

Western Indian Ocean Marine Science Association (WIOMSA)

Annual Report 2005



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Since its establishment in 1993, WIOMSA has grown to become a hub of marine science, coastal management, capacity building and outreach in the western Indian Ocean region. As we celebrate WIOMSA's 12th anniversary, we look back not only on this year's accomplishments, but also the legacy of more than one decade. The 2005 Annual Report summarises WIOMSA's research, capacity building and communication and extension activities, and confirms that WIOMSA is in an excellent position to contribute to the development of sustainable marine and coastal use options for the western Indian Ocean region.

Many advances were made during 2005, including a start on implementation of WIOMSA's Strategic Plan that provides a framework for guiding WIOMSA's activities over the next 15-20 years. Through a year-long participatory process involving WIOMSA's members, partners, Board of Trustees and Country Coordinators, the Strategic Plan was developed and later approved by the 3rd General Assembly held in Mauritius on the 2nd of September. The environment WIOMSA operates in is constantly changing while the need for funding relevant marine research remains constant or increases. Therefore, much focus in the new Strategic Plan is put on how WIOMSA can mobilize resources to support its activities now and in the future. The resource mobilization efforts have started in earnest with the securing of funding from the Wilson Foundation to hire new staff responsible for WIOMSA's fund raising activities.

WIOMSA's 4th scientific symposium was the major event of the year, and attracted 250 experts on marine and coastal related issues who met to present and discuss how their research can improve human welfare and alleviate poverty in the region. Several milestones were achieved during the symposium: it gathered more social scientists than ever before and several new initiatives were developed, for example the Mariculture Network in the WIO region, which was established to promote the development of a sustainable mariculture industry in the region.

Linking science to management, which is the core of MASMA, is always challenging, but during 2005, MASMA-funded researchers have succeeded in contributing to a more environmentally friendly dolphin tourism in Zanzibar and to influence the fishing policies in Seychelles to protect reef

fish during their spawning period. Also WIOMSA's other research programme, Marine Research Grant (MARG), has been successful in revealing facts useful in the management of marine and coastal resources in the region. MARG grantees have, amongst other results, discovered toxic plankton off the coast of Tanzania, established that there is no need to prune mangroves to enhance the propagation and found that the most immediate threats to sea turtles in Kenya are fisheries, pollution and infestation of sea urchins at their feeding grounds.

Partnerships and networking, which represent fundamental themes across the many activities of WIOMSA, were expanded during 2005. One of the joint programmes is Sustainable Coastal Communities and Ecosystems (SUCCESS) that took off in 2005. The programme is a partnership between Coastal Resources Center at the University of Rhode Island and USAID in association with eight other partners of which WIOMSA is one. Another one is Transboundary Networks of Marine Protected Areas for Integrated Conservation and Sustainable Development: Biophysical, Socio-economic and Governance Assessment in East Africa (TRANSMAP). This EU-funded programme aims to develop scientific knowledge for the creation of transboundary networks of marine protected areas in Eastern Africa and involves twelve institutions from Europe and Eastern Africa.

Overall, it has been a productive year for WIOMSA, and we wish to acknowledge the support of everyone who has made this possible, especially our main contributor, the Swedish International Development Cooperation Agency (Sida). With the new Board of Trustees in place, elected during the 3rd General Assembly, WIOMSA is anticipating an even more fruitful year 2006. In 2006, WIOMSA is looking forward to strengthening the implementation of its major activities, putting more efforts in resource mobilization and partnership building and getting members more involved in the actions of the Association.

I hope you enjoy reading this report, which provides an overview of the highlights of 2005.

Dr Nyawira Muthiga
President

MASMA - Marine Science for Management

To link science to management is always a challenge, but through MASMA, progress is being made. Researchers have laid a foundation for a more environmentally friendly dolphin tourism in Zanzibar, and in Seychelles, sustainability of reef fish stocks is being assured through protection of spawning aggregations.

Marine Science for Management (MASMA) is a research programme that seeks to strengthen the knowledge base of the coastal and marine environment of the Western Indian Ocean region, raise awareness of important coastal management issues and to disseminate information for sustainable use of coastal and marine resources. WIOMSA has worked hard to link science to management, and the projects "Sustainable Dolphin Tourism in East Africa (Zanzibar, Tanzania and Mozambique)" and "Determination of the Distribution and Characteristics of Fish Spawning Aggregation Sites (FSAS) and their Importance to the Artisanal Fisheries Resources of Seychelles" are examples of these efforts.

Sustainable dolphin tourism

Between 1999 and 2003 the distribution of dolphins in the Menai Bay off the south coast of Zanzibar was investigated. Through DNA-analyses the researchers concluded that the genetic exchange between dolphins from the south and north coast of Zanzibar was almost none. Also, the dolphins tended to stay in a pretty small area most of the time - the very same area with high dolphin densities where most of the dolphin tourist activities took place. That made the dolphins very susceptible to disturbances such as unregulated tourism, which is not uncommon in Zanzibar.

When the researchers investigated the behaviour patterns of the dolphins in relation to the tourists, they observed a behavioural change amongst the dolphins when there were more than two tourist boats nearby and swimmers in the water. They also noticed that the behaviour of female dolphins was affected - they travelled more as tourism activities increased, which may imply that females will have less time to nurse their calves. Also in Mozambique, dolphins behaved differently in one area without tourism activities (Inhaca Island) compared to another area with tourism activities (Ponta Do Ouro). Dolphins subjected to tourists spent less time foraging (10 % of the observation time) and more time travelling (50 %) compared to the dolphins in the area without tourism where they spent 50 % foraging and 20 % travelling.

In addition to disturbance from tourism, another threat to the dolphins is that the fishermen accidentally catch dolphins in their nets. During 2003, the estimated bycatch was 13 bottlenose dolphins and four humpback dolphins (8.0 and 5.6% of the total population) - an unsustainable level. To mitigate the bycatch, the researchers have been granted funding from WWF-US Cetacean Bycatch Centre for introducing acoustic pingers in Zanzibar driftnet fisheries.

For any management to succeed, the involvement of key stakeholders is necessary. The researchers have facilitated the formation of the Kizimkazi Dolphin Tourism Operators' Association (KIDOTOA). KIDOTOA was registered on the 4th of March 2005 and is a non-governmental organization dedicated to a long-term sustainable development of the dolphin tourism in Menai Bay, Zanzibar. The association will focus on dolphin research, education and environmental conservation.

