Research, conservation, and education on coral reefs in the North of Mozambique: when Mozambicans discover the Underwater world

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Faculty of Natural Sciences (FCN) - UniLúrio

Academic areas/Research areas

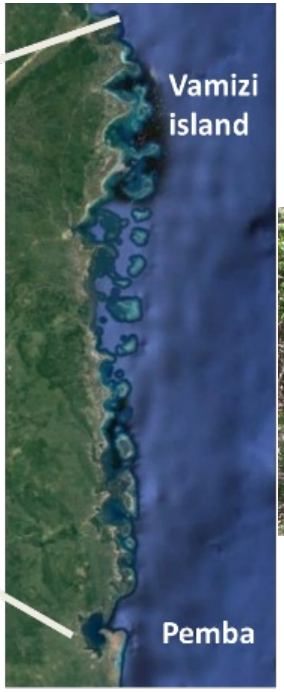
Terrestrial

Marine Ecology

Botanic

Laboratory services

Pemba Campus and Vamizi research station



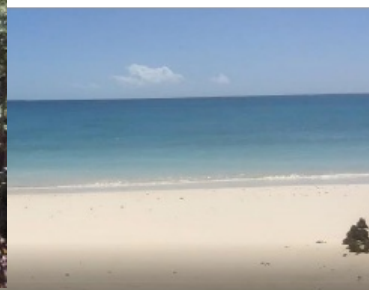
Pemba Campus and Vamizi research station

CONTEXT:

- The terrorist attacks started at 5th October 2017- Mocimboa da Praia;
- Spread to northern part of Cabo Delgado
- In Vamizi first attack was on 6th and 13th.September 2020
- Palma attack on March2021

More than 2000 people died and 817 0000 refugees;

- Basic infrastructures destroyed;
- Restricted movement of boats and sa
- Militaries established their basis in V

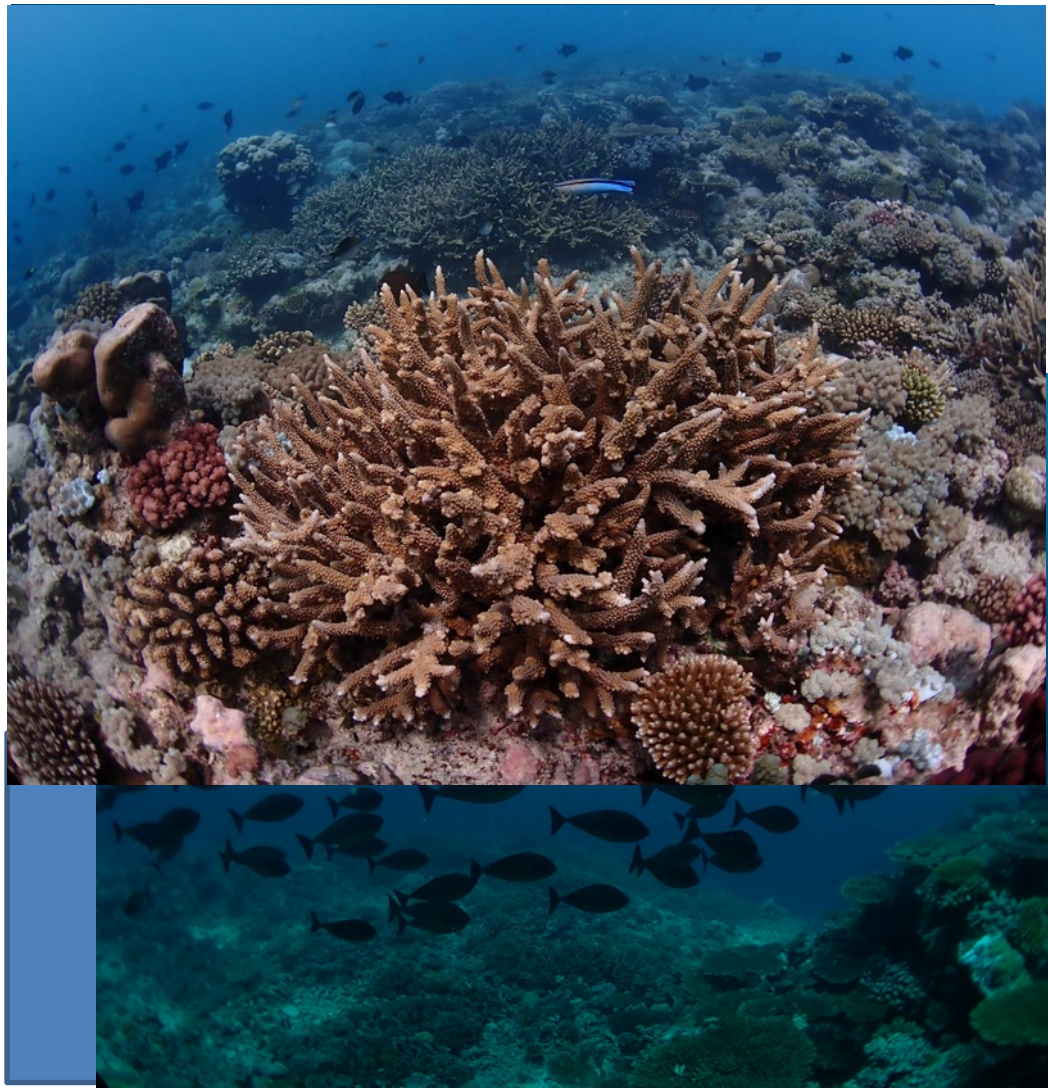


Negative impacts

- **Suspended turtle monitoring activities in Quirimbas National Park (no data);**
- **Refugees moved to Islands possibly are capturing turtles but less fishing;**
- **Vamizi Island data were not recorded in September 2020 and April 2021;**
- **Vamizi Island were not done turtle night patrols;**
- **Challenges for funding and incentives;**

