



HEALTHY REEFS

REPORT CARD 2025



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1

decade of stable fish density and biomass

LITTLE CAYMAN'S REEFS IN NUMBERS

3.4%

increase in coral cover from 2024 - 2025

13.4%

average coral cover across all 10 sites

20%

of sites have returned to 'good+' condition

50%

of sites currently have poor coral cover



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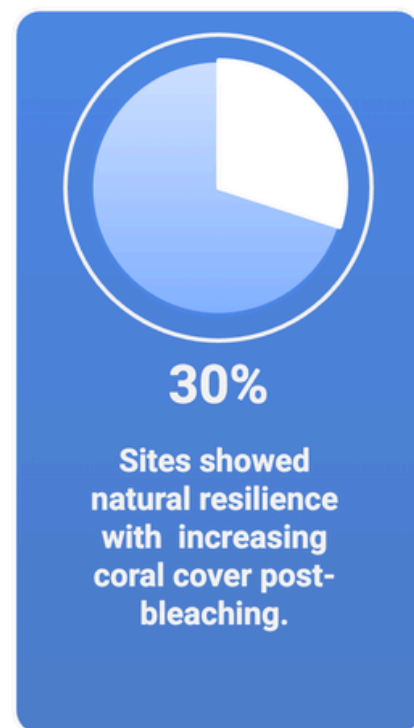
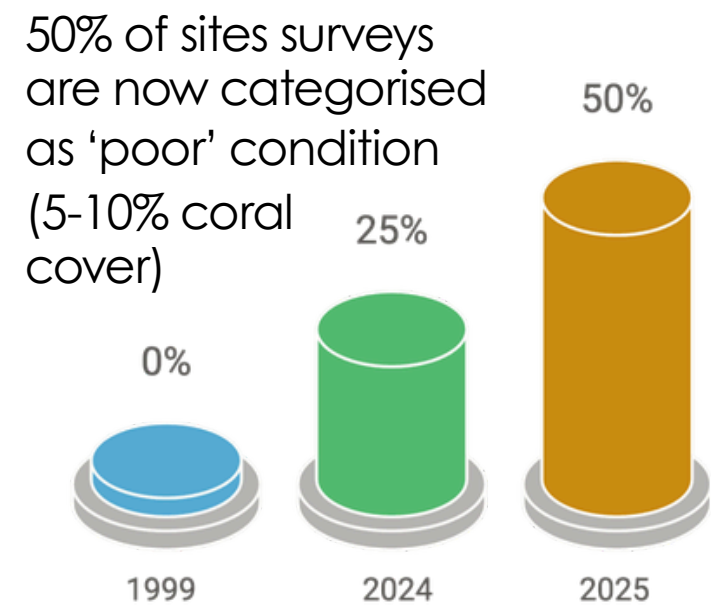
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AT A GLANCE

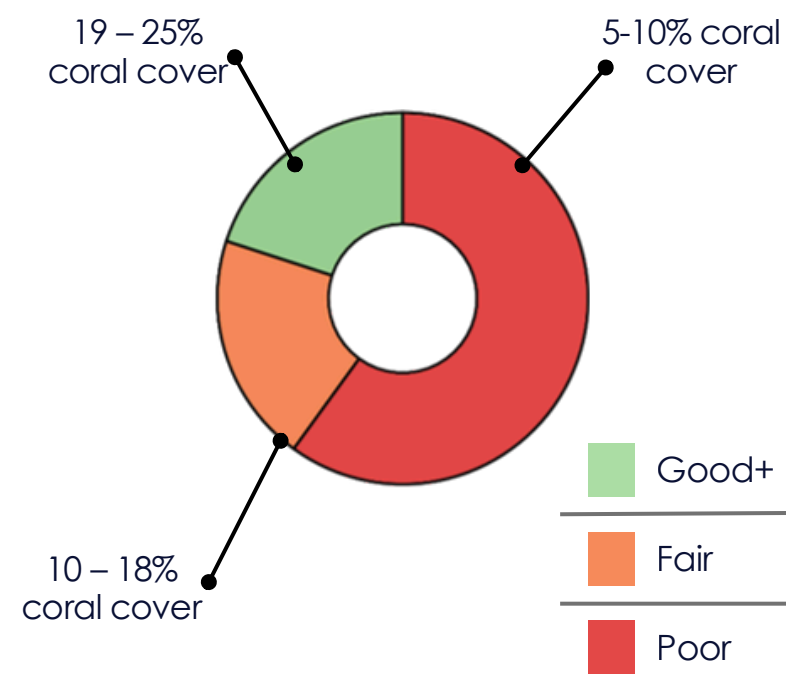
Since the 2023 global coral bleaching event, coral reefs in Little Cayman have shown significant decline in health to levels lower than when monitoring began. However, this year's data shows promising early signs of resilience and recovery and site-based variation. This is a positive indication, demonstrating the capacity of Little Cayman's reefs to withstand and recover from extreme disturbance under supportive local conditions.

CORAL COVER/HEALTH

Overall coral cover is beginning to show an increase (3.4% higher than 2024), although this is not yet significant.



The percentage of sites categorised as 'good+' has increased from 0% in 2024 to 20% in 2025.



CORAL SPECIES



Porites astreoides

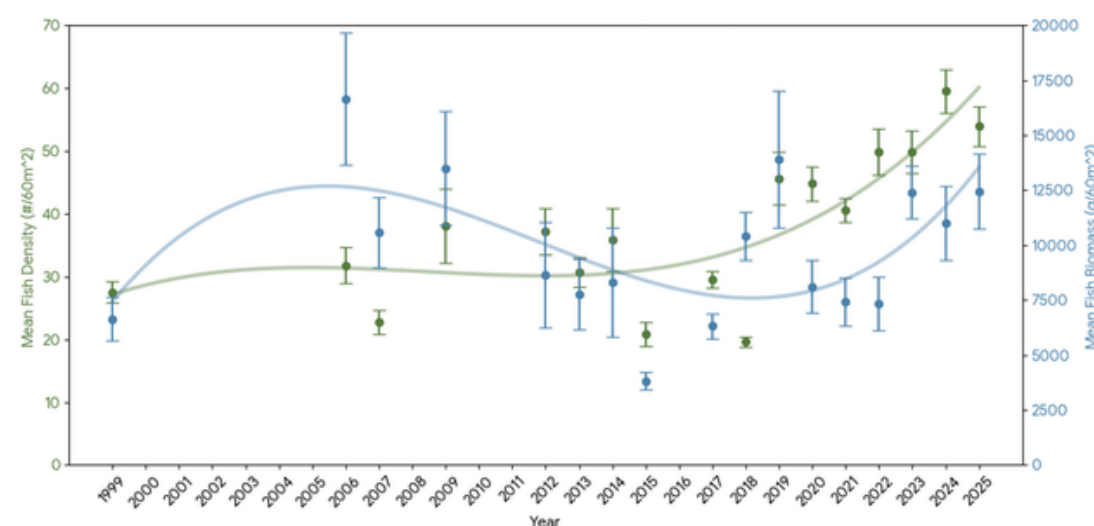


Siderastraea siderea

The dominant species on Little Cayman's reefs are similar to 2024, with more heat-resilient species including *Porites astreoides* and *Siderastraea siderea*.

FISH COMMUNITIES

Despite coral cover decline, fish populations remained stable, showing continued increase in density and biomass for approximately one decade.



FISH COMPOSITION

The most abundant group of fish by both biomass and density are the parrotfish. Similarly, grouper densities remain high, although there was a significant decline in the number of groupers in 2025 compared to 2024.



Parrotfish



Grouper

CONCLUSION

Little Cayman's reefs are proving remarkably resilient. The success observed in the past two years and the thriving, stable fish community is driven in part by strong local protections and management measures. Maintaining an optimal environment for recovery will be essential to foster any further rebound from the most extreme environmental event recorded on coral reefs to date.

