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

Plenary session #2

Ecosystem Conservation

Louis Celliers

Coastal & ocean scientist
Climate Service Center Germany (GERICS)

5th Symposium | Accra, Ghana | 24 – 28 October 2022

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

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

GEO Blue Planet 5th Symposium

24 - 28 Oct 2022 | Accra, Ghana

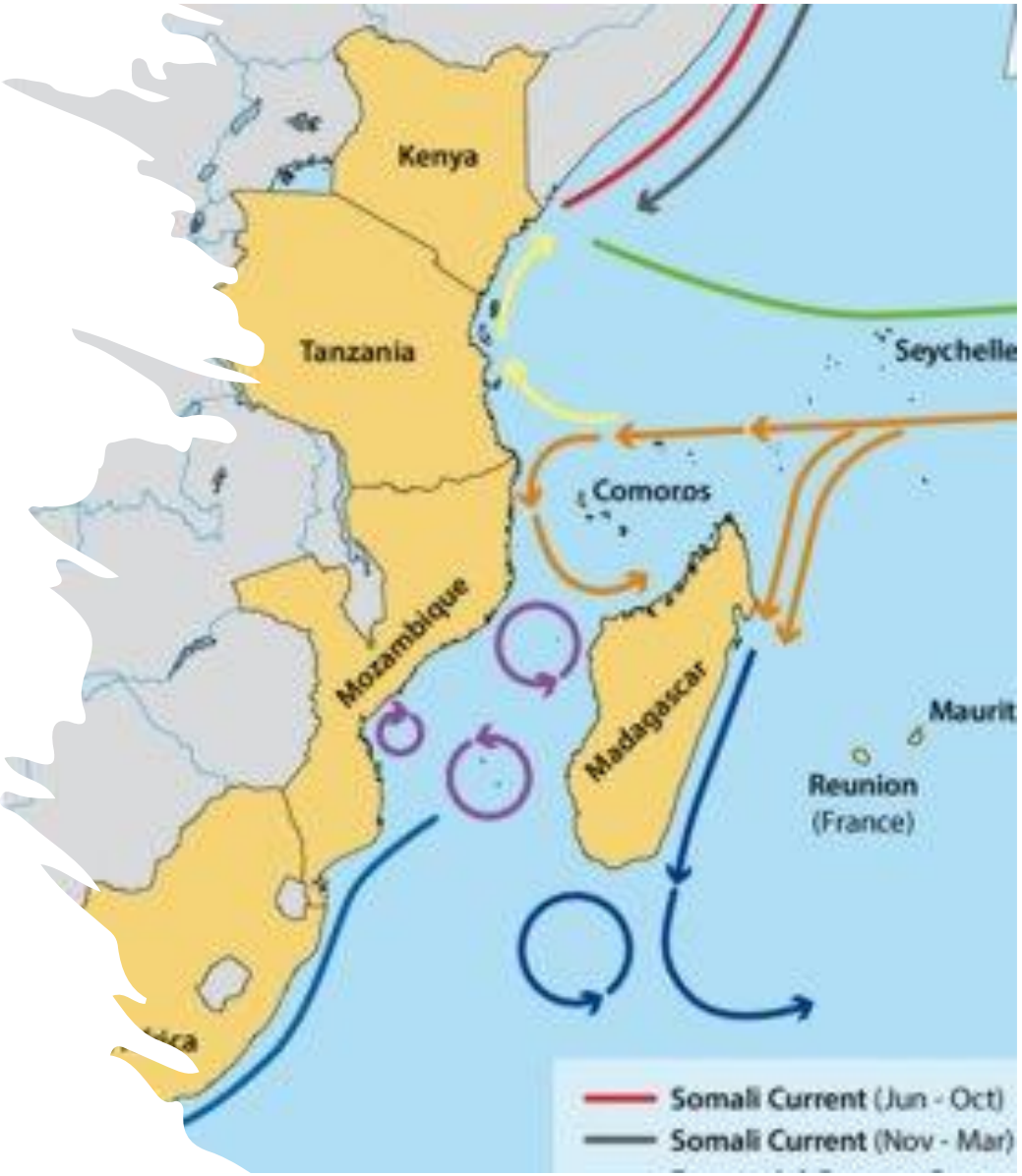
Local action in support of global traction

STRENGTHENING THE BLUE ECONOMY OF THE WESTERN INDIAN OCEAN THROUGH MARINE SPATIAL PLANNING AND INTEGRATION OF ECOSYSTEM SERVICES

Supported by:
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
based on a decision of the German Bundestag
The Nature Conservancy
UN environment programme
WIOMSA
WWF KENYA
Nairobi Convention

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

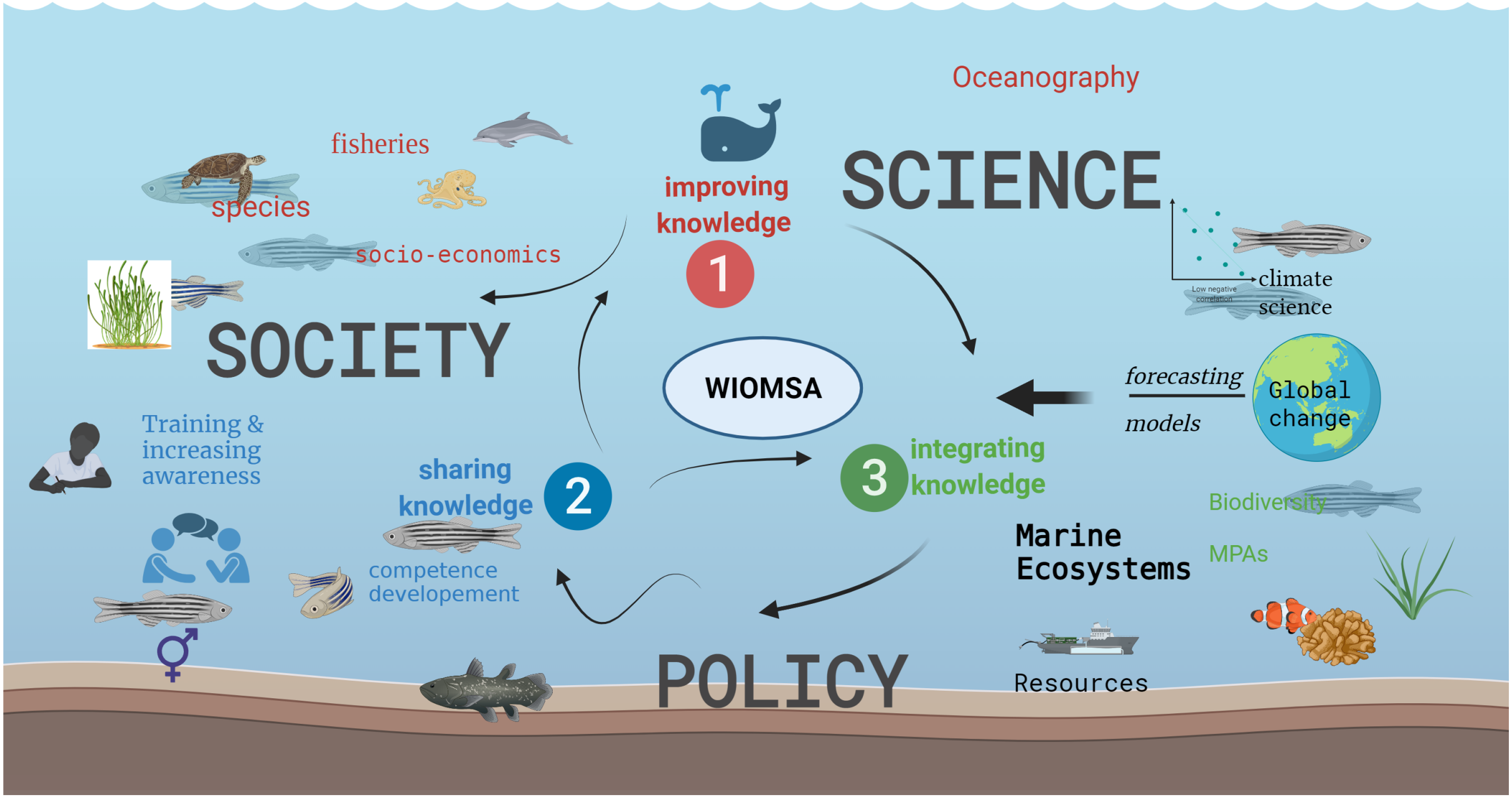
Promoting regional collaboration in marine science

