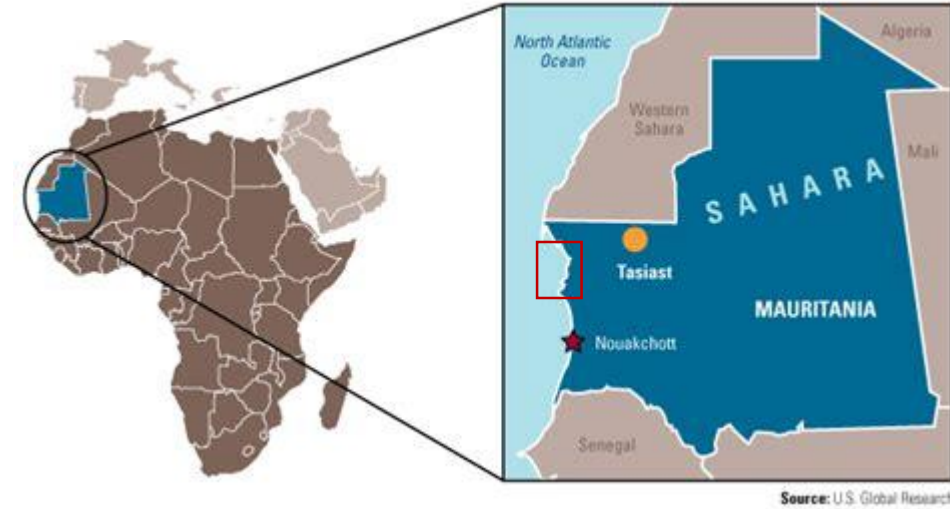
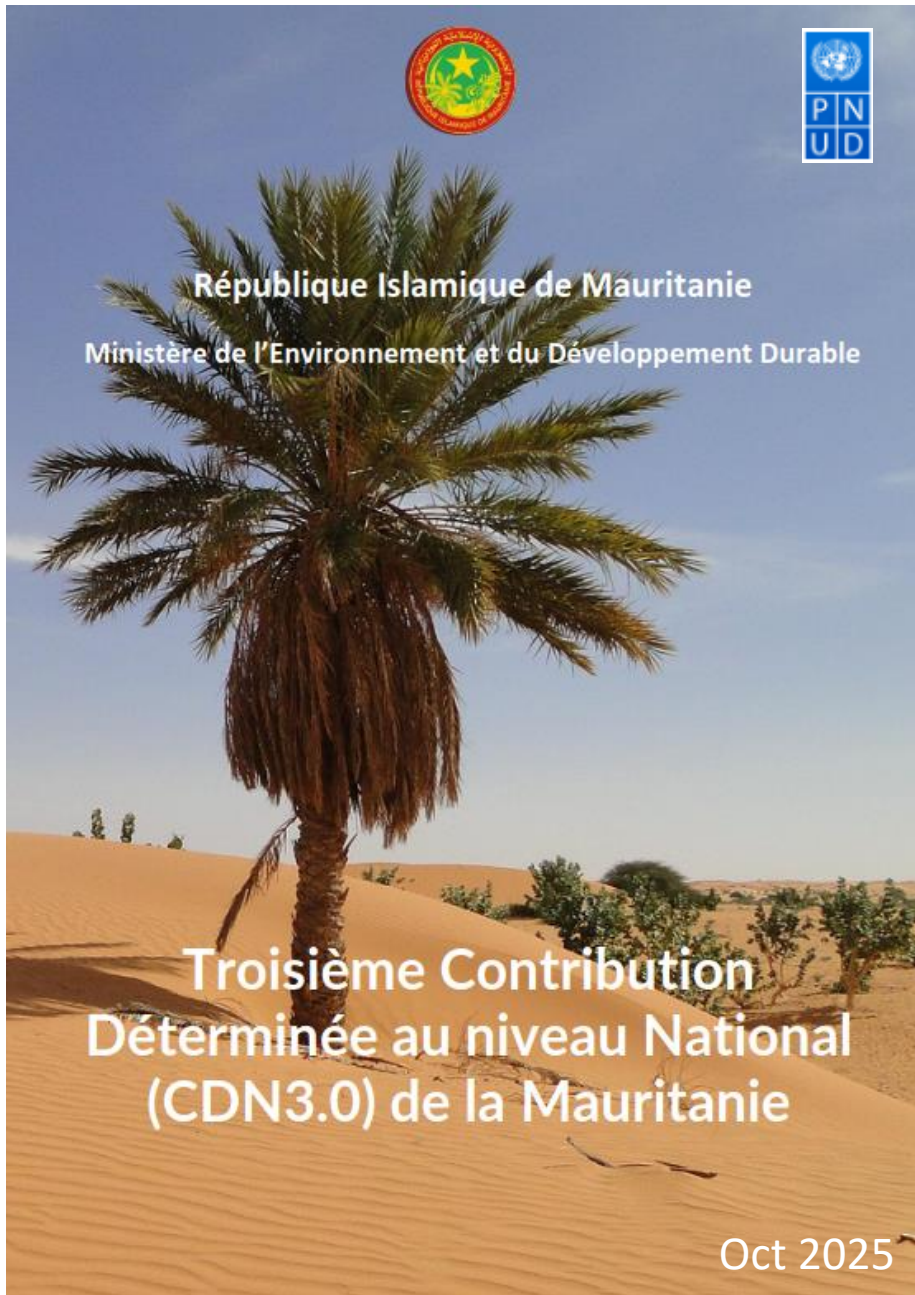


Contributions of the *Banc d'Arguin National Park* in the Mauritanian National Determined Contribution



Hélène Launay, CNRS, laboratoire BIP (Marseille)
represents the *Banc d'Arguin National Park* scientific council

Mauritania signed the Paris's agreement



National GHG emission 2022: $\sim 12 \cdot 10^6$ tonne eq CO_2
2.7 tonne eq CO_2 / habitant / year

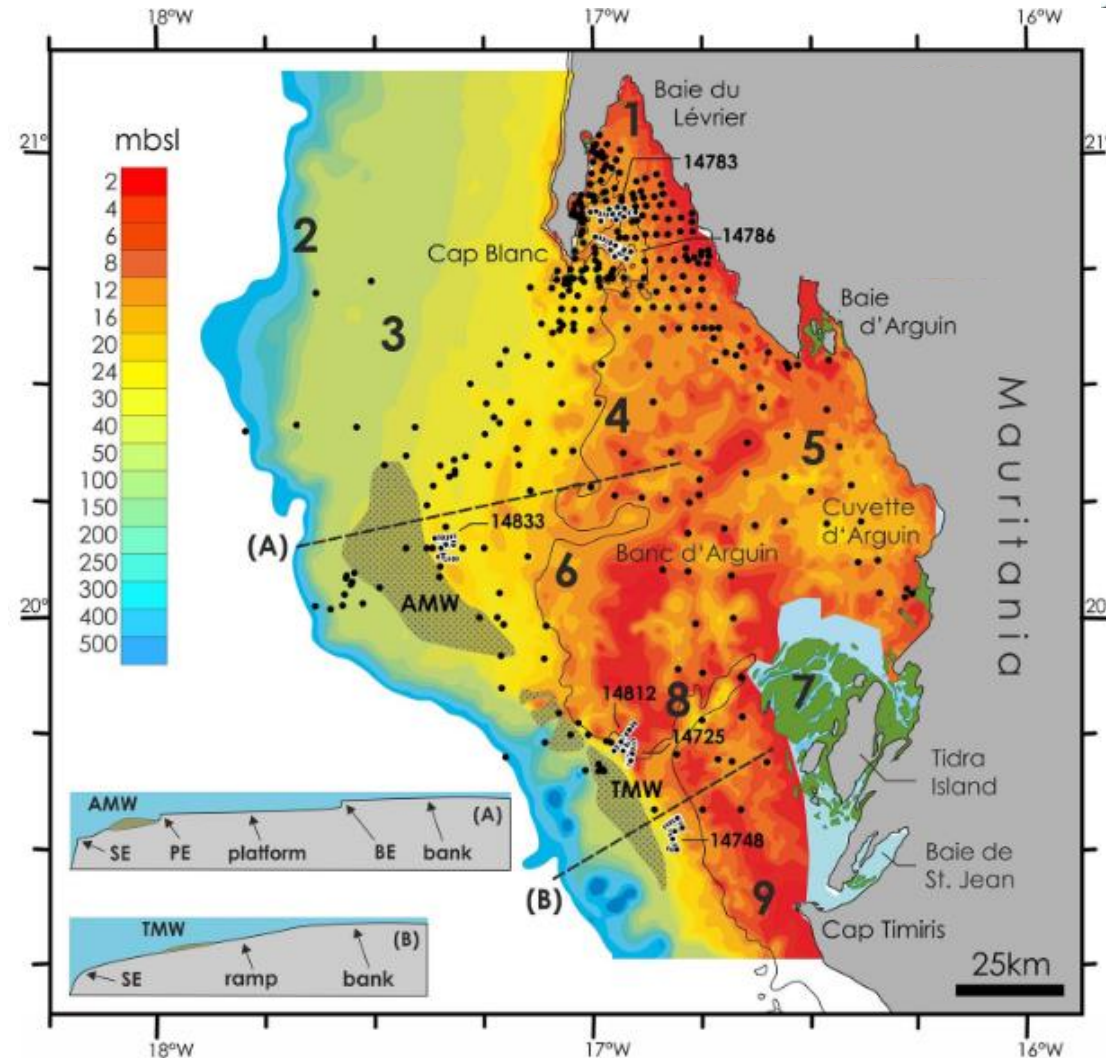
National GHG emission 2025: $\sim 14 \cdot 10^6$ tonne eq CO_2
3.9 tonne eq CO_2 / habitant / year

