



WIOMSA *Newsbrief*

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Trade in Ornamental Fish: Exporting Kenya's Coral Reef Fish for use in Marine Aquariums worldwide

Research findings indicate that Kenya is a leading exporter of coral reef fish from the western Indian Ocean region. It is estimated that some 192 species are harvested for export, at a price that can substantially augment the income of the artisanal fisher.

In 2005 a study entitled: "Exploitation of Coral Reef Fishes for the Marine Aquarium Trade in Kenya - a Preliminary Assessment", was conducted through financial support from WIOMSA's Marine Research Grant (MARG I) Programme. The aim was to provide baseline quantitative information on the current status and dynamics of the ornamental fishery in Kenya. The study evaluated trends in the harvesting and exportation of marine ornamental fish using available records obtained from government statistics, logbook returns from a leading export company and airfreight data. Catch dynamics of the fishery were also assessed through monitoring landings of aquarium fish collectors in the Shimoni area located in the south coast, which is a highly favored site for aquarium fish



Aquarium fishers at work.

collection in Kenya. Potential impacts of fish collection were also assessed through implementation of a rapid underwater fish census in Shimoni to compare differences in fish density, species richness and habitat characteristics between fished and protected sites.

Main fish collection sites established and export markets determined

Results revealed that Kenya ranks among the top countries within the western Indian Ocean region that export coral reef fish for the marine aquarium trade. However, the industry has received limited attention by way of research and monitoring despite being established in the mid 1970's. The study established that the key sites for collecting aquarium fish in the Kenya coast are Shimoni and Nyali. Other sites include Jumba, Mtwapa, Vipingo, Shariani, Msumarini, Kanamai, Kilifi, Watamu, Malindi and Lamu.

There are 15 major export countries including UK, USA, South Africa, Hong Kong, Germany, France, Japan, Netherlands, Austria, Israel, Denmark, Poland, Hungary, Italy, Romania and Austria. Approximately 84% of the shipments from Kenya are destined for markets in U.K, USA, South Africa, Hong Kong and Germany.

Environmental impact

Over time, there have been increased concerns about the environmental impacts of aquarium fish collection in Kenya resulting in resource use conflicts. Efforts to improve the management of the fishery have however lagged behind due to the lack of quantifiable baseline research information. Among the key concerns about the fishery has been the potential of over-harvesting the target species, hence resulting in changes in population dynamics and destruction of coral reef habitats.

Four fish families dominate

This study indicated that Kenya's ornamental fish exports are exclusively harvested from the wild. For the first

time it was estimated that approximately 192 fish species are harvested and exported from Kenya. At the time of the study, there were 8 registered export companies with two companies dominating 65% of the export market. The catch assessment study in Shimoni indicated that 70% of the aquarium fish harvested belong to 4 families namely Pomacentridae (damselfish), Labridae (wrasses), Acanthuridae (surgeonfish) and Gobiidae (gobies). Ten species made up 58% of the species harvested topped by two species, *Amphiprion allardi* (10%) and *Centropyge acanthops* (9%). Catch per unit effort estimates indicated that aquarium fish collectors landed 24 to 33 fish/man/day. Results of the underwater census revealed differences in fish density, species richness and habitat characteristics between fished and protected sites, with fished sites having an overall lower density and abundance of target fish species and higher algal abundance. Among the key recommendations from the study is the need to strengthen monitoring, to improve current regulatory mechanisms, and to promote strong stakeholder involvement in the management of the fishery.

Important socioeconomic characteristics

Collecting aquarium fish for export is increasingly gaining popularity in the Kenya coast. The mean age of the aquarium fish collectors was 32 years with the youngest interviewed fisherman being

22 years old. Some of the fishermen indicated that they got involved in the fishery when they were 17 years old. The most experienced fisherman was aged 52 years and he indicated that he had been in the aquarium fishery since the time it began in Kenya. The

The average income earned by the aquarium fishermen ranged from a maximum of KShs 10,533 (US\$ 148) and the minimum is KShs 2,800 (US\$ 39) per month. The minimum earnings are especially attributed to the part time aquarium fishers who also engage themselves in other artisanal fishing activities. The maximum income earned by aquarium fishers was KShs 20,000 (US\$ 281) per month though there were indications that the fishermen could occasionally earn as much as Ksh.40,000 (US\$ 563) depending on their fishing effort and the species collected.

