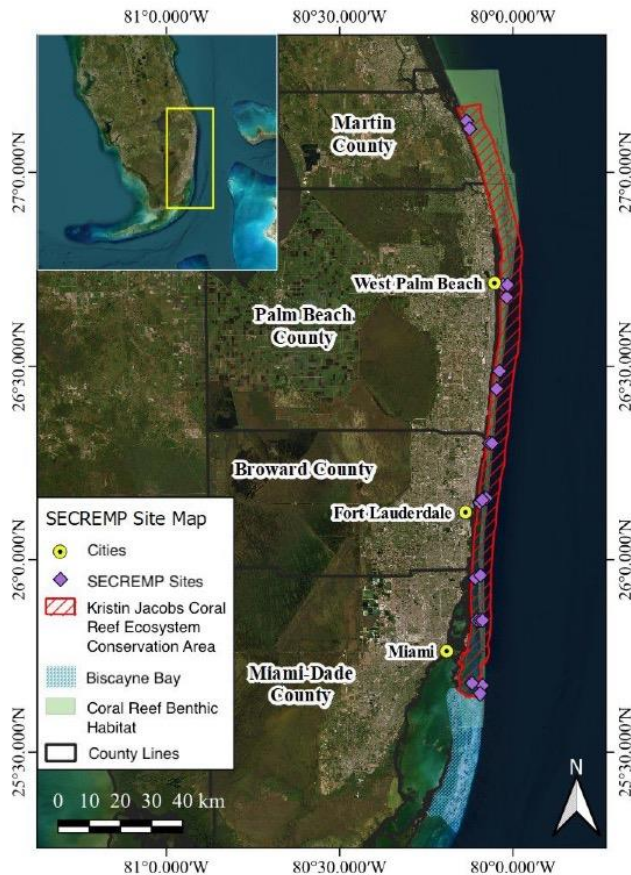


**The Southeast Florida Coral Reef Evaluation and Monitoring Project (SECREMP) provides local, state, and federal resource managers with an annual coral reef status report for the Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA).**

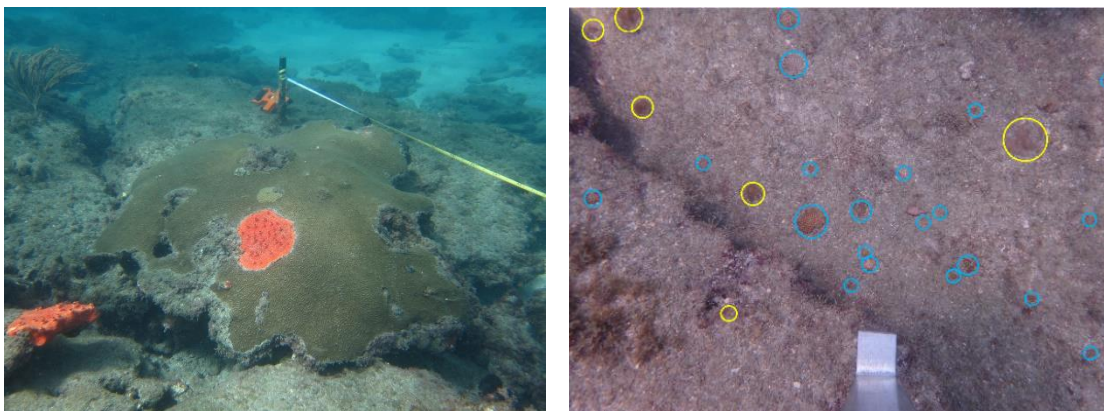
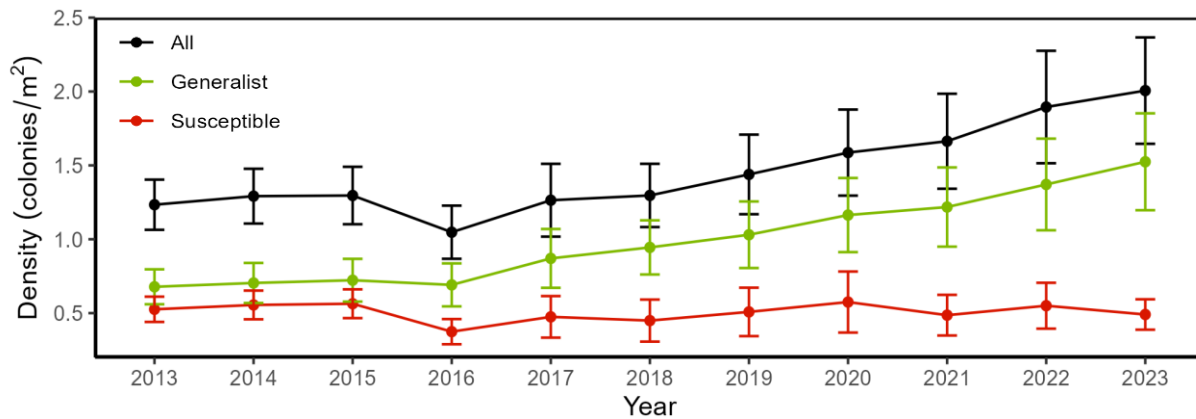