CORAL COVER

INTRO

Through the Healthy Reefs campaign, CCMI has monitored Little Cayman's coral reefs since 1999. In 2023, coral reefs globally suffered extreme bleaching and mortality as a result of the most extreme marine heatwave on record. CCMI has continued monitoring since 2023, with **a focus on understanding the impact of the marine heatwave and associated resilience and recovery within Little Cayman's coral reefs.**

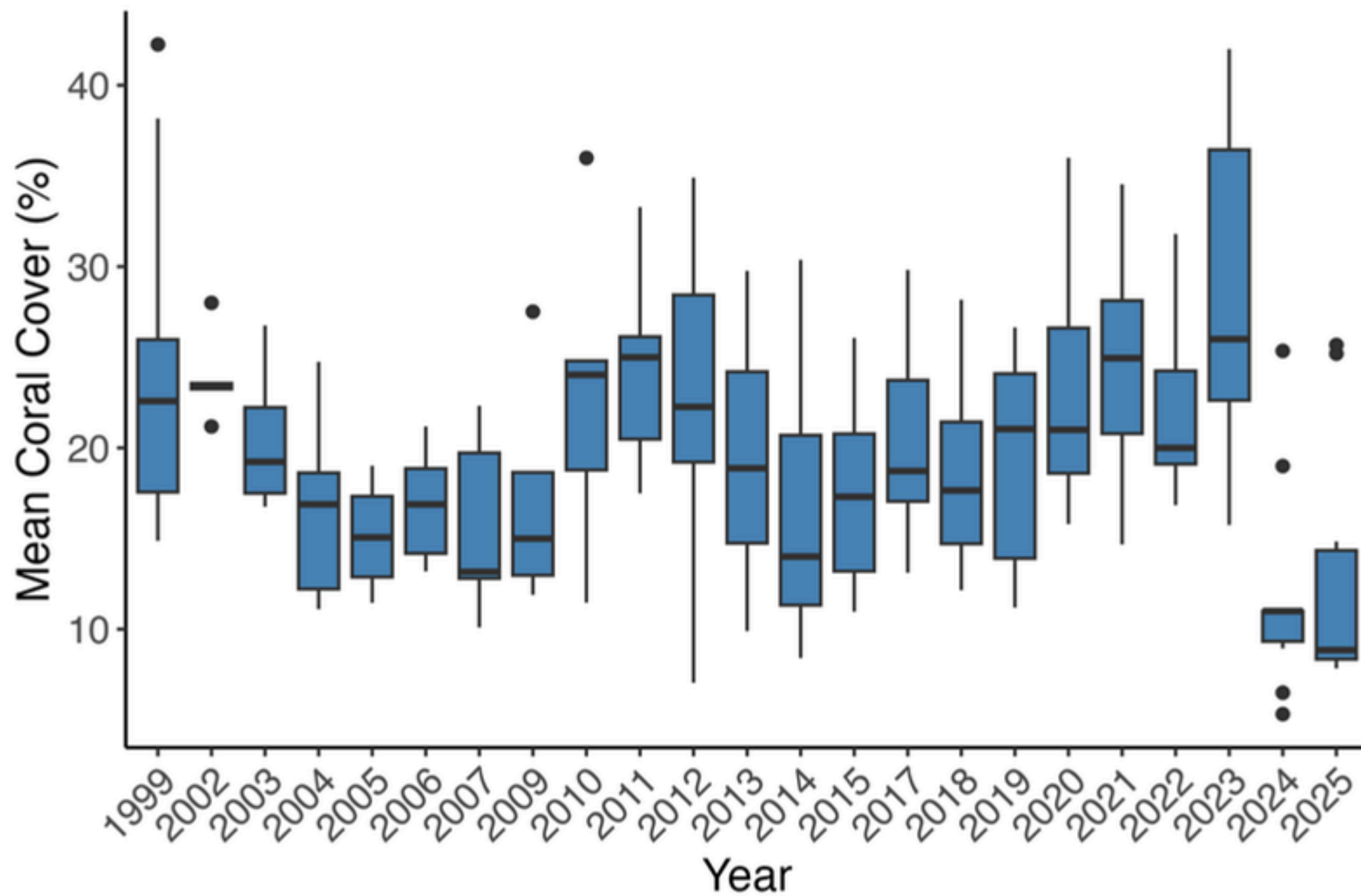


Figure 1: Mean percent coral cover (+/- SE) over time from 1999 – 2025

AVERAGE CORAL COVER

Overall coral cover remained low post 2023 bleaching, with an average of **13.4% cover across all 10 sites** (Fig. 1). From 2023 pre-bleaching, there was a significant decline in coral cover, from 26% to 10%. While there was a slight increase in coral cover from 2024 – 2025 (10% to 13.4%), this difference was not significant ($P < 0.05$; Fig. 2).



CORAL COVER

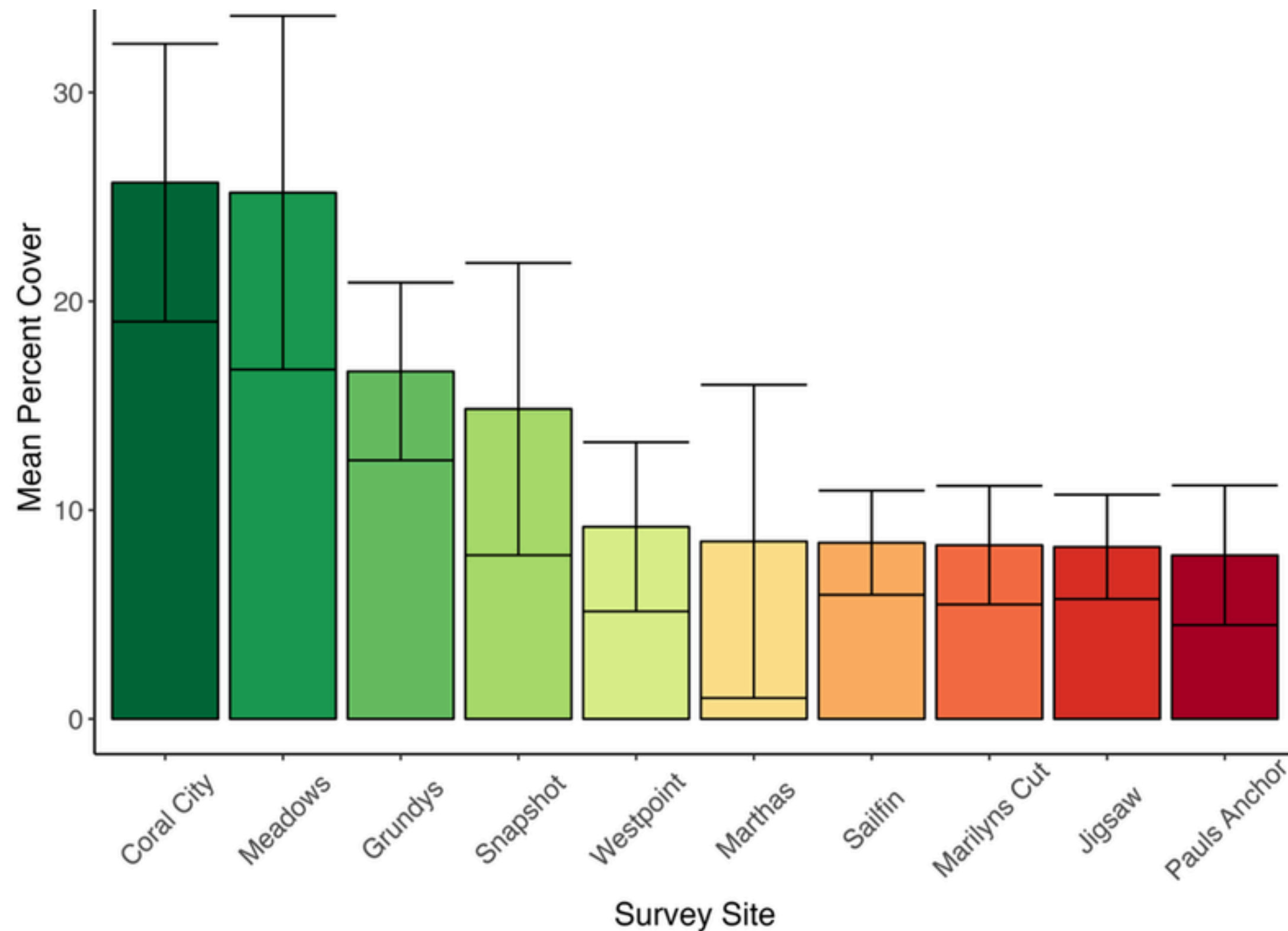


Figure 2: Mean percent coral cover at each site in 2025

SITE-SPECIFIC

Among the sites surveyed, two sites have higher coral cover than all others: **Coral City** and **Meadows** (Fig. 2).

In comparing responses to the bleaching and subsequent recovery, we found that **Coral City** was the most resilient to bleaching, showing almost no losses and sustaining stable coral cover across all three years. **Grundy's Gardens and Snapshot** experienced a significant decline following the bleaching but also shows evidence of high resilience due to significant recovery of coral cover from 2024 to 2025 (Fig. 3). All other sites showed less resilience, in that they all suffered significant mortality in response to the bleaching and are yet to show significant signs of recovery in 2025.



