DEMERSTEM : WP4
Biodiversity and ecosystem assessment of the Mauritanian marine shelf using indicators

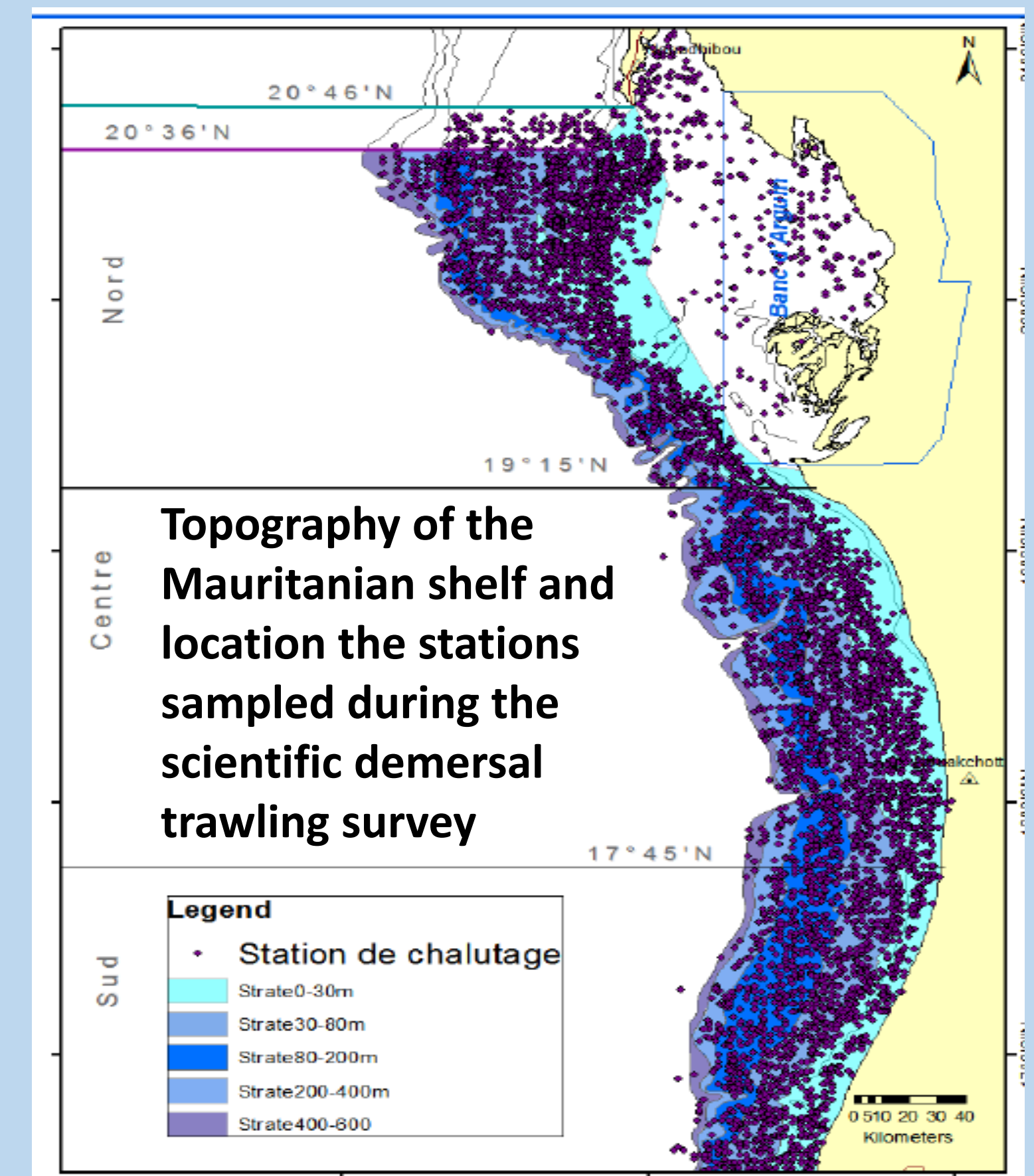Brahim Mohamed TFEIL[1], Ibrahima DIALLO[2], Modou THIAW[3], Mamour Ndiaye[3], Didier JOUFFRE[4,2]

