



Newsbrief

Western Indian Ocean Consortium for Marine Ecosystem Conservation Launched - WIOMSA one of the founding members

The Consortium for Conservation of Coastal and Marine Ecosystems in Western Indian Ocean (WIO-C) is a new partnership among nine organizations with coastal and marine conservation programmes in the region.

WIOMSA is one of the founding members of this consortium. It was launched at the Conference of Parties to the Nairobi and Abidjan Convention held in Johannesburg, South Africa, on 9th November, 2007. The WIO-C was announced by Dr Rolph Payet, the interim Regional Coordinator of the Nairobi Convention, at a conference in Johannesburg in November 2007:

“It is recognized that such collaboration will not only advance the sustainable use and conservation of coastal and marine resources, but will also contribute to sustainable livelihood and poverty reduction in the region”, said Dr Payet at the launch.

FOUNDING MEMBERS

The other members are the World Conservation Union (IUCN), WWF East African Marine Ecoregion (WWF



WIO-C is poised to improve collaboration between NGOs that support coastal and marine conservation in the WIO.

Illustration: WIOMSA

EAME), Coral Reef Degradation in the Indian Ocean (CORDIO), UN Environment Programme Nairobi Convention Secretariat (UNEP), The New Partnership for Africa's Development (NEPAD) and UNESCO Intergovernmental Oceanographic Commission (IOC-UNESCO), The Wildlife Conservation Society (WCS), the Indian Ocean Commission (COI) and the East African Wildlife Society (EAWLS).

INFORMATION SHARING

During the meeting held in Johannesburg, there was agreement among the members that there is a need for increased information sharing between organizations with programmes in the region. Information exchange functions well on the national, but not the regional, level. Information sharing will therefore be a priority area for the
(Continued on p.5)

Half Pearls SUCCESSfully harvested in Fumba



The women having a first look at the pearls.



Mrs Bi Ikiwa posing with a shell.

Photos: IMS

After more than two years of hard work, the oysters in Fumba bay finally produced some pearls - unique, golden mabe pearls. This is good news for the women there, who have been involved in the SUCCESS oyster cultivation and jewellery making project since 2004.

Fumba is a coastal village on Zanzibar's West Coast. The pearls that were harvested there in November are the result of the hard work and effort trying to introduce functioning methods for growing half pearls as a way of generating income for the local community. Here, the women have cultivated seaweed for more than ten years, as well as collected bivalve and gastropods for sale. It was hoped that pearl farming would create more substantial income than those activities.

In 2004, Dr Narriman Jiddawi and Dr Aviti Mmochi from Institute of Marine Sciences (IMS), within the framework of the SUCCESS project, had a meeting with the villagers where they agreed to try oyster cultivation as an additional source of income. Later on, they

would also make jewellery.

Therefore, the women were trained in how to cultivate oysters and make jewellery from oyster shells. Machines for preparing the shells were donated to them by the SUCCESS program.

SOCIAL CHANGE

The women started out with the jewellery making, and this has made a difference - especially for three of the women, who have been the most active, selling jewellery at trade fairs and to tourists. One of the three women now earns more money than her husband, who works for the local government.

"This woman has been so successful with her products that she is now building a house for the family. She

even attended a trade fair in Nairobi on her own, which is quite rare for local women here, who do not often get permission to travel without their husbands", says Dr Mmochi.

Seeing how these women have benefited, other husbands in the village are beginning to get increasingly positive about their wives engaging in the jewellery making.

"Another woman recently started producing really good pieces of jewellery. We asked what had happened. She said that her husband had started helping her, so now they are doing it together."

FROM THEORY TO PRACTICE

The first nucleus for half pearl production were introduced into oysters

SUCCESS = SUSTAINABLE COASTAL COMMUNITIES AND ECOSYSTEMS

- **The Mabe pearl project** is a collaboration between **WIOMSA**, **IMS** and **CRC (the Coastal Resources Center at the University of Rhode Island)**. It is part of the USAID-funded SUCCESS program.
- **Producing Half-Pearls (Mabe)**, a manual about the production of Mabe pearls, was published by WIOMSA in 2006. It can be found here: <http://www.wiomsa.org/filearchive/1/1034/Half-Pearls-manual.pdf>



Photo: IMS

MABE PEARL AUCTION

On the 9th February, an auction of six of the half pearls, of which one has been set in gold and five in silver, will be held at the Palace Museum in Stone Town, Zanzibar at 2 pm. 40 half pearls from similar projects around the world will also be auctioned.

caught in the wild. But from the beginning there were some difficulties figuring out how long the pearls would take to grow, as the local oysters (wing pearl oysters / *Pteria penguin*) are different from those that have been used in other areas (black lip pearl oysters / *Pinctada margaritifera*).

Half pearls are grown inside oysters, but are not round. Plastic buttons are inserted into the oysters which then produce the pearls. It is essential to check before opening the oysters as opening them too early will ruin the chances of getting good pearls.

“It has been a process of fine-tuning the methods. In 2006, three pearls in the first set of oysters were harvested, but only one of them was of good quality. We harvested them too soon. Many of the oysters also died before we could even harvest them. We then realised that in the oysters used here, the *Pteria penguin* pearls take longer than oysters that have been used in

Proud of their pearl project: Dr Jiddawi (left) and Dr Mmochi (right)

Photo: IMS



projects elsewhere”, says Dr Mmochi.