**Figure 1.** Map of the 22 SECREMP sites.

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 Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA) 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 ECA experienced significant stony coral assemblage declines between 2015 and 2018 largely as a result of the stony coral tissue loss disease (SCTLD) outbreak that began in 2014. Significant losses were observed across all stony coral metrics examined: percentage of benthic cover, live tissue area (LTA), and density. Regional disease prevalence has remained below 1% every year since 2018; thus, total loss from this event can be quantified and indicators of recovery can begin to be addressed. Live tissue area has been reduced to less than half of what it was prior to the outbreak, primarily through the loss of SCTLD-susceptible species, and, since 2018, no significant increases in LTA have been observed. Despite this major loss, adult stony coral density has steadily increased annually since 2016 and density in 2023 was higher than all previous years (Figure 2). The increase in adult coral density is due to an influx of coral juveniles, which then grow into adults – a promising sign indicating that corals are successfully reproducing, and that recovery may be occurring. However, the increase in density has been almost exclusively driven by increases in generalist species, particularly *Siderastrea siderea* and *Porites astreoides*, while SCTLD-susceptible species have not increased over time.

*Siderastrea siderea* and *P. astreoides* juveniles have dominated juvenile counts since at least 2018. In 2023, these species accounted for 77% of the 3213 juveniles observed. *Siderastrea siderea* was the most abundant juvenile species documented (1923 colonies), followed by *P. astreoides* (540 colonies). Although these species 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 reducing the amount of structural complexity and habitat they can provide. Conversely, highly SCTLD-susceptible species comprised only 0.6% (20 colonies) of the total number of juveniles seen in 2023, the most abundant of which was *Dichocoenia stokesii*, with only 11 colonies. The shift away from coral assemblages with many SCTLD-susceptible species towards ones dominated by generalist, low-relief species is common across all 22 SECREMP sites but is most pronounced at SECREMP's two Martin County sites (Figure 2). Prior to the SCTLD outbreak, the reef there was made up primarily of generalist species interspersed with large colonies of the SCTLD-susceptible species *Pseudodiploria clivosa*. After the peak of the disease event, all *P. clivosa* colonies were lost and the reef is now composed mainly of small *Siderastrea siderea* and *Porites astreoides* colonies. This trend in stony coral assemblage composition will likely have lasting impacts, both in terms of reef recovery but also the ecosystem services the reef is able to provide. Because of the significant economic value of reefs within the Coral ECA and the chronic nature of disturbances to them, comprehensive long-term monitoring to quantify change and help identify threats to the ecosystem is essential. The value of a long-term region-wide monitoring program is highlighted by this report, which will be vital in focusing future restoration efforts and monitoring the potential recovery trajectory of this resource.



**Figure 2. Above:** Mean ( $\pm$  SE) site-level adult stony coral density (colonies  $\geq 4$  cm/m<sup>2</sup>) from 2013–2023. Black line is comprised of corals from all species. Green line includes the generalist species *Porites astreoides*, *Porites porites*, *Siderastrea radians*, *Siderastrea siderea*, and *Stephanocoenia intersepta*. Red line represents all NOAA-defined highly, intermediately, and presumed SCTLD-susceptible species, barring those included within ‘generalists’. **Bottom left:** A large *Pseudodiploria clivosa* colony, an SCTLD-susceptible species, at Martin County 1 in 2014, prior to the onset of the SCTLD outbreak. **Bottom right:** Representative photo transect image taken in 2023 at Martin County 1 demonstrating the high density of *Siderastrea siderea* (blue circles) and *Porites astreoides* (yellow circles) colonies.