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The United Nations Ocean Conference, co-hosted by Kenya and Portugal, ran from 27 June to 1 July 2022. It brought together global leaders to organize and promote science-based innovative solutions to start a new chapter of global ocean action.

In line with the UN Decade of Ocean Science for Sustainable Development, the Conference theme, “Scaling up ocean action based on science and innovation for the implementation of Goal 14: stocktaking, partnerships, and solutions,” emphasized the critical need for scientific knowledge and marine technology to build ocean resilience.

The UN Secretary General, António Guterres, proclaimed an “ocean emergency” and urged states to restore ocean health. He said:

“We have taken the ocean for granted and today we face an ocean emergency. Turn the tide.”

In his opening speech, the Secretary General pointed out that only 1.2 percent of the 64 percent of the high seas that lie beyond territorial limits is currently protected. Sea level rise, ocean warming, acidification and greenhouse gas concentrations have all reached new highs. Flooding threatens low-income countries and coastal towns, pollution is causing extensive coastal dead zones and overfishing is “crippling fish populations.”

“We cannot have a healthy planet without a healthy ocean,” he remarked.

The western Indian Ocean (WIO) region was well represented at the meeting which was attended by governments, scientists, young people, business leaders and civil society representatives. In addition to the plenary sessions, WIO representatives
took part in interactive dialogues on topics such as addressing marine pollution, minimizing and mitigating ocean acidification, deoxygenation and warming, and promoting and strengthening sustainable ocean-based economies, particularly for small island developing states and least developed countries.

WIOMSA and other representatives from the WIO region co-hosted several dialogues, including discussions on ocean acidification, marine conservation and marine pollution. The region’s progress in the areas of ocean acidification and marine plastic monitoring was reported and regional accomplishments in marine conservation, and the obstacles to achieving marine biodiversity targets, were also discussed. The WIO was also represented in discussions on the barriers to sustainable fishing, including science and data gaps. Delegates from WIO nations, sought acknowledgement of the significance of small-scale fisheries in conserving the seas and combating hunger. New solutions were discussed, including digital tools to help data-limited fisheries with monitoring and enforcement; capacity building and resources; and partnerships with industry, governments and scientists. The WIO region was also represented in active discussions on blue carbon initiatives and disseminated the latest regional research and accounting on blue carbon. We advocated for more projects and clear social and environmental criteria.

The UN Ocean Conference ended with a call for greater ambition and global commitment to address the dire state of the ocean. Among the conference’s outputs was an action plan that called for a collective worldwide response to tackling ocean degradation. Nations have agreed on specific science-based and innovative activities that consider developing countries’ capacity problems, particularly those faced by small island developing states and least developed countries. More than 150 member states made voluntary commitments, including protecting 30 percent or more of national maritime zones by 2030, achieving carbon neutrality by 2040, reducing plastic pollution, increasing renewable energy use, and allocating billions of dollars to research on ocean acidification, climate resilience projects and to monitoring, control and surveillance.

The Conference was a hybrid event, with some participants meeting in Cairo and many others joining online. It was organized in collaboration with the Intergovernmental Oceanographic Commission of UNESCO through its Sub-Commission for Africa (IOCAFRIA) and WIOMSA.

The Conference celebrated the launch of the UN Ocean Decade in Africa and catalysed region-wide efforts for the substantive development and implementation of Decade actions.

It also aimed to enhance partnerships among various ocean stakeholders and initiate the co-design of transformative ocean science solutions to the Ocean Decade challenges, with the goal of long-lasting benefits for African society.

In his opening remarks, Ambassador Peter Thomson, United Nations Secretary-General’s Special Envoy for the Ocean, noted that there cannot be a healthy planet without a healthy ocean. The Ambassador emphasized the importance of the Ocean Decade in Africa and the world at large. The Deputy Director General of UNESCO, Xing Qu, reiterated the fundamental importance of a healthy ocean and said that the Ocean Decade offers an opportunity to take action for the ocean.

Regional opportunities, challenges and priorities for the Ocean Decade were highlighted during the presentation of the results of the regional gap analysis and the pre-conference workshops. The thematic areas covered during the conference included: facilitating co-design and co-delivery.
The following nine priority Decade Actions lie at the heart of the Ocean Decade Africa Roadmap:

1. Sustainable ocean management in Africa
2. Ocean and human health in Africa
3. Unlocking the blue carbon potential of Africa
4. Fisheries and illegal, unreported and unregulated fisheries in Africa
5. Strengthening multi-hazard early warning systems and community resilience
6. Ocean observations and forecasting systems for Africa
7. Digital twin for Africa – establishing an African ocean knowledge hub
8. Strengthening capacities and skills of African early career ocean professionals
9. Regional ocean literacy programme for Africa
EVERY CHAIR HAS A LEADER: BUILDING THE CAPACITY OF THE WESTERN INDIAN OCEAN’S BLUE LEADERS

| By Karine Pothin, John Komakoma and Jacqueline Uku

Twenty participants from western Indian Ocean (WIO) countries and Sweden met for the first time in Zanzibar for the inaugural Blue Leadership Training for Multipliers on 13 June 2022. The training was organized by WIOMSA and aimed to equip professionals with skills to enhance their leadership of marine and coastal management initiatives and projects at local, national and regional level.

A large number of the participants are conservation managers in charge of marine protected areas (MPAs) and locally managed marine areas (LMMAs) in the WIO.

The Blue Leadership journey is a leadership programme meant to inspire and support change for the benefit of healthy people, healthy teams, healthy organizations and a healthy ocean. The training is set up as a navigational journey and participants are encouraged to think of themselves as captains of their ships, developing skills to navigate the oceans. The expectation is that the professionals become marine environmental change agents who are better equipped to deal with ocean changes during the Ocean Decade.

Participants were guided by trainers Britta Heine and Jan Klein Buning and learned through games, group discussions and reflective journaling.

“A calm sea never makes a good sailor”. The Blue Leadership programme is set up as a navigational journey

At the end of the workshop, they were able to sail and navigate with head, hand and heart through the four quadrants of the leadership compass which are:

• Leading self: finding safe harbour
• Leading teams: all hands-on deck
• Leading organizations: managing your fleet
• Leading social transition: navigating winds of change.

A full-day field excursion to a seaweed farm in Fumba, Msonge Organic Farm and a spice farm helped to deepen the bonds between the participants and enhance the learning.
How do we co-design marine science that matters? This question was at the heart of the first MeerWissen network event that took place from 8 to 11 June 2022 on the island of Zanzibar. More than 60 scientists from various African countries and Germany discussed current challenges and ideas for collaboration on science to policy uptake, stakeholder engagement and sustainability of project activities and outcomes, shared lessons learned from the past few years and created synergies for a sustained impact of the initiative. The event strengthened scientific “partnerships of equals”, based on the idea of a co-design process, and was hosted by the MeerWissen Secretariat and WIOMSA.

The network event started with a field trip to Paje in the eastern part of Zanzibar to celebrate World Ocean Day. Activities included a tour of the Mwani Seaweed Centre, the local community centre and a marine litter collection survey on the beach.

The event was officially opened by Hon Suleiman Masoud Makame, the Minister of Blue Economy and Fisheries, Zanzibar on 9 June. In her opening address, Maya Pfaff from the MeerWissen Secretariat emphasized the co-design approach as a hallmark of the MeerWissen Initiative. Through co-design, scientists develop research projects together with other stakeholders that are relevant to the process. Co-design helps to ensure that project partners are working collaboratively, jointly setting priorities, and that outcomes meet local needs and can be used by all partners as well as decision-makers.

After the official opening, an interactive session about the science to policy transfer provided a forum for networking among scientists and policymakers. Participants explored concrete knowledge needs and developed ideas for new forms of collaboration according to four topics: sustainable blue economy, sustainable fisheries, nature-based solutions and ocean governance/marine protected areas. Important outcomes are to promote trust and capacity building and transparency when it comes to data sharing. Science communication is key to empowering research and improving relationships with policymakers, according to the participants. The need to build bridges between marine research and policymaking processes was widely recognized.
When bringing together experienced MeerWissen partners, the session started by identifying the four most relevant stakeholders for all projects. Split into two groups, both independently identified the same four stakeholder groups: scientists, non-governmental organizations/influencers, policymakers/government, and local populations/resource users. The participants joined the identified stakeholder groups in order to share their experiences on involving the respective group during their projects.

A number of lessons learned, best practices and insights will be published in the Co-design Guidance 2.0 on the MeerWissen website soon.

An overarching interest of MeerWissen is to generate long-lasting impacts of projects’ outcomes to effectively address societal challenges.Achieving this is a challenge for relatively short projects of two years duration. Therefore, it is vital that projects consider ways to enhance project sustainability from the beginning and throughout their implementation phase, and share experiences among projects on how to enhance sustainability. In the first part of this session, participants developed concrete measures for their respective projects through which they could enhance project sustainability, including a plan for the dissemination and uptake of results, stakeholders and community involvement, and information sharing. The second part of the session focused on the young researchers in the room. They represent a generation of researchers who face a series of crises that will require research-informed solutions. However, in reality most young African researchers are forced to leave research to find employment elsewhere, since opportunities and jobs are scarce.

This “brain drain” is a serious issue when it comes to the sustainability of human capital in environmental sciences.

By bringing scientists together from all around Africa and Germany, this network event helped to strengthen knowledge and expertise on the conservation and sustainable use of marine and coastal ecosystems in Africa among MeerWissen project partners. All participants gave a commitment to co-design marine science that matters.
This was the first MPA management short course to be offered by WIOMSA in partnership with the Department of Ichthyology and Fisheries Science at Rhodes University.

Course participants who successfully complete the post-course assignment will be awarded a certificate from Rhodes University.

