A Regional Survey of Clypeasteroid and Spatangoid Echinoids of the Central Florida Keys

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We report the results of SCUBA surveys of clypeasteroid and spatangoid echinoids conducted in 2020 and 2021 along the central part of the Florida Keys. Documenting present-day distribution of those widespread organisms, which perform important ecosystem services, is important for understanding their regional ecological significance. Both live and dead remains were included in the survey. Echinoids and/or their dead skeletal remains (tests or test fragments) were found at 17 out of 27 examined sites (63%) across multiple habitats including coastal seagrass meadows, the Hawk Channel, backreef sands, and deeper forereef habitats. The species included *Clypeaster rosaceus* (four sites), *Clypeaster subdepressus* (five sites), *Encope michelini* (three sites), *Leodia sexiesperforata* (eight sites), *Meoma ventricosa* (nine sites), and *Plagiobrissus grandis* (four sites). Whereas most sites were dominated by one species, some sites included as many as five echinoid species. The agreement between live and dead echinoids was high, including spatial distribution, species composition, and rank abundance of dominant species. The high fidelity (i.e., high live-dead concordance) suggests that irregular echinoid populations can also be tracked using skeletal remains found around seafloor surface. Our recent bio-inventorying effort is consistent with past regional surveys (dating back to 1960s) in terms of the identity of observed species, their rank abundance, and their spatial distribution patterns. The results indicate that despite widespread human-driven impacts (tourism, urban development, increasingly frequent hurricanes, and seasonal fisheries), irregular echinoid populations continue to be widespread and abundant across a wide range of habitats where they provide diverse ecosystem services by recycling organic matter, oxygenating sediments, hosting commensal organisms, and supporting predators. The reported results document the present-day status of echinoid populations in central Florida Keys and may serve as a reference point for assessing future regional changes in distribution and abundance of echinoid populations.