GES emission related to : energy & land re-usage

Economy relies on Fisheries, Farming (breeding)
and Mining (Iron, Gold)

Banc d'Arguin (حوض أركين) National park

Since its creation in 1976 (encouraged by Theodore Monod) anthropisation is stopped in the Banc d'Arguin National Park



Klicpera et al, Facies (2015)



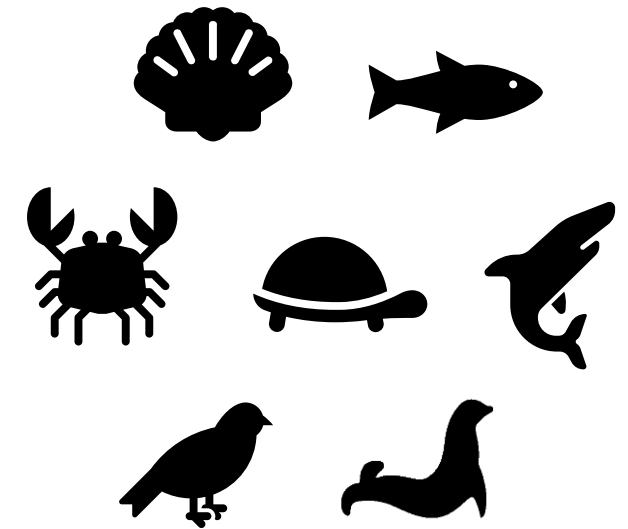
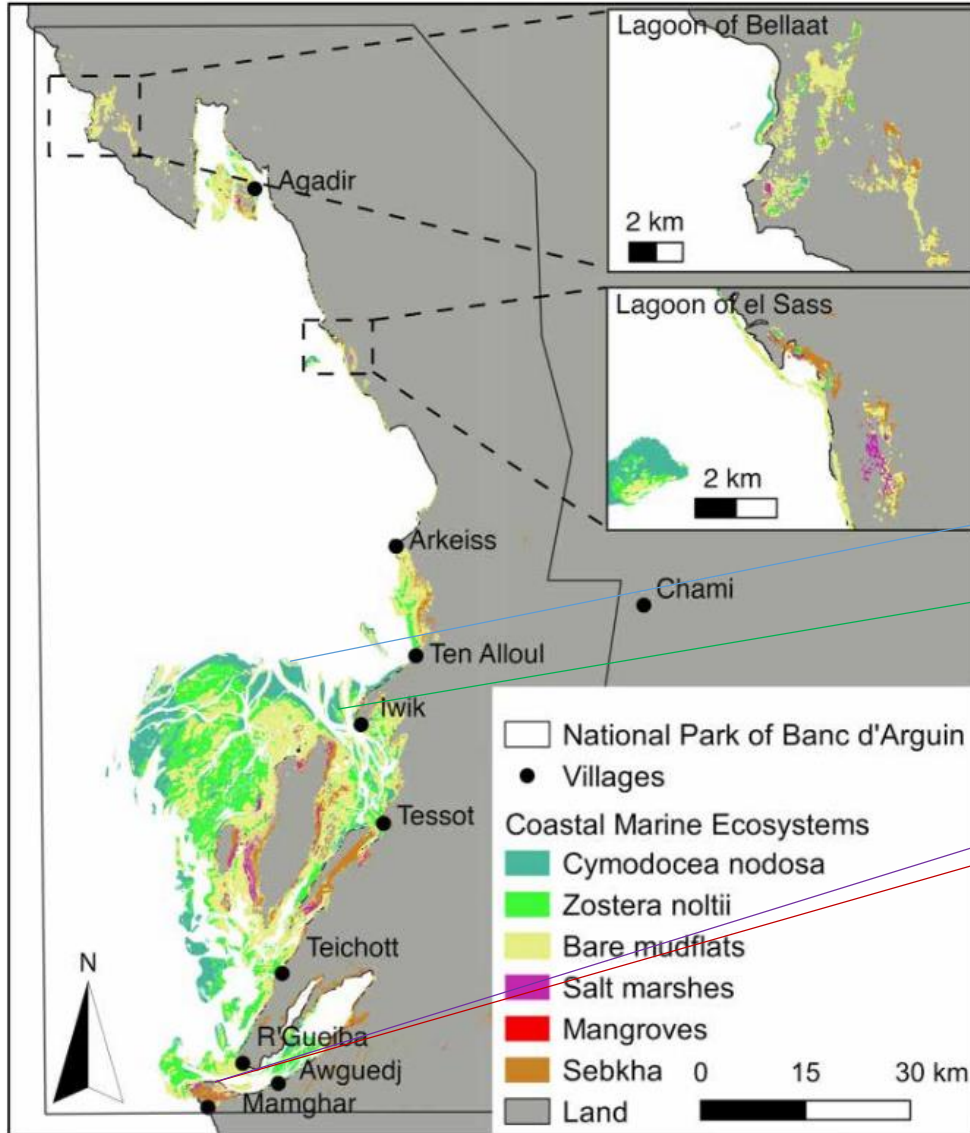
Source: U.S. Global Research



