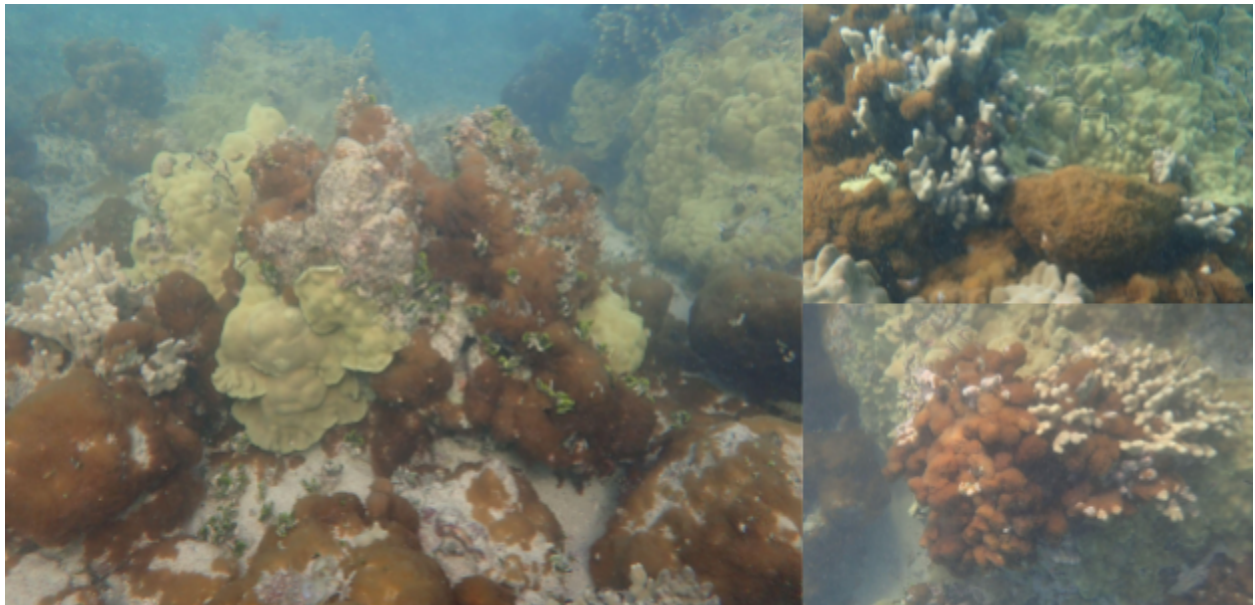


***Sarcothelia edmondsoni* Survey in Kailua Bay, O‘ahu**



Prepared By:

Division of Aquatic Resources
Aquatic Invasive Species Team
December 17, 2024

Field Report

Summary

On December 17th, 2024, the DAR AIS team surveyed off the Kailua Boat Ramp to investigate *Sarcothelia edmondsoni* growth. The native octocoral *S. edmondsoni* was observed overgrowing substrate and stony corals near Kualoa Beach Park in June 2024, and the AIS team aimed to assess whether the species behaved similarly in Kailua. Coordinates from Anita Tsang's master's thesis on *S. edmondsoni* were used as reference points to find known *S. edmondsoni* colonies in Kailua Bay.

The benthic cover in-shore consisted primarily of hard substrates and pavement, with some sandy areas. Approximately 150m offshore, the substrate changed to sandy patches and sporadic colonies of stony coral, 2-4m in width. *Sarcothelia edmondsoni* was observed throughout the surveyed area, including within 10m of the shoreline. GPS points were taken of notable *S. edmondsoni* colonies, including the colonies closest to shore, dense patches, and colonies overgrowing large stony corals (Fig. 1). Waters within 75m of Kailua Boat Ramp were murky, obscuring depths of up to 6ft, which hindered the team's ability to estimate the percent cover of *S. edmondsoni* closer to shore. Offshore, *S. edmondsoni* colonies were

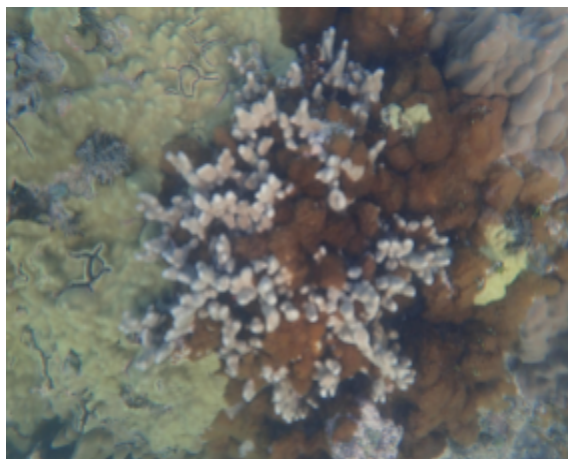


Fig. 2: Photograph of octocoral *Sarcothelia edmondsoni* growing in close proximity to *Porites compressa* (middle), *Porites lobata* (left), and *Porites evermanni* (top right) colonies.



