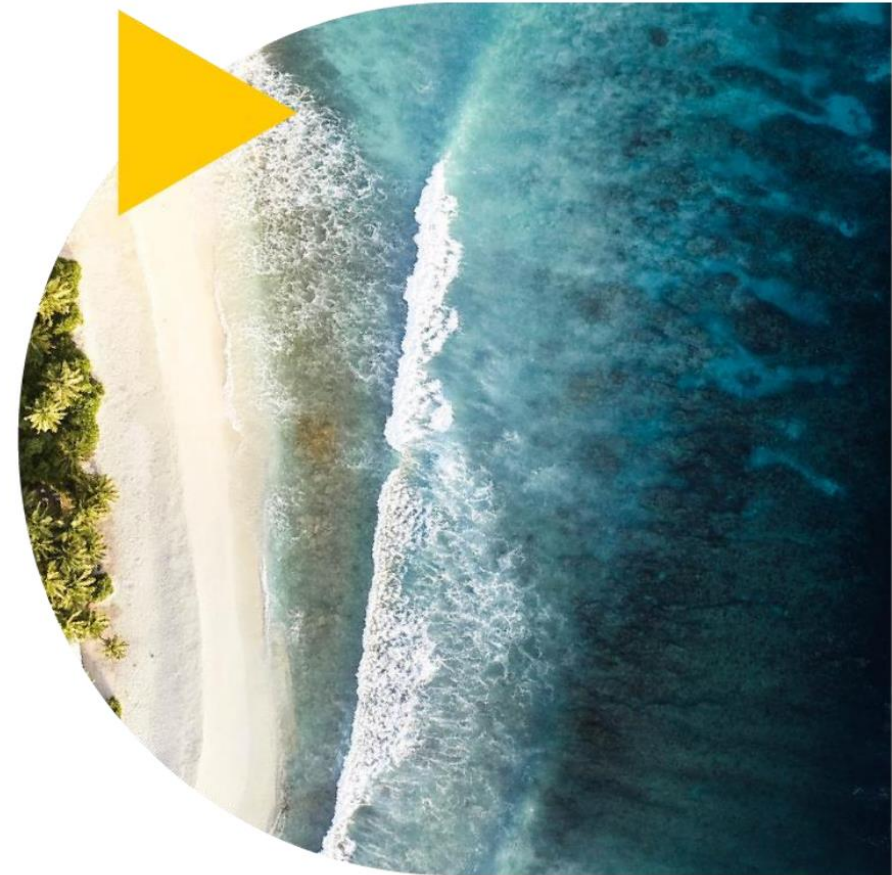


The role of the
ocean in climate,
with a focus on
the African Seas



**OCEAN OBSERVATION AND
PREDICTION FOR COASTAL
SUSTAINABILITY IN AFRICA**

Outline

- Context
- African seas and ecosystems
- Ocean system and climate change
- African seas ecosystem's role
- Final words



**OCEAN OBSERVATION AND
PREDICTION FOR COASTAL
SUSTAINABILITY IN AFRICA**



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2021 United Nations Decade
2030 of Ocean Science
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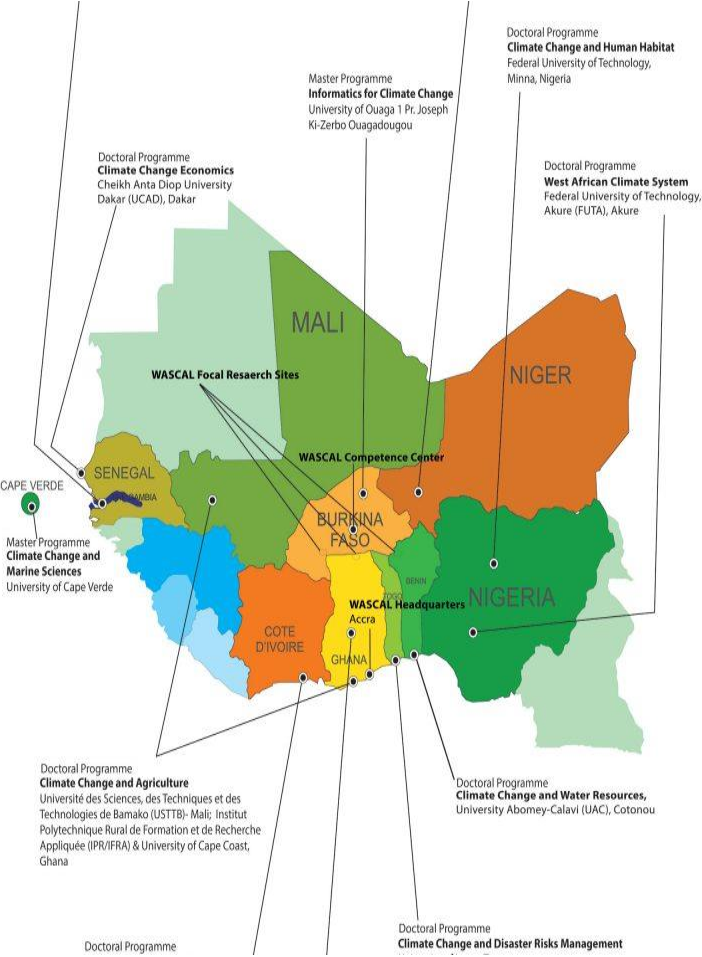


