



## Member's report on activities related to ICRI

Reporting period December 2015 – November 2016

**NOTE: TO CHECK A BOX, DOUBLE CLICK ON IT AND TICK 'CHECKED' UNDER 'DEFAULT VALUE' IN THE POP UP WINDOW**

1. **Contribution to the ICRI Plan of Action and GM.** *Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI Plan of Action (<http://www.icriforum.org/icri-secretariat/current>) and objectives of the general meeting.*

**a. Bleaching event**

*Were you affected by the Third Global Coral Reef event? Did you do some monitoring, if yes what are the results and could you explain what method did you use? Would you like to report during the ICRI Meeting?*

Limited bleaching occurred on the South African coral reefs late in the austral summer of 2016 and, in consequence, the Oceanographic Research Institute (ORI) undertook bleaching surveys at five sites on a representative reef in May of that year. Six to seven 10 m transects were recorded at each site and point intercept analysis of these revealed that bleaching had affected an average of ~5% of the reef cover. This was less than the ~12% bleaching which occurred in 2000. The genus *Montipora* was the most susceptible to bleaching in both events. The data are being prepared for incorporation in a GCRMN report.

- b. Nature-based Solutions to address Climate Change** - *Do you have some example(s) of Nature-based (coral reef and related ecosystems) Solutions to address climate change? If yes, could you please provide use some details?*

ORI is working on Nature-based Solutions to Address Climate Change in the research projects outlined below in this report but have nothing substantive to add beyond earlier ICRI reports at this stage. The emphasis of the ORI research is on reef resilience and connectivity. The results thus far indicate that, while the reefs appear to be fairly resilient, the reef complexes are not as well connected as anticipated and should be managed as discrete systems rather than as a continuous, well-connected chain. ICRI will be kept updated on the results.

- c. UN Sustainable Development Goals** – *Do you have example(s) showing how coral reefs and related ecosystems address the SDG (SDG 14 but also other related ones such as SDG 1 – End poverty in all its form; SDG 2 – End hunger, achieve food security and improved nutrition...)*

The reefs are very small (50 km<sup>2</sup>) and thus can add little to the UN Sustainable Development Goals beyond that which they are already contributing via ecotourism.

- d. Do you have notional measure(s) – existing or in development - to ban the sale and manufacture of cosmetics and personal care products containing plastic microbeads? And plastic bags?**

Some years ago, South Africa made it mandatory that plastic bags would only be provided in shops as a purchase, reducing the amount of plastic wastage and litter. South Africa has an active plastic recycling campaign.

2. **Updates on your activities.** The following table is a summary of ICRI's *Framework for Action* (FFA) and its four cornerstones. (The full text of the FFA is available in English, French, and Spanish at <http://icriforum.org/icri-documents/icri-key-documents/continuing-call-action-2013> ).

<b>Integrated Management</b>	<b>Objective</b>	Manage coral reefs and related ecosystems using an ecosystem approach, recognizing place based activity; connectivity within and among ecological, social, economic, and institutional systems; as well as with attention to scale; resilience of ecological and social systems; and long-term provision of ecosystem services.
	<b>General Approach</b>	Integrated management, using a strategic, risk-based, informed approach, provides a framework for effective coral reef and related ecosystem management which supports natural resilience, ecosystem service provision, and enhances the ability to withstand the impacts of climate change and ocean acidification.
	<b>Desired outcome</b>	There is a demonstrable reduction in the threats to coral reefs and related ecosystems through management action.
<b>Capacity Building</b>	<b>Objective</b>	To build capacity in all facets of management of coral reefs and related ecosystems and support dissemination and application of best practices to achieve the widest possible engagement of all stakeholders in planning and management activities.
	<b>General Approach</b>	Continued collaboration, partnerships, outreach, information sharing and education to ensure the uptake of best practices and encourage behavioural change. This can only be successful if the diversity of cultures, traditions and governance among nations and regions are taken into account.
	<b>Desired outcome</b>	Persons who have influence in the management of coral reef and related ecosystems have the knowledge, tools and capital necessary to apply best practices, adapted to the cultural and socio-economic context.
<b>Science &amp; Monitoring</b>	<b>Objective</b>	To support research and citizen science approaches to enable countries and communities assess and report on the status of and threats to their coral reefs and related ecosystems in a coordinated, comparable and accessible manner.
	<b>General Approach</b>	Research and monitoring programs are essential to ensure that management of coral reefs and related ecosystems is based on best available (scientific) information.
	<b>Desired outcome</b>	Knowledge of the status and trends in coral reefs and related ecosystems health is enhanced and used to inform planning and management, improving management outcomes.
<b>Periodic Assessment (Review)</b>	<b>Objective</b>	To engage in periodic review of the impact and effectiveness of all elements of management to enable evaluation and refinement of management measures in an adaptive framework.
	<b>General Approach</b>	Periodic assessments of management effectiveness and evaluation of projects and activities to ensure the efficacy of management tools and systems in tackling the range of pressures affecting coral reefs and related ecosystems and protecting the values associated with them.
	<b>Desired outcome</b>	Management processes and activities are regularly reviewed and improved using a structured approach, to enhance their ability to effectively reduce pressures and threats.

