

# THE ORICLE

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## WIOFISH ON THE MOVE

**Based on an initiative by the World Conservation Union (IUCN), a number of countries of the Western Indian Ocean (WIO) collaborated to develop a fisheries database that fully describes all fisheries of the region, including associated biological and socio-economic information reflecting its conservation status and management needs.**

Designed to be an evolving and constantly updated system, it provides an ongoing assessment of small-scale fishery management in the WIO, in part achieved by a unique scoring system that allows for long-term tracking of specific performance indicators. Now that the database is complete, a web-interface is poised to provide a powerful extraction tool for the generation of reports that will underpin scientific management of these fisheries as well as provide direction to research initiatives and donor priorities.

ORI has been the lead institution in the development of this WIOFish database which marks a significant contribution to the Nairobi Convention, the Millennium Development Goals of the WSSD, the Jakarta Mandate of the Convention on Biological Diversity and the tasks facing the NEPAD marine programme.

Over the past four years extensive information from 163 different fisheries has been assembled into the database. However, for effective application of this management tool, "hands-on" training for each of the participating countries was needed, especially in the updating, extraction and reporting routines. Fortunately, an application for funds to undertake such training sessions was supported by the National Research Foundation (NRF) which enabled ORI's Bernadine Everett to travel to each of the national nodes during June and July 2006.



Two-day training sessions were conducted at the Instituto Nacional de Investigaç o Pesqueira (IIP- Mozambique),

Kenya Marine Fisheries Research Institute, Institute of Marine Sciences (Tanzania – Zanzibar), the Seychelles Fishing Authority and South African fisheries personnel from Ezemvelo KZNW, MCM, KZN-Coastal management and the Greater St. Lucia Wetland Park. Each institute provided at least four scientific participants plus one computer specialist for the training, so that individuals at the partner institutes were not only equipped to work with their own country's data but also to provide further training to other conservation and management agencies in their countries.



The last formal update of data in the database was done in 2001, with some partners updating to the end of 2004. ORI will now enter into formal agreements with each of the partner organisations (IIP, KMFRI, IMS and SFA) to conduct six-monthly updates over the next five years beginning at the end of August 2006. Updating will be live on the Internet and submitted via ORI to ensure standardisation of terminology, etc. Once updated, the state of WIO fisheries will be assessed and compared to the situation when the data was first collected i.e. 2001. From this analysis, researchers and managers will identify those small-scale fisheries that have inadequate information for management and thus provide focus for action to ensure the sustainability of WIO fisheries into the future.

Besides the obvious conservation benefits, this project has led to a close working partnership between regional institutes and their staff, strengthening alliances between those engaged in various aspects of fisheries such as research, management, monitoring and socio-economic aspects of fisheries development. It also underlined prevailing differences between the various fisheries management styles in the region and the need for a more cohesive management approach to ensure protection of the region's biodiversity by managing the fisheries on a scientific basis.

# BOAT LAUNCH SITE MONITORING

**Multi-stakeholder projects are never easy but the Boat Launch Site Monitoring System (BLSMS) is bucking this trend. Co-operation between the Department of Agriculture & Environment Affairs (Policy), Ezemvelo KwaZulu-Natal Wildlife (Management), ORI (Research) and the users (Boat Launch Site licence holders and operators) is proving excellent.**

The BLSMS is designed to comprehensively document all daily small craft launching along the KZN coast, primarily as a statutory requirement but also to provide a source of valuable conservation data. ORI is providing a scientific service to the project that involves the capture, archiving and interpretation of these records. A total of 202 register volumes were printed and distributed during 2005, containing 161 600 daily launch sheets, of which 75 000 were completed and submitted to ORI – an unexpected good rate of return! All of these launch records have now been validated and captured to an Access Boat Launch Monitoring database by ORI's fisheries data and information experts comprising Ms P Kunene, Mr M Khumalo and Mrs R Govender.

