalis*** sp. nov. слева).

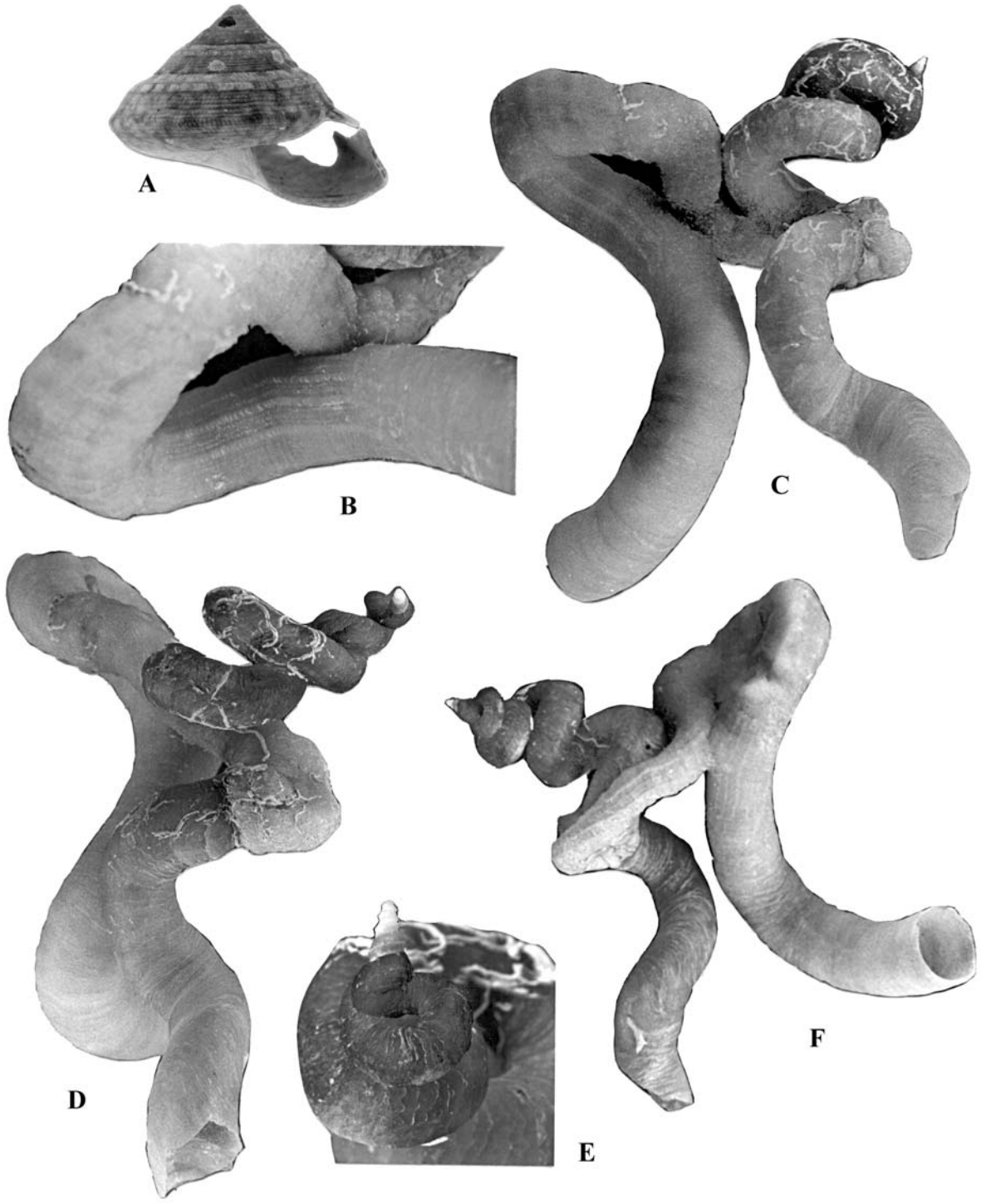

FIG. 1. Gastropods from the *Conus lindae-Stylaster laevigata* community of the Bimini Shelf. **A.** *Entemnotrochus adansonianus* (Crosse et Fischer, 1861), broken juvenile specimen, diameter 60 mm; tumbled downslope from the side of the Bimini Wall; **B.** Enlargement of body whorl tube of holotype of *Serpulorbis* ***squamolineatus*** sp. nov., showing detail of scaly cord sculpture; **C.** *Vermicularia* ***bathyalis*** sp. nov. (specimen on right), dorsal view of holotype, length 62 mm (with conjoined holotype of *Serpulorbis* ***squamolineatus*** sp. nov. on left); **D.** *Vermicularia* ***bathyalis*** sp. nov., ventral view of holotype, length 62 mm; **E.** Enlargement of spire whorls of holotype of *Vermicularia* ***bathyalis*** sp. nov., showing white early whorls; **F.** *Serpulorbis* ***squamolineatus*** sp. nov. (specimen on right), ventral view of holotype, greatest length 60 mm (with conjoined holotype of *Vermicularia* ***bathyalis*** sp. nov. on left).

rable depths across the Straits in Florida are exposed to cold (8°C at 400 m), bottom-derived water. The community namesake, itself, more closely resembles shallow water cones (such as *Conus spurius*) than it does deep water species groups and it may have derived from a member of the *C. spurius* complex.

Three separate biogeographical influences were found to be present in the Bimini Shelf gastropod fauna: a component comprised of wide-ranging Caribbean-western Atlantic deep water species; a component comprised of species restricted to northern Cuba, the southern Gulf of Mexico, and the Straits of Florida; and an endemic Bahamian component. Of these, the last is by far the largest, with twelve species (42%) being restricted to the Bahamas. Since these taxa have not been collected at comparable depths and substrates elsewhere in the Caribbean Basin, they are here considered to be endemic to the Bahamas. Of particular interest is the endemic genus ***Chickcharnea*** (Fig. 2E, 2F), whose closest affinities are with the Carolinian Molluscan Province buccinid genera *Liomesus* (*L. stimpsoni*) and *Ptychosalpinx* (*P. globulus*) and not with any known deep water Caribbean Province buccinids.

A deep water Cuban influence is also represented in the *Conus lindae-Stylaster laevigata* Community by the presence of the muricid *Siratus yumurinus* (Sarasua and Espinosa, 1978) (Fig. 2G) and the terebrid *Terebra evelynae* Clench and Aguayo, 1939 (Fig. 3F). The latter species has never been reported outside of northern Cuba (Abbott, 1974: 261) and was known from only three specimens. The single specimen of the Biminian *S. yumurinus* illustrated here differs slightly from the typical Cuban specimens, having the same type of intervarical sculpture but having a higher, more protracted spire. The Cuban, southern Gulf of Mexico, and Straits of Florida faunal component comprises only 22% of the total gastropod fauna.