The researchers have also trained dolphin guides and produced leaflets about environmentally friendly dolphin watching. The leaflet is available in both Swahili and English.

Even though this MASMA project will be completed soon, the researchers have collected additional genetic samples in Zanzibar and have also been offered samples from two other areas in the Western Indian Ocean region: Oman and Mayotte. The project has been a joint effort between V. G. Cockcroft (South Africa); P. Berggren (Sweden); N. Jiddawi (Tanzania); A. Guissamulo (Mozambique) and O. A. Amir (Tanzania).

Reef fish spawning

Most reef fish reproduce by releasing eggs and sperm into the water, where external fertilization occurs. This is known as spawning. During certain periods of the year, many reef fishes, such as groupers, aggregate in large numbers at specific locations to spawn. These annual events are often timed to a particular phase of the moon, and are known as spawning aggregations. A day or so after spawning, the fish migrate back to their home range and will not aggregate again until the next year.

The practise of fishing on spawning aggregations has caused many reef fish spawning aggregations around the world to disappear, and in Seychelles, several aggregations are known to be threatened by fishing. Therefore, a team of researchers decided to investigate reef fish spawning aggregations in Seychelles. During a 3-year project (2003-2005), considerable data on the reproductive biology of vulnerable reef fish (groupers) was yielded. When and where they spawned, as well as their spawning behaviour were recorded.

The results of the project confirmed that these particular species are very vulnerable to over-fishing during their spawning period and also led to a proposal for a legislation providing for establishments of Fisheries Reserves Management Areas (FRMAs). The FRMAs will protect spawning aggregations in the outer islands of Seychelles.

Protecting spawning aggregations from over-fishing through seasonal or total closures, will help insure against stock collapse and can increase catches in the long-term.

The project was carried out by J. Robinson (Seychelles), M. Marguerite (Seychelles), R. Payet (Seychelles), M. Isidore (Seychelles) and M. Ohman (Sweden).

MARG - Marine Research Grant

Poisonous micro-organisms in Tanzania, crabs affecting seedling distribution in mangrove and turtles threatened by sea urchins in Kenya - all findings from research funded by the Marine Research Grant (MARG).



Photo: Rebecca Henriksson

The Marine Research Grant (MARG) Programme seeks to enhance capacity to conduct research and increase our understanding of various aspects of marine sciences. It offers opportunities for scientists and managers from the region to carry out research in their own countries or other countries, and to attend scientific meetings and conferences.

Toxic plankton in Tanzania

During the year, WIOMSA has received many applications for new projects and also many interesting reports from implemented projects have been produced. One of them, "Diversity and Spatial-Temporal variations of Potentially Toxic Dinoflagellates (Dinophyceae) in Central Coastal Areas of Tanzania", reports on the occurrence of potentially harmful dinoflagellates (microscopic plankton) in the central coastal waters of Tanzania. The study was carried out by C. Lugomela (Tanzania) in 2003 and 2004 and the findings reveal that some toxic dinoflagellates exist in concentrations that could cause seafood poisoning and fish kill outbreaks.

Predation of mangrove propagules

Mangrove forests are common in estuaries along the east African coast and are an important natural resource in many aspects. The structure and the function of mangrove forests are highly dependent upon seedling recruitment. Predation of propagules (plant material used for plant propagation and the preliminary stage of a seedling) has been found to play an important role in the seedling distribution in mangrove

stands. Results from a MARG study by J. Bosire, "Spatial Regeneration Dynamics in Reforested Mangrove Plantations: Implication for Management" in Gazi Bay in Kenya 2002 - 2004, showed that propagules in pruned stands were eaten more (by crabs) than in unpruned areas. Propagules lying on the substrate were more preyed on than the ones that were vertically embedded, suggesting that predation is most intense during the stranding phase. This may play a critical role in limiting seedling establishment and subsequent recruitment. *Rhizophora mucronata* was the least eaten mangrove species.

Fisheries threat to sea turtles

On the south coast of Kenya (Msambweni, Funzi and Bodo) sea turtles get caught and eaten by humans and other mammals. Two species of sea turtles, green turtles and hawksbills, were studied during 2003 - 2005 by S. Nzuki and J. Muasa in the project "Participatory Habitat Characterization and GIS Database Development for the Conservation and Management of Sea Turtles in South Coast Kenya". The study provided data and information on the character and status of nesting and foraging grounds on the south coast of Kenya, and built local capacity to enhance the conservation and management of sea turtles and their habitats. Together with the local communities, the researchers identified fisheries, pollution and infestation of sea urchins in the sea grass beds where the turtles find their food, as the most immediate threats to the sea turtle habitats. The results also indicate a need for a design of appropriate conservation measures to address both human poaching of female turtles and eggs and natural predation of clutches.

	MARG I	MARG II	MARG III
No of applications	26	11	20
No awarded	11	8	8
Amount US \$	46 491	23 094	10 138

During 2005, WIOMSA received 57 Marine Research Grant (MARG) applications out of which 27 were awarded various categories of MARG valued at US \$ 79,723. The grants were awarded to scientists from all the nations of the region except Somalia, which did not apply for any. MARG I is awarded for research for one year, MARG II for research attachment at another institution and MARG III for travel grants.

SUCCESS - Sustainable Coastal Communities and Ecosystems

Floating seaweed farms increase the harvest and attract fish, so by using boats and fish traps provided by the Project SUCCESS, the seaweed farmers can harvest both seaweed and fish.



SUCCESS stands for Sustainable Coastal Communities and Ecosystems and is a partnership between Coastal Resources Center at the University of Rhode Island and USAID in association with eight other actors within coastal and marine management of which WIOMSA is one. SUCCESS's overarching goal is to help people improve both their quality of life (health, income, education) and their physical environment through good governance, and the hallmark of this program is active engagement with coastal people at the grass roots level. The ambition is to create in each region where SUCCESS operates, a permanent capacity-building resource that responds to the needs of its coastal ecosystems and the human populations they contain.

In Tanzania, WIOMSA is responsible for the part of the initiative that aims to develop an equitable livelihood development through mariculture. The program started in late 2004 and the activities took off during 2005 when four mariculture sites in Tanzania were selected as pilot sites for SUCCESS.