Although there were some launch sites where the level of reporting was poor, there was much improvement in the level of reporting from many other sites. Interim

results indicate that Sodwana Bay (10 366 launches), Shelly Beach (4 330 launches) and Umkomaas (4 071 launches) were the sites with highest levels of usage. The data also indicates that in all of the 36 different boat launch sites, the rigid-hulled ski boat was the most commonly used vessel type at 56%, followed by inflatables at 39%. Rigid-hulled ski boats were especially used for fishing, inflatables were preferred by scuba divers while Jet Skis and Paddle-crafts were popular with those who undertook solitary outings. Most of the launches were recorded during daylight between 04h00 to 18h00. Although anglers reported many species caught, Slinger was the most common fish in the 2005 catch reports, followed by Kobs.



## PRAWNS BURROWING IN KWAZULU-NATAL

**Sand and mud prawns<sup>1</sup> are important components of estuarine ecosystems being active deposit-feeders and bio-turbators in this sensitive environment. They are a major food source for fish and bird predators and eagerly sought by fishermen for their superior bait value.**

Although found in many KwaZulu-Natal estuaries, the largest sand prawn populations occur in Durban Bay, Richard's Bay (Mzingazi Canal) and Kosi Bay, with mud prawns apparently confined to the Mgeni and smaller south coast estuaries. Based on an earlier ORI study (1992 -1994), a set of guidelines was proposed to manage the harvesting of burrowing prawns in the light of growing demand. Recently, ORI identified the need to update stock assessment information and to develop more precise operational management procedures. The results of this new study<sup>2</sup> have just been finalised.

During an 18-months period of intense sampling "on and in" sand and mud banks, involving thousands of pumped samples and burrow counts, extensive data was obtained. This included key biological parameters such as gender, reproductive state, fecundity and density, as well as the physical parameters of salinity, temperature, pH, sediment particle size and the organic content of the substratum. Data derived from the Ezemvelo KwaZulu Natal Wildlife (EKZNW) shore patrols and the ORI mail and telephone surveys of users, provided estimates of catch rates, total landings and preferred harvesting areas.

The results are revealing. From 1974 onwards, catch rates were sustained at high levels, even after the sharply increased issue of licenses in 1995. However, catch rates of sand prawns since then indicate an overall decrease in both Durban Bay and Richards Bay. Part of this disturbing trend is related to the very poor management over license numbers issued by MCM via the Post Office and

also the fact that sand prawn permits were inexplicably combined with mollusc permits during 2003. It is therefore not possible to quantify precisely the licence issue and hence fishing effort. It was estimated that presently about 35% of the Durban Bay's main sand prawn population is harvested annually by recreational permit-holders and that 12% of the remaining banks are taken as well. Based on the overall data set from 1974 onwards, it appears that MSY levels for sand prawns were attained at an issue of around 2 200 permits annually. Present issues are in excess of 2 500.

Results also indicated variable distribution patterns of sand prawns, associated with differences in sediments. This too would have a bearing on management strategies. Even though sand prawn population numbers remain high in certain places, such as the protected Bayhead Heritage Site, the lack of information about license issues and corresponding levels of effort places this fishery at risk. It was apparent that mud prawn populations in the Mgeni estuary are very low. This is believed attributable to a range of factors, including poaching/over-exploitation, pollution, sediment structure and also the anaerobic condition of the sediments in these areas. Further development of this resource is thus not encouraged.

In previous years ORI supported growth in this fishery, but we now call for a more conservative approach because of the declining trends and unknown parameters relating to permit issue. EKZNW are encouraged to further intensify their patrolling and monitoring effort in the exploited areas, especially near those banks most exposed to illegal harvesting.

<sup>1</sup>Sand prawn (*Callinassa kraussi*); mud prawn (*Upogepia africana*)

<sup>2</sup>In collaboration with EKZNW and Marine Geoscience at University of KZN and partially funded by MCM/ NRF.

# NEW CONSORTIUM FOR CONSERVATION OF COASTAL AND MARINE ECOSYSTEMS IN WIO (WIO-C) FORMED

Over the years, several regional organisations have developed strong coastal and marine conservation programmes in the Eastern Africa and Small Island States region of the West Indian Ocean (WIO).