WIOMSA

Coasts Ocean and People

WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION

WIOMSA in a nutshell



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

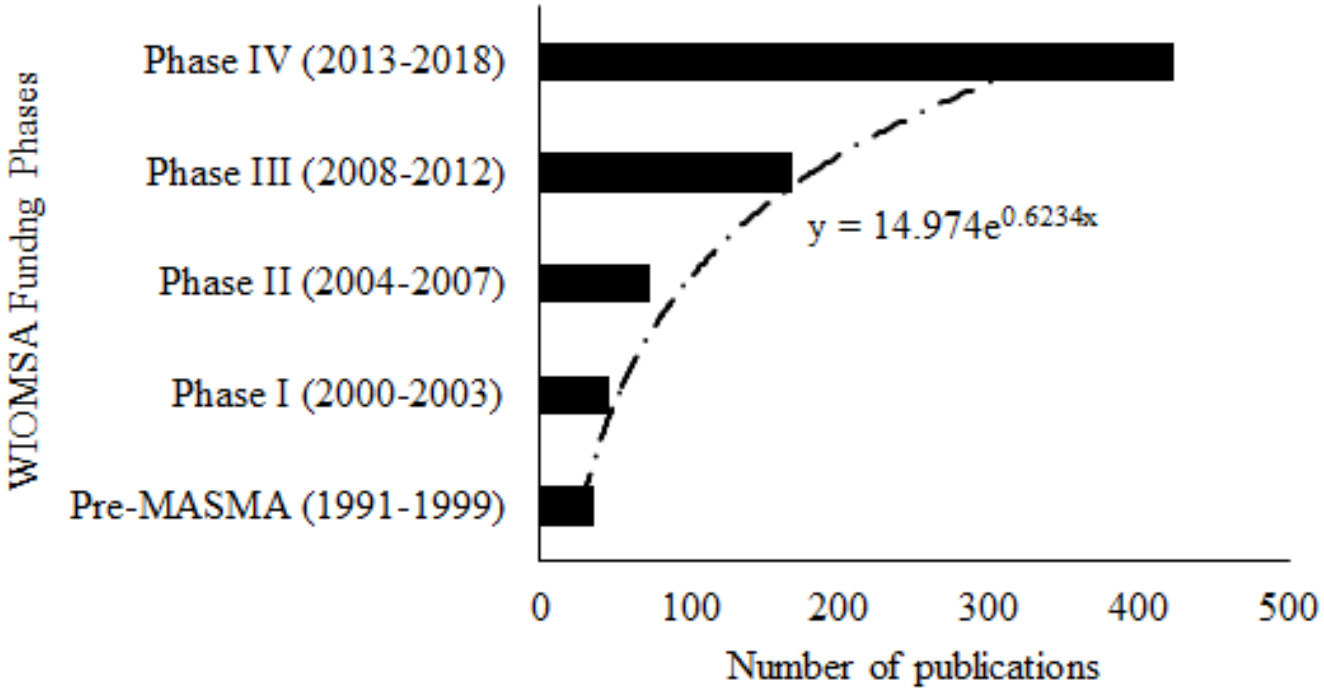
Science to improve knowledge

- Research grants
- Commissioned research
- Knowledge synthesis
- Regional status reports

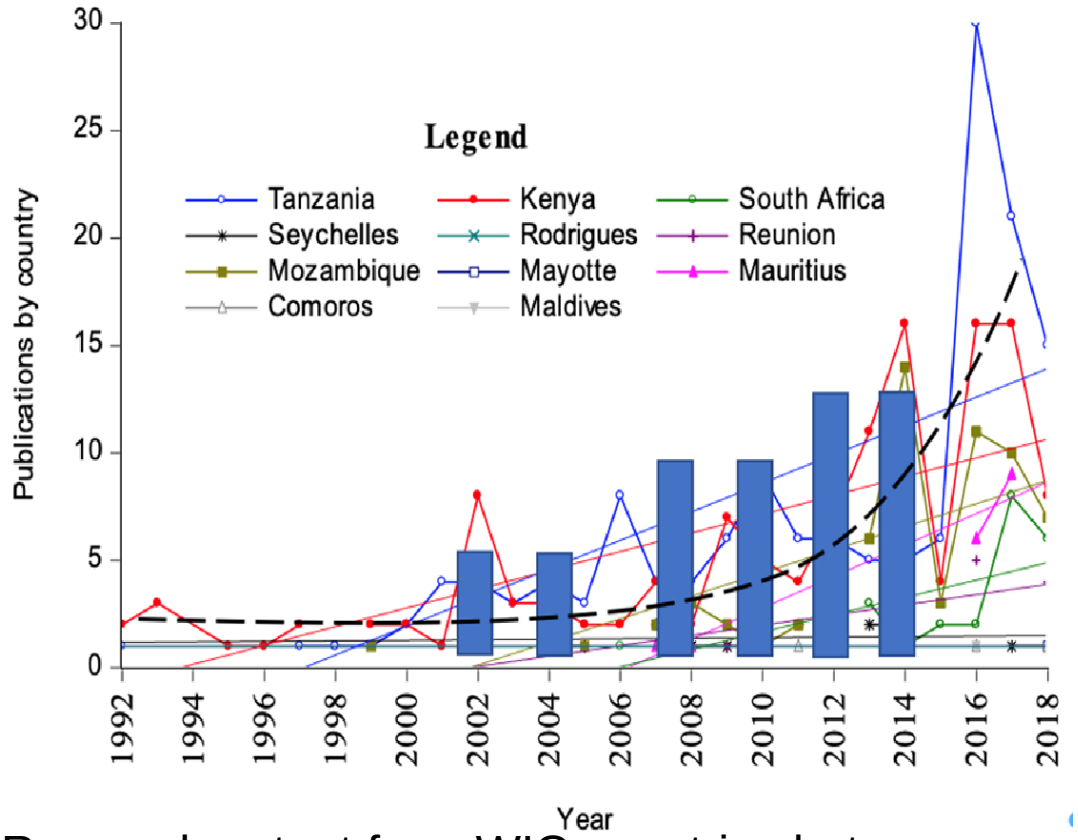
Integrating knowledge

Science – Policy Platform
Science –Policy series
Policy briefs
Science to the Nairobi Convention

Research output



Trends in WIO Publications during the distinct phases. Source (WIOMSA) 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.