Fig. 1: Map of *Sarcothelia edmondsoni* survey area in Kailua with Tsang 2021 coordinates (pink) and current notable colonies (blue).

observed covering hard substrate and live stony corals (Fig. 2). The total percent cover of *S. edmondsoni* colonies in this area typically ranged from 25-30% on hard substrate and between 40-90% on live stony coral and skeletons. *Sarcothelia edmondsoni* was not observed growing in sandy *Halimeda spp.* beds, but was observed on pieces of rubble within these areas.

Team members investigated two of Anita Tsang's previously recorded *S. edmondsoni* colony coordinates (Tsang 2021). At the first site, *S. edmondsoni* was discovered growing on and

smothering an approximately 2.5m wide coral patch consisting of *Porites lobata*, *Porites evermanni*, and *Porites compressa* (Fig. 2). Octocoral growth was concentrated at the base of

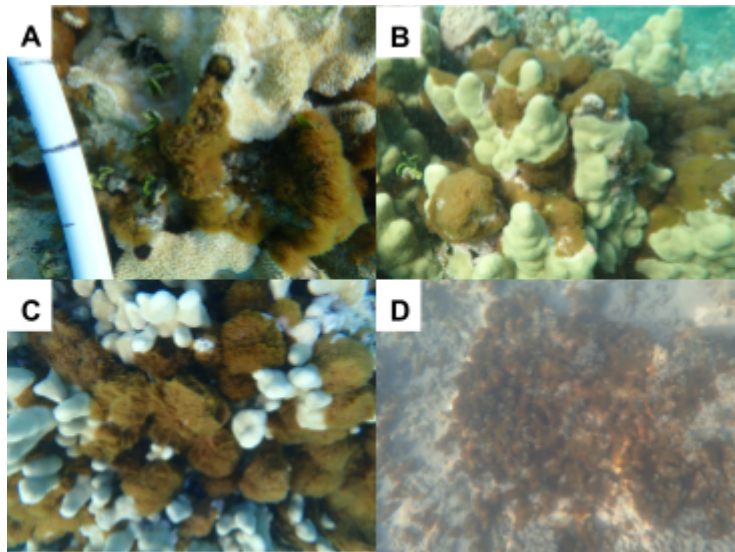


Fig. 3: *Sarcothelia edmondsoni* growing on hard benthic substrate including hard corals and pavement. Photographs depict growth in close proximity to multiple species including: **A)** within the cracks of *Montipora capitata*, **B)** in close proximity to *Porites lobata*, **C)** on *Porites compressa*, and **D)** over a field of *Halimeda discoidea* and pavement.

the *Porites* colonies, but was also present in cracks between coral heads and on top of *P. compressa* fingers. At the second site, *S. edmondsoni* colonies were smothering *Montipora capitata* colonies and the aforementioned *Porites* species. Assessments at the second site and the surrounding area aligned with what was observed at the first site, with *S. edmondsoni* present, often at >40% coverage, covering various coral species and hard substrate (Fig. 3).

The *S. edmondsoni* observed in Kailua exhibited morphological and behavioral characteristics closely resembling those of the population

near Kualoa Beach Park. Octocorals in Kailua featured brown polyps with longer tentacles on short stalks, a trait consistent with the recently identified variation at Kualoa. Professional identification of the Kailua variation could further validate the visual similarity between the populations. *Sarcothelia edmondsoni* was found growing on rubble, hard substrates such as pavement, and live stony corals in both Kailua and Kualoa. At both sites, coverage exceeding 40% was commonly observed, particularly in proximity to live coral (Fig. 4). The long-term growth patterns of this species have not yet been studied, and thus, it is uncertain how long *S. edmondsoni* has been exhibiting these behaviors in either location.

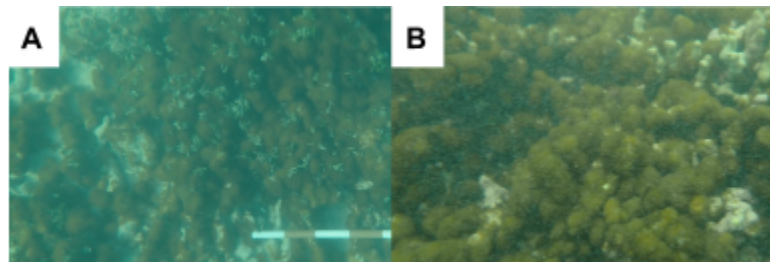


Fig. 4: High *Sarcothelia edmondsoni* cover (>80) in **A)** Kailua and **B)** Kualoa.

References

Tsang, A. (2021). *Evaluating the potential of an endemic Hawaiian soft coral, *Sarcothelia edmondsoni*, as a bioindicator of anthropogenic influence*. University of Hawai'i at Manoa.