WIOOMSA: Developing international and inter-disciplinary research capacity in support of regional ecosystem conservation efforts

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Developing international and inter-disciplinary research capacity in support of regional ecosystem conservation efforts

Louis Celliers – WIOMSA (Climate Service Center Germany (GERICS)-Hereon)

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Local action in support of global traction
STRENGTHENING THE BLUE ECONOMY OF THE WESTERN INDIAN OCEAN THROUGH MARINE SPATIAL PLANNING AND INTEGRATION OF ECOSYSTEM SERVICES

Problem Statement
Humans' use of Earth’s oceans has increased dramatically in the last decade. The added pressure on this essential resource has had deleterious effects on traditional ocean and coastal uses. In particular, fisheries, which have served as important economic and food security commodities for coastal and island regions, have declined due to their overexploitation and illegal, unreported, and unregulated fishing. Additionally, climate change continues to modify species distribution and habitats, exacerbating the challenges.
WIOMSA works in 10 countries
Promoting regional collaboration in marine science
Research themes

- Overfishing
- Pollution
- Coastal development
- Marine litter
- Climate change
- Ocean acidification
- Coasts and Cities
Knowledge sharing
- Training for MPA managers and communities
- Professional certification of MPA practitioners
- Applied research

Science to improve knowledge
- Research grants
- Commissioned research
- Knowledge synthesis
- Regional status reports

Integrating knowledge

Science – Policy Platform
Science – Policy series
Policy briefs
Science to the Nairobi Convention
Research output from WIO countries between 1992 and 2018 (trendline showing cumulative increase)

Trends in WIO Publications during the distinct phases. Source (WIOOMSA) The same period (1992 and 2018) witnessed an increase in scientific outputs from all countries in the WIO region (Figure 4) with most coming from Tanzania and Kenya.

\[ y = 14.974e^{0.6234x} \]
The problem...faced by ecosystem managers
Data, Information and Knowledge is required at different levels:

- **Strategic**: National, Organizational Management plans
- **Tactical**: Wardens, Managers Strategic plans
- **Operational**: Ranger, Scouts

**Planning activities**
- Management plans
- Patrol planning

**Control activities**
Strategic – science-policy

Scientific input

The Policy Cycle

- Agenda Setting
- Formulation
- Adoption
- Implementation
- Support / Maintenance
- Evaluation
Western Indian Ocean Marine Protected Areas Outlook: Towards achievement of the Global Biodiversity Framework Targets

Regional MPA Network
Status of MPAs in the WIO

- WIO MPA outlook report - outlines WIO performance in relation to the Aichi Target 11 and Sustainable Development Goal 14

- By 2019 - 143 MPAs and 173 locally-managed marine areas in the WIO reported by 9 countries

- Represents the protection of ~678 000km² or 8.5 percent of the combined EEZ

- Currently, there are 14 proposed MPAs in the region covering a potential area of more than 50 000 sq Km

- 173 existing and proposed LMMAs which could potentially translate to the protection of more than 1600 km² of nearshore habitats

- WIO will need to increase area under marine conservation by 1,714,941 km²

MPA coverage in the WIO
Legislative and institutional frameworks that support the establishment and management of MPAs exist in every country.

- Weak administrative and support systems.
- Implementation of regulations.
- Shortfalls in financial and personnel capacity.
- Lack of clarity on park boundary leading to compliance issues.
- Lack of science—driven management decision support system.
- Operations and equipment.
- Boundary plans and their implementation.
- Low staffing levels and competencies—e.g. enforcement.
WIOMSA supporting capacity development of marine resource managers

- WIOMSA supporting training of MPA managers

https://www.wio-compas.org/
Transboundary marine conservation
Ocean Acidification Monitoring Project from 2018

Six countries in the Western Indian Ocean

Participants

- Kenya Marine and Fisheries Research Institute (Kenya)
- Mauritius Oceanography Institute and University of Mauritius (Mauritius)
- University of Eduardo Mondlane (Mozambique)
- Tanzania Fisheries Research Institute (Tanzania)
- University of Seychelles (Seychelles)
- Oceanographic Research Institute (South Africa)

Success

- Established OA observation and research in the Western Indian Ocean
- Created a community of practice for OA and other stressors on the marine environment
- Baseline data for SDG 14.3
WIOMSA Marine Litter Monitoring Programme

7 Countries

3 Years

Coordinated by AMWN
EO needs for regional ecosystem management

Improve the understanding of the regional network of organisations, providers and networks that support FAIR EO data and information at different levels.

Develop a regional concept of FAIR and nested EO data and information in support of coastal and ocean management and climate adaptation.

Develop a process which WIO countries could use to request relevant EO data and information from organisations, providers and networks.

A Sustained Ocean Observing System in the Indian Ocean for Climate Related Scientific Knowledge and Societal Needs


Short Communication
Earth observation and coastal climate services for small islands

Lena Röller (1), Gundula Winter (1), Maria María Costa (1), Louis Celliers (1)

The small pelagic fishery of the Pemba Channel, Tanzania: What we know and what we need to know for management under climate change

Banaka Sekada (1), Lucy Scott (1), Jin Anderson (1), Shukar Awa (1), Julius Francis (1), Ron Jackson (1), Patima Abdi (1), Nurhalina Idani (1), Alphegov T. Kamakura (1), Stephen Kelly (2), Helen Rukanga (1), Baraka Kagaya (1), Margaux Kyawusinyinya (1), Margaux Uwam (1), Nuhumna Nyashe (1), Stuart C. Palmer (2), Matthew Palmer (2), Buyiyin E. Balama (1), Michael Roberts (1), Selevse E. Selayl (1), Melita Samwely (1), Warwick H. H. Sauer (1), Sarah Stacey (1), Michael Stacey (1), Stuart C. Ander (1), C. J. Paul (2), Luiz J. da Silva (1)
Nine priority future Decade Actions

The extensive stakeholder engagement process culminated in the identification of nine priority future Decade Actions. These are:

• Sustainable Ocean Management in Africa
• Ocean and Human Health in Africa
• Unlocking the Blue Carbon Potential of Africa
• Fisheries and Illegal, Unreported and Unregulated (IUU) Fisheries in Africa
• Strengthening Multi-hazard Early Warning Systems and Community Resilience
• Ocean Observations and Forecasting Systems for Africa
• Digital Twin for Africa - Establishing an African Ocean Knowledge Hub
• Strengthening capacities and skills of African Early Career Ocean Professionals (ECOPs)
• Regional Ocean Literacy Programme for Africa