Further information can be obtained from the scientists who conducted this research lead by Ms Gladys Moragwa Okemwa of the Kenya Marine & Fisheries Research Institute:
gokemwa@kmfri.co.ke

The full research report can also be downloaded from the WIOMSA website: www.wiomsa.org



WIO Seagrass studies scoop awards at ISBW7

The seventh International Seagrass Workshop (ISBW7) was hosted by the Institute of Marine Sciences (IMS) of the University of Dar-es-Salaam from 10 - 16 September 2006. Seagrass scientists and managers from all over the world converged on the Island of Zanzibar, Tanzania to discuss aspects of seagrass, taxonomy, biology, physiology, ecology. Several presentations were made including three researches conducted in the western Indian Ocean (WIO) region, which scooped top awards.

Eutrophication leads to reduced nitrogen fixation

Ms Mariam Hamisi, a Tanzanian PhD student at the Department of Botany, Stockholm University, Sweden, presented her study on nitrogen fixation in seagrass beds. Her study areas included one site impacted by terrestrial inputs of inorganic nutrients (eutrophication) and one less affected, both in Dar-es-Salaam, Tanzania. Her work showed that eutrophication leads to a decline in nitrogen fixation in seagrass beds thereby reinforcing the view that eutrophication has negative impacts on nitrogen fixing cyanobacteria. Her work also showed that vegetated seagrass sediments had nitrogen fixation levels of up to 100 times higher than bare sediments, thereby indicating that seagrass meadows contribute significantly in nitrogen cycle of the coastal waters.

Seaweed farms affect seagrass beds

In the poster category, Mr Johan Eklof, also a PhD student from Sweden, at the Department of Systems Ecology, Stockholm University, presented work that he has been involved in at Chwaka Bay, Zanzibar. One of his posters highlighted experimental work on the effects of simulated grazing on two seagrass species. In an era of increased sea urchin grazing within seagrass ecosystems of the WIO region, his work contributes an understanding to the functioning and resilience within seagrass beds with a diversity of seagrass species. Mr Eklof also presented a poster highlighting the impacts of open-water



Ms Judith Nunja, from the Kenya Marine and Fisheries research Institute in Mombasa receives a prize for her poster

seaweed farming on seagrass ecosystems, which showed that seaweed farms over seagrass beds affect seagrass biomass, growth and associated animal communities.

Seagrasses are important sources of carbon for fish

Another winner in the poster category was Ms Judith Nunja, a research scientist from the Kenya Marine and Fisheries research Institute (KMFRI), Mombasa. She is undertaking PhD studies at the Department of Zoology, University of Nairobi. Ms Nunja displayed a poster stressing the contribution of seagrass meadows to fish nutrition within the mangrove-seagrass ecosystem of Gazi Bay, Kenya. Her results showed that seagrasses and epiphytic algae form the dominant carbon sources for fish within this system. Additionally her study showed that macroinvertebrates depend on suspended Particulate Organic Matter (POM) while mangroves, macroalgae and detrital components in the sedimentary organic matter pool do not appear to represent a significant contribution to the fish food web.

Professor Hartog awarded

Other prize winners were Ms Hanne Jensen (Denmark) for her oral presentation on the effects of blue mussels on eelgrasses in Denmark while Ms Kimberly Peyton

(Hawaii) received an honourable mention for her oral presentation on management strategies of invasive algal species on seagrass beds in Hawaii. The World Seagrass Association also presented Prof. Cees Den Hartog a lifetime achievement award. Prof. Hartog is a pioneering scientist in the field of seagrass taxonomy.

Future challenges

Hosting this meeting in the WIO region was a first step in raising the profile of seagrass science in the region as well as expanding the scope for collaborative work. The meeting ended on high note and the closing session was spent discussing emerging issues for the future such as: Does genetic variability matter? Are there early warning indicators of seagrass loss? Is there a threshold for seagrasses tolerance beyond which loss occurs? And most important of all: are seagrass scientists doing enough to communicate their science?

Such are the challenges for the future and seagrass scientists will have another opportunity to determine how far they have gone in unravelling these issues in the next ISBW meeting in British Columbia in 2008.



About 60 participants attended the dolphin workshop, most of them from the local villages around the Bay.

Villagers want to be more involved in dolphin research

During a stakeholders' workshop on sustainable dolphin tourism, local people expressed their wish for being more involved in the research, and to learn more about dolphin biology and ecology.

