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Governance of the South West Indian Ocean Seamounts

Florence GALLETTI (Law), Francis MARSAC (Ecology)

and Jean-François TERNON (Oceanography)

IRD, UMR MARBEC, France

florence.galletti@ird.fr, francis.marsac@ird.fr, jean-francois.ternon@ird.fr



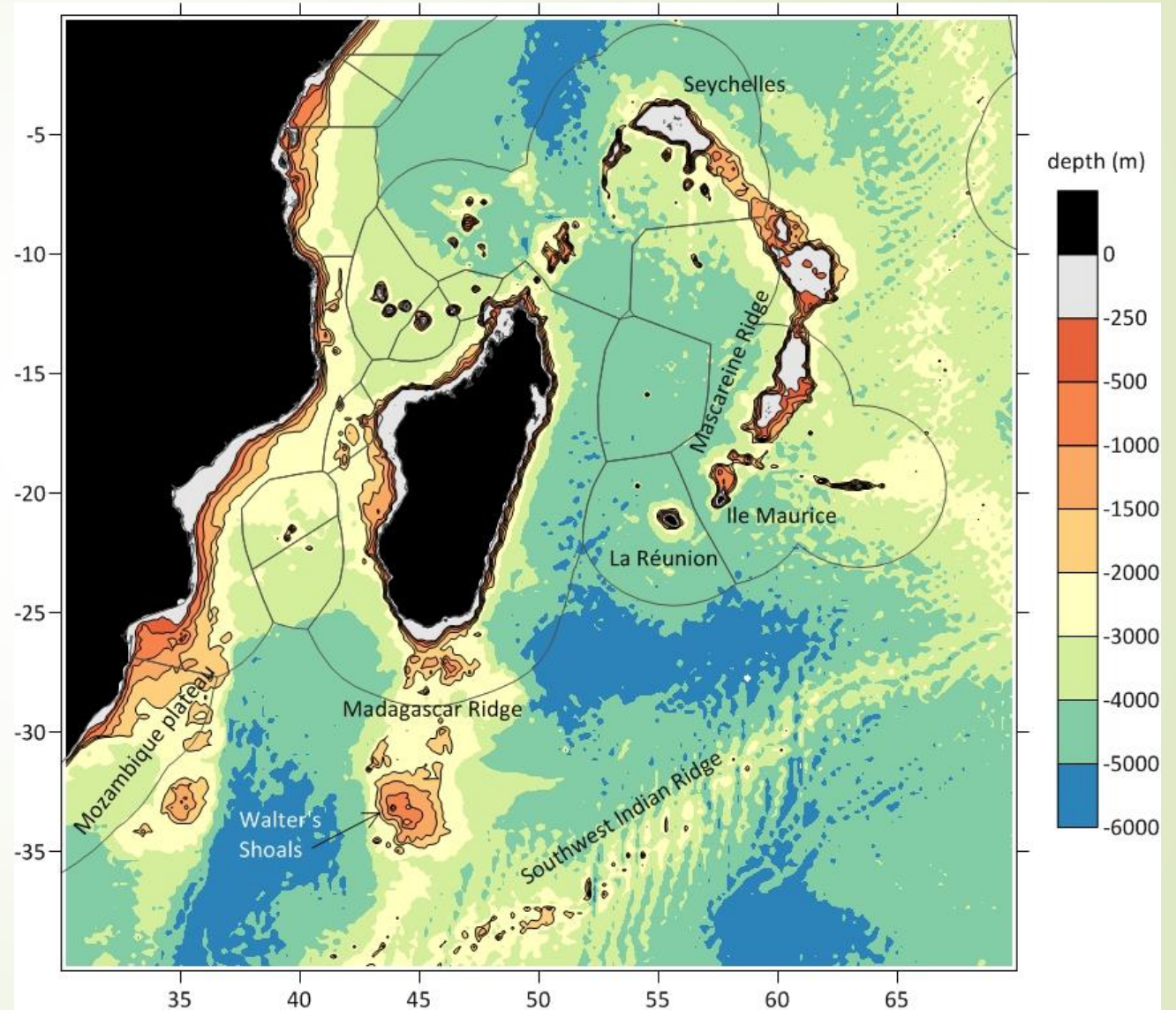
Seamounts in the South West Indian Ocean: where?