THE HARVEST

In November 2007, the second set of oysters in Fumba were opened with great anticipation. This time there turned out to be something inside the oysters: 28 golden mabe pearls. The market value of these pearls from the oysters in Fumba Bay turned out to be more than 100 US dollars per pearl, a sum that no one involved had quite expected. This is because of the unique colour of the pearls.

“That is actually a bit more money than we had expected when we started this project, and certainly more than the women were expecting. I think that some of them have not dared to believe that they would actually gain much from this.”

NEW CHALLENGES

The question is how the income from the pearls will be divided among the participants in the project, and the way forward. The women have agreed to form a cooperative society and invest the money from the pearls to finance machines for more jewellery production.

“So the biggest challenge now is for them to form a cooperative and agree on a constitution for this cooperative. They have already received and will continue to receive some training on accounts and bookkeeping. When we deem that they are ready to take over we will hand over the responsibility to them”, says Dr Mmochi.

— Read more about the pearl project and the upcoming auction on www.wiomsa.org

New Online Forum on Mariculture



The idea of having an online forum for discussing mariculture issues goes back to the 4th WIOMSA Scientific Symposium in Mauritius, when the Western Indian Ocean Mariculture Forum was proposed. The forum was formally inaugurated in November 2007.

The first topic to be discussed in the forum was the development of milkfish farming in the WIO region. The focus of the forum is small-scale mariculture. It has been developed by Bob Bowen of the University of Rhode Island as part of the SUCCESS project. Besides the forum for mariculture practitioners, it will soon have additional features, such as a directory of regional mariculture experts, an inventory of mariculture projects and an online publication library.

The members of WIO Mariculture Forum are mariculture practitioners, researchers, and policy makers from the region and beyond.

Dr. Aviti Mmochi is the coordinator of the SUCCESS project and moderator of the forum. If you wish to join the forum, please contact Dr Mmochi on:
Email: mmochi@ims.udsm.ac.tz

The WIO Mariculture Forum can be found at:
<http://www.wiomsa.org/mariculture/forum/>

Sea Cucumbers - an important resource

The latest WIOMSA book "Commercial Sea cucumbers : a review for the western Indian ocean". is on a study about sea cucumbers and fishery of sea cucumbers in the Western Indian Ocean. It provides information for a better understanding of the sea cucumber fisheries and suggestions for the development of sustainable sea cucumber fisheries management systems in the WIO.

The information therein is based on a MASMA research project approved for funding in October 2005: titled Sea cucumbers, a poorly understood but important coastal resource: national and regional analyses to improve management.

It focuses on Kenya, Madagascar, Reunion, Seychelles and Tanzania and has biophysical and socio-economic components; both components are now integrated in several countries.

A Regional Status Report was conducted as the baseline for the rest of the study; it includes one chapter on each country and has now been published as part of WIOMSA book series 5.

ECOLOGY

Surveys to assess distribution and abundance of sea cucumbers have been conducted and the data will be entered into a global database using a datasheet developed for uploading to the Global Biodiversity Information Facility (www.gbif.org).

It is intended that a regional analysis using GIS will be completed for a publication on the biodiversity of the sea cucumbers of the WIO by early 2008. The project will also discuss uploading sea cucumber data onto the AfroBis database (www.afrobis.csir.co.za:8000) that offers free access for marine biogeographic data for Africa that also has very little information on sea cucumbers.



Photo: R. Aumeeruddy

Many different sea cucumber species from Seychelles

Preliminary results of the different surveys show a high variability in species abundance and diversity, among sites, in all the countries.

HIGH DIVERSITY IN SPECIES

The region has a rich biodiversity of sea cucumbers and the total number of species recorded to date include; 44 species in Kenya, 21 species in La Reunion, 35 species in Seychelles and 125 species in Madagascar. The number of species recorded for Madagascar may be amongst the highest diversities reported worldwide. Several new records have been reported during these surveys.

In addition surveys were completed to evaluate the use of MPAs in protecting sea cucumber species. The results in Kenya indicate that generally, MPAs are doing a better job of protecting the biomass of sea cucumbers but not the biodiversity.

A regional analysis will be done to elucidate the factors that control sea cucumber distribution and abundances across the region that will take into consideration habitat and other environmental factors and fishing pressure.

REPRODUCTION STUDIES

Eight species have been chosen for reproduction studies, using monthly sampling of populations. Some species, such as *Holothuria leucospilota* and *H. scabra* are studied in different countries, allowing regional comparisons.

The results are important for the future management and will concern sex-ratio (a variable parameter in sea cucumbers), anatomy and histology of the gonads, seasonality in reproduction and first sexual maturity. Most species show a main reproduction during the warm waters period and synchrony between sexes, but the variability, the presence of a second reproductive season and differences between species are being analysed. Further studies will assess the factors that affect the fecundity of sea cucumbers and other parameters of the life cycle.

When the sampling is completed in the different countries, the regional analysis will be possible, as standardized methods were used and will allow comparisons.

Despite the importance of the assessment of recruitment of sea cucumber, few recruits have been reported from the surveys as in other countries.



Collectors in Madagascar drying and packing the various species of sea cucumbers.

Photo: C. Conand

Finally, the potential benefits and constraints facing sea cucumber culture in WIO will be highlighted by the experiences conducted over several years in Madagascar.