The workshop was held in Menai Bay, Zanzibar, from 4th to 6th September 2006 and it was the final activity for the MASMA project on sustainable dolphin tourism in East Africa. It was organized by a research team comprising experts from Mozambique, South Africa, Sweden and Zanzibar. One of the purposes of the workshop was to communicate the results of the re-search to the local community.

About 60 participants attended the workshop, most of them from the local villages around the Bay. Led by their Village Heads (Shehas), they included boat operators, hoteliers, fishers, farmers, traders and other members of the community from Kizimkazi, Menai and its environments.

Local people gave their views

The research team highlighted the historical background of dolphin tourism in Mozambique, South Africa and Zanzibar. Several reports were also presented on the distribution, abundance, population structure and behaviour of dolphins in Ponta d'Ouro, Mozambique and Menai Bay, Zanzibar. The climax of the workshop was when the local people were invited to talk about their perception of dolphin tourism, its socioeconomics and



Participants included boat operators, hoteliers, fishers, farmers, traders and other members of the community.

its sustainable management in Menai Bay. The five main topics up for discussion were:

- * Research and monitoring of dolphin populations
- * Sustainability and management of dolphin tourism
- * Information and education needs
- * Social, gender and socio-economy of dolphin tourism
- * Role of industry in promoting sustainability, conservation and research.

Each of the topics was discussed from four different angles: (i) what is needed or lacking from the project results, (ii) what were the good and bad experiences learnt, (iii) what can be done to improve the activities undertaken and (iv) what are the recommendations for future activities.

The villagers had many views on the research and monitoring, the information and education needs and the sustainability and management of dolphin tourism, but raised only few points about the social, gender and socioeconomic aspects of this specific branch of tourism and about how the dolphin tourism industry itself can promote sustainability, conservation and research.

List of recommendation

From the discussions in Kizimkazi, a list of recommendations was drawn. A total of 25 recommendations were listed, some of the outstanding ones were:

"Promote involvement of the local community in the research e.g. by training the boat operators, captains, tour guides etc on dolphin biology and ecology."

"Add value to dolphin tourism to retain the tourists longer in the village by introducing additional activities and services e.g. day care centre for children, a dolphin information centre etc."

"Kizimkazi Dolphin Tour Operators Association (KIDOTOA) should be empowered to ensure that recommendations from the research are implemented."

"Menai Bay Management plan should now be compiled incorporating the findings of the completed dolphin tourism research."

"Women should be empowered to fully participate in dolphin tourism activities."

**Obituary****A brief and active life of an upcoming Oceanographer, Ms Dalica Jacob Elias Ibraimo**

The late Ms Dalica Jacob Elias Ibraimo was born on 14 February 1982 in Quelimane, Mozambique. After completing her elementary education in Quelimane, she pursued her high school and thereafter joined the University of Edouardo Mondlane in Maputo in 2000. She was among the pioneering students of Oceanography at the University and graduated with honours in 2004.

During her fourth year at the University, Dalica enrolled in the Department of Physics as a tutorial fellow to demonstrate some of the modules in physical oceanography. On completion of her studies she was absorbed by the University as Assistant lecturer in Oceanography. Thereafter, she was integrated into the Steering Committee for the establishment of the School of Marine and Coastal Sciences of the University of Edouardo Mondlane.

She was later appointed acting Assistant to the Chair of the Steering Committee and, in this capacity, she participated in the meetings of the University Board of Directors, the Academic Council and the General Council. When the School of

Marine and Coastal Sciences was established in February 2006, she was appointed the Deputy Director.

The brief and active life of Dalica came to an abruptly end when she passed away in a road accident that occurred on 26 November 2006. The car in which she was traveling was involved in a crash with a truck in the narrow road that links Quelimane with the small village of Nicoadala located some 30 km to the west.

During her brief and yet quite active career, Dalica participated in various national, regional and international activities in 2004, 2005 and 2006. She was dedicated, hard working and responsible. Among the very last regional events in her professional life, Dalica attended the Leadership Workshop for the Heads of Marine Science Institutions in the western Indian Ocean, which was organized by IOC-UNESCO, WIOMSA and NEPAD in Zanzibar from 25 to 28 October 2006.

May Her Soul Rest in Eternal Peace.