Using the table on the previous page, as well as the detailed descriptors of approaches and strategies available in the full text of the FFA as a reference, please give us an update on an activity/project/program(s) which has been particularly successful in your country/organization during this reporting period.

**Project 1**

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">ORI Coral Reef Programme: Coral Monitoring</a>
Location	<a href="#">Central Reef Complex, Sodwana Bay</a>
Dates	<a href="#">1993-present (ongoing)</a>
Main Organizer(s)	<a href="#">Oceanographic Research Institute (ORI)</a>
Main Stakeholder(s)	<a href="#">ORI</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">This monitoring programme was initiated in 1993 and contributes to the international Global Coral Reef Monitoring Network (GCRMN). Annual surveys are conducted along four fixed transects on Nine-mile Reef at Sodwana Bay (32.726611°S, -27.414917°E) where reef biodiversity is recorded with a focus on hard and soft coral percentage cover, recruitment and mortality. A permanently moored temperature logger (UTR) records hourly temperature at a depth of 18 m.</a>
Outcome (Expected outcome)	<a href="#">Long-term trends in coral community structure in terms of climate change.</a>
Lessons learned	<a href="#">While temperatures increased at the site until the summer of 2000/2001, they have subsequently been gradually decreasing. Overall, hard coral cover increased slightly but consistently up to 2005 and soft coral cover has decreased throughout monitoring. The reduction in soft coral cover has been more consistent and greater than that of hard corals but it is difficult at this stage to attribute this to changes in water quality, acidification-linked accretion or temperature.</a>
Related websites (English preferred)	<a href="#">www.ori.org.za</a>

**Project 2**

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">Coral Bleaching Monitoring</a>
Location	<a href="#">Maputaland coral reefs</a>
Dates	<a href="#">2005, 2007, 2008, 2011-present</a>
Main Organizer(s)	<a href="#">SA National Biodiversity Institute (SANBI)</a>
Main Stakeholder(s)	<a href="#">SANBI</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">SANBI undertakes more wide-spread annual coral bleaching surveys between April and May. In this, coral colonies are scored for bleaching using the seven bleaching indices developed by McClanahan <i>et al.</i> (2007). Underwater temperature recorders log semi-continuous water temperature at nine sites spanning the same depth and spatial extent.</a>
Outcome (including expected outcome)	<a href="#">The objective of this monitoring project is to assess and provide early warning of extreme environmental conditions that may lead to coral bleaching in South Africa.</a>
Lessons learned	<a href="#">[Insert text here]</a>
Related website(s)	<a href="#">www.sanbi.org</a>

**Project 3**

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">ORI Coral Reef Programme</a>
Location	<a href="#">Maputaland Coral Reefs</a>
Dates	<a href="#">1991-present</a>
Main Organizer(s)	<a href="#">Oceanographic Research Institute (ORI)</a>
Main Stakeholder(s)	<a href="#">ORI</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">This broad programme is presently investigating coral recruitment and genetics in the face of climate change; MPA connectivity in terms of the genetics and movement of representative reef fish; and reef resource economics. Other aspects of the work are being written up.</a>
Outcome (Expected outcome)	<a href="#">The overall objective of the Programme is a greater understanding of reef resilience and connectivity for improved management of the reef systems.</a>
Lessons learned	<a href="#">Results thus far indicate that, while they appear to be fairly resilient, the reef complexes are not as well connected as anticipated and should be managed as discrete systems rather than as a continuous, well-connected chain.</a>
Related websites (English preferred)	<a href="http://www.ori.org.za">www.ori.org.za</a>