Of the wide-ranging Caribbean species found in the Bimini fauna, only *Conus (Gradiconus) centurio* Born, 1778 (Fig. 3E) stands out as particularly noteworthy. Previously, this offshore cone was known to range from Brazil, along Colombia and Venezuela, northward along the Greater Antilles to the Dominican Republic (Clench, 1942). The species is common in scallop beds in the Gulf of Venezuela, where it reaches a much larger size than the Antillean specimens. The single specimen of a Bahamian *C. centurio* reported here was trawled from 300 m depth off North Bimini Island, just north of the Alicetown Inlet, on a shell gravel substrate. Although collected dead and partially decorticated (on the dorsal side), the Bimini *C. centurio* can be seen to very closely resemble the large, zebra-patterned specimens from Venezuela and Colombia and not the dwarfed, stocky specimens from Hispaniola and Puerto Rico (illustrated by Clench, 1942: plate 12, and Warmke and Abbott, 1961: plate 24). *Conus centurio*, along with wide-ranging species such as *Entemnotrochus adansonianus* (Fig. 1A), *Hyalorisia galeus* (attached to *Fusinus halistreptus*), and *Mitra antillensis*, and others, make up 36% of the total gastropod fauna.

Systematic section

The holotypes, and some paratypes, of the following new taxa are deposited in the collection of the Department of Malacology, Florida Museum of Natural History, University of Florida, Gainesville, Florida, and bear UF catalog numbers.

Mollusca
Gastropoda
Prosobranchia
Caenogastropoda
Cerithioidea
Vermetidae

Genus *Serpulorbis* Sassi, 1827

Serpulorbis ***squamolineatus*** sp. nov.

(Fig. 1B,1C,1D,1F)

Description. Shell large for genus, thin, fragile, highly irregular in shape; early whorls slightly flattened, with only last section of body whorl being round in cross-section; earliest spire whorls irregular in shape, with only vestigial coiling, attached to substrate; whorls with 14 large, scaly longitudinal cords that run entire length of shell; 3-4 smaller, less scaly secondary longitudinal cords present between each pair of primary cords; fine growth lines overlay longitudinal cords, producing small raised scale at each intersection; early whorls pale cream-tan in color with later whorls becoming cream-white.

[ОПИСАНИЕ. Раковина крупная для рода, тонкая, хрупкая, неправильной формы; ранние обороты слегка уплощены, только последняя часть последнего оборота округлая в разрезе; самые ранние обороты неправильной формы, спиральность выражена очень слабо, прикреплены к субстрату; обороты с 14 крупными чешуйчатыми продольными ребрами, проходящими вдоль всей раковины; 3-4 менее чешуйчатых вторичных продольных ребра расположены между каждой парой первичных ребер; тонкие линии нарастания перекрывают первичные ребра, образуя маленькие приподнятые чешуйки на пересечениях; ранние обороты бледно кремовато-коричневого цвета, поздние обороты становятся кремово-белыми.]

Material examined. HOLOTYPE — Greatest length 60 mm, greatest width 52 mm, from off Victory Cay, Bimini Chain, Bahamas, UF279226.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. "Scaly-lined", in reference to the characteristic heavily scaled longitudinal line sculpture of the new species.

Discussion. The holotype of *Serpulorbis* ***squamolineatus*** is attached to the holotype of *Vermicu-*

laria ***bathyalis*** sp. nov. (described next), and this is one of the rare cases in malacology where two holotypes are conjoined. Of the other two known species of western Atlantic *Serpulorbis* species, *S.* ***squamolineatus*** is closest to *S. decussatus* (Gmelin, 1791), but differs in being a lighter, more delicate shell with a much longer, more uncoiled body whorl and in having the characteristic sculpture pattern of large, thick, heavily-scaled cords separated by 3-4 finer threadlike cords (Fig. 1B). The large scaly cords are more prominent on the early whorls and become obsolete on the last part of the uncoiled body whorl tube. *Serpulorbis decussatus* and the closely-related *S. riisei* (Mörch, 1862) are both inhabitants of shallow water ecosystems, being found from the intertidal zone down to around 34 m depth (Abbott, 1974: 101). The new Bahamian species, which occurs at a depth of 400 m, is the deepest-dwelling member of its genus.

Turritellidae
Vermiculariinae
Genus *Vermicularia* Lamarck,1799
Vermicularia ***bathyalis*** sp. nov.
(Fig. 1C, 1D, 1E, 1F)

Description. Shell of average size for genus, uncoiled but retaining tight spiral growth form; last whorl strongly uncoiled, almost straight; turritelliform stage proportionally small, composed of only 4 whorls (Fig. 1D); early whorls smooth and shiny, ornamented with single large keel-like spiral cord around midbody; teleoconch whorls rounded, ornamented with 12 low, faint, evenly-spaced spiral cords; spiral cords around midbody slightly stronger than other cords; teleoconch shell surface distinctly scaly and squamose, with scales corresponding to shell growth increments; aperture round; protoconch missing from holotype, but apparently proportionally large (based on scar); first 3 whorls of turritelliform stage white; first 5 whorls of teleoconch dark orange-brown; last whorls of teleoconch becoming pale cream-orange.

[**ОПИСАНИЕ**. Раковина среднего для рода размера, развернутая, но сохраняющая плотно спиральную форму; последний оборот сильно развернут, почти прямой, туррителлоидная стадия пропорционально небольшая, состоит только из 4 оборотов (Рис. 1D), ранние обороты гладкие и блестящие, орнаментированы единственным килевидным спиральным ребром, проходящим примерно посредине оборота; обороты телеоконха закругленные, орнаментированы 12 низкими, неотчетливыми, равномерно расположенными спиральными ребрами. Ребра в средней части оборота немного более сильные по сравнению с остальными. Поверхность телеоконха неотчетливо чешуйчатая, с чешуйками, соответствующими линиям нарастания; устье округлое; протоконх отсутствует у голотипа, но, вероятно, пропорционально крупный (основываясь на отпечатке); первые три оборота туррителлоидной стадии роста белые, первые 5 оборотов телеоконха темно оранжево-коричневые; последний оборот телеоконха становится бледно кремово-оранжевым.]

Material examined. HOLOTYPE — length 62 mm, width (at widest coiling) 22 mm, from off Victory Cay, Bimini Chain, Bahamas, UF277097; PARATYPE — length (juvenile) 20 mm, same locality and depth as holotype, UF279230.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. "Of the depths", in reference to the unusually deep ecological preference of the new species.

Discussion. *Vermicularia* ***bathyalis*** represents the fourth member of its genus known from the western Atlantic. Of the three other species [*V. spirata* (Philippi, 1836), *V. fargoi* Olsson, 1951, and *V. knorri* (Deshayes, 1843)], the new species is most similar to *V. knorri,* but differs in having a proportionally much smaller turritelloid stage with fewer whorls (6-7 in *V. knorri*, 4 on the holotype of *V.* ***bathyalis***; see Fig. 1E). The turritelloid stage of *V. knorri* is pure white while that of *V.* ***bathyalis*** is white only on the first three whorls, with the last whorl being pale orange-brown. The new species also differs from the widespread *V. knorri* in having twelve main cords on the whorls instead of two main cords and in having a distinctly scaly shell texture. *Vermicularia knorri*, *V. fargoi*, and *V. spirata* all inhabit shallow water (0-100 m depths), while *V.* ***bathyalis*** prefers depths of 400 m, making it the deepest-dwelling *Vermicularia* in the western Atlantic.