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1 Introduction

Under the context of an ecosystem approach to fisheries (EAF), there is keen interest in providing insights into the evolution of exploited ecosystems in West-Africa using ecosystem indicators. In this context, an Indicator approach was developed in DEMERSTEM (WP4) to address the practical concerns linked to this objective of monitoring EAF indicators, computed in a standardized way, using data from different sources available in West Africa. The present study is an application of this approach to the Mauritanian marine ecosystem assessment.

Topography of the Mauritanian shelf and location the stations sampled during the scientific demersal trawling survey

Research surveys data

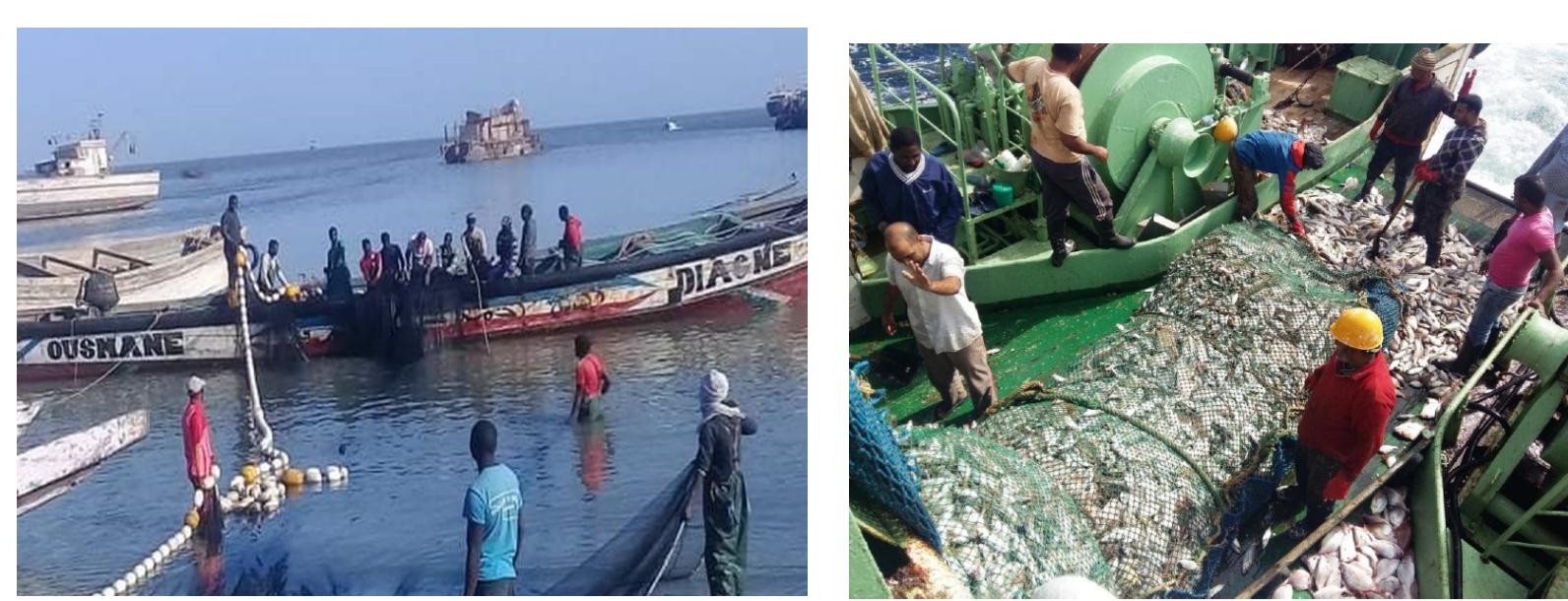In West Africa, there are long-term scientific research surveys and statistic data.