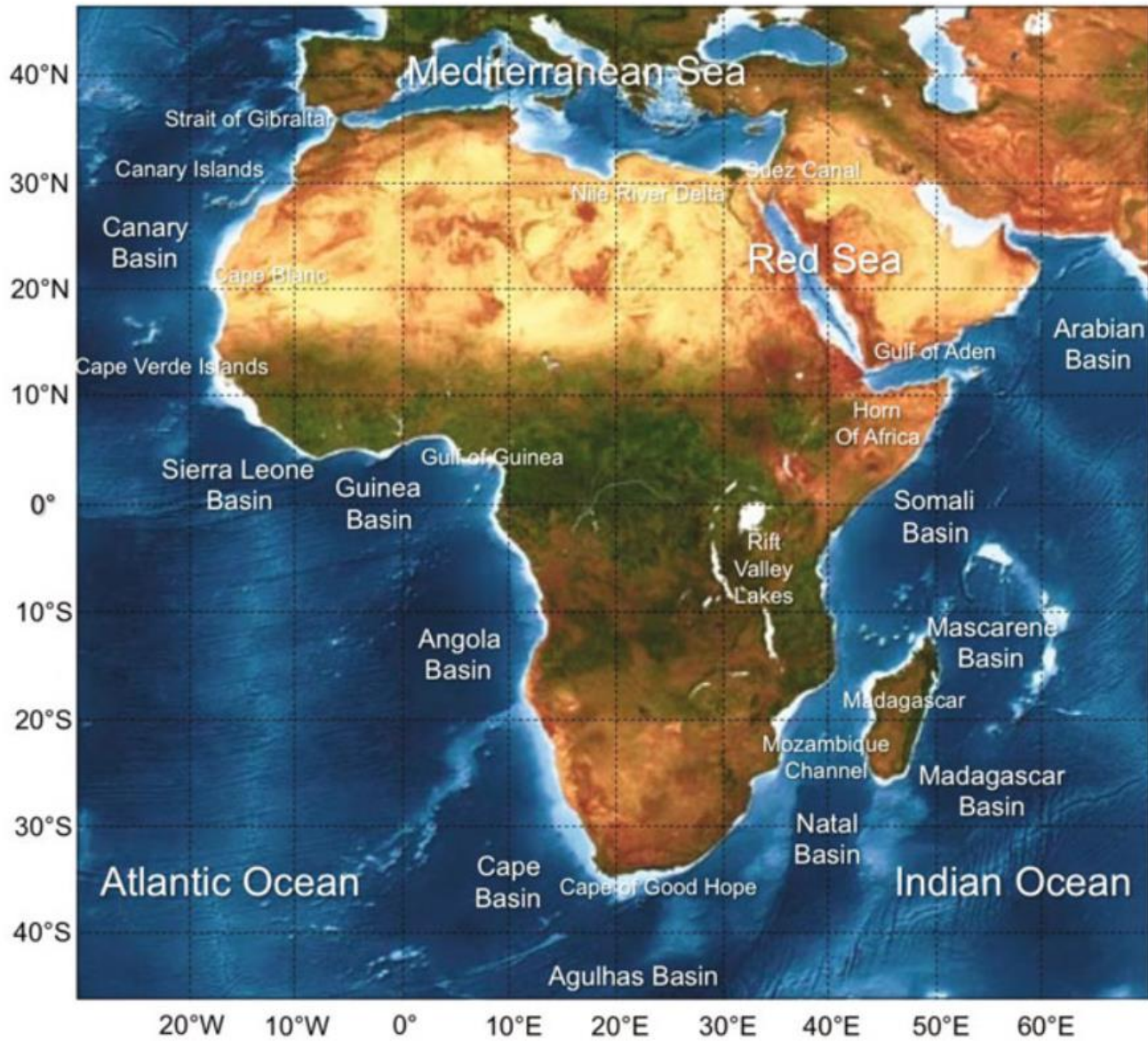
West African Science Service Center on Climate Change and Adapted Land Use