Positive impacts

- **Reduced fishing activities:**
  - **Less fisherman, they are afraid of militaries;**
  - **Traders are not coming to buy**
  - **They can’t sell their fish**
- **In Vamizi island**
  - **Sea patrols for terrorists are also fishing enforcement;**
  - **Improved the health of the marine ecosystem;**
  - **Reduction of sea turtle capture/mortality;**



FCN Outreach

Collection room

Green house

Beekeepin
g

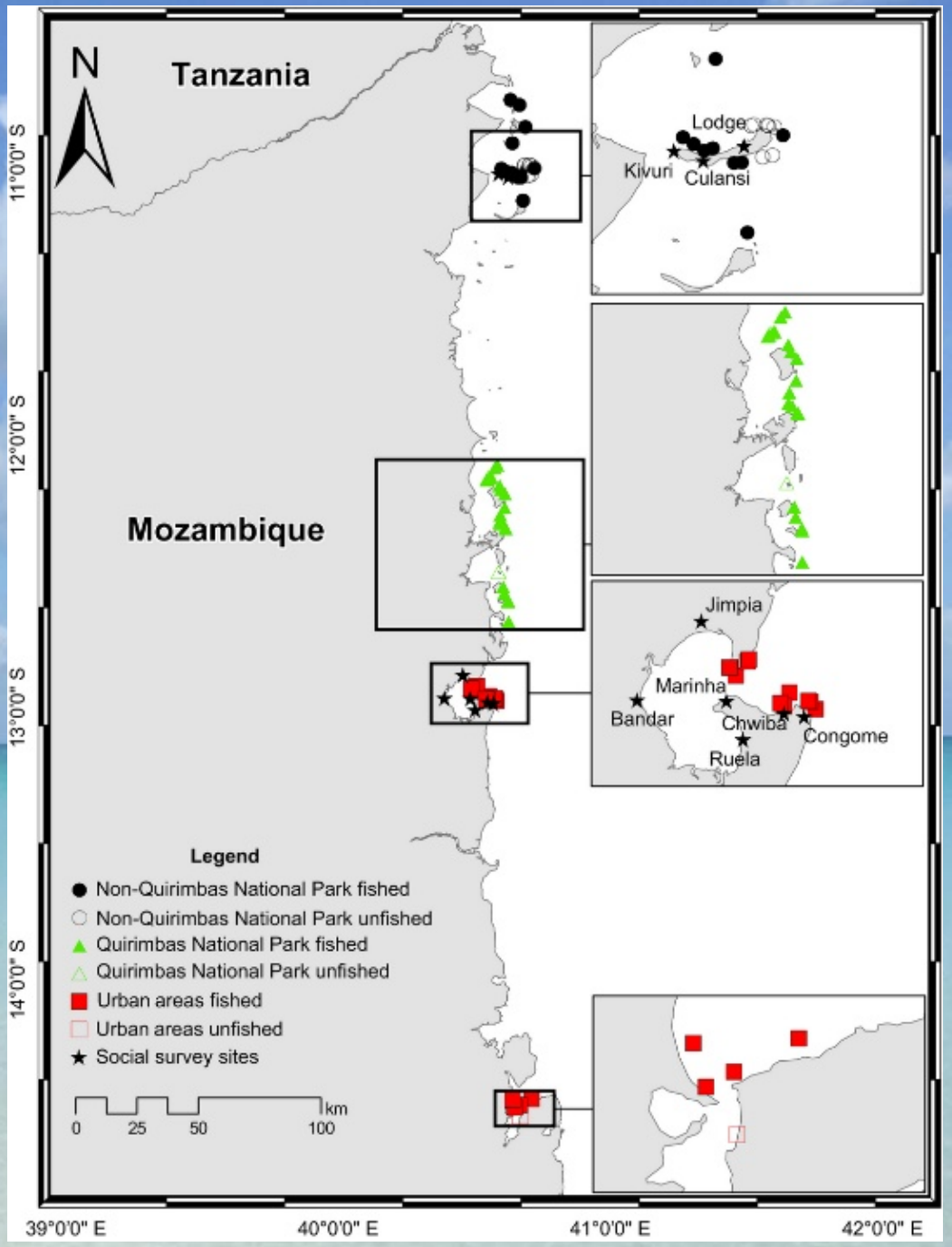
Swimming

Community development and environmental education

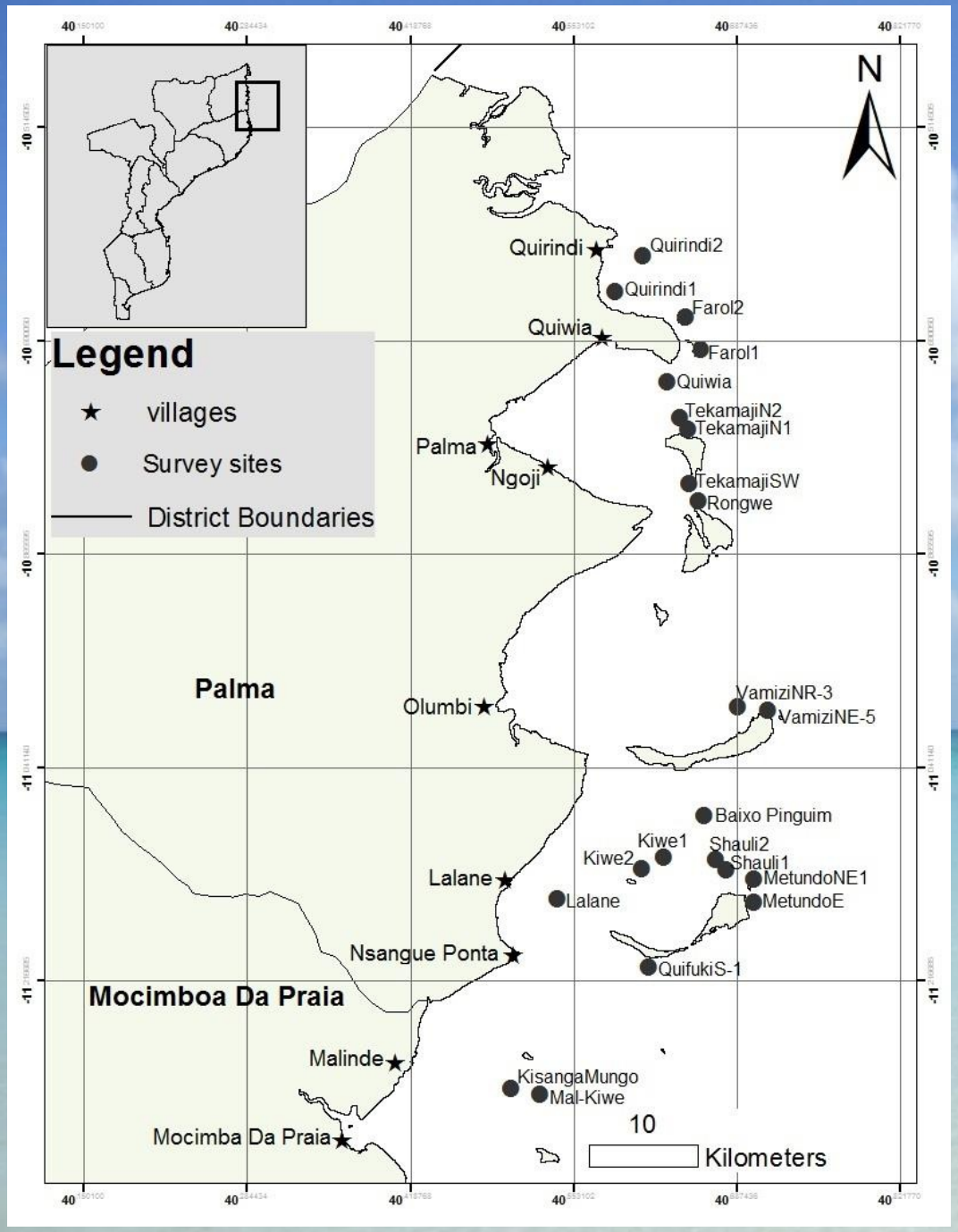
Dive&snorkell&swim

Coral reefs

- High Biodiversity
- Most sensitive corals in the north Quirimbas.... but resistant to bleaching
- Kituculo - mass spawning of corals
- Oceanographic currents