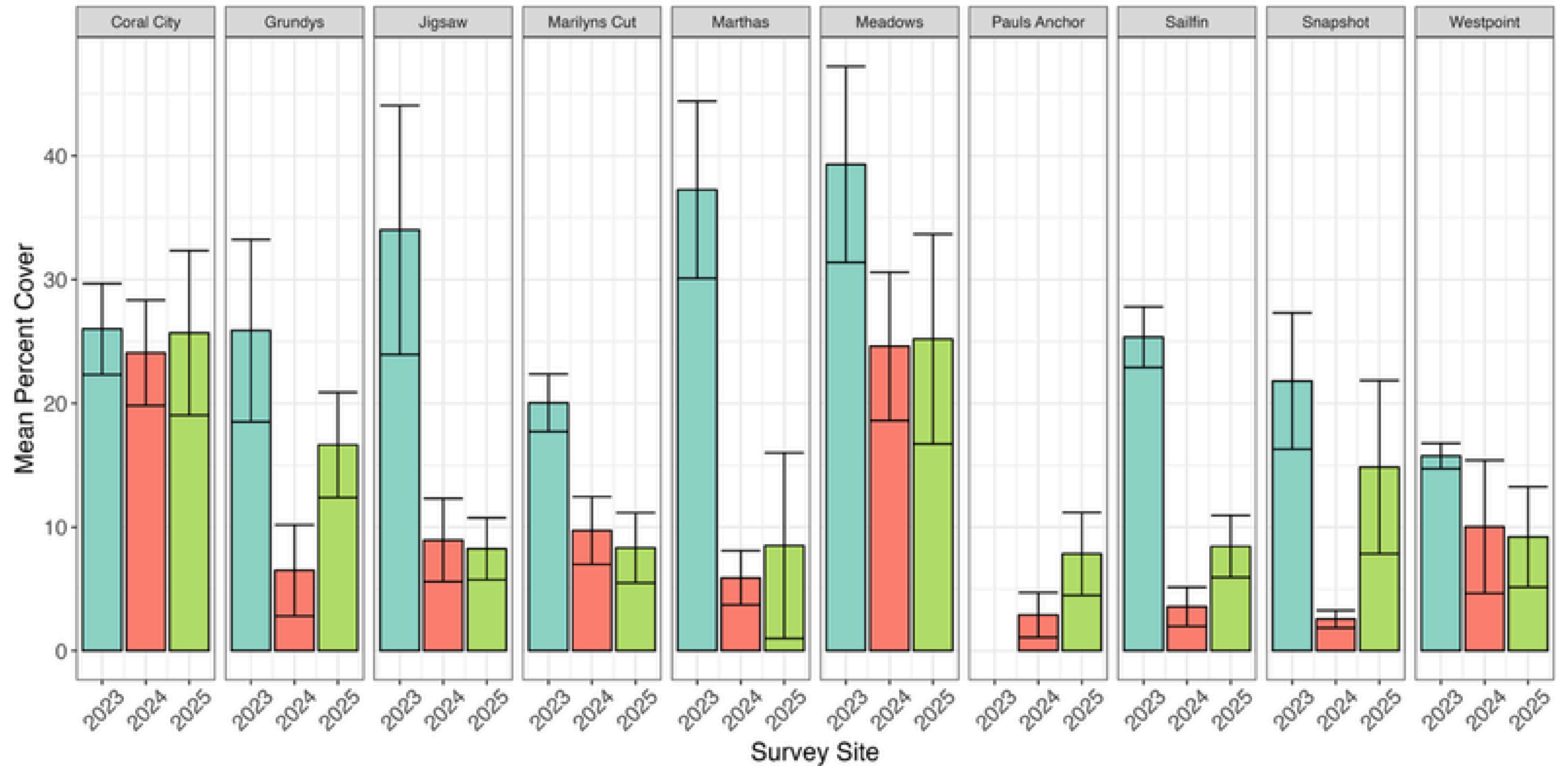


Figure 3: Mean percent coral cover at each site over time from 2023 - 2025



CORAL SPECIES COMPOSITION

The species most affected by the 2023 heatwave here *Agaricia* spp. and *Porites porites*. Overall, the relative frequency of species has shifted, with ***Siderastraea siderea*** as the dominant species, followed by ***Porites astreoides***.

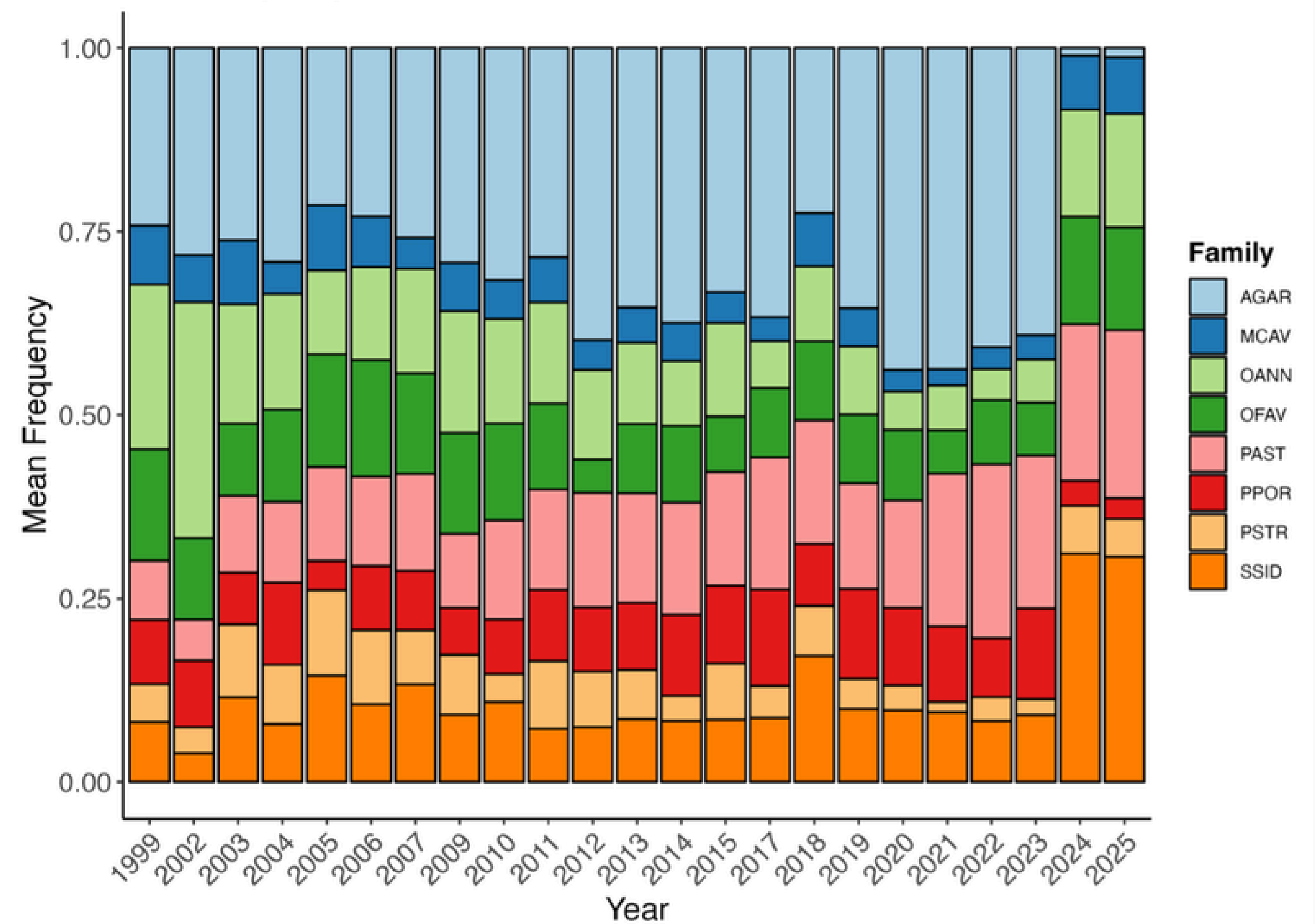


Figure 4: Mean species frequency from 1999 – 2025



CORAL HEALTH

When investigating the overall health state of each site, the number of sites characterised as “poor” condition (5-10% coral cover) doubled since 2024, where three sites that previously had 10 – 18% cover fell below 10% in 2025. Conversely, two sites that were categorised as good in 2024 (Coral City and Meadows) showed improvement to the good+ category (25 – 30%). No sites were categorised as very good (>30% cover).

