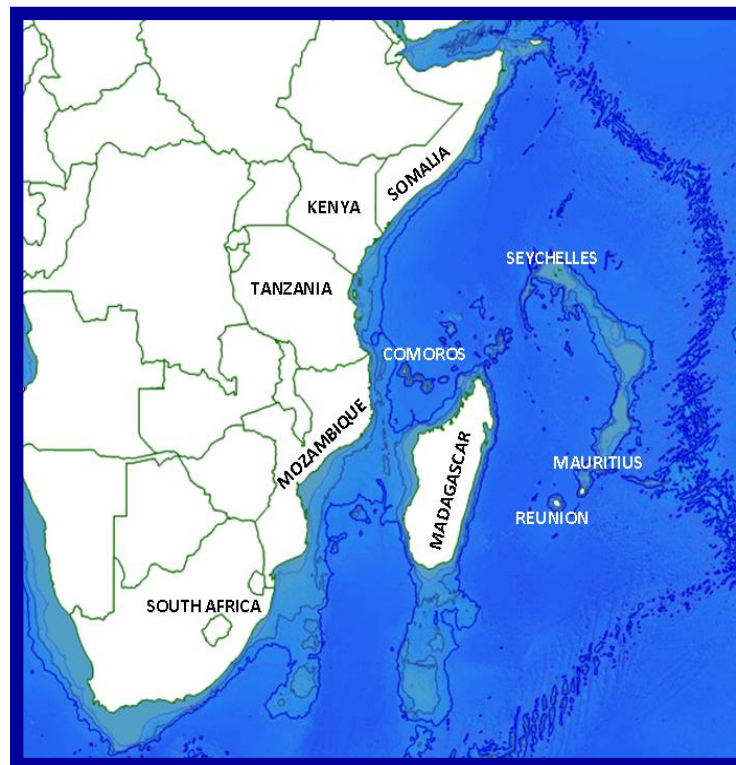


Marine Science in the Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project



Lucy Scott

Large Marine Ecosystems

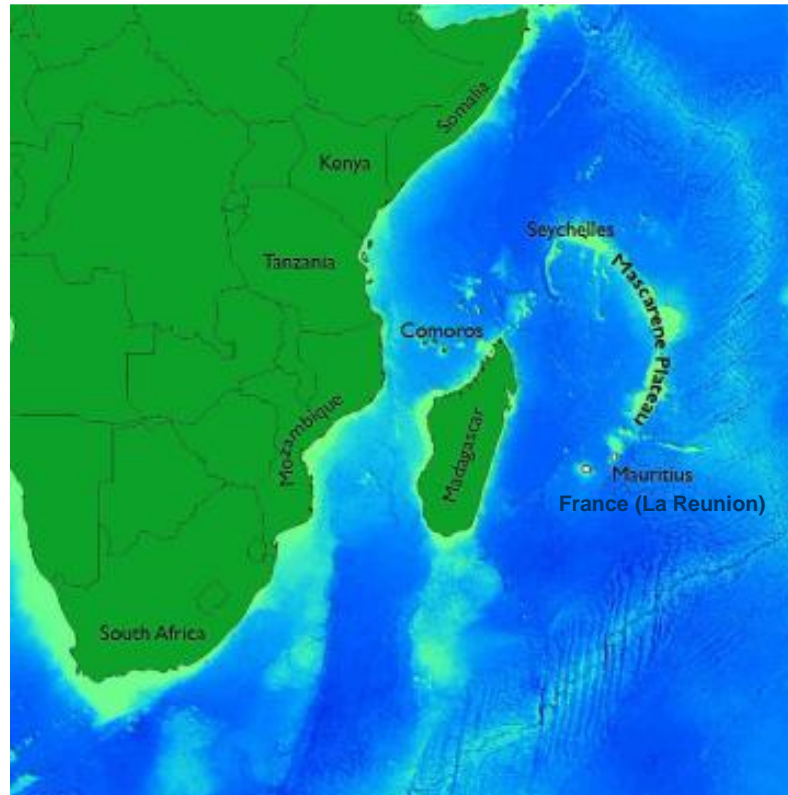
BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES



The Agulhas and Somali Current and Mascarene region are three Large Marine Ecosystems (LMEs) situated off the east coast of Africa. These LMEs and their adjacent seas are very closely linked ecologically and culturally, and are referred to collectively as the western Indian Ocean (WIO) region. The region covers approximately 22.3 million square kilometres.

