

Developing an Implementation Strategy to Prepare the Management and Conservation of Coral Reefs in the Western Indian Ocean for Climate Change

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Project Objectives

To enhance the sustainable management and conservation of coral reef ecosystems in the WIO in the light of climate change impacts on coral reefs.

Areas of focus: Coral Reefs in Sn Kenya, Tanzania, Mozambique, Comoros and Madagascar, an area that appears to have greater resistance and resilience to climate change impacts.



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Project activities and outputs

The expected results of this project include:

1. Review and the identification of gaps in the existing knowledge of marine protected areas and other management interventions of the countries of the target region;
2. Collection, compilation and dissemination of environmental, socioeconomic and management information about the areas coral reefs; and
3. Development of a draft strategy for conservation and management of the area's coral reefs.

Activities

- Two regional workshops
- Coral reef surveys
- A draft strategy

First Regional Workshop on coral reefs, climate change and management interventions in the western Indian Ocean

8th - 9th April UNEP, Nairobi



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April workshop objectives

1. To discuss the existing coral reef management interventions (MPAs and Fisheries) in the context of upcoming surveys;
2. To present the regional coral reef vulnerability model;
3. To conduct a gap analysis of protected areas, data available and management interventions in the target countries;
4. To discuss an implementation process for surveys to fill identified gaps; and
5. To discuss mechanisms for the rejuvenation of the Coral Reef Task Force of the Nairobi Convention and review the Regional Coral Reef Action Plan

Key points

- It was recognized that despite the importance of coral reefs, no specific national strategy or guidelines on the management of coral reefs were available;
- The need to review national climate change strategies to ensure inclusion of specific actions for marine and coastal issues;
- Many MPAs were established but their effectiveness was hampered by lack of adequate enforcement and compliance and lack of information to evaluate effectiveness;
- Use of destructive gears (dynamite) was a major fisheries issue for coral reefs;
- The governance of coral reefs was complex due to overlapping and sometimes conflicting mandates;
- There were ICZM policies in most of the countries but few specifically recognized coral reef ecosystems.

Key points CRTF/NCRTF

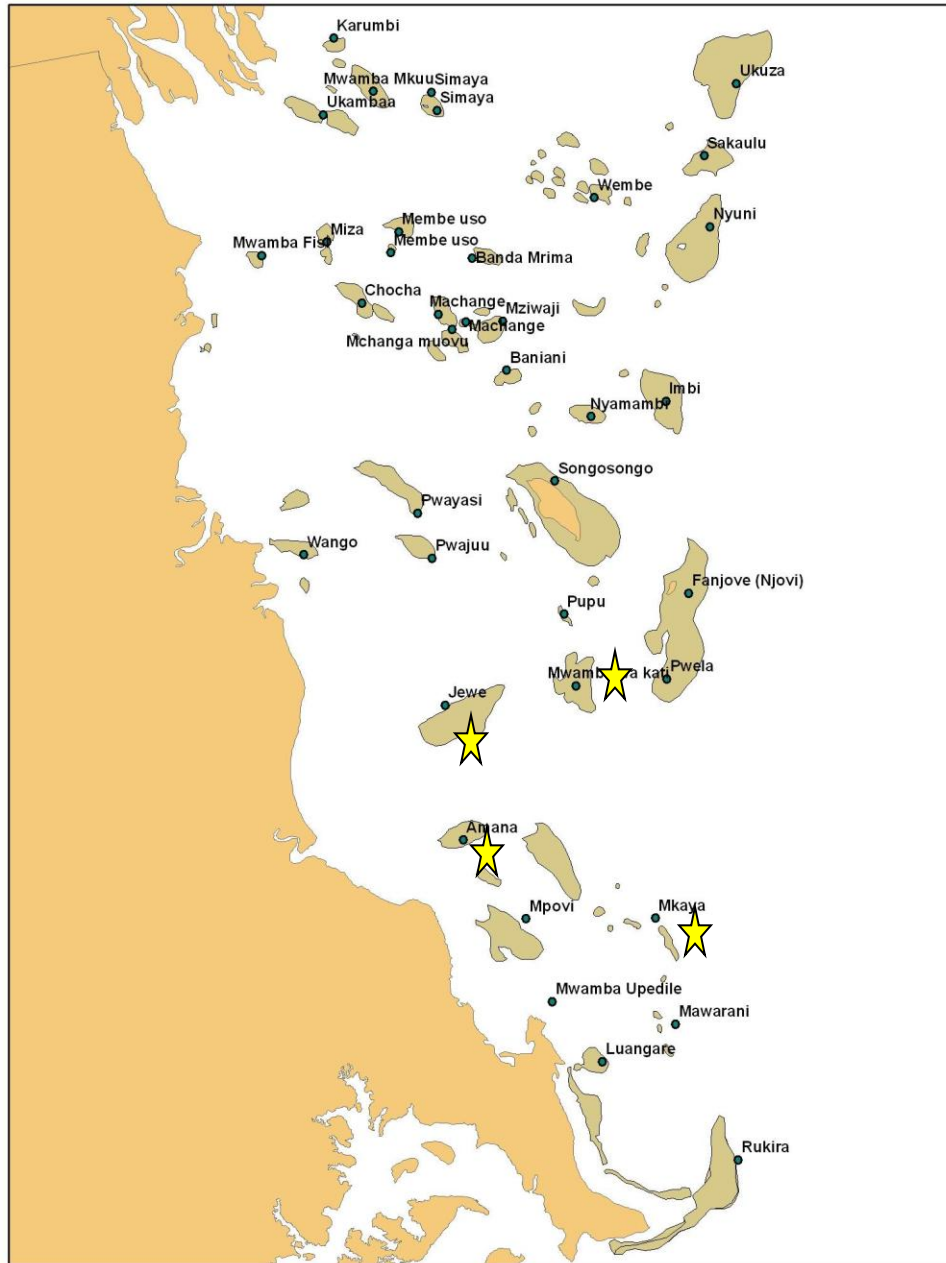
- Recognition of the important function the CRTF could play in its role as a coordinating mechanism for the management of coral reefs in the WIO;
- It was agreed that countries would continue the process of establishing and strengthening NCRTF,
- It was recommended to mainstream NCRTF within government processes;
- Building capacity for coral reef management;
- Involving national ICZM committees;
- Improving coordination among partners such as NGOs etc;
- Lack of funding hampered growth to CRTF but several opportunities were identified