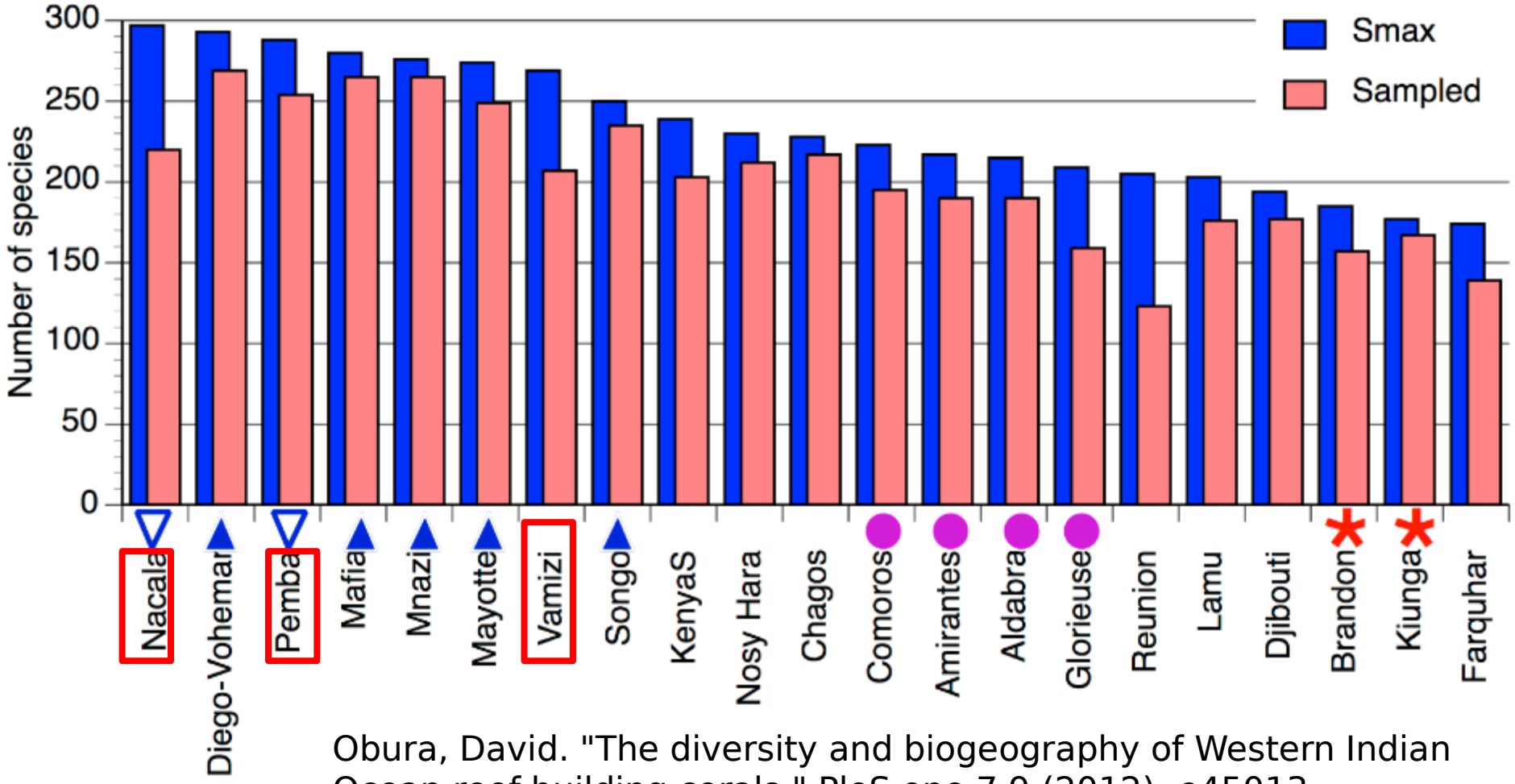
McClanahan, T. R., & Muthiga, N. A. (2017). Environmental variability indicates a climate-adaptive center under threat in northern Mozambique coral reefs. *Ecosphere*, *8*(5).



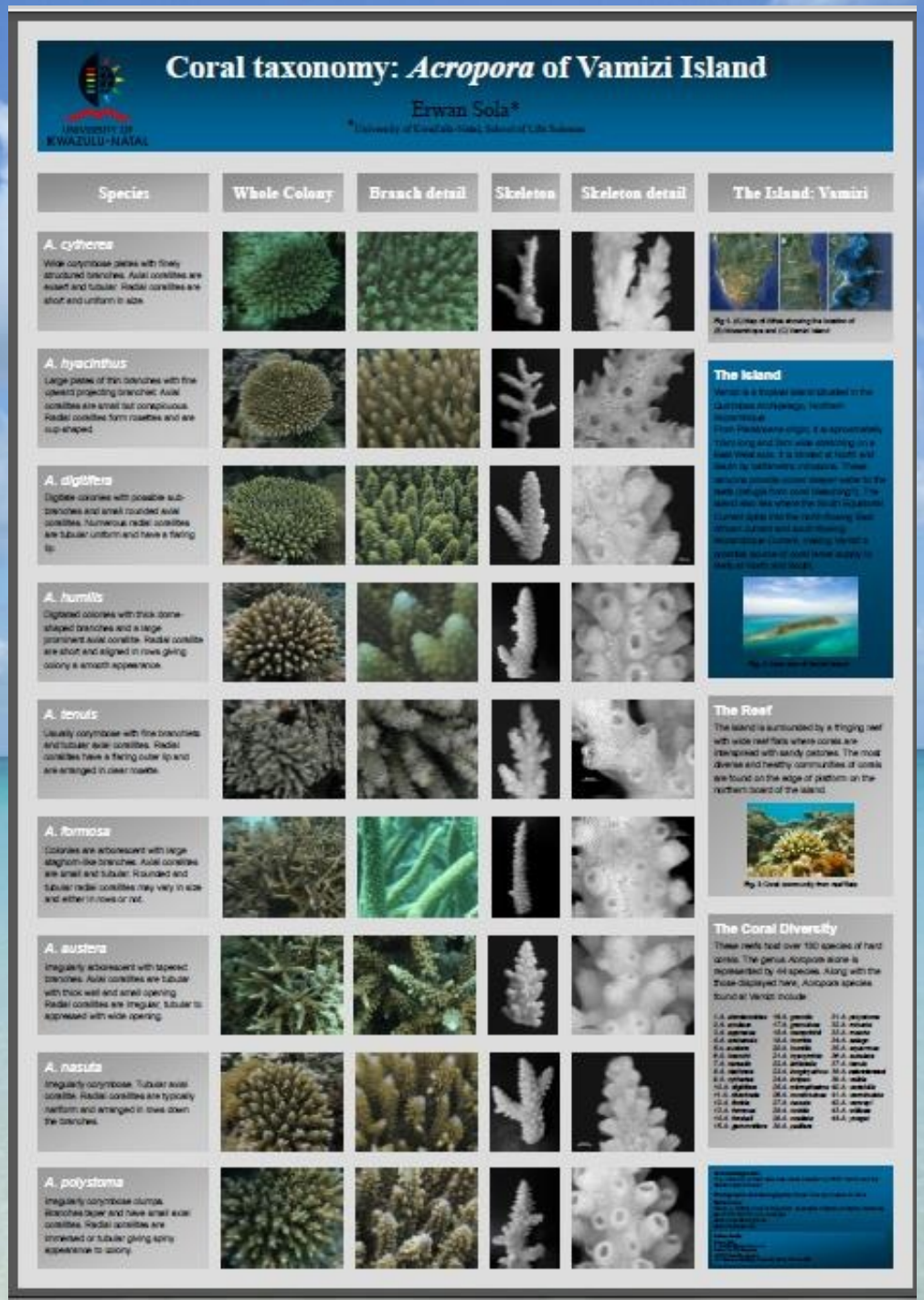
Samoilys,M., Obura D., and Osuka K. (2016).Marine biodiversity survey of coral reefs in Cabo Delgado in March 2015 .