Women farming bivalves

In Fumba on Zanzibar Island, groups of women are collecting and growing bivalves in small impoundments. While most of this production is used for local consumption, some is sold. At this site, SUCCESS is assisting the groups with improving the production systems and marketing. A market survey is being conducted to determine the viability of selling bivalves to hotels, and a small food kiosk has been set up on the

beach where tourists arrive daily for excursions on the nearby islands. SUCCESS is assisting the women's groups on business aspects of running the kiosk and sanitary requirements for shellfish business both in farming and processing to avoid contamination.

Floating farm boosting yield

In Bagamoyo, a group of seaweed farmers are trying to establish their own farms and market independently to seaweed buyers, thereby breaking the dependence on buyers to provide the farmers with capital inputs. Here, SUCCESS is working with the group on a pilot floating farm, which is expected to protect the seaweed from diseases caused by farms being located in shallow waters. The preliminary results indicated 14 % increase in weight compared to the common off-bottom method. It has also been noted that the floating farms attracts fish, which has prompted fishermen to fish around the farm. Therefore, the seaweed farmers have been provided with a boat and ten fishtraps, so they themselves can harvest the fish.

Also in the adjacent Pande village, a group of seaweed farmers have been provided with money to construct a boat. These farmers failed to continue seaweed farming due to the influx of fresh water, but will be able to develop seaweed farms in deeper water when the boat is constructed.

Fishfarming

In Mkuranga, SUCCESS is working with farmers on a demonstration tilapia farm and a pilot milkfish pond. A total of 236 and 91 kg of milkfish were harvested from two different ponds in July 2005. The 236 kg came from a pond where the fish were fed local feed, and the 91 kg came from a control pond where the fish were not fed at all. The milkfish farm is currently being rebuilt and at the tilapia site SUCCESS is assisting the farmers with installing a wind driven water-pumping system to reduce production costs.

Training for trainers

During the year, two regional training courses on mariculture extension for the local teams providing extension services to different mariculture projects were also held.

TRANSMAP

- Transboundary Networks of Marine Protected Areas for Integrated Conservation and Sustainable Development: Biophysical, Socio-economic and Governance Assessment in East Africa

Cooperation across the borders to establish eco-regional systems of Marine Protected Areas

The goal of this three-year project is to develop scientific knowledge for the creation of transboundary networks of Marine Protected Areas (MPAs) in the East African region. In particular relating to type, size and location of reserves, which together can maintain ecological functions, resource-uses and future socio-economic developments. The final product will be options for a zonation plan that regulates activities and resource use in two distinct ecoregions, one subtropical and the other tropical, which together encompass a significant proportion of the biogeographical range of the East African coastal and marine environment. The transboundary case study areas constitute important biogeographical units with unique character: 1) in the boundary between South Africa and Mozambique which comprises the Greater St Lucia Wetland Park World Heritage Site and 2) in the boundary between Mozambique and Tanzania.

Twelve research institutions involved

Twelve institutions from three European countries (Portugal, Sweden and United Kingdom) and three Eastern African countries (Tanzania, Mozambique and South Africa) are involved in the implementation of different components of the project. The institutions from the Eastern Africa region are: Oceanographic Research Institute and University of Cape Town (South Africa); University of Eduardo Mondlane and Centre for Sustainable Development for Coastal Zones (Mozambique); Institute of Marine Science (Tanzania) and WIOMSA.

From Europe, the institutions participating in the project are: Instituto do Mar and Instituto de Ciência Aplicada e Tecnologia (Portugal); World Maritime University and University of Kalmar (Sweden); and Overseas Development Group and The Natural History Museum (UK).

WIOMSA's tasks

WIOMSA is involved in the baseline definition (to investigate existing knowledge and to map habitats and uses) and the governance assessment (legal, institutional and policy frameworks, operational assessment and state of management). WIOMSA is conducting the research required and acting as an interface for the leading European partners in the field in Tanzania. In particular, WIOMSA will create the links with decision-making bodies and local stakeholders at

different levels. WIOMSA also participates to find options for MPA zoning and in the dissemination of activities and linkages to end-users and decision-makers.

Progress towards objectives

During 2005, information on various aspects such as coastal biological resources, physical and chemical phenomena and characteristics, living resources, socio-economic characteristics as well as existing formal and informal legal and institutional frameworks were collected, compiled and synthesized by different participating institutions. In Tanzania WIOMSA, in cooperation with the Institute of Marine Sciences; has achieved the following results:

- A listing of maps and other spatial information available for the Mnazi Bay and the area around it;
- A synthesis of existing documents along the coastal area of Mtwara;
- A list of national and regional policy and legislative instruments relevant to marine protected areas in Tanzania;
- A list of existing and proposed plans/programmes with respect to MPAs.

Database in progress

During 2005, a database with all available information of relevance to the project has been established. The database provides a number of functionalities including data entry, records validation as well as searching of the records. Currently, work is underway to add more functionalities such as help menus and the writing of the instructional manual.



capacity building

People and pollution - Ecotoxicology in the Western Indian Ocean

DDT in mothers' milk and people poisoned by contaminated fish - there is certainly a need for ecotoxicological research in the Western Indian Ocean region. Therefore, WIOMSA supported a planning workshop in Zanzibar in February 2005, where ecotoxicologists met and discussed future research. The workshop was followed up by a two week course in November/December 2005 on aquatic ecotoxicology and risk assessment of agrochemical pollution in WIO coastal marine ecosystems.

This was the first initiative of its kind in this field of study to be held in the WIO region. Both the planning workshop and the subsequent training course on ecotoxicology were funded by the MASMA Programme.

During the planning workshop, it was stressed that the locally based researchers are the experts in this region. They have the knowledge about the area, the contacts, cultural insight and they also know what problems should be addressed. Hence, they were called upon to take up the leading role and to chart out the future of ecotoxicological research in the WIO region. Participating experts encouraged the regional researchers to continue collaborating with colleagues from Sweden who have both the long term experience in ecotoxicological studies worldwide as well as the knowledge of advanced analytical techniques.