unesco
World Heritage site



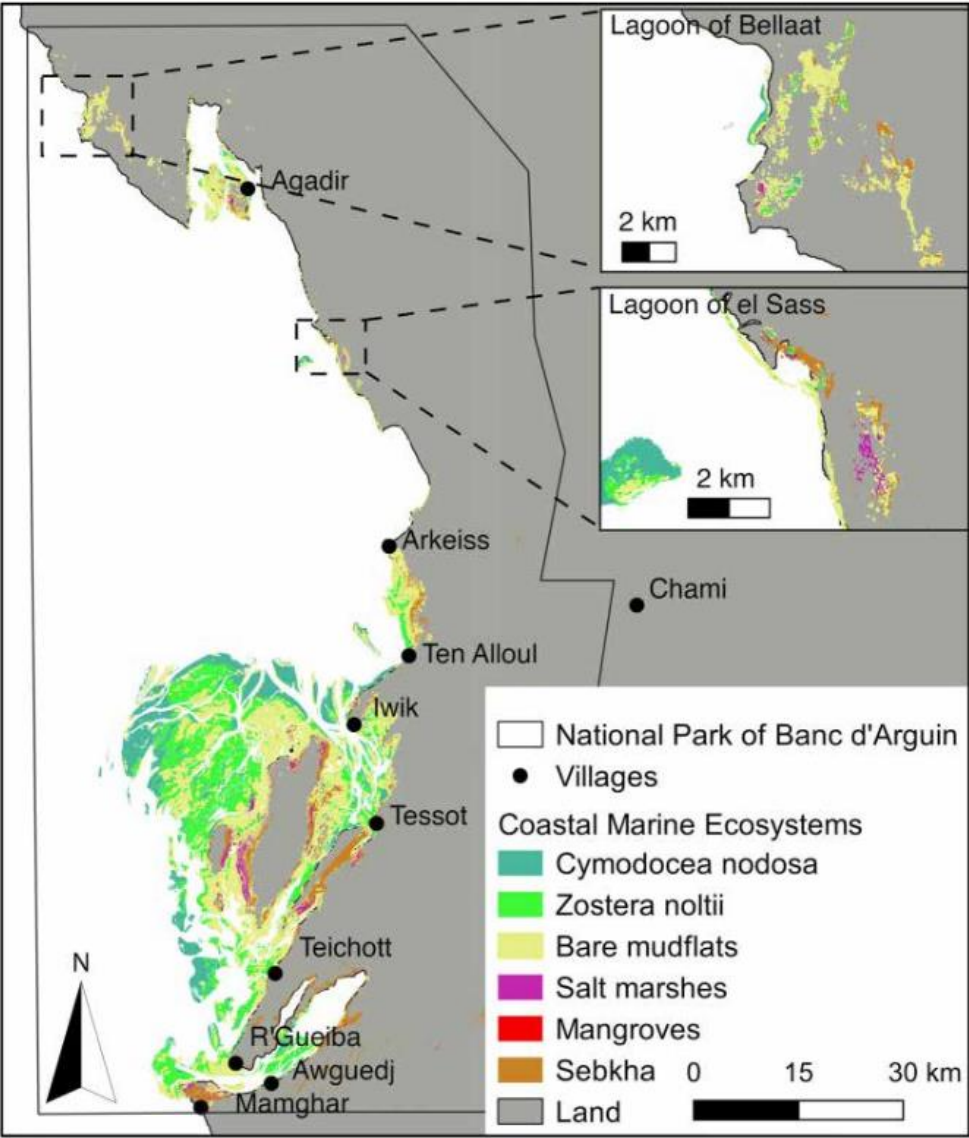
Banc d'Arguin National park (BANP): Largest seagrass bed of Africa



Sentinel-2 imagery

Trégarot et al, Ecosphère (2021)

Carbon fluxes by seagrass bed in PNBA



Seagrass bed area:

	The Biodiversity Consultancy Ltd, 2023	Pottier et al, 2021
Subtidal	1 184 km ² seagrass 427 km ² macroalgae	470-420 km ² seagrass
Intertidal	350-400 km ² seagrass	350-400 km ² seagrass

Net community production (*Z. noltii*):

	Gross max. photosynthetic rate	Gross carbon respiration
Under water	48 mmol C m ⁻² h ⁻¹	5 mmol m ⁻² h ⁻¹
Air exposed	8 mmol C m ⁻² h ⁻¹	2.2 mmol m ⁻² h ⁻¹

Clavier, Aquatic botany, 2011

Sentinel-2 imagery

Trégarot et al, Ecosphère (2021)

Contribution of microphytobentos & epiphytes to the carbon fluxes in seagrass bed?

Phytopigment in sediment $\mu\text{g} \cdot \text{g} \text{ sed}^{-1}$	Bare sediment	Under seagrass bed
Chlorophyll a	16.34	36.37
Fucoxanthin	3.84	9.11

Hongkopp et al, J. of sea research, 2008

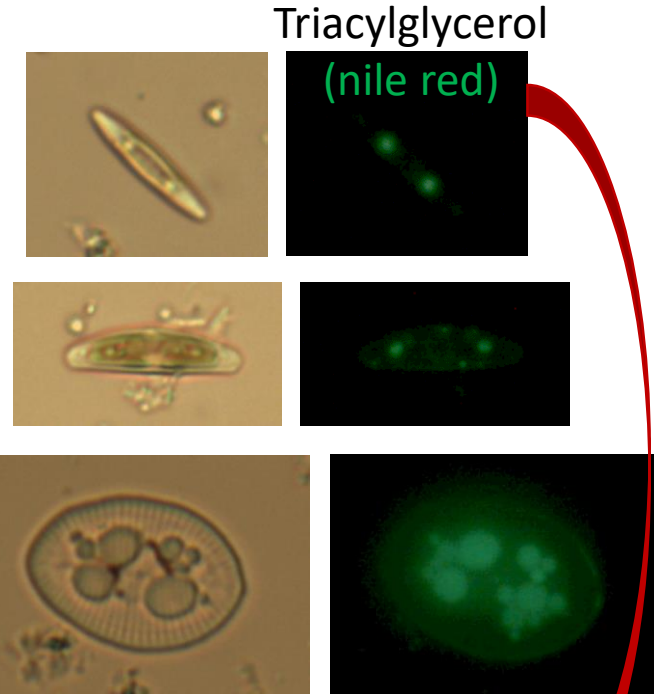
"... Therefore, considering both the concentrations of phytopigments and the diatom-like signature of the phytopigments, the standing stock of benthic microalgae must have been considerable."

Clavier, Aquatic botany, 2011



Zostera noltii

Cymodocea nodosa



Triacylglycerol
(nile red)



Lipid trophic markers of diatoms in *Mugil cephalus*

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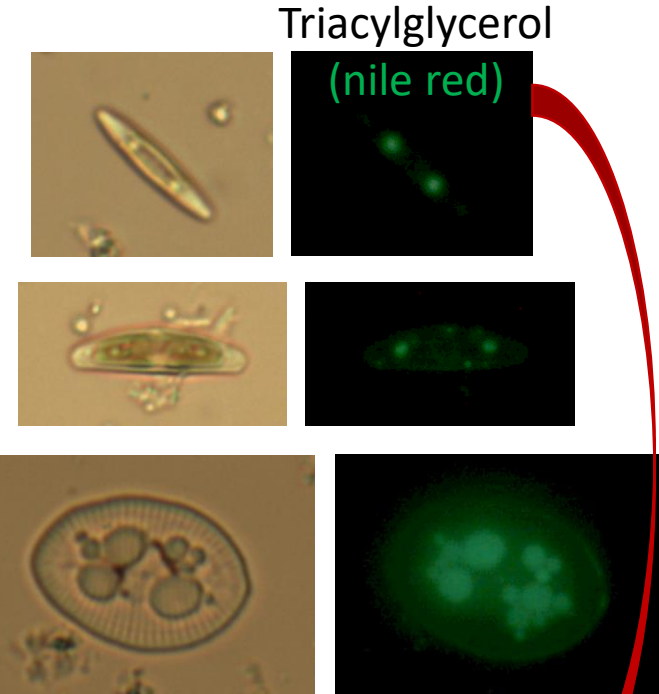
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Zostera noltii

