



RESEARCH
PROGRAM

FISHERIES AND
BIODIVERSITY
IN THE WESTERN
INDIAN OCEAN



UNDERSTAND BRIDGES



THE SOUTH-WEST INDIAN OCEAN

FISHERIES, BIODIVERSITY AND RISKS





SMALL-SCALE FISHERIES AT THE CORE OF LIVELIHOODS

9% of the Southwest Indian Ocean population (3.3 million people) is employed in the marine fisheries sector (World Bank, 2022).

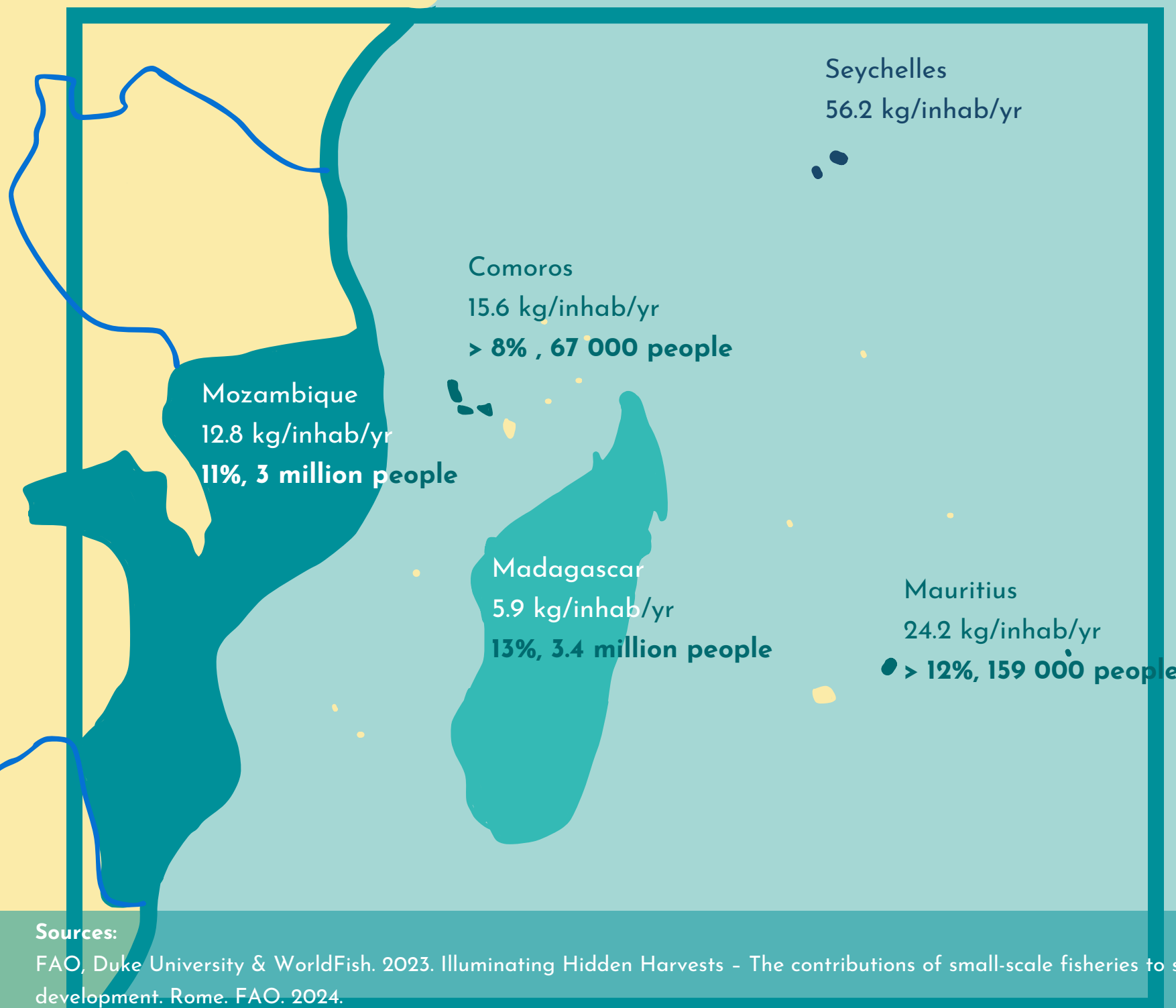
Small-scale fishing accounts for most of the landings and jobs linked to fishing (over 80%) (FAO, 2024) in the Comoros, Mozambique and Madagascar. It contributes, among other things, to:

- **the household economy**
- **nutritional health and food security.**

STRONG DEPENDENCE ON SMALL-SCALE FISHING

Apparent fish consumption (quantity of fish available for human consumption, in kg/inhab/yr)

