

Interactive comment on “Multi-decadal changes in structural complexity following mass coral mortality on a Caribbean reef” by George Roff et al.

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The manuscript by Roff, Joseph, and Mumby uses a variety of techniques to determine long term changes in structural complexity, including microhabitat complexity, in a Caribbean reef framework based on growth and erosion of the major framework building coral *Orbicella annularis*. Their principal finding was that reef-scale structural complexity was relatively stable over time, despite extensive mortality of corals during the 1998 mass bleaching event, driven by rapid growth of surviving coral ramets. However, they found that microhabitat complexity declined substantially, and that this may have a considerably negative influence on cryptic fauna. As a representative case study, they

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measured abundance the urchin *Echinometra viridis* over time, and this species nearly disappeared over the timeframe of this study.

Overall, I found this manuscript to be very well written with the methodology easy to follow. The rationale for the study was well justified and the results are compellingly robust and well interpreted. On these grounds I would recommend acceptance after minor revision. I see two areas where revisions may improve the quality of the interpretations:

- 1) *Echinometra* decline: the hypothesis of decline is compelling and supported by the observations. I feel it would improve the manuscript however to include any alternative hypotheses (if the authors can think of any) that might explain the decrease.
- 2) Only one coral species was studied (albeit importantly the major reef building species), but how well do the authors think the general results reflect patterns playing out in other major reef building corals, such as those growing laterally rather than vertically?

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