The course was originally scheduled for April 2020, but the COVID-19 pandemic caused a two-year postponement! Consequently, every one of the 22 course participants was very keen to get started.

Participants attended from across the region: Kenya, Madagascar, Mauritius/Rodrigues, Mozambique, South Africa and Tanzania. Over five very intense days of instruction, they were actively engaged in learning that covered 11 topics, ranging from the criteria for selection of MPAs to leadership of MPAs. Other topics included fisheries management, marine ecology, assessment and monitoring, operational planning and more. There was also a half-day field trip to explore the ecology of a remarkably clean and productive estuary, dunes, sandy beaches and rocky shores – some habitats which were quite new to many participants. The week was very full!

The facilitation was conducted primarily by Pete Fielding and Lawrence Sisitka, with the opening topics of Benefits, Roles and Challenges for MPAs and Criteria for MPA Selection being presented by Ané Oosthuizen. The subject of Fisheries Management was covered by Warwick Sauer.
Pete Fielding led the field trip on a cool, windy and rainy morning, which did not dampen the participants’ spirits as they learned about the productivity of the estuary, and about sand prawns. They marvelled at the power of the sea driven by a strong south-easterly wind from the Southern Ocean, and climbed through the dune vegetation and onto the rocky shore where the challenges of living in such a dynamic environment were discussed.

The course evaluation revealed that participants were in general very pleased with the training, with all agreeing that it had met their expectations. Several said that they were going to take their learning back to their MPAs and share with their teams, while others felt that they were better equipped to make informed decisions regarding the management of their MPAs. Some said that they felt they would have greater influence with senior management in decision-making.

The next course is scheduled for 3 to 7 October 2022 in Gqeberha, South Africa, to tie in with the WIOMSA Symposium, which will be held in the same city on 10 to 15 October.
TOWARDS ZERO PLASTICS TO THE SEAS OF AFRICA: TIME TO FREE AFRICA FROM ITS PLASTIC WASTE CHAINS | By Janine Osborne

With an average waste collection rate of just 55 percent, and a population set to double by 2050, the world’s second most polluted continent is in serious trouble if it does not implement urgent national and regional action plans to stop plastic pollution from leaking into the environment.

This was the impetus for the Sustainable Seas Trust’s (SST’s) second international conference of the African Marine Waste Network (AMWN) on “Towards Zero Plastics to the Seas of Africa”, which took place in Nelson Mandela Bay, South Africa, from 23 to 27 May 2022.

The AMWN conference welcomed decision-makers from across the plastics value chain, municipal and national government leaders, researchers and civil society stakeholders. Its aim was to provide a platform for developing a homegrown framework to guide the practical actions each African nation or region must take to address the global plastic challenge.

In light of the recent resolution by the United Nations Environment Assembly (UNEA) to establish a voluntary international agreement by the end of 2024, the AMWN conference was an opportunity for Africa to show the world that it can independently develop and implement long-term, sustainable solutions to free its countries from their plastic predicament.
Complex challenges call for homegrown solutions

The plastic problem in Africa is highly complex and is not considered a priority for many impoverished communities, where meeting basic survival needs is a daily challenge. However, a dynamic strategic framework that considers the diverse socio-economic realities of the continental and island states is essential to unlock the socio-economic opportunities innate to proper waste management and recycling.

Africa has an estimated recycling rate of just 4 percent and just over half the continent’s waste is currently collected, leaving the remainder to become a health and environmental hazard on uncontrolled dump sites, or to leak into the environment and eventually enter the waterways and oceans.

National and regional action plans

The goal of the conference was to concretise national and regional action plans for African countries to decrease the volume of plastic entering the environment, and to clean up and recycle plastics already in the environment – for economic and health benefits.

As a focused opportunity, the conference provided an accelerated mechanism for Africa to meet UNEA and United Nations Environment Programme goals and, through the action plans, will support countries in meeting the Sustainable Development Goals.

Preparing the guidebook

The conference was therefore structured to specifically focus on the interventions that need to happen at every step of the plastic value chain, including production and consumption, collection and sorting, recycling and disposal, the mismanagement of waste, and what roles municipalities are expected to fulfil.

SST understands that a clear and practical decision-making framework for the management of plastics, that is easily operationalized for different country contexts and cultures, is critical. This remains the main impetus for a Guide to the Development of National and Regional Action Plans intended for publication by October this year.

The guidebook will be made available to universities, non-governmental organizations, plastics industry stakeholders, and global entities such as the United Nations and its agencies, the World Bank, and the European Union.

Watch a video on the Guidebook to Key Actions for Plastics Management in Africa
World Ocean Day (WOD) on 8 June was a day to celebrate and take action for oceans all around the world, and to continue to grow involvement year-round. In Zanzibar, the internationally acclaimed conservation project, Chumbe Island Coral Park (CHICOP) used this year’s WOD theme “Revitalization: Collective Action for the Ocean: Shedding light on the communities, ideas, and solutions that are working together to protect and revitalize the ocean and everything it sustains” to organize a range of ocean themed activities in partnership with the Ministry of Blue Economy and Fisheries of Zanzibar, the French Embassy in Tanzania and WIOMSA.

WOD celebrations began with a press event on 7 June. An informative panel discussion facilitated by Austin Makani from AMMI discussed Zanzibar’s vision for the blue economy. Participants included Captain Hamad Bakar Hamad and Dr. Makame Omar Makame (Ministry of Blue Economy and Fisheries, Zanzibar), Diana Körner, Ulli Kloiber, Khamis Khalfan and Salim Abdalla Salim (CHICOP) and Laural Kivuyo, a youth environment ambassador.

The panel discussion was followed by a press conference, honored by the presence of Minister Suleiman Masoud Makame, Ministry of Blue Economy and Fisheries and Minister Mudrick Soragha, Ministry of State, President’s Office of Labour, Economic Affairs & Investment, who launched the premiere of the Chumbe Island documentary produced by AMMI. Maryvonne Pool, the Seychelles Consul, talked about the blue economy in Seychelles and its partnership with Tanzania. Cecile Frobert, Head of Cooperation and Cultural Affairs at the French Embassy highlighted France’s support of the blue economy in the region with a focus on preservation of ocean biodiversity and sustainable tourism.
A group of selected journalists then visited Chumbe Island on a day trip, where they had the opportunity to interview Tanzanian environment ambassadors Laurel Kivuyo and artist Ben Pol about their impressions of Chumbe Island.

In preparation for World Ocean Day, a creative art contest was launched. It invited students (aged 15 to 17) from secondary schools in Unguja/Zanzibar to demonstrate artistically how individuals and communities can protect the ocean. A total of 60 drawings were submitted and the best 12 drawings were selected by an independent jury. The winning artists came from five different schools in Unguja and most of them were young girls. They won an educational excursion to Chumbe Island on World Ocean Day, 8 June.

Every competition winner got the chance to present his/her artwork and explain the message behind the art to the rest of the group. This was a great opportunity to engage these young minds in a deeper conversation on how to protect the ocean collectively. The highlight of the day was, however, snorkeling in Chumbe’s protected coral reef sanctuary. The children were equipped with life jackets and a safety ring and guided by Chumbe’s education team. They saw living corals for the first time, an experience that Salha Shamim Khamis (age 16), art competition winner from Lumumba Secondary Schools, described as “unforgettable”.

Upon their return to Unguja, the group was met by WIOMSA representative, Dr Mathias Igulu and the CHICOP team for a small ceremony which involved certification and handing out exciting prizes, including WIOMSA’s Field Guide to the Seashores of Eastern Africa and the Western Indian Ocean Islands - a “must have” for young ocean ambassadors who left the World Ocean Day event with a famous Jane Goodall quote in their heart:

“What you do makes a difference – you just have to decide what kind of difference you want to make.”
Mangroves are among the most productive and valuable ecosystems on earth and play a significant ecological, economic and socio-cultural role in the lives of coastal communities, especially in Africa. In the past decades, Africa’s mangroves have faced many challenges, ranging from agricultural development for rice and large-scale irrigation schemes, to oil and gas exploitation and bauxite mining and infrastructure development.

Results from recently concluded socio-economic profiles in the western Indian Ocean (WIO) region showed that while there is an increased awareness of the need to address these challenges, there is poor sharing, dissemination and uptake of good practices within the “mangrove community”. As a result, many valuable lessons and experiences to inspire change fail to trickle down to other key mangrove restoration stakeholders in the region.

Recognizing these concerns, the “Save Our Mangroves Now!” initiative, in collaboration with the Mangrove Capital Africa Programme organized a pioneer exchange visit between the WIO and the Atlantic Ocean regions in Senegal from 13 to 18 March 2022. Held under the theme “Learning and Sharing: Challenges and Opportunities for Successful Mangrove Conservation in Africa”, this initiative brought together mangrove conservation practitioners representing mangrove adjacent communities, governments, civil society organizations and researchers from Kenya, Madagascar, Mozambique and Tanzania (WIO) and Senegal, Guinea Bissau, Sierra Leone, Liberia and Gambia (Atlantic Ocean).

Field excursions in the Saloum Delta and the Bamboung marine protected area provided practical examples of community involvement in mangrove conservation through the provision of funding for livelihood diversification, resource enhancement and coastal protection. In addition, successful restoration approaches such as natural mangrove regeneration served as inspiration for country teams to strengthen their restoration processes.
The experience of the objectives, governance structures, challenges and achievements of sub-regional platforms and networks such as the Western Indian Ocean Mangrove Network and the Saloum Delta mangrove platform spurred discussions and ideas toward the establishment of an Africa-wide outfit that would provide for collaboration, regular exchanges, learning and sharing of solutions to the challenges faced by mangrove forests.