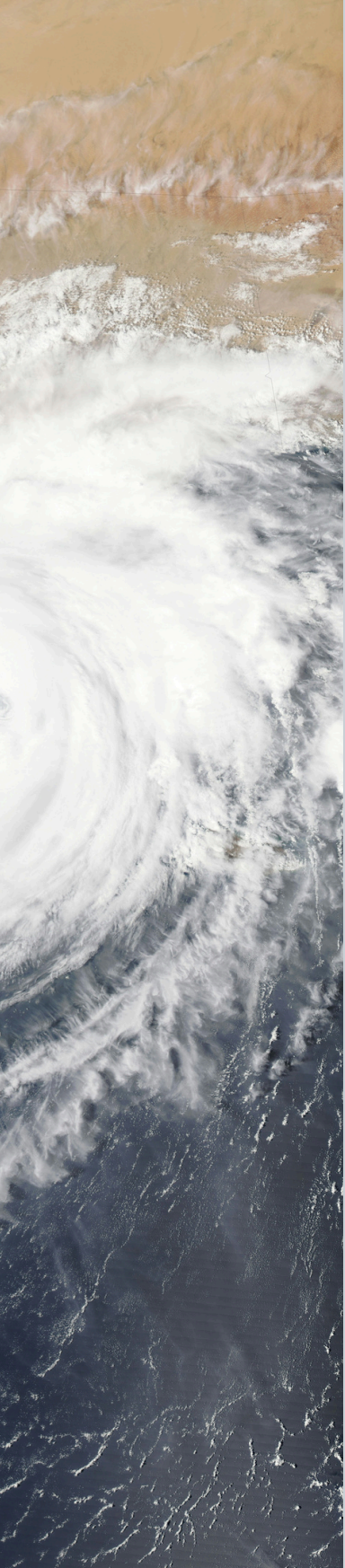
Proportion of population dependent on small-scale fishing (in % and number of inhabitants)



Sources:

FAO, Duke University & WorldFish. 2023. Illuminating Hidden Harvests - The contributions of small-scale fisheries to sustainable development. Rome. FAO. 2024.

FAO, 2024. The contribution of small-scale fisheries to healthy food systems and sustainable livelihoods in the Southern African Development Community. Rome.



A REGION UNDER SEVERE PRESSURES

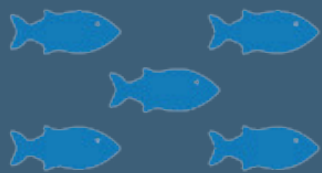
The Southwest Indian Ocean is **one of the most biodiverse ocean areas in the world**. The coastal populations of this region depend on the great diversity of species and ecosystems present.

These ecosystems are threatened by

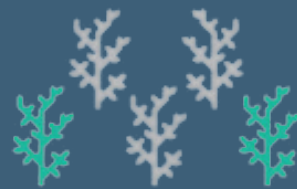
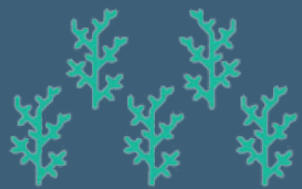
- **climate change**
- the intensification of human activities, including **overfishing**
- **growing global demand** for natural resources.