Cymodocea nodosa



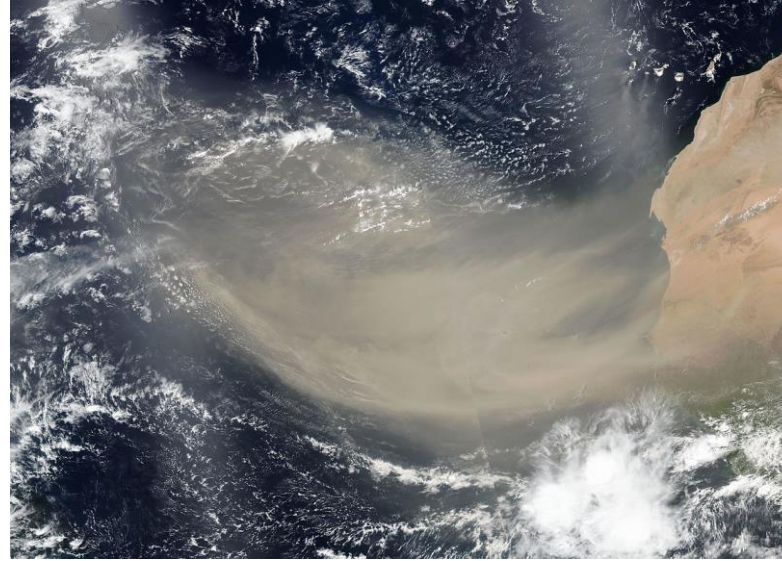
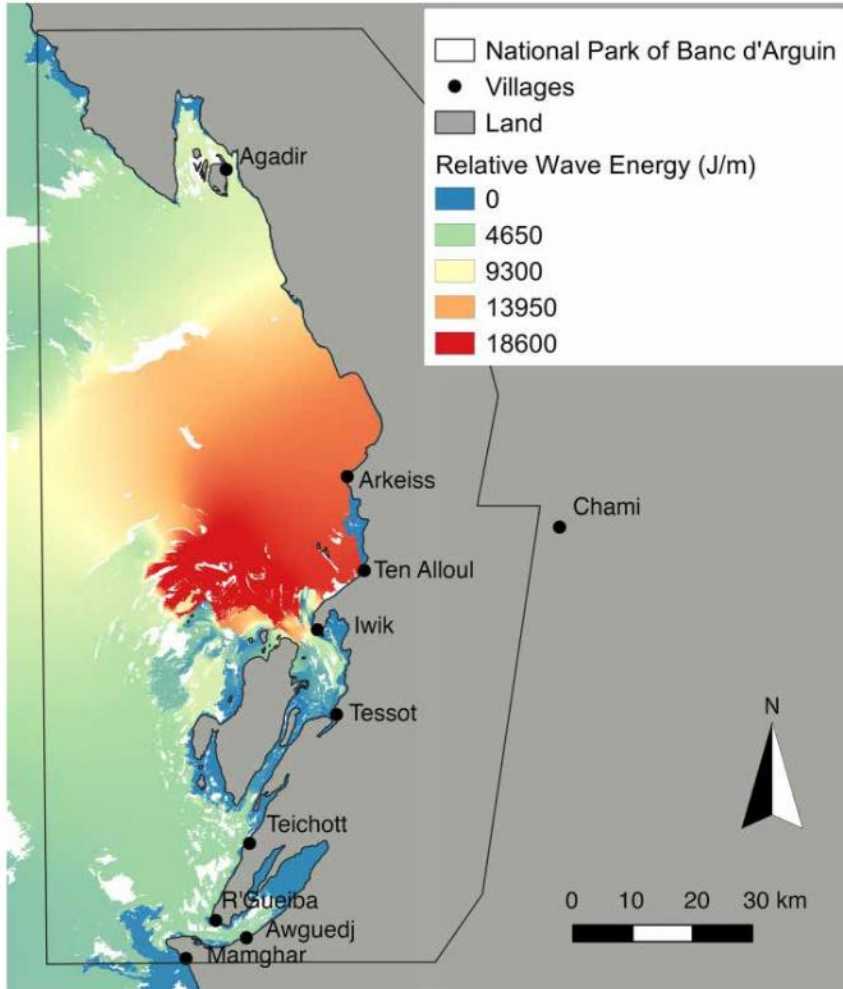
Triacylglycerol
(nile red)

Other contributions: mineralisation, alkalynation???



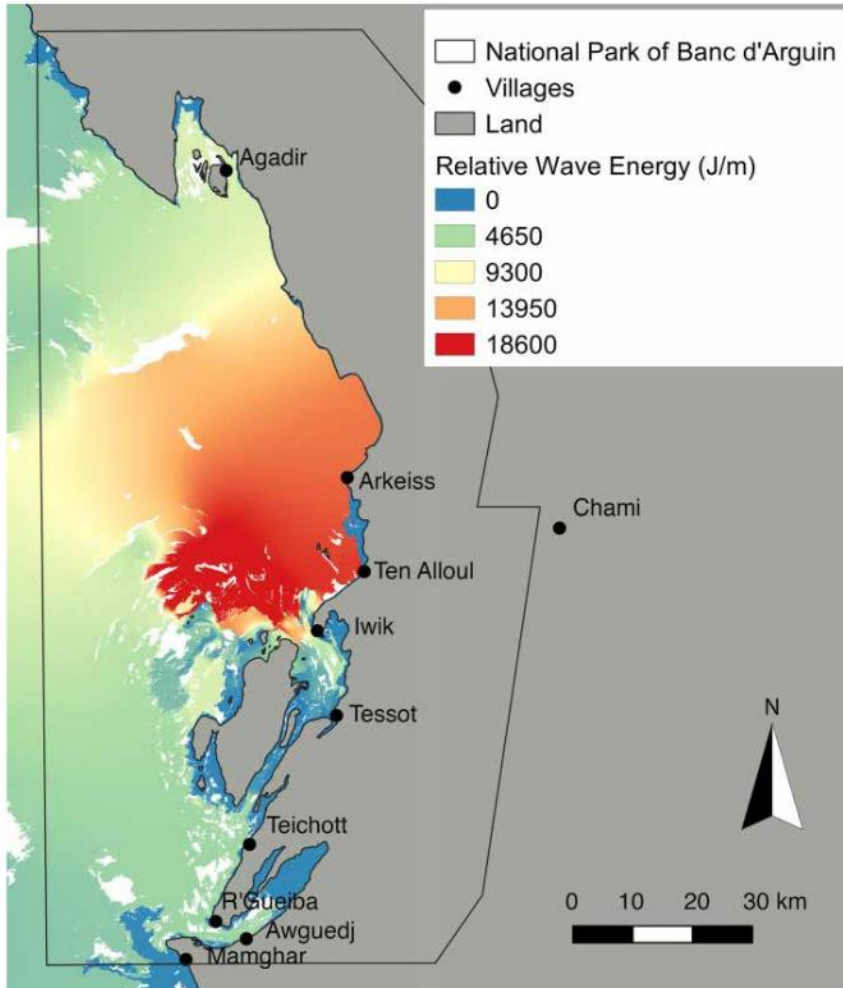
Lipid trophic markers of diatoms in *Mugil cephalus*

Powerfull hydrodynamics and « collaptic » events,

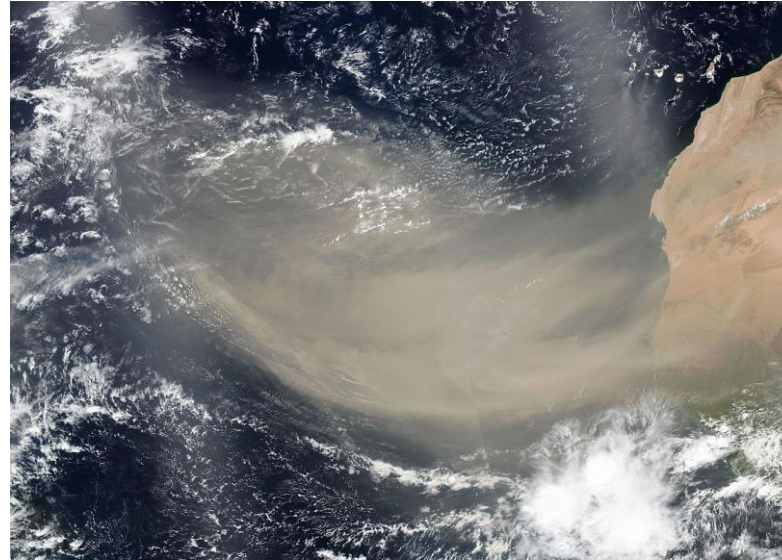


Trégarot et al, Ecosphere (2021)
El-Hacen et al, Ecosystem (2019)

