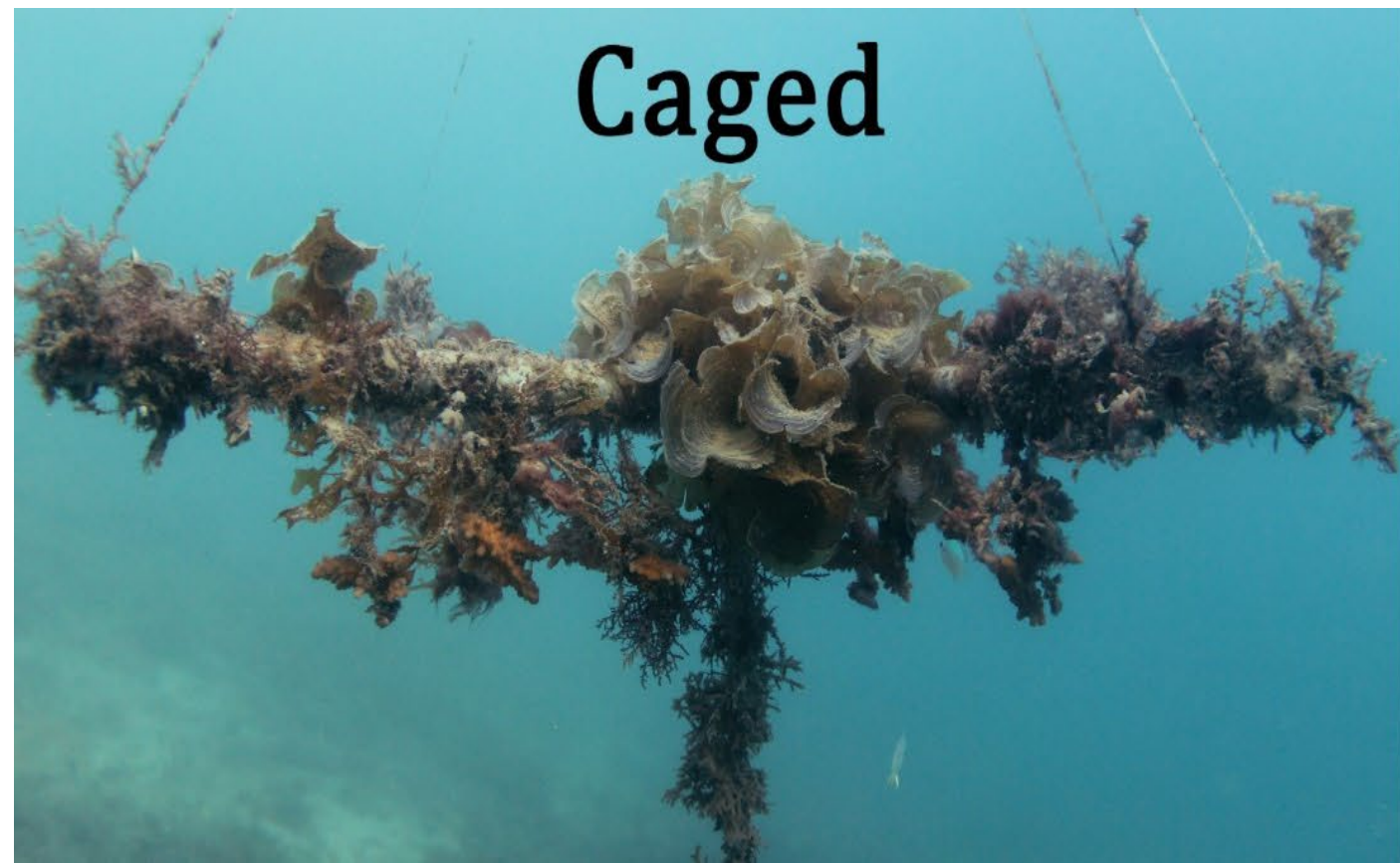


Benefits of herbivorous fish outweigh costs of corallivory in coral nurseries placed close to a Kenyan patch reef