These programmes include WWF co-ordinated Eastern African Marine Ecoregion (EAME), IUCN's Jakarta Mandate and other programmes implemented by CORDIO, WIOMSA, UNEP and UNESCO. In order to rationalise these contributions and especially for developing synergistic partnerships that will advance the interests of marine research, conservation and management in the region, a strong visionary Consortium was launched at UNEP in Nairobi on 1 September 2006 and has been named as the "Consortium for Conservation of Coastal and Marine Ecosystems in WIO" adhering to the acronym WIO-C.

Though yet to finalise its formal constitution, the eight founding members (IUCN, WWF, WIOMSA, CORDIO, WCS, UNEP, NEPAD, IOC-UNESCO) are committed to anchoring the Consortium in the Nairobi Convention. The Consortium will provide a highly credible network of organisations, which will be able to provide decision support, share information and management experiences, mobilise resources and develop collaborative programmes. In particular, these activities will relate to the regional and transboundary issues.

While the eight-member leadership group will steer the Consortium, the day-to-day secretariat functions will be a revolving responsibility – initially undertaken by the WWF-EAME team in Dar Es Salaam, Tanzania. A more formal launch is likely to be associated with the next COP meeting of the Nairobi Convention in 2007. ORI has been involved in several of these regional activities and was closely involved in the creation of the Consortium.



*Dixon Waruinge is UNEP programme officer for the Nairobi Convention and collaborates closely with ORI.*

## LINEFISH CONSERVATION PLANS FOR MOZAMBIQUE

Mozambique is a nation with a long coastline and high levels of socio-economic and food security dependence on its marine resources. Although there are fishing laws in place, the Ministry has recognised the need for up-dating these rules to protect critical resources. Accordingly, a number of fishery sectors are being reviewed in order to develop new management plans. One such plan is the Linefish Management Plan, which is being developed with support from ORI.

ORI has a long history of collaboration with the Mozambique fisheries authorities, especially as many resources straddle our borders. The proposed Linefish Management

Plan will be developed over a period of one year. The process will involve close collaboration with the Department of Fisheries Administration of the Ministry and the Instituto Nacional de Investigação Pesqueira.

There are diverse stakeholders in the linefishery, ranging from subsistence fishers to sport anglers, many of them from South Africa. The expectations, as well as the impact of all these types of fishing, will be reviewed and managed so as to ensure sustainability, maximum benefit to Mozambique and adherence to the best international fishery management techniques. Clearly there will also be long-term benefits to South Africa as shared stocks will be better protected.

## SOUTH WEST INDIAN OCEAN FISHERIES COMMISSION (SWIOFC)

In terms of the UN-FAO Constitution, member states are encouraged to form regional fisheries management organisations (RFMOs) in order to promote sustainable use of living marine resources in a specified region. Such bodies address common problems and collaborate to generate information and provide advice.

One of the newest of these is the South West Indian Ocean Fisheries Commission (SWIOFC) which had its first meeting in Mombasa in 2005. SWIOFC is an advisory body with a current membership of 14 countries that harvest fish in the EEZs of the WIO. The Commission can recommend regulatory measures based on deliberations of its Scientific Committee. Although not legally binding, the

SWIO states have committed themselves to implementing regulations that are reached by consensus.

At its second meeting, held in August 2006 in Maputo, the SWIOFC member countries endorsed the role of the South West Indian Ocean Fisheries Project (SWIOFP) in strengthening the scientific decision support capacity of the Commission in years to come. Other areas that are to receive priority attention are the improvement of fishery statistics, adoption of by-catch minimization methods and support for greater sea turtle conservation initiatives.

ORI has been granted observer status at SWIOFC and continues to play a technically supportive role in the interests of long-term conservation of shared resources in the West Indian Ocean.

# ORI HOSTS UNEP WORKSHOP

The United Nations Environment Programme office in Nairobi is responsible for administration of the Nairobi Convention and is also host to the West Indian Ocean Programme on land-based sources of pollution in the coastal zone: WIO-LaB.