Agulhas and Somali Currents Large Marine Ecosystem (ASCLME) Project

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES



- Somalia
- Kenya
- Tanzania
- Mozambique
- South Africa
- Comoros
- Madagascar
- Seychelles
- Mauritius
- (France)

2008-2014

Identifying a Baseline and System Boundary:

You cannot manage what you don't understand

Impacts and Causes:

Agreeing on the main threats to the ecosystem, its living resources and the communities

Monitoring:

Adopting appropriate indicators of change - You cannot adapt to change unless you can recognise and measure change

Science-to-Governance:

Developing a mechanism for translating the outputs from monitoring into policy and management level guidelines

Cooperative Management:

Implementing a collaborative Strategic Action Programme through an alliance of partnerships

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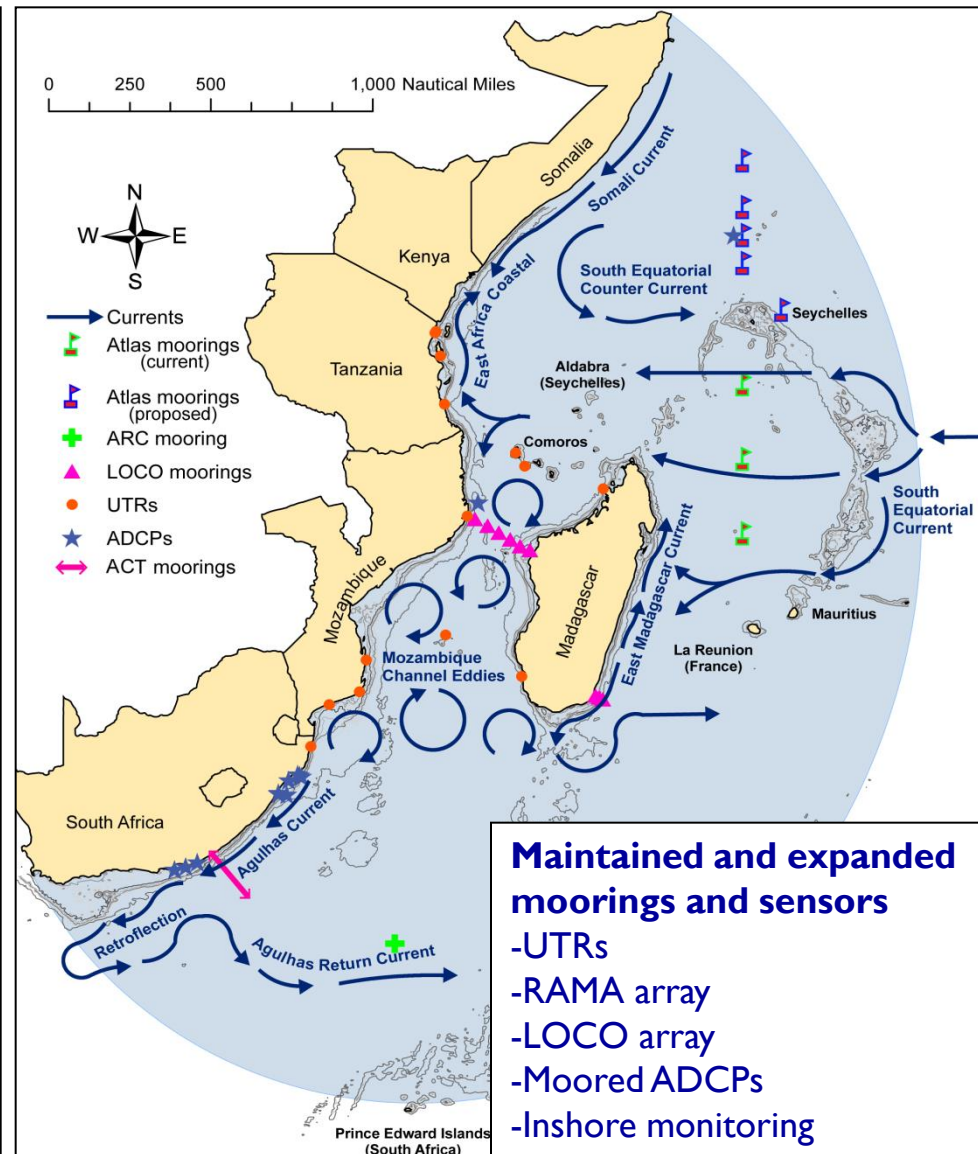
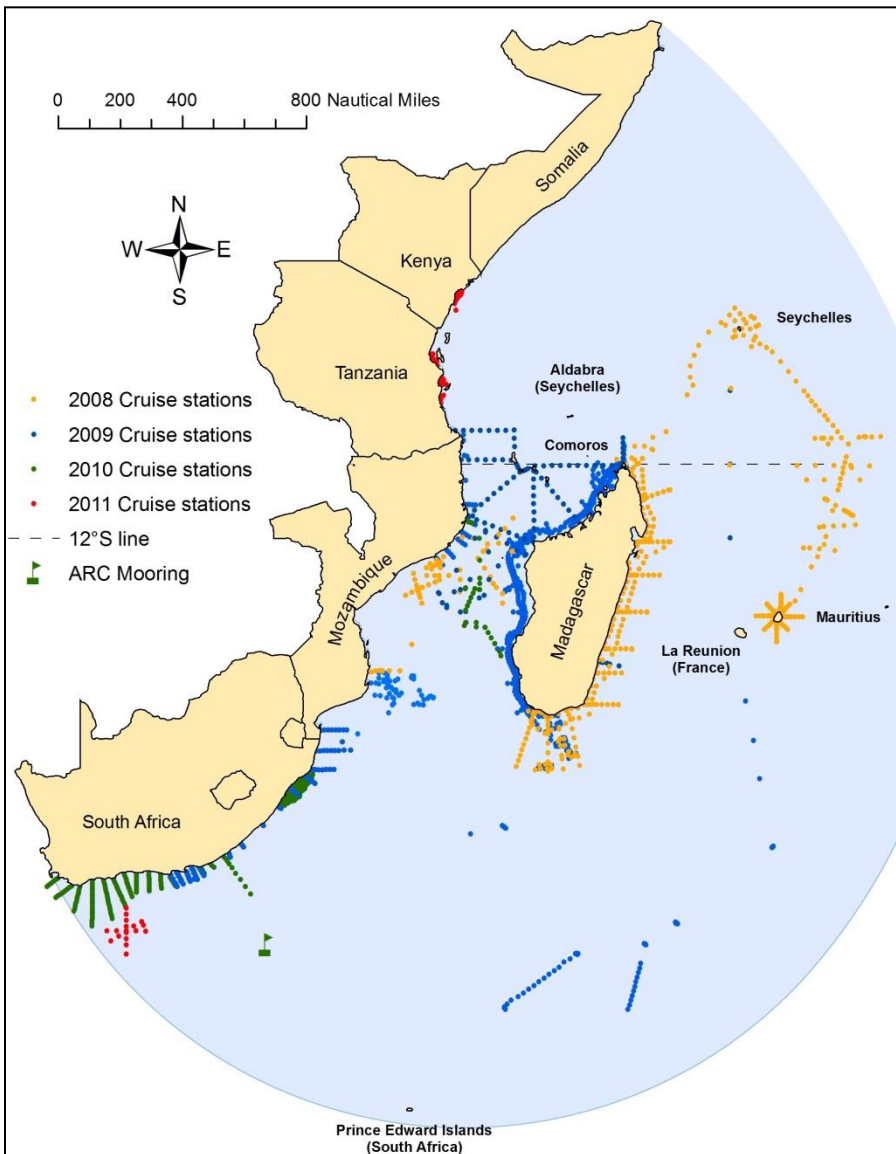
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Cooperative Management:

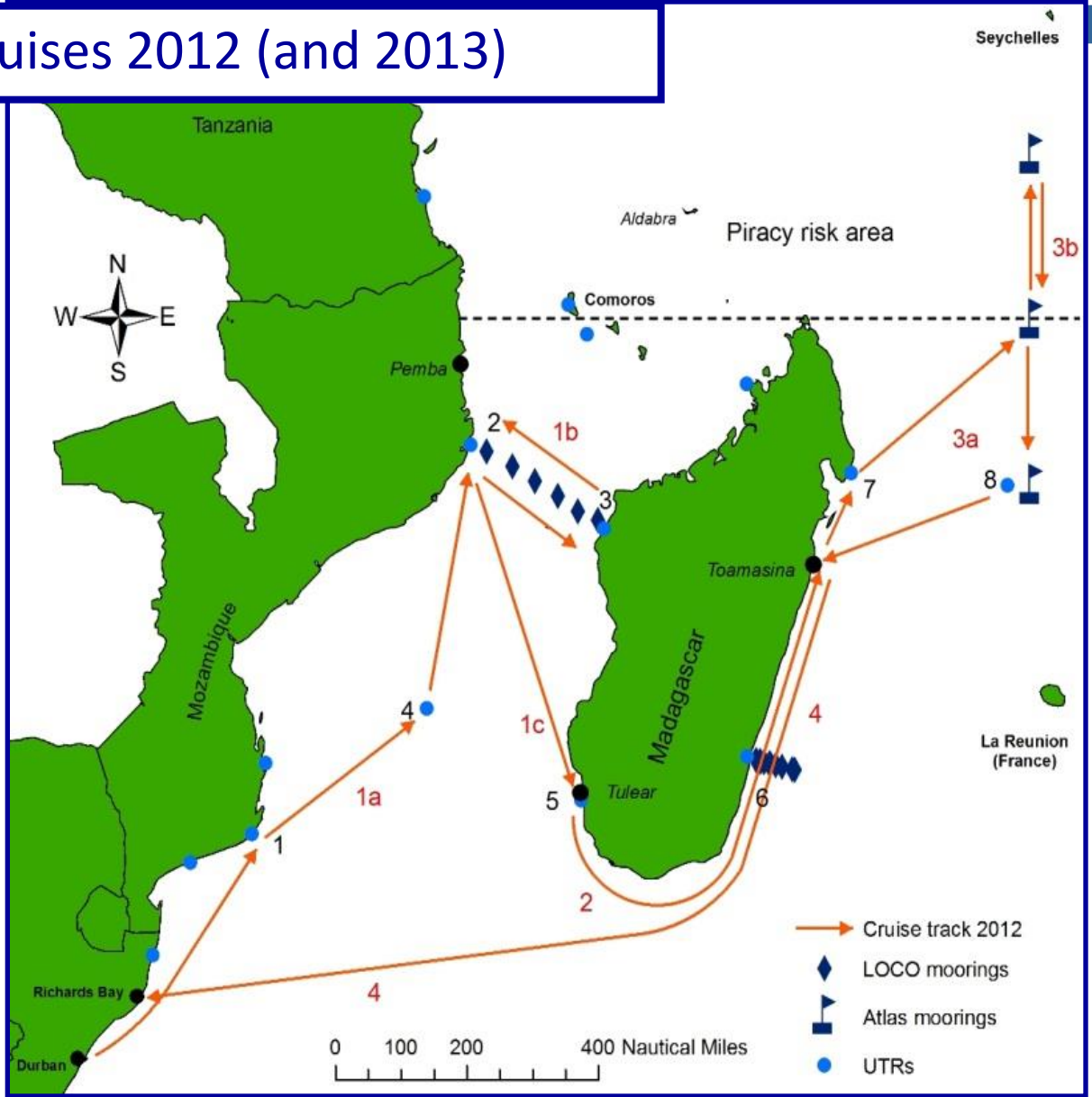
Implementing a collaborative Strategic Action Programme through an alliance of partnerships