According to Diana Kishiki, Mangrove Focal Point Officer with Kenya Forest Service, governance of mangrove ecosystems is essential to all key stakeholders as this ensures that policies, strategies, action plans and programmes are well coordinated and the resources are managed effectively and efficiently.

“A regional platform provides an important space for upscaling and replication of best applicable practices across the two regions in Africa. Moreover, it will help foster relations across the key mangrove actors by ensuring there is an exchange and flow of knowledge and information, provision for networking, and creation of awareness and sensitization about these fragile ecosystems. As the world advances in technology and innovation to support the management of information concerning mangroves, this platform can provide an enabling environment to showcase such functional systems.”

A steering committee was nominated to help define the platform’s governance which will be further discussed and agreed on in a follow-up workshop that will be held in Tanzania’s Rufiji Delta in July 2022.

Collaboration and partnerships with sound guiding principles ensure that synergies are built and stakeholders actively undertake their roles so that the mangroves are well conserved and managed whilst considering different institutional mandates and responsibilities.” said Kishiki
DONATIONS TO BOOST CONSERVATION OF GIANT TORTOISES | By Geraldine Joubert

Von Liechtenstein is the founder of the Green Teen Team Foundation which empowers young people to make positive changes to their lives and those of others. During her week-long visit to Seychelles, von Liechtenstein, a member of the royal family of the Principality of Liechtenstein, was accompanied by Camillo Sandri, Zoological Director, and Caterina Spiezo, Head of the Research and Conservation Department of Parco Natura Viva Safari Park and Zoo in Italy.

The Green Teen Team Foundation is focused on children being engaged with nature through the implementation of various projects and the collective efforts of schools, communities and nature-oriented organisations.

During the visit, a generous donation of 5 000 microchips was made to the SPGA (under the umbrella of the Ministry of Agriculture, Climate Change and Environment of Seychelles) by Parco Natura Viva Zoo. The microchips will be directed towards the ongoing giant Aldabra tortoise census within the protected areas, as well as those with individual owners. The delegation from the Green Teen Team Foundation also planted two Coco de Mers, the largest seed in the world, in the SPGA-managed National Botanical Garden.

One of the highlights of von Liechtenstein’s visit was the signing of an agreement between the Green Teen Team Foundation, SPGA and Parco Natura Viva. The agreement reiterates the strong partnership and collaborations between the three organisations, all working towards goals and activities of common interest in the field of wildlife, research and education.

The final leg of the visit was a trip to the Curieuse Marine National Park. Accompanied by SPGA CEO, Allen Cedras and the Principal Secretary for Environment, Denis Matatiken, the delegation enjoyed a tour of the island and saw for themselves the outstanding beauty of the marine park. After this visit, scales and all of their components for both adult and baby tortoises were donated to SPGA. These will help with the nursing and care of the giant Aldabra tortoises.
A success factor for effective management is management that is adaptive: where the activities and monitoring are clearly connected to the goals of the park; where the learnings from continuous evaluation of progress are actively reflected and taken into account. Consequently, the work plan needs constant reconsideration to really answer these three questions:

Are we doing the right thing?
Are we doing them well?
Are we having an impact?

A management team in Mafia Island Marine Park has worked together with the Swedish Agency for Marine and Water Management, during several sessions to make this bridge between the management plan and its implementation. This has involved a series of 10 sessions, nine of which were conducted online.

The first session was held in November 2021 and the latest one was a two-day in-person workshop held at Mafia Island in June 2022. During this process, the team identified measurable and relevant goals for the park that will be monitored and improved by actions to reduce the human threats to the ecological and human well-being targets of Mafia Island Marine Park. The results can then show the effectiveness of the park – is the protection making a difference for the biodiverse marine ecosystems or is it a park on paper?
HAZARDOUS MEDICAL WASTE IN THE OCEAN | By Sarah Pima

Medical waste is among the waste that endangers the oceans and human health, yet waste from hospitals has been found on the beaches of the western Indian Ocean, where people expect to safely enjoy their leisure time.

The Human Dignity and Environmental Care Foundation (HUDEFO) has been at the forefront of championing the cleanliness of beaches around Dar es Salaam, Tanzania, including Msasani, Mikocheni, Kidimbwi, Kawe, Kibo, Rainbow and Mbalamwezi beaches.

In 2022, the organization organized a six-month beach cleanup campaign and an increase in medical waste was observed in the campaign’s waste audit reports. The medical waste found on the beaches of Dar es Salaam includes hospital waste, such as syringes, drip bottles, medicine bottles and medicine packaging, and sanitary waste, including diapers and sanitary pads. The table presents more details about the medical waste collected during the beach cleanup campaign.
HUDEFO is a non-governmental organization that operates in Tanzania mainland. Its objective is to protect and restore blue carbon ecosystems and that is why it wants to be part of the solution to ocean pollution. The organization recognizes that the public beaches of Dar es Salaam are a valuable resource for many people, both local and international, a valuable tourism asset and vital to the fisheries that generate revenue for Tanzania.

HUDEFO welcomes stakeholders and collaborators interested in finding a solution to the waste on beaches by conducting proper research, talking to government ministries, health agencies and the private sector to come up with sustainable solutions for the oceans. It recognizes that the ocean is a source of livelihood and it will require collective action to eliminate the dumping of medical waste in the ocean off Tanzania. HUDEFO has received support from the Nature Conservancy to conduct their beach cleanup activities.

"There is no such thing as ‘away’. When we throw anything away, it must go somewhere.”

Annie Leonard, American proponent of sustainability and a critic of consumerism.
A MONTH-LONG FOCUS ON MARINE LITTER AND PLASTICS AT WIOMSA

Imagine yourself at the beach, soaking up the sunshine or simply listening to the crashing waves – how relaxing! On the other hand, there is growing concern around the world about the increasing amount of plastic pollution on our beaches and in our water; the ocean is quickly becoming a garbage dump!

This concern gave people who care about the ocean a strong reason to meet in Port Elizabeth, South Africa and attend the second International African Marine Waste Network Conference. It was hosted by the Sustainable Seas Trust and its partners. The meeting’s focus was on reducing plastic pollution in Africa’s seas to zero and WIOMSA was well-represented at this gathering.

WIOMSA participated in the conference as a key stakeholder, with members of the WIOMSA Secretariat and its implementation partners from Kenya, Madagascar, Mauritius, Mozambique, Tanzania, Seychelles and South Africa reporting on the progress of the WIOMSA Marine Litter Monitoring Program (WMLMP). Their contribution to the meeting centred on plastic data as a key part of making management decisions and presenters drew on the lessons and experience gained during the implementation of WMLMP, including the development of a regional guideline for collecting marine litter and the standardization of data collection techniques, methodology and data archiving.

As a result of the work of the WMLMP, the countries of the western Indian Ocean have generated baseline data and published and contributed to a number of scientific papers, for example Okuku et al., 2021 and Mattan-Moorgawa et al., 2021. The UNEP-Nairobi Convention/WIOMSA report on marine litter and microplastics, which will be launched at the WIOMSA Symposium in October 2022, has also benefited from the data gathered through the WMLMP.

After the conference, WIOMSA, project participants, and researchers from the Sustainable Sea Trust met for two days to wrap up the current phase of the WMLMP. The Kenya Marine and Fisheries Research Institute, the University of Mauritius, Universidade Lurio, Mozambique, The Ocean Project of Seychelles, and Tanzania’s Nipe Fagio were among the project’s participants. At the end of the meeting, everyone agreed to work on a regional report that will help policymakers make decisions about how to deal with marine litter.

For more information on the WMLMP, visit Click here
MASMA, CITIES AND COASTS, WIO-COMPAS

WORKSHOP ANALYSES BENTHIC DATA

By Sean Fennessy

The WIOMSA-funded WIO-Benth project aims to describe, map and model continental shelf and upper slope seabed habitats and their benthic communities in the western part of the western Indian Ocean.

This will provide managers with a broader perspective of regional habitat and marine community diversity, assist them with regional marine spatial planning, and also identify areas that are vulnerable to disturbance.

A workshop was held in Nairobi on 14 to 16 June 2022 to enable project participants to undertake preliminary multivariate analyses of their country’s demersal trawl catch data. The principal investigator, Sean Fennessy of the Oceanographic Research Institute in South Africa, gave a brief introduction to the workshop, describing progress with the project to date. He noted that the project had been considerably delayed, owing to difficulties in obtaining data from participating countries, and because of the disruptions caused by the COVID pandemic. The project is essentially a mapping exercise, although formal scientific publications will also be produced. Three Master’s students are receiving bursaries through the project.

The Nairobi workshop was facilitated by Bernadine Everett, also of the Oceanographic Research Institute. Each participant was provided with their respective country’s demersal trawl data, comprising catches and station information, from 2007 onwards. These data had been cleaned and validated (including correcting and standardizing species’ names, and assigning of species’ seabed habitat preferences), requiring substantial time and effort by Drs Everett and Fennessy.

Dr Everett provided hands-on guidance to participants regarding the best use of Excel, Estimates and Primer software to manipulate, summarize and analyse their data. The workshop participants all had Primer software purchased through the project, and the free EstimateS package was also made available. Participants were shown how to produce numerous outputs from the software and made summary per-country presentations at the end of the workshop. Following each presentation, there were discussions around the issues experienced by participants, particularly when dealing with limitations specific to their dataset, and the implications for the interpretation of results. Dr Fennessy concluded the workshop by describing the anticipated project activities in the months ahead – finalizing the seabed mapping component, followed by workshops to integrate the spatial products from the seabed, oceanography and faunal components.

In all, 12 researchers from Kenya, Madagascar, Mozambique, South Africa and Tanzania took part in the workshop.
An inception meeting for a WIOMSA-funded project centred on helping Tanzania, and specifically its capital city Dar es Salaam, report on Sustainable Development Goal (SDG) 11, “sustainable cities and communities” was held in June.