Emerging research findings from MARG I projects 2006

Project Title:

A Preliminary Survey of the Structure and Dynamics of the Coastal Migrant Fisheries in Kenya

Investigators:

Bernerd Mulwa Fulanda & Cosmas Nzaka Munga, KMFRI, Mombasa - Kenya

This MARG I project presented preliminary results of the structure and dynamics of the coastal migrant fishery in Kenya. This fishery, characterised by all-year migrations along the East African coast has been in existence for several hundreds of years. However, information gaps exist on its dynamics and the driving factors behind the migrations are not clearly defined. The research considered factors that influence the migrations in an effort to provide information crucial for the management options available for the sustainability of the fisheries resources and the migrant economies associated with it. The survey used structured questionnaires to interview 624 fishers in Vanga (located in the South coast on the boarder with Tanzania), and 395 fishers in Mayungu, in the north coast of Kenya.

Results of the survey showed high fisher-mobility, cross-border migrations and wide variations in gears and vessels used. Main factors driving the migrations were the seasons linked to the Monsoon winds, various social issues and the search for more productive fishing grounds. Common

gears encountered in fishery included nets, hook and line, spear guns and traditional traps.

Further information on this research can be obtained from the investigators Mr. B. M. Fulanda and Mr. C. N. Nzaka (bernfulanda@yahoo.com; cosmasnke@yahoo.com).

Project Title:

Lignocellulolytic Enzymes from Basidiomycetous Fungi Isolated from Tanzania's Coastal and Marine Environment

Investigator:

Godliving Y. S. Mtui, University of Dar es Salaam, Tanzania

This study investigated the basidiomycetous fungi from the coastal and marine environment of Dar es Salaam, Tanzania. Four genera of lignolytic marine fungi inhabiting decomposing mangrove logs and sea grasses were identified and cultured in the laboratory. These fungi were *Flavodon flavus*, *Phlebia chrysocreas*, *Crepidotus variabilis* and *Laetiporus sulphureus*. Activities of lignocellulolytic enzymes namely lignin peroxidase (LiP), manganese peroxidase (MnP) and laccase (Lac) ranged from 2 - 50 U/mL. The fungal strains differed in the amount and the types of lignolytic enzymes they produced. The crude enzyme extracts were able to oxidize

Rhemazol brilliant blue - R (RBB-R) dye, guaiacol, naphthol, progallol and could remove up to 94% color from raw textile effluent.

This pioneer study elucidates the status of the culturable facultative marine fungi in the mangrove forests and sea grasses off the coast of Dar es Salaam. The study determines their enzyme profiles and tests their degradative abilities. The work provides baseline data upon which optimized production and molecular characterization of lignolytic enzymes from coastal and marine fungi can be further investigated. Furthermore, the study generated basic information which can be scaled-up for use in biological wastewater treatment systems and in situ bioremediation of polluted coastal and marine ecosystems.

For more information on this research contact Dr Godliving Y. S. Mtui, Dept. MBB, University of Dar es Salaam (gmtui@amu.udsm.ac.tz).

Project Title:

Searching for Antimalarial and other Bioactive Compounds from Zanzibar Marine Sponges and Tunicates

Investigator:

Sadri A. Said, IMS, Zanzibar, Tanzania

This research was conducted with the aim of identifying, extracting and characterizing

bioactive components from marine sponges. Butanol, dichloromethane, ethylacetate, and hexane extracts of 30 marine sponges collected from the coasts of Zanzibar Island were investigated for their bioactive metabolites. The bioactivity of samples was determined using brine shrimp larvae and several species of bacteria and fungi. The shrimp larvae were used as indicator of cytotoxicity while the bacteria and fungi were used to measure antimicrobial activities.

More than 70% of the screened species of sponges exhibited cytotoxic or antimicrobial properties. Phytochemical investigation on one of the tested sponge (a species belonging to the Family Niphatidae) code named Z04A38 afforded a sterol, 3 α -hydroxy-22,23-dimethylcholest-5-ene 16, which was found to be active against brine shrimp larvae.

Further information on this research can be obtained from the investigator Dr Sadri A. Said (sadri@ims.udsm.ac.tz). A copy of the report is also available on the WIOMSA website.

All the reports on MARG I research projects completed this year and submitted to WIOMSA are available at the Secretariat and the website. Further information regarding the research can also be obtained from the authors.