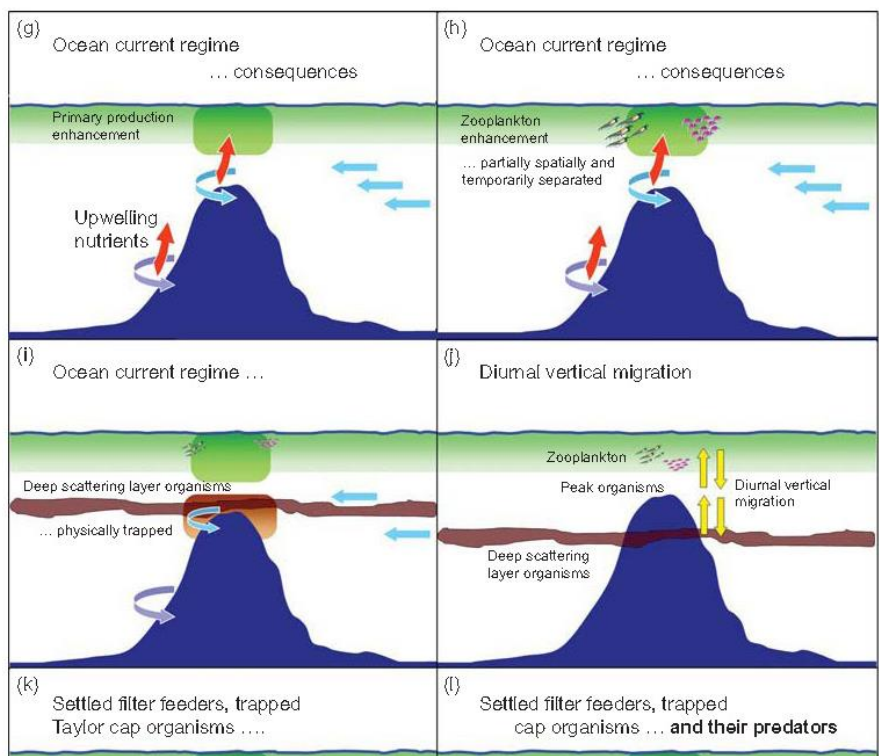
Seamounts are mostly located on mid-oceanic rifts or intra-plate hot spots. There ~1000 large seamounts in the ,SWIO, of which half are listed within EEZs.

The seamounts are concentrated along the South West Indian Ridge, on the Mozambique Plateau and on the Madagascar Ridge.

To the north of Mauritius, and as far as the Seychelles: the *Ride des Mascareignes* (Nazareth Bank and Saya de Malha plateau).

Because of their volcanic origin, seamounts contain mineral resources. Their extraction cost remains prohibitive to be profitable (but the situation could change in the coming decades).



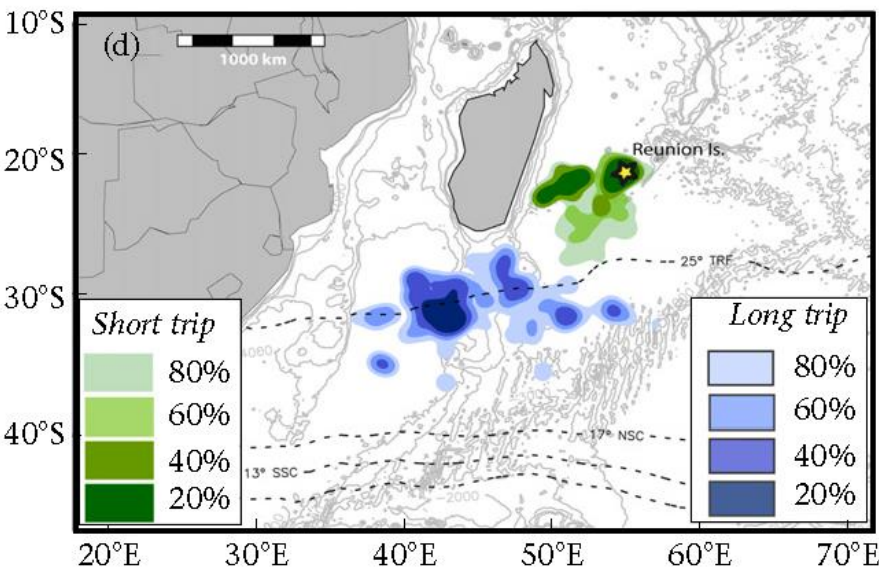


Seamounts ecology

Physical processes and enrichment of the first trophic levels may be caused by the presence of seamounts/pinnacles. This can result in density of organisms (forage species) and development of trophic chains.