- The general oceanography of the Western Indian Ocean, is driven by the various influences of the seafloor bathymetry, continental masses, input of water from surrounding oceans, and interaction with the atmosphere.
- The South Equatorial Current (SEC) strongly influences the near-surface circulation of the Western Indian Ocean. The SEC flows westward across the Mascarene Plateau, after which it divides north and south to form components of the Somali and Agulhas currents respectively.



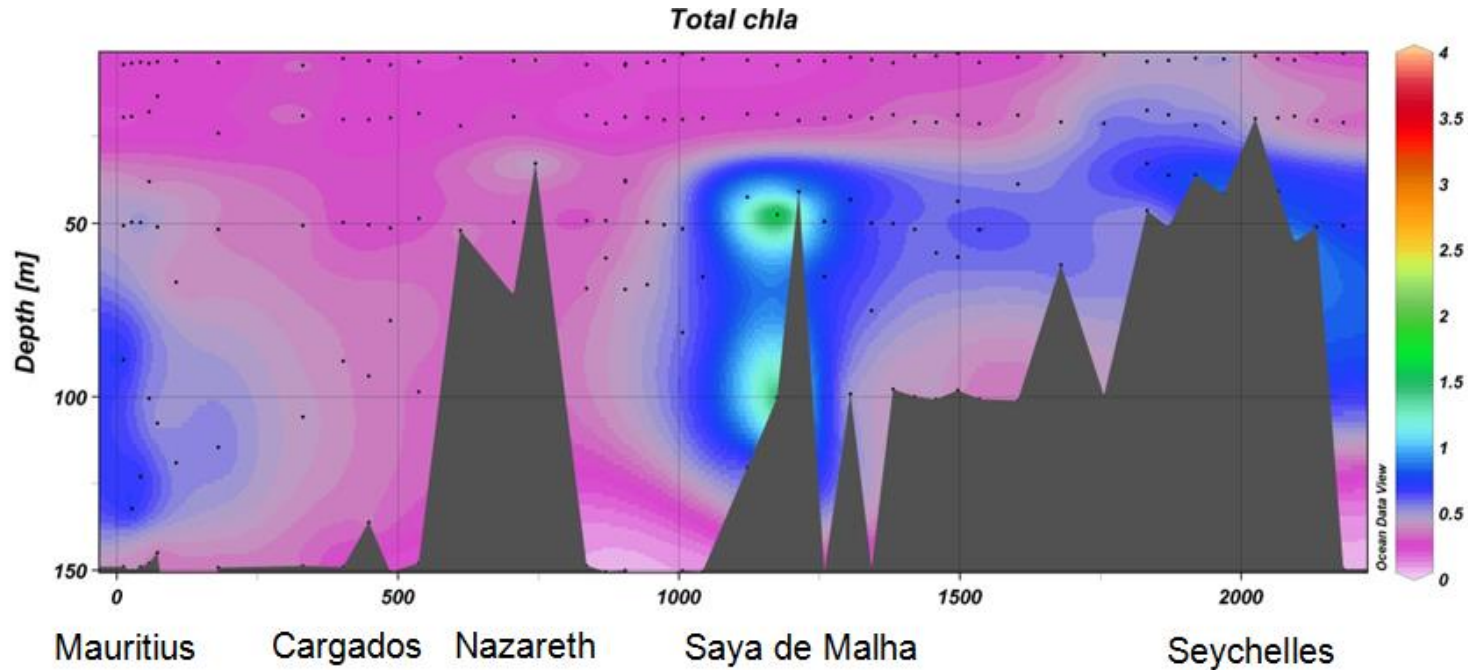
Regional Alliance cruises 2012 (and 2013)