Since knowledge of pollutants associated with land-based and marine activities in the WIO region is scarce, the best way forward would be to train selected scientists and technicians from WIO countries in ecotoxicological methods. Within less than a year from the planning workshop, the first regional training in ecotoxicological risk assessment in coastal marine ecosystems took place due to the initiative of M. Kishimba (Tanzania) and A. Mmochi (Tanzania) with assistance from K. Gustafsson (Sweden) and M. Tedengren (Sweden).

Theory and practice combined

From November 21 to December 2, some 29 scientists from eight countries (Tanzania, Sweden, Kenya, Mozambique, Uganda, Madagascar, Zimbabwe and Norway) converged in Zanzibar, Tanzania to familiarize themselves with current ecotoxicological trends in theory and methodology. The first half of the workshop was held at Institute of Marine Sciences (IMS) in Zanzibar. The participants discussed important theoretical and conceptual aspects of ecotoxicology and ecological risk assessment and carried out a set of practical exercises relevant to the region.

In one toxicity test exercise, an aquatic macrophyte (algae large enough to be seen with the naked eye) of tropical origin was exposed to a concentration gradient of a representative herbicide commonly used in a wide range of crops in the WIO region.

Another exercise involved investigating the toxicity of river sediment collected at the highly contaminated Vikuge state farm (a former pesticide storage site) in Tanzania.



Paractical exercises in the rice field

After the first seven days at IMS, the participants went out in the field - to Chwaka Bay on the east coast of Zanzibar to implement a risk assessment exercise on a real case study at the Bay and the Cheju rice field. The participants conducted interviews with officers and farmers and also assessed the potential impact of agrochemicals on ecological and socioeconomic species in the coastal ecosystem. The results were then used to estimate large-scale social and economic implications of a pollution scenario with pesticides used on the rice fields reaching the Chwaka Bay ecosystem.

communication, extension and networking

Putting people first - how marine research can reduce poverty

From August 29th to September 1st, 250 experts on marine and coastal related issues met during the Fourth biennial Western Indian Ocean Marine Science Association (WIOMSA) Scientific Symposium to present and discuss how their research can improve human welfare and alleviate poverty in the Western Indian Ocean region. The event was held in Grand Baie, Mauritius.

The theme of the symposium was "Contribution of Research in Improving Human Welfare and Poverty Alleviation". The conference was organized by WIOMSA in collaboration with the Mauritius Oceanography Institute (MOI) and the Prime Minister's Office in Mauritius. It had sessions on social dynamics in coastal and marine environments; mariculture; utilization of marine resources; physical and geological processes; management systems; endangered species; coral reefs; and pollution and ecosystem processes.

Environment and economy go hand in hand

The Minister of Environment and National Development Unit in Mauritius, Honourable Anil Bachoo, inaugurated the six-



day long symposium that began with the Mauritius National Ocean Science Forum (NOSF). In his speech, he emphasized the importance of integrating environmental concerns with economic development:

"Our environmental policy formulation will be centered round our core philosophy of 'Putting People First', which underpins the new Government Programme", the Honourable Bachoo said and continued explaining the approach of the Mauritian Government:

"Likewise, our environmental strategies will be focused on making environmental protection an essential component of our economic development."

Current challenges

Marine specialists from the Western Indian Ocean region, Europe, Asia, North America and West Africa gathered to exchange thoughts and research results linked to the challenges the countries in the Western Indian Ocean region are facing regarding the management of their marine and coastal resources. One of the major challenges is how to balance the need for economic growth against the necessity for conserving the coastal and marine resources. The liberalization of trade shows what difficult choices the countries in the region are facing, as observed by some of the key speakers.

"On one end, a high price and high demand situation has the potential to make fishery a major engine for economic growth and a significant contributor to poverty reduction strategies for the region", Dr. Mahfuzuddin Ahmed, Director at the WorldFish Center and one of the keynote speakers, explained.

But there is also a negative side to the freeing of the market, he added:

"It will expose the fisheries to a higher degree of exploitation making many fish stocks vulnerable to depletion as the phenomena of increased effort and selective harvesting are likely to grow in the absence of effective management."



Photo: Johan Eklof

Placing the people in focus

Effective management of natural resources is one of the major keystones in the fight against coastal poverty. For any management strategy to succeed, it is important to involve the people. Dr. Nyawira Muthiga, the President of WIOMSA, explained that the theme chosen for the Symposium was very appropriate in recognition of the fact that much of the coastal people in the region still live in very poor conditions. One of the most important tasks for experts in the region is to focus on research that can contribute to poverty alleviation.

Dr. Muthiga also brought up a few main areas where she saw an urgent need for research: The effects of last year's Tsunami; the effects of the coral bleaching event in 1997 and 1998; gathering of scientific information to enable the increase in number and coverage of Marine Protected Areas (MPAs) as per commitment made by the countries in the region to the Convention of Biodiversity; research on fisheries and alternative livelihoods; and the development of a mechanism to improve the linkage between science and management. She was hopeful about the future in terms of research and cooperation, and said:

"It is my belief that by working together, we shall succeed in defining the research agenda that contributes to the sustainable management of our coastal and marine resources for the benefit now, and for our children and the generations to come."

Reaching new milestones

Sustainable management demands the knowledge and understanding, not only of biophysical phenomena, but also of social science. This Symposium gathered more social



scientists than ever before, a fact that the Executive Secretary of WIOMSA Dr Julius Francis highlighted in his welcoming speech:

"The number of presentations on social-economic issues and governance studies has increased substantially in this year's symposium with two sessions covering these aspects."

In total, the Symposium brought together more than 250 participants from well over 20 countries, which was especially gratifying as it was the first time in the history of WIOMSA that the Symposium was held in one of the member Island States. Furthermore, this Symposium attracted more participants from Mauritius, Reunion and South Africa compared to previous ones.

Cost sharing

It was also the first time that the participants were charged registration fees. Dr Francis explained what this had achieved:

"Without the registration fee, we would not have been able to support as many participants as we have done this time."

In addition, the cost sharing turned out to be successful in the way that most participants were able to secure supplementary funding to the partial support that WIOMSA provided.