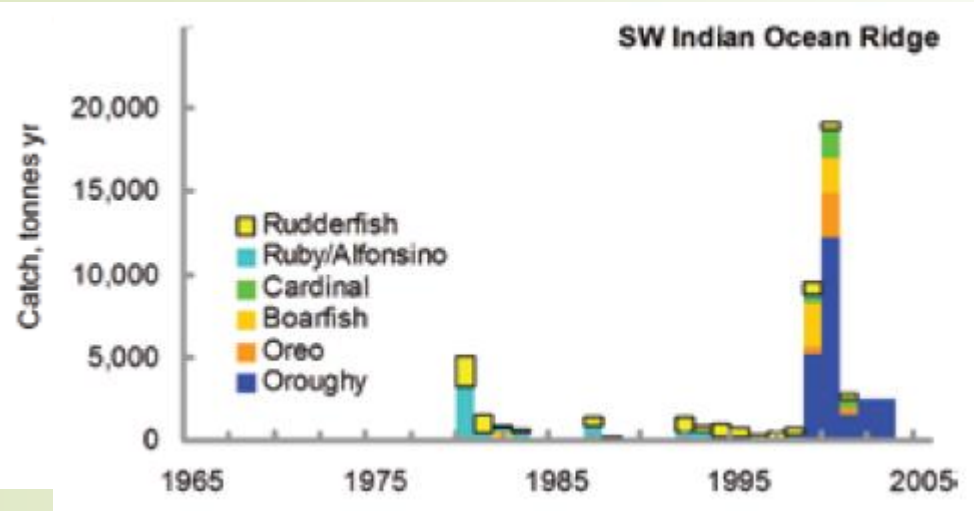
Seamounts are not always places of high organic production, but in most cases, these are remarkable structures in several respects: abundant biodiversity, concentration of prey for predators, reference points in the movements of migratory species, but also intensive bottom trawl fishing areas.

Seamounts are also feeding areas for seabirds. The case of the Walters Shoals is eloquent: *Barau* petrels nesting in Reunion come to capture their prey during the feeding period of chicks, on this *guyot* located 1800 km from Reunion.



(Pinet et al., 2012)

Seamount living resources exploitation



(Pitcher et al., 2010)

The fish resources associated with seamounts supported a significant development of deep-sea commercial fishing as early as the 1960s, especially, demersal fish (~70%).

These are often long-lived species (over 100 years), with late maturation (50 to 60 years) and low fertility, making them extremely vulnerable to intensive fishing.

The fisheries carried in the SWIO concerned 81 fish families, including species with very high commercial value, as well as shark species in threatened status.

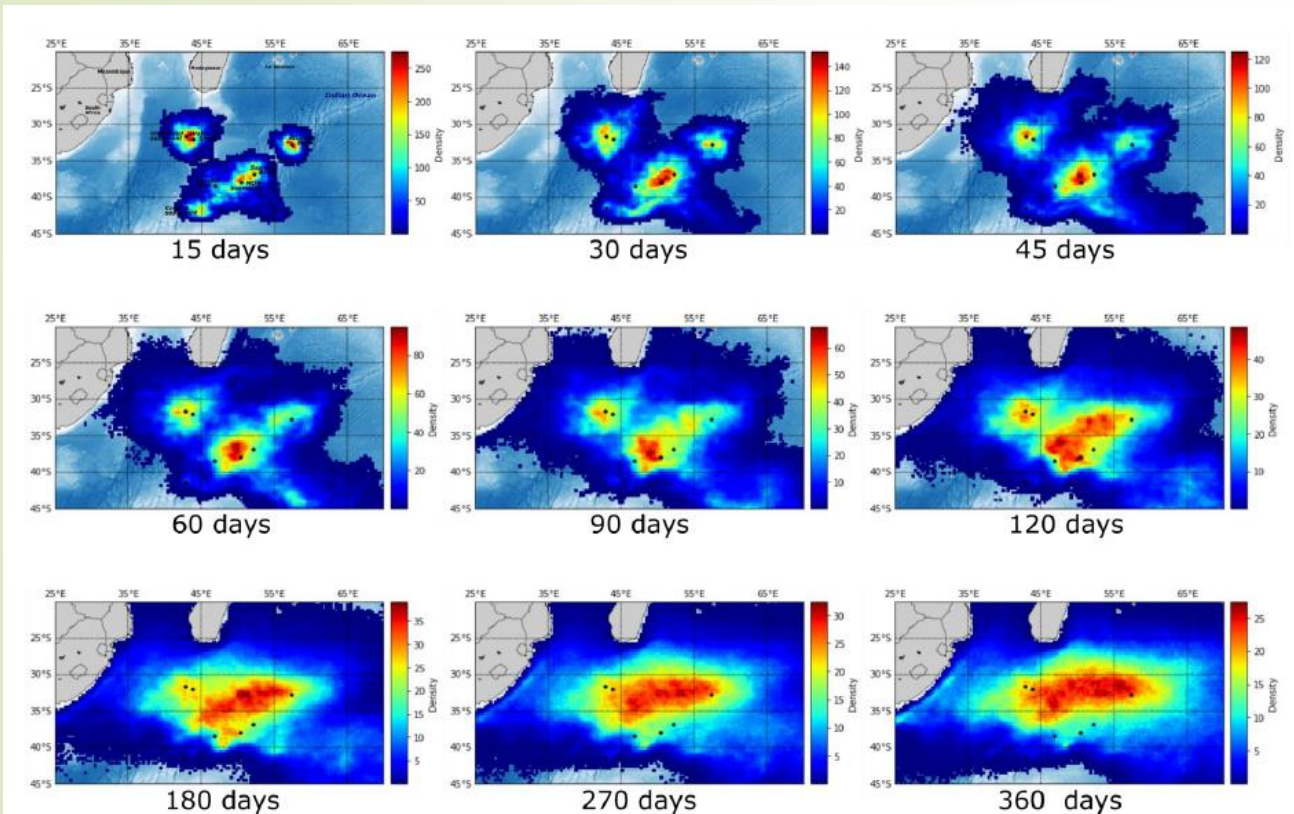
Benthic resources such as crustaceans, mollusks, sponges and cold water corals (slow growing) are also exploited (or destroyed by bottom trawling).