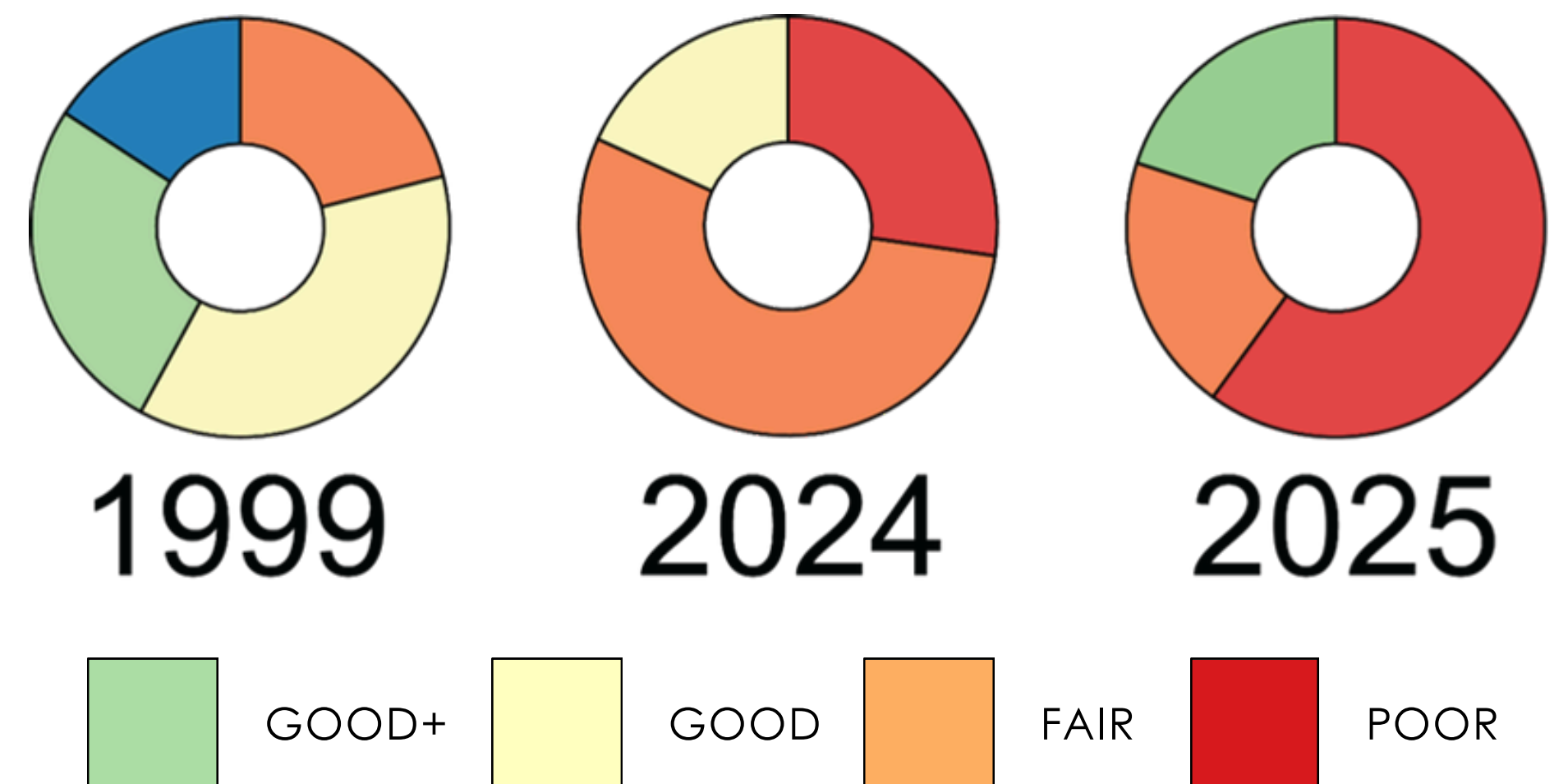


Figure 5: Percent frequency by health state in 1999 (left), 2024 (middle), and 2025 (right)

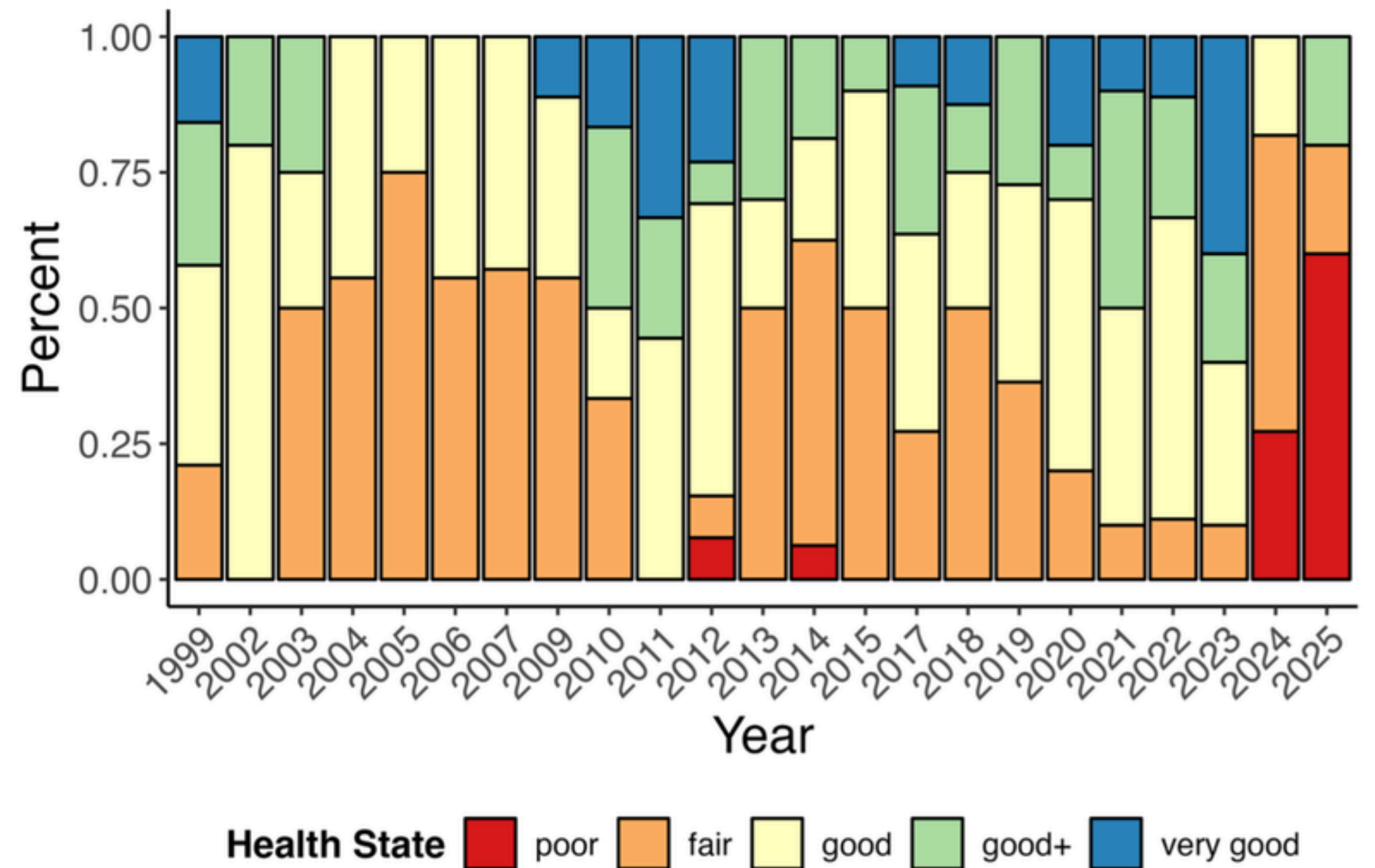
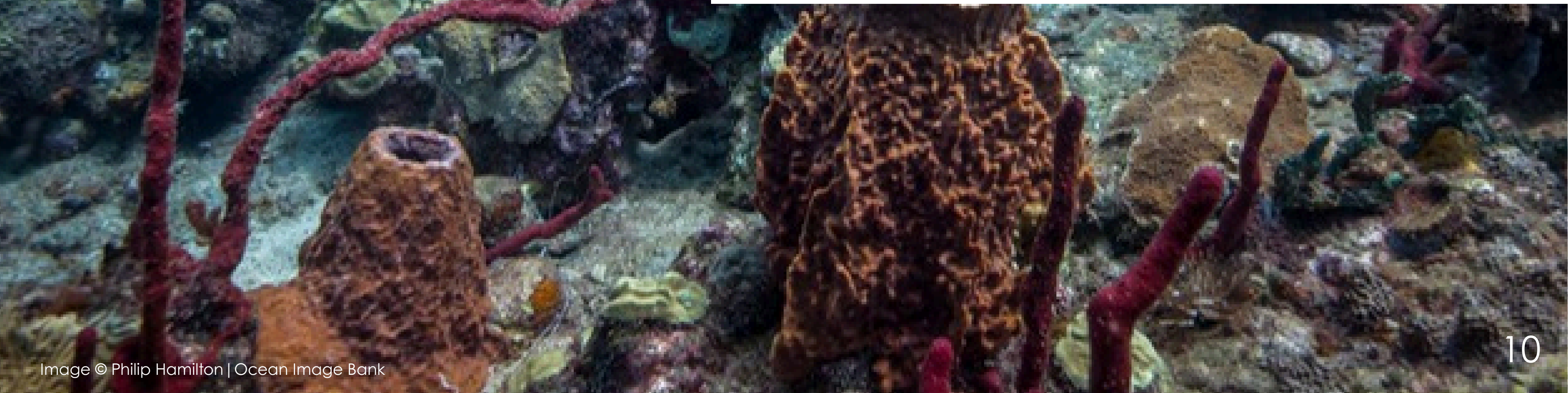