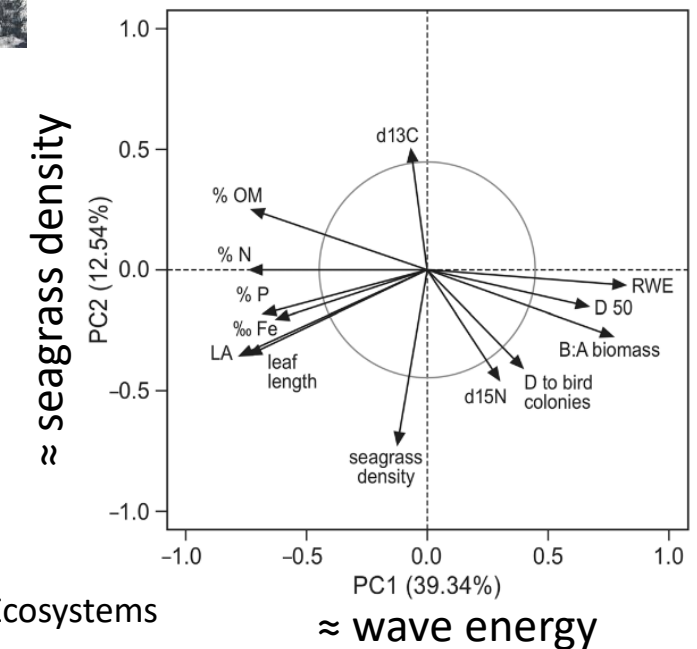
Powerfull hydrodynamics and « collaptic » events, contributes to the sediments properties and carbon stock



Trégarot et al, Ecosphere (2021)
El-Hacen et al, Ecosystem (2019)

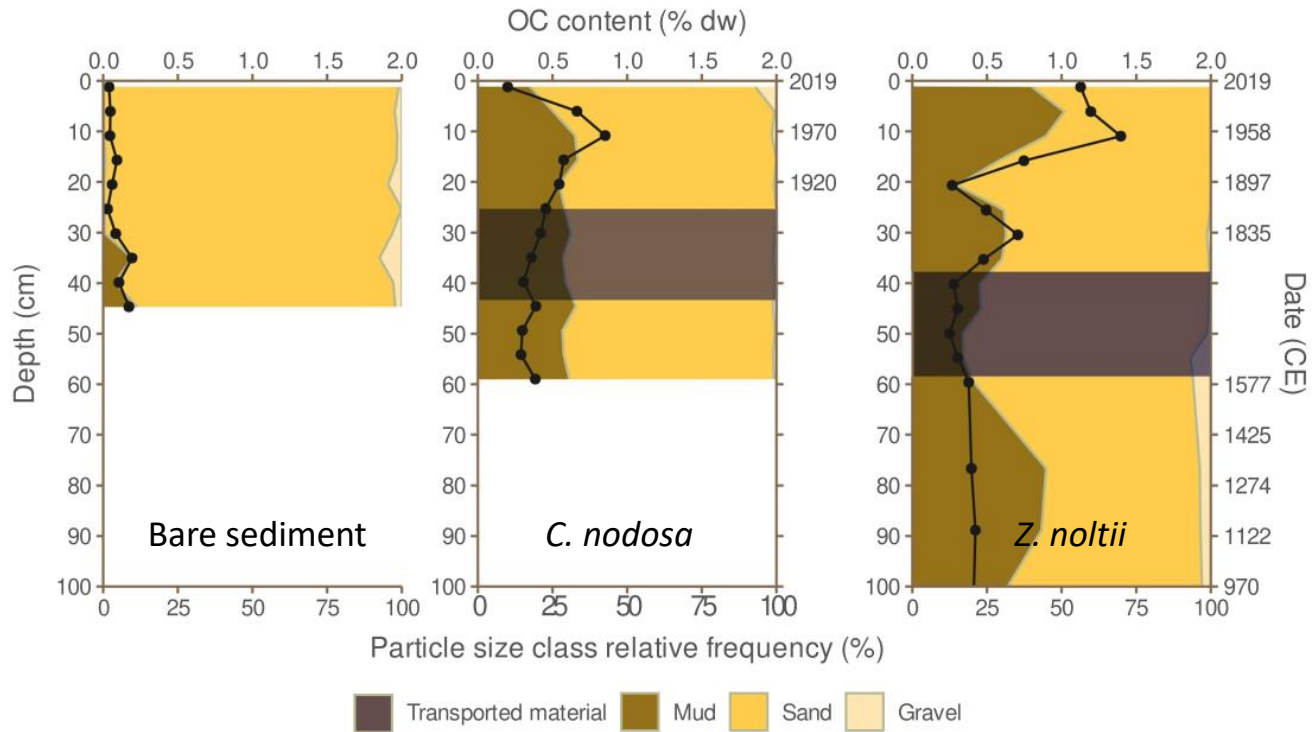
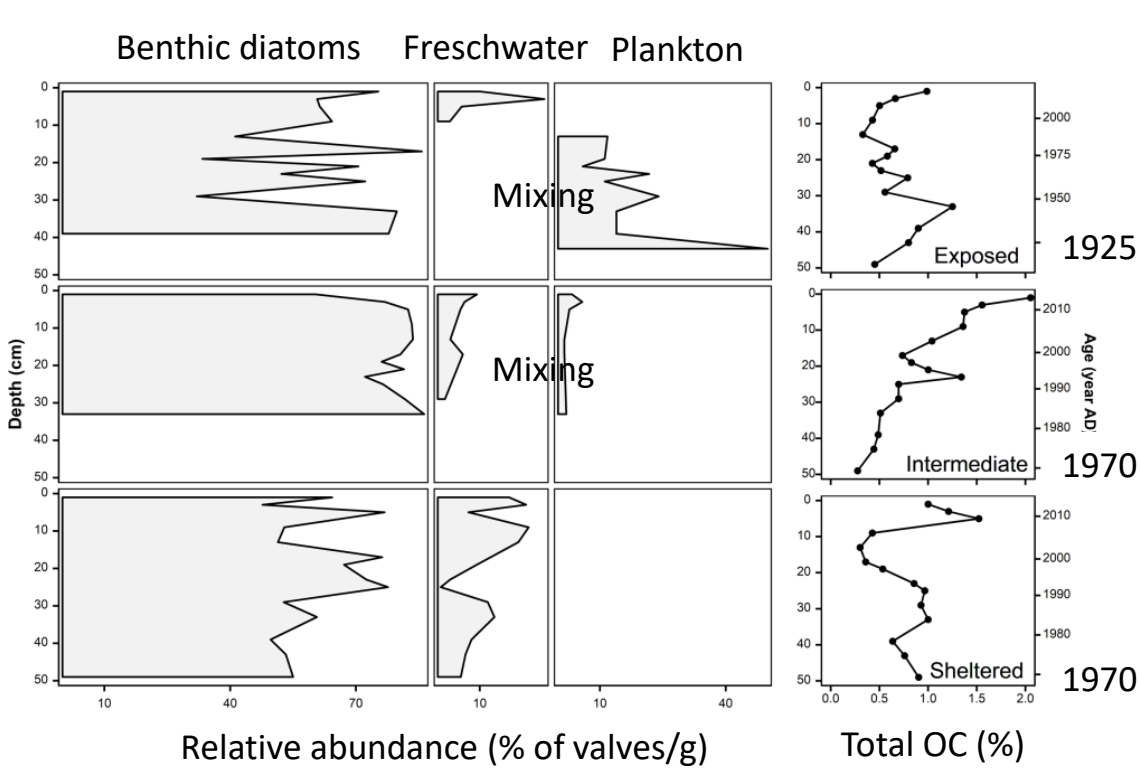
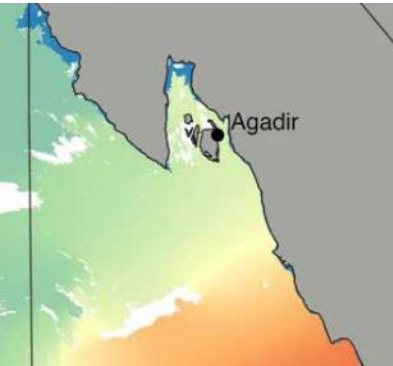
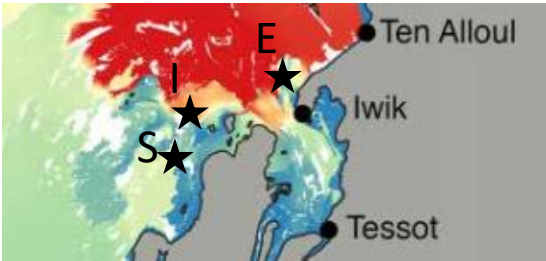