Structure

- 1. Climate Services Department
- 2. Research Department Competence Center (Ouagadougou, Burkina Faso)
- 3. Capacity Building Department

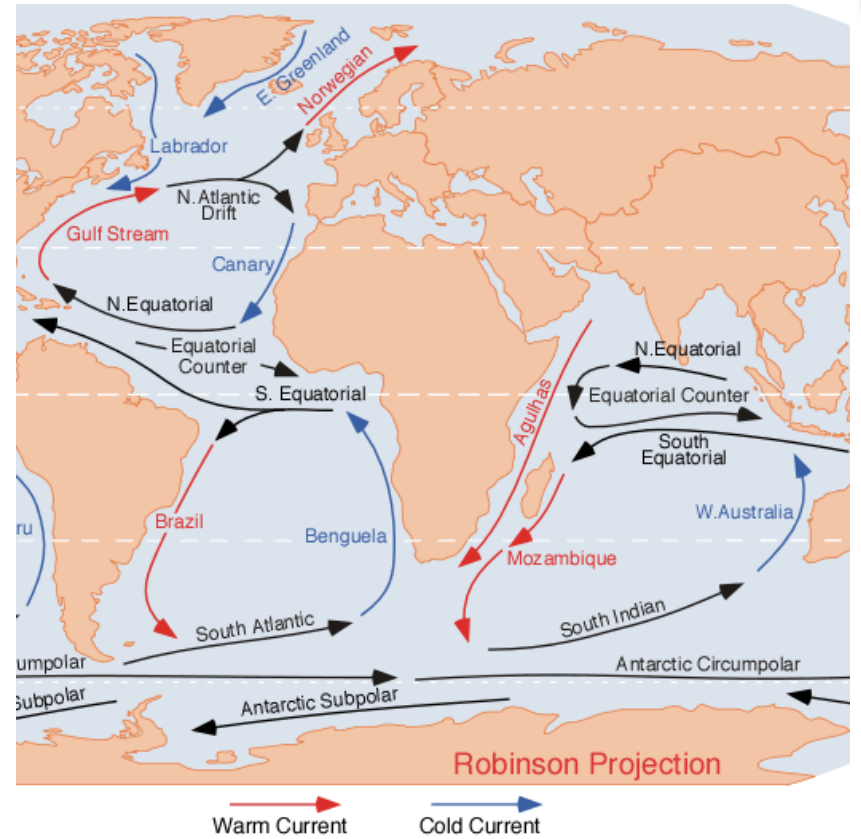
To strength research, education (training) and policies competences