Mauritanian EEZ - Sources surveyed data: IMROP database

✓ Surveys data of periods:
  - 1982 -1996 : by RV Ndiago
  - 1997-present: by RV Al Awam

N/O N'DIAGO **N/O AL-AWAM**

Commercial fishing data
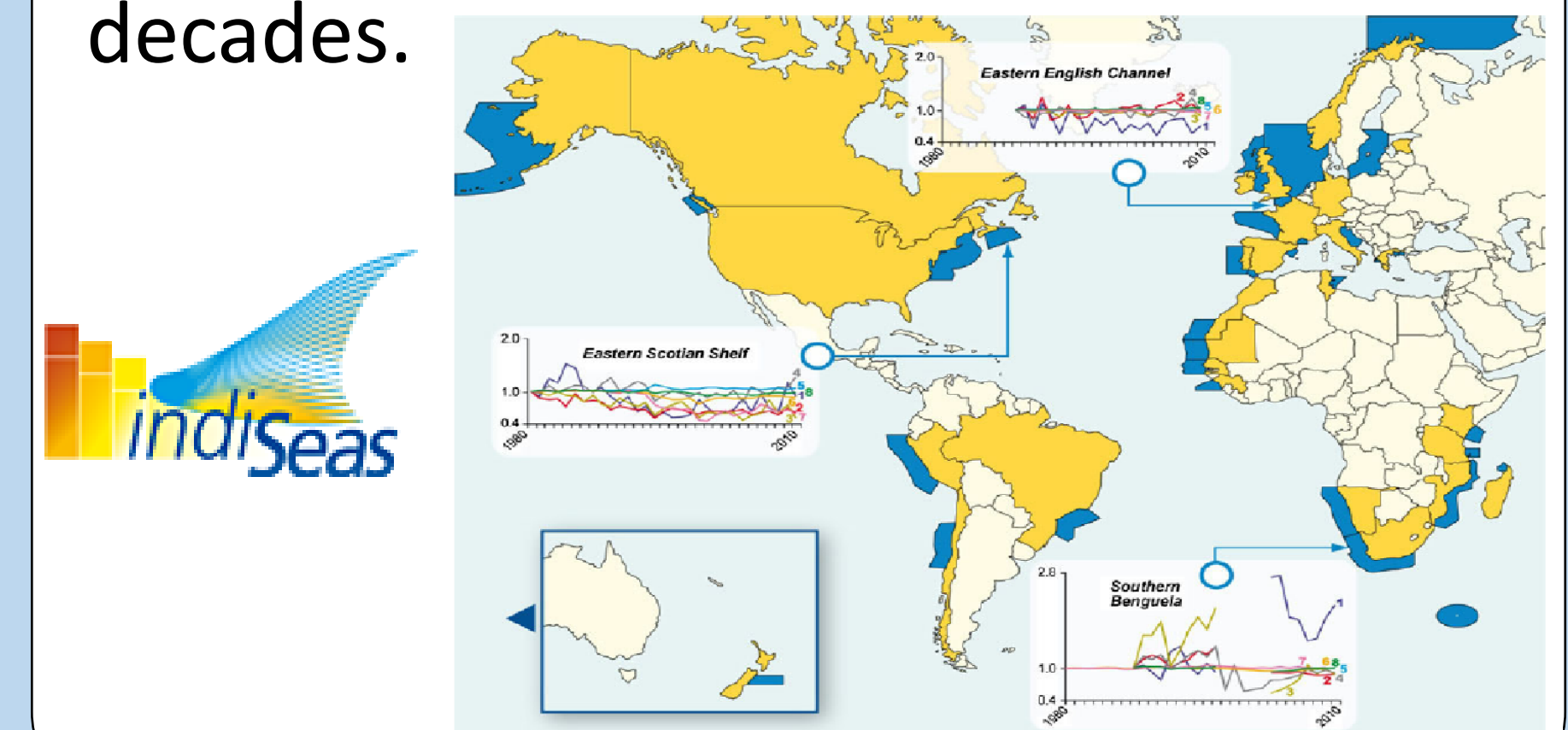
Small-scale fisheries

Industrial fishery

Fishing statistics data are total annual catches by species or categories of the artisanal and industrial fisheries provided by the IMROP over the period 1990-2021.