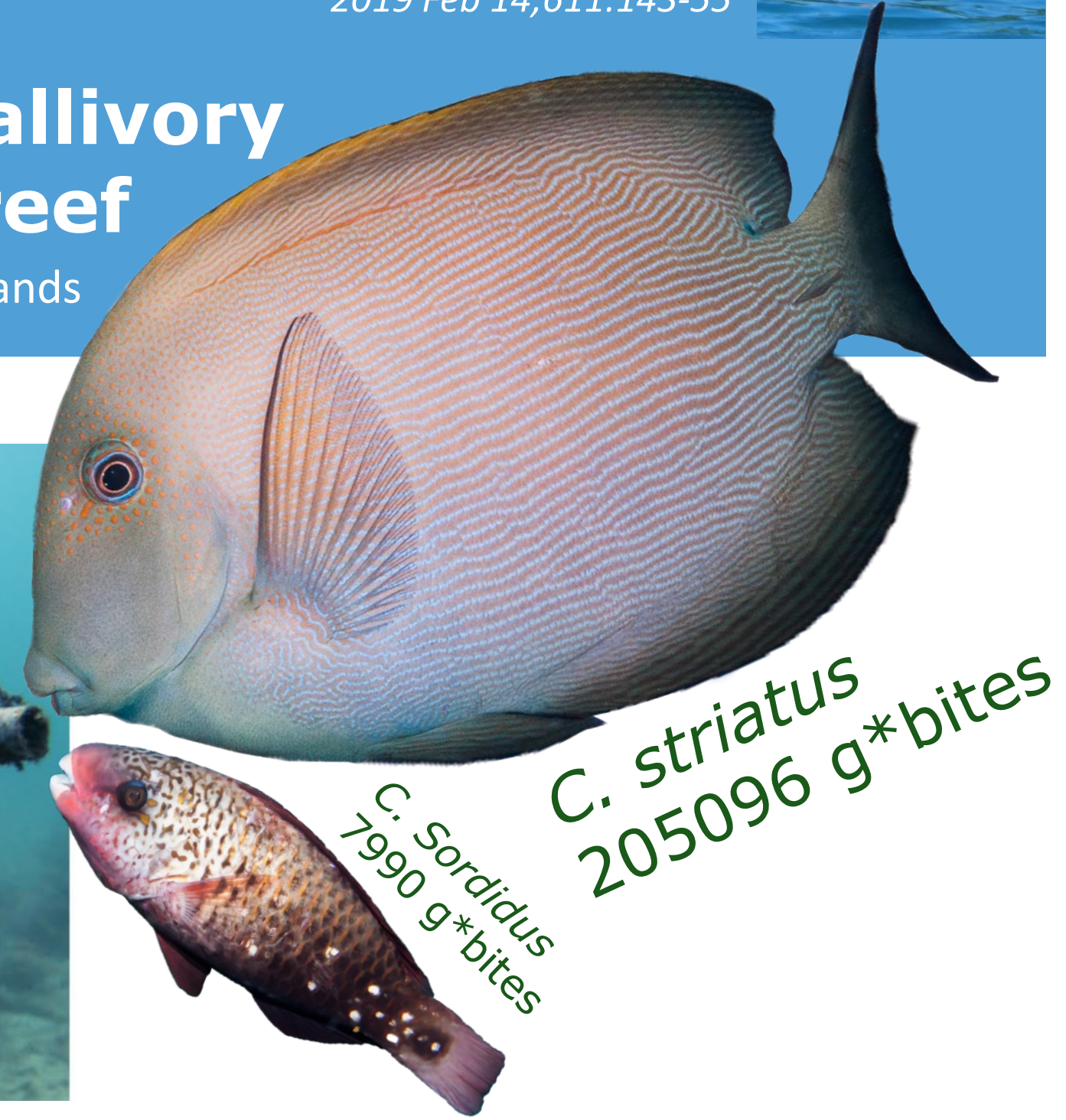
E.G. Knoester*, A.J. Murk, R. Osinga; Marine Animal Ecology Group, Wageningen University, the Netherlands