Surveys

The following areas were identified as needing further surveys.

These reefs were prioritized because of national interest to set up MPAs or the establishment of community managed areas at these sites:

1. Tanzania: Kilwa and reefs of Pemba;
2. Southern Kenya reefs focusing on community managed reefs;
3. Reefs around Mitsio Island in northern Madagascar;
4. Reefs in the Primeras e Segundos in Mozambique;



Kilwa Sn Tanzania

10 reefs were surveyed in collaboration with Haji Machano of WWF Mafia between 18 to 25th Sept

- Amana 4 sites
- Jewe 3 sites
- Mkaya 2 sites
- Mwamba wa kati 1 site

Most sites were on both the sheltered and exposed sides of the Islands

Anjuan Is, Comoros



7 reefs were surveyed between 7th to 15th Nov in collaboration with Sofia Ahamed of AIDE

Vamizi Mozambique

15 sites were surveyed in collaboration with Isabel Silva of WWF Vamizi between the 18th to 24th Nov

15 sites were surveyed at:

- Tekomaji 3 sites
- Rongue Is 4 sites
- Ponta Papagaio (Vamizi Is) 2 sites
- Metundo Is 4 sites
- Kisinga Is 1 site
- Babylon 1 sites

Preliminary results

bleaching and benthic surveys

	Kilwa Tanzania	Mitsio Madagascar	Anjuan Comoros	Vamizi Mozambique	WIO Region
Bleaching index	0.00	0.22	0.07	0.44	7.25 (12.59)
Site susceptibility	16.17	17.45	14.81	18.5	16.8 (2.33)
Coral richness	22.40	23.5	18.6	21.8	19.9 (5.39)
% Hard coral	31.75	34.99	19.51	42	31.16 (16.33)
% Macro algae	8.29	2.39	23.09	7.8	10.97 (12.87)
% Soft coral	9.61	27.96	0.97	11.9	11.73 (14.4)

On average except for reefs in Anjuan, coral cover was higher than the regional average which is 31%

Vamizi reefs had the highest coral cover (42%) and more coral genera and the highest site susceptibility index which is a good indication of reefs that are more resilient to bleaching mortality

Of the reefs that were fully protected in Vamizi, the coral cover was also higher than reefs that are fished