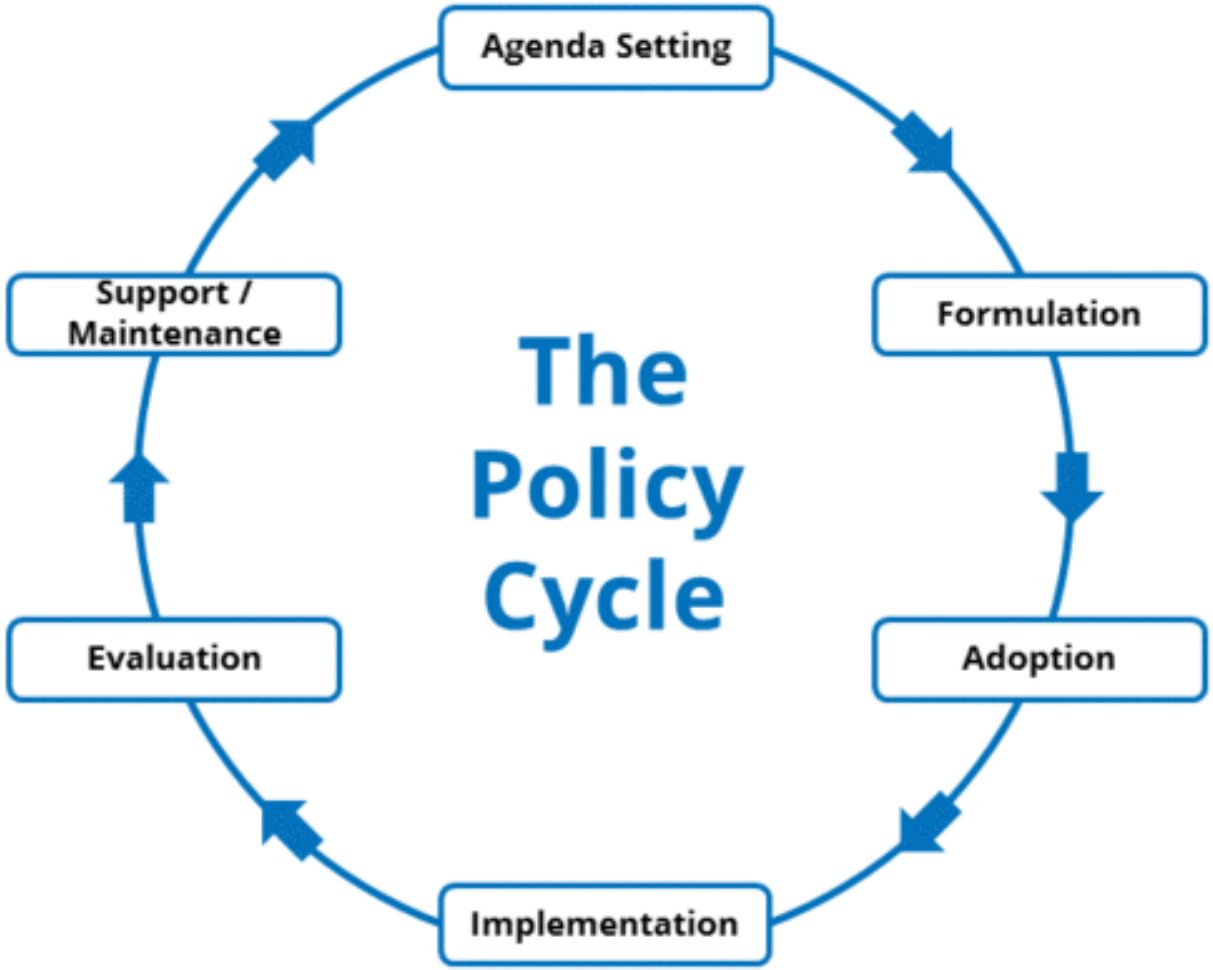
Research output from WIO countries between 1992 and 2018 (trendline showing cumulative increase)