**Project 4**

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">Long-term Reef Monitoring</a>
Location	<a href="#">Maputaland Coral Reefs</a>
Dates	<a href="#">2008-present</a>
Main Organizer(s)	<a href="#">Ezemvelo KZN Wildlife (Ezemvelo)</a>
Main Stakeholder(s)	<a href="#">Ezemvelo</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">Ezemvelo undertakes annual reef surveys that investigate changes in biodiversity and reef cover over time. Underwater temperature recorders log semi-continuous water temperature at three sites at similar depths.</a>
Outcome (including expected outcome)	<a href="#">The objective of this monitoring project is to assess long-term trends in reef community structure, including in terms of climate change.</a>
Lessons learned	<a href="#">Both hard coral and soft cover have decreased slightly on the reef closest to the Mozambique border since inception of monitoring. The decrease in soft coral cover has been greater and more consistent in comparison to the hard corals but it is difficult to determine the cause or to attribute the changes to water quality, acidification or temperature. The reefs, being in fully protected areas, have</a>

	nevertheless maintained a relatively stable hard coral and soft coral cover over the monitoring period.
Related websites (English preferred)	<a href="http://www.kznwildlife.com">www.kznwildlife.com</a>

*Note: If you have more activities/projects/programs you would like to report on or share with other members, please duplicate the table above and fill it in for as many projects as you wish.*

**3. Publications.** Please list relevant publications/reports you have released during this reporting period.

Title (incl. author and date)	Website URL if available	Type of publication (Paper, report, etc.)
FLOROS C, SCHLEYER MH. 2016. The functional importance of <i>Acropora austera</i> as nursery areas for juvenile reef fish on South African coral reefs. Coral Reefs.	DOI 10.1007/s00338-016-1499-8	Paper
MONTOYA-MAYA P, SCHLEYER MH, MACDONALD AHH. 2016. Limited ecologically-relevant genetic connectivity in the south-east African coral populations calls for reef-level management. Marine Biology 163: 1-16.	DOI: 10.1007/s00227-016-2939-2	Paper
SÉRÉ MG, WILKINSON DA, SCHLEYER MH, CHABANET P, QUOD J-P, TORTOSA P. 2016. Characterisation of an atypical manifestation of black band disease on <i>Porites lutea</i> in the Western Indian Ocean. PeerJ 4, e2073.	DOI 10.7717/peerj.2073	Paper
PEARTON DJ, SCHLEYER MH. Responses of complex vs robust clade corals from high latitude South African reefs to warming and acidification. 13 <sup>th</sup> International Coral Reef Symposium, 19-24 June 2016, Honolulu, Hawaii.		Conference presentation
PORTER SN, SCHLEYER MH. Long-term dynamics of a high-latitude coral community at Sodwana Bay, South Africa. 13th International Coral Reef Symposium, 19-24 June 2016, Honolulu, Hawaii.		Conference presentation
SCHLEYER MH. Are alcyonacean soft corals the 'glue' that holds a reef together under extreme conditions? 13th International Coral Reef Symposium, 19-24 June 2016, Honolulu, Hawaii.		Conference presentation
SCHLEYER, M.H. 2015. Results of a benthic survey of Baixo São João,		Technical report

Ponta do Ouro Partial Marine Reserve, Southern Mozambique. Oceanographic Research Institute, Durban: 10 pp. (ORI Unpublished Report 323).		
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4. **General Information.** (Note that this information will be posted on the ICRI website on your member page: <http://www.icriforum.org/about-icri/members-networks>.)

Member type (Country / Organization):	South Africa
<b>Focal Point 1:</b>	
Name:	Prof MH Schleyer
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<b>Focal Point 2:</b>	
Name:	Dr R Kyle
Title/Organization:	Ezemvelo KwaZulu-Natal Wildlife
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*Thank you very much for sharing your valuable experiences and information with ICRI.*