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Cuban Mesophotic Reef Sponges: Challenges, Novelties, and Opportunities – Part I: Major habitats and Haplosclerida (Demospongiae) diversity

Linnet Busutil¹, Shirley A. Pomponi² María R. García–Hernández³ & María Cristina Díaz²

¹Instituto de Ciencias del Mar, Departamento de Biología, Playa, La Habana, Cuba.

²Harbor Branch Oceanographic Institute–Florida Atlantic University, Fort Pierce, Florida, USA.

³Centro Nacional de Áreas Protegidas, Playa, La Habana, Cuba.

A joint Cuba-U.S. research cruise was conducted from May 14 to June 12, 2017 to survey deep mesophotic reefs of Cuba during 42 dives at 35 unique sites. The extent and health of mesophotic reefs along the entire coastline of Cuba was characterized for the first time. Covering 27 km, ROV dives totaled 103 hours from 25-188 m deep producing 20,070 high digital still images of habitat and species. Three topographic areas, the Deep Island Slope (>150- 125 m), the Deep Fore-Reef Escarpment (the 'Wall', 50- 125 m), and the Deep Fringing Reef (30- 50 m) harbor important and distinct sponge fauna. The major features of the sponge populations along this depth regions is shown. Initial interpretation of field observations and photographs allow to distinguish 296 Porifera morphospecies. 115 morphospecies have been recognized to a species level (39%) while the rest (61%) have received either a generic or higher taxa assignments. The order Haplosclerida was the most diversely represented with 29 morphospecies assigned to currently described species and 19 morphospecies assigned to genera, or familial taxa. We have initiated the taxonomic characterization these unknown species with the description of two thin branching *Callyspongia* species: *Callyspongia pedroi* and *Callyspongia alcoladoi*. Here we present the most abundant and intriguing representatives of the Haplosclerida encountered in our first Cuban mesophotic reef campaign and their main morphologic features and habitat. The challenges, advances and potential opportunities to advance in the understanding of Cuban and Caribbean sponge fauna is discussed.