This study confirms a center of species richness between Madagascar and the East African coastline or the Mozam- bique Channel. (McClanahan, 2015).

North Mozambique corals



Obura, David. "The diversity and biogeography of Western Indian Ocean reef-building corals." PloS one 7.9 (2012): e45013.



Sola, E., Silva, I. M. D., & Glassom, D. (2015). An annotated and illustrated checklist of species of the coral genus Acropora (Cnidaria: Scleractinia) from Vamizi Island, Mozambique. African Invertebrates, 56(3), 807-844.

Kituculo (Sickness of the sea): Mass spawning

Sola, E., I. Marques da Silva, and D. Glassom.(2005) Spatio-temporal patterns of coral recruitment at Vamizi Island, Quirimbas Archipelago, Mozambique." African Journal of Marine Science 37.4 : 557-565.

Sola, E., Marques da Silva, I., & Glassom, D. (2016). Reproductive synchrony in a diverse Acropora assemblage, Vamizi Island,

Research Center for Environmental Conservation

(CICA) https://fecn.unilurio.ac.mz/en/cicaen/

- **More fish, Less conflict**: FAD – Fish Aggregation devices (for CLN-Vale)
- **OSOL** (with ZSL)
- Community Development and Biodiversity Protection (for ERB-Eni) and Vamizi island Conservation project (for CDBT)
- ***PRORES*** (ERB-Eni)
- ***Prontidão*** (UE)
- **CoReS** (TOTAL)

More fish, Less conflict:
FAD – Fish Aggregation devices

https://youtu.be/tAtOdPcs7rw

https://youtu.be/9mQ7LS06-vc

The Our Sea Our Life approach to community-based conservation includes:

1. Our Sea Our Life Locally Managed Marine Area (LMMA) standards in Community Conservation Areas
2. Local governance and management mechanisms
3. Sustainable livelihoods and financing linked to the 'opportunity costs' of conservation

For more information, please visit our website:
zsl.org/conservation/regions/africa/our-sea-our-life
Check out our twitter: @OurSeaOurLife
Or please contact us at: Jeremy.Huet@zsl.org

Thanks to all our partners

And our funders

We're ZSL, an international conservation charity working to create a world where wildlife thrives. Join us at zsl.org

ZSL is a registered charity in England and Wales no: 208728

ZSL | LET'S WORK FOR WILDLIFE

Our Sea Our Life

Building resilience for coastal communities and marine biodiversity

Sustainability Plan (Social responsability)for the South Coral Project(FLNG)

Community Development and Biodiversity Protection on the Island of Vamizi

March 2019

Community development and education

Capacity building of the University

- *22 PADI certification courses: open water (8), advanced (6), rescue (6) and leader (2)*
- *Offering 8 degree thesis in Environmental Education and 4 professional internships*
- *https://youtu.be/oCwLPkMfNCkOur*

http://fecn.unilurio.ac.mz/videos-da-fcn-2/

Dive video

Sustainable fishing training

- *Training of the Community Fisheries Council (CCPs) on issues related to good conservation practices, endangered species and*

Women empowerment

- *Supports the handicraft group of the local women's*

Education

- *Support 200 elementary school children*
- *Environmental education*
- *In substitution we made the distribution of basic food baskets*

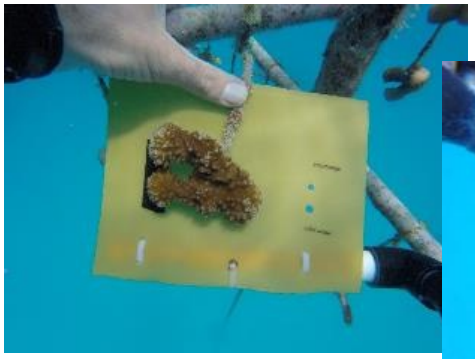
https://youtu.be/IAEG_kOUWb8

Figure 5: Distributed cestas basicas (Basic basket) products

Biodiversity protection

- *https://youtu.be/ZHtGVWf1sIY*
- *https://fecn.unilurio.ac.mz/videos-da-fcn-2/*

- *Verify the feasibility of transplanting live coral fragments*
- *Test different locations (physical factors) and identify sustainable areas for reef restoration*
- *Testing innovative and feasible techniques for coral restoration*
- *Measuring coral growth, rate of colonization process, species-specific site adaptation, survivability*



Machambas short

ERB under the implementation of the South Coral FLNG Project Sustainability Plan will support UniLúrio students and faculty and research staff to implement the "**Programa de Resiliência Às Mudanças Climaticas Nas Comunidades De Cabo Delgado**"