Buccinoidea
Buccinidae
Photiinae
Genus *Antillophos* Woodring, 1928
Antillophos ***bahamasensis*** sp. nov.
(Fig. 2A,2B)

Description. Shell small for genus, fusiform, elongated and narrow; spire high, protracted, shoulders rounded; suture deeply impressed, producing distinctly rounded spire whorls; body whorl and spire whorls with openly reticulate sculpture composed of 16-18 thin longitudinal costae per whorl and 12-14 strong spiral cords on body whorl and 8-10 spiral cords on spire whorls; very thin, threadlike cords present between some pairs of large spiral cords; intersection of large spiral cords and longitudinal costae producing small, low bead; anterior tip of shell and siphonal canal encircled by three large spiral cords; spire whorls with 2-3 large varices per whorl; body whorl without varices; outer lip very thick and wide; protoconch proportionally large, bulbous, shiny, composed of 2 and one-half whorls; columellar area smooth with single large plication

at anterior end and single small denticle at posterior end; interior of aperture with 14-16 large cords; shell color pale tan with 3 darker tan bands and with spire whorls being darker tan; outer lip and siphonal canal white; interior of aperture and columellar area white.

[**ОПИСАНИЕ**. Раковина маленькая для рода, веретеновидная, удлиненная и узкая: завиток высокий, оттянутый, плечо закругленное; шов глубоко вдавленный, обороты завитка отчетливо закругленные; последний оборот и обороты завитка имеют ретикулятную скульптуру, состоящую из 16-18 тонких осевых ребер на обороте и 12-14 сильных спиральных ребер на последнем обороте и 8-10 спиральных ребер на оборотах завитка; очень тонкие нитевидные ребрышки присутствуют между некоторыми парами крупных спиральных ребер; пересечения крупных спиральных ребер и осевых ребер образуют маленькие низкие утолщения. Передний конец раковины и сифональный канал имеют три крупных спиральных ребра; наружная губа устья очень толстая и широкая; протоконх пропорционально крупный, выпуклый, блестящий, образован 2,5 оборотами; колумелла гладкая, с единственной крупной складкой в нижней части и небольшим зубчиком в верхней; внутри устье с 14-16 крупными ребрами; окраска раковины бледно-желтовато-коричневая с 3 более темными полосами с более темными оборотами завитка; наружная губа и сифональный канал белые; внутренняя часть устья и колумелла белые.]

Material examined. HOLOTYPE — Length 18 mm, width 8 mm, off Victory Cay, Bimini Chain, Bahamas, UF277198; PARATYPE — length 20 mm, same locality and depth as holotype, research collection of the author.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. Named for the Bahamas, the type locality.

Discussion. Of the known Caribbean *Antillophos* species, *A.* ***bahamasensis*** is closest, in size, general shape, and color, to *A. bayeri* Petuch, 1987 from the western and southern Caribbean Basin. The new species differs from its southern congener, however, in being a broader, stockier shell with a proportionally lower spire, in having a distinctly shorter and wider siphonal canal, in having more sloping spire whorls, and in having a single columellar denticle instead of three to five, as in *A. bayeri*. Bathymetrically, the two species also differ greatly, with *A. bayeri* preferring ecosystems in depths of 35 m, while *A.* ***bahamasensis*** occurs at depths of around 400 m. The new species is sympatric with *A.* ***freemani*** sp. nov. (described next), but is apparently much less common.

Antillophos ***freemani*** sp. nov.
(Fig. 2C,2D)

Description. Shell of average size for genus, elongated, narrow; spire very protracted, scalariform; shoulders rounded; suture very impressed, producing extremely rounded whorls; spire whorls ornamented with 14-16 large, prominent axial costae; body whorl ornamented with 10-12 large, prominent axial costae; body whorl encircled with 12-14 large spiral cords; spire whorls encircled with 5 large cords; 2-3 finer secondary cords present between primary cords on spire whorls and body whorl; siphonal canal encircled by 4 large spiral cords; intersections of primary cords with axial costae produce large, prominent rounded beads; spire whorls and body whorl with scattered large, rounded varices, usually 2-3 per whorl; outer lip wide, thickened, expanded; siphonal canal small but distinctly constricted and narrow; protoconch proportionally large, bulbous, shiny, composed of 2 whorls; columella completely smooth, without denticles; large, prominent plication present at anterior end of columellar area; interior of aperture with 14 -16 large cords; shell color pure white or pale cream-white with some specimens (such as holotype) with 3 very narrow, broken, pale tan bands around body whorl, with one around shoulder, one around midbody, and one around anterior end; some varices on spire whorls with small, pale tan patches.

[**ОПИСАНИЕ**. Раковина среднего для рода размера, удлиненная, узкая, завиток очень приподнят, скаляридный; плечо закругленное; шов очень вдавленный; обороты завитка очень выпуклые, орнаментированы 14-16 крупными осевыми ребрами; последний оборот орнаментирован 10-12 крупными, выраженными осевыми ребрами и 12-14 крупными спиральными ребрами; обороты завитка с 5 крупными ребрами; 2-3 более мелких вторичных ребра расположены между первичными ребрами на оборотах завитка и на последнем обороте; сифональный канал с 4 крупными спиральными ребрами; на пересечении первичных спиральных ребер с осевыми ребрами формируются крупные закругленные бугорки. Обороты завитка и последний оборот с крупными, широко расставленными вариксами, обычно по 2-3 на обороте; наружная губа широкая, утолщенная, отогнутая наружу; сифональный канал короткий, но отчетливо суженный; протоконх

РИС. 2. Брюхоногие моллюски из сообщества *Conus lindae-Stylaster laevigata* с шельфа Бимини. **A, B.** *Antillophos* ***bahamasensis*** sp. nov., дорсальный и вентральный виды голотипа, длина 18 мм; **C, D.** *Antillophos* ***freemani*** sp. nov., дорсальный и вентральный виды голотипа, длина 29 мм; **E, F.** ***Chickcharnea fragilis*** gen. et sp. nov., дорсальный и вентральный виды голотипа, длина 23 мм; **G.** *Siratus yumurinus* (Sarasua and Espinosa, 1978), длина 51 мм; **H.** *Fusinus halistreptus* (Dall, 1889), длина 59 мм; **I, J**. *Latirus macmurrayi* Clench et Aguayo, 1941, дорсальный и вентральный виды экземпляра с узким псевдопупком, длина 53 мм; **K, Q.** *Scaphella (Clenchina) gaudiati* Bail et Shelton, 2001, дорсальный и вентральный виды узловатой белой формы, длина 33 мм; **L.** *Scaphella (Clenchina) gaudiati*, дорсальный вид узловатого экземпляра, длина 23 мм; **M, N.** *Scaphella (Clenchina) gaudiati*, вентральный и дорсальный виды гладкого оранжевого экземпляра, длина 19 мм; **O, P.** *Persicula* ***bahamasensis*** sp. nov., дорсальный и вентральный виды голотипа, длина 9 мм.