The inception meeting introduced the project to the stakeholders in Tanzania, including the Dar es Salaam and Tanga Municipalities, the universities of Dar es Salaam and Ardhi, community development stakeholders, relevant government ministries and teams from UN-Habitat in Tanzania and Ethiopia.

Data collection and inventory for SDG 11 will be combined with aspects in other SDGs related to cities, and the data on SDG 11 will also supplement reporting for the New Urban Agenda and the Sendai Framework on disaster preparedness and management.

Publication of the results of the assessment will also be available in the global database managed by UN-Habitat and enable DAR es Salaam to continuously update its SDG 11 indicators and other global reporting mechanisms.

At the meeting, the municipality of Dar es Salaam was encouraged to work with a local university and UN-Habitat to set up an urban observatory for effective and continuous reporting on urban indicators. The urban observatory can be local or regionally based on themes that are of interest to the city. The capacity building excise will also enhance Dar es Salaam’s presentation at the next world Urban Forum to be held in Egypt.

Other goals of the project include the establishment of the urban observatory, using lessons learned from the Gauteng Urban Observatory in South Africa; to extend the monitoring framework to other cities in the region since very few have reported their progress on SDG 11; to encourage other coastal cities in the western Indian Ocean to consider urban resilience through SDG11 reporting; and to promote city-based data collection for the sustainability of coastal cities.
The WIOMSA Cities and Coasts project was represented at the Africities 9th summit that was held from 16 to 23 May 2022 in Kisumu, Kenya.

The meeting was organized by United Cities and Local Governments Africa (UCLG) in collaboration with other stakeholders like UN-Habitat and ICLEI (Local Governments for Sustainability) Africa. The attendance was broad, with 11,000 delegates from 100 countries, including 53 African countries, participating in the meeting.

The theme of the summit was “The role of intermediary cities of Africa in the implementation of agenda 2030 of the United Nations and the African Union (AU) agenda of 2063”. Both agendas are geared towards earlier planning and remediation on the part of intermediary cities so that they become well-coordinated and resilient before growing into mega cities with more challenges and less chance of becoming sustainable.

The governor of Kisumu City, Prof Anyang Nyong’o, officially opened the meeting. He encouraged the delegates to look at intermediary cities and the need to build their resilience in the context of rapid urbanization and burgeoning population. The president of UCLG, John Pierre, expressed his pleasure that the summit was being held for the
Focus on intermediary cities at ninth Africities summit

The president of Kenya, Mr Uhuru Kenyatta, as the principal guest at the event, challenged the participants to look at critical issues affecting intermediary cities, including:

- exploring non-traditional financing options;
- formulating urban policies that will help in building city resilience;
- strengthening the capacity of municipal and city leaders to deal with challenges in cities effectively;
- thoroughly strategizing in the face of a changing climate, noting that cities are both a source and a solution to the climate crisis;
- addressing new urban technologies, e.g. efficient energy and green building initiatives;
- managing infrastructure development to facilitate growth; and
- enhancing public and private partnerships.

**John Kerry, special United States envoy for the climate** said that 17 cities of 23 globally vulnerable cities are in Africa. The need to enhance the resilience and adaptation of African cities, especially intermediary cities, is critical in managing future vulnerable populations.

WIOMSA, through the Cities and Coast project, took part in several of the sessions that focused on, among other things: social and economic challenges facing intermediary cities; the role of the blue economy and the circular economy in building coastal cities; climate adaptation; equitable urbanization; and improved standards of living and quality of life in African cities.

The next meeting of local governments and cities is scheduled for 2025 in Cairo, Egypt.

Dr Valentine Ochanda, the Cities and Coasts Programme Manager at the Summit

first time in an intermediary city, highlighting the intention of the AU and others to strengthen the sustainability of intermediary cities.

Moussa Faki Mahamat, Chair of the AU Commission, noted that intermediary towns have the potential to shape urban futures, but their sustainability means addressing pollution, the need for jobs, housing and sustainability – intermediary cities need to be helped to manage their challenges early. The executive director of UN-Habitat, Maimuna Mohd Sharif, said that informal settlements are a catalyst of unplanned cities, and therefore there is a need to change the urban agenda. Starting with intermediary towns will allow Africa to show growth and improvement in the standard of living and quality of life in urban and rural areas.
Kenya’s Mombasa County has one river – the Mtopanga River, which has its source around Nguu tatu in Kisauni area and discharges water into the Indian Ocean at the famous Jomo Kenyatta public beach, otherwise known as “Pirates Beach”.

However, the County’s sole river is choking every day, from human action or inaction, and unless something urgent is done, it will give up its spirit and the many organisms that rely on it will suffer a fatal blow.

On 24 May 2022, I was part of a team that went on a rapid reconnaissance visit to the Mtopanga River to assess its current state and the various interventions by stakeholders to address the problems the river faces.

This activity, dubbed “Transformative River Management” (TRM), under the Mombasa Smart Cities Forum – an initiative pioneered by the Coastal and Marine Resource Development (COMRED) – brought together members of a technical working group led by the County Government of Mombasa, Coastal Oceans Research and Development Indian Ocean (CORDIO), Kenya Wildlife Service (KWS), Lafarge ecosystems and Mtopanga River Conservation community-based organization (CBO) and COMRED, together with a visiting team from the German Agency for International Cooperation (GIZ).

Our journey started at the river mouth with the intention of traveling upstream.

Mtopanga is a seasonal river that over the years has seen increased dumping of all manner of solid and liquid waste. Baya Joseph, the beach management supervisor at KWS’ Mombasa Marine Park attests to this.

“Often, plastic bags and bottles are swept by the river and end up on the beach and into the ocean, affecting the Mombasa Marine Park,” he said. “This paints a bad picture to beach travelers and tourists. Most importantly, the waste affects our corals and causes destruction of other ecosystems depended upon by marine species such as fish, sea turtles and seagrass.”

The stagnant water at the river’s mouth is remarkably dark and leaves a strong stench in one’s nose. From explanations given by Lenice Ojwang, Project Manager for science and policy at CORDIO East Africa and Peter Mchombo the Chair of Mtopanga River Conservation, whose offices are located adjacent to the river mouth and who regularly conduct beach cleanups in this area, we understood that more often than not, visitors mistook the river for sewage spill.
I couldn’t help but wonder if lack of knowledge on the existence of the river in Mombasa could partly be the root of its problems.

As we went upstream we saw a beacon of hope at intervention points situated within Bamburi cement’s Lafarge ecosystems. As we made our way through this serene and quiet environment, we could hear birds chirping and saw elands grazing by the roadside. Beautiful! But in this seemingly peaceful environment, there were troubled waters. Moments later, we made a stop at one of two waste interception points. The simple setup is made of chain-link wire to filter debris and dramatically reduce the solid waste flowing downstream.

Albert Musando, the manager of Lafarge ecosystems said that the river is a victim of critical encroachment from the surrounding people. “It is difficult to address waste problems as far as the Mtopanga River is concerned due to acute encroachment,” Musando said.

“There is a rise in informal settlements in the riparian area. These households lack proper solid waste and sewage disposal systems and hence, all the waste is released into the river.”

The fact that only 500 m of the 7 km long river pass through the Lafarge ecosystems means that their effort is only a drop in the ocean.

As we went further upstream, close to the river source in Kiembeni, the real problem became more apparent. We were met by scenes of a clogged river channel, heaps upon heaps of plastic bags and bottles, and raw sewage draining into the river channel, which was an eyesore.

Houses in this area are set right onto the river channel. According to the Mtopanga CBO chairperson, during rainy seasons, floods seep into these houses. While people downstream toil to collect waste, people upstream with almost equal but opposite energy continue to dump waste into this river system.

Lenice, believes that saving the river from its imminent death can only happen with a united effort from various quarters. “Restoring the Mtopanga River can never be a one-man show. To solve the problem, there is a need for an integrated management system cascading from the national government to the grassroots level,” Ojwang offered.

It is such a synchronization of effort that the Mtopanga TRM initiative is about. Mtopanga TRM is one of the five thematic technical working groups that have been established under the MSCF to reverse the myriad of challenges afflicting the city of Mombasa and hindering it from achieving smart and sustainable city status.
A new class of certified marine protected area professionals, or MPA-PROs, was received into the Western Indian Ocean Certification of Marine Protected Area Professionals (WIO-COMPAS) programme in April 2022 following a Level 1 certification assessment event for rangers in Ukunda, Kenya.

After their competencies were thoroughly reviewed, 12 candidates were certified as Level 1 professionals, bringing the number of certified MPA-PROs in the western Indian Ocean (WIO) region to 111! This represents steady progress towards the development of a “critical mass” of competent MPA professionals needed to ensure the effective management of MPAs in the WIO region.

The certification event (L111) was held after a two-year hiatus in certification events because of the COVID-19 pandemic. After such a long break, WIOMSA, which implements the certification programme, recognized that the WIO-COMPAS programme needed a boost, both in terms of the numbers of people certified as WIO MPA-PROs and the numbers of assessors available. The securing of additional funding from the Blue Action Fund to support the WIO-COMPAS programme for two years provided an opportunity to lift the programme to a new level. In addition, considerable interest in and demand for certification had been expressed by both Kenya Wildlife Service and other organisations, most notably Seychelles Gardens and Parks which is responsible for MPA management in Seychelles.