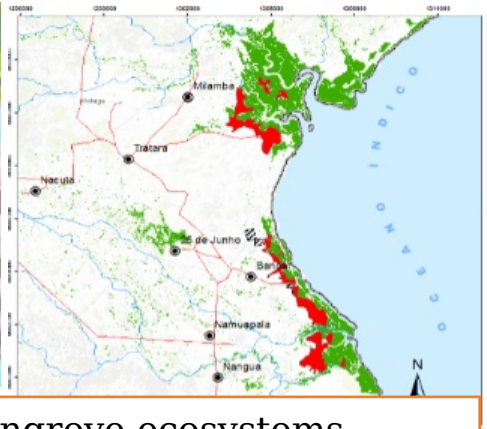
PRORES

Component UniLúrio
Contribute to the protection and restoration of mangroves' ecosystem in the District of Mecufi

Component CESAL
Develop sustainable agroforestry systems in synergy with previous experiences in the District of Mecufi.

Component OIKOS
Contribute to the improvement of water, sanitation and hygiene infrastructures and practices in the District of Mecufi.

PRONTIDÃO



Study on the current state of mangrove ecosystems

In 20 years the Metuge district lost about 161 ha of Mangal, corresponding to 8.05 ha/year. Of the area lost, 60% was converted to grassland, 30% to cultivated areas, and 10% to urban areas.

Understanding the history of:

- Tides of the region
- Precipitation of the region

Choosing the right species for the right

Reconciling knowledge:

- Local and scientific

INGD, CEPAM, SPAE CCPs

Religious Leaders

Local Schools

Involving diverse groups in the mangrove replanting

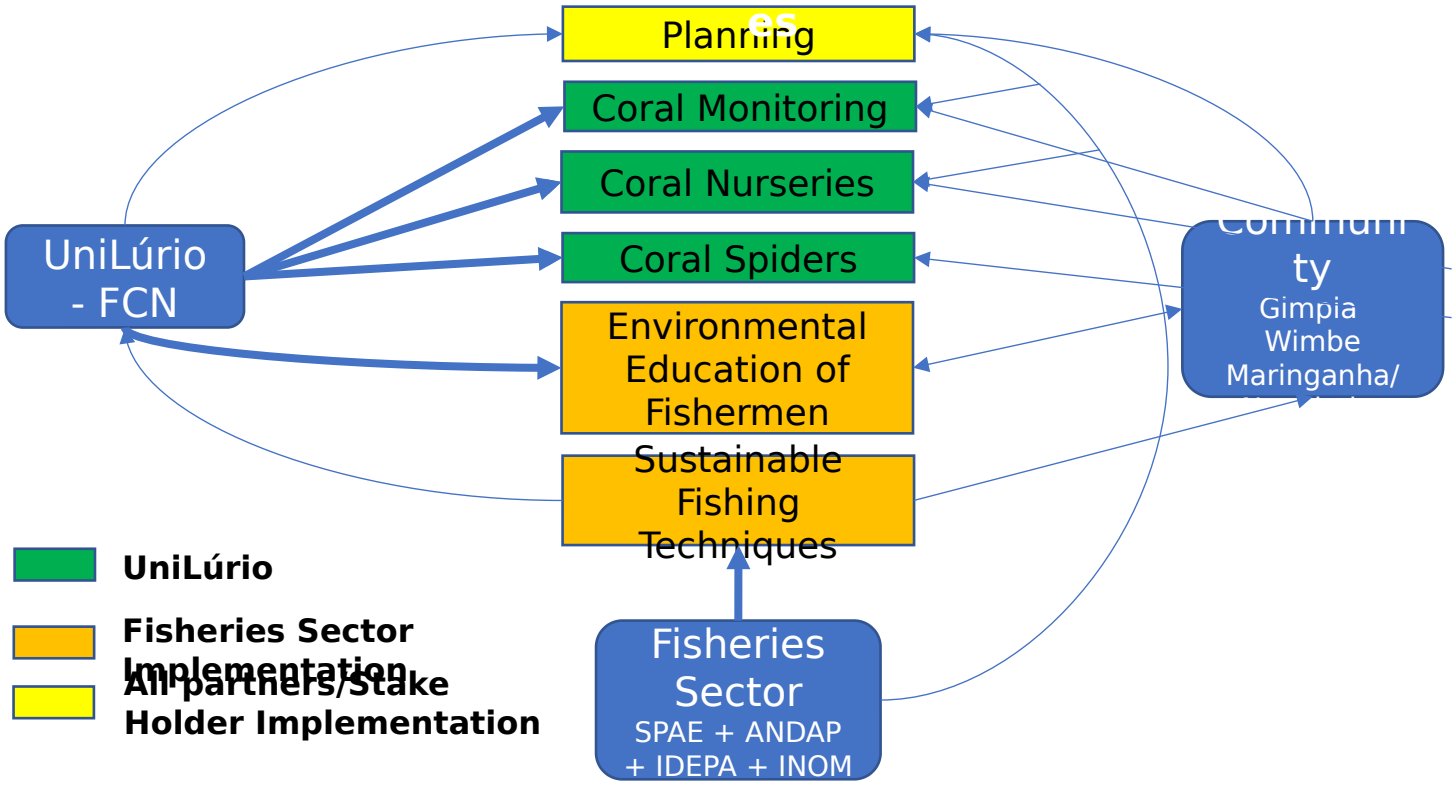
- **Mussel Aquaculture**
  - We are working with vulnerable women in the community of Nangua and Bandar;
  - The idea is to train communities in mussel production as a source of income to reduce mangrove pressure