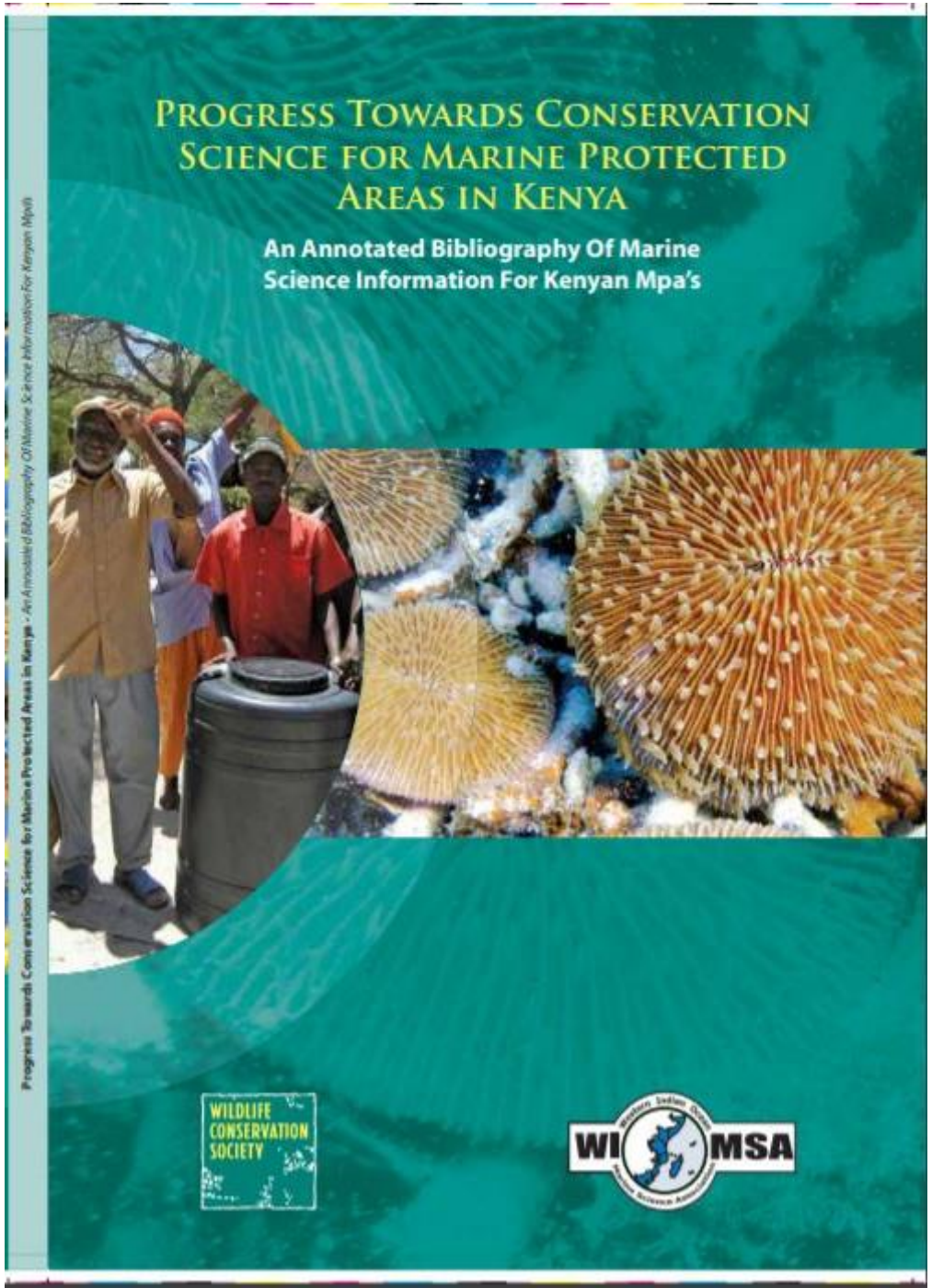
The problem…faced by ecosystem managers

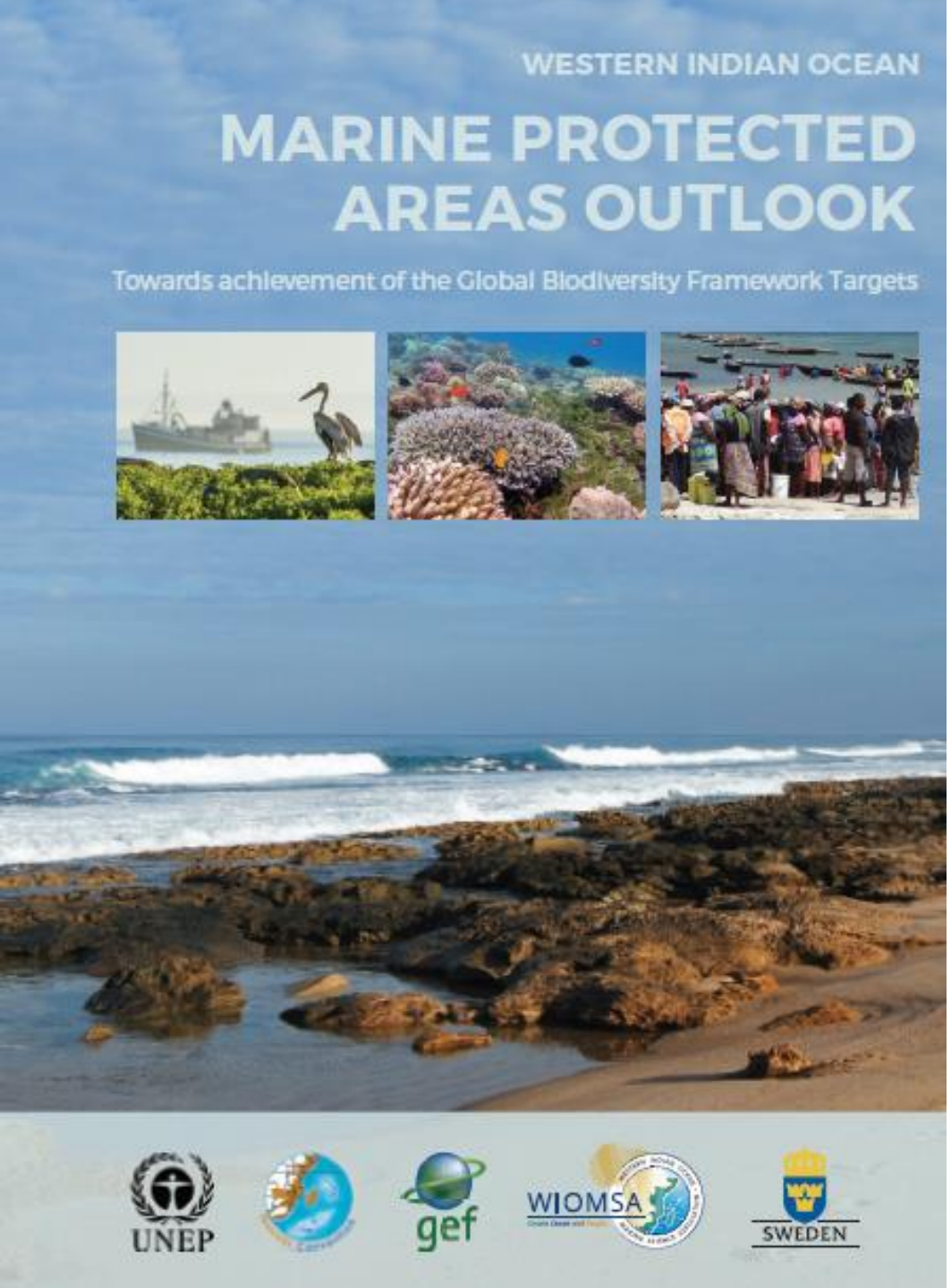
Data, Information and Knowledge is required at different levels

Strategic – science-policy

Scientific input



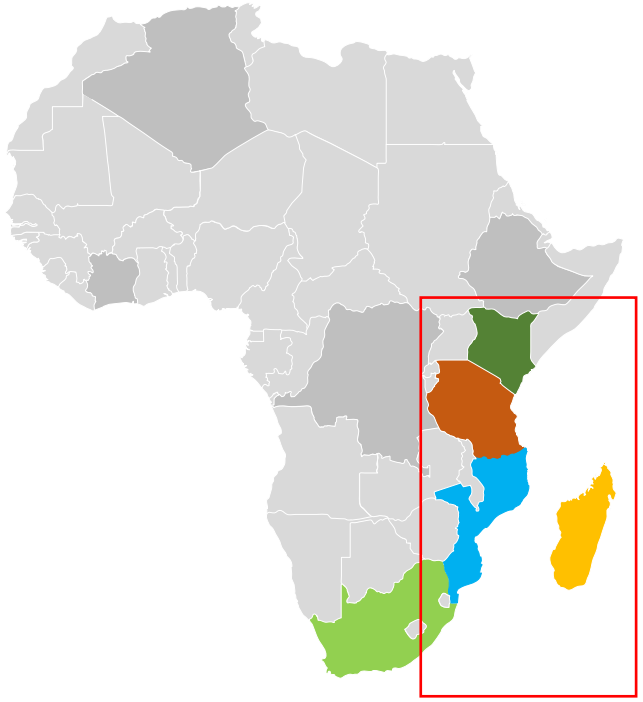




Western Indian Ocean Marine Protected Areas Outlook:

Towards achievement of the Global Biodiversity Framework Targets

Regional MPA Network



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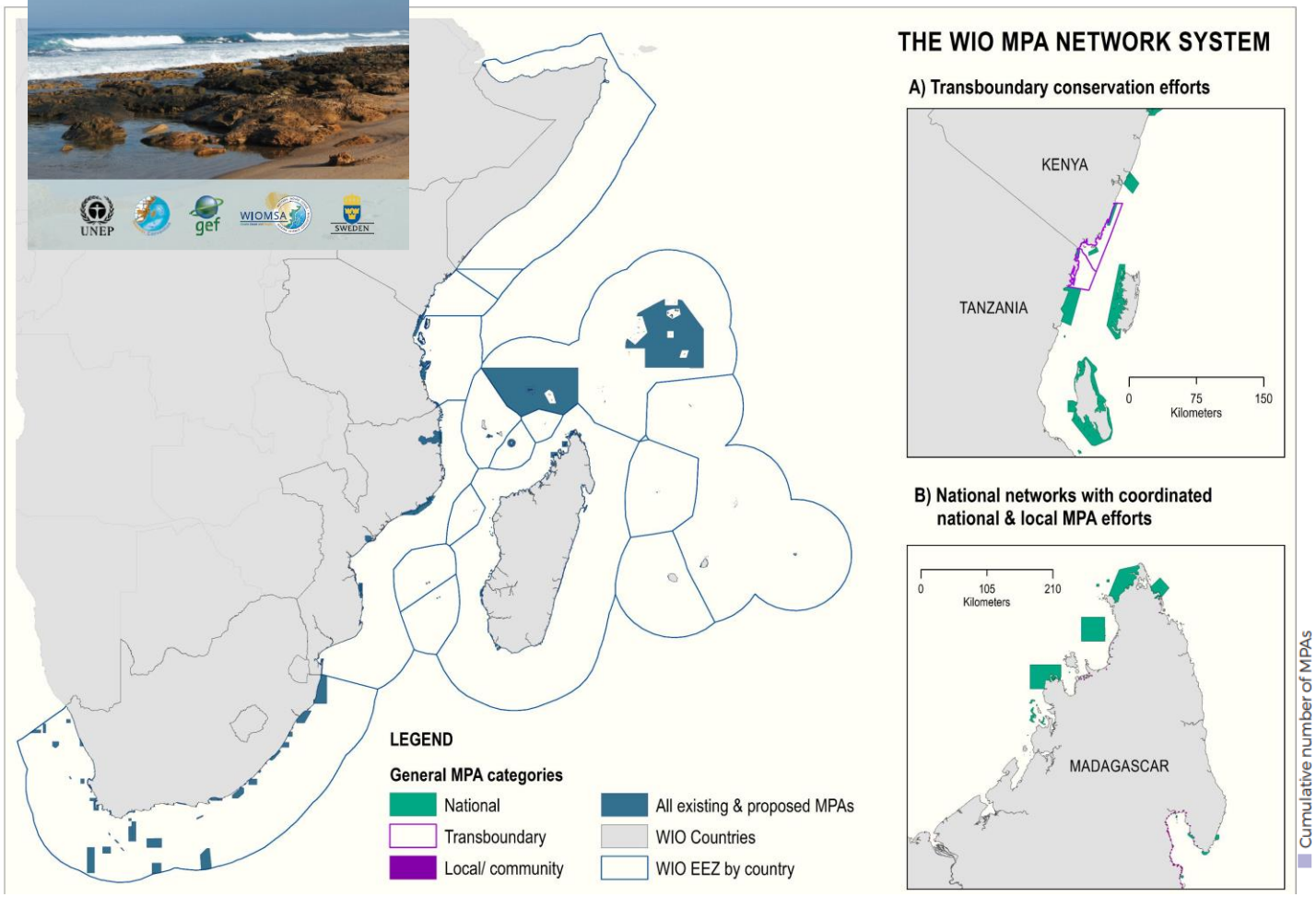
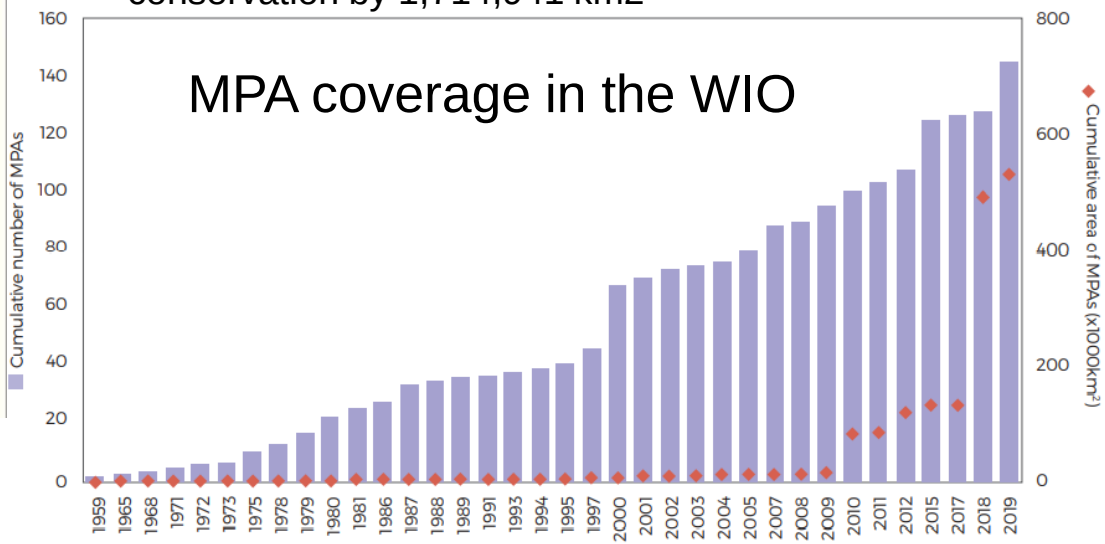
Status of MPAs in the WIO



