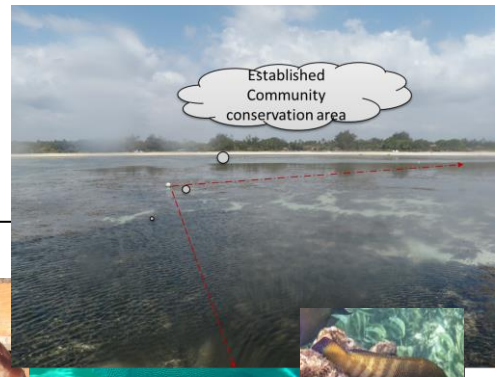
Enhancing Adaptive Management Practices: A Review and Assessment of the effects of Community Conservation Areas (CCAs) on Coral Reefs, Kenya



Background

Coastal communities in Kenya are highly dependent for food and livelihoods on coral reefs, yet these ecosystems are especially vulnerable to damage due to over exploitation and use of destructive and unsustainable fishing methods. Recently, Community Conservation Areas (CCAs) initiatives have gained increasing favour among coastal fishing communities and are being established at a prolific rate as a means of protecting coral reef's biodiversity and enhancing associated target fisheries. However, it is important to assess and demonstrate the impact of such CCAs both in terms of conserving coral reef's biodiversity and target fisheries to local fishermen who are ultimately affected by the loss of potential fishing grounds. The participatory research of CCAs can be useful in advancing stakeholder engagement towards enhancing adaptive management practices and policy supporting CCAs initiatives.

Objectives

The main aim of this study was to assess established seven community conservation areas located along Kenyan coast, in order to understand their impacts, particularly on economically important fish populations.

The specific objectives:

1. Test the performance of community conservations areas by comparing reef fish populations within and outside CCAs
2. Understand how performance of community conservation areas is affected by various attributes such as size, age of closure and benthic habitat quality.
3. Facilitate education and awareness towards enhancing adaptive management practices and policies in support of CCAs.

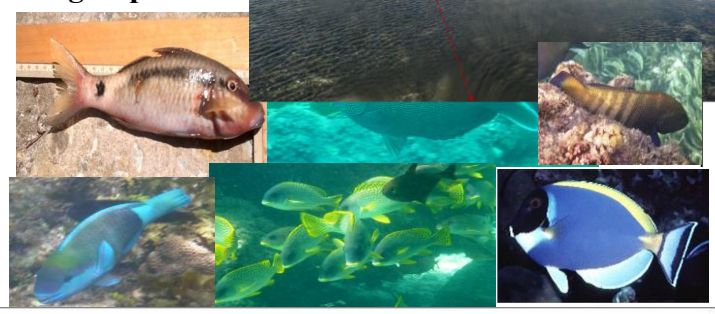
Action

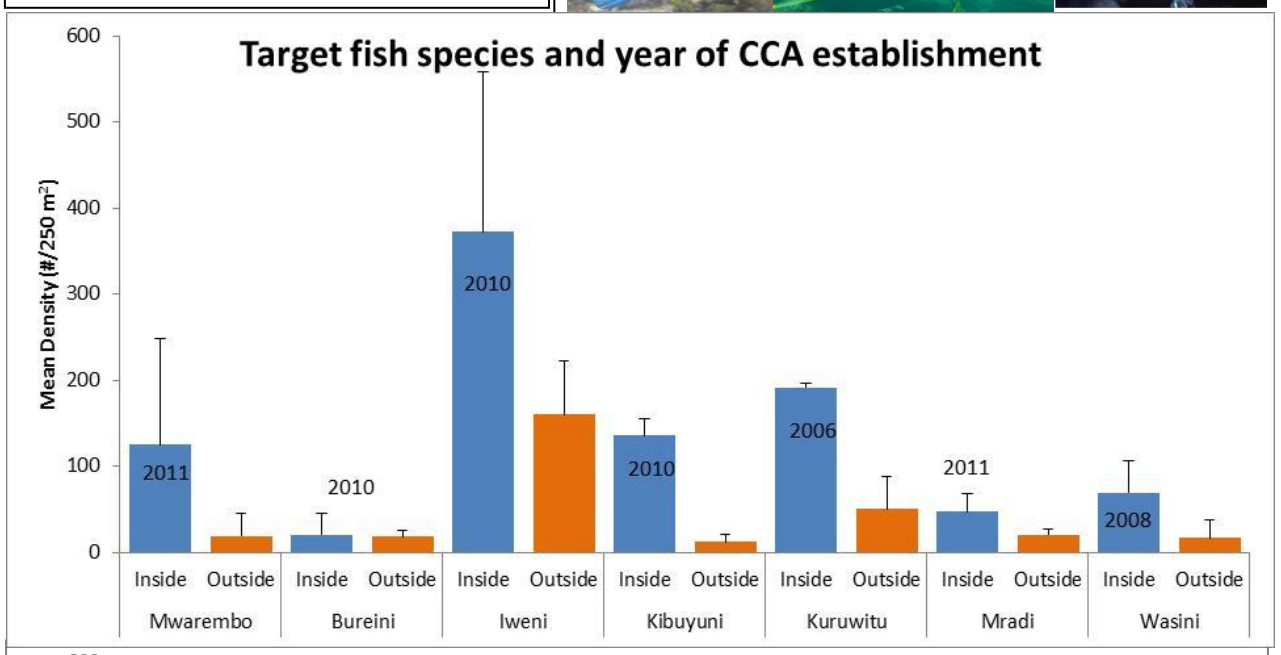
The study focussed on seven established and operational seven community conservation areas (Wasini, Kibuyuni,Mwarembo, Mradi, Bureini, Kuruwitu and Iweni) located 0 -1.5km from shoreline. The seven CCAs are rectangular in shape and varied in age of closure (1-6 years), and size (5.2 to 100 ha.). The CCAs were established by local communities through a series of consultations with NGOs and Fisheries Department, and are managed by registered community-based organisations and beach management committees.