2012
2016
2019
Kauri
Pemba

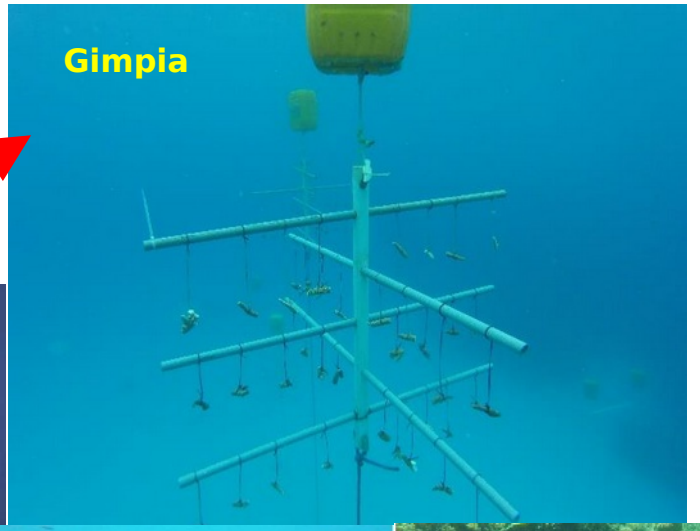
Coral Reefs Restoration and Sustainable Fisheries Program

