



## Member's report on activities to ICRI

Presented by MH Schleyer, Oceanographic Research Institute, South Africa

Reporting period January – November 2010

Please note that the purpose of this report is to help you share information about your activities within the ICRI community to allow discussion at the next ICRI General Meeting. The reports will be made available on the ICRIForum prior to the meeting. The ICRI secretariat is well aware of your busy schedule, thus don't hesitate to submit an incomplete report.

- General Information** (note that this information will be post on the ICRIForum in your member page: <http://www.icriforum.org/about-icri/members-networks>)

Are you an ICRI Member?	Yes
Representation to ICRI (Country / Organization):	South Africa
<b>Focal Point 1:</b>	
<i>Name:</i>	Prof M.H. Schleyer
<i>Organization:</i>	Oceanographic Research Institute
<i>Email:</i>	schleyer@ori.org.za
<b>Focal point 2:</b>	
<i>Name:</i>	Mr C. Coetzee
<i>Organization:</i>	Ezemvelo KwaZulu-Natal Wilflife
<i>Email:</i>	cedricc@kznwildlife.com
Last meeting attended:	Monaco January 2010
How do you circulate ICRI information within your country and/or organization?	Email and direct communication at regional and national liaison meetings with state and parastatal organisations
Budget allocated for coral reef related activities (please mention for year/period):	Research: ~\$90 000 (2010) Management: Unknown

For countries only:

<b>National Action Plan / Initiative</b>	
Do you have a National Coral Reef action plan?	Development of a regional action plan commenced in May 2007. Locally covered in MPA management plan under development and review.
Is this plan publicly available? If so please provide location:	Under development and review.
Do you have a National Coral Reef Initiative or Task Force?	No; probably not relevant as all South African coral reefs are in well-managed MPAs
Are you engaged in any regional programs / initiatives relating to coral reefs:	Yes
If yes, please indicate which programmes/initiatives:	CORDIO initiatives, East African Coral Reef Task Force (EACRTF), GCRMN

**2. Updates on your activities** (new initiatives/programs/projects of your government /organization which will be of interest to ICRI Members)

As reported previously, all coral reefs in South Africa are protected in MPAs that are well-regulated. While they are thus in good condition, they are nevertheless the subject of considerable monitoring and research. We are not complacent regarding South Africa's limited reef resources as, despite being at high-latitude and marginal, they have manifested bleaching in ENSO years. Certain reefs are also subject to relatively intense recreational diving and sport fishing. Current research thus involves reef monitoring in the face of climate change; the incidence and aetiology of coral diseases, again in view of climate change; reef processes in terms accretion versus bio-erosion; reef connectivity in terms of larval dispersal and recruitment, as well as regional functional genetic connectivity; coral reproduction and reproductive success; fish indicators of human activity on the reefs; and an economic valuation of the reefs and their ecological services.

The results of the fish surveys have recently been completed and have yielded differential indicators of both fishing and diving activity. A protocol using a suite of fish indicators has been developed and is to be further tested in more tropical waters in the WIO. In this regard, close collaborative ties have been developed with colleagues on Reunion for comparative studies in our fish, coral reproduction and coral disease research.

Further details on the above can be obtained from the primary focal point.

**3. Contribution to the ICRI GM:** Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI action plan and objectives of the general meeting. Due to the heavy schedules of ICRI members, we have tried to keep the questions to a minimum and value any response you can provide.

a. Session on accidental releases of pollutants

Please provide any lessons you have learned from your experiences in managing accidental pollutions and any projects/programs you are involved in. Do you have report or documents related to this topic?

No accidents of this nature have occurred on the South African reefs.

b. During the meeting, a full day will focus on the Pacific region. If you have any question about the region, ongoing projects in the region... please let us know.

c. What other new initiatives/programs/projects/progress, in particular since January 2010, has been made by your government/organization relative to i) Marine Protected Areas, Ramsar, World Heritage sites, and Man and the Biosphere Programme (MAB) sites designation containing coral reefs; ii) Policy changes; iii) Economic valuation of coral reef ecosystem services, etc., which you believe would be of general interest to other ICRI Members?