UNEP and WIO-LaB jointly arranged a workshop designed to strengthen the capacity of leaders in coastal zone management of the WIO region. The Oceanographic Research Institute played host to this workshop in Durban which involved senior officials from Comoros, Mauritius, Madagascar, Seychelles, Tanzania, Kenya, Mozambique and South Africa.

The week-long event held in early October 2006 provided excellent opportunities for further collaboration in sev-



eral ORI projects, especially in terms of developing a joint Transboundary Diagnostic Analysis and Strategic Action Plan, which are requirements of both the WIO-LaB and SWIOFP programmes.

South Africa's deputy minister of Environmental Affairs, Mrs Rejoice Mabudafhasi took time out to visit ORI and the delegates, providing both encouragement and official support for these important regional initiatives.

South Africa's deputy minister of Environmental Affairs, Mrs Rejoice Mabudafhasi

## STUDENTS' CORNER

Each year ORI has taken in one or two Library students as part of their intern training. Most recently Dumsani Thwala spent time at ORI. He writes about his experience in the ORI library:

"It was a privilege to come and do my experiential learning at ORI for a duration period of eight weeks. I had never worked with scientists before, but the ORI staff gave me a warm welcome and I found working with them was a very good experience for me.

"I was exposed to many of the tasks offered by ORI's library - more than I had anticipated! I did cataloguing, classification, labelling of shelves, accessioning of books and journals, stocktaking, conducting of reference queries on the NISC disks and via the internet, circulation of library materials and photocopying ORI investigational reports for digitising.

I catalogued the entire dolphinarium and marine mammal reference collection, which has a special section in the library. I also went through the volunteer-guide collection, which is kept separate from the main library collection.

After these collections had been sorted, I classified them according to the subject content. "Journals returned from binding were catalogued and bar-coded for the Libwin library system. Shelving and shelf-reading helped me to identify books which were incorrectly placed while stocktaking helped especially in identifying incorrectly catalogued library items.

It was a pleasure to be able help some students and visitors to the library by conducting reference queries and locating information sources available in the library.

"A real treat was the visit to Sea World, where I watched the seal and dolphin shows and visited the aquarium to see those amazing creatures of the sea. On my birthday I received a special treat as I went behind the scenes to meet Gambit, his "wife", their calves and the rest of the dolphins.

"Lastly, a special thanks to everyone, especially Bridgid and Maria, for help in their specialist ORI library during my training period."

Dumsani Thwala

## RECENT PUBLICATIONS<sup>1</sup>

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- SCHLEYER, M.H., HEIKOOP, J.M. & RISK, M.J. 2006. A benthic survey of Aliwal Shoal and assessment of the effects of a wood pulp effluent on the reef. *Marine Pollution Bulletin* 52(5): 503-514.
- DE BRUYN, P.A. & VAN DER ELST, R.P. 2006. Report on the investigation of stalked barnacles (*Lepas anatifera*) recovered from the hull of the yacht Moquini. Oceanographic Research Institute, Durban: 5p. (ORI Unpublished Report 225)
- EVERETT, B.I., FENNESSY, S.T. & VAN DER ELST, R.P. 2006. Ecological description of the marine and coastal environment in the proximity of Limestone Reef and Vetch's Pier, Durban. Consultancy report to Durban Point Development (PTY) Ltd. Oceanographic Research Institute, Durban: 13p., 1 appendix. (ORI Unpublished Report 230)
- Appendix to this report is: Celliers, L., Everett, B.I., de Bruyn, P. & Patrick, P. 2005. Benthic survey of Vetch's Pier, Durban, South Africa. Oceanographic Research Institute, Durban: 18p. (ORI Data Report 2005/6)
- OCEANOGRAPHIC RESEARCH INSTITUTE. 2006. Annual research report to Ezemvelo KwaZulu-Natal Wildlife 2005. Oceanographic Research Institute, Durban: 63p. (ORI Unpublished Report 236)
- SCHLEYER, M.H. & MACDONALD, A.H.H. 2006. Results of surveys of Chonguene Reef and Baixo Inhampura undertaken for Corridor Sands Limitada in 2005. Oceanographic Research Institute, Durban: 8p. (ORI Unpublished Report 235)

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