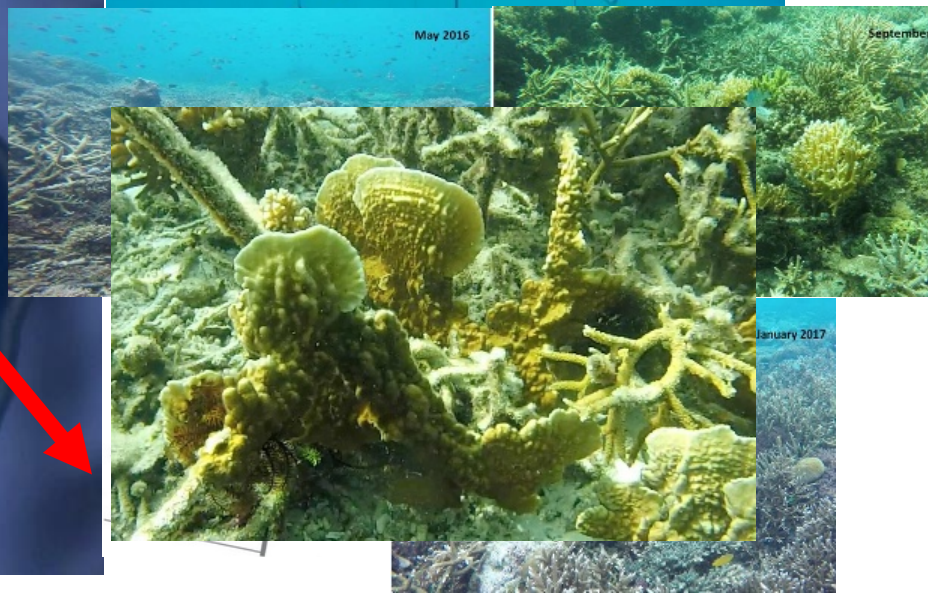
February 2022

Partners/Stake Holder vs Activities



Implementation Area, Pemba, Cabo delgado, Mozambique





WIOMSA MARINE LITTER MONITORING PROGRAMME

79 003
TOTAL LITTER ITEMS

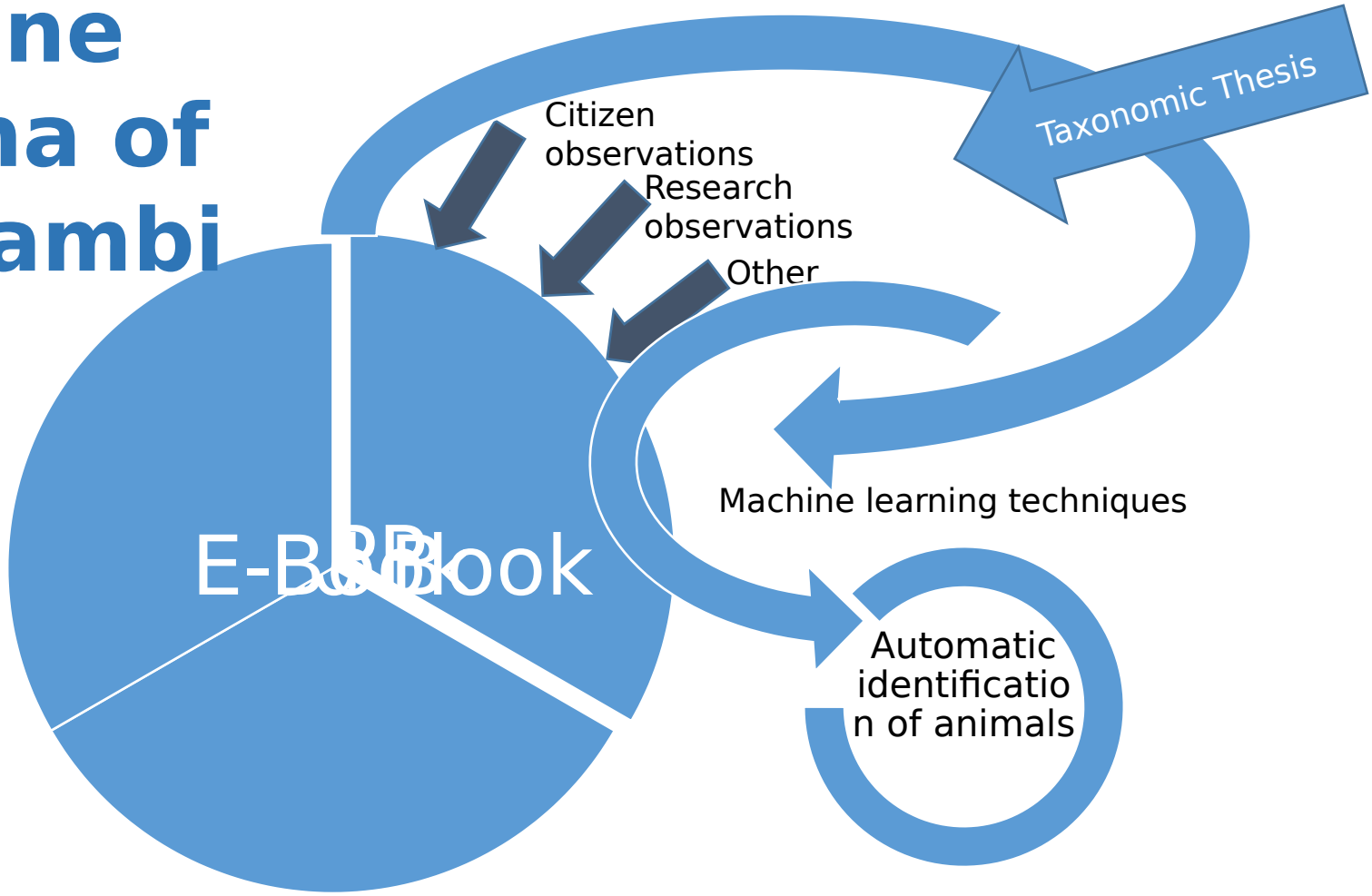
614
TOTAL RUBBISH BAGS

50%
PERCENTAGE OF LITTER THAT IS PLASTIC

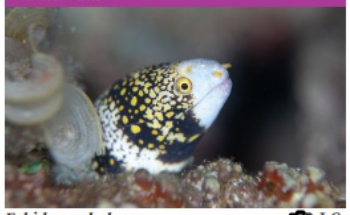
1 590 kg
WEIGHT OF ITEMS

Litter Monitoring Statistics as of June 2019

Marine Fauna of Mozambique



Muraenidae

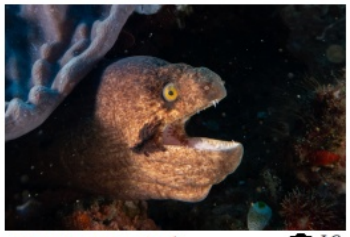


Echidna nebulosa LC
Starry Moray

?–100cm 1–48m

Enchelycore pardalis YT
Barred Moray

?–92cm 30–45m



Gymnothorax breedeni LC
Blackcheek Moray

?–100cm 1–40m

Gymnothorax chilospilus LC
Lipspot moray

?–50.5cm 1–45m

Gymnothorax eurostus YT
Salt Peper Moray

?–60cm 1–74m

Gymnothorax favagineus DD
Honeycomb Moray

?–300cm 1–50m

Bathytoshia brevicaudata WCS
Shorttail Stingray

120–430cm 0–470m