Figure 6: Health state of surveyed reefs sites in Little Cayman from 1999 – 2025. Categories are based on percent coral cover using the following: Poor = 5 – 10 %, Fair = 10 – 18%, Good = 19 – 25%, Good+ = 25 – 30%, Very Good = 31 – 100%



FISH COMMUNITIES

Fish populations continued to show stability, with overall no change in density or biomass since 2024. Trends overtime, however, suggest **fish populations are increasing in both number of fish and the size of fish.**

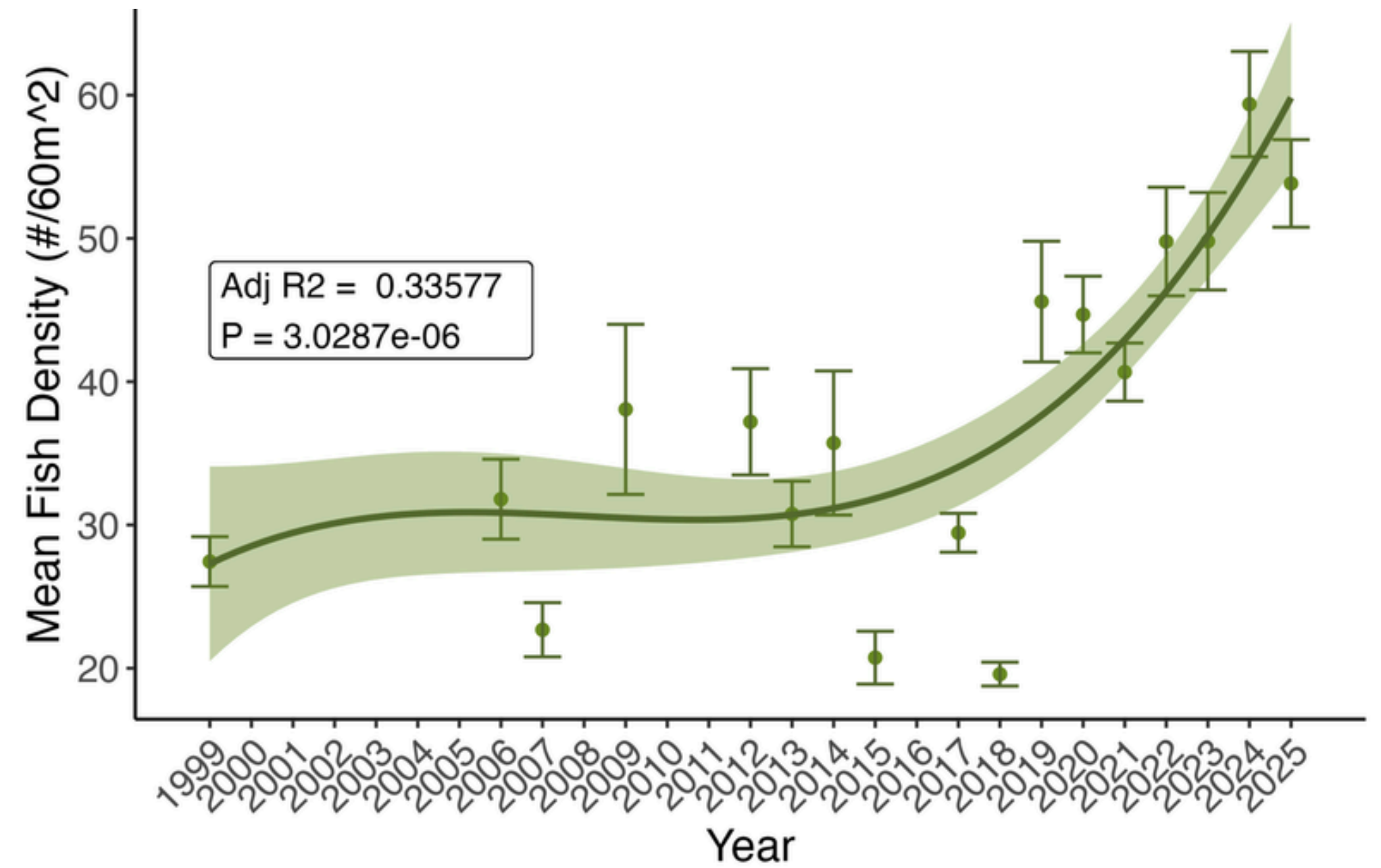


Figure 6: Mean density of fish on reef sites surveyed in Little Cayman from 1999 – 2025

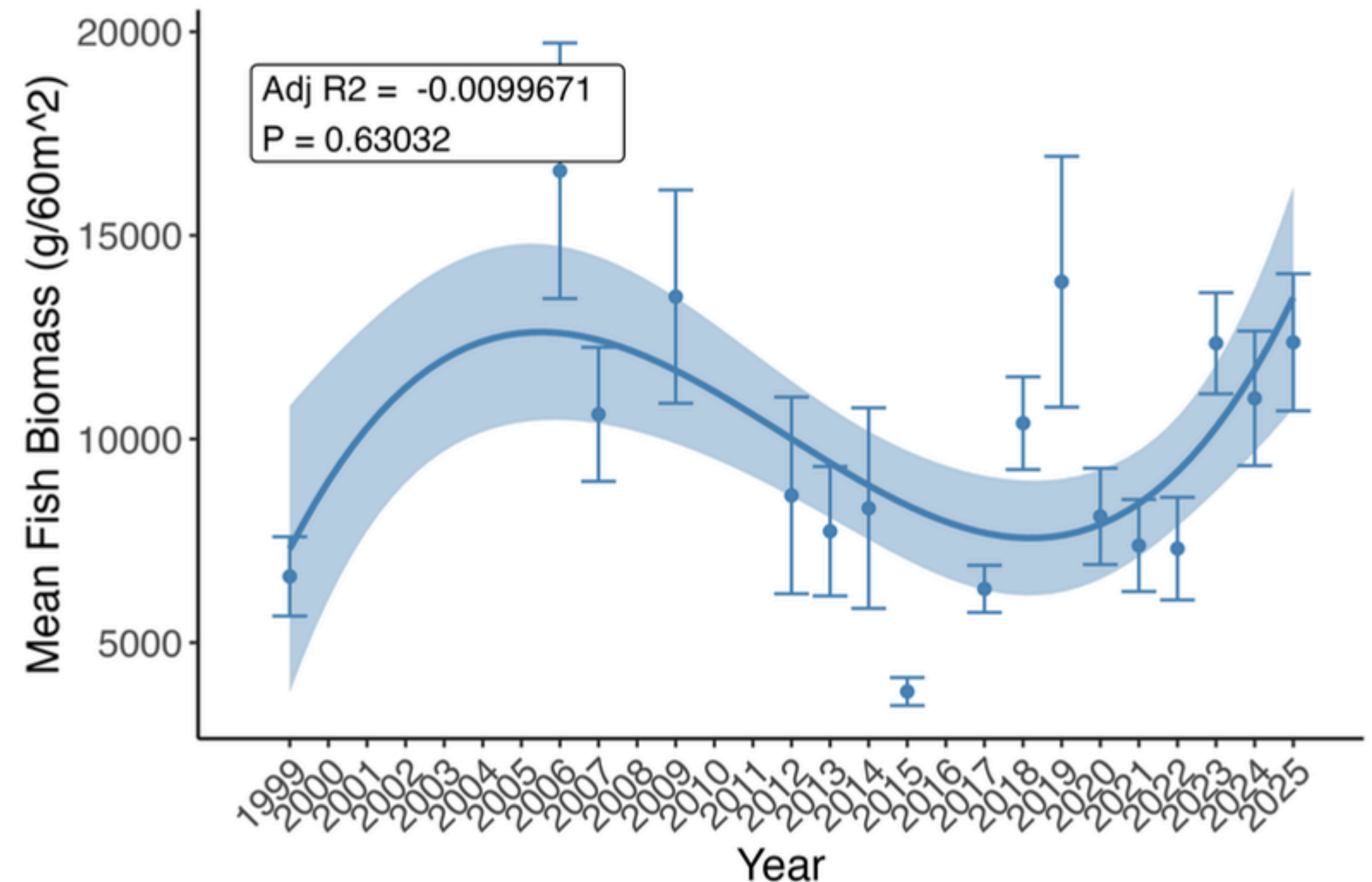


Figure 7: Mean fish biomass from 1999 – 2025

ABUNDANCE BY SPECIES

The most abundant group of fish by both biomass and density is the **parrotfish**.