Because a large proportion of seamounts are located on the high seas, exploitation is poorly controlled and opens the way to illegal fishing activities.

Connectivity patterns from seamounts in the SWIO

Generally, seamounts are geographically isolated structures. Nevertheless, marine currents can provide connectivity between seamounts or with coasts.

Using mathematical models, biological exchanges between these distant structures can be analysed to understand in situ observation.



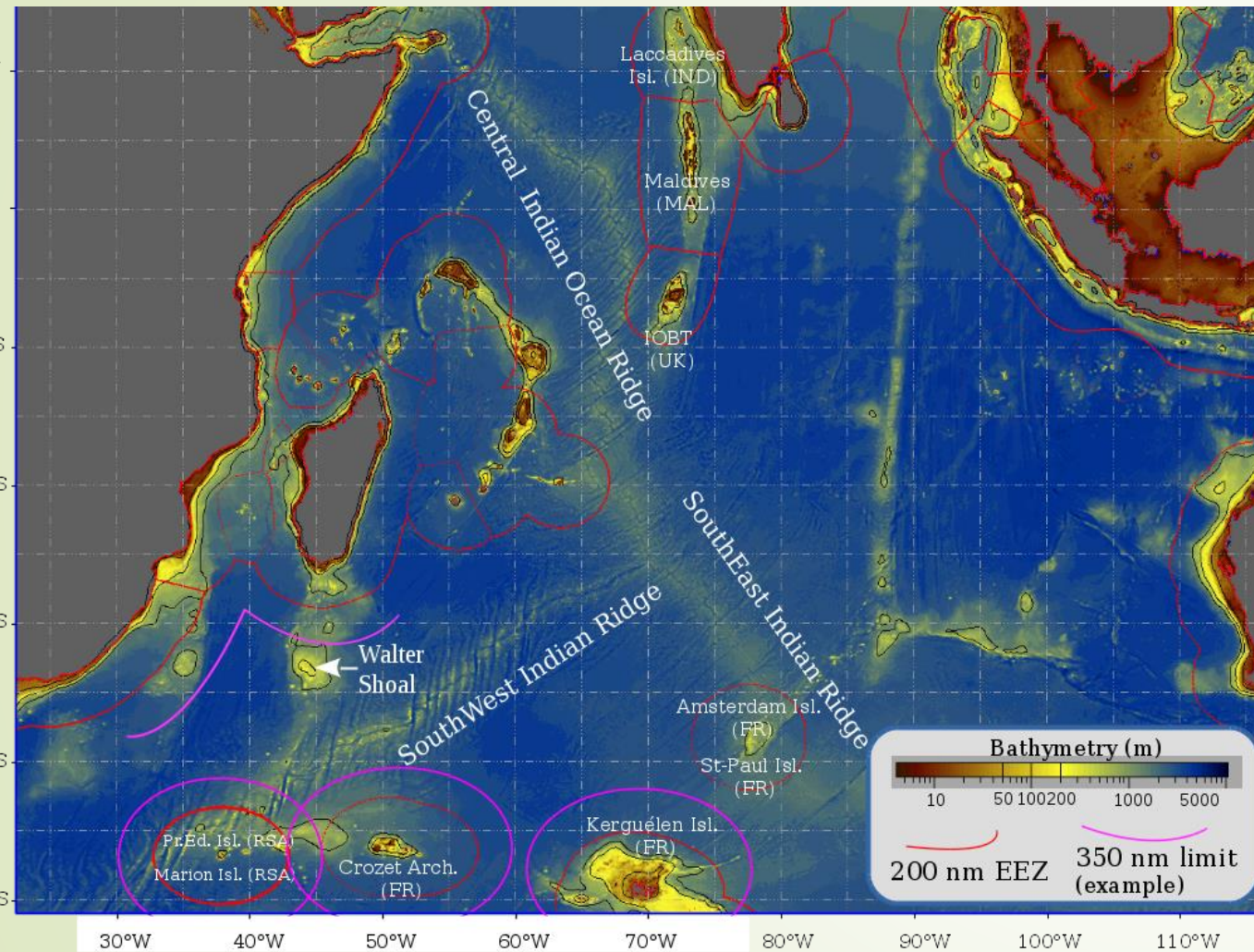
A recent study carried out on seven seamounts in the South West Indian Ocean has highlighted the possibility of connection between these structures for certain species with a sufficiently long larval life.