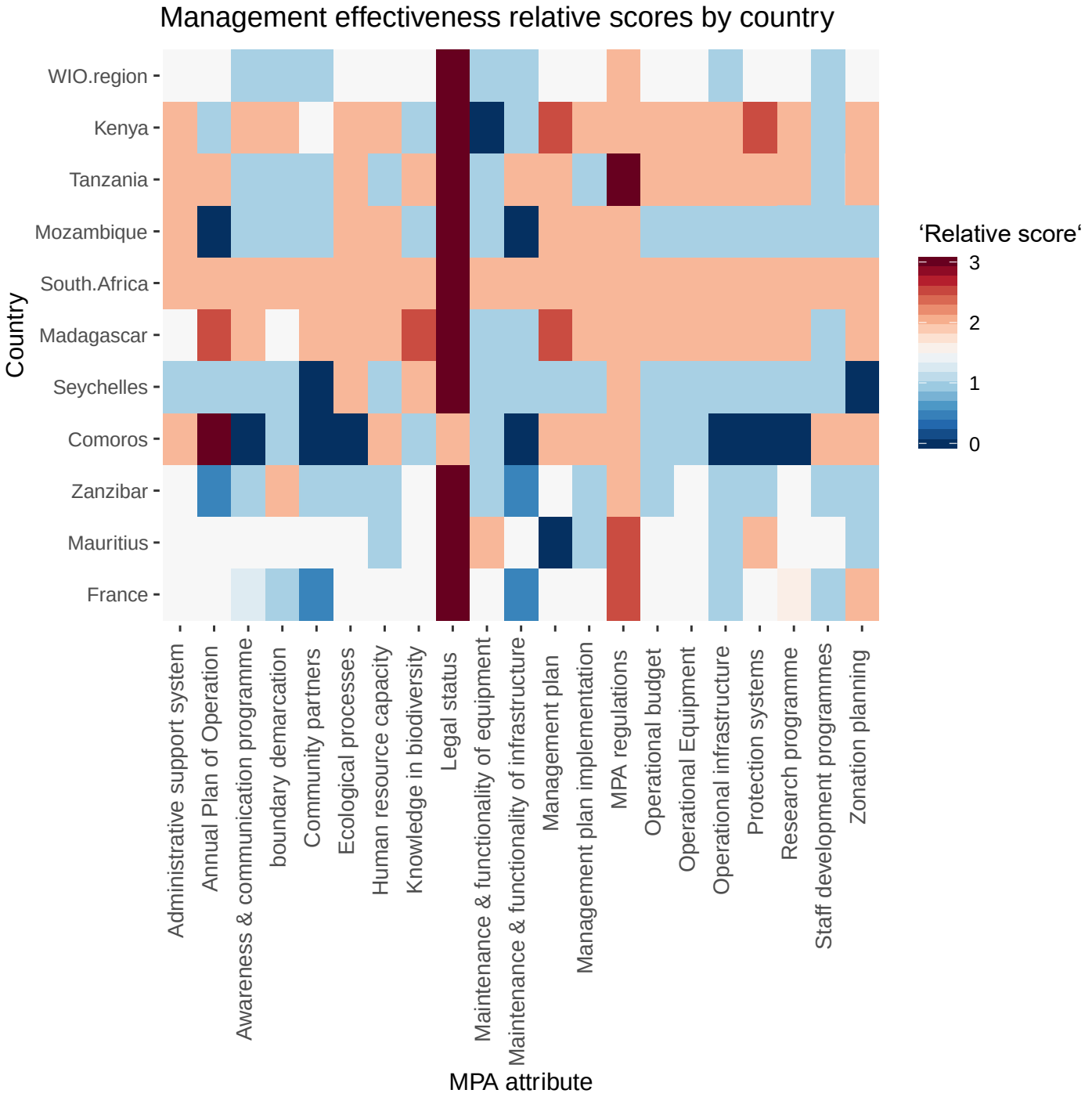
- WIO MPA outlook report- outlines WIO performance in relation to the Aichi Target 11 and Sustainable Development Goal 14
- By 2019 - 143 MPAs and 173 locally-managed marine areas in the WIO reported by 9 countries
- Represents the protection of ~678 000km2 or 8.5 percent of the combined EEZ
- Currently, 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