PCA for sediment properties:

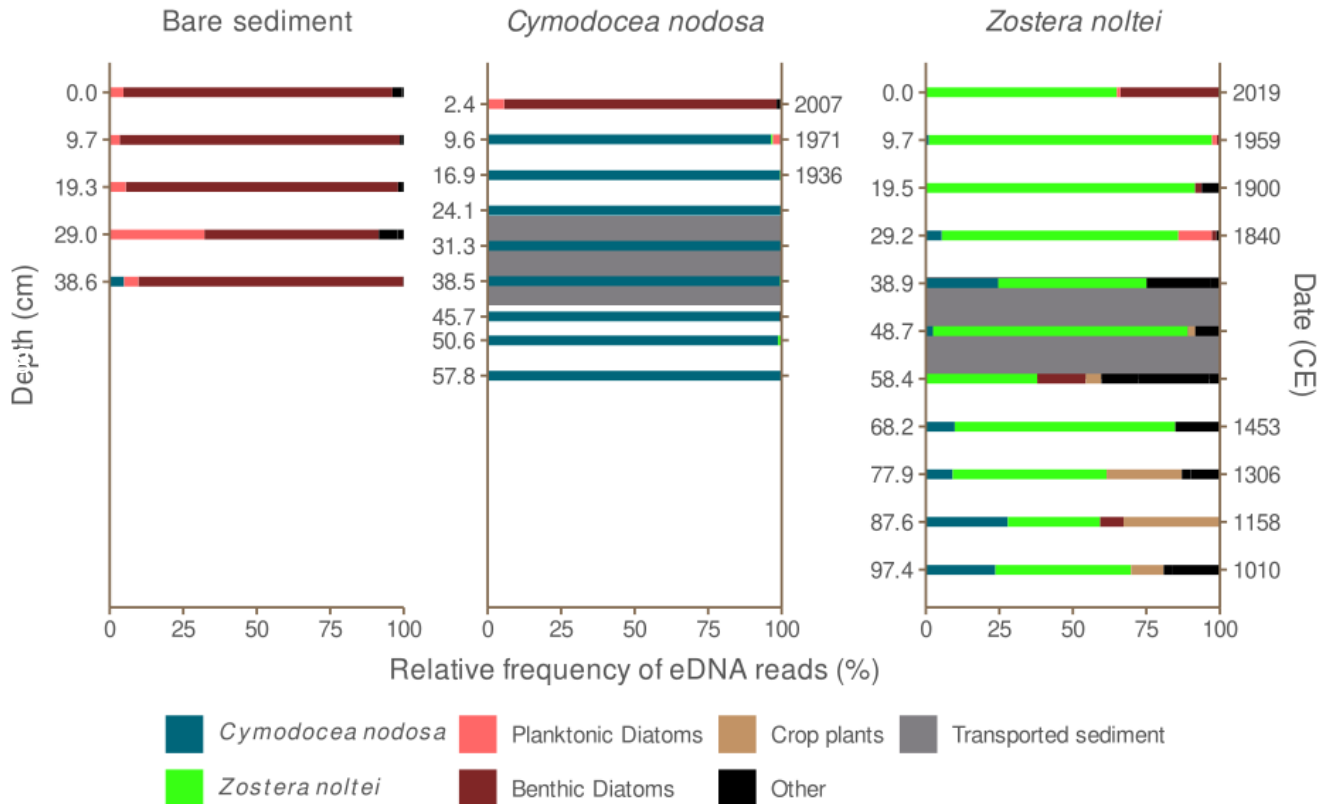
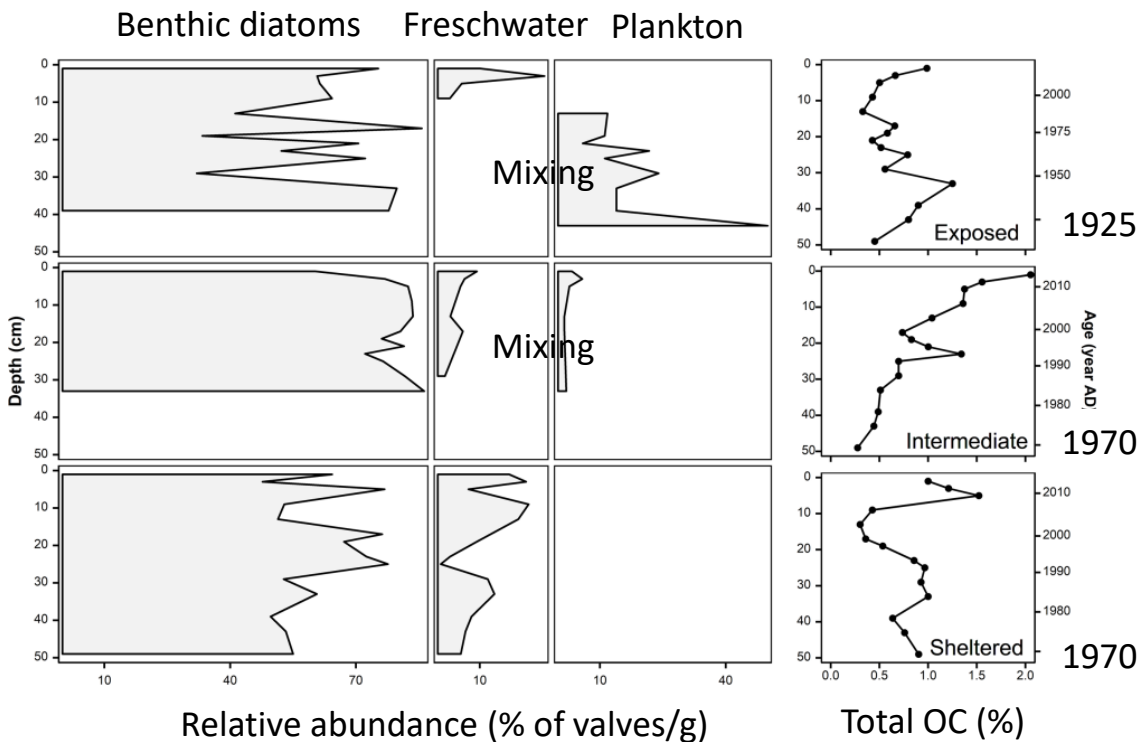
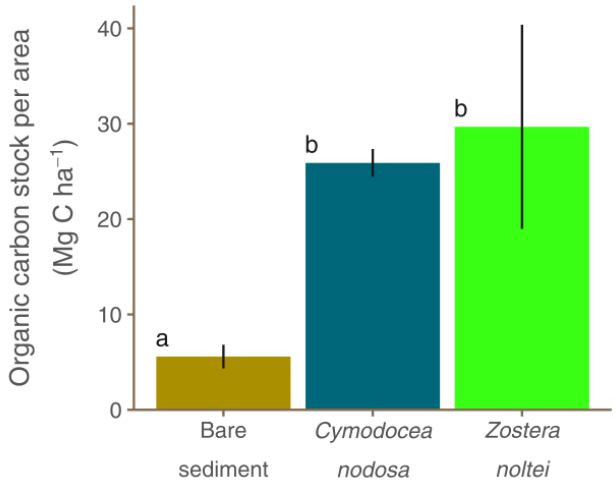