- 70 day cruise
- 4 cruise Legs
- 6 Countries
- 30 moorings serviced / deployed
- Piracy risk area not surveyed, but Kenya and Tanzania were invited to join regional cruises

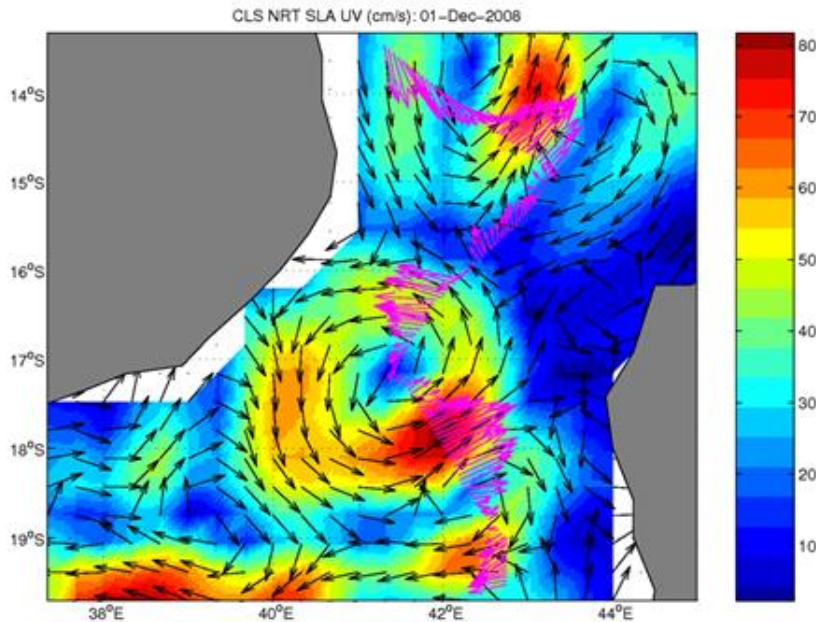


Chlorophyll variability

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES



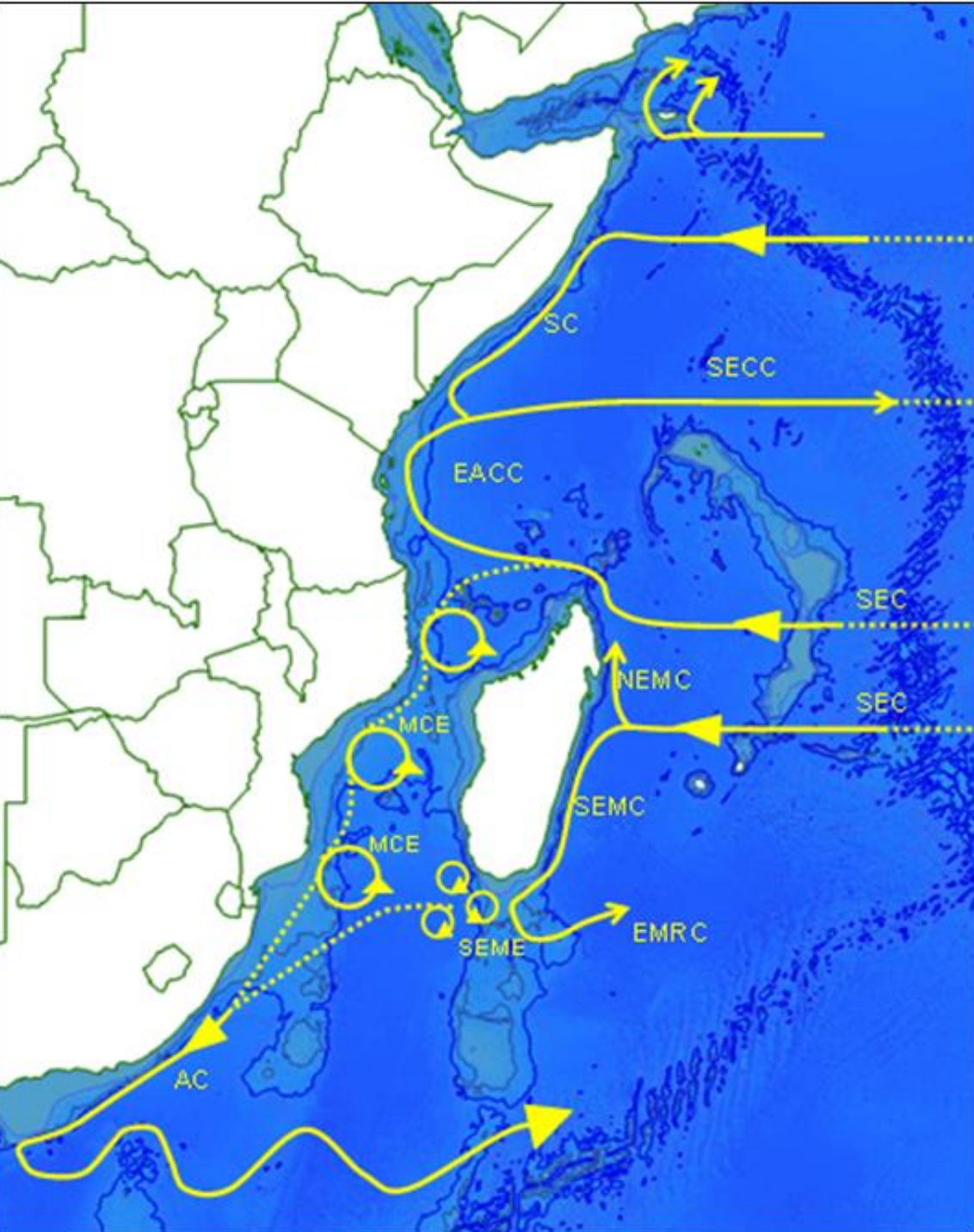
- Chlorophyll variability is mostly driven by seasonal wind-induced turbulence, coastal upwelling and river runoff in the North (10-16 °S) and South (24-30 °S) of the Mozambique Channel.