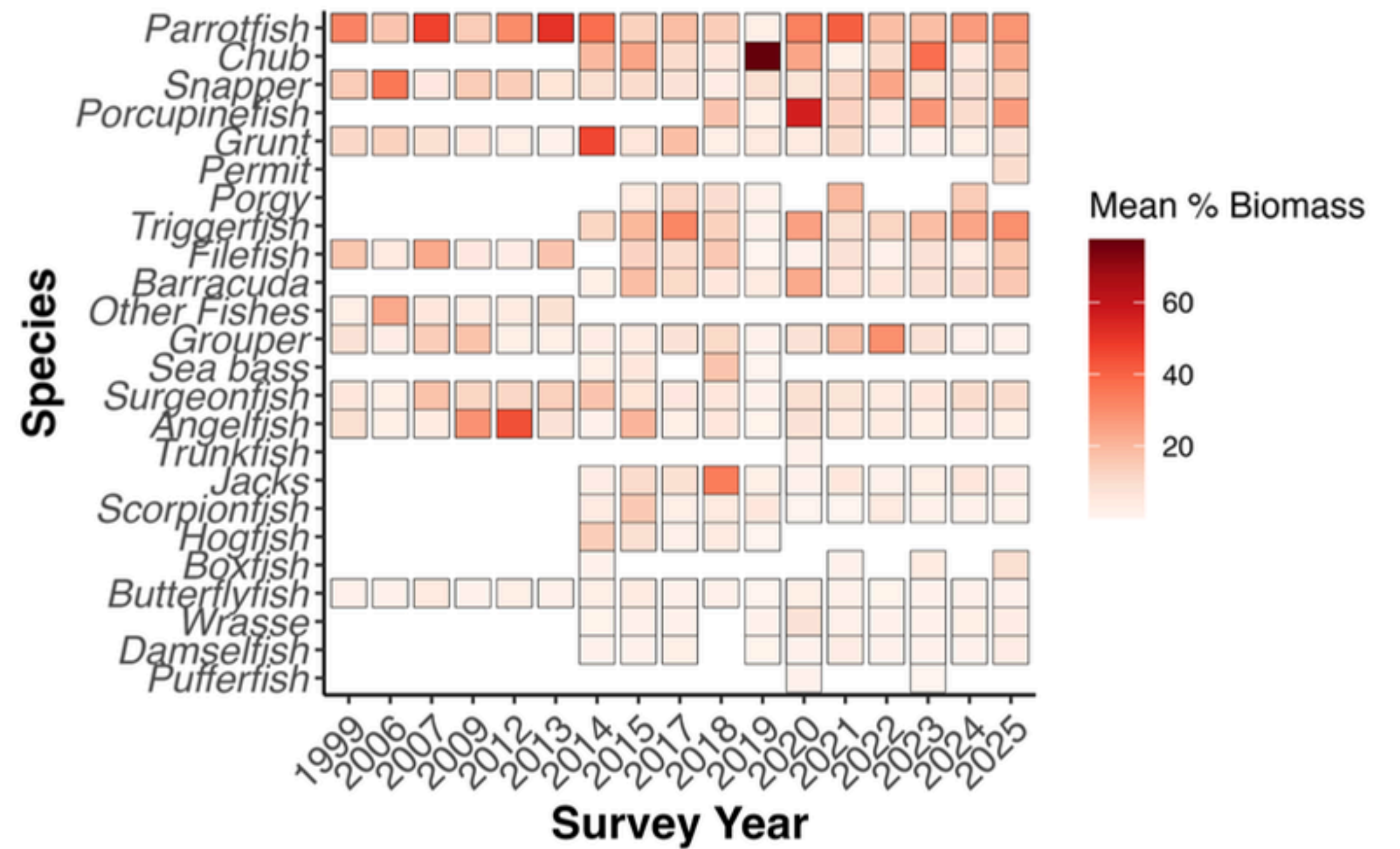


Figure 8: Mean percent frequency for fish biomass per family

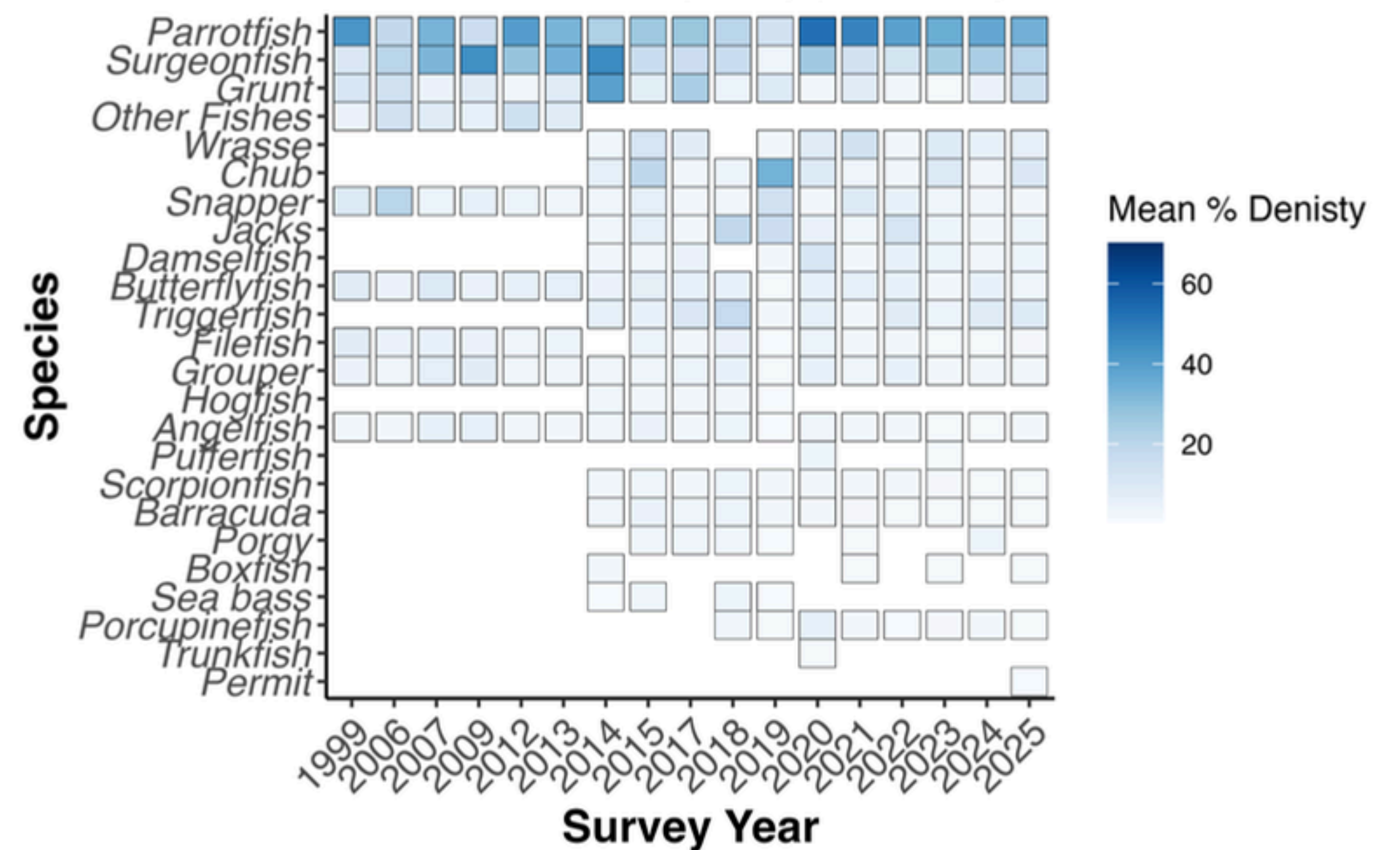


Figure 9: Mean percent frequency for fish density per family

ABUNDANCE BY SPECIES

Over time, the largest contributors to the increase in fish density were herbivores. However, both herbivores and carnivores, such as groupers, jacks, and snappers, contributed to the increase in biomass over time.