CLIMATE CHANGE IMPACTS ON EXPLOITED ECOSYSTEMS

Figure taken from Ojea et al. 2020 - One Earth



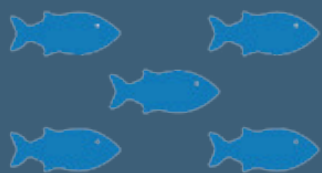
Range contraction



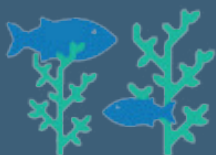
Habitat fragmentation



Range expansion



New species interactions



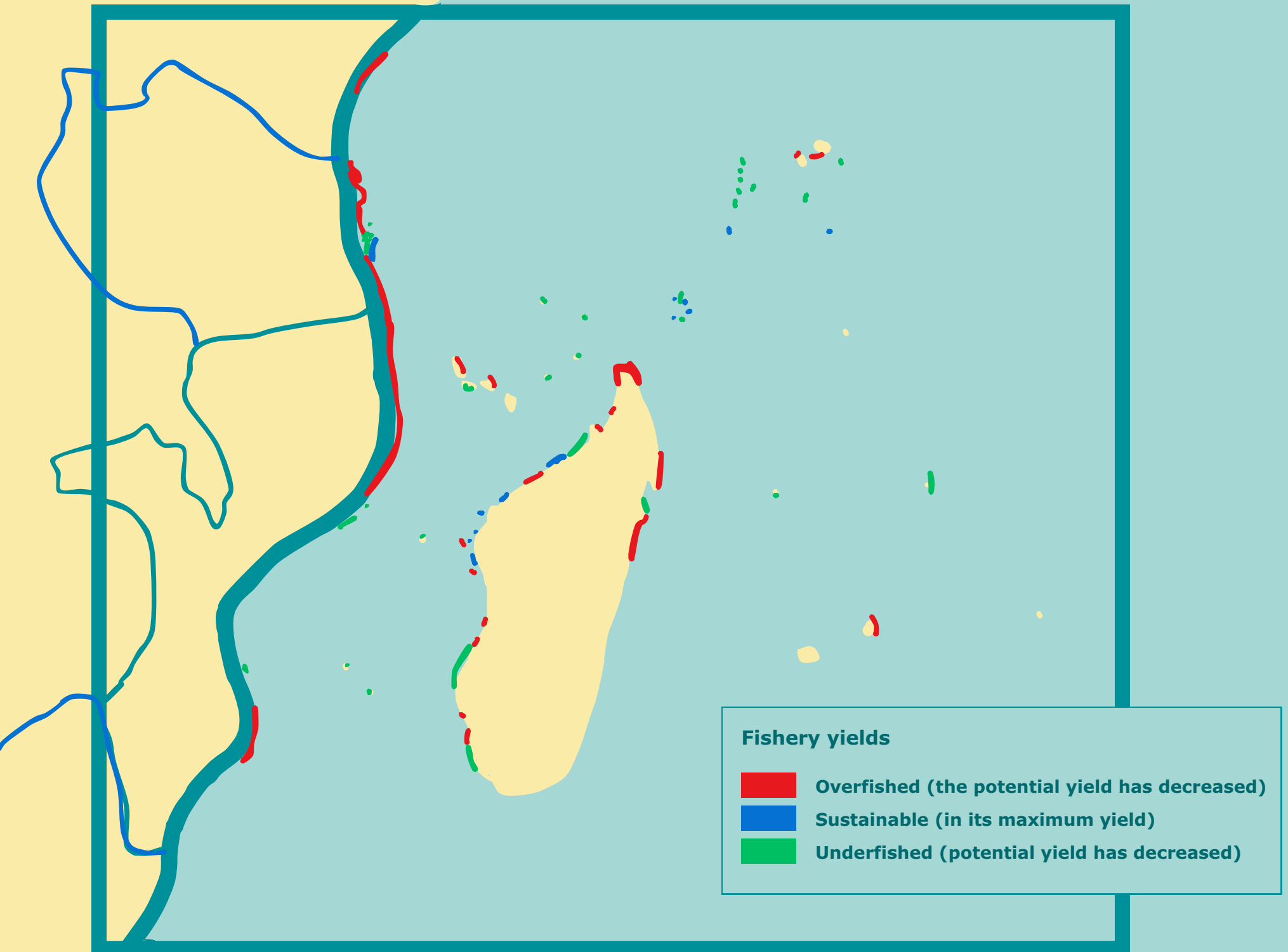
Habitat shift

Types of ecological changes in target species and supporting habitat as a result of climate-induced distribution shifts

Blue refers to cold-water species, and red illustrates warm-water species. As species shift in distribution in response to climate-change, new species interactions and habitat shifts will transform marine ecosystems.