El-Hacen et al, 2019, Ecosystems

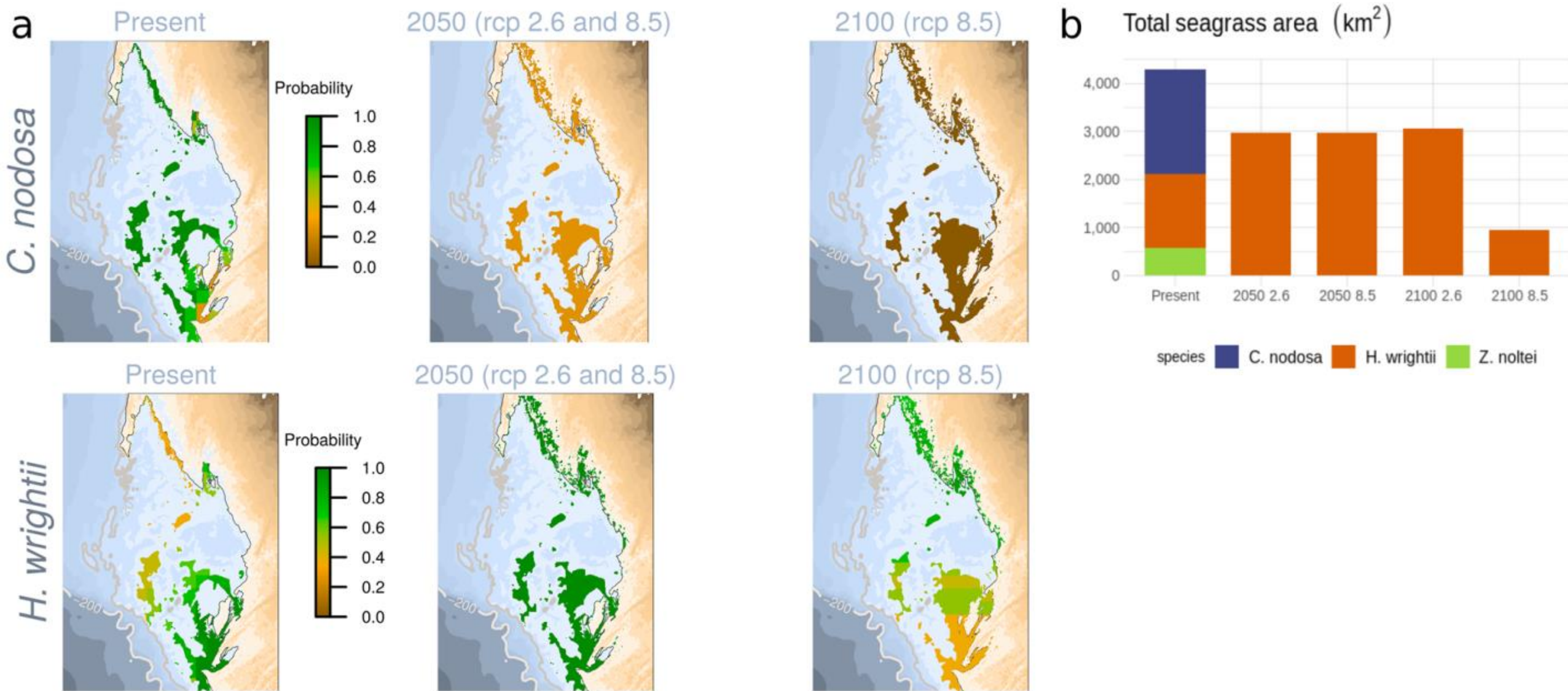
Carbon stock in the BANP: How long?



Carbon stock in the BANP: Which origin?



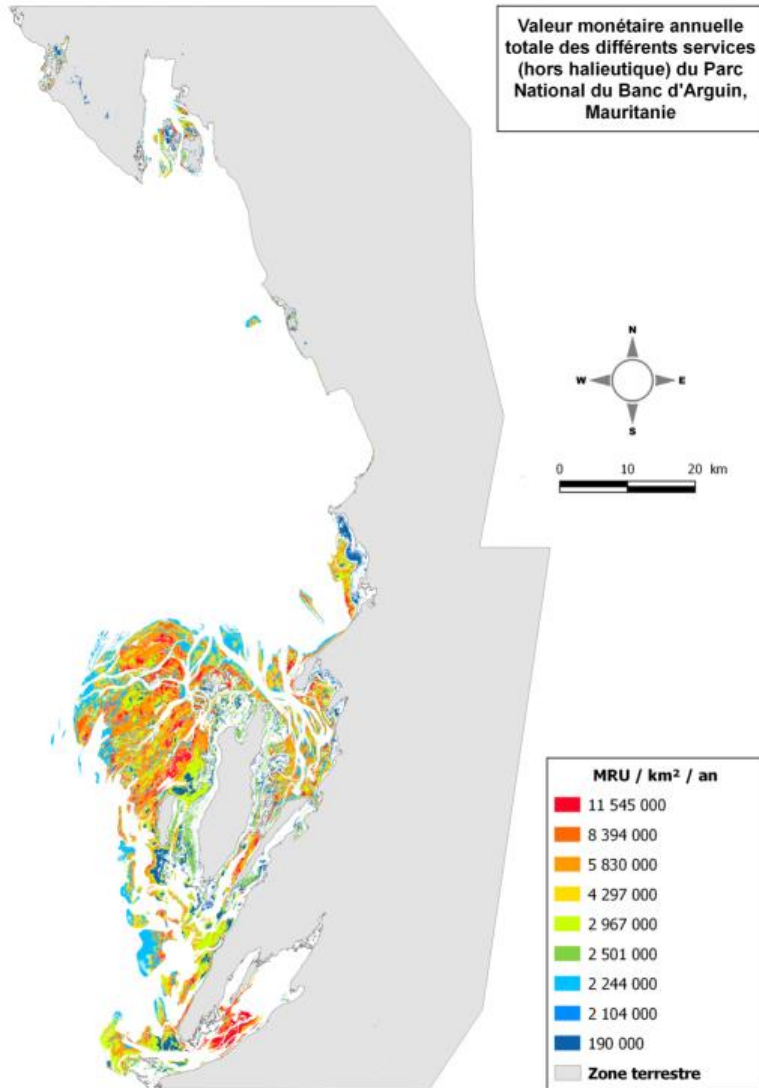
Predicted impact of climate changes on seagrass bed, and C stock potential



The economy of preservation of the BANP:

Fish reserve and « Non-use values »