SOCIO-ECONOMIC AND FISHERIES MANAGEMENT COMPONENT

The socioeconomic and management aspects of sea cucumber resources in the Western Indian Ocean have been defined and details on the objectives and methods already presented. The methods are mostly based on questionnaires and interviews.

The Socioeconomic objectives are "To determine the national marine resource use patterns, the social and economic characteristics of the fisher communities and the contribution of sea cucumbers to the national economies and local livelihoods of the coastal areas."

The objectives of the socioeconomic component of the project are expressed in two main research lines: 1) livelihood and local importance of the sea cucumber fishery and 2) formal management associated with the different levels and agents of the sea cucumber fishery.

Some of the most important aspects are to address the livelihood component, including the socioeconomic characteristics of the local coastal communities dealing with the sea cucumber fishery.

The focus is on the sea cucumber collectors and middlemen, in order to understand who the sea cucumber fishers are, the contribution of this fishery on the livelihood of the com-

munity and households, and the subsistence and commercial components of the fishery.

The formal management will cover licensing and monitoring systems, basic statistical information collected, existence of specific policies or management regimes for the sea cucumber fishery and stakeholder participation in the management of the fishery.

BROAD UNDERSTANDING

The proposed model which involves a variety of ecosystems, a diversity of stakeholders and various management systems promises to provide a broad understanding of sea cucumber fisheries in the WIO.

The research findings of this project are disseminated through several publications and two sessions were conducted on the biology and fishery of this marine resource (8 oral communications) during the 5th WIOMSA Scientific Symposium in Durban (October 2007). The overall results provide much information about sea cucumber fishery dynamics and guidelines for future management strategies. While these are relevant for the region, they may also be of interest outside the WIO. ***

"Commercial Sea cucumbers : a review for the western Indian ocean" WIOMSA book series 5.

Principal investigators: C. Conand and N. Muthiga

Co-investigators: R. Aumeruddy, M. De La Torre Castro, P. Frouin, K. Mbagu, Y. Mgaya, J. Ochiewo, M. Pinault and R. Rasolofonirina

WIO-C Launched

Continued from p. 1

consortium and a main objective in the first stages.

For example a common website, or a database, could be created.

The meeting noted that the consortium could work with directing information towards governments in the region, promoting policies that will balance conservation and development needs.

The Consortium could also help create a network of local NGO working with similar issues at grassroots level. Increased sharing of data and monitoring efforts would be another goal.

A more long term objective for the Consortium would be to complement and facilitate the implementation of the Nairobi Convention work programme by mainstreaming conservation efforts of NGOs and other agencies in the region.

The founding leadership member group will steer the Consortium., but national and regional NGOs are also welcome to join. There will also be a secretariat, which will initially be based at the WWF-EAME office in Dar es Salaam, Tanzania.

DEVELOPING A CERTIFICATION PROGRAMME

WIOMSA will be in charge of a working group within the consortium. This group is aimed at taking stock on the capacity building needs and progress.

WIOMSA is working with partners in the Consortium to develop a certification programme for MPA professionals.

"Overfishing has led to collapse" WIO Journal of Marine Science, Volume 6(2) is now out



MASMA / Seychelles Fishing Authority Study Recommends Protection of Coral Reef Fish Spawning Aggregations in the Seychelles

Spawning aggregations are vulnerable to overfishing. This new study shows a need for protecting reef fish spawning aggregations (FSAs) in the Seychelles. The findings and recommendations are the result of 3 years of multidisciplinary research aimed at determining the importance of spawning aggregations for artisanal fisheries management.

Interviews with fishers in the Seychelles showed that the FSAs were well-known to artisanal fishermen in the area. FSAs there have been fished since the 1940s. But some of the aggregations may have disappeared due to overfishing, and some, especially the serranid aggregations, are heavily fished through trap fishery.

"There is strong evidence for collapses due to fishing of serranid FSAs that formed near-shore to the main granitic islands. On the Mahe plateau particularly coastal areas, serranid populations have declined in abundance and reproductive behaviour has, probably, been modified by fishing."

Therefore, the authors propose protection of the serranid aggregations:

"...protection of serranid aggregations is a necessary management response to proposed development of fisheries in the outer islands. Based on relatively strong social and cultural institutions, including a degree of resource partitioning between communities, co-management and rights-based approaches may be appropriate for the

trap fishery, encompassing measures for siganid aggregations."

However, the pressure on siganid aggregations is also increasing.

"Although there is no evidence for the collapses of siganid FSAs due to fishing, stresses to coastal ecosystems are increasing and there is a need to improve management of the trap fishery and other coastal resource uses."

The study found serranid aggregations of low socioeconomic importance to the fisheries, which could be an advantage when management for protecting them is set up.

Siganid aggregations, on the other hand, were found to be of greater importance to the small boat trap fishery, and the study found a degree of resilience in the siganid aggregations.

The MASMA programme has helped enhance awareness of FSAs, and there is now scope to achieve better management of reef populations through the protection of FSAs, the authors conclude. ***

"Investigating the importance of Reef Fish Spawning Aggregations for the Sustainable Management of Artisanal Fisheries Resources in Seychelles" is a joint publication by WIOMSA and the Seychelles Fishing Authority.