New initiatives

Apart from the presentations of papers and posters, the symposium offered the opportunity for side events – an additional vehicle for exchange of ideas and establishment of new cooperative schemes and networks. The Informal Western Indian Ocean International Waters Forum, held on August 31st, was one of the side events. WIOMSA, the Nairobi Convention and UNEP-GEF WIO-LaB Project hosted the Forum. The participants were informed about on-going (UNEP-GEF WIO-LaB Project) and planned (UNDP-GEF Agulhas and Somali Current Large Marine Ecosystem, ASLCME and WB-GEF South West Indian Ocean Fisheries Project, SWIOFP) GEF-funded projects.

Many other groups also made use of the venue to meet and discuss future activities. The Forum of Heads of Academic and Research Institutions (FARI) was formally launched. The Mariculture Network in the WIO region and the WIO Marine Environmental Education and Science Communication Network were initiated.



FARI: improved scientific coordination through new network

The main goals of the Forum of Heads of Academic and Research Institutions (FARI), which was formally launched in Mauritius on August 29, 2005 are to i) create a mechanism for linking research and academic institutions with decision-makers in WIO, ii) share and exchange information among the institutions and iii) improve the involvement of the institutions in the regional activities.

The decision to establish FARI was taken during the Fourth Meeting of the contracting parties to the Nairobi Convention in Madagascar in July 2004. The decision directed the Secretariat of the Nairobi Convention to facilitate FARI's establishment in collaboration with WIOMSA. It is envisaged that FARI will provide a framework for:

- Facilitating sharing of information between institutions and the Nairobi Convention, other regional processes and amongst themselves;
- Providing scientific and technical advice on priorities for management, assessment/research and information dissemination to the regional initiatives; and
- Serving as pressure group for enforcing sustainable utilization of coastal and marine resources.

Solution to current limitations

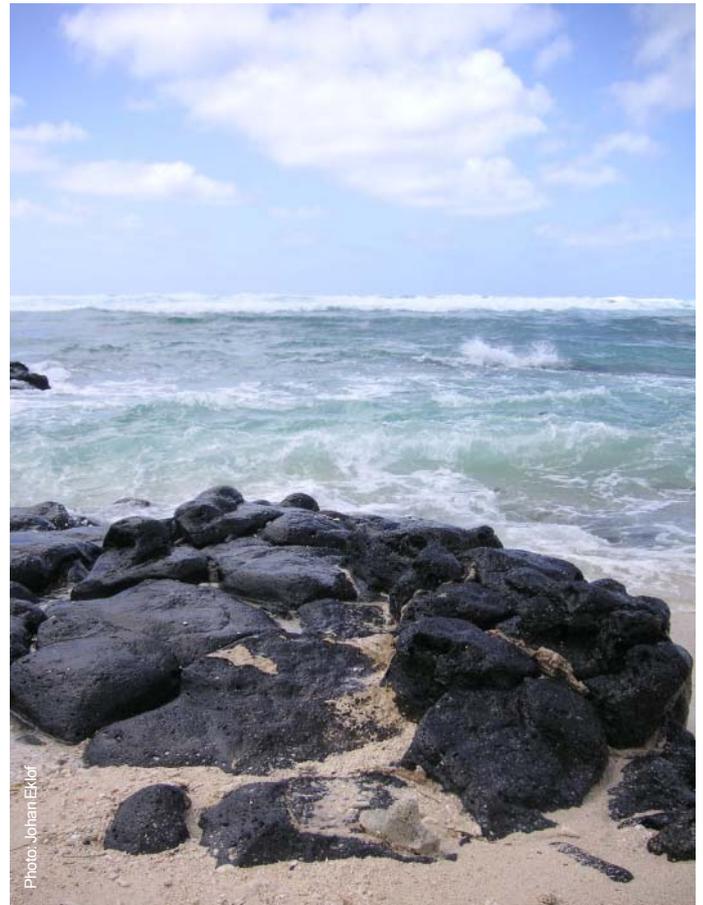
The forum was established in the recognition of the following limitations:

- Absence of mechanisms for linking research and academic institutions with decision making processes at regional level;
- Inadequate visibility of research institutions. Their strengths, facilities they offer and staff profile are not known outside their countries;
- Inadequate sharing and exchange of information amongst institutions; and
- Inadequate involvement of regional institutions in regional initiatives.

It is expected that the forum will develop some concrete activities to address these limitations. The first activity was organized by IOC of UNESCO in collaboration with WIOMSA and UNEP in October/November 2005 in Maputo, Mozambique. The activity was a leadership course for heads of institutions from most of the research and academic institutions dealing with coastal and marine issues.

Dr Mitrasen Bhikajee first Chair

The Chair of FARI will come from the country hosting the WIOMSA Scientific Symposium and the Vice-Chair from the country that is elected to host the next Symposium. Accordingly, Dr Mitrasen Bhikajee was appointed Chair of FARI.



Both IOC and UNEP are committed to support the activities of the forum as long as the heads of academic and research institutions in the region are committed to participating fully in the planned activities.

All the information gathered within the forum will be published on WIOMSA's website: www.wiomsa.org

Understanding socio-economic changes in coastal communities

Understanding socio-economic changes in coastal communities is essential for effective and sustainable management of marine resources. Therefore, the Socio-Economic Monitoring in the Western Indian Ocean (SocMon WIO) programme encourages the incorporation of socio-economic information into coral reef management programs in East Africa. WIOMSA forms a part of SocMon WIO, which was started up in June 2005.

Coral reefs are important economic resources to many people of the coastal zones of the Western Indian Ocean (WIO), providing nutrition and income to many poor households. To manage this resource, it is increasingly recognised that social science is an essential element, complementing bio-physical information by providing an insight into what drives the interaction between humans and resources. Many countries and sites in the WIO region have completed baseline monitoring or single assessments to gain socio-economic information but there are few cases of long-term comprehensive monitoring programmes. That will change with the introduction of SocMon WIO.

SocMon based on partnership

Coral Reef Degradation in the Indian Ocean (CORDIO) coordinates the SocMon WIO initiative. The programme monitors socio-economic changes over time using a standardized set of indicators relevant to the region, such as coastal and marine activities, attitudes and perceptions, demographics, infrastructure and material style of life.