Megatrygon microps JK
Smalleye Stingray

150–220cm 0–200m

Neotrygon caeruleopunctata JK
Bluespotted Maskray

30–45cm 0–100m

Taeniura lymma AM
Bluespotted Ribbon-Tailed Stingray

20–35cm 0–20m

Taeniurops meyeni AM
Blotched Stingray

100–180cm 0–450m

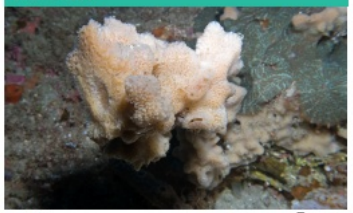
Urogymnus asperrimus AM
Porcupine Ray

90–115cm 0–85m

Callyspongia (Callyspongia) pulitzeri FT

10–15cm 30–?m

Chalinidae



Haliclona sp. FT

20–30cm 47–?m

Niphatidae

Amphimedon brevispiculifera FT

30–40cm 20–?m

Amphimedon palmata CC

20–40cm 18–?m

Petrosiidae

Xestospongia testudinaria LC

30–100cm 10–20m

Phloeodictyidae

Oceanapia ramsayi CC

10–30cm 17–?m

Chromodoris helium

3–6cm 40–60m

Chromodoris lochi

Loch's Chromodoris

1.5–3cm 10–40m

Chromodoris mandapamensis

2–3cm 15–30m

Chromodoris strigata

Streaked Chromodoris

1.5–4cm 9–40m

Diversidoris crocea

2–3.5cm 15–30m

Doriprismatica cf. *atromarginata*

1.5–7cm 15–40m