Authors: Jan Robinson, Michel Marguerite, Rondolph Payet, Marlene Isidore

WIO Journal of Marine Science, Volume 6(2) is now out

The articles in the latest issue are:

- i) **A. Mtanga and J. Machiwa** - Assessment of Heavy Metal Pollution in Sediment and Polychaete Worms from the Mzinga Creek and Ras Dege Mangrove Ecosystems, Dar es Salaam, Tanzania.
- ii) **D. Taddei, G. Bucas, J. Clavier, P. Cuet, and P. Frouin** - Carbon Fluxes at the Water-sediment Interface in Reunion Island Fringing Reef.
- iii) **A. Brito and A. Pena** - Population Structure and Recruitment of Penaeid Shrimps from the Pungué River Estuary to the Sofala Bank Fishery, Mozambique.
- iv) **A. Al-Marzouqi, A. Al-Nahdi, N. Jayabalan and J.C. Groeneveld** - An Assessment of the Spiny Lobster *Palinurus homarus* Fishery in Oman — Another Decline in the Western Indian Ocean?
- v) **P. Doukakis, M. Jonahson, V. Ramahery, B.J. de Dieu Randriamantsoa and S. Harding** - Traditional Fisheries of Antongil Bay, Madagascar
- vi) **C.J. Gillibrand, A.R. Harris and E. Mara** - Inventory and Spatial Assemblage Study of Reef Fish in the Area of Andavadoaka, South-West Madagascar (Western Indian Ocean)
- vii) **S. Visram, J. Mwaura and D.O. Obura** - Assessing Coral Community Recovery from Coral Bleaching by Recruitment in Two Reserves in Kenya.
- viii) **M.-O. Nadon, D. Griffiths, E. Doherty and A. Harris** - The Status of Coral Reefs in the Remote Region of Andavadoaka, Southwest Madagascar
- ix) **A.K. Kivaisi and A. S. Buriyo** - Assessment of Native Agar Gels Extracted from *Gracilaria debilis* and *Gracilaria salicornia* Harvested Along the Tanzanian Coast for Culturing Microorganisms
- x) **V. Øresland** - Description of the IMR Standard Light Trap and the Vertical Distribution of Some Decapod Larvae (Homarus and Nephrops)

Seabirds as Bioindicators in Tropical Marine Habitats - Why and How?



Seabirds in flight. Photos: WIOMSA

The presentations held at the workshop were given both by regional scientists and by speakers from all over the world with considerable experience of the issue but in other climate zone, including polar and temperate habitats. For example, Sarah Wanless from Centre for Ecology and Hydrology in the UK gave a presentation on Seabirds as bioindicators of climate and fishery effects in the North Sea, whereas Nick Dunlop from the Conservation Council of Western Australia presented The potential use of seabirds to monitor the marine ecosystem of the Western Indian Ocean.

There were also presentations of regional and international programmes, including the Behavioural and Demographic Response to Climate Change of Indian Ocean Marine Top Predators programme (REMIGE) the Climate Impact on Oceanic Top Predators programme (CLIOTOP), the Agulhas-Somali Large Marine Ecosystems (ASLME) and South West Indian Ocean Fisheries Project (SWIOFP).

A booklet titled "**Why and how to use seabirds as bioindicators in tropical marine habitats**" presenting the results from the workshop will be issued in 2008.

How to use seabirds as bioindicators, and how this information may be used, was the theme of a workshop held in the Seychelles from 13-15 December.

This workshop was the final event of a research project funded by the MASMA programme has been running in the Mozambique channel and in the Seychelles. It is the first part of a long term study of the feeding ecology, breeding parameters and population structure of the main tuna-associated seabird species of the Western Indian Ocean.

The initial goal of the project was to assess in what ways natural and man-induced changes in food webs of the region might have impacted on seabird ecology. The study was initiated in the Mozambique channel in 2002, and was extended to include the Seychelles from 2005, and running until 2007.

Ultimately, the goal is to use seabirds as bio-indicators of the health of marine food webs in the western tropical Indian Ocean in order to conduct ecosystem-based management of the marine resources of the region.

At the workshop, which was held at the Nature Seychelles' Centre for Environment and Education in Mahe, Seychelles, there were presentations of the achievements of the programme from 2002 until 2007.

The way forward was discussed with different stakeholders - fishery managers, local NGOs and others. The main issue discussed was the implementation of a long term programme using sea birds as bioindicators in the marine environment.



About 40 participants representing over 10 countries and institutions within and outside the WIO attended the workshop.

Regional Course Receives Minister's Attention



From left: H. E. Mr. Luciano De Silva give the opening speech, students sampling crab population in Pemba Bay, practical session computer exercises.

Photos: WIOMSA

Mozambique's Minister for Coordination of Environmental Affairs Mr. Luciano de Castro praised the organisation of the regional training course in Scientific Methodologies in Marine Ecology that was held by WIOMSA 2-17 December in Pemba, saying that the course would be of benefit for coastal and marine sciences in the region.

The regional advanced course 'Scientific Methodologies in Marine Ecology' was held for the third time since 2004. It was organised by WIOMSA in collaboration with Universities both in Mozambique and Portugal and held in a newly inaugurated training centre in Pemba, north Mozambique, from 2 to 17 December 2007.

The Minister for the Coordination of Environmental Affairs of Mozambique and the Permanent Secretary of the

'Scientific Methodologies in Marine Ecology'

The course is funded by WIOMSA and co-organized by University Eduardo Mondlane (UEM, Mozambique) and the University of Lisbon (UL, Portugal), this time in collaboration with University of Aveiro (UA, Portugal).