Caged



Uncaged

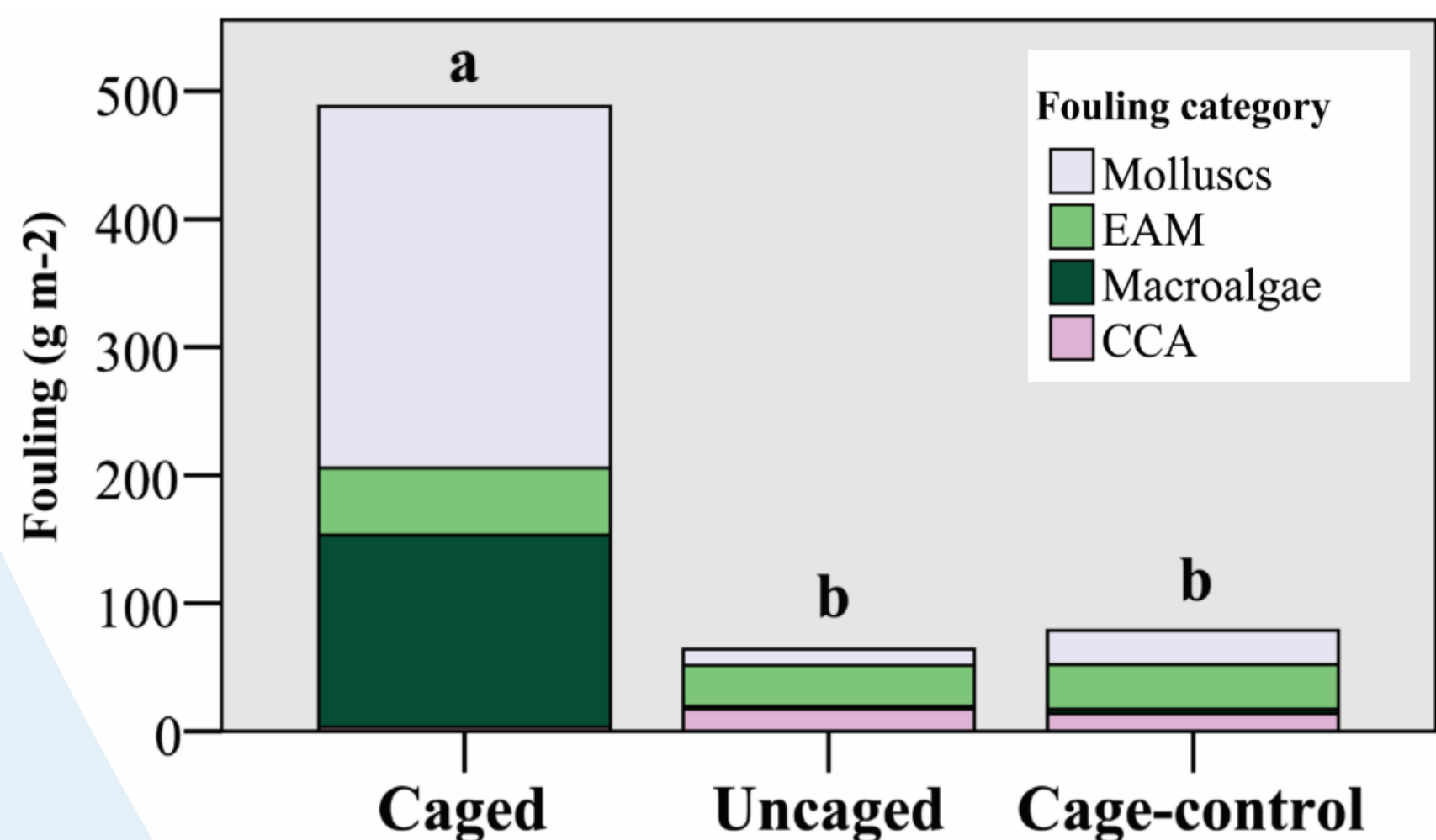


C. striatus
205096 g*bites
C. sordidus
7990 g*bites

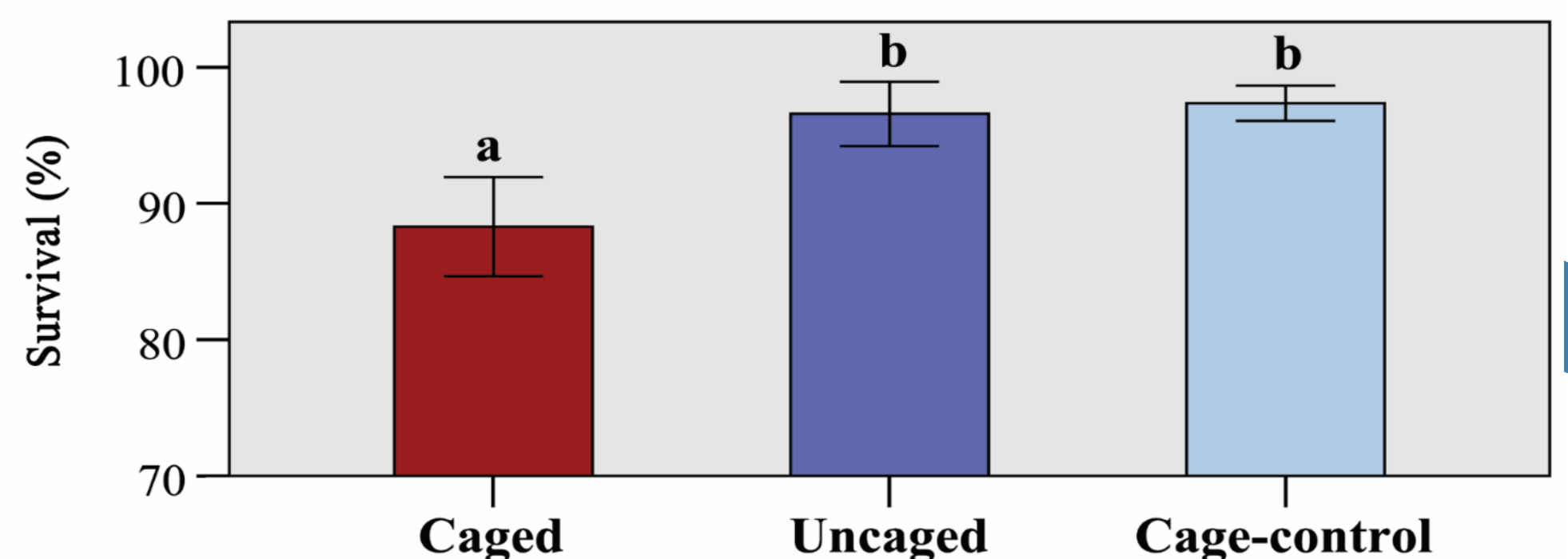
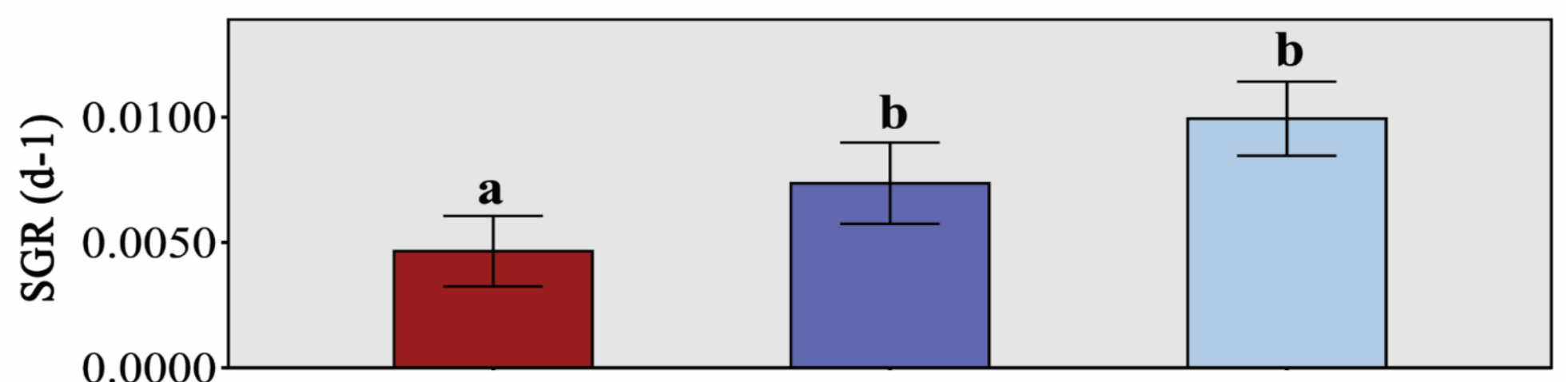
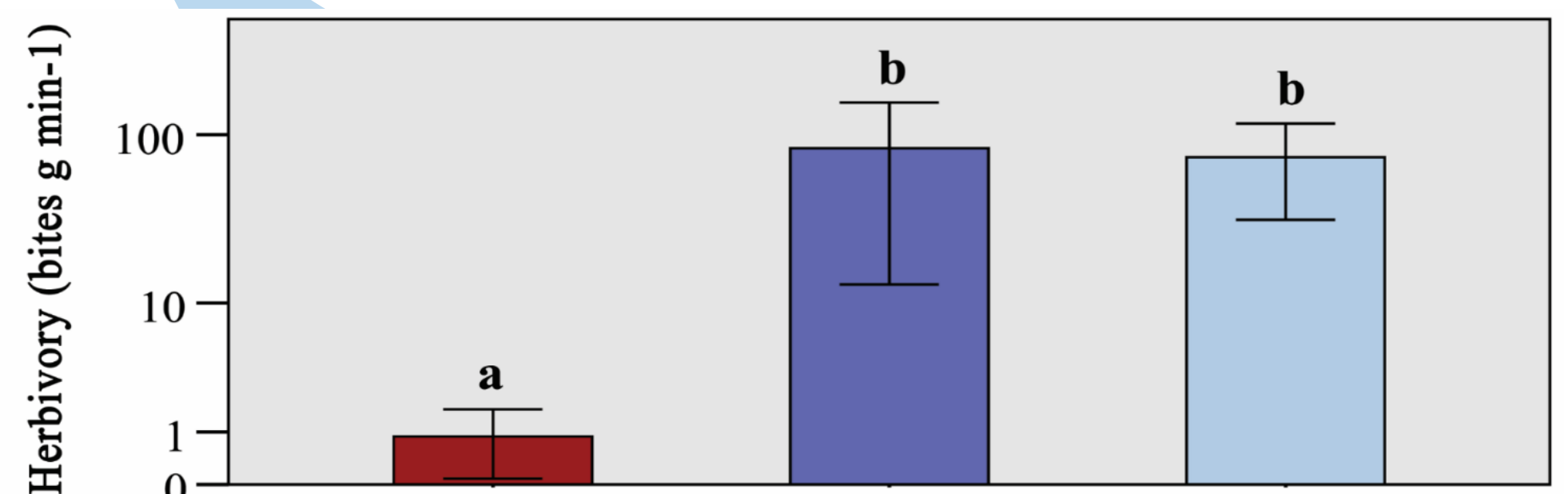
Caged nursery:
100-fold increase
macroalgae

C. trifasciatus
100 g*bites
C. kleinii
52 g*bites

Uncaged nursery:
High grazing pressure
Limited coral predation



Mean fouling (g m⁻²) per treatment at end of 100-d experiment. N = 15. Differing letters note differences (p < 0.05) between sum of fouling



Herbivory (n = 30), coral growth (n = 15) and survival (n = 15). Herbivory expressed as fish bites scaled to body mass and divided by duration of video. SGR = specific growth rate. Bars are ± 2 se

Uncaged nursery:
Better growth
Higher survival

Objective

To determine the net effect of herbivory and corallivory by fish on the growth and survival of coral in mariculture

Background

- Coral nurseries plagued by fouling
- Manual fouling removal is expensive
- Natural reef has free cleaning by grazers
- Natural reef hosts coral-predating fish

Conclusion

Benefits of fouling control by herbivorous fish outweigh costs of incidental corallivory

Recommended to place coral nurseries near natural reef

Acknowledgments



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Methods

- Caged, uncaged and cage-control nurseries (n = 15)
- Each nursery: 10 *Acropora verweyi* fragments
- Coral monitored on growth, survival and bite marks
- Fouling collected and weighed at end of experiment
- Remote video recording rates of herbivory and corallivory (n = 30)