Tuda et al, 2021 – WIO MPAs

Management Effectiveness Assessment in 2019

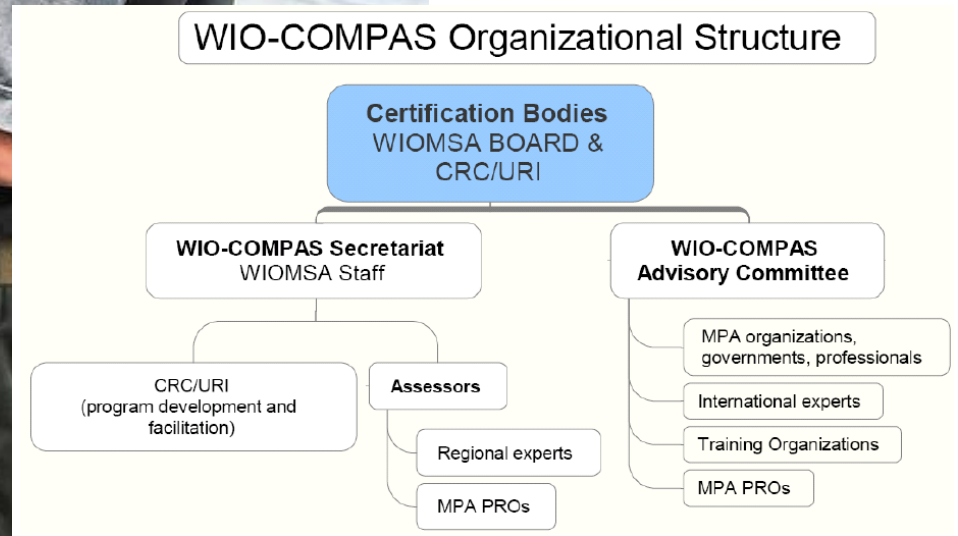
- Legislative and institutional frameworks that support the establishment and management of MPAs exist in every country.
- Weak administrative and support systems.
- Implementation of regulations
- Shortfalls in financial and personnel capacity
- Lack of clarity on park boundary leading to compliance issues
- Lack of science--driven management decision support system
- Operations and equipment
- Boundary plans and their implementation
- Low staffing levels and competences – e.g. enforcement



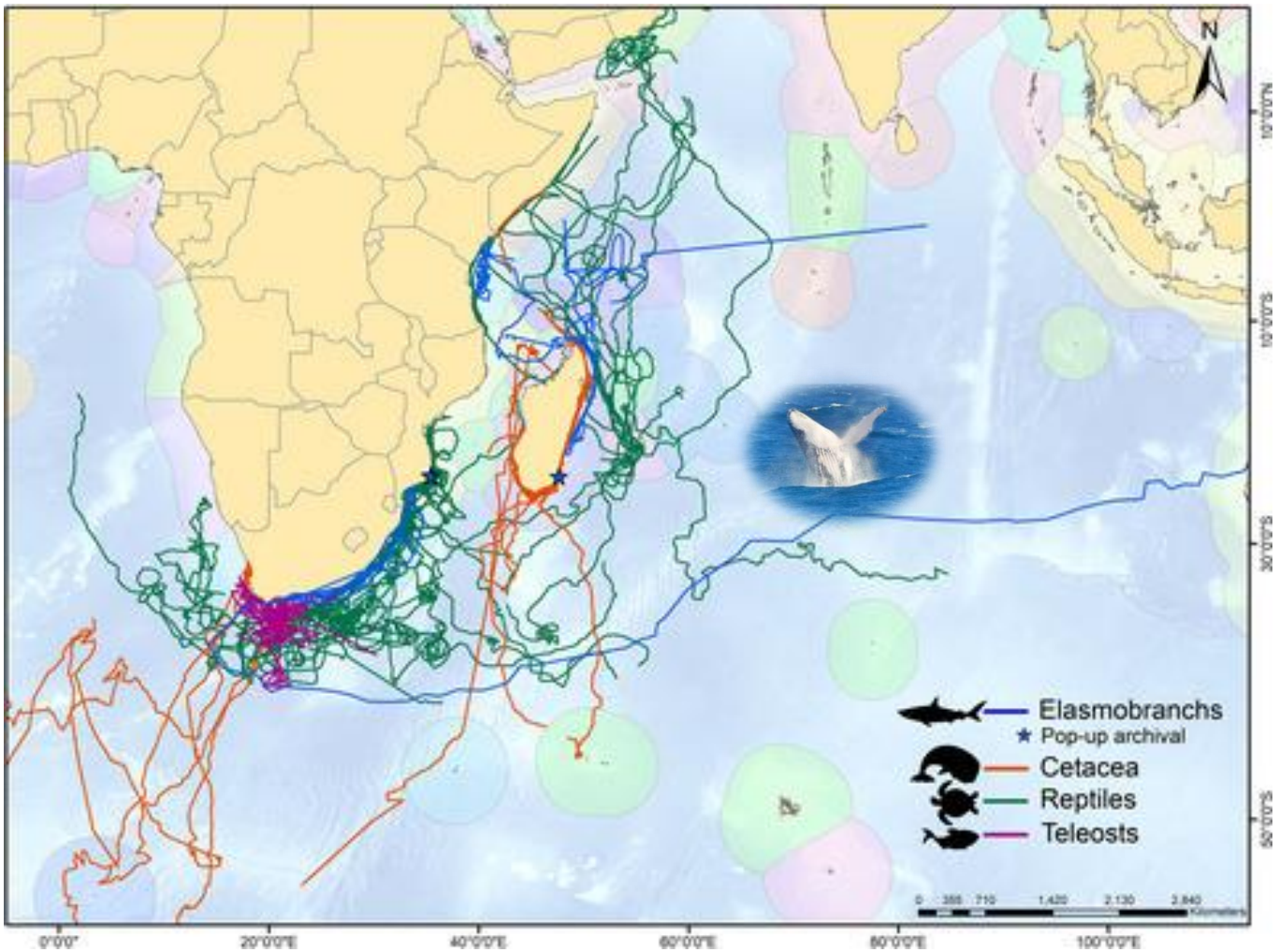
WIOMSA supporting capacity development of marine resource managers

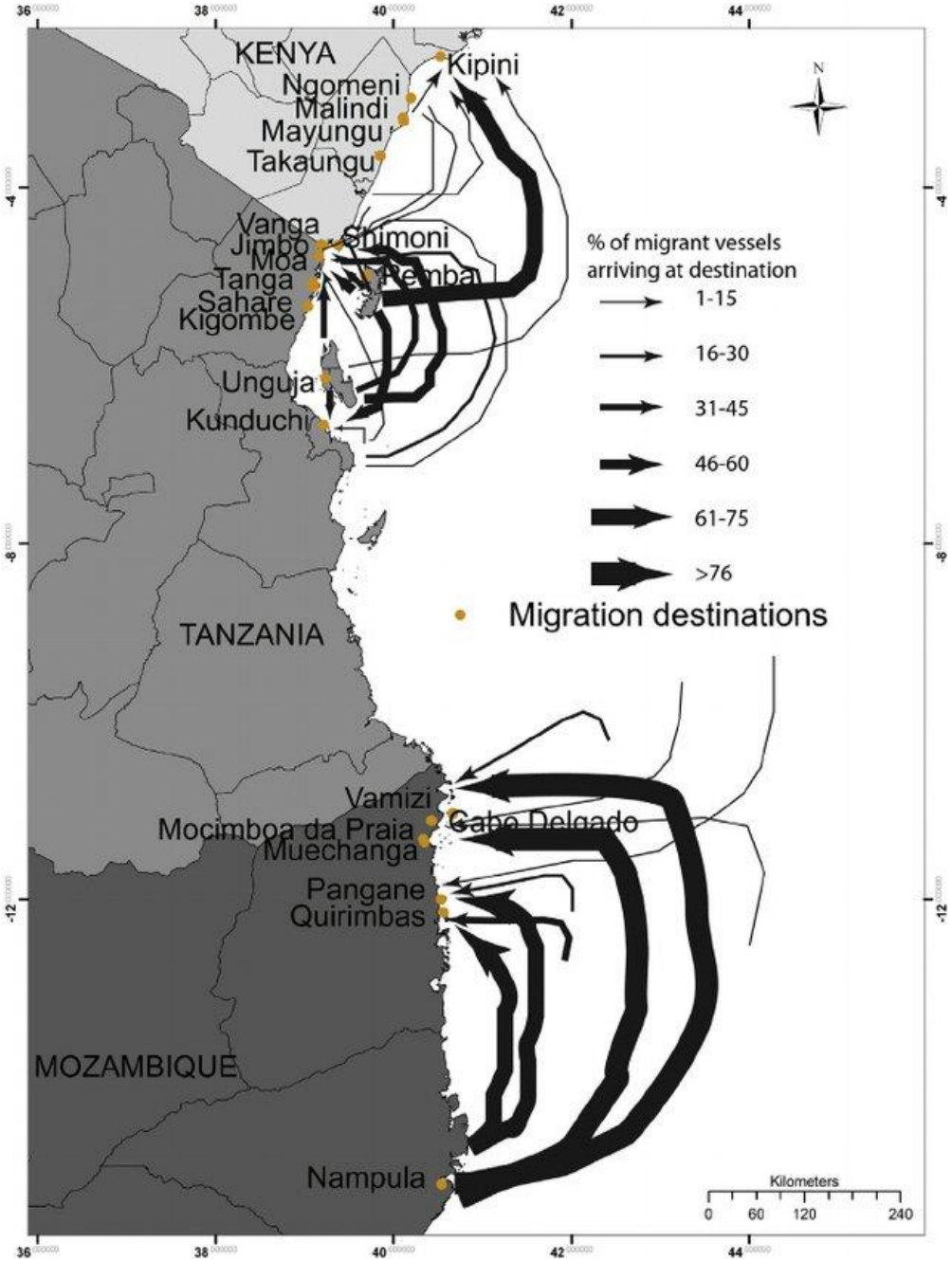
- WIOMSA supporting training of MPA managers