WIDESPREAD OVERFISHING IN CORAL REEFS, WITH MAJOR IMPACTS ON BIOMASS

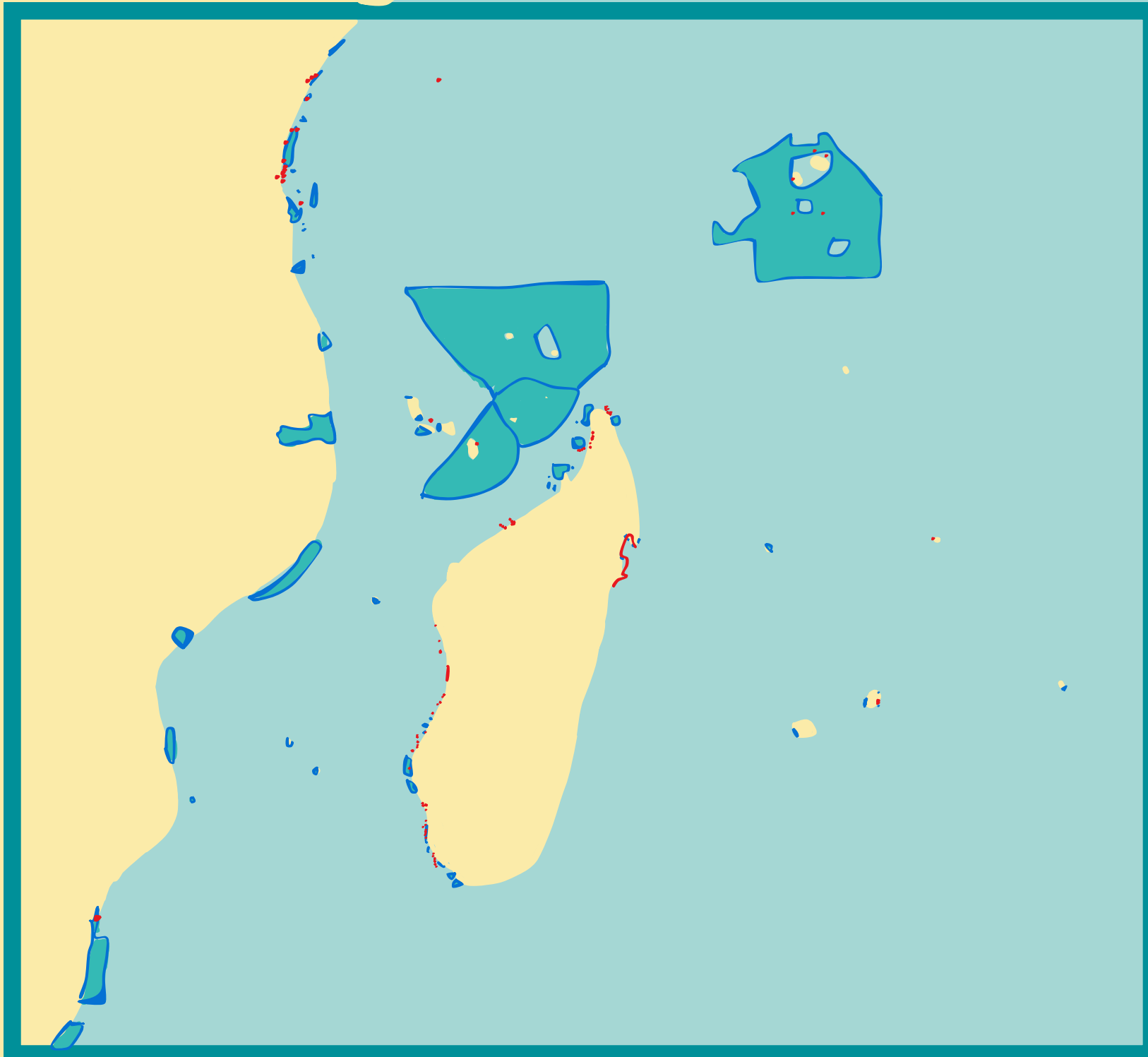
Source: McClanahan et al. 2023 - Marine Policy



MARINE PROTECTED AREAS AND LOCALLY MANAGED MARINE AREAS

-  **Locally managed marine areas (LMMA)**
-  **143 marine protected areas in the western Indian Ocean, 555,437 km² (7% of the total EEZ)**

Source : UNEP-Nairobi Convention and WIOMSA. 2021. WIOMPAO



Source : UNEP Nairobi Convention Contracting Parties and Secretariat, WIOMSA, and Macquarie University MOZALINK 2017 -WIO Locally Managed Marine areas



... POORLY CONNECTED AND WITH WEAK PROTECTION 30x30

The Global Biodiversity Framework calls for the surface area of marine protected areas to be increased to 30% of the oceans by 2030.

However, **insufficient levels of protection**, particularly in French territories, mean that biodiversity cannot be protected and the livelihoods of millions of people cannot be sustained (WIOMPAN 2024; Claudet et al. 2021 Marine Policy).



INCREASED RISK OF CONFLICT...

The sharing and governance of marine resources are at the heart of the region's challenges.

Fish stocks depletion is a catastrophic and almost certain climatic risk that could lead to military interventions in the region (IRIS, 2020).

... WHICH CAN BE MITIGATED



Some factors can increase or mitigate the risk of conflict, such as complex histories of **power imbalances**, **unequal access to resources**, or a **lack of consistency and transparency in data collection**.

Cooperation and fair decision-making processes are essential elements of the management of internationally shared stocks, which can promote **sustainable, efficient and conflict-resilient fisheries** (Vogel et al. 2023 - Marine Policy).



LEARN MORE ABOUT BRIDGES:



WWW.BRIDGES-WIO.COM



[@BRIDGES-WIO.BSKY.SOCIAL](https://www.bsky.social/@BRIDGES-WIO.BSKY.SOCIAL)



[@BRIDGES-RESEARCH-PROGRAM](https://www.linkedin.com/company/bridges-research-program)