Complete List of Reports on MARG I Research completed in 2006:

WIOMSA/MARG-I/2006 - 01:

*Reproductive Biology of the White Spotted Rabbitfish, *Siganus sutor* (Pisces: Siganidae) from Basket Trap fishery in Dar es Salaam Marine Reserves Systems, Tanzania.* Albogast T. Kamukuru FAST, UDSM, Tanzania kamukuru@yahoo.com

WIOMSA/MARG-I/2006 - 02:

Implications of coastal processes for the management of the shanzu-bamburi coastal zone, Mombasa, Kenya. Pamela Abuodha, KMFRI, Mombasa, Kenya, Wollongong, Australia pabuodha@yahoo.com paoa911@uow.edu.au

WIOMSA/MARG-I/2006 - 03:

Harvesting and Sustainability of Marine Fisheries in Malindi-Ungwana Bay, Northern Kenya Coast. Jacob Ochiewo, KMFRI, Mombasa, Kenya jochiewo@kmfri.co.ke

WIOMSA/MARG-I/2006 - 04:

Improved Traditional Fish Processing Methods by Smoking and Solar Drying in Tana River and South Coast Areas of Kenya. Peter Michael Odote KMFRI, Mombasa, Kenya podote@kmfri.co.ke

WIOMSA/MARG-I/2006 - 05:

*The Effect of Cultivation Duration, Seasonality and Nutrient Concentration on the Growth Rate and Biomass yield of the Seaweeds *Kappachycus alvazii* and *Euचेuma denticulatum* in Zanzibar, Tanzania.* Flower Ezekiel Msuya & Dotto Salum, IMS, Zanzibar, Tanzania msuya@ims.udsm.ac.tz dotto@ims.udsm.ac.tz

WIOMSA/MARG-I/2006 - 06:

Coral Reef Fish Diversity Inventory around Unguja Island (Zanzibar): The effect of marine conservation initiatives. Mohd Nur Mohd, Zanzibar, Tanzania marijanmn@yahoo.co.uk

WIOMSA/MARG-I/2006 - 07:

Searching for Antimalarial and other Bioactive Compounds from Zanzibar Marine Sponges and Tunicates. Sadri A. Said, IMS, Zanzibar, Tanzania sadri@ims.udsm.ac.tz

WIOMSA/MARG-I/2006 - 08:

A Preliminary Survey of the Structure and Dynamics of the Coastal Migrant Fisheries in Kenya. Bernerd Mulwa Fulanda, Kagoshima, Japan & Cosmas Nzaka Munga, VUB, Brussels, Belgium bernfulanda@yahoo.com cosmasnke@yahoo.com

WIOMSA/MARG-I/2006 - 09:

Lignocellulolytic Enzymes from Basidiomycetous Fungi Isolated from Tanzania's Coastal and Marine Environment. Godliving Y. S. Mtui DMB-UDSM, Dar es Salaam, Tanzania gmtui@amu.udsm.ac.tz

WIOMSA/MARG-I/2006 - 10:

Exploitation of Coral Reef Fishes for the Marine Aquarium Trade in Kenya: A Preliminary Assessment. Gladys M. Okemwa KMFRI, Mombasa, Kenya gokemwa@kmfri.co.ke gokemwa2002@yahoo.com



"The sea is the beginning, not the end"

*"The sea is the beginning, not the end"
This was the concluding statement by Prof. John Mack, President of the British Institute in Eastern Africa (BIEA) in his opening presentation at the Maritime Heritage Conference held in Zanzibar in July 2006.*

As the statement reverberated through the conference room the participants were presented with a vivid description of the archaeological heritage of the Swahili Coast, piracy, boat building traditions and slavery. At the end, Conference Resolutions were reached on how to protect the maritime and cultural heritage of the Western Indian Ocean region today.

This conference, which was hosted by the Zanzibar Department of Archives and Antiquities, took place between 11th and 13th July, 2006. Its aims were to examine the maritime heritage, cultural traditions and historical trajectory of the various populations bordering the Western Indian Ocean (WIO) including the offshore islands, and to compare these with other maritime regions and cultures. Much knowledge and new information previously unknown emerged from various presentations in the conference.