https://www.wio-compas.org/



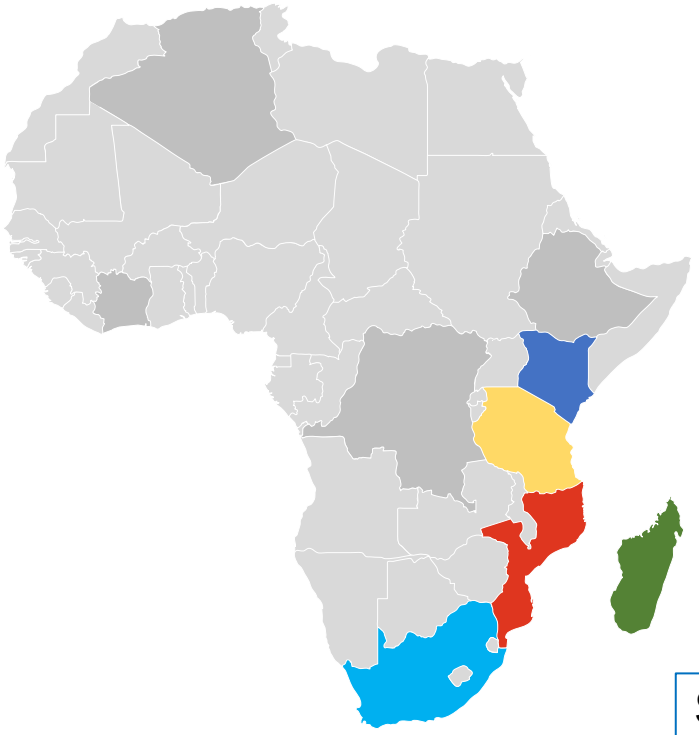
Transboundary marine conservation





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)

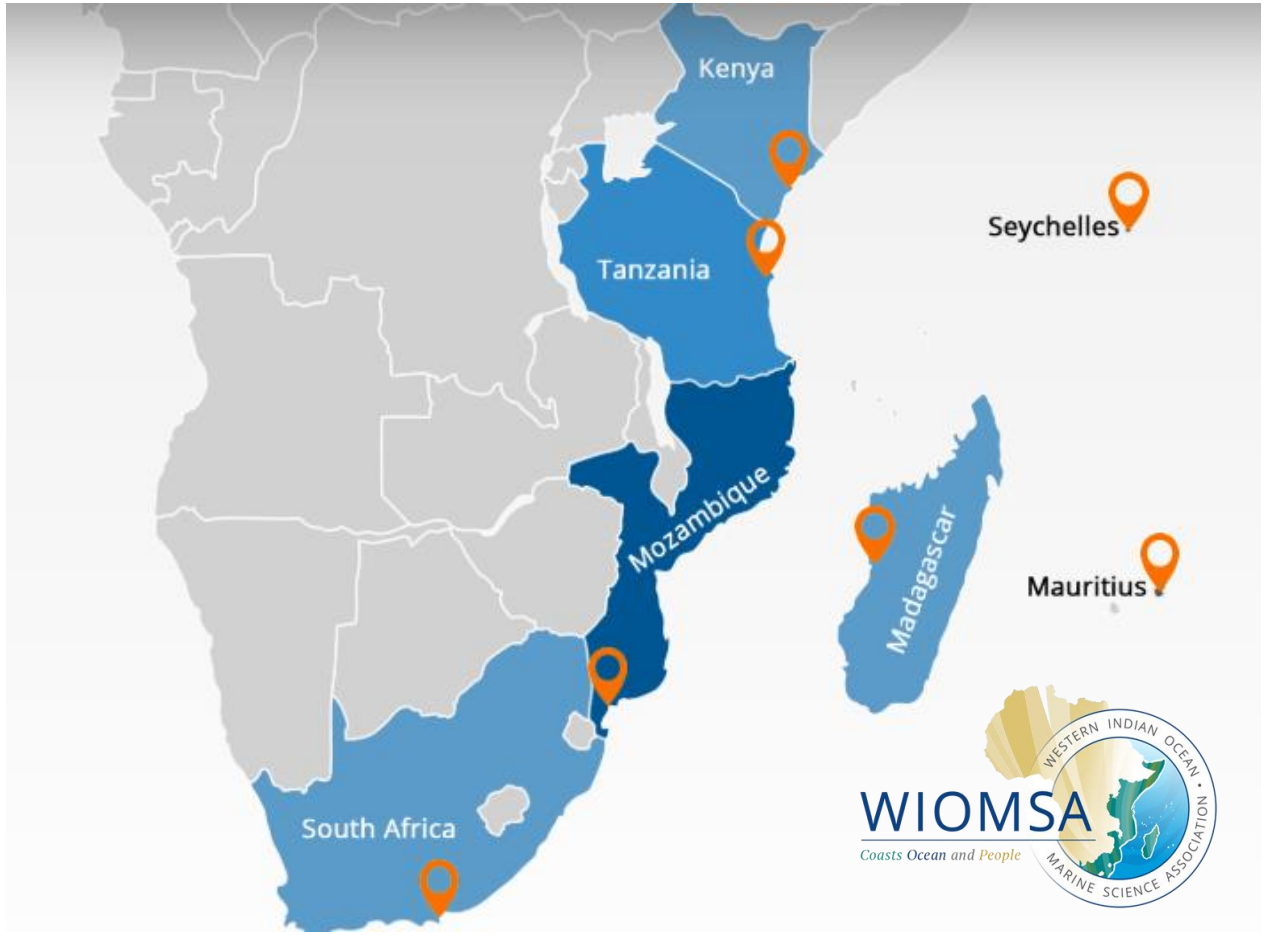
Success

- 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

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EO needs for regional ecosystem management

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frontiers in Marine Science

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

J. C. Hermes[1,2]*, Y. Masumoto[3,4], L. M. Beal[5], M. K. Roxy[6,7], J. Vialard[8], M. Andres[9], H. Annamalai[10], S. Behera[4], N. D'Adamo[11], T. Doi[4], M. Feng[12], W. Han[13], N. Hardman-Mountford[14], H. Hendon[15], R. Hood[16], S. Kido[3], C. Lee[17], T. Lee[18], M. Lengaigne[8], J. Li[19], R. Lumpkin[20], K. N. Navaneeth[21], B. Milligan[22], M. J. McPhaden[7], M. Ravichandran[23], T. Shinoda[24], A. Singh[25], B. Sloyan[12], P. G. Strutton[26,27], A. C. Subramanian[28], S. Thurston[18], T. Tozuka[3], C. C. Ummenhofer[9], A. S. Unnikrishnan[29], R. Venkatesan[21], D. Wang[30], J. Wiggert[31], L. Yu[9] and W. Yu[32]