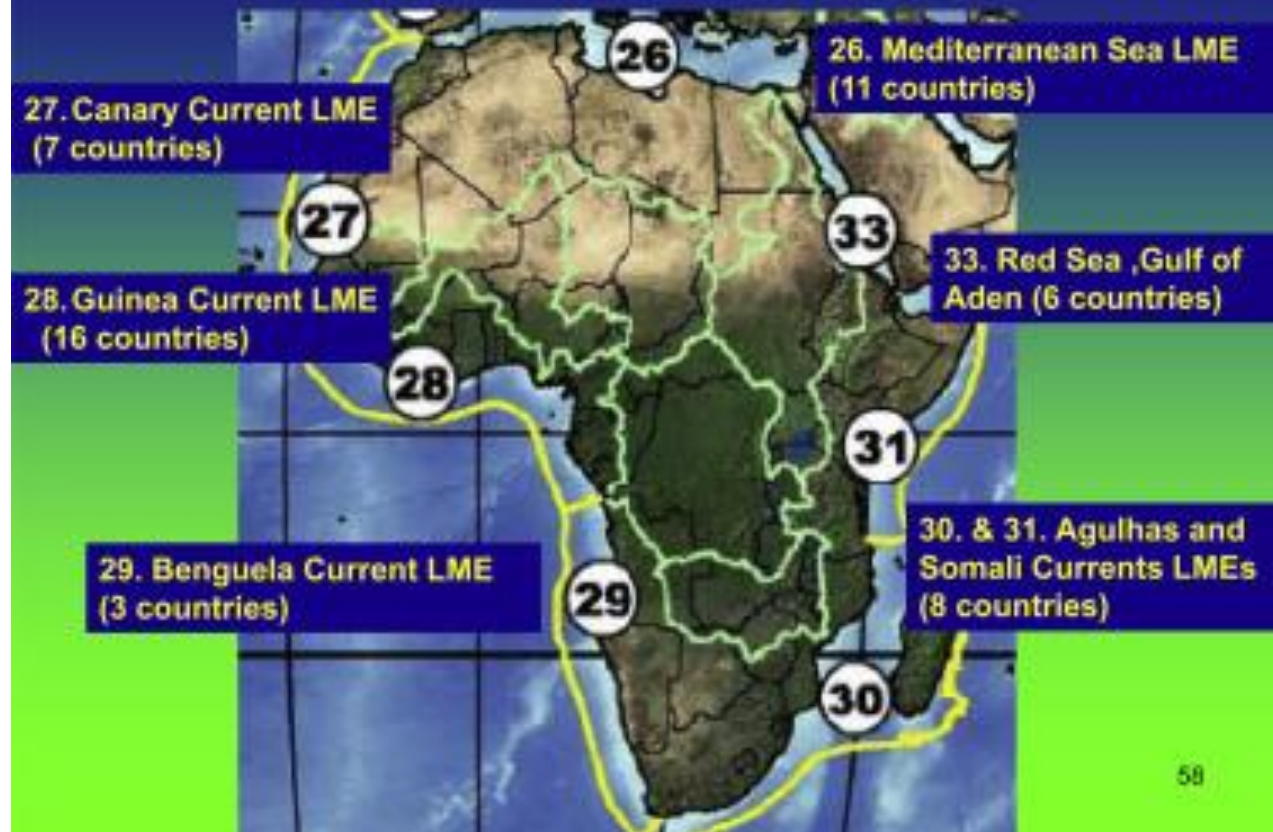
African Seas and Oceans

© JRC



