Florida Department of Environmental Protection
Coral Reef Conservation Program
Southeast Florida Coral Reef Evaluation and Monitoring Project
2024 Project Results

The Southeast Coral Reef Evaluation and Monitoring Project (SECREMP) provides local, state, and federal resource managers with an annual coral reef status report for the Kristin Jacobs Coral Aquatic Preserve (Coral AP).

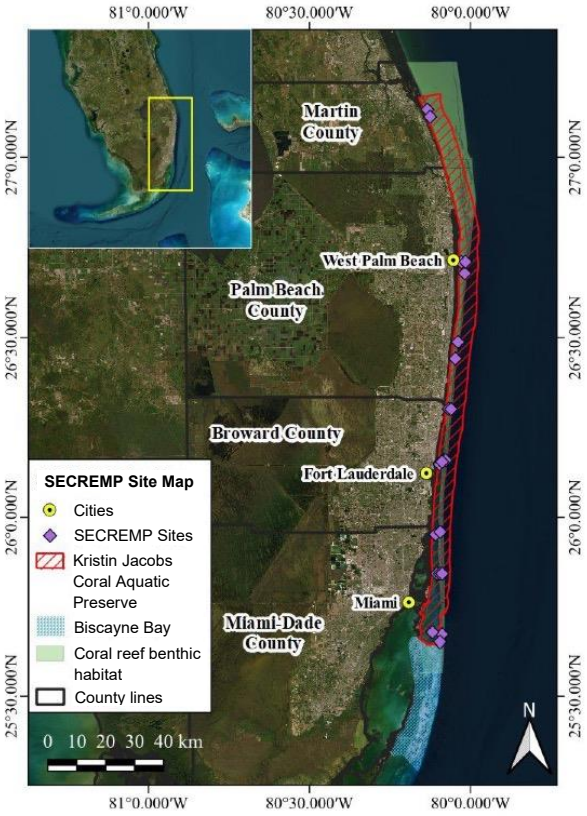

Figure 1. Map of the 22 SECREMP sites.

SECREMP was established in 2003 as an expansion of the Florida Fish and Wildlife Conservation Commission (FWC)-managed Coral Reef Evaluation and Monitoring Project (CREMP) in the Florida Keys. SECREMP provides local, state, and federal resource managers with annual reports on the status and condition within the Coral AP coral reef system (which spans Miami-Dade, Broward, Palm Beach, and Martin counties), as well as information on temporal changes in resource condition. Survey methods of the 22 sites (Figure 1) include photographic transects to quantify percent cover of major benthic taxa (stony corals, sponges, octocorals, macroalgae, etc.) and demographic surveys to quantify abundance, size distribution, and overall health condition of stony corals, octocorals, and giant barrel sponges. SECREMP is a partnership between DEP, FWC, and NSU that facilitates collaboration and knowledge sharing, benefiting coral reef ecosystems nationwide.

The Coral AP experienced significant stony coral assemblage declines between 2015 and 2018, largely as a result of a stony coral tissue loss disease (SCTLD) epidemic that occurred from 2014 to 2018. Significant decreases in coral percent cover, live tissue area (LTA), and density were observed across the region during this time, especially among species considered highly and intermediately susceptible to SCTLD. Although SCTLD still currently occurs within the Coral AP, the regional disease prevalence has remained below 1% since 2018 and no further losses in the aforementioned coral metrics have been detected. Recovery of the coral assemblage hinges on the successful reproduction of colonies that survived the disease event. Juvenile coral abundance has increased by approximately 64% between 2018 and 2024 (from 2071 colonies to 3395 colonies), a promising sign that corals are successfully reproducing and that reef recovery may be occurring (Figure 2). However, the increase in juvenile abundance has been almost exclusively driven by increases in weedy generalist species, particularly *Siderastrea* spp. (*Siderastrea siderea* and *Siderastrea radians*) and *Porites* spp. (*Porites astreoides* and *Porites porites*), which dominated juvenile counts in both 2018 and 2024. In 2024, these species accounted for 79% of the 3395 juveniles observed. *Siderastrea* spp. was the