Responsible staff: Drs. Adriano Macia (UEM, Regional Coordinator), José Paula (UL, Scientific Coordinator), Salomão Bandeira (UEM) and Henrique Queiroga (UA).

Provincial Government of Cabo Delgado honoured the course by officially opening it and attending the first session. The honourable minister emphasised the importance of the course and the opportunity the participants had to use the facilities of the newly inaugurated Center for Coastal and Marine Environmental Research (CEPAM) in Pemba for the benefit of coastal and marine sciences in the region.

The course aimed to provide knowledge on scientific methods in marine ecology, focusing on research logical flow, basic sampling design and associated statistics, use of common statistical packages, reporting and scientific paper realization. The ultimate goal is to develop better knowledge and skills for scientific research planning and delivery of standard quality scientific results.

THEORY AND PRACTICE

Theory sessions included an introduction to methodology (such as general method in scientific research and sampling designs), the natural environments and organisms used as models for the course (mangrove systems, tidal flats and seagrass meadows, and rocky shores), statistical tools (hypotheses tests and statistical inference, including analysis of variance, multifactorial and nested designs and regression and correlation), and scientific output (formats of data presentation, scientific articles and reports, Power-

Point and poster presentations).

FIELD EXERCISES

The field exercises included sample size determination, effects of sampling unit size and stratified sampling in crab populations of mangroves of Pemba Bay, multifactorial approaches in distribution patterns of gastropod populations of Mecúfi Bay mangroves, and seagrass and sea urchin quantification using stratified transect methods in the tidal flats of Chuiba.

Extensive computer sessions introduced and expanded knowledge on data-sheet and statistical packages routine operations.

The participants further developed their own specific projects, derived from the field exercises, and each produced a short PowerPoint presentation in a dedicated session simulating a scientific conference environment.

In the last module, the course aimed to provide specific assistance to participants by creating general and specific discussion around issues of their own interest, such as specific sampling or experimental problems, development of research protocols and treatment of datasets. ***

WIOMSA Kenya Members Exchange Ideas

In keeping with the tradition established in 2005 by the then WIOMSA Country Coordinator for Kenya, Mr. Patrick Gwada, Kenyan members met together on 9th October 2007 to prepare for the 5th WIOMSA symposium in Durban later that month.

The members met to give mock presentations in preparation for the 5th WIOMSA Scientific Symposium in Durban. This one day meeting gave the members an opportunity to give presentations and to get valuable critique on their work.

The meeting was opened by Madam Martha Mukira, Assistant Director Fisheries Department Coast Region and thereafter there were 19 oral presentations. Forty members attended this meeting and it was a rare opportunity to obtain knowledge about the work being conducted by members in various fields of marine and coastal research. WIOMSA provided support for the meeting and members resolved to pay a registration fee which went towards cost sharing of the expenses with WIOMSA.

THE CONCLUSION IS CRUCIAL

Presenters were urged to focus more on results and cut down on methods and introductory sections of their presentations. They were also urged to compare their results with other work done in Kenya and around the world to indicate continuity and to indicate how they are building on current knowledge.

The importance of having a slide of conclusions and recommendations was also stressed. An interesting observation made was that some presentations provided contradicting information to what was in the accepted abstracts and the need to harmonize presentations and abstracts was stressed as the audience is usually keen to listen to material highlighted in the abstract.



Photo: WIOMSA

Forty members attended the 2nd Annual Members Meeting For The WIOMSA Kenyan Chapter at the Sai Rock Hotel in Mombasa.

SIMPLIFIED INFORMATION ON RESEARCH FINDINGS REQUESTED

During the plenary session, members highlighted the need for meetings between researchers and managers to disseminate findings in a more simplified way for easy adoption by managers and to also obtain relevant research questions from the managers.

There was consensus that research projects should include information dissemination plans at the proposal development phase to ensure that information is packaged in ways that are relevant to the different stakeholders as it is hard to extract information out of scientific publications.

There was also a proposal for researchers to use crisis management situations to pass on research findings to the respective managers, communities and resource users. Members agreed that such situations lead to quicker adoption of the findings by even those who would normally resist such information.

During the meeting Nina Wambiji gave a presentation on behalf of the group

of WIOMSA members who volunteered to undertake the spear gun fishery study. From her presentation, it was clear that a lot of information is available in reports and publications but this information needs to be synthesized into fact sheets/posters for distribution to fishermen and stakeholders in the fisheries sector. The team was also advised to develop a review paper synthesizing this information.

CONSTRUCTIVE CRITICISM

The criticism to presentations was extremely useful in assisting members to modify their talks and to keep to the time allocated during the sessions.

Information of how to improve talks as well as posters was circulated to all members via email, especially considering that several members were not able to attend this annual meeting. The outcome of this was a marked improvement in talks and poster presentations during the 5th WIOMSA Symposium in Durban. This was evident by the fact that a member of the Kenya WIOMSA Chapter, Lillian Daudi, won a poster prize during the symposium.

Acknowledgements:

The Kenyan Country Coordinator, Dr. Jacqueline Uku, wishes to thank the members of the organizing committee Joan Kawaka (WCS), Innocent Wanyonyi (CORDIO), Gladys Okemwa (KMFRI), Patrick Gwada (KMFRI), Esther Fondo (KMFRI) and Morris Munene (KMFRI) who volunteered their time to explore venue possibilities, fundraising options, logistics and programme development.