SocMon WIO began with a regional partnership workshop to assess progress in the socioeconomic activities and methods used in the Western Indian Ocean to date, to share lessons learned, to develop standardised protocol/guidelines for the region in the form of a 'SocMon Western Indian Ocean Manual', and to discuss and plan the next steps for the progress of socio-economic monitoring in the region, and collaboration amongst participants and other organizations. The workshop attracted 29 participants from seven countries in the Western Indian Ocean. From there, the goals of SocMon WIO were set-up to do the following:

1. Establish socio-economic monitoring at a representative suite of sites in the region, managed by different partners under a single framework.
2. Facilitate coordination of monitoring activities in the Western Indian Ocean through a socioeconomicists' network, promoting standardised monitoring throughout the region.
3. Establish a coordinated data archiving reporting and sharing protocol for partners within the region and applicable to sites outside.
4. Establish reporting and educational guidelines for disseminating the information widely, targeting managers, government policy makers, resource users and schools.

Ten sites selected

The monitoring will initially be carried out at ten sites in East Africa (see Fact Box) by regional organisations and site projects already involved in coastal and marine management. Plans are underway to increase the number of sites by introducing two new ones by the end of 2006.

WIOMSA is supporting SocMon WIO through representation in the Advisory Group (transformed from the Site Selection Group) and through putting its communication tools, such as the website, the newsbrief and the scientific journal, at SocMon WIO's disposal.

SocMon WIO is part of the Global SocMon initiative of the Global Coral Reef Monitoring Network (GCRMN).

Fact Box

SocMon WIO sites in East Africa

Tana River Delta, Kenya
Lead institutions: Kenya Wildlife Service/ Kenya Marine Forum

Diani-Chale, Kenya
Lead institution: CORDIO

Msambweni, Kenya
Lead institution: Fisheries Department

Shimoni-Tanga, Kenya and Tanzania
Lead institutions: Kenya Marine Forum/Tanga Coastal Zone Conservation and Development Project (TCZCDP)

Tanga, Tanzania
Lead institution: TCZCDP

Rufiji-Mafia-Kilwa Seascape, Tanzania
Lead institution: WWF-Tanzania

Mnazi Bay - Ruvuma Estuary Marine Park, Tanzania
Lead institution: Tanzania Marine Parks Unit

Quirimbas Marine National Park, Mozambique
Lead institution: WWF-Mozambique

Andavodoaka, Madagascar
Lead institutions: Wildlife Conservation Society/Blue Ventures

Rodrigues, Mauritius
Lead institution: Shoals Rodrigues

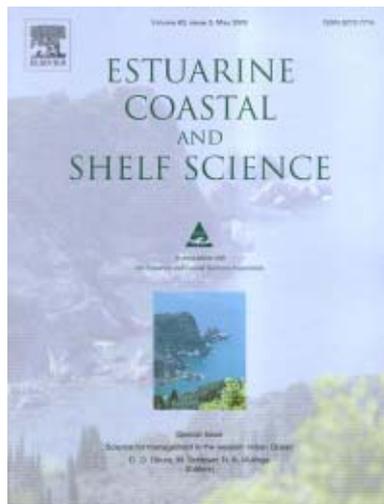
Publications and new products

During the year, WIOMSA updated its profile materials and produced two new brochures, a folder and a calendar. Other publications included a special issue of Estuarine Coastal and Shelf Science, the 1st issue of the 4th volume of the Western Indian Ocean Journal of Marine Science and no 3 of WIOMSA book series, based on a workshop about seagrass related research and community participation.

Special Issue of peer-reviewed journal

In May 2005, a special issue of Estuarine Coastal and Shelf Science (volume 63, issue 3) was published, in order to promote the visibility to the global scientific community of the broad range of research being conducted in the region.

This issue contained the leading natural science papers presented at WIOMSA's Third Scientific Symposium held from 15 to 18 October in Maputo, Mozambique. Reflecting the importance of natural resource use and management in the countries of the region, many of the papers have management focus or address specific natural science issues of importance to management.



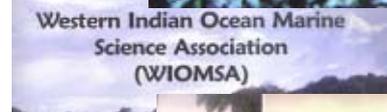
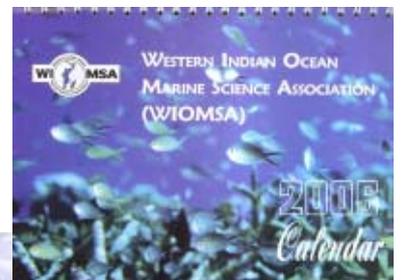
Book Series

In September 2004, a participatory workshop was held in Chwaka Bay, Zanzibar, Tanzania on sea-grass related research and community participation. The workshop was called "Fishermen, fisheries and seagrasses" and the proceedings were published during 2005 as number 3 in the WIOMSA book series.



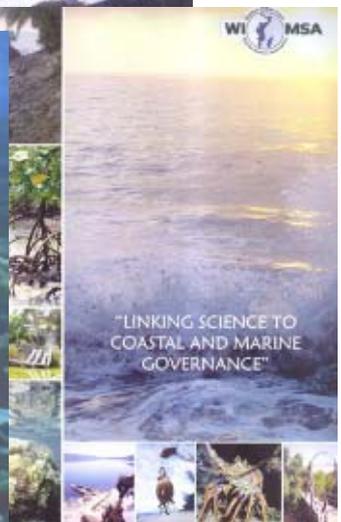
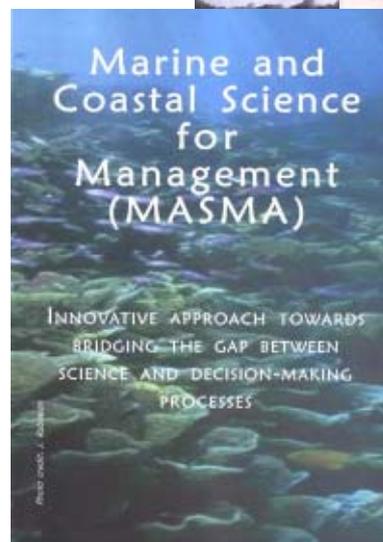
Promotion Material

During 2005, WIOMSA updated its profile materials in form of a calendar for 2006, a brochure about WIOMSA, another one about MASMA and a folder.



WIOJMS

The Western Indian Ocean Journal of Marine Science was founded in 2002 and is a peer-reviewed journal published twice a year in both printed and on-line formats. The journal publishes original research articles dealing with all aspects of marine sciences and coastal management. During 2005 the first issue of the fourth volume was published.