Larval density after release at each of the seven seamounts for different larval DVL (durée de vie larvaire) – Crochelet, 2017

Current governance principles of a seamount and reforms that States must be prepared to implement

Some principles:

- ❑ Since we do not "govern" species or ecosystems, but operators and uses at sea, let us decide that **"governance" means "administration"**.
- ❑ Administration is **primarily national**, but it may have to go through **more regional processes** (bilateral or multilateral agreements between States, actions under the Nairobi Convention, etc.).
- ❑ The administration of seamounts and other geo-morphological structures (creases, flaws) **cannot be designed in complete freedom**, neither for the State, nor for regional organizations



Legend: Bathymetry and EEZ limits in the Western Indian Ocean (200 NM, red line) and theoretical breadth of continental shelf (350 NM max., pink line)

Source : Hervé Demarcq, IRD, 2014

Seamount governance depends on the International Law of the Sea

For the natural sciences, a seamount is a topographic and ecological unit, but in the law of the sea, **a seamount has no legal status per se.**

Attention must be paid to the name and legal status of the maritime space where the seamount is located:

Some of these **spaces refer to the water column** (the territorial sea, the exclusive economic zone EEZ, the high seas), others **to underwater soils and sub-soils** the (legal) continental shelf and the international seabed zone.

The seamount **being a geomorphological structure placed on the seabed, it is the legal status of the soil that is first and foremost decisive.**

- **There are three possible underwater soil situations, i.e. three governance situations:**
- **Mount located on soil between 0 and 200 nautical miles (NM) from the coast:** (e.g. *Mount La Pérouse for France, Mount MAD-Ridge for Madagascar...*)
- **Mount located between 200 NM and 350 NM:** the mount is in an international zone and is part of the "International Seabed Zone" and under the jurisdiction of the International Seabed Agency the (ISBA) with respect **to mineral resource extraction requests** (only).

NB: This is no longer accurate if the coastal State has made a request for recognition of its rights to **an extended continental shelf**, generally ranging from 200 NM to 350 NM maximum, and if the request is recognized as acceptable and accepted. (e.g. *of the Saya de Malha area between Mauritius and the Seychelles*)
- **Mount located in international space:** it grows on a ground located after the outer limits of the legal continental shelf, simple or extended, (e.g. *Walters, Shoal Mountains, Coral, Middle of What, Atlantis Bank, Fools Flat etc.*)

Seamount governance depends on the International Law of the Sea

Secondary attention **must be paid to the legal status of the waters** (water column and what they contain) **surrounding the seamount:**

-the "**EEZ**" (\leq to **200 NM**) of the baseline of the coastal State?

-or "**international**" waters?