most abundant juvenile species in both years, increasing by 77% from 2018 to 2024, where they comprised 60.8% of all juveniles observed. *Porites* spp. juveniles experienced the largest percent increase in abundance between 2018 to 2024: their abundance increased by 104% to make up 21.6% of juveniles in 2024. Although *Siderastrea* spp. and *Porites* spp. are reef-building corals, they are considered to be low-relief species, meaning that even with optimal conditions and enough time, they generally do not form large colonies, thus constraining the amount of structural complexity and habitat they can provide. Juveniles of the important reef-building coral *Montastraea cavernosa,* which is considered intermediately susceptible to SCTLD and suffered heavy losses during the outbreak, also increased in abundance between 2018 (158 colonies) and 2024 (260 colonies), but they comprised approximately the same percentage of juveniles (7.6%) in both years. Conversely, the abundance of highly SCTLD-susceptible species juveniles declined from 2018 to 2024, where they comprised 2.8% and 0.6% of the juvenile abundance, respectively. In 2024, only 19 colonies of highly SCTLD-susceptible species were observed across all SECREMP sites, the most abundant of which was *Dichocoenia stokesii* (8 colonies). Due to the severity of the disease event, adults of highly SCTLD-susceptible species are likely spatially isolated from each other, making successful reproduction difficult. The trend in juvenile coral assemblage composition towards generalist species and away from highly SCTLD-susceptible species will likely have lasting impacts, both in terms of reef recovery and the ecosystem services the reef is able to provide. Because of the significant economic value of reefs within the Coral AP and the chronic nature of disturbances to them, comprehensive long-term monitoring to quantify change and help identify threats to the ecosystem is essential. This report highlights the value of long-term, region-wide monitoring programs, which will be vital in focusing future restoration efforts and monitoring the potential recovery trajectory of this resource.

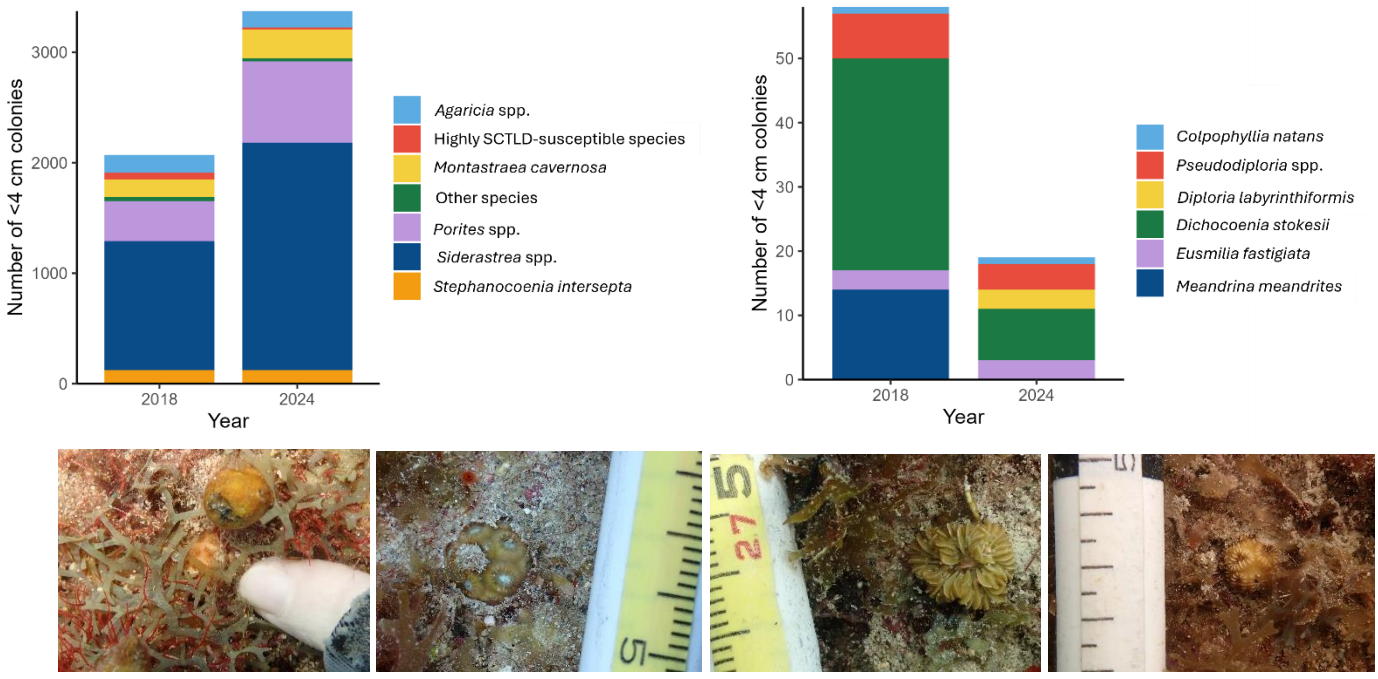

Figure 2. Top left: Abundance of juvenile corals (colonies <4 cm in diameter) in 2018, at the end of the SCTLD epidemic, and 2024. Species were grouped together to facilitate visualization of major trends. "Other species" includes *Madracis decactis*, *M. mirabilis*, *Mycetophyllia* spp., *Orbicella faveolata*, *Phyllangia americana*, and *Solenastrea bournoni*. **Top right:** Abundance of juvenile corals of highly SCTLD-susceptible species in 2018 and 2024. **Bottom row:** Photographs of select juvenile corals from SECREMP sites. From left: *Siderastrea siderea*, *Montastraea cavernosa*, *Meandrina meandrites*, *and Dichocoenia stokesii.* In the first photo, a diver's finger is included for scale. In the latter three photos, long tick marks denote 1 cm.