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

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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.