The WIO-COMPAS core team, led by Arthur Tuda of WIOMSA, therefore agreed to host a two-day assessor training course followed immediately by a Level 1 certification event. The L111 event was the largest one yet in terms of the number of candidates assessed and numbers of assessors/ apprentice assessors attending. From an initial total of 46 applicants, 18 were accepted as candidates,
with six candidates being deferred until the next Level 1 event to be held in November 2022. Six candidates did not quite meet the overall pass mark and were either asked to provide supplementary evidence which will be reviewed by the assessors over a year, or to reapply for certification in another two years.

The L111 event represented a welcome landmark in one other way: it was the first event with complete gender equity and involved nine female and nine male candidates. This is tempered slightly by the fact that three of the female candidates were not MPA field staff, but it was still a very welcome development. Indeed, the female candidates claimed the top four highest scores and were the only candidates to score 110 or above in the certification!

WIO-COMPAS uses various tools to assess the competence of Level 1 candidates. These include the application form; core activity documents which candidates prepare focusing on their core mandates in their MPAs; portfolios which provide documentary proof of work-related activities; the ecology quiz which assesses their knowledge of the biophysical and social–economic context; boat and beach patrols; and face to face interviews. The tools assess competences and knowledge across seven competence areas: management effectiveness; marine conservation, MPA and other approaches; communication and stakeholder engagement; human and financial resources management; management implementation and effectiveness; biophysical and socio-economic context; and leadership and ethics. Visit the WIO-COMPAS website and sign up for the WIOMPAN Newsletter for more information on the next certification event!

WIO-COMPAS would like to congratulate:

Selestine Ughanga Mwasala (Malindi Marine Park, Kenya),
Rose Hakofa Abae (Kenya Wildlife Research and Training Institute),
Nicole Bauer Schmidt (Table Mountain National Park, South Africa),
Marlene van Onselen (Dassen Island Nature Reserve, South Africa),
Shadrack Zia (Kisite Mpunguti Marine Park, Kenya),
Shabani Mkwavila (Wildlife Conservation Society, Tanzania),
Cyprian Lumungi (Kisite Mpunguti Marine Park, Kenya),
Dainise Quatre (Saint Anne Marine National Park, Seychelles),
Mateso Buguse (Dar es Salaam Marine Reserves Systems, Tanzania),
Shamsa Hassan Ahmed (Mombasa Marine Park, Kenya),
Hassan Bakari Banje (Malindi Marine Park, Kenya) and
Masud Salim Chonga (Kisite Mpunguti Marine Park, Kenya)

for successfully going through the Level 1 certification process and earning their right to wear the MPA-PRO badge.
Fish that feed on other fish or marine animals have profound economic and ecological importance. They are a protein source to millions of people living near the coast.

Ecologically, they structure fish communities by directly exerting top-down control on prey organisms, and indirectly by influencing the behaviour of prey assemblages. However, the effects of human-induced stressors on the distribution and abundance of predatory reef fish, including how these two factors vary with depth and habitat type, is poorly understood.

In a study entitled “Depth and habitat are important drivers of abundance for predatory reef fish off Pemba Island, Tanzania” – published recently in *Marine Environmental Research* – we utilized baited remote underwater videos (BRUVs) to survey predatory fish assemblages off Pemba Island, an oceanic Island off the coast of Tanzania. We describe the effects of habitat and depth on the predatory fish and highlight some interesting patterns in the interactions between habitat and depth.

The study aimed to examine key environmental characteristics that may be driving the abundance, distribution and diversity of predatory reef fish populations around Pemba Island. It was hypothesized that predatory reef fish would be confined to deeper rather than shallower reefs and would show significant relationships with healthy habitats dominated by hard corals.

Further, habitat type such as live coral was expected to be a stronger predictor of the occurrence, abundance and diversity of resident predatory species (i.e. those showing strong association with the reef structure), rather than transient species (i.e. schooling and epipelagic species).
The study found:

• More than 80 percent of the 71 predator species encountered were present in depths greater than 20 m.

• Three to six key species within the resident and transient predator types were responsible for the patterns.

• A non-random influence of habitat and depth on predatory reef types with different movement behaviours.

• Habitats in relatively deeper waters and dominated by hard and soft corals hosted high species richness and abundance of predatory reef fish types/taxa compared to mixed sandy and rubble habitats.

The findings add to growing evidence that deep waters around coral reefs are important habitats for predatory reef fish and they provide a valuable baseline for Pemba Island. They are likely to be of interest to coastal communities and managers in coral reef areas around the world.

This study adds to a growing volume of research that illustrates the utility of BRUVs for gaining unique insights into coral reef fish communities across a range of depths and environments. It also shows that careful management, through effective area and species protection measures, is needed to prevent further depletion of predatory reef-associated fish populations and to conserve the biologically important area of Pemba Island.

READ THE FULL PAPER:

Depth and habitat are important drivers of abundance for predatory reef fish off Pemba Island, Tanzania. Kennedy E.Osuka, Bryce D. Stewart, Melita Samoilys, Colin J. McClean, Peter Musembi, Saleh Yahya, Ali R. Hamad, James Mbugua. Available Here
It was an honour to participate in two conferences in South Africa this winter. Both conferences tackled issues in the Ocean Decade and provided innovative monitoring, community-based and ocean science solutions, and policy interventions. Both conferences were postponed in 2020 due to the COVID-19 pandemic and so the meetings also felt like a reunion of marine scientists!

The second international conference of the African Marine Waste Network – Towards Zero Plastics to the seas of Africa was held from 23 to 27 May 2022. The conference was attended by non-governmental organizations, government departments, the private sector, research institutions, universities, and small, medium and micro-enterprises in recycling, waste picking and education from Africa and abroad. The conference provided an opportunity to exchange ideas on the role we play in reducing the amount of plastic waste reaching the ocean, how to create circular economies in our communities, and the role governments and large corporations and producers play in the circular economy.

The South African Marine Science Symposium, held from 20 to 24 June is a popular and very informative conference for marine scientists and students alike in South Africa. The conference also attracted participants from Mozambique, Namibia and Tanzania. There was a lot of attention paid to emerging marine scientists presenting their Masters, doctoral and postdoctoral research. Two young emerging ocean scientists, Moagabo Rogoasha and Mhlangabezi Mdutyana were plenary speakers. They spoke about their journeys from living in rural South Africa to studying in Cape Town and learning that there are careers in marine science. With her passion for student development, mentoring and plans to take marine science to rural South Africa, Dr Moagabo’s motto is: “no student should be left behind”.

It was amazing to see the representation of WIMS at the conference and some members winning awards. Congratulations to the student winner Jamila Janna, with a poster titled: A Comparison of Mangrove and Estuarine Fish Diversity Using Edna Metabarcoding and Baited Remote Underwater Video in South Africa and Mozambique, supervised by Nasreen Peer, a WiMS member from South Africa. Next up on my conference list is the 12th WIOMSA Symposium, scheduled for 10 to 14 October – see you there!
WIMS SUPPORTS WOMEN SCIENTISTS’ NETWORK IN LIBERIA

Recently the Network Coordinator for the Women in Marine Science (WiMS) network, Emma Forsberg, has been supporting a team of women from Conservation International in Liberia in the establishment of their own network for women in marine science.

Recently the Network Coordinator for the Women in Marine Science (WiMS) network, Emma Forsberg, has been supporting a team of women from Conservation International in Liberia in the establishment of their own network for women in marine science.

“We were honored to receive the question from the team in Liberia if we would be willing to support them in their journey to establish a network for women in marine science in Liberia and hopefully in all West Africa,” says Forsberg.

“We were also proud to learn that the WiMS network has spread and made a mark even outside the western Indian Ocean region and that we are able to support others to do the same journey as we have done over the first few years of WiMS.”

So far Forsberg has met with the team in Liberia three times and discussions and plans are developing rapidly, she says:

“Since we have recently done the exact same journey ourselves, we have a lot of experience to share in the establishment of a new network and during our meetings I have introduced the team in Liberia to WiMS and how WiMS is operated. I also see big opportunities for WiMS to learn from the team in Liberia and I believe strongly in cooperation and that we are all in for an exciting journey together.”

In the next few weeks representatives from the Liberian team will meet with the Steering Committee of WiMS to continue discussions on collaboration. It is hoped that members of both networks will also be able to meet in person during the upcoming WIOMSA Symposium in South Africa later this year.

WOMEN MARINE SCIENTISTS SHARE THEIR STORIES

| By Obakeng Molelu

Over the past ten years, WIOMSA has seen an increase in the number of female participants in the marine sciences, especially early career ocean professionals. The women work in many different disciplines, including conservation and marine monitoring, mangrove conservation, port cities, oceanography and physical chemistry. In part two of this series, WIMS features two stories from Kenya and South Africa.

From intern to research assistant

By Maimuna Mbwana, Kenya

My journey with coastal and marine resource development began as an intern in January 2021. I have since acquired a wide range of skills and extensive practical and professional experience. This has opened up new horizons for me as an early career researcher in sustainable port city development.
In September 2021, I was promoted to research assistant on the WIOMSA-funded Bandari Bora project, which aims to bridge key data and information gaps on policy formulation and development of a spatial plan framework for port cities in the western Indian Ocean.

The Bandari Bora project has equipped me with valuable experience in stakeholder engagement and data collection methods for the different project components – including data collection tool development, data collection and management, interpretation and analysis. I have also been given an opportunity to coordinate and participate in the development of several technical, peer-reviewed papers. My enthusiasm for marine biodiversity conservation is stronger than ever as I venture into smart port cities research, and I am certain that they will merge at some point in my marine science career.

Using nanotechnology-nanomaterial and physical chemistry in marine science

By Zikhona Tywabi-Ngeva

In November 2021, I participated in a training workshop about nanotechnology and its application in sustainable cities and coasts, held in Johannesburg, South Africa. I had the opportunity to get hands-on experience to synthesize and characterize nanomaterial in the lab and functionalize the synthesized material for various applications – for me that was just amazing!