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Short Communication

Earth observation and coastal climate services for small islands

Lena Rölfer*, Gundula Winter, María Máñez Costa, Louis Celliers

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Ocean and Coastal Management

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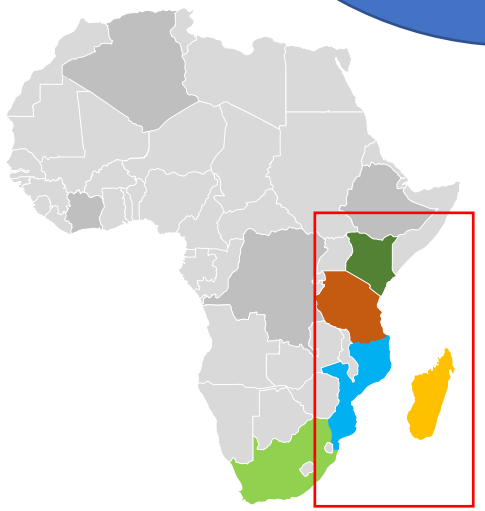
The small pelagic fishery of the Pemba Channel, Tanzania: What we know and what we need to know for management under climate change

Baraka Sekadende[a], Lucy Scott[b], Jim Anderson[c], Shankar Aswani[d], Julius Francis[e], Zoe Jacobs[f], Fatma Jebri[f], Narriman Jiddawi[g], Albogast T. Kamukuru[h], Stephen Kelly[f], Hellen Kizenga[g], Baraka Kuguru[a], Margareth Kyewalyanga[g], Margaux Noyon[i], Ntahondi Nyandwi[g], Stuart C. Painter[f], Matthew Palmer[f], Dionysios E. Raitsos[j,1], Michael Roberts[f,i], Sévrine F. Sailley[j], Melita Samoilys[k], Warwick H.H. Sauer[d], Salome Shayo[a], Yohana Shaghude[g], Sarah F.W. Taylor[f], Juliane Wihsgott[f], Ekaterina Popova[f,*]

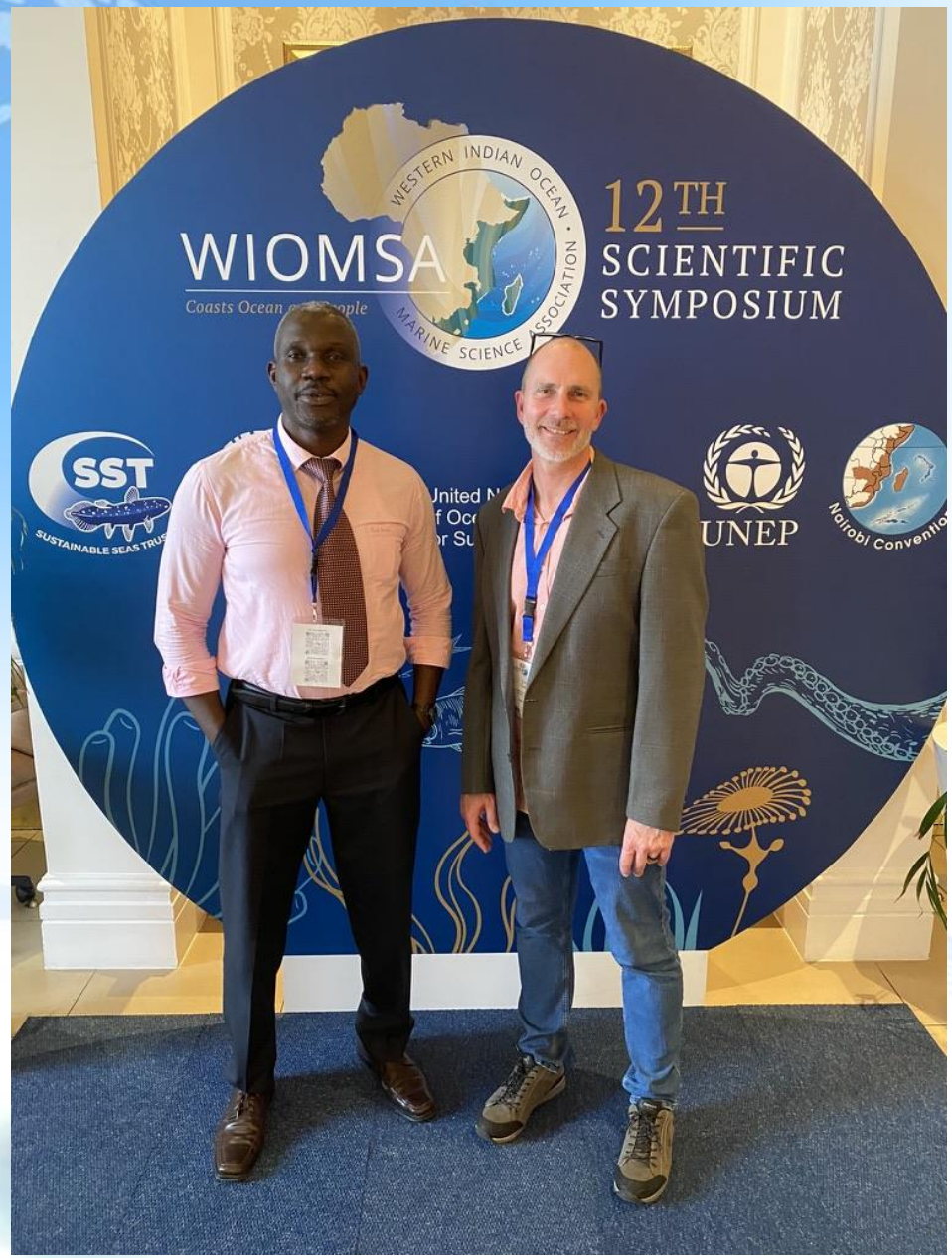
Improve the understanding of the regional network of **organisations, providers and networks** that support FAIR EO data and information at different levels

Develop a regional concept of FAIR and nested EO **data and information** in support 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.



THANK YOU



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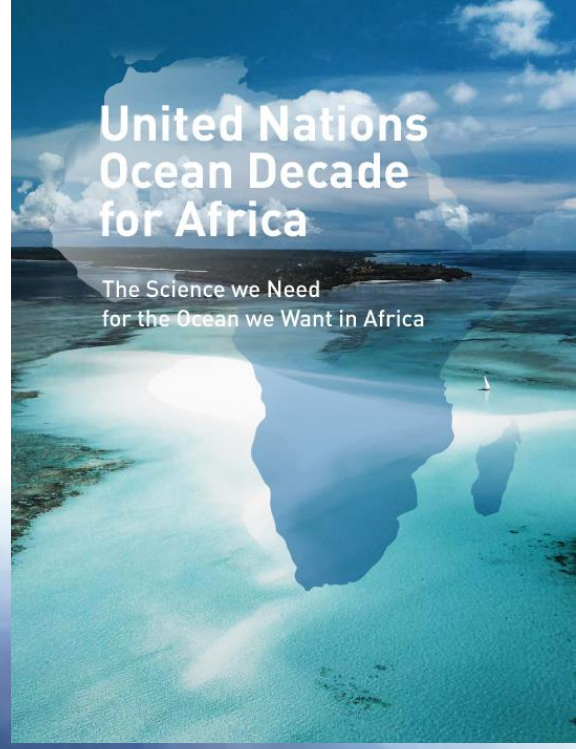

Nine priority future Decade Actions

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