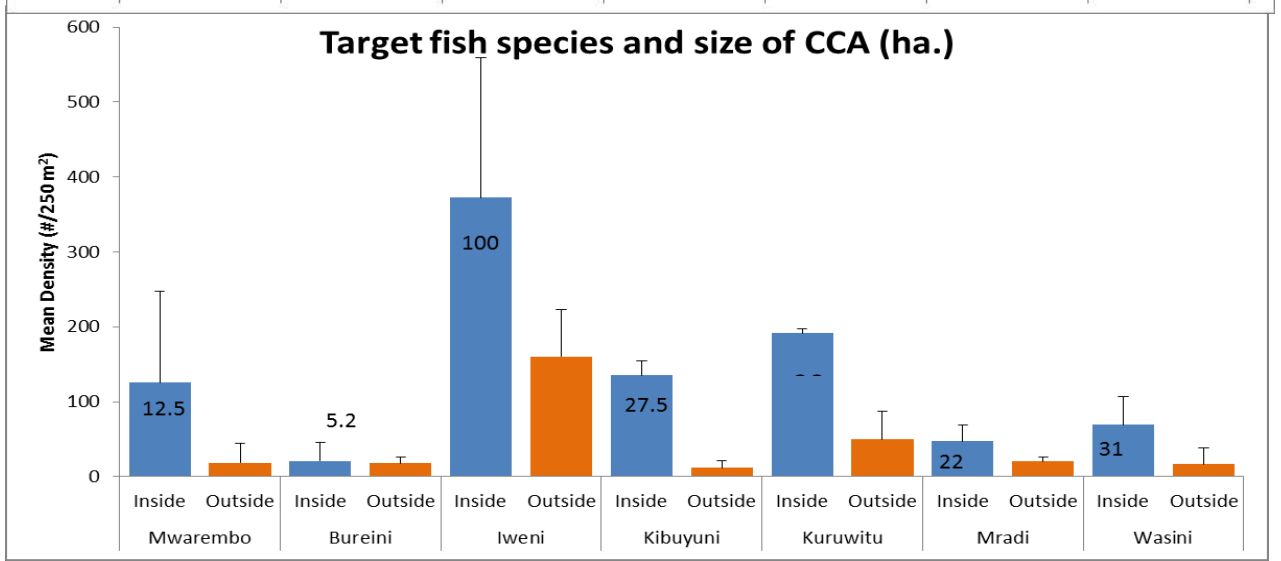
Methodology

Participatory Underwater Visual Census (UVC) assessment was undertaken by KMFRI researcher and trained community members to investigate the effect of community conservation areas on economically important fish families, and explore sources of variation impacting success.