The most important development with regard to the above questions is the initiation of a complete economic valuation of the South African coral reefs. These have been extensively studied, providing sufficient background information on their ecology, extent and other parameters to quantify their ecosystem services. The reefs have also been accurately mapped in GIS with usage overlays. This usage varies geographically, ranging from total protection to 'open' reefs used for recreational SCUBA diving and game fishing. Access to the reefs is limited to boat launch sites as they lie offshore, simplifying quantification of these activities. A 'simple' model should thus be accomplishable in the above regulated, well-studied environment.

Once the initial model has been developed, this will be useful in its own right but may also serve as a base model to extend the work northwards to more complex situations. Here the reefs become progressively more open with more complex and more intense usage. Again, baseline information is available in completed studies such as TRANSMAP. The simple South African model will thus, hopefully, be built upon and provide information on situations involving increasing complexity.

- d. We would also like to know if some of the recommendations or resolutions adopted during the last ICRI meeting (<http://icriforum.org/icrigm24>) have been taken forward by your country or organization.
- e. Is there any topic you would like to raise during the meeting?
- f. Please list publications, reports you have released since April 2009.

FLOROS, C. 2010. An assessment of fish communities on South Africa's coral reefs. Ph.D. thesis under examination, University of KwaZulu-Natal.

MACDONALD, A.H.H., SCHLEYER M.H. & LAMB J. 2009. South east African, high-latitude coral communities, a canary for western Indian Ocean coral reefs? Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July 2008.

MACDONALD, A.H.H. 2010. Reef coral population genetics and the design of marine protected areas in the western Indian Ocean. Ph.D. thesis under examination, University of KwaZulu-Natal.

MACDONALD, A.H.H., SCHLEYER, M.H. & LAMB, J.M. (in press). *Acropora austera* connectivity in the south western Indian Ocean assessed using nuclear intron sequence data. Marine Biology.

MAGGS, J.Q., FLOROS C., PEREIRA, M.A.M. & SCHLEYER, M.H. 2010. Rapid visual assessment of fish communities on selected reefs in the Bazaruto Archipelago. Western Indian Ocean Journal of Marine Science 9: 115-134.

MASSÉ, L.M. 2009. Sexual reproduction of *Pocillopora damicornis* (Cnidaria: Hexacorallia) in high latitude shores of KwaZulu-Natal, Durban, South Africa. M.Sc. thesis, University of KwaZulu-Natal.

SCHLEYER, M.H. 2009. Extreme environments: High-latitude reefs – South African coral reefs. Oxford University Press, Oxford: 72 – 73.

SCHLEYER, M.H. & BENAYAHU Y. 2009. Soft coral biodiversity and distribution in East Africa: Gradients, function and significance. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July 2008.

SCHLEYER, M.H. & BENAYAHU, Y. (in press). Pre- and post-1998 ENSO records of shallow-water octocorals (Alcyonacea) in the Chagos Archipelago. Marine Pollution Bulletin. doi:10.1016/j.marpolbul.2010.08.019

SCHLEYER, M.H. & PEREIRA, M.A.M. (in press). Coral Reefs. In: BANDEIRA, S. & PAULA, J.P. (eds). Ecology of Maputo Bay.

SERE, M.G., MASSE, L.M., PERISSINOTTO, R. & SCHLEYER, M.H. 2010. Influence of heterotrophic feeding on the sexual reproduction of *Pocillopora verrucosa* in aquaria. Journal of Experimental Marine Biology and Ecology 395: 63-71.

STEYN, E. & SCHLEYER, M.H. (in press). Movement patterns of the East Coast rock lobster *Panulirus homarus rubellus* on the coast of KwaZulu-Natal, South Africa. New Zealand Journal of Marine and Freshwater Research.

- g. Please indicate upcoming coral reef-related meetings you will attend?

Information on the reefs and associated research will be presented to scientists and managers at national and regional conferences in 2011, viz. the 14<sup>th</sup> South African Marine Science Symposium and the 7<sup>th</sup> Western Indian Ocean Marine Science Association Scientific Symposium.