Special thanks also go to the Chairs of the sessions, Dr. Tim McClanahan and Eng. Wainaina as well as the President of WIOMSA, Dr. Nyawira Muthiga for their support and guidance during the meeting. The WIOMSA Secretariat and WIOMSA members of the Kenyan Chapter are acknowledged for their enthusiasm and support of Kenya activities throughout 2007.

Increase in Number of Marine Research Grants (MARG) Awarded in 2007

MARG 1 Grants Approved 2007-2008

In 2007 some 49 MARG I applications were received. Out of these, 31 were awarded grants to conduct research in 5 countries of WIO. The following tables show the names and affiliations of the scientists and the titles of their successful research projects.

MARG I Awardee	Project title
Mr. Adolf Kaindoa, UDSM, Tanzania	HIV/Aids, Seaweed Farming and Sustainable Coastal Communities – The case of Ushongo community in Tanga region, Tanzania
Mrs Alice O. M. Massingue, UEM, Mozambique	Structure of seagrasses communities and invertebrate resources collected and sold in a densely populated Moçambique island, northern Mozambique.
Miss Amelie Landy-Soambola, IHSM, Madagascar	Essai d'élevage expérimental des espèces des hippocampes de Madagascar (Experimental (breeding) aquaculture of sea horses in Madagascar)
Mr. Andrew W Wamukota, (KES-COM); Mr. Joseph M Maina, (WCS); Mr. Arthur O. Tuda, (KWS) Kenya	Modeling the nesting habitats for marine turtles: A case study on the Kenya coastline
Ms Caroline Wanjiru, KMFRI-GAZI, Kenya	Feasibility study for silvoaquaculture at Gazi Bay, Kenya
Mr. Charles Kosore Mittow, KMFRI, Kenya	Carbon, Nitrogen and Phosphorus fluxes between sediment and overlying waters below two mangrove canopies of Gazi Bay
Mr. Charles Musyoki Muthama, KMFRI, Kenya	Experimental seagrass transplanting and evaluation of growth success in degraded seagrass beds of Diani – Chale lagoon, Kenya
David Oersted Mirera, KWETU Centre, Kenya	Assessment of some key success indicators in community milkfish (Chanos chanos) aquaculture in Mtwapa and Gazi Bay in Kenya
Mr. Dunstan Matungwa, UDSM, Tanzania	Beyond integrated coastal management in Tanzania: Artisanal fisheries in the midst of 'Free Market Economy'. The case of Mkuranga District, Tanzania

MARG I Awardee	Project title
Dr Emily Ruth Hardman, Shoals Rodrigues, Mauritius	Tracking Fish to Aid the Development of Marine Resource Management Strategies in Rodrigues
Mr. Etienne Bemanaja, IHSM, Madagascar	Les colonies d'oiseaux marins des futures Aires Protégées Marines de la côte ouest de Madagascar: Diagnostic écologique et socio-économique pour une exploitation durable de la ressource (Colonies of marine birds of future MPAs of the west coast of Madagascar: Ecological and socio-economic diagnostic for sustainable resource exploitation).
Dr Florence Alex Mamboya, UDSM, Tanzania	Concentrations of heavy metals in edible mussels (Mytilidae) from the intertidal area in Dar es Salaam, Tanzania
Ms Fridah M. Munyi, KMFRI, Kenya	Social economic dimensions of destructive fishing activities in the south coast
Ms Gloria K. Yona, TAFIRI, Tanzania	Pond Fertilization Regime by using Farm Yard Manure (FYM) for Semi-Intensive Culture of Milkfish (Chanos chanos)
Dr Godliving Y. S. Mtui UDSM, Tanzania	Purification and characterization of enzymes from basidiomycetes fungi isolated from Tanzania's coastal and marine environment
Ms Jane Liberaty Macha, UDSM, Tanzania	The cultural and economic factors for women vulnerability to HIV/Aids: A case study of Msimbati Village in Mtwara, Tanzania
Dr Jared Ombati Bosisire, KMFRI, Kenya	Resilience of mangroves impacted by indirect effects of global climate change
Ms Joan Akoth Kawaka, WCS, Kenya	Does protection affect reproductive strategy and fecundity of the sea cucumber <i>Holothuria leucospilota</i> ?
Dr Juma Simon Kangwe, TAFIRI, Tanzania	Assessment of species composition, Distribution, Standing Biomass, primary productivity and Calcification rates of Sand-producing calcareous algae of the Genus <i>Halimeda</i> along the coast of Dar es Salaam and Tanga
Mr. Lang'at K. Joseph, KMFRI-GAZI, Kenya	Variability of mangrove forest structure along the Kenyan coast.
Mr. Leonard Jones, IMS, Tanzania	Seasonal Primary Productivity and Calcification Rates of Four Scleractinian Corals in Relation to Anthropogenic Disturbances.