In which case, for **biological diversity** and resources, the seamount is accessible to all possible fishing operations, subject to regulations laid down by international fisheries law and therefore by the relevant RFMOs for one or more pelagic species or for benthic species (IOTC, CCSBT, SIOFA...).

For all these cases the new Law of the Sea of the United Nations Convention on the Law of the Sea (UNCLOS) sets out **what each State can do on maritime spaces, whatever its motives**. This also **applies to relevant regional organizations**.

Is seamount governance better driven by Marine Environmental Law?

In marine environmental law, seamounts are anything but ordinary ecosystems. However, until now, they have not been systematically protected.

Attention must be paid to the species

that live and are found there, on the seamounts and in their surroundings (Environmental Law of the species). **The question is whether they are legally protected or not.**

- ▶ except for seabirds or certain large marine mammals) there is a very low number of species protected and listed in CITES for example (some sharks and rays...) to prevent capture or simply to trace trade.
- ▶ There is also the problem of poorly listed species on seamounts, which are poorly known and which CITES cannot consider in the short term.

Attention must be paid to certain particularly fragile ecosystems sheltered by the seamounts

i.e. case when there are vulnerable marine ecosystems VMEs, which are supposed to create constraints for marine resource operators, as fishing that encounters VMEs is supposed to behave differently from normal fishing operations, for example.

State of play:

- a) the use of the instrument of marine protected areas is confined to areas under jurisdiction**, which leaves a set of seamounts outside legal protection.
- b) Very few extraordinary marine sites are "classified" by international environmental law** (e.g. Atlantis Bank) and there is an operational inefficiency of mere classification without further legal conservation governance.
- c) it is difficult for a State to act alone. The State alone cannot manage a network of seamounts scattered in EEZs, if they are located beyond the limits of its jurisdiction**
- d) through ecological and economic connectivity, seamounts have an impact on the situation of coastal civil societies, and the risk of the very rapid disappearance of the IO marine biological heritage and sources of food and genetic security have to be emphasized**

Eight recommendations to the Nairobi Convention (1)

In order to address the dual question of 1) the governance of the access to seamounts resources of regional/global importance, and 2) the conservation of ecosystems, resources and related biological balance, we propose the following recommendations to the Nairobi Convention:

- ❑ To promote **marine spatial planning** studies in order to compile an inventory of the existing and planned at-sea activities in the whole South West Indian Ocean (SWOI) region, in both areas under national jurisdiction and international waters.
- ❑ To encourage **historical data rescue** activities on seamounts of the SWIO in order to set up a knowledge base on the marine natural heritage, its potential and its vulnerability.
- ❑ To develop **multidisciplinary capacities** in the administrations of the riparian States in order to design **management plans** that are dedicated to seamounts conservation in EEZ and their adjacent waters where distant and/or connected seamounts are located.
- ❑ To examine the matter of **extending its geographical competence beyond national jurisdiction** because of different types of **connectivity (economical, ecological...)** between seamounts located in international waters and coastal zones, provided that the Nairobi Convention is competent for coastal zones and **circumstances that affect them indirectly**.

Eight recommendations to the Nairobi Convention (2)

- ❑ As for the **seamounts included on the legal continental shelf (LCS)** of a coastal State, to draw the attention of the States to such complex situation whereby pelagic resources fall within the jurisdiction of the international fishing regulations while living benthic (fish excluded) and mineral resources come under the jurisdiction of the state which owns the LCS; therefore, it is recommended that the Nairobi Convention **facilitates the implementation of harmonized conservation/exploitation policies** of those entities.
- ❑ To account for new measures from RFMOs, in particular the **recent classification (29/06/2018) by the SIOFA of 5 seamounts** located in international waters (Walters shoal, Coral, Middle of What, Atlantis Bank, Fools Flat) as **Protected Areas**, with ban of trawl fishing and mandatory boarding of observers for all other gears, pending a final management plan by SIOFA in 2019
- ❑ To support the States to engage any form of **network protections** –partial or total- of marine regional natural heritages that are partially documented by the LMEs, the EBSA process, or the oceanographic cruises, but which remain with any legal protection.
- ❑ To capitalize on opportunities provided in the **UN binding international instrument on the governance of the oceans** currently under development **(2018-2020)**, in order to enable convergence of the Indian Ocean States on the 5 authorized themes: i) spatial management and MPAs in international waters; ii) marine technologies transfer; iii) sharing advantages of the genetic diversity; iv) combatting IUU fishing and v) environmental impact assessments.