MASPAWIO

A collaborative project for supporting MSP development in Western Indian Ocean
A project managed by IUCN
A project implemented in collaboration with CORDIO

A seed-money / pilot project
Aiming at
➢ fostering regional cooperation on MSP
  and
➢ supporting Nairobi Convention and its Parties

Drawn up on interconnectivity and common needs

Driven by a partnership and collaborative approach
MASPAWIO Objectives / Activities

- Supporting Nairobi Convention and its Parties
- Thinking MSP beyond the borders & fostering regional cooperation
- Sustainable Blue economy - Agenda 2030

- Mapping /Atlas with available data
- Integrating connectivity
- Modelling connectivity evolution
- Co-defining orientations

www.maspawio.net
Combining data: integrated vision
Protected Areas - EBSA - Commercial shipping - Oil & Gas activities

**LEGEND:**

- Protected areas
- Polygon locations
  - Marine Protected Area
  - Locally Managed Marine Area
- Point locations
  - Marine Protected Area
  - Locally Managed Marine Area

**Ecologically or Biologically Significant Marine Areas**

- EBSA

**Commercial shipping**

- Commercial shipping

**Oil and Gas activities**

- Planned Wells

**Contracts status**

- Open
- Under negotiation
- Application
- Pre-award
- Force Majeure
- Contract

**DATA SOURCES:**

- MPAs - LMMAs: Compiled from various sources including the World Database of Protected Areas (WDPA)*, local agencies and personal knowledge.
- *IUCN and UNEP-WCMC (2015), The World Database on Protected Areas (WDPA) [On-line], Cambridge, UK: UNEP-WCMC. Available at: www.protectedplanet.net.
- Convention on Biological Diversity. URL: https://www.cbd.int/ebsa/
- ALES (2015). Global Drilling Info. USGS. Restricted for WWF use only. Data were downloaded on May 26, 2015.

**Author : E. Crochelet - Date: 12/2015 - Map n° MSP-2**
Protected Areas - EBSA - Commercial shipping - Oil & Gas activities - Fisheries

LEGEND:
Protected areas
Point locations
- Marine Protected Area
- Locally Managed Marine Area
Polygon locations
- Marine Protected Area
- Locally Managed Marine Area

Ecologically or Biologically Significant Marine Areas

Commercial shipping
- Commercial shipping

Monthly catches of tropical tunas:
Thunnus alalunga, Thunnus obesus
Katsuwonus pelamis
0 +1000 metric tons

Statistical unit 1° square
Purse seiner - All fishing mode

Oil and Gas activities
- Planned Wells
Contracts status
- Open
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IOTC Secretariat database (2014).

Author: E. Crocelet - Date: 12/2015 - Map n° MSP-2
Reefs by Integrated Local and Global Threats in 2050

**LEGEND:**

Coral reefs classified by integrated local and global (climate-related) threats in 2050

- **Low**
- **Medium**
- **High**
- **Very High**
- **Critical**

*Local threats include: coastal development, overfishing and destructive fishing, marine-based pollution and damage, and freshwater-based pollution. Global threats include: thermal stress (ocean warming) and ocean acidification.*

**DATA SOURCES:**

World Resources Institute, Reefs at Risk Resilience, 2011.

Author: E. Crockett – Date: 12/28/15 – Map n° MF-9.5-3

[Logos for IUCN, af, East Africa, and CORDIO]
Marine connectivity patterns and habitat degradation scenarios
Regional connectivity in the Indian Ocean

BETWEENNESS CENTRALITY

7 reefs: Occurrences = 4 → the most important for multigenerational connectivity within the WIO.

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“Occurrences” ranges from 0-5 and gives the number of PLDs for which each reef’s betweenness centrality score was higher than the mean for that PLD.
Hydrodynamic connectivity model

Eulerian advection-diffusion algorithm

Lagrangian advection-diffusion algorithm
+ HABITAT DEGRADATION SCENARIOS

Exploratory assessment of different scenarios concerning habitat degradation consequences on coral reef ecosystems connectivity patterns, to better inform planning, management of coastal and marine resources and conservation measures.

Habitat degradation:
- 20%
- 50%
- 70%
- 90%
Habitat deterioration V/s conservation efforts

- Only 15% of highly impacted reefs with MPAS
- Still a lot to do!
Applying an Ecosystem Approach to Fisheries Management in the High Seas
Seamounts Project

An Ecosystem Approach to Management of Seamounts in the Southern Indian Ocean

SEAMOUNTS
Mountains of Life

PLANKTON produces more than 50% of the O2 we breathe, and is the primary producer for all life in the oceans.

HYDROTHERMAL VENTS support ecosystems which don't need light to live, and use the heat of the Earth's core to thrive.

They are considered one of the possible origins of life on Earth.

NEEDS
Research, management and protection of these structures.
A high seas governance framework.

A LOT REMAINS TO BE DISCOVERED about these mysterious underwater wonders.

UNIQUE SPECIES
Intensive fishing and trawling.
Future mining activities.

FISH, APED PREDATORS, MARINE MAMMALS

FEEDING AND NAVIGATING through the vast oceans.

UNPAIRED WILDLIFE
1. Improve scientific understanding and capacity for monitoring, assessment and analysis of high seas biodiversity and fisheries around seamounts

2. Enhance governance frameworks for high seas resources conservation and management
3. Identify options for conservation and management measures applicable to high seas areas in the southern Indian Ocean

4. Learning, awareness raising and knowledge sharing
IUCN Seamounts project
Conservation and sustainable exploitation of seamount and hydrothermal vent ecosystems of the South West Indian Ocean in areas beyond national jurisdiction

Reinforce existing ABNJ frameworks, develop regional capacities and partnerships.
Assess the feasibility of an extension to the Nairobi convention in ABNJ.
Support the first developments of SIOFA.
Propose a management plan for Walters Shoal using marine spatial planning.
Propose MPA networks in the regional ABNJ with enforcement strategy.
Share experiences among regional and international scientific and international institutions. Some of this will include the publication of a roadmap directing future efforts.
Evaluate possible financial tools to benefit conservation and management.