- In the centre (16-24 °S), seasonality has less of an influence, and chlorophyll distribution is more dependent on mesoscale dynamics (eddies and filaments).



The Mozambique channel is characterised by high levels of mesoscale variability dominated by large anticyclonic eddies.

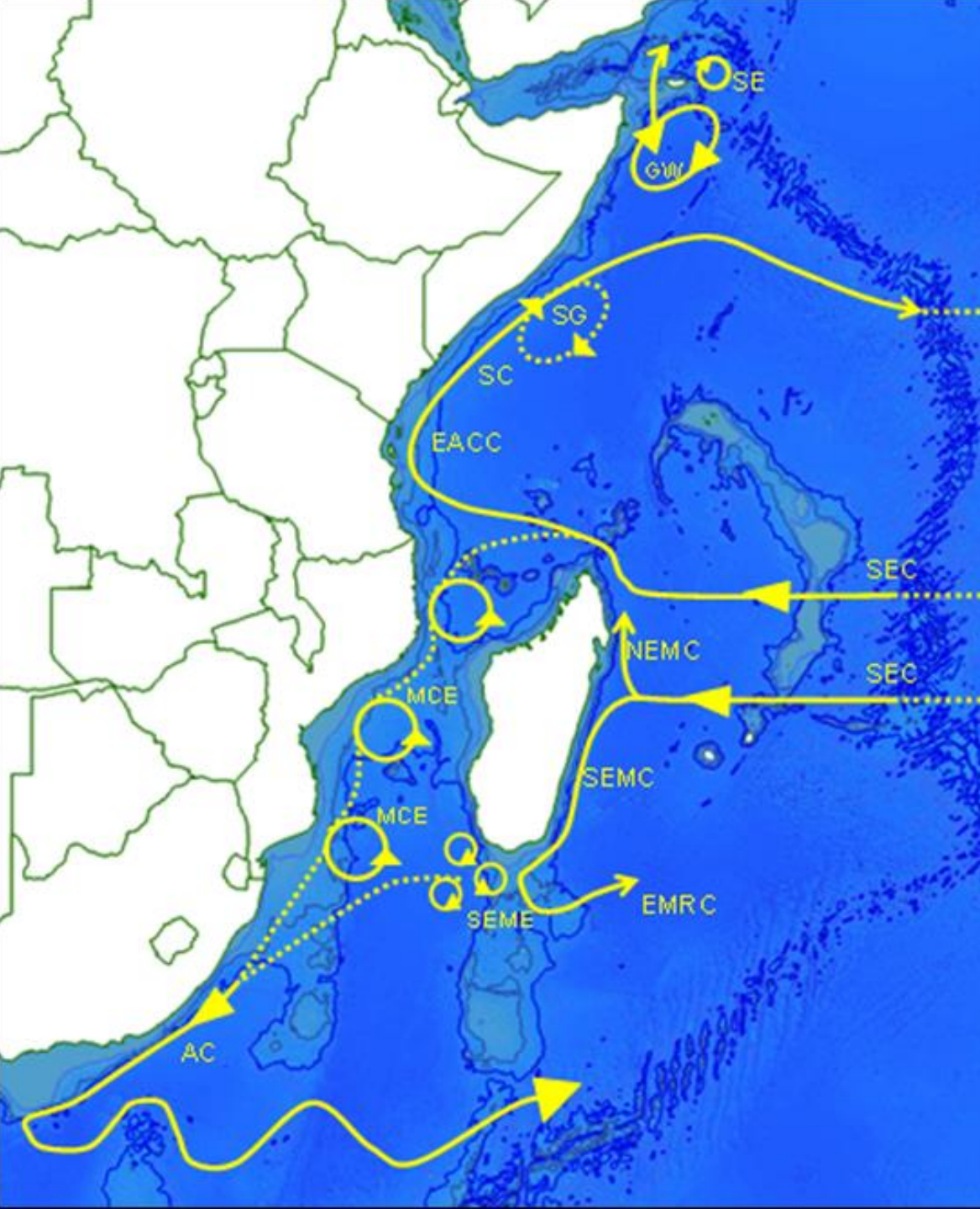
Cyclonic eddies are characterized by divergent flow at their centre, upwelling of cold nutrient-rich water, and thus by higher primary production