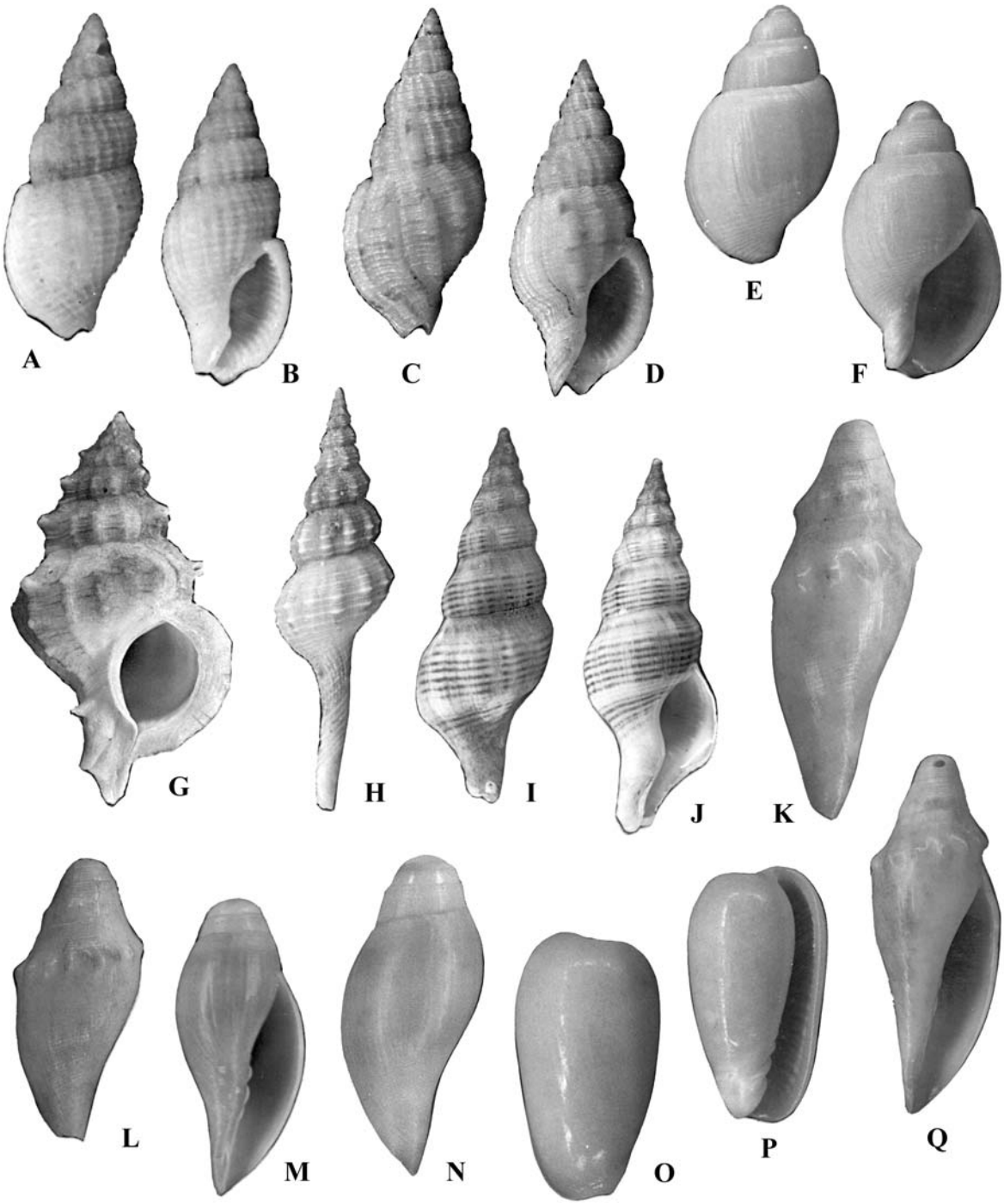

FIG. 2. Gastropods from the *Conus lindae-Stylaster laevigata* Community of the Bimini Shelf. **A, B.** *Antillophos* ***bahamasensis*** sp. nov., dorsal and ventral views of holotype, length 18 mm; **C, D.** *Antillophos* ***freemani*** sp. nov., dorsal and ventral views of holotype, length 29 mm; **E, F.** ***Chickcharnea fragilis*** gen. et sp. nov., dorsal and ventral views of holotype, length 23 mm; **G.** *Siratus yumurinus* (Sarasua and Espinosa, 1978), length 51 mm; **H.** *Fusinus halistreptus* (Dall, 1889), length 59 mm; **I, J.** *Latirus macmurrayi* Clench et Aguayo, 1941, dorsal and ventral views of specimen with narrow pseudoumbilicus, length 53 mm; **K, Q.** *Scaphella (Clenchina) gaudiati* Bail et Shelton, 2001, dorsal and ventral views of knobbed white color form, length 33 mm; **L.** *Scaphella (Clenchina) gaudiati*, dorsal view of knobbed specimen, length 23 mm; **M, N.** *Scaphella (Clenchina) gaudiati*, ventral and dorsal views of knobless, orange-colored specimen, length 19 mm; **O, P.** *Persicula* ***bahamasensis*** sp. nov., dorsal and ventral views of holotype, length 9 mm.

пропорционально крупный, закругленный, состоит из 2 оборотов; колумелла гладкая, без бугорков; крупная отчетливая складка присутствует в нижней части; устье внутри с 14-16 крупными ребрами; окраска раковины чисто белая или бледно-кремовая, у некоторых экземпляров (как и у голотипа) с тремя очень узкими прерывающимися бледно-коричневатыми спиральными полосами на последнем обороте, одной у плеча, одной в средней части оборота и одной у канала; некоторые вариксы на оборотах завитка с небольшими бледно коричневыми пятнами.]

Material examined. HOLOTYPE — length 29 mm, width 12 mm, off Victory Cay, Bimini Chain, Bahamas, UF277099; PARATYPES — 3 specimens, lengths 19 mm, 22 mm, and 26 mm, same locality and depth as holotype, UF277100; length 30 mm, same locality and depth as holotype, research collection of the author; length 28 mm, same locality and depth as holotype, Freeman collection, St. Petersburg, Florida.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. Named for Mr. Harry J. Freeman, First Mate of the *R/V Bellows*, on whose watch the type lot of the new *Antillophos* was collected.

Discussion. *Antillophos* ***freemani*** is most similar to the shallow water (1-100 m depth), widespread Caribbean *A. candei* (Orbigny, 1842), especially in size. The new species differs, however, in being a much more slender and elongated shell with a higher, more protracted spire, in having fewer ribs on the body whorl (10-12 on *A.* ***freemani***; 13-20 on *A. candei*), in having more numerous and finer spiral cords, in having a better-developed and narrower siphonal canal, in having a proportionally larger protoconch, and in having a completely white or pale off-white base color.

Genus ***Chickcharnea*** gen. nov.

Diagnosis. Small, fragile, translucent, inflated *Ptychosalpinx*-type buccinids, with rounded shoulders, deeply-impressed sutures, and elevated spire whorls; subsutural area slightly flattened, producing, scalariform spire; first postnuclear whorl sculptured with 12 strong spiral cords; body whorl of adult smooth, silky, with strong spiral cords confined to subsutural area and to anterior third; siphonal canal short, stubby, open and flaring, ornamented with 4 large spiral cords and numerous fine spiral threads; columella smooth, straight, without any plications or ornamentation; parietal region and columella glossy; interior of shell smooth and glossy; protoconch proportionally very large, bulbous and dome-like, glossy and polished, flattened at tip, composed of 2 and one-half whorls; entire shell pure white; periostracum absent.