Economical value other than fishing

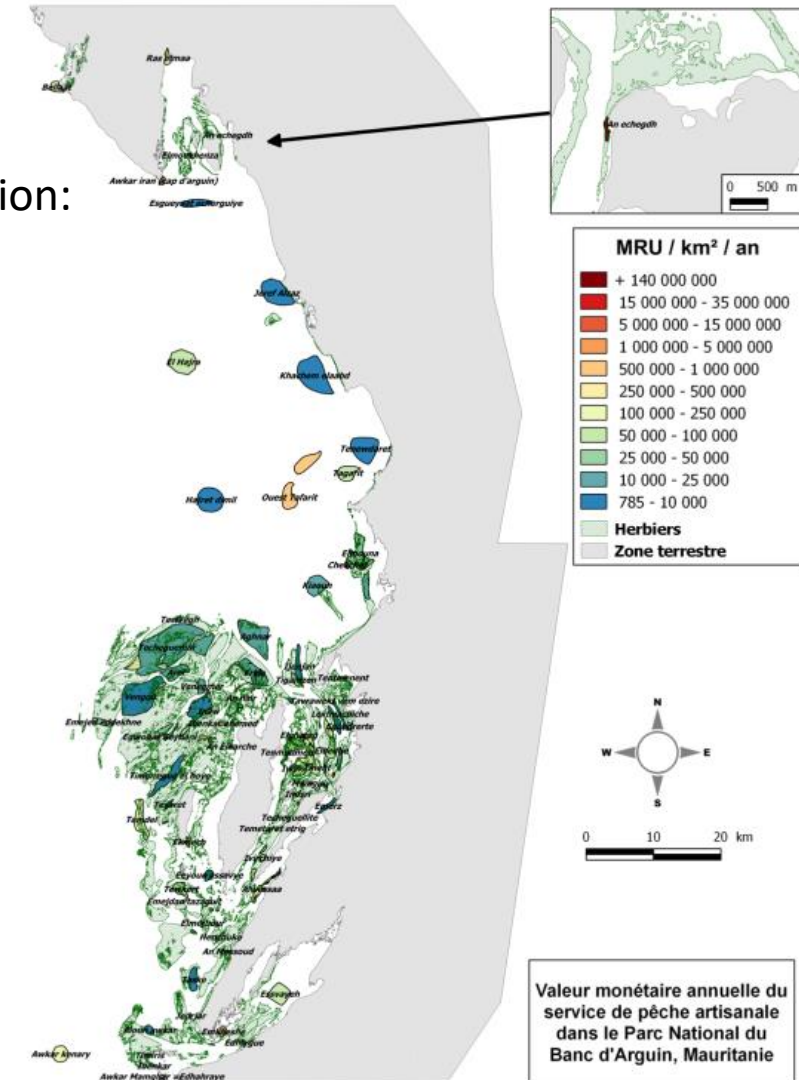


Non-use value and carbon sequestration:
3.3 G MRU = 80 M€

Contribution to fishing economy:
3 G MRU = 74 M€

Trégarot et al, 2018, Rapport final
pour le Parc National du Banc d'Arguin

Economical value from fishing activity



Cost of the preservation paid the Imragen people

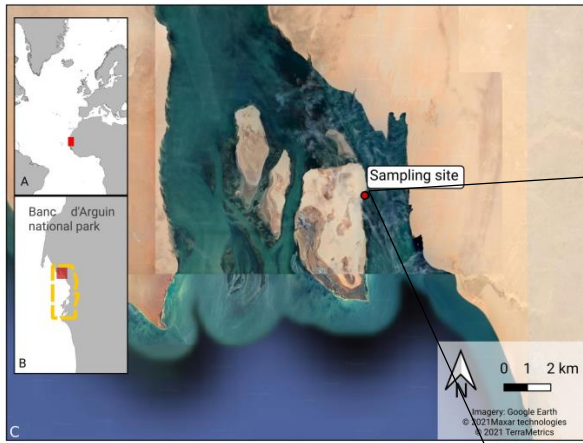
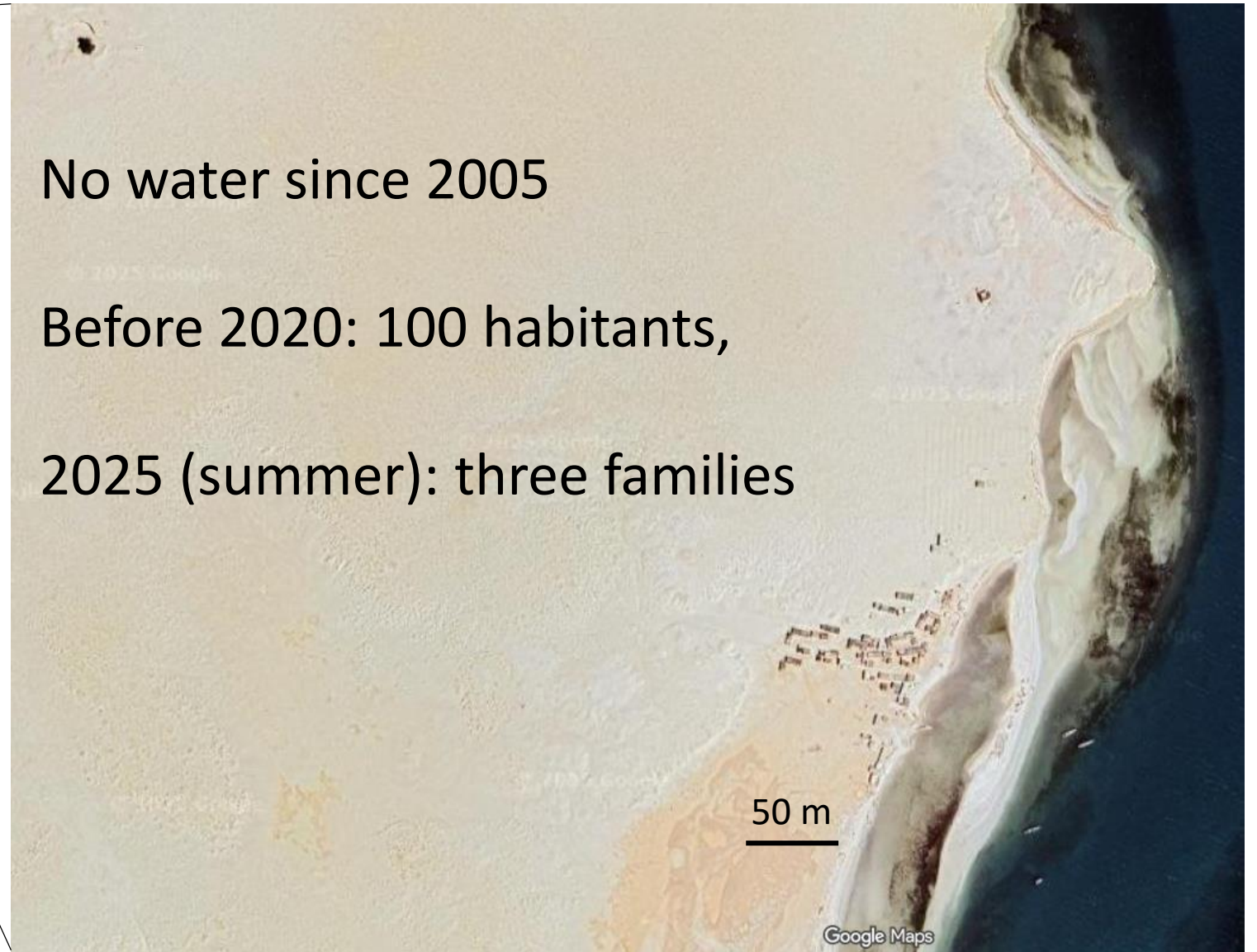
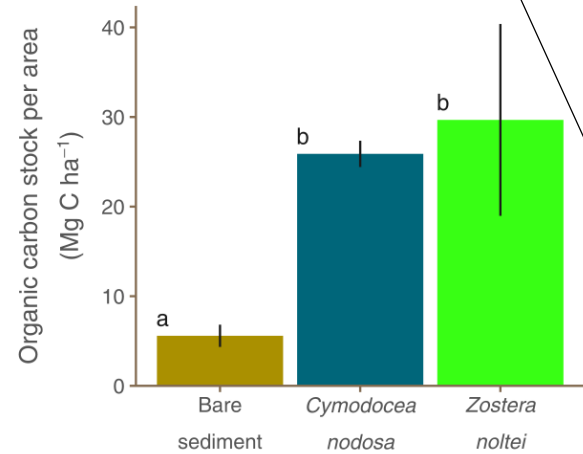


Fig. 1 Location of Mauritania [red rectangle (A)], the sampling area [red rectangle (B)] at the Banc d'Arguin National Park (PNBA, delimited by the orange dashed line), and the sediment cores sampling site [red dot (C)]



No water since 2005

Before 2020: 100 habitants,

2025 (summer): three families

The GHG emission by Imragen people?

Pictures from 2023-2025



Pictures from Anita Conti, 1943-1953



... vs education for children, access to health, etc

« You may save the last mediterranean monk seal, but there soon will not be any Imragen left here »

Mohamed Cheddad, July 2025

Thank you for your attention

Mohamed Ahmed Sidi Cheikh
Lemhaba Ould Yarba
Mohamed Vall Sidi Boune



all members of the BANP
scientific council