I am currently working on a marine science project titled, “Development of high performance solar absorber coatings for energy efficient heating and cooling modular solar powered aquaponics systems”. I work in collaboration with researchers from the National Research Foundation Ithemba Labs, Cape Peninsula University of Technology, the University of South Africa, and the University of Johannesburg.

As the world’s population grows, so too does the demand for increased food production, and as the stresses on resources such as land, water, fossil energy and nutrients become ever greater, there is an urgent need to find alternative, sustainable and reliable methods to provide food.

Modular solar-powered aquaponics is a self-contained system that combines both aquaculture and hydroponics (growing plants in a soil-less medium) to create a balanced and sustainable agricultural technology.
The system also benefits from renewable energy sources (RESs) such as solar thermal energy to heat the environment and solar photovoltaic power to generate electricity. By combining RESs with more effective farming methods, a sustainable, environmentally friendly means of sustenance can be achieved.

Currently, most commercial greenhouses are built from inexpensive, highly transparent and poor insulating materials, making year-long food plantations challenging. In addition, a greenhouse climate is a complex, nonlinear and uncertain system, involving environmental factors such as temperature, humidity, light, CO2 concentration, and so forth.

A modular solar powered aquaponics system has been built at the Belhar Early Childhood Development Centre in the Western Cape. Here, impoverished and previously disadvantaged communities are introduced to renewable energy projects that favour the upliftment of the community. They are trained to use the new technology in a system that will be used to grow locally produced food such as fish and vegetables.

African and female researchers need to be embarking on projects that we can take to lower level educational institutions, by introducing meaningful and self-sustaining projects that can benefit the ever-increasing needs of communities experiencing socio-economic challenges in Africa.

This is where aquaponics takes on a transformative role; not only do aquaponics yield twice the harvest in comparison to conventional farming, but they also use 90 percent less water than traditional farming, crucial in countries like South Africa that is ranked twenty-ninth in water scarcity.
The African Ocean Conference, held in Cairo, Egypt from 10 to 12 May 2022, provided a good opportunity for members of the Western Indian Ocean Early Career Scientists Network (WIO-ECSN) to participate in the continent-wide effort to develop and implement actions during the United Nations Decade of Ocean Sciences.

Frank Mirobo, Secretary-General of WIO-ECSN, co-chaired the early career ocean professionals (ECOPS) side-event that sought to strengthen collaboration among early career researchers in Africa. He delivered a talk on the work of WIO-ECSN and planned future projects, such as the mini videos, “The Many Faces” that will be undertaken by youth from the WIO region.

Deepeeka Kaullysing, WIO-ECSN country coordinator for Mauritius, contributed to a discussion about the opportunities and challenges faced by ECOPS. She highlighted the ways in which ECOPS in Africa can benefit from institutions, networks and other platforms within the region.

As guest speaker, Jacqueline Uku, WIOMSA president, underlined the importance of mentorship and capacity building for youth as they take a lead in driving the UN Decade of Ocean Sciences.

The Chair of WIO-ECSN, Riaan Cedras, contributed to a panel discussion on empowering African youth and building a sustainable future for the youth. He highlighted the role of national governments on the African continent, sharing of knowledge between countries, and the ways in which “communication and trust will connect youth and allow for best practices and engagement with stakeholders.” He concluded that a strong policy framework with a budget for youth programmes can ensure that “we deliver the science we need for the African Ocean we want”.

Alessia Dinoi, a co-opted WIO-ECSN board member, participated in a number of discussions and was the convenor of a number of African Ocean conference sessions.
I count myself very fortunate to be given an opportunity to give a talk on regional challenges in addressing abandoned, lost or discarded fishing gear (ALDFG) in Africa, focusing on a case study in Zanzibar-Tanzania, on behalf of Narriman Jiddawi who could not make it to the second international conference of the African Marine Waste Network in May.

Consistent data on ALDFG in Africa is very limited and there are few published research studies on ALDFG, a problem that has intensified because of the utilization of non-biodegradable materials for fishing gear, increased fishing capacity and the use of modern fishing technology on the continent.

Private organizations have made an effort to address the problem of sea-based sources of waste on the island of Zanzibar, yet there remains very limited data on ALDFG and its impact. In addressing the problem of ALDFG in Africa, it is crucial to tackle the challenge at the national level first, before moving to the regional level. The marking of fishing gear, awareness programmes and efforts to detect and remove ALDFG can all help to resolve the problem in Africa, but, political will is of primary importance.

One of the key suggestions made at the conference was to make youth key players in the management of plastic waste because they play an important role in the marine litter value chain. Together with the coordinator of Youth4MPAs at the Sustainable Seas Trust and other young, innovative researchers, we exchanged ideas, shared opportunities and planned for future collaborations that will target capacity building for youth in plastic waste management.
NETWORKING WITH OTHER NETWORKS

By Alessia Dinoi

IIIOE-2 ECSN Network with WIO-ECSN
International Indian Ocean Science Conference -2022:
IIIOE-2 ECSN Workshop

Our Co-opt member Miss. Alessia will be giving a talk on importance of networking with other network in the Indian Ocean region.

Don’t plan to miss!
https://iiosc2020.incois.gov.in

Alessia Dinoi

The International Indian Ocean Science Conference (IIOSC) 2022 was hosted online from 14 to 18 March 2022.

It provided a platform for the exchange of knowledge and expertise gained during the second International Indian Ocean Expedition which aimed to enhance understanding of the physical, chemical, biological, geological and climatological features of the Indian Ocean, with the goal of boosting its role in the society and economy of the region.

The Western Indian Ocean Early Career Scientists Network (WIO-ECSN) participated in the conference session dedicated to networks. An oral presentation focused on the WIO-ECSN mission and vision. This was given by co-opted board member from Italy, Alessia Dinoi. The presentation explained the origin of the network, its past and ongoing projects and future perspectives, especially the network’s involvement in the launch of the African Ocean Decade in Cairo, Egypt in May 2022.

The IIOSC 2022 provided an excellent opportunity to meet and interact with leaders and other members of the Indian Ocean scientific community, exchange skills and knowledge, and build a strong network to serve the youth in our regions. WIO-ECSN is looking forward to working with other networks within and outside the region. We will keep cultivating and attracting collaborations to create opportunities and capacitate the youth, both inside and outside the western Indian Ocean region.
The planting event was attended by Ilala District Commissioner Godwin Gondwe, who was guest of honour, other invited guests, Kunduchi Secondary School students, members of the media and community members.

The first of a series of AFO-organized World Ocean Day events took place on 3 June at Kunduchi Girls Islamic High School. AFO reached out to 34 students, introducing them to the mangrove ecosystem, its importance in conservation, the benefits that it delivers and the threats that mangroves face. We talked to the students about the idea of World Ocean Day and how they can take part as individuals, share skills and knowledge about mangroves and why mangroves need revitalization and everyone’s support.

On 6 June, AFO hosted a workshop for 36 community members from Kunduchi, including members of beach management units, women’s groups and fishers. Together, workshop participants discussed the status of the mangroves in the community and how community members can ensure peer-based conservation. Training was provided in the hands-on practice of mangrove planting and monitoring.

On 8 June, community members and students came together to plant 5 000 Mangroves from the 15 000 seedlings of a well-established nursery. The planting took place in 0.48 ha of degraded mangrove forest at Kunduchi. The event closed with a friendly beach soccer match to enhance collaboration between the community and the AFO staff. This approach has been the key secret of AFO in doing its community-based work, ensuring a sense of community ownership and building lasting relationships for continued support and sustainability. The World Ocean Day event was not the end of AFO and the Kunduchi community’s work – there are 10 000 more seedlings to plant and the continuous monitoring and evaluation of planted mangroves is necessary.
The Western Indian Ocean Early Career Scientists Network (WIO-ECSN) is delighted to announce the official launch of its website: https://wio-ecsn.wiomsa.org/ which aims to bring together early career marine scientists, strengthen their capacity for storytelling, open up opportunities, share research findings and keep young scientists up to date with what is happening in the western Indian Ocean (WIO) region.

What is available on the website?

**Resources:** Are you an early career scientist in the WIO region looking for opportunities to further your career in the coastal and marine environment? Our website domain provides opportunities for workshops and conferences, courses and schools, scholarships/fellowships, competitions, jobs and a list of publications. As an early career scientist in the region, communication of your research findings to the world is a priority. Send your publication to wioecsn@gmail.com to be featured in our web domain.

**Anecdotes:** Would you like to share your story about fieldwork, career growth, career struggles and your achievements? Share your story with us: https://wio-ecsn.wiomsa.org/anecdotes/.

**Membership:** Would you like to join our network? More information is available here: https://wio-ecsn.wiomsa.org/membership/.

Do you wish to be involved in one of our country chapters? Send us an email at wioecsn@gmail.com and we will connect you to the right person.

Don’t forget to subscribe for WIOECSN daily updates at https://confirmsubscription.com/h/y/7707C1E4EE13D682.
WIOMPAN MEETING IN ZANZIBAR

The Blue Leadership training which was organised by WIOMSA provided an opportunity for members of the Western Indian Ocean Marine Protected Areas Network (WIOMPAN) and other MPA/LMMA practitioners to meet and exchange ideas on the development of an action plan for the implementation of activities for the remainder of 2022.

WIOMPAN members met on the fringes of the Blue Leadership Course in Zanzibar on June 18, 2022. The meeting was presided over by Dr Karine Pothin, President of WIOMPAN, who discussed strengthening WIOMPAN country chapters, progress with WIOMPAN activities, and the completion of the WIOMPAN constitution. The next WIOMPAN meeting will be held in Kigali during the African Parks Congress in Rwanda. The Network will also host a session on MPA management effectiveness. WIOMPAN is an MPA practitioners network in the Western Indian Ocean that includes MPA and LMMA managers, MPA rangers, technicians, and scientists. Join our Network and assist us in developing a well-managed, effective network of MPAs and LMMAs in the WIO region.