Same but different

Despite having many features in common, the 'Swahili world' has also many differences e.g. between the northern and the southern parts depending on the different origins of the respective communities as observed by Dr. Mark Horton from University of Bristol. Dr. Michael Pearson of the University of Technology in Sidney, Australia talked about the role that different peoples have played, in particular Muslim traders, as cultural brokers in the Western Indian Ocean region. Muslims have had such a large cultural and linguistic impact on many coastal communities so much that parts of the population identify themselves as 'Arabs'. Dr. Marie Pierre Ballarin of Kenyatta University, and Dr. Kjersti Larsen, University of Bergen, both underlined that Swahili society is neither homogenous nor monolithic. They reckoned that while Islam and other cultural traditions drawn from the Arab world can be predominant, Swahili communities are multicultural in origins and outlook.

Archaeology and piracy

One other way of investigating the differences between the various Swahili

cultures is through conducting archaeological surveys in the tidal zones - a method recommended by members of the Centre for Maritime Archaeology at the University of Ulster.

To get a more complete picture, it is also worth looking past the official sources and statistics when tracing how people and objects ended up in the WIO region. Penal colonies and the movements of convicts, pirates and piracy and illicit trade in goods are 'hidden' history, but nevertheless played a significant part of peoples' and objects' journeys in region.

Boat building skills

Furthermore, human settlement on the offshore islands of WIO are related to the development of boat building technologies, seafaring capabilities and navigational skills. Recent archaeological research on Zanzibar suggests that the knowledge of boat building and seafaring expertise are of much greater antiquity than previously thought. The first human colonisation could possibly have occurred some 20 000 years ago.

Slave trade relics

During the 18th century the slave trade

boomed in the WIO region, as new demand was generated on the plantations of Mauritius and Reunion. By 1750 over 3 000 slaves were passing through the markets of Zanzibar alone. In South Africa there are a number of shipwrecks and stranded slaving vessels that can be used to glean more information about the origins of the slaves being transported on these ships.

Dr. Antonia Malan of the University of Cape Town, South Africa presented an account of the development of the fishing industry around Cape Town and its origins in the importation of slaves by the Dutch East India Company, and how the commercialization of the industry in the 19th century resulted in the destruction of fish-stocks and the loss of cheap sources of protein.

A similar pattern was observed by Nicole Versleijens in her presentation on the recent consequences of the creation of a marine park off the Kenya coast, showing that conservation efforts can sometimes have adverse effects on local people relying on natural resources for their livelihood.

Pillaging and illegal digging

The shipwrecks and the stranded vessels are important keys to understand the history of the slave trade, but in South Africa heritage managers face problems to protect underwater cultural heritage. South Africa has still yet to ratify the UNESCO Convention on the Protection of Underwater Heritage. Unauthorized excavation and looting are problems that also Mozambique faces, but to an even vaster extent, according to Mr. Solange Macamo of the Ministry of Education and Culture, especially around the World Heritage Site of Ile de Mozambique. Madagascar and Mauritius also have similar problems.

Joint statement

The Workshop participants were unanimous that it is immensely important to lobby the governments that have not yet signed and ratified the 2001 UNESCO Convention on Protection of the Underwater Cultural Heritage to do so. They further agreed to call on their respective governments to adopt the Convention into relevant national

legislations to provide legal basis for protection of the underwater cultural heritage at the country levels. They also called upon the international community to respect national and international laws protecting maritime and cultural heritage, and on UNESCO to provide logistical and financial support to put that in effect. Finally, the participants agreed to call on local, regional, national and international stakeholders to share information about threats to maritime and cultural heritage and to collectively facilitate and respect the implementation of these resolutions.

Source: Lane. P. 2006. British Institute in Eastern Africa, British Museum and Zanzibar Department of Archives, Museums and Antiquities Maritime Heritage Conference 2006. Conference report.

WIOMSA founding member appointed Deputy Vice Chancellor



One of the founding members of WIOMSA, Professor Yunus Daud Mgaya, was recently appointed Deputy Vice Chancellor in charge of Planning, Finance and Administration at the University of Dar-es-Salaam, Tanzania.

Prior to his promotion, Prof. Mgaya was the Dean of the Faculty of Aquatic Science and

Technology in the same University for four years. Daud, as close colleagues and peers fondly refer to Prof. Mgaya, has over the years continued to be actively involved in different activities of WIOMSA. He has been the WIOMSA Country Coordinator for Tanzania from 2002 to 2005; and during his tenure the national membership of the Association grew many folds. He is also a member of the Editorial Board of the Western Indian Ocean Journal of Marine Science (WIOJMS) since 2002, and a member of the WIOMSA Symposium Scientific Committee for the past two biennial Symposiums as well as the upcoming one.