MARG I Awardee	Project title
Mr. Marcos A. M. Pereira, WWF, Mozambique	Biodiversity and factors influencing the community structure of southern Mozambican reefs
Mr. Nickson E. Oti-eno, NMK, Kenya	The role of anthropogenic activities on distribution and density of avian and crustacean life around the Sabaki River Mouth, Malindi, Kenya
Miss Nina Wambiji, KMFRI, Kenya	Reproductive biology of Family Sigani- dae along the coast of Kenya
Mr. Peter. O. Odote, KMFRI, Kenya	Influence of locally available trees or tree products (Neem, Prosopis, Acacia tree and coconut husks) on quality and post harvest losses of smoked marine and African cat fish in Kipini and Tana Delta areas of Kenya
Mr. Riziki Silas Shemdoe, UCLAS, Tanzania	Investigating toxic elements in soils and sludge of the waste dump site close to the Indian Ocean: The case of closed waste dump site of Mtoni Dar es Salaam, Tanzania
Dr. Sadri Said, IMS, Tanzania	Discovery of new antimalarial compounds from bioactive marine sponges
Mr. Shigalla Mahongo	The Fishery of Sergestid Shrimp <i>Acetes</i> in the Rufiji Delta: Appraisal of the Marketing System
Mr. Simon W. Agembe	Reproductive biology of the blue-spotted grouper <i>Epinephelus coioides</i> (Pisces: Serranidae) from coastal Kenya
Mr. William N. Kanyege, CORDIO, Kenya	Status and assessment of the Hump-head Wrasse, <i>Cheilinus undulatus</i> stock in Kenya

ABOUT MARG I

Awarded to individual scientists to carry out well-defined research activities in their countries/institutions.

The initial duration (term) of MARG-I is 1 year, renewable for a maximum of one term. The maximum amount offered for MARG-I is US \$ 6,000.

Approved MARG II & III for the period July – December 2007

During the second half of 2007, two MARG II projects and 17 MARG III Projects were approved for implementation.

Dates	MARG II Grantee	Project title and venue
1st August to 27th September	Joseph Nyingi Kamau KMFRI, Kenya	The fate of introduced heavy metal pollutants in mangrove sediments; determining the buffering capacity of mangrove ecosystems, Helmholtz Centre for Environmental Research (UFZ), Germany
3rd September to 15th December	Joseph Ulomi FAST, UDSM, Tanzania	Processes driving Carbon, Nitrogen and Phosphorus in the balance in mangrove forests under different anthropogenic influence.

MARG III - Grantees and Workshops

21st Annual Meeting for the Society for Conservation Biology - Port Elizabeth, South Africa from 1st to 5th July, 2007

1	Patrick Kimani Manguriu, COMRED, Mombasa, Kenya
2	Minna Epps, Blue Ventures Conservation, London Office,
3	Andrew Wekesa Wamukota, KESCOM, Mombasa, Kenya
4	Omar Ali Amir, IMS, Zanzibar - Tanzania
5	Mr. I. N. Wanyonyi, CORDIO East Africa, Mombasa, Kenya

Conference on Change in Aquatic Ecosystems: Natural and Human Influences - Plymouth, United Kingdom, 4th to 6th July, 2007

6	Bernard Kibet Kirui, KMFRI, Mombasa, Kenya
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Training Course in Economic Tool for Conservation at Stanford University, California & Internship at Chesapeake Bay Foundation at Washington DC, USA - 20th August to 19th September,

7	Zeinab Musa Adam, WWF Global Conservation Organisation, Lamu, Kenya
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MARG III - Grantees and Workshops

Training Course on Methods and Applications of Ocean Colour Remote Sensing in African Coastal and Regional Seas – Mombasa, Kenya, 23rd September to 6th October, 2007

8	Issufo Ferrao Halo, University of Cape Town, South Africa
9	Jonathan Durgadoo, University of Cape Town, South Africa
10	Kim Sarah Bernard, SAIAB, South Africa
11	Mariam Hamisi, UDSM, Tanzania

International Association of Aquatic and Marine Sciences Libraries and Information Centres (IAMSLIC) Annual Conference, Sarasota, Florida, USA - 7th to 11th October, 2007

12	Edna Asheri Nyika, IMS, Zanzibar - Tanzania
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Workshop on MS Access for Socioeconomic Data on the Western Indian Ocean region - Mombasa, Kenya, 7th – 13th

13	Brita Backlund Rambaree, University of Mauritius
14	Mwanahija Shalli, Institute of Marine Sciences, Zanzibar
15	Regina Kitula, Institute of Marine Sciences, Zanzibar

6th European Conference on modelling, ECEM'07 & Integrating Biogeochemical processes and fish dynamics in food web models for end-to-end conceptualization of marine ecosystems

16	Joseph Maina Mbui, Wildlife Conservation Society, Mombasa - Kenya
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17th Biennial Conference on the Biology of Marine Mammals, Cape Town, South Africa 29th November – 3rd December,

17	Yvette M. B. Razafindrakoto, Wildlife Conservation Society BP 8500, 101Antananarivo, Madagascar
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ABOUT MARG II and III

MARG-II grants are awarded to individual scientists for the purpose of sharing or gaining technical experience as well as data processing and manuscript writing.

MARG-III grants are awarded for travel support to individual scientists to attend scientific meetings and conferences, giving them opportunities to present their work and to learn from others outside the region.

MARG I: Call for Proposal 2008

The Call inviting people to submit proposals for WIOMSA's Marine Research Grant category I (MARG I) has been announced.

Further information including the guidelines for submission, granting procedure and requirements for application are available at www.wiomsa.org or by enquiring from secretary@wiomsa.org.

Deadline for submission of proposals is 30 April 2008.