Anticyclones tend to have low-nutrient water at their centre due to convergent flow and downwelling, but enrichment has been noted at their periphery



A schematic of the near-surface ocean currents of the western Indian Ocean during the **North-east monsoon (Jan/Feb)**.

Indicated are the:
South Equatorial Current (SEC),
South Equatorial countercurrent (SECC),
Northeast Madagascar Current (NEMC),
Southeast Madagascar Current (SEMC),
East African Coastal Current (EACC),
Somali Current (SC),
Agulhas Current (AC),
Mesoscale Eddies (ME) and
South east Madagascar dipole eddies (SEME).



A schematic of the near-surface ocean currents of the western Indian Ocean during the **South-west monsoon (July/Aug)**.

Indicated are the:
 South Equatorial Current (SEC),
 South Equatorial countercurrent (SECC),
 Northeast Madagascar Current (NEMC),
 Southeast Madagascar Current (SEMC),
 East African Coastal Current (EACC),
 Somali Current (SC),
 Southern Gyre (SG),
 Great Whirl (GW),
 Agulhas Current (AC),
 Socotra Eddy (SE),
 Mesoscale Eddies (ME) and
 South east Madagascar dipole eddies (SEME).

Current challenges

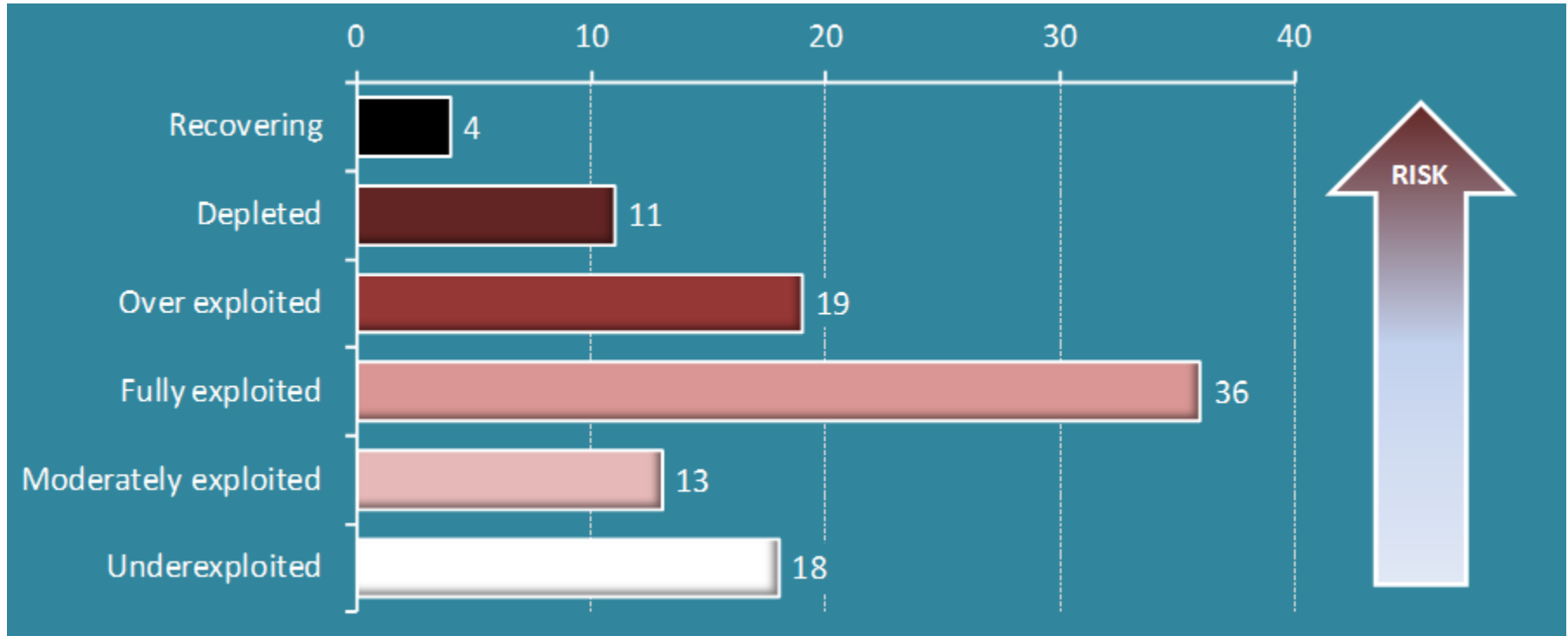
BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES

- Overexploitation of stocks
- Poor transboundary management
- Inadequate enforcement
- ABNJs/High Seas not properly managed
- Inter-sectoral conflicts not addressed
- Few international commitments to adopt ecosystem-based management methods



Current challenges

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES



One third of stocks in the region are now considered to be either 'Overfished' or 'Depleted'

Due to the overfishing of coastal stocks, many countries are now planning to expand their semi-industrial and industrial national fleets to new fishing grounds in their EEZs.

Status of stocks in the SWIO in 2009 (SWIOFC 2011)

Summary of Main Project Achievements

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES



- ✓ 50 plus cruises in the western Indian Ocean
- ✓ National Marine Ecosystem Diagnostic Analyses (State of the Marine Environment reports) completed by every participating country, led by national coordinators - using national specialists and institutional information in-country
- ✓ Nearshore and coastal monitoring programmes developed agreed with each country
- ✓ Training of over 100 new scientists on ecosystem monitoring and assessment
- ✓ National and regional Policy & Governance assessments completed
- ✓ Regional 'Cost-Benefit of the Ecosystem Approach' assessments undertaken

- ✓ Active demonstrations in each country of the DLIST approach and community engagement in the LME management process (including local economic development plans)
- ✓ Creation of over 30 signed Agreements (MOUs and Aides-Memoire) under the Western Indian Ocean Sustainable Ecosystem Alliance
- ✓ Development of mechanisms for Science-Based Governance (translating knowledge into management and policy through the weight of evidence and dynamic management approach)
- ✓ Evolution and Launch of the African Centre for Capacity Building in Ocean Governance with 18 signatories and partners
- ✓ Recent engagement with the private sector



Where to from here?

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES

The countries of the **WIO** have agreed on an overarching **Strategic Action Programme for the WIO**. The next **GEF-funded activity** will be a follow-up project, building on the **ASCLME**, but aimed at implementing elements of the **SAP**.

The objectives of this **SAP** implementation should aim to deliver and execute the agreed management reforms and policy realignments for effective long-term ecosystem management in the **Western Indian Ocean LMEs**.

The countries have endorsed the new project:

The Strategic Action Programme Policy Harmonisation and Institutional Reforms (SAPPHIRE) Project.

The project has five components:

- 1. Executing Management and Policy Reforms through a Knowledge-Based Governance Mechanism**
- 2. Stress Reduction within the LMEs through Community-Level Stakeholder Engagement and Empowerment in SAP Implementation**
- 3. Stress Reduction in Marine Pollution within the WIO LMEs through Private Sector/Industry Commitment to transformations in their Operations and Management Practices**
- 4. Innovative Management Mechanisms for Extended Continental Shelf and High Seas Areas with the LMEs**
- 5. Capacity Building and Training for Effective SAP Implementation and Long-term Ecosystem Monitoring**

This has been endorsed by all of the countries and has been approved by the CEO of GEF. Project implementation is likely in the first half of 2015.



Asanteni sana