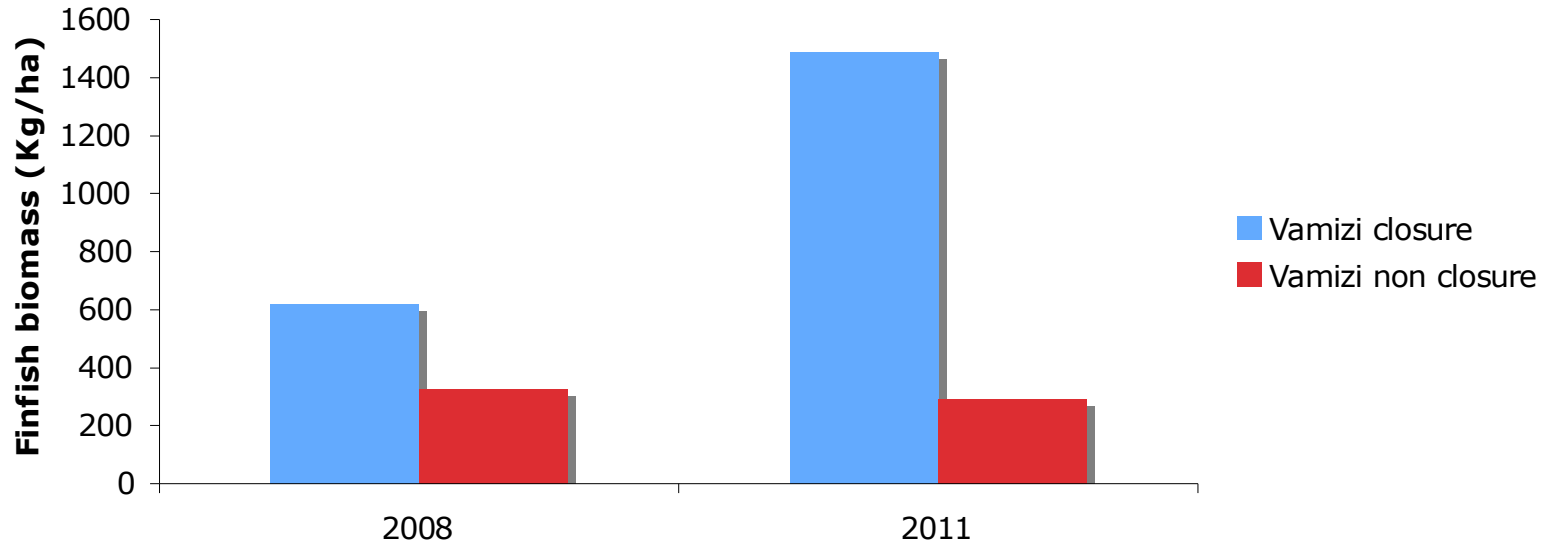
Urchin surveys

The density (#/10m²), biomass (Kg/ha) and diversity of sea urchins. Number in brackets are the range

	Kilwa Tanzania	Mitsio Madagascar	Anjuan Comoros	Vamizi Mozambique
Number of sites	8	9	6	10
Urchin density (#/10m ²)	13.8 (2.4 - 55.8)	15.42 (0 - 63)	167.3 (2.2 - 491)	13.9 (0.4 - 38.8)
Urchin biomass (kg.ha)	1873 (177.7 - 5314.7)	471.1 (0 - 2834)	694.1 (221 - 822)	494.2 (4.5 - 3806)
Species richness	2.25	1.8	13	1.8
Diversity	0.23	0.1	0	0.1

The highest biomass of sea urchins was on Amana reef in Kilwa (5314 kg/ha)

Finfish surveys Vamizi



1. Vamizi closure (blue) had significantly higher finfish biomass than non-closures (red) in 2008
2. The biomass of finfish in the closure almost doubled between 2008 and 2011
3. This is much higher than the WIO average (1998 - 2011) for closures which is 1060 kg/ha
4. The finfish biomass of the fished reefs of Vamizi are below the WIO average for non closures which is 314 kg/ha so fisheries management needs to be improved on these fished reefs.

2nd Regional Workshop on coral reefs, climate change and management interventions in the western Indian Ocean

8th - 9th Dec, Maputo Mozambique



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2nd Workshop Objectives

1. A summary of the proceedings of the first Regional Workshop on coral reefs and climate change management interventions in the WIO 8 – 9th April is presented;
2. The Regional Coral Reef Action Plan is reviewed, mechanisms for implementation are discussed and schedule for forwarding to the 2012 Nairobi Convention COP is discussed;
3. The revised regional coral reef climate change vulnerability model is presented that will include results of surveys from areas identified during the April meeting;
4. The draft strategy for climate change and coral reefs is discussed and mechanisms for involvement and harmonization with relevant national and regional coastal and marine initiatives are discussed;
5. The way forward and report to the International Coral Reef Initiative (ICRI) are discussed.

2nd Workshop key points

- Develop guidelines rather than a strategy since countries already have national climate change strategies
- Submit Regional Coral Reef Action Plan for endorsement at COP 2012
- There is need for financing the CRTF and activities of the NCRTF
- There is need to develop a program for coral reefs and climate change in the WIO

Way forward

- Revise vulnerability model for input into the
- Complete survey reports and submit to each country;
- Complete WIO coral reefs and climate change guidelines including outputs from the revised vulnerability model;
- Submit final report to the World Bank;
- Discuss mechanism for implementation and funding of regional action plan and coral reefs and climate change guidelines through the CRTF and NCRTFs.

Acknowledgements

- The World Bank, the Secretariat of the Nairobi Convention and WIOMSA
- Nairobi Convention Focal points, CRTF and NCRTF members and representatives of regional programs and NGOs
- Numerous donors who have funded various aspects of coral reef work in the region



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