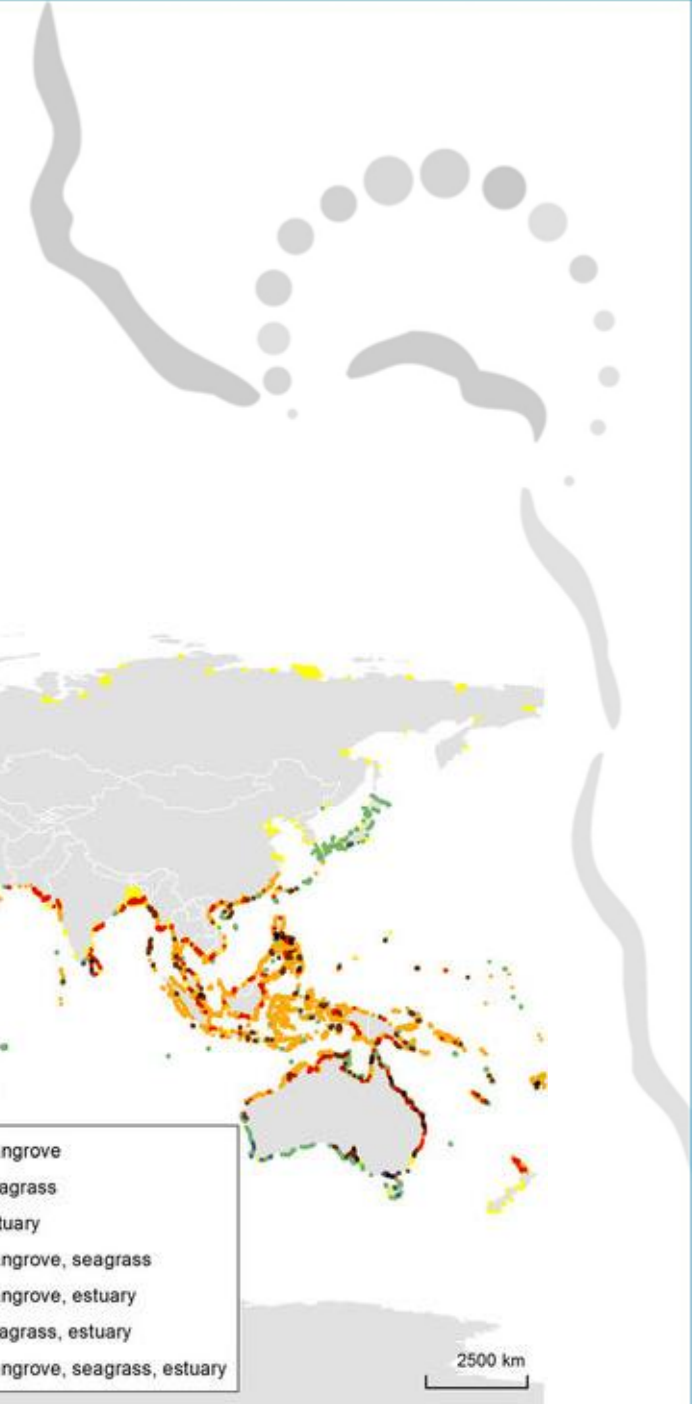
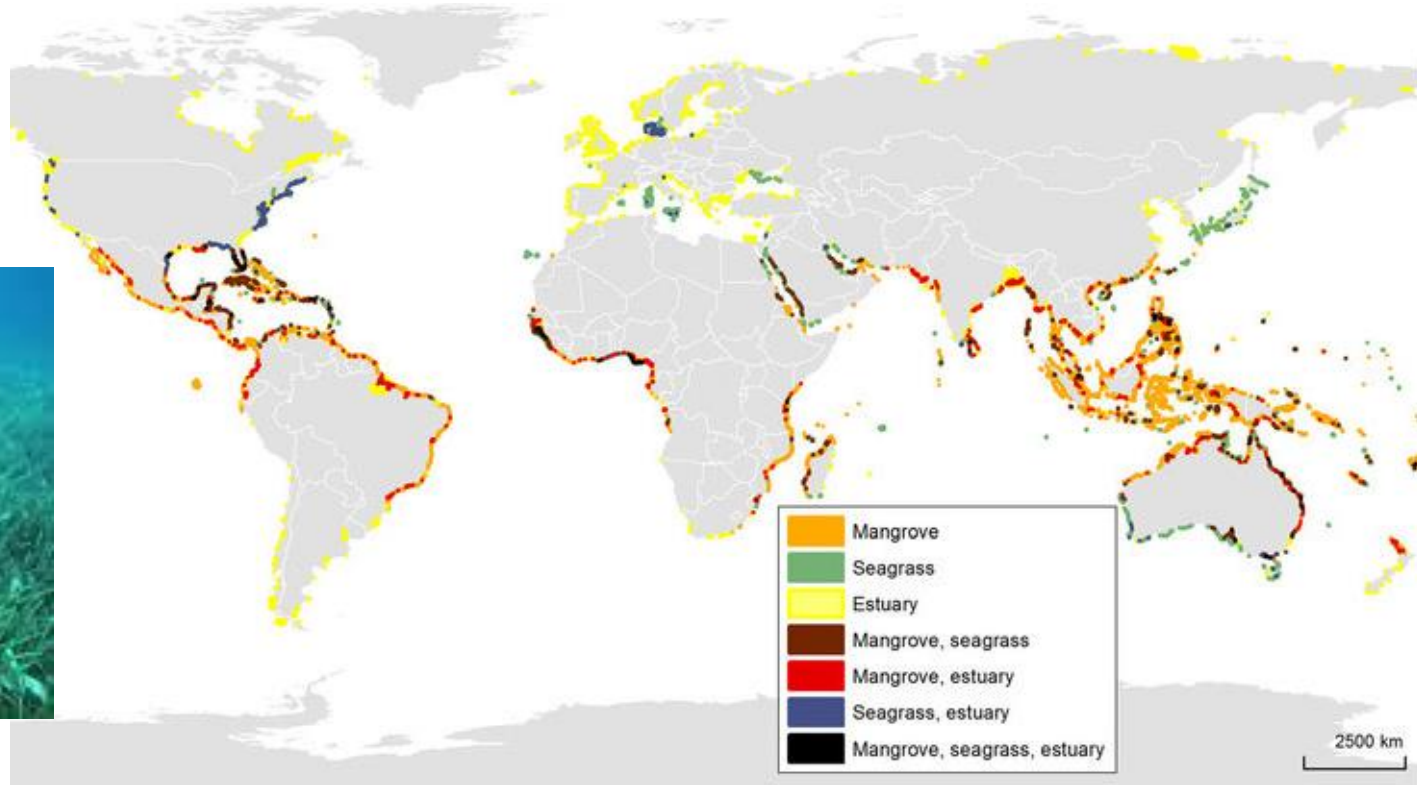
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