Biodiversity and ecological indicators

About 10 ecological indicators – derived from indiseas (http://www.indiseas.org/) and additional ones - are estimated from cruise data and fishing statistics and their trends are analyzed along almost four decades.
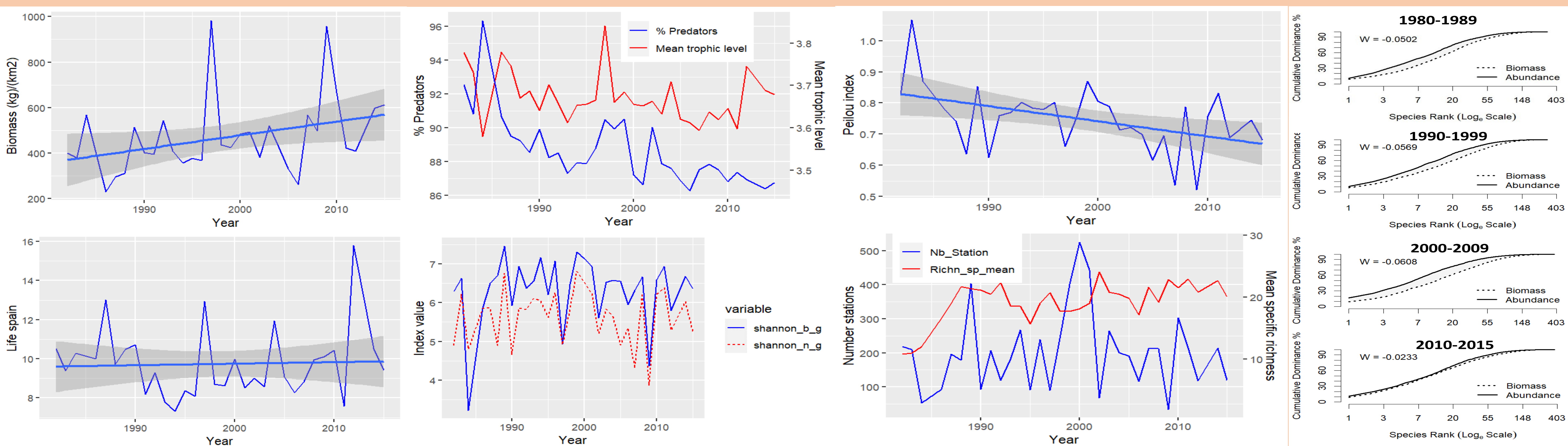
3 Results

Yearly biomass index (in kg/km²) shows large variations, around 500 kg, up to 1000 kg (1997, 2009) with a long-term increasing trend. Mean life span and trophic level of the community show fluctuations with no apparent trend. In contrast, the proportion for predators decreased over the period.

Average species richness remained relatively stable since the 1990. Biodiversity indices fluctuated showing different trends.

The diagnosis from dominance curves showed stressed communities except in the last decade.

4 Conclusion

This diagnosis of the Mauritanian ecosystem reveals the following key facts:

- an overall trend of increasing biomass over time,
- a decrease in community stress over the last decade,
- a stability of the trophic level and the average life span of the communities,
- and a decrease in the proportion of predators.

References :

Shin Y-J., Bundy A., Shannon L., Simier M., Coll M., Fulton E., Link J., Jouffre D., Ojaveer H., Mackinson S., Heymans J., Raid T. 2010. Can simple be useful and reliable? Using ecological indicators for representing and comparing the states of marine ecosystems. – ICES Journal of Marine Science, 67: 717-731

Jouffre, D., and Inejih, C. A. 2005. Assessing the impact of fisheries on demersal fish assemblages of the Mauritanian continental shelf, 1987–1999, using dominance curves. – ICES Journal of Marine Science, 62: 380-383.

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