GENERAL ASSEMBLY 2005

WIOMSA members made their voices heard

The 3rd General Assembly of the Western Indian Ocean Marine Science Association (WIOMSA) was held in Mauritius on the 2nd of September 2005. 115 WIOMSA members and other invited guests were present.



The General Assembly (GA) of WIOMSA is the supreme organ of the association designed to guide its operations, particularly in determining the short and long-term future direction. The assembly takes place every third year and gives the members the opportunity to make their voices heard, as well as the Secretariat and Board of Trustees to report to the membership on the achievements made and challenges encountered during the inter-sessional period. It is also the occasion when the board of WIOMSA is elected.

Major achievements

During the Assembly, Dr. Francis, the Executive Secretary of WIOMSA, presented the Inter-sessional Secretariat Report, which covered activities undertaken by the Secretariat during the period 2001-2005. Some of the major achievements during this period were the establishment of the Western Indian Ocean Journal of Marine Science, the development and completion of the WIOMSA Strategic Plan and the initiation of a regional competitive research grant programme -Marine Science for Management (MASMA).

Amended constitution

Dr. Francis also presented WIOMSA's Constitution with some proposed amendments to the General Assembly. The amendments were discussed and approved after some modifications. Most of the proposed amendments originated from the Strategic Plan that redefined the aim and purpose of the Association as well as its objectives. Other alterations included the introduction of the Vice President post, a definition of the Board members' tenure and the establishment of the post of a Patron of WIOMSA and his/her functions.

Reports from Country Coordinators

For the first time, the Country Coordinators were invited to report back to the Assembly what they achieved in their respective countries during the inter-sessional period. Six Country Coordinators reported from Tanzania, Seychelles, Reunion, Kenya, Mauritius and Mozambique. In most countries, the number of members had increased considerably and various WIOMSA activities had been promoted. The Country Coordinator for Reunion, Dr. Matthieu le Corre, informed the audience that he arranges weekly scientific meetings to discuss different aspects of marine science, something that other Country Coordinators picked up as a good idea to implement in their own countries.



New Board elected 2005

As is customary for WIOMSA, the culmination of the process of electing the new Board Members usually takes place during the General Assembly.

A representative panel of WIOMSA members was specially appointed by the GA to count all the votes received and to determine who the successful candidates were. From a total of 339 votes cast, 291 were valid. The names of the elected members were then presented to the Executive Secretary of WIOMSA, who announced them to the members at the GA. The table below shows the names of the newly elected Board Members of WIOMSA.

Category	Name
Host Country	Magnus Ngoile (Tanzania)
Mainland Countries	Salomao Bandeira (Mozambique) Nyawira Muthiga (Kenya)
Island States	Mitrasen Bhikajee (Mauritius) Nirmal Shah (Seychelles)
Outside the Region	Ron Johnstone (Australia)

Dr. Magnus Ngoile was the Director General of the Tanzania National Environment Management between 1995 and 2005 and is now the Leader of the Exclusive Economic Zone (EEZ) Governance Facilitation Team of the Marine and Coastal Environment Management Project (MACEMP). He is a founding member of WIOMSA and this is the third time he is elected to be on the Board.

Dr. Salomao Bandeira is an Assistant professor in botany at Universidade Eduardo Mondlane and has published more than 20 papers on research on sea grass, macroalgae and mangroves. He is also the coordinator and main researcher of various MASMA projects in Mozambique and the WIO region.

Dr. Nyawira Muthiga is currently a Conservation Scientist with the Wildlife Conservation Society (WCS) and coordinates WCS's Marine Programs in the WIO that include country programs in Kenya and Madagascar and research projects in Tanzania and Mauritius. She also served as President of WIOMSA 2002 - 2005.

Dr. Mitrasen Bhikajee is presently Director of the Mauritius Oceanography Institute. Prior to this appointment, he was Associate Professor at the University of Mauritius and he has carried out assignments for the UNDP, UNEP and the Indian Ocean Commission.

Dr. Nirmal Shah is the Chief Executive of Nature Seychelles and the Chairman of the WildLife Clubs of Seychelles and coordinates the management of Cousin Island Special Reserve, the world's first internationally owned nature reserve.

He has worked for the Seychelles government, NGOs and international organisations such as the World Bank, IUCN, UNESCO, and UNEP. He is a founding member of WIOMSA, and this is the third time he is elected to be on the Board.

Prof. Ron Johnstone is currently the Deputy Director and Research Director at the Centre for Marine Studies, University of Queensland, Australia. He has over 14 years of experience in working with research and coastal zone management projects and programs in Eastern Africa. He is a founding member of WIOMSA, and this is the second time he is elected to be on the Board.

Previous and outgoing board members awarded

"Without dedicated Board Members, WIOMSA would never have reached this far", Julius Francis, the Executive Secretary of WIOMSA said during the award ceremony in Mauritius in August 2005.

During the 4th WIOMSA Scientific Symposium in Mauritius, the outgoing and previous WIOMSA Board Members were for the first time given awards for their dedicated service to the Association. Dr Cales Bengt, the representative of the Swedish International Development Cooperation Agency (Sida) was the Guest of Honour during this occasion. He presented the previous Board Members with certificates of recognition.

This event was just a start. WIOMSA is also planning in the near future to start awarding prominent scientists and practitioners for their outstanding achievements. WIOMSA recognizes the importance of acknowledging and rewarding individuals who make significant contribution in the development of marine science in the region. Hopefully, in doing so, they will be even more motivated to contribute further.

The awarded were (in alphabetical order):

Dr Mitrasen Bhikajee, Mauritius
 Prof. Mats Bjork, Sweden
 Prof. Chantal Conand, La Reunion
 Dr Julius Francis, Tanzania
 Prof. Olof Linden, Sweden
 Dr Narriman Jiddawi, Tanzania
 Prof. Ron Johnstone, Australia
 Dr Johnson Kazungu, Kenya
 Dr Nyawira Muthiga, Kenya
 Dr Magnus Ngoile, Tanzania
 Dr Ezekiel Okemwa, Kenya
 Mr. Saleh Sadiq, Tanzania
 Late Prof. Adelaide Semesi, Tanzania (the award was collected by her daughter Ms. Sware Semesi)
 Dr Nirmal Shah, Seychelles

WIOMSA's Strategic Plan 2005-2020

Setting the research agenda for the future

In the immediate future and as a priority, WIOMSA will focus its activities on a resource mobilisation strategy, designed to ensure that the Association achieves financial sustainability.