Prof Mgaya has contributed significantly towards addressing various issues of concern in the marine and coastal environment of WIO. His contributions in terms of scientific output include peer

reviewed publications on the management of fisheries in marine protected areas, the coral reef as well as on invertebrate fisheries. Currently, he is one of the co-investigators in the MASMA-funded regional project entitled: "Sea cucumbers, a poorly understood but important coastal resource: national and regional analyses to improve management".

Prof. Mgaya is also the Tanzania national Institutional Coordinator in the European Union funded project entitled: Peri-Urban Mangrove Forests as Filters and Potentially Phytoremediators of Domestic Sewage in East Africa (PUMPSEA).

WIOMSA, on behalf of all the members of the Association, is proud to congratulate Prof. Mgaya on his new appointment; and would like to wish him all the success in his new responsibilities.

WIOMSA's communication and extension coordinator comes from Swedish environmental NGO.

WIOMSA is pleased to announce the arrival of Ms Anna-Karin Johansson to take up the responsibilities of Communication and Extension Coordinator. Her professional background is in environmental science and communication.

For the last five years Ms Johansson has been working as a professional communicator at the Swedish Society for Nature Conservation (SSNC). With its 170 000 members, the Society is the largest environmental NGO in Sweden. Ms Johansson tasks included strategic campaign planning, production of exhibitions and preparing materials for print and Internet publishing. She has worked in close cooperation with experts and associated scientists as well as the local branches of SSNC and its networks in Sweden.

Much of her efforts and attention during the last three years has been aimed towards marine issues. She has planned and produced exhibitions, information and press material for several marine campaigns. In these

campaigns, she toured the Swedish coastline for three summers. Her involvement has included duty on board the sailing ship, functioning as well as a member of the crew, as media and public relations officer. Ms Johansson has also been involved in the SSNC network for marine issues and guided the members to organize national and local activities such as seminars and panel discussions with scientists and politicians as well as concerts with popular artists.

"The major objective of SSNC has been to raise political and public awareness about the eutrophication and over-fishing in the Baltic Sea", Ms Johansson explains, "Although the Western Indian Ocean is a very different environment compared to Scandinavia, some marine issues in the two regions are quite similar. I am looking forward to learning more about the tropical ecosystems and local environmental issues.

Ms Johansson's university studies consist of a mixture of natural sciences and social



sciences and she holds a Master's degree in Physical Geography. Her previous professional experience includes popularising science on the Internet for school children as a web editor for Örebro University and developing websites for commercial and non-commercial at the National Land Survey of Sweden.

"I hope I will be able to work close with WIOMSA's members and country coordinators for the continued success of the Association" says Ms Johansson.



Mr. Zaher Ahamed has joined WIOMSA as its Director of Resources Development. His seasoned communications and business development "hands-on" expertise will go a long way in helping WIOMSA develop and implement a master Resource Mobilization Strategy that seeks to diversify WIOMSA's funding base for the long term.

"I was born in this region and I love it. As such, I would like to contribute in whatever

New Director of Resources Development at WIOMSA

way I can to WIOMSA as it reaches out to both traditional and non traditional partners to meet its goal", says Mr. Ahamed. "These include generating quality science that will lead to better governance of our marine resources and environment for the economic and social development of our coastal populations".

His extensive knowledge includes developing and managing corporate market strategy in Africa and the Middle East. As an organization consultant, corporate trainer, employee benefits specialist and a recognized expert in multicultural communications, marketing and diversity management, Mr. Ahamed has an extensive, broad-based background in business, communications and public relations strategic planning and implementation in both domestic and international markets.

Mr. Ahamed possesses lifetime engagement in interpersonal and intercultural education coupled with unique heritage, professional experience in North America, the Indian sub-continent, Africa, Europe and the Middle East, and understanding of Indian, Pakistani, African, Arab as well as British and European cultures. To an Association like WIOMSA, such qualities are essential for establishing and maintaining collaborative relationships with decision-makers and individuals from diverse ethnic backgrounds.

His 20 years of experience in business operations was gained through executive, consulting and teaching positions with ie the Royal Bank of Canada, Expo 86 and ExperDent Corporation.