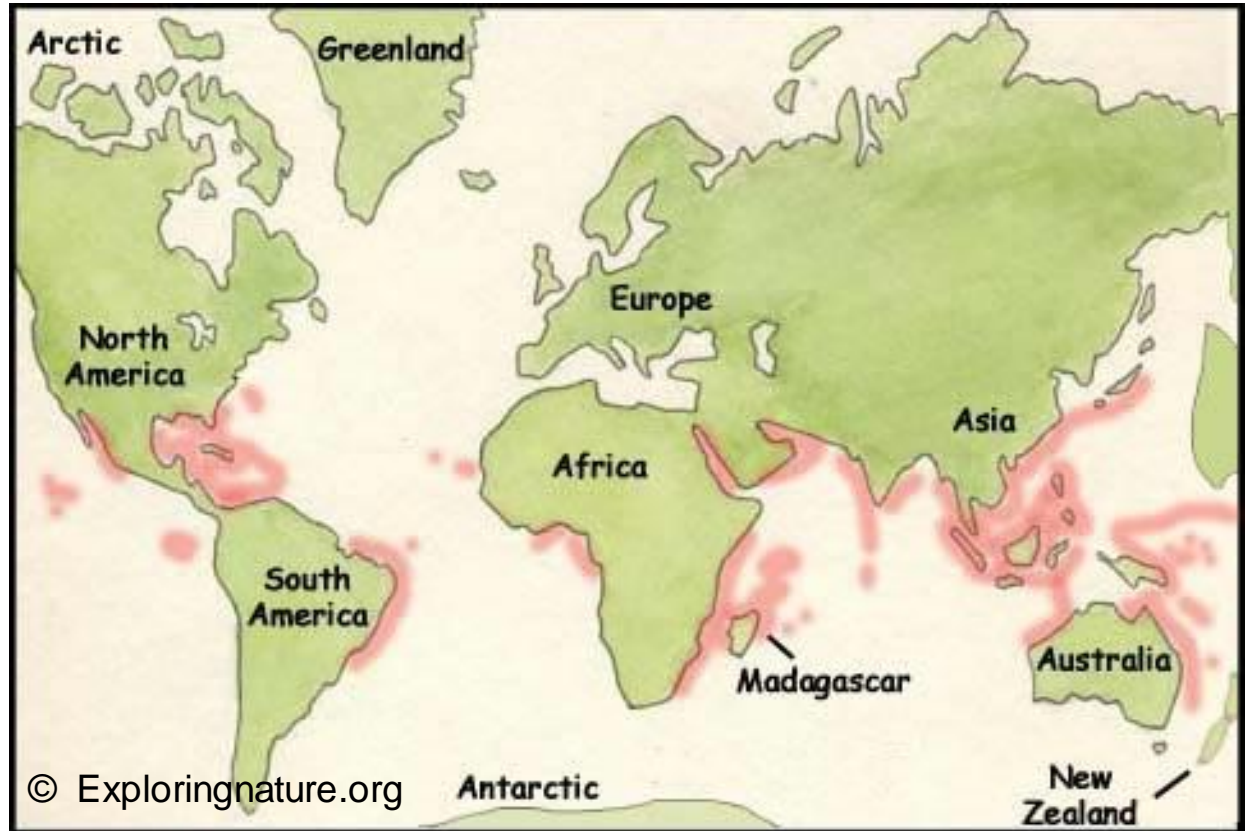
AFRICAN LARGE MARINE ECOSYSTEMS