WIOMPAN KENYA CHAPTER HOLDS INAUGURAL MEETING

The Kenyan chapter of the WIOMPAN meeting held its first ever virtual meeting on 27th June 2022. The purpose of the meeting which was attended by WIOMPAN members from Kenya was to introduce the network, its aims and objectives and to explore possible activities for the Chapter. The meeting was hosted by the interim Country Coordinator, Willys Ojuok, from Kenya Wildlife Service and WIOMSA. During the meeting, Dr. Karine Pothin, the interim chair of the WIOMPAN network outlined the objectives of the WIOMPAN network and its activities for 2022, urging the Kenyan members to fully participate in the network’s activities. Participants also listened to a presentation from Purity Atieno, on the key lessons learnt during the recent introduction to MPA management training course that was organized by Rhodes University and WIOMSA.
**RESEARCH SUMMARY**

**Bycatch of marine megafauna in the small-scale fisheries of the southwest Indian Ocean**

Small-scale fisheries are of great social importance in the western Indian Ocean region. They employ an estimated 500,000 fishers and contribute more than 70% of the regional marine fisheries catch.

Yet small-scale fisheries impact marine ecosystems and contribute to biodiversity loss. The five-year BYCAM project demonstrated that small-scale fisheries in the western Indian Ocean pose a significant threat to marine megafauna – whales, dolphins, sharks, rays, and sea turtles. This is starkly illustrated by the finding that the population of Indian Ocean humpback dolphins in Menai Bay off the south coast of Zanzibar is predicted to become extinct in 36 years as a result of high entanglement rates in gillnet fisheries.

**Key findings**

- In spite of a severe lack of robust data, there are indications that populations of marine megafauna in the southwestern Indian Ocean are declining as a result of interactions with small-scale fisheries.

- The population of Indian Ocean humpback dolphins in Menai Bay off the south coast of Zanzibar is predicted to become extinct in 36 years as a result of high entanglement rates in gillnet fisheries.

- There is a clear regional priority to collect much more information on the catch landings and composition of small-scale fisheries, as well as data on the interactions between small-scale fisheries and marine megafauna. Without these data, informed, evidenced-based management and the sustainable harvest of fisheries resources cannot be achieved.

- Better and earlier engagement of locals in fisheries policy, management and enforcement will strengthen governance and reduce rule-breaking in small-scale fisheries.

- Low-cost bycatch mitigation measures that could help to reduce the bycatch of dolphins in drift net and bottom set gillnet fisheries need to be thoroughly tested.

- Any initiative to introduce mitigation methods would require the involvement of both migrant and resident fishers.

- The testing of circle hooks as a means of mitigating the bycatch of turtles and dolphins in longline fisheries in the southwest Indian Ocean also needs further trials.

**This research summary captures the results and recommendations of the five-year BYCAM project, “Bycatch Assessment and Mitigation in the southwest Indian Ocean”. The overall aim of BYCAM was to inform fisheries management and governance by:**

- creating an initial estimate of catches of marine megafauna – whales, dolphins, sharks, rays, and sea turtles – in small-scale fisheries in the southwest Indian Ocean region; and

- developing and testing methods for mitigating catches of vulnerable marine megafauna.

The BYCAM project focused on three fisheries: small-scale coastal longline fisheries, small-scale gillnet fisheries and semi-industrial prawn trawl fisheries.

**References:**


Bycatch mitigation

The development and testing of low-cost bycatch mitigation devices through the BYCAM project showed statistically inconclusive results, but funding was secured to continue testing these devices in driftnet and bottom set gillnet fisheries with high rates of dolphin bycatch. The devices were made of recycled glass and plastic drink bottles, cost US$ 0.50 per 100 m of net, and when attached to a gillnet, should improve the ability of dolphins to detect the nets and avoid entanglement. The low-cost bycatch mitigation devices were tested in the small-scale driftnet fisheries in Zanzibar and Kenya.

A study of the potential for circle hooks to reduce the catch of marine megafauna, especially sea turtles and sharks, in small-scale longline fisheries was also inconclusive. However, the study revealed the complexity of mitigating bycatch in small-scale fisheries and highlighted that any initiative to introduce mitigation methods into existing governance systems would require the involvement of migrant fishers, rather than only resident fishers.

This observation dovetails with an overarching finding of the BYCAM project: that an adequate understanding of the social and economic features of small-scale fisher communities is essential for improving fisheries management. Throughout the project, surveys and workshops were conducted with the purpose of collecting information on small-scale fishing practices, behaviour and compliance with management rules. A set of recommendations was developed for action in Kenya, Madagascar and Zanzibar and a common finding from all three countries was that better and earlier engagement of locals in fisheries policy, management and enforcement strengthens governance and reduces rule-breaking. This finding is in keeping with current thinking about the achievement of SDG 14 (Life below water): a failure to achieve participation of local people in management decisions can build a growing divide between those prioritising marine conservation goals and those prioritising food security and income.

Catches of marine megafauna in small-scale fisheries

Over a period of 12 months, between June 2016 and June 2017, trained observers affiliated to the BYCAM project recorded small-scale fisheries’ landings of marine megafauna at eight sites in Kenya, eight sites in Zanzibar and five sites in northern Madagascar. In total, 59 species of marine megafauna were identified in these landings, including three sea turtles, two small cetaceans (whales, dolphins and porpoises), one dugong and sharks and rays.

The primary threats to marine megafauna were identified as:

- bottom set and drift gillnets (catch marine mammals, sharks and rays); and
- longlines (catch sharks and sea turtles).

The catch of marine megafauna was dominated by small and moderately sized coastal requiem sharks and whiptails. Larger coastal and oceanic sharks and rays were also recorded in substantial numbers. The diversity of the marine megafauna catch demonstrates the potential for small-scale fisheries to have impacts across a number of ecosystems.

Importantly, the study demonstrated substantial underreporting of catches of marine megafauna in small-scale fisheries in the southwest Indian Ocean. Based on the BYCAM observations, annual regional catches of sharks and rays are estimated to be 35,445 tonnes, constituting more than 2.48 million individuals. This is 76% more than the catch statistics reported to the Food and Agriculture Organization of the United Nations (FAO) in 2016 and 129% more than the 10-year average (2006–2016) reported to FAO.

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Marine megafauna are central to the functioning of marine ecosystems. Each occupies a key space and plays a vital role in the ocean food chain. Their removal from the food chain can disrupt marine ecosystems, with potentially wide ranging consequences for those that rely on them.

The BYCAM project was funded by the Western Indian Ocean Marine Science Association. It brought together expert biologists, social scientists, interdisciplinary researchers and fisheries managers in Kenya, United Republic of Tanzania, Mozambique, South Africa, Madagascar, Portugal, United Kingdom and the United States of America. The project supported the production of five Bachelor of Science, three Master of Science and two Master of Philosophy theses, and one doctoral thesis.
Research conducted by the WIOMSA-funded EKLA project concludes that both information and energy – to act and cause change – are essential to resolve the “last mile” challenge in climate change adaptation.

Data must be accessible and understandable to a broad, interdisciplinary audience and, unless it is interpreted for the local context, such data is not likely to be used. Furthermore, decision-making for climate change adaptation requires an integrated and cross-sectoral approach, as well as leadership to bridge boundaries across policy domains and hierarchical authority lines. The element of trust and the importance of engagement between the scientific community and local authorities was also highlighted. Ultimately, the “last mile” challenge must be addressed in the context of the wider challenge of building the capacity of local government and promoting good governance.

Key findings

- Climate change data and information are often under-utilised by local governments.
- Some of the barriers that stand in the way of local governments taking action to address the impacts of climate change are:
  - a lack of financial and human resources
  - a shortage of expertise and experience
  - insufficient awareness and support for adaptation actions.
- An energy-intensive process is required to transform climate data and information into knowledge that is of practical use for local governments. This is known as addressing the “last mile” challenge of climate adaptation.

This research summary captures the key findings of the project “Emerging Knowledge for Local Adaptation” (EKLA), which was implemented in Kenya, Mauritius and South Africa between 2014 and 2018 and funded by the Western Indian Ocean Marine Science Association (WIOMSA).

Learnings from the EKLA project emphasized the important role that local governments play in adapting to coastal climate risks. It also showed that they face significant constraints in realizing this essential role. These capacity constraints highlight the challenges of transforming climate data into knowledge that can be used by local governments to inform wise decision-making for climate adaptation at the local level in the western Indian Ocean region.

Scientific outputs from EKLA and previous related MASMA projects for further information:

The role of local governments in addressing climate change impacts

There is increasing recognition of the role that local governments can play in addressing climate change impacts. This is especially true in a coastal context where adapting to climate risks, such as rising sea levels and coastal flooding, will involve changes in urban planning, improvements in infrastructure and other measures which often fall within the realm of responsibility of local governments. Between 2014 and 2018, researchers affiliated to the EKLA project developed and tested a Capital Approach Framework (CAF) as a means to assess five forms of capital (financial, political, environmental, human and social) of local governments in the WIO region. These forms of capital collectively provide an indication of the capacity for engaging the various forms of adaptive management required to confront a changing climate. The CAF was applied and tested in Kenya, Mauritius and South Africa.

Recommendations from Kenya

- The development of human capacity to conduct integrated vulnerability assessments, cross-sectoral climate change adaptation planning, integrated coastal management (ICM), marine spatial planning, and coastal engineering is urgent.
- The incremental improvement in the level of ICM implementation is a no-regrets adaptation measure that may be pursued.
- There is a need for resource allocation and more robust initiatives to enhance disaster preparedness and risk management.