Target species

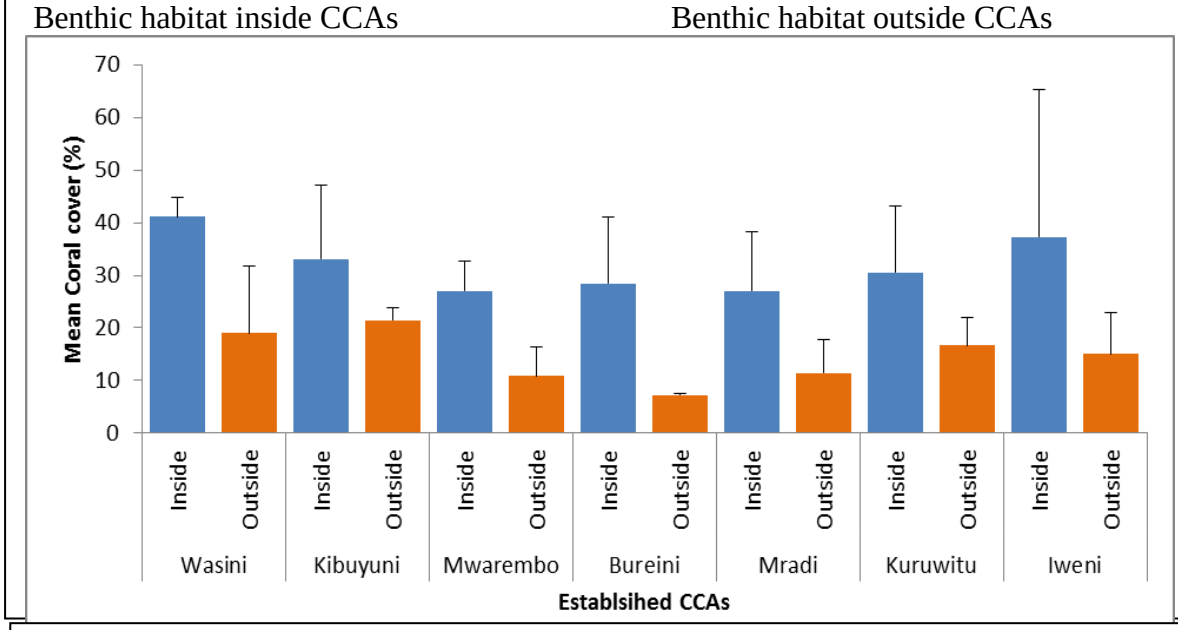






Benthic habitat inside CCAs

Benthic habitat outside CCAs



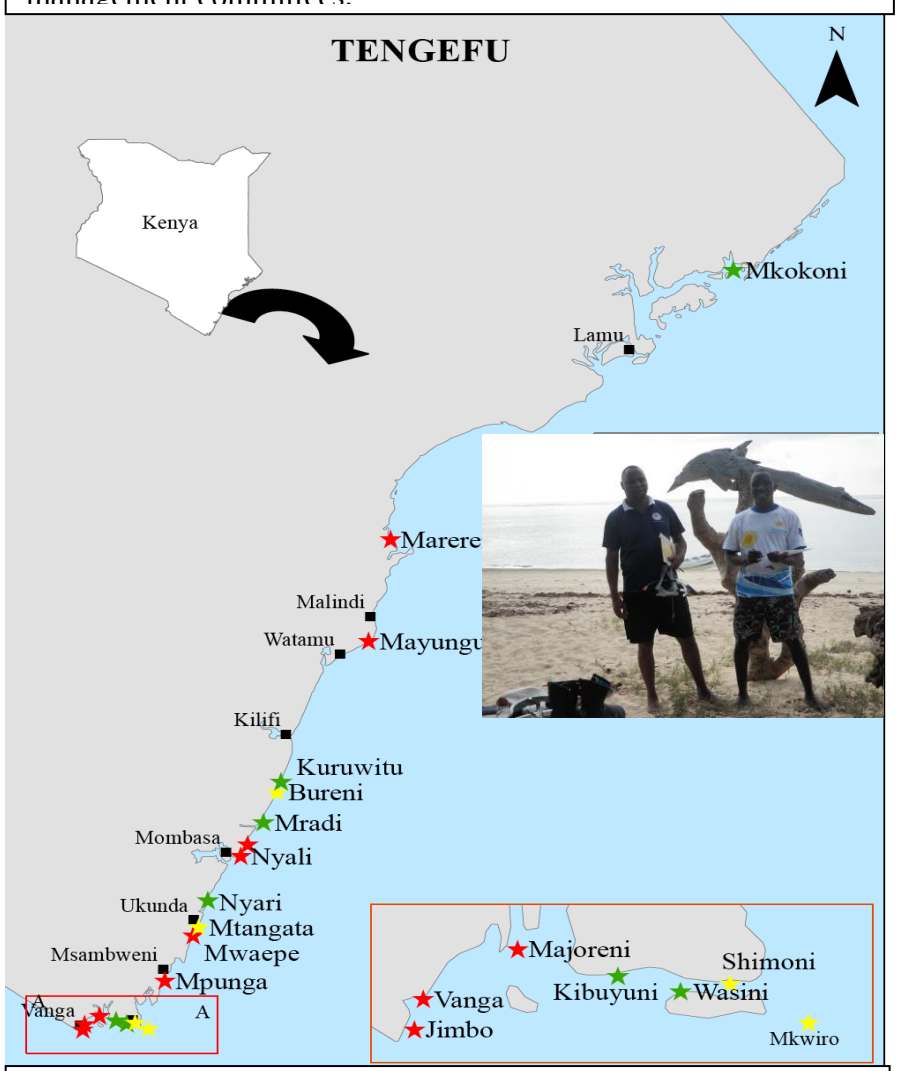


Figure 1. Map of Several CCAs established along the Kenyan coast. Different colours indicate the stage level of development: Green (fully established and operational); Yellow (established but not yet operational); Red (either established and later collapsed or not fully established).

Observation and Conclusion

- The effect of CCAs on biodiversity and target fishery species was more pronounced at only two CCAs (Iweni and Kuruwitu), with older CCAs set on desirable reefs (i.e. high coral cover) performing better than younger ones set at habitat with less coral cover.
- Participatory research approach hold promise for building adaptive management capacity, increasing key stakeholders buy-in and stewardship needed to ensure CCAs initiatives success.

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