[**ДИАГНОЗ.** Раковина маленькая, просвечивающая, вздутая, типа *Ptychosalpinx*, с закругленным плечом, глубоко вдавленным швом и оттянутыми оборотами завитка; пришовная площадка уплощена. Первые дефинитивные обороты скульптурированы 12 сильными спиральными ребрами; последний оборот у взрослых особей гладкий, шелковистый, с сильными спиральными ребрами, приуроченными к пришовной площадке и верхней трети; сифональный канал короткий, широкий, открытый, с 4 крупными спиральными ребрами и многочисленными тонкими спиральными ребрышками; колумелла гладкая, прямая, без какой-либо орнаментации; париетальная область и колумелла блестящие; внутри раковина гладкая и блестящая; протоконх пропорционально очень крупный, закругленный и куполовидный, гладкий и блестящий, уплощенный сверху, образован 2,5 оборотами; раковина чисто белая, периостракум отсутствует.]

Type species. ***Chickcharnea fragilis*** sp. nov., described here (Fig. 2E,2F), off Victory Cay, Bimini Chain, Bahamas, by monotypy.

Geographical range. At present, known only from 400 m depth off the western side of the Great Bahama Bank.

Etymology. Named for the Chickcharnees, ghostlike spirits that, according to Bahamian mythology, inhabit the Bimini Chain of islands. The pure white, translucent shell of the new genus is reminiscent of a ghost.

Discussion. The Bahamian endemic ***Chickcharnea*** is most similar to two deep water Carolinian Province buccinid genera, *Ptychosalpinx* Gill, 1867 [as typified by *P. globulus* (Dall, 1889)] and *Liomesus* Stimpson, 1865 (as typified by *L. stimpsoni* Dall, 1889). The new genus differs from *Ptychosalpinx* in having smaller, much thinner, more fragile shells, in having a proportionally much larger protoconch with a flattened tip, in being smoother and less

FIG. 3A-P. Гастроподы, губки и гидрокораллы с шельфа Бимини. **A, B.** *Oliva (Strephona) bahamasensis* Petuch et Sargent, 1986, дорсальный и вентральный виды, длина 32 мм; **C, D.** *Olivella (Macgintiella)* ***biminiensis*** sp. nov., дорсальный и вентральный виды голотипа, длина 9 мм; **E.** *Conus (Gradiconus) centurio* Born, 1778, длина 76 мм; **F.** *Terebra evelynae* Clench et Aguayo, 1939, длина 55 мм; **G.** *Conus (**Lindaconus**) lindae* Petuch, 1987, полосатая цветная форма, длина 43 мм; **H.** *Conus (**Lindaconus**) lindae* Petuch, 1987, бледная цветная форма, длина 44 мм; **I.** *Conus (**Lindaconus**) lindae* Petuch, 1987, голотип, длина 31 мм (USNM859886, Smithsonian Institution); **J.** *Conus (**Lindaconus**) lindae* Petuch, 1987, цветная форма с крупными розово-оранжевыми пятнами, длина 27 мм; **K.** *Conus (**Lindaconus**) lindae* Petuch, 1987, форма с высоким завитком, обросшая молодыми колониями *Stylaster,* длина 55 мм; **L, M.** *Polystira* ***starretti*** sp. nov., дорсальный и вентральный виды голотипа (с регенерированным сифональным каналом, длина 20 мм; **N.** *Polystira* ***starretti*** sp. nov., вентральный вид паратипа, длина 29 мм; **O.** Губка семейства Raspailiidae (возможно новый род и вид *fide* Dr. S. Pomponi, Harbor Branch Oceanographic Institute), длина 106 мм; **P.** Вид завитка *Conus (**Lindaconus**) lindae* Petuch, 1987, длина 35 мм с крупной колонией гидрокоралла *Stylaster laevigata* Cairns, 1986.