WIOMSA was established in 1994 as a regional professional, non-profit, membership organization. It is dedicated to promoting the educational, scientific and technological development of all aspects of marine sciences throughout the Western Indian Ocean (WIO) region. WIOMSA has a particular interest in linking the knowledge that emerges from research to the management and governance issues that affect marine and coastal ecosystems in the region.

Exclusive position requires new Strategic Plan

WIOMSA plays a unique role in the WIO region. Over time, WIOMSA has built a diverse range of experience in organization of training courses, coordinating research grants programmes, carrying out advocacy, networking, and disseminating information relating to the region. Its strength lies in its regional character, multi-disciplinary membership, good track record in implementation, broad experience and flexibility in its operations.

To guide WIOMSA's activities over the next 15 – 20 years, a consultant was appointed in August 2004 with a brief to draft a Strategic Plan for WIOMSA through a consultative process. This process included a questionnaire survey and a regional consultative meeting held in Mombasa in October 2004.

Vision, Aim and Purpose

The WIOMSA Strategic Plan comprises a number of elements, including a Vision Statement for the Western Indian Ocean region, which reads:

“By 2020 the Western Indian Ocean region will have healthy coastal and marine environments, whose natural resources are used sustainably and managed wisely through partnerships and collaboration between managers, scientists, governments, development partners and civil society leading to healthy and prosperous communities.”

The revised WIOMSA Aim or Purpose Statement now reads:

“The aim of the Association is to advance regional cooperation in all aspects of coastal and marine sciences and management, and to support sustainable development in the Western Indian Ocean region, while promoting interdisciplinary and multi disciplinary approaches.”

Operating principles

The Association's success to date has created confidence, respect and support. Success has also raised expectations, and therefore WIOMSA must strive to maintain its focus. In

order to maintain its course and focus, WIOMSA will be guided by the following operating principles:

- All WIOMSA activities will seek to forward the WIO Region Vision Statement;
- WIOMSA activities will be regional, strategic, collaborative and catalytic;
- Continuity will be maintained particularly in those areas where WIOMSA has made its greatest contribution to date, viz. its support for research, the WIOJMS, its symposia and its capacity building courses for scientists and managers; and
- WIOMSA activities will continue to be carried out in a democratic, transparent, equitable and accountable way.

Five themes

The Strategy contains five thematic components, each with a strategic objective and priorities:

1. Fostering research excellence through facilitating the development and updating of a regional research agenda, supporting improvements in research quality, and supporting the development of a critical mass of excellent scientists in all relevant disciplines;
2. Developing expertise for effective management and sustainable development;
3. Raising public awareness and enhancing access to relevant knowledge and information;
4. Promoting networking, cooperation and exchange of knowledge between researchers, managers and local communities; and
5. Promoting and advocating appropriate policies and practices.

Focus of fund raising

In the immediate future and as a priority, WIOMSA will focus its activities on a resource mobilisation strategy, designed to ensure that WIOMSA achieves financial sustainability. The focus of this strategy will be on raising funds to promote sustainable coastal livelihoods and strengthen local institutions for improved management and governance, two of the core aspects of WIOMSA's Vision.

financial statement

WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION CONSOLIDATED STATEMENT OF RECEIPT AND PAYMENTS FOR THE PERIOD ENDED 31/12/2005

	2005	2004
	US\$	US\$
Balance b/f	714,501.90	602,392.04
Add Income received		
Other projects Income	311,334.99	135,145.90
Interest Income	3,144.94	1,730.07
Masma project Income	1,137,229.50	1,080,149.72
Total	2,166,211.33	1,819,417.73
Less Payments		
Masma project Payments	819,507.83	992,625.30
Other projects Payments	189,416.19	128,811.69
Total payments	1,008,924.02	1,121,436.99
Excess of receipt over payments	1,157,287.31	697,980.74
Add back Amount transferred to Trust funds	4,800.00	16,521.00
Net excess of receipt over payments	1,162,087.31	714,501.74

WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION CONSOLIDATED BALANCE SHEET AS AT 31ST DECEMBER 2005

	2005	2004
	US\$	US\$
ASSETS		
Cash and Bank	1,162,087.31	714,501.90
Advance Payments	8,870.60	10,795.69
Sub-total	1,170,957.91	725,297.59
Less Projects balances	1,084,783.47	667,646.91
Total net Assets	86,174.44	57,650.68
Financed by WIOMSA Trust fund	86,174.44	57,650.68
TOTAL	86,174.44	57,650.68

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31ST DECEMBER 2005

PRINCIPAL ACCOUNTING POLICIES

- 1) BASIS OF ACCOUNTING**
 - i) Transactions are recorded on cash basis i.e. Income and expenditure are recognized when it is received or paid respectively.
 - ii) Financial statement is prepared on the historical cost basis of accounting and records are kept on historical cost.
- 2) DEPRECIATION**

All materials and assets are expensed during the period of procurement.
- 3) FOREIGN EXCHANGE TRANSLATION**

Transactions denominated in local currency are reported into the reporting currency at the rate ruling on the transactions date and closing balances at the closing rate.
- 4) ADVANCE PAYMENTS**

Advance payments constitutes payment made in respect of projects whose funds are paid on installments (but currently received installments are exhausted) so that not to affect the running of the said project only because we have not received the next installment.
- 5) SOURCES OF FUNDS**

WIOMSA is mainly funded by SIDA under MASMA program; other donors normally contribute or finance specific activitie(s) and lasts until the financed project or activity is completed. Other sources include sale of WIOMSA products such as journals and registration fees from WIOMSA Symposium.

board

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Stockholms University
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Prof Chantal Conand
University of Reunion
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Institute of Marine Sciences
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acknowledgements

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Johan Eklof, Stockholm University

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Nils Kautsky, Stockholm University

Aviti Mmochi, University of Dar es Salaam

photos

photos

material for article on page 8

photos

photos

material for article on page 6

WIOMSA - a regional, multi-disciplinary, non-governmental membership organization that contributes to conservation, management and development of coastal and marine environment in the Western Indian Ocean region.



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