MASMA Open & Commissioned Competitive Research: Call for Letters of Intent and Proposal 2008

WIOMSA has announced Calls inviting interested people to submit letters of intent and proposals for MASMA Open and Commissioned research grants respectively.

In the Open Competitive category, WIOMSA is inviting letters of interest to conduct MASMA researches as well as proposals to support organization of training courses/workshops and publication of books/manuals.

In the Commissioned competitive category, WIOMSA is inviting people to submit proposals to conduct research to address one of four selected topics on i) Economic valuation of coastal and marine ecosystem services, ii) Analysis of benefits from coastal resources, iii) Global markets/trade and their impacts and iv) Impact of migrant fishers.

For further information and to view the full topics of the commissioned research visit www.wiomsa.org or contact secretary@wiomsa.org.

Deadline for submitting letters of intent or proposals for these Calls is 31 March 2008.

Capacity Development Coordinator joins WIOMSA



Photo: M. Osore

Ms Farhat Mbarouk has joined WIOMSA in January 2008 as Capacity Development Coordinator.

She will coordinate the implementation of the Western Indian Ocean Certification of Marine Protected Area Professionals (WIO-COMPAS).

This is a new initiative between WIOMSA and the Coastal Resources Center, University of Rhode Island under USAID-funded project "Sustainable

Coastal Communities and Ecosystems" (SUCCESS) program.

Ms Mbarouk is not new to WIOMSA, in 2002/2003, she worked at WIOMSA as a Project Officer responsible for the implementation of the project on "Strengthening ICM Capacity Building".

She holds an MSc in Coastal Zone Management from Bournemouth University, UK and BSc Zoology from Cairo University, Egypt. Prior to joining WIOMSA from 2005 to 2007, she was in charge of Marine and Coastal Environmental Management Project (MACEMP)'s ICM activities at the Department of Environment, Zanzibar.

She has been involved in a number of projects such as Integrated Coastal Management (ICM) projects in Eastern Africa and conservation of sea turtle in Zanzibar. She has also participated in a number of research projects including socio-economic study on poverty alleviation through sustainable development of Marine Protected Areas in Tanzania. This study, which was funded by the World Bank, was among the studies whose results were used in the development of the MACEMP. She has also been involved in awareness raising on sustainable use of coastal and marine resources among various NGOs and CBOs.

She brings to WIOMSA not only knowledge and experience in ICM matters particularly capacity development for ICM practitioners but also networks of practitioners and experts built over the years. These will be very useful qualities in her challenging job as a Capacity Development Coordinator.

E-mail address: farhat@wiomsa.org

Good-bye from the former communications coordinator

"Thank you for this time" says WIOMSA's former extension and communication coordinator.



Photo: WIOMSA

I left the Secretariat in November and from my new office here in Sweden I would like to thank all of

you. It has been very nice to cooperate with all members and partners of WIOMSA.

During my time at the Organisation, my ambition has been to develop the external communication of WIOMSA. Maintaining contact with the members has been one very important and enjoyable task during this time.

I will continue to work with communication, environmental and marine issues in the Baltic Sea region at the Swedish International Development Cooperation Agency (Sida) in Sweden. Please, feel free to contact me at:
anna-karin.johansson@sida.se

I hope we'll meet again some time in the future!

Friendly regards,

Anna-Karin Johansson.

Summer Course in Advanced Coastal Management

Coastal Resources Center at the University of Rhode Island presents the 2008 Summer Course in Advanced Coastal Management June 9 - June 27, 2008.

The Summer Institute in Advanced Coastal Management is an intensive three-week program for coastal resources management professionals. The program provides an opportunity to understand emerging issues, learn about best practices, and gain practical skills to help them design, implement, and evaluate integrated coastal management (ICM) programs.

For application information, please contact:
Kim Kaine, Coastal Resources Center
E-mail: kkaine@crc.uri.edu
Telephone: (401) 874-6823
www.crc.uri.org

WIOMSA Job Opportunity:

Operations and Administration Manager



Photo: A-K Johansson

WIOMSA is seeking a suitable candidate to fill this new position.

He/she will be responsible for providing the necessary operational, administrative and logistical support to all WIOMSA projects among other tasks.

Deadline for application is 22 February 2008.

Read more about it at www.wiomsa.org or enquire further information from secretary@wiomsa.org.

Meet the New Communications and Extensions Coordinator



Photo: WIOMSA

Ms Amanda Billner has taken up the responsibilities of Communication and Extension Coordinator.

She is a journalist by profession, having followed a postgraduate journalism course at the Institute of Journalism, Media and Communications at Stockholm University.

Her professional experience is mainly in communication and journalism. She has been working as a journalist at the newspaper Dagens Nyheter (Daily News) in Sweden and web editor of the Dagens Nyheter website: www.dn.se.

Before this, she was employed at the Egyptian Tourist office for the Nordic countries, where she was the editor of the website, responsible for compiling newsletters and assisted in regional marketing and pr campaigns.

She holds a degree in development studies and has conducted research on tourism in Sinai, Egypt, assessing how tourism affects local communities and ecosystems. Tourism and the ways in which communities interact with the environment around them are areas of particular interest to her. She sees her new job at WIOMSA as an excellent learning opportunity.

"I hope to learn a lot during my time at WIOMSA. Not only about coastal and marine conservation and marine science, but also how the local people can benefit from its findings through the different projects that WIOMSA are involved in", she says.

E-mail address: amanda@wiomsa.org



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