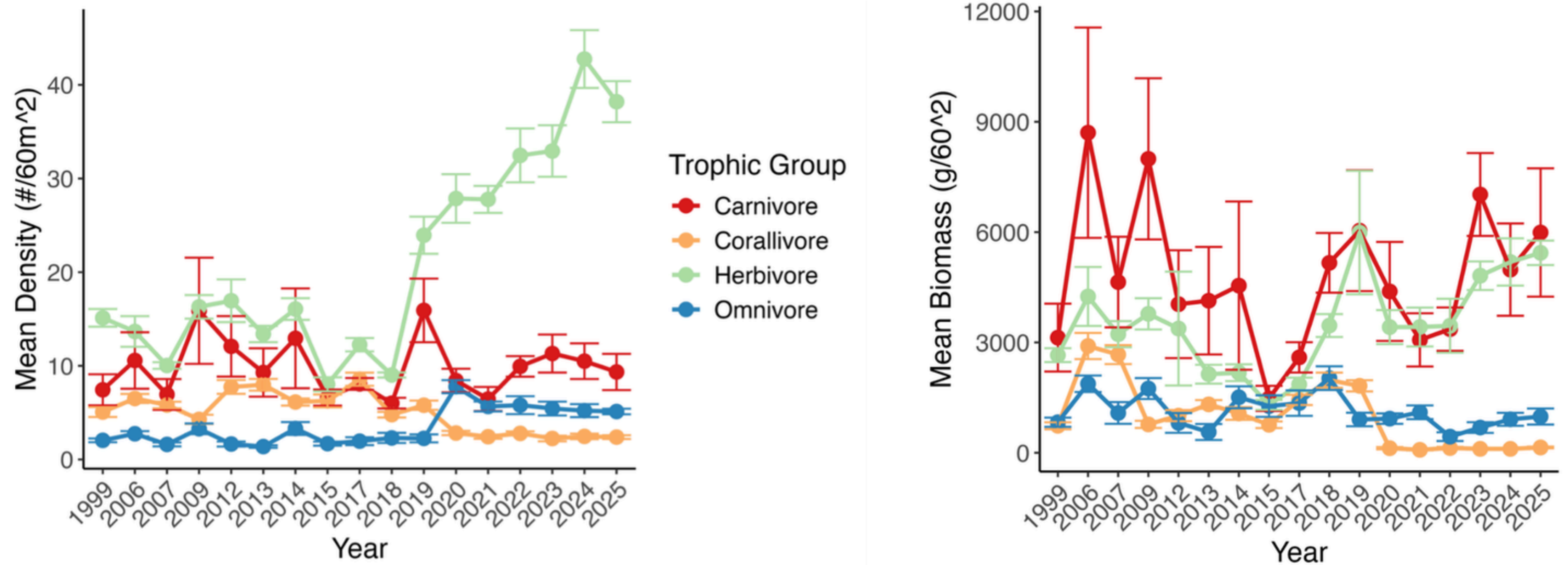


Figure 10: Contribution of each fish trophic group to total fish density (A) and biomass (B) from 1999 - 2025



PARROTFISH DENSITY

Parrotfish density has been steadily increasing since 2019. While there was no change between 2024 and 2025, parrotfish density is at an all-time high.

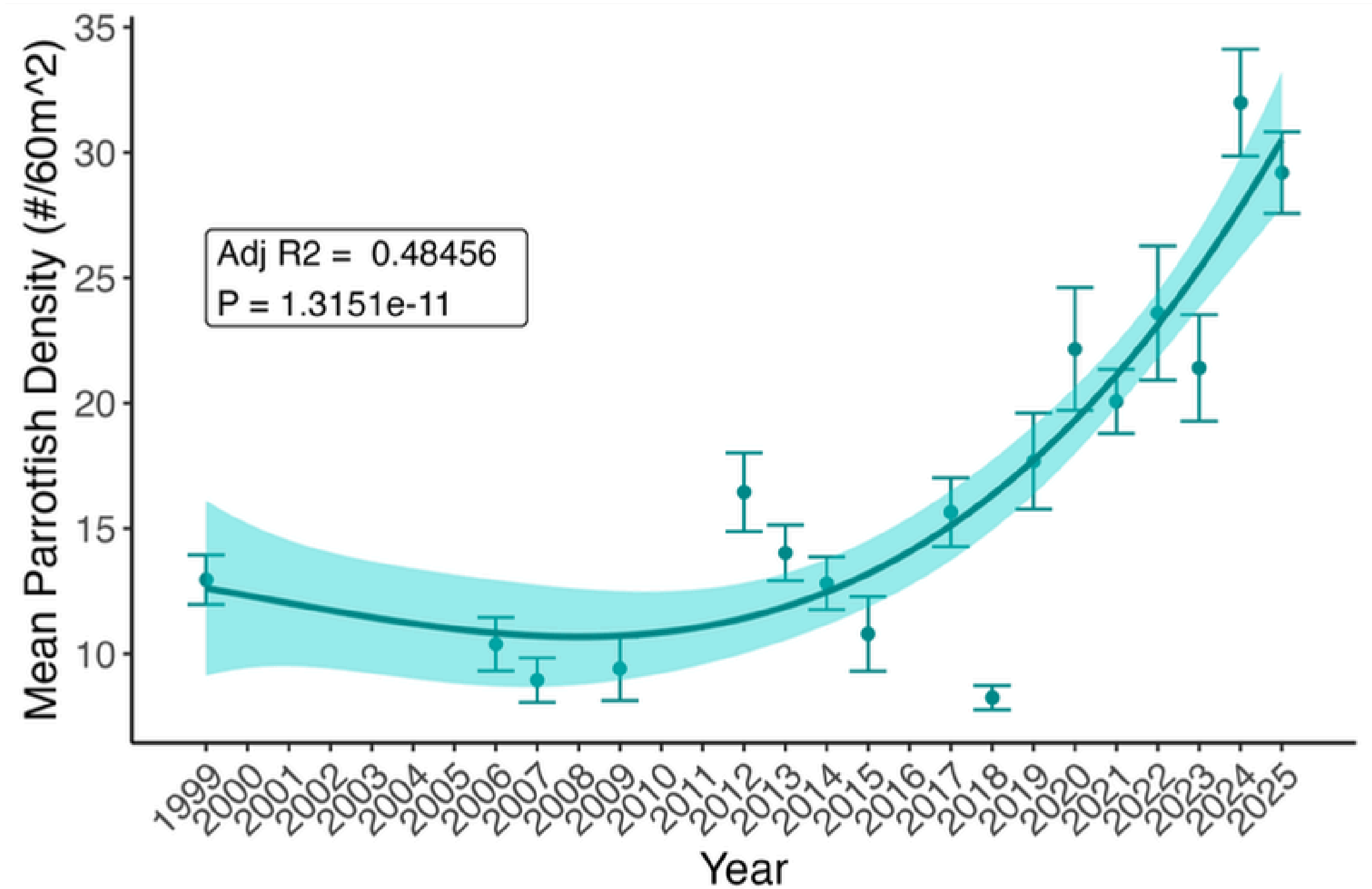


Figure 11: Parrotfish density over time (1999 – 2025)



GROUPEr DENSITY

Similarly, grouper densities remain high; although, there was a significant decline in the number of grouper in 2025 compared to 2024.

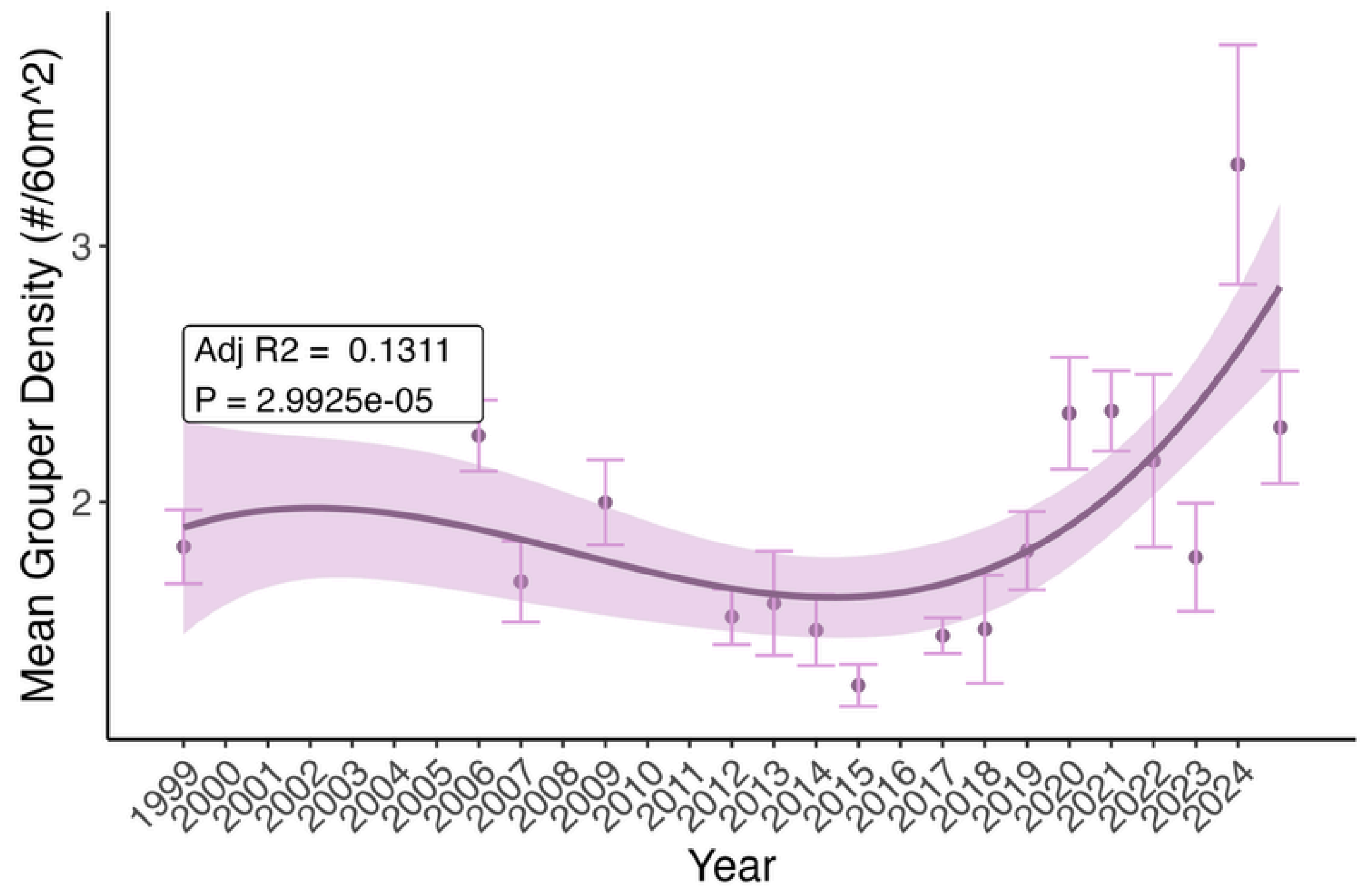


Figure 12: Grouper density over time (1999 – 2025)



CONCLUSION

These results show the condition of Little Cayman’s reefs two years on from the most extreme worldwide coral bleaching event on record.



Resilience

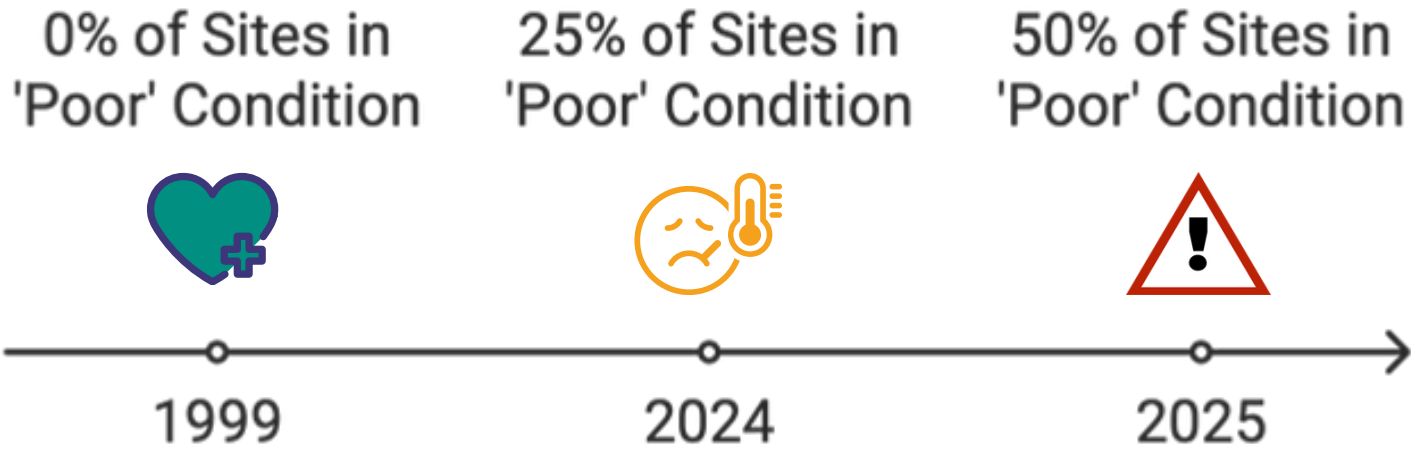
30% of sites showed natural resilience or recovery to the 2023 bleaching event.



Recovery

Overall coral cover is beginning to show an increase (3.4% since 2024), although this is not yet significant.

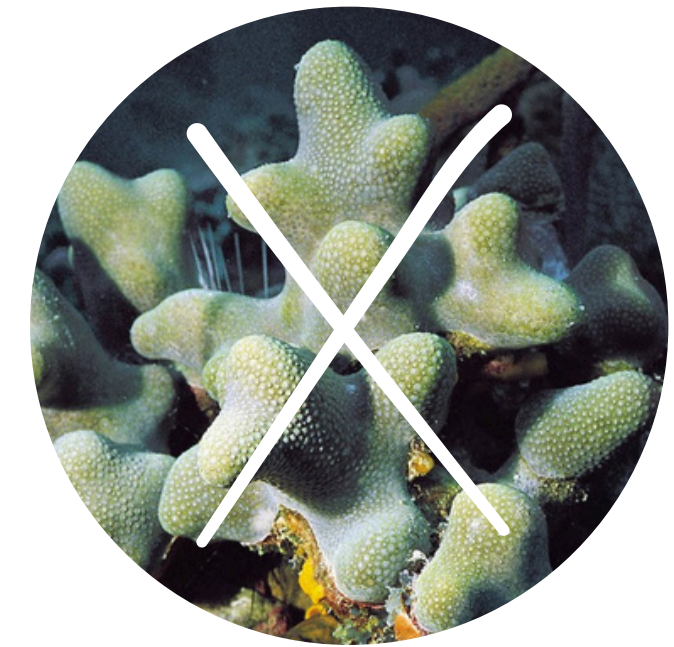
Approximately half of the surveyed sites are now classified as ‘poor’ condition, marking a sharp decline since monitoring began. However, the percentage of sites categorised as ‘good+’ (25-30% coral cover) has increased from 0% in 2024 to 20%.



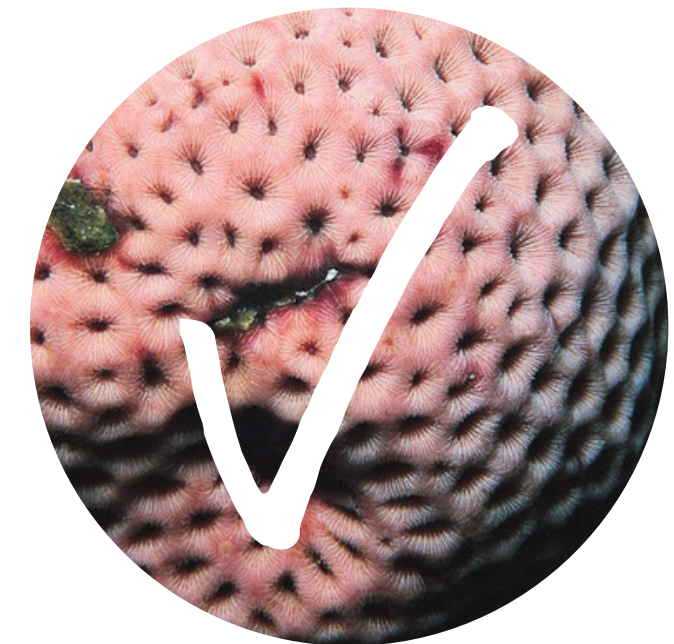


CONCLUSION

Coral species composition remains similar to 2024, with ***Agaricia spp.*** and ***Porites porites*** showing the highest levels of loss...



...switching the dominant species on Little Cayman's reefs to typically more heat resilient species, including ***Porites astreoides*** and ***Siderastraea siderea***.



Despite coral cover decline, fish populations remained stable, showing continued increase in density and biomass for approximately one decade.

THANK YOU TO OUR SPONSORS