Recommendations from Mauritius

- Local climate change adaptation needs have to be integrated into policy formulation.
- The roles and responsibilities of the different levels of government in climate change adaptation need to be clarified.
- Capacity building for implementing climate change actions at the local level are urgently required.
- Strict laws and effective monitoring need to be implemented to ensure planning regulations are adhered to.
- Collaboration between local and national levels of government is necessary to adopt a common approach to climate change adaptation.

Recommendations from South Africa

- There is a need for appropriate coastal and climate data and information directly sourced and used for management purposes.
- There is potential for climate or information services to be tailored for use at the municipal level.
- Funding for coastal management and climate change adaptation is insufficient and requires greater recognition in integrated development plans – the main mechanism to plan and implement development measures.

The last mile challenge of local climate change adaptation

Scientists in the EKLA project explain the interface between science and local government action for climate adaptation as a series of four steps:

1. Access to climate change data
   It remains challenging to ensure that the growing volumes of data are easily and freely available to enable new scientific research, and that these data and information are useful to, understandable and accessible by a broad interdisciplinary audience, including local authorities. **Therefore:** local governments need to be aware of reputable sources of climate change data (e.g. CORDEX-Africa, Copernicus Climate Data Store) and question (to understand) the validity, accuracy and uncertainty of data presented to them by researchers, service providers, etc.

2. Usability of information
   Access to and possession of “raw” climate change data (model simulation data, projections) are, for the most part, of no particular value for local decision-makers. Without the data interpreted for the local context (indices of change), they are likely to remain unused. **Therefore:** local governments must ask the right questions (from e.g. researchers, climate service providers, consultants) from their own local perspective. What matters to the communities at the local level, and what is known at local level (local knowledge) is important!

3. Governance of knowledge
   Although information is more useful to local decision-makers than raw data, it often falls short of becoming knowledge used for decision-making. **Therefore:** scientific evidence must fit the workflow of local government and governance processes. There must be a high degree of trust in the evidence. There is a burden on scientists and information providers to understand the local context, and on managers and citizens to understand the limits of scientific evidence and the inherent uncertainty of understanding, in particular, the impacts of climate change in the future.

4. Politics of wisdom
   The generation of knowledge, as a composite of local knowledge and management processes, integrated with new information derived from climate data, is a state from which actions can be taken, especially in the presence of leadership and political will. **Therefore:** good leaders and climate change champions are needed to drive the use of scientific evidence and combine the needs of citizens with the risk of future climate and other impacts. Short-term gains need to be evaluated against long-term loss, and in some instances political will is required to make unpopular decisions.

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The EKLA project was funded by WIOMSA through its Marine and Coastal Science for Management (MASMA) programme. It brought together academics and local government practitioners from Germany, Kenya, Mauritius and South Africa. The project supported field work for a student pursuing a Master’s degree in climate change adaptation at the University of Nairobi, and the studies of two PhD candidates.
SUPPORTING WOMEN IN OCEAN SCIENCE THROUGH ALL THE SEASONS OF LIFE

By Jacqueline Uku

The Global Ocean Science Report 2020 presents a global analysis of the status of ocean science and also provides insights into the contribution of women to generating scientific knowledge for a more sustainable society.

Some of these insights include:

Gender equality in ocean science is yet to be reached but ocean science is doing better in embracing women compared to the other sciences. Female scientists comprise on average 39 percent of researchers which is 10 percent more than the global average.

Women scientists are talking to the world. Female participation in international conferences accounts for 29% to 53% of total conference participants, depending on science category and region.

Female scientists are still under-represented in many categories of ocean science, such as technology development and ocean observation.

We are doing well in documenting the educational achievements of women. We need to move beyond the numbers and take stock of the positioning of women in ocean science. We need to analyse how these achievements are translating into women's participation and influence in the development of policy and governance frameworks.

Our Opinion piece features
Dr. Jacqueline Uku- WIOMSA President and Senior Research Scientist, Kenya Marine and Fisheries Research Institute.
In the western Indian Ocean (WIO) region, women in ocean science still experience obstacles which prohibit equal participation.

These obstacles include:

Women experience diverse seasons in their lives; most taking on primary responsibility for children and childcare. **The multidimensional nature of a woman’s life makes her professional life a very fine balancing act.** There is little support for women who take a break and re-enter the ocean sciences and very little support to meet the demands of producing high quality research outputs.

**Gender bias** and progression barriers are still very strong in the work place.

**The lack of gender policies** in the work place to guide inclusion and equity makes it hard to define the gaps and work on solutions.

There are too few women in senior leadership positions to be role models for younger scientists. **Lack of mentorship** in the work place is a critical gap.

The GOSR 2020 has several recommendations for closing the gender gap in ocean science and these are relevant to the WIO.

Decade programmes and projects should mainstream gender equality activities into proposals. Ocean Science capacity building activities should enforce women-specific actions.

**The inclusion of gender equality into the SDG 14 dialogue is important** because it will lead to a shift from equality blindness to equality-activating policies.

Activities must be culture sensitive and embrace the diverse cultures of women of the WIO.

Creating an enabling framework to make equal participation of girls and women in ocean science possible.

We are learning key lessons in the WIO

There is clear evidence of the effect of recent policy interventions on the inclusion of women and youth in ocean science. In 2017, WIOMSA launched the Women in Marine Science Network (WIMS) and the Early Career Scientists Network (WIO-ECSN).

To ensure gender equality, the WIOMSA Board also endorsed a gender policy in 2017. To raise the visibility of women in ocean science, WIOMSA published two magazines documenting the career journeys of a wide range of women from the region and a documentary on women in science.

**WIOMSA Magazine – Issue No. 9, December 2019**

**WIOMSA Magazine – Issue No.10: May 2020**

Four years later, there has been a spike in the MARG I grants for research awarded to women scientists and young scientists, with more female grantees being awarded grants in the recent years. In 2020, 58 MARG I grants were awarded. 24 of these grants were led by women. In 2021, the number of female MARG I awardees exceeded the number of males with 21 females being funded compared to 15 male grantees. This was a first in the history of the MARG Programme! This demonstrates the increased empowerment of women to participate in this competitive process.
Supporting women in ocean science through all the seasons of life

At WIOMSA, we are learning that gender policies need to be designed to support women to continue to participate in ocean science and contribute fruitfully through all the different seasons of their lives. It is important for WIO institutions to embrace the development of such policies as a first step in engaging in the gender dialogue.

Through training of senior women leaders supported by the Nairobi Convention and WIOMSA there have been concerted efforts to build credible women leaders who have the competence and courage to deliver in the leadership spheres. It is hoped that these women will embrace this unique season of leadership as they are expected to open the way and give direction to younger women and men that walk in their footsteps. Even as we advocate for women, it is important not to leave the men behind.

As we push forward, we need to remember that the development of human capacity, building leadership skills and competences requires the gifts of time and perseverance. Our journey has started and the fruits are being seen sooner than we expected.

This article is inspired by an invitation to speak during the International Women’s Day event hosted by IOC-UNESCO and the senior women’s training conducted by Ian Dean under the umbrella of the Nairobi Convention and WIOMSA.

ANNOUNCEMENTS

PHOTOGRAPHY COMPETITION

CALL FOR ENTRIES
OPEN JUNE 5TH TO SEPTEMBER 15TH 2022

THEME: “A NEW DECADE OF WESTERN INDIAN OCEAN SCIENCE”

Join us in picturing and imagining what the next decade of ocean science will look like in the Western Indian Ocean (WIO) region. The competition is open to individuals of all ages, backgrounds, expertise, and levels of photography experience from the WIO region.

Prizes:
1st Prize USD 500
2nd Prize USD 300
3rd Prize USD 200

Download the contest guidelines: https://wp.me/aRL2s-Yg
WHY EXHIBIT AT THE 12TH WIOMSA SCIENTIFIC SYMPOSIUM?

Venue: Board Walk Convention Centre in Nelson Mandela Bay, South Africa
Theme: “A New Decade of Western Indian Ocean Science”
Date: 10 - 15 October 2022

Prime exhibition spaces will be provided during the event which is the largest scientific conference on marine and coastal issues in the Western Indian Ocean region.

The WIOMSA Symposium provides access to the coastal and marine science sector influencers and decision makers, including leading scientists, research institutions, the private sector, management authorities, government representatives and students. The WIOMSA Symposium also boasts a prime selection of key academic leaders and sought-after industry speakers and presenters.

The exhibition floor arrangement is optimized to promote maximum attendee and exhibitor engagement. All lunches, session breaks and poster sessions will be held on the exhibit floor; granting exhibitors ample opportunities to network with current and prospective customers.

For new and returning exhibitors, the opportunities abound to capitalize on meeting new contacts and renewing old relationships. **Leverage on these opportunities by booking your slot today. Send an email to secretary@wiomsa.org by 9th September 2022**

**SPECIFICATION AND EXHIBITORS COSTS**

- **Booth:** 2 x 3 m with 1 table, 2 chairs, and one power socket and spotlights
- **Cost:** USD 200 for the booth and USD 150 per person for the Symposium registration fee.

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**AS AN EXHIBITOR AT THE WIOMSA SYMPOSIUM, ADDED BENEFITS OF BEING A PART OF THE CONFERENCE INCLUDE:**

- The ability to **create new relationships** with a broad range of Symposium participants that are waiting to be introduced to your organisation.
- The opportunity to **raise the profile of your company** and align your brand with the marine science sector.
- Access to **network** with fellow exhibitors.
- The capacity to **attend the Symposium program sessions** and stay informed on the cutting edge of what's next in the marine science world.