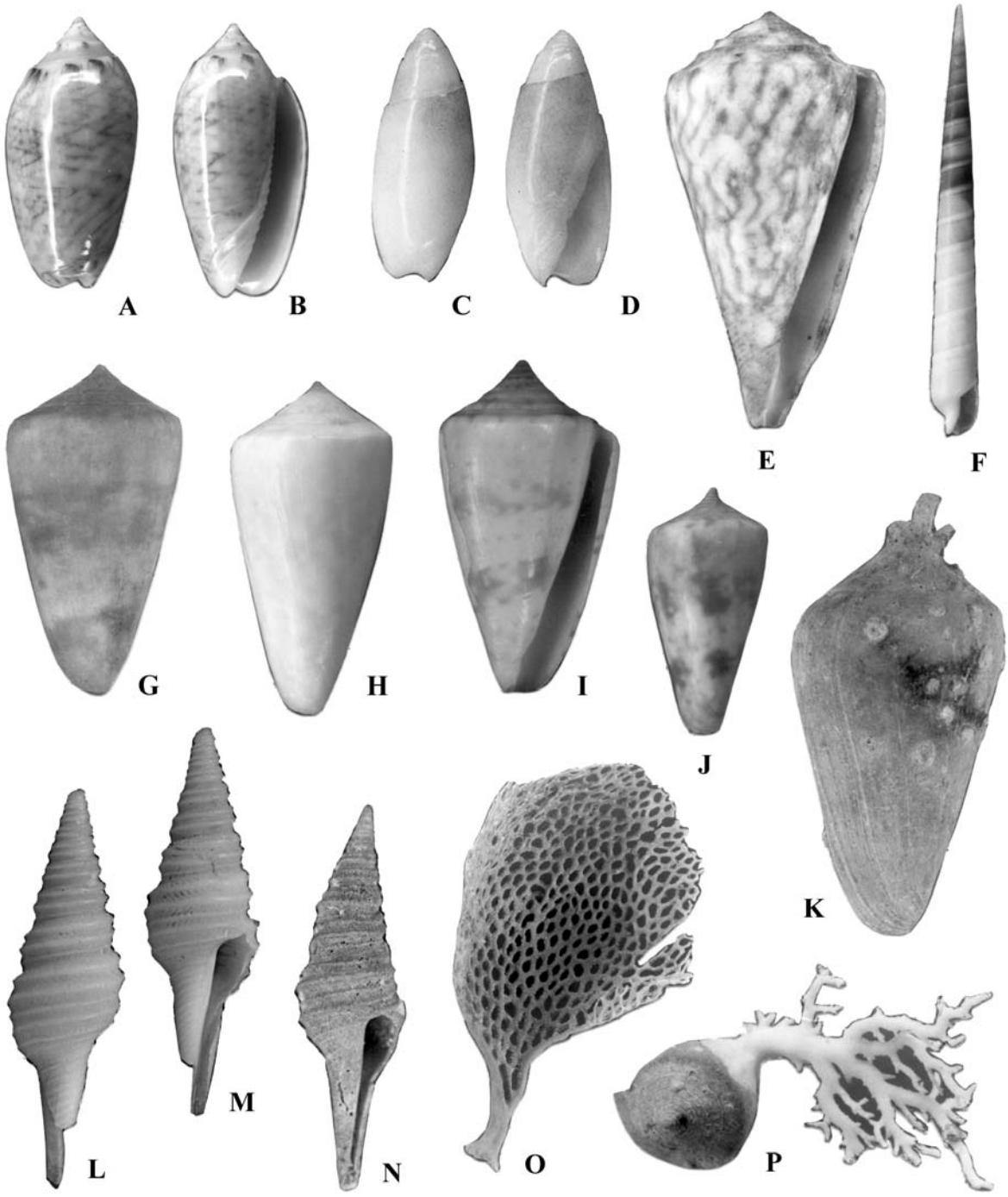

FIG. 3A-P. Gastropods, Sponges, and Hydrocorals from the Bimini Shelf. **A, B.** *Oliva (Strephona)* **bahamasensis** Petuch et Sargent, 1986, dorsal and ventral views, length 32 mm; **C, D.** *Olivella (Macgintiella)* ***biminiensis*** sp. nov., dorsal and ventral views of holotype, length 9 mm; **E.** *Conus (Gradiconus) centurio* Born, 1778, length 76 mm; **F.** *Terebra evelynae* Clench et Aguayo, 1939, length 55 mm; **G.** *Conus (**Lindaconus**) lindae* Petuch, 1987, banded color form, length 43 mm; **H.** *Conus (**Lindaconus**) lindae* Petuch, 1987, pale color form, length 44 mm; **I.** *Conus (**Lindaconus**) lindae* Petuch, 1987, holotype, length 31 mm (USNM859886, Smithsonian Institution); **J.** *Conus (**Lindaconus**) lindae* Petuch, 1987, color form with large pink-orange patches, length 27 mm; **K.** *Conus (**Lindaconus**) lindae* Petuch, 1987, high-spired form encrusted with young *Stylaster* colonies, length 55 mm; **L,M.** *Polystira* ***starretti*** sp. nov., dorsal and ventral views of holotype (with repaired siphonal canal), length 20 mm; **N.** *Polystira* ***starretti*** sp. nov., ventral view of paratype, length 29 mm; **O.** Poecillosclerid demosponge, family Raspailiidae (possibly new genus and new species *fide* Dr. S. Pomponi, Harbor Branch Oceanographic Institute), length 106 mm; **P.** View of spire of *Conus (Lindaconus) lindae* Petuch, 1987, length 35 mm, showing attached large *Stylaster laevigata* Cairns, 1986 hydrocoral colony.

spirally sculptured, and, most importantly, in lacking the large, sharp-edged, prominent fasciolar plication on the columella that characterizes all *Ptychosalpinx* species, both living and fossil. In having a smooth, unplicated columellar area, ***Chickcharnea*** more closely resembles *Liomesus*, but differs in having much smaller, more fragile shells, in having a smooth central area on the body whorl instead of being ornamented with coarse spiral cords, in lacking a canaliculate sutural area bordered by a strong subsutural cord (typical of *Liomesus*), and in lacking a periostracum.

Chickcharnea fragilis sp. nov.

(Fig. 2E, 2F)

Description. As for description of genus.
[**ОПИСАНИЕ** как у рода.]

Material examined. HOLOTYPE — Length 23 mm, width 12 mm, off Victory Cay, Bimini Chain, Bahamas, UF277101; PARATYPE — length 15 mm, same locality and depth as holotype, research collection of the author.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. "fragilis", fragile, in reference to the delicate, thin, translucent shell of the new species.

Discussion. At first glance, ***Chickcharnea fragilis*** could be confused with a small specimen of the Carolinian *Liomesus stimpsoni*. Closer examination, however, shows that the new species differs in a number of ways; in being a more slender shell with a proportionally higher spire and straighter sides, in lacking the strong spiral cords and sulci that characterize *L. stimpsoni*, in lacking a canaliculate subsutural area, and in having a pure white shell instead of a pinkish-tan or flesh-colored shell.

The new species also resembles the deep water Carolinian *Ptychosalpinx globulus*, but, again, is a much smaller, thinner, and more delicate shell that lacks the prominent fasciolar plication on the columella. *Ptychosalpinx globulus* is also a much more colorful shell, being usually pinkish-tan or flesh-colored, never exhibiting the pure whit color seen on the ***Chickcharnea fragilis.***

Marginellidae
Marginellinae
Genus *Persicula* Schumacher, 1817
Persicula ***bahamasensis*** sp. nov.

(Fig. 2O,2P)

Description. Shell of average size for genus, very elongated, cylindrical, slender; shoulder rounded; spire uncallused, depressed, forming shallow pit; aperture narrow, widening slightly at anterior end; anterior end of columella with 5 plications, with posteriormost being smallest and anteriormost being largest, with others between grading sequentially in size; edge of lip thickened; inner edge of lip lined with 26-28 small denticles; labial denticles extend into aperture as ribs; anterior end of columella with large, distinct fasciole, corresponding to 2 largest anterior columellar plications; shell color uniformly pure white, with translucent, porcellaneous appearance.

[**ОПИСАНИЕ**. Раковина среднего для рода размера, очень удлиненная, цилиндрическая, стройная; плечо закругленное; завиток погруженный, образует неглубокое углубление; устье узкое, слегка расширяющееся в передней части; передний конец колумеллы с 5 складками, самая последняя из которых самая маленькая, а первая – самая большая; край губы утолщенный, внутренняя часть губы с 26-28 маленькими бугорками, которые продолжаются внутри губы в виде ребер; передний конец колумеллы с крупной отчетливой фасциолой, соответствующей 2 самым крупным колумеллярным складкам; раковина чисто белая, полупрозрачная, фарфоровидная.]

Material examined. HOLOTYPE — length 9 mm, width 5 mm, off Victory Cay, Bimini Chain, Bahamas, UF277105; PARATYPES — length 9 mm, same locality and depth as holotype, UF277106; length 9 mm, same locality and depth as holotype, research collection of the author.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. Named for the Bahamas, the type locality.

Discussion. Of the known western Atlantic *Persicula* taxa, *P.* ***bahamasensis*** stands alone as being the only pure white, unicolored species. The new marginellid is also the only known *Persicula* to have an uncallused, depressed spire. The very elongated, cylindrical shape of the new species is also unusual among the normally-rotund *Persicula* species groups. Only one species, *P. muralis* (Hinds, 1844) from Aruba, Netherlands Antilles, is equally elongated. The bright color patches and dots on *P. muralis*, however, readily separate it from the pure white *P.* ***bahamasensis***. The new species is also the deepest-dwelling of its genus, occurring at depths of 400 m while the other known species prefer depths of 0-100 m.

Olividae
Olivellinae
Genus *Olivella* Swainson, 1831
Subgenus *Macgintiella* Olsson, 1956
Olivella (Macgintiella) ***biminiensis*** sp. nov.

(Fig. 3C,3D)

Description. Shell small for subgenus, elongated, fusiform; spire high, protracted; sutural canal narrow, deep; aperture narrow posteriorly, widening

rapidly to flaring anterior end; middle of columella marked with shallow constriction, producing depressed area; columellar area posterior to constriction with 6 elongated plications; columellar area anterior to constriction with 5 large plications; parietal area heavily enamelled, extending around anterior tip of shell next to fasciole; large callus of enamel at posterior part of parietal area, adjacent to sutural canal; fasciole narrow, heavily enamelled; protoconch proportionally large, domelike, composed of 2 whorls; shell color pure white.

[**ОПИСАНИЕ**. Раковина маленькая для подрода, удлиненная, веретеновидная; завиток высокий, оттянутый; пришовный канал узкий и глубокий; устье суженное в задней части, быстро расширяется в зияющему переднему концу; в средней части колумеллы имеется небольшое сужение, формирующее вогнутый участок; колумелла спереди от сужения с 5 крупными складками; париетальная область с толстым каллусом, захватывающим переднюю часть раковины около фасциолы; крупный каллус расположен у задней части париетальной области, прилегающей к шовному каналу; фасциола узкая, с сильным каллусом; протоконх пропорционально крупный, куполовидный, образован 2 оборотами; раковина чисто белая.]

Material examined. HOLOTYPE — length 9 mm, width 4 mm, off Victory Cay, Bimini Chain, Bahamas, UF277107; PARATYPE — length 8 mm, same locality and depth as holotype, UF277108.

Type locality. On carbonate mud bottom, 400 m depth, 7 km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. Named for the Bimini Chain, the type locality.

Discussion. The new species is morphologically closest to the widespread Caribbean *Olivella (Macgintiella) watermani* McGinty, 1940, type of the subgenus, but differs in being a much smaller, narrower, and more elongated shell with a much higher, protracted spire. *Olivella* ***biminiensis*** also has larger and more numerous columellar plications anterior of the columellar constriction. The new species is also similar to *O.(Macgintiella) rotunda* Dall, 1889 from Puerto Rico and Barbados, but differs in being a smaller, more elongated shell with a higher spire and in being pure white, lacking any brown markings. *Olivella* ***biminiensis*** is the deepest-dwelling member of its subgenus, with all other known species occurring at depths of no greater than 200 m.

Conoidea
Conidae
Genus *Conus* Linnaeus, 1758
Subgenus ***Lindaconus*** subgen. nov.

Diagnosis. Western Atlantic cone shells of average size for genus, glossy, porcellaneous in texture; shell shape varying from elongated with straight sides to stocky and subpyriform; spires varying from proportionally flattened with sloping whorls to slightly elevated with canaliculate whorls; apertures narrow; anterior tip of columella with distinct, prominent plication; protoconchs proportionally large, bulbous, rounded, composed of 2 whorls; shell color varying from pure white to pinkish-white with rows of darker pink or pale tan dashes or irregular patches of rose-pink or orange.

[**ДИАГНОЗ**. Западно-атлантические конусы с раковиной среднего для рода размера, блестящие, фарфоровидные по структуре; форма раковины варьирует от удлиненной с прямыми сторонами до приземистой и грушевидной; завиток варьирует от пропорционально уплощенного с наклоненными оборотами до слегка приподнятого с канальчатыми оборотами; устье узкое, передний край колумеллы с отчетливыми складками; протоконх пропорционально большой, закругленный, образован 2 оборотами; окраска раковины варьирует от чисто белой до розовато-белой с рядами более темных розовых или бледно-коричневых штрихов или нерегулярных пятен розового или оранжевого цвета.]

Type species. *Conus lindae* Petuch, 1987 (Fig. 3G,3H,3I,3J,3K,3P), 300-400 m depths off the western edge of the Great Bahama Bank, Bahamas.

Other species in *Lindaconus*. *Conus lightbourni* Petuch, 1986, 300-500 m depths off Bermuda.

Geographical range. At present, the subgenus is known only from deep water (300-500 m) off the Bahamas and Bermuda in the tropical western Atlantic.

Etymology. Named as a combination of "Linda", for my wife Linda Joyce Petuch, and "*Conus*"; in recognition of her loving support of our family while I'm off, often for weeks on end, exploring new ecosystems.

Discussion. ***Lindaconus*****,** with its translucent, porcellaneous shells, delicate pink, white, and orange colors, proportionally large, bulbous protoconchs, and large anterior columellar plication, more closely resembles deep water members of the subgenus *Floraconus* Iredale, 1930 from Australia and South Africa than any other Caribbean species group. Indeed, both *C. lightbourni* and *C. lindae* were originally assigned to *Floraconus* [Petuch, 1986, 1987], based upon their similarities to the deep water Australian *C. (Floraconus) angasi* Tryon, 1883 and *C. (Floraconus) advertex* Garrard, 1961 and the South African *C. (Floraconus) pictus* Reeve 1843. Members of the new subgenus differ from deep water *Floraconus* species in having larger, heavier shells, and in having proportionally larger and more bulbous and prominent protoconchs.

The similarities between the two subgenera are probably due to convergence and not to any direct genetic relationships.

When *C. lindae* was described [Petuch, 1987], I had only three specimens to examine; one from the University of Miami (Rosenstiel School of Marine and Atmospheric Science) research vessel *R/V Gerda*, and two from deep water lobster traps taken by commercial fishermen. During the *R/V Bellows*

dredgings an additional thirty-two specimens were collected, allowing for a more thorough re-examination of this rare deep water taxon.

*Conus (**Lindaconus**) lindae* Petuch, 1987

(Fig. 3G, 3H, 3I, 3J, 3K, 3P)

Conus (Floraconus) lindae Petuch, 1987: 55, plate 9, figs. 9,10.

Additions to original description. General shell characters as for description of subgenus; shell shape variable, ranging from elongated to stocky in same population; spire variable, ranging from flat and slightly sloping to elevated with slightly canaliculate whorls (as in holotype); shell color variable in same population, ranging from pure white to white with very faint pink mottlings, to pinkish-white with multiple rows of dark pink dashes and dots, to pale pinkish-rose with two bands of large, dark rose blotches; spire whorls variable in color, ranging from pure white, to white with pale pink flammules, to pale pinkish-rose with evenly-spaced large dark pink flammules, to pale cream-tan with multiple rows of darker tan dots and dashes; protoconchs consistently large, bulbous, rounded, composed of two whorls; periostracum thick, smooth, opaque, dark yellow-tan color; anterior columellar plication somewhat variable, being better developed and more prominent on older specimens.

Discussion. Of the known western Atlantic cone shells, *Conus (**Lindaconus**) lindae* has now been found to be one of the most variable, both in shell color and shell shape. In the original type lot, the two paratypes are pure white while the holotype is pinkish-white with dark pink dahes and blotches (Fig. 3I). All three are approximately the same size and shape. Although most of the specimens collected by the *R/V Bellows* were dead, stained gray, and decorticated by the reducing environment mud, several were fresh enough to have good shell color. Of these, pure white was found to be the most common color, while pink-colored specimens were less frequently encountered. The rarer colored individuals encompassed shells with multiple bands of pink or tan spots or shells with bands of pink spots and large dark rose-pink patches (Fig. 3G,3J). Some individuals (Fig. 3H) graded between the pure white and colored extremes, being white with very pale pink amorphous mottling.

Equally as variable as shell color in *C. lindae* are shell shape and proportions. Some individuals, such as the holotype and the specimen illustrated here in Fig. 3K, are short and stocky, having broad shoulder areas and subpyriform shapes. Other specimens (Fig. 3H) are very slender and elongated. Spire height also varies, with some specimens (Fig. 3H) having a proportionally low, sloping spire, while others (Fig. 3K) have more elevated, protracted spires with slightly canaliculate whorls. Comparing single specimens of the stocky, pink-spotted form (such as the holotype) with the elongated, slender, pure white form would lead to the conclusion that there were two distinct species coexisting along the Bimini Wall. The finding of a complete set of intergrades between these two morphological extremes, however, readily demonstrates that a single, highly variable species occurs in deep water along the western side of the Bahamas.

Turridae
Turrinae
Genus *Polystira* Woodring, 1928

*Polystira **starretti*** sp. nov.

(Fig. 3L,3M,3N)

Description. Shell small for genus, elongated, with rounded shoulder; siphonal canal long, same length as spire; body whorl ornamented with 6 large, prominent raised cords; subsutural cord and cord around shoulder largest in size; spire whorls ornamented with 2 large cords and one small cord that borders suture; areas between cords with distinct raised growth lines, producing chevron effect; siphonal canal ornamented with numerous fine, threadlike cords and one single large cord just anterior of siphonal canal-body whorl juncture; aperture proportionally small, oval in shape; shell color pure white.

[**ОПИСАНИЕ**. Раковина маленькая для рода, удлиненная, с закругленным плечом; сифональный канал длинный, равен по длине завитку; последний оборот с 6 крупными выпуклыми ребрами, из которых два самых крупных расположены под швом и около плеча; обороты завитка с 2 крупными ребрами и одним небольшим ребром, граничащим со швом; промежутки между ребрами с отчетливо приподнятыми линиями нарастания, образующими эффект шеврона; сифональный канал с многочисленными тонкими ребрышками и одним крупным ребром, расположенным в месте перехода оборота в канал; устье пропорционально маленькое, овальное; раковина чисто белая.]

Material examined. HOLOTYPE — length 20 mm, width 6 mm, off Victory Cay, Bimini Chain, Bahamas, UF277109; PARATYPES — length 29 mm, same locality and depth as holotype, UF277110; lengths 20 mm and 25 mm (fragmentary), same locality and depth as holotype, UF277111; length 28 mm, same locality and depth as holotype, research collection of the author.

Type locality. On carbonate mud bottom, 400 m depth, 7km southwest of Victory Cay, Bimini Chain, Bahamas (25°28.50'N, 79°17.23'W).

Etymology. Named for Mr. Robert D. Starrett, Second Mate and Cook of the *R/V Bellows*.

Discussion. Of the known, small western Atlantic *Polystira* species, *P. **starretti*** most closely resembles *P. lindae* Petuch, 1987 from the southern Caribbean. The new species differs from *P. lindae* in having six large cords on the body whorl instead of five, in having only two large cords on the spire

whorls instead of three, in having the distinctive chevron pattern of growth increments between the cords, and in having the single large cord around the posterior end of the siphonal canal.

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Appendix 1.

Deep Water Gastropods (400 m depth) from the Bimini Chain Bahamas; collected by the *R/V Bellows*.

1 = found on carbonate mud substrate (*Conus lindae-Stylophora laevigata* Community); 2 = found on shell gravel substrate; WR = wide-ranging Caribbean-western Atlantic; R = restricted to northern Cuba, southern Gulf of Mexico, and the Straits of Florida; B = Bahamian deep water endemic.

Pleurotomariidae	
Entemnotrochus adansonianus (Crosse et Fischer, 1861) (tumbled down from adjacent rock wall)	1, WR
Fissurellidae	
Diodora (Glyphis) fluviana Dall, 1889	1, R
Capulidae	
Hyalorisia galeus (Dall, 1889) (attached to *Fusinus halistreptus*)	1, WR
Vermetidae	
Serpulorbis ***squamolineatus*** Petuch, sp. nov.	1, B
Turritellidae	
Vermicularia ***bathyalis*** Petuch, sp. nov.	1, B
Tonnidae	
Eudolium thompsoni McGinty, 1955	1,2, R
Triviidae	
Trivia cf. *nix* (Schilder, 1922)	1, WR
Naticidae	
Naticarius castrensis (Dall, 1889)	1, WR
Polinices bahamiensis (Dall, 1925)	1, B
Epitoniidae	
Stenorhytis pernobilis (Fischer et Bernardi, 1857)	2, WR
Xenophoridae	
Tugurium caribbeum (Petit, 1856)	1, WR
Muricidae	
Siratus yumurinus (Sarasua et Espinosa, 1978)	1, R
Buccinidae	
Antillophos ***bahamasensis*** Petuch, sp. nov.	1, B
Antillophos ***freemani*** Petuch, sp. nov.	1,2, B
Chickcharnea fragilis Petuch, sp. nov.	1, B
Fasciolariidae	
Fusinus halistreptus (Dall, 1889)	1, R
Latirus macmurrayi Clench et Aguayo, 1941	1, R
Volutidae	
Scaphella (Clenchina) gaudiati Bail et Shelton, 2001	1, R
Mitridae	
Mitra antillensis Dall, 1889	1, WR
Marginellidae	
Persicula ***bahamasensis*** Petuch, sp. nov.	1, B
Olividae	
Oliva (Strephona) bahamasensis Petuch et Sargent, 1986	1,2, B
Olivella (Macgintiella) ***biminiensis*** Petuch, sp. nov.	1, B
Conidae	
Conus (Gradiconus) centurio Born, 1778	2, WR
Conus (Gradiconus) villepinii Fischer et Bernardi, 1857	2, WR
*Conus (**Lindaconus**) lindae* Petuch, 1987	1, B
Terebridae	
Terebra (Myurellina) evelynae Clench et Aguayo, 1939	1, R
Terebra (Myurellina) floridana Dall, 1889	1, WR
Turridae	
Polystira ***starretti*** Petuch, sp. nov.	1,2, B

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Новые глубоководные гастроподы с шельфа Бимини (Багамские острова)

Эдуард Д. ПЕТУХ

Факультет Географии и Геологии, Атлантический Университет Флориды, Бока Ратон, Флорида 33431, США

РЕЗЮМЕ. Недавние глубоководные (300-400 м) траления вдоль шельфа Бимини, цепь Бимини, Большая Багамская банка, открыли бентосное сообщество, включающее 28 видов брюхоногих. 8 видов оказались новыми для науки: *Serpulorbis* ***squamolineatus*** sp. nov. (Vermetidae), *Vermicularia* ***bathyalis*** sp. nov. (Turritellidae), *Antillophos* ***bahamasensis*** sp. nov., *Antillophos* ***freemani*** sp. nov., and ***Chickcharnea fragilis*** gen. et sp. nov. (all Buccinidae), *Persicula* ***bahamasensis*** sp. nov. (Marginellidae), *Olivella (Macgintiella)* ***biminiensis*** sp. nov. (Olividae) и *Polystira* ***starretti*** sp. nov. (Turridae). В этом бентосном сообществе доминировали конус *Conus (**Lindaconus**) lindae* и гидрокоралл *Stylaster laevigata* (растущий на накопившихся мертвых раковинах) Описан новый род трубачей ***Chickcharnea*** (типовой вид — *C. **fragilis***) и новый подрод конусов ***Lindaconus*** (типовой вид — *Conus lindae* Petuch, 1987). Обсуждается экология и биогеографическое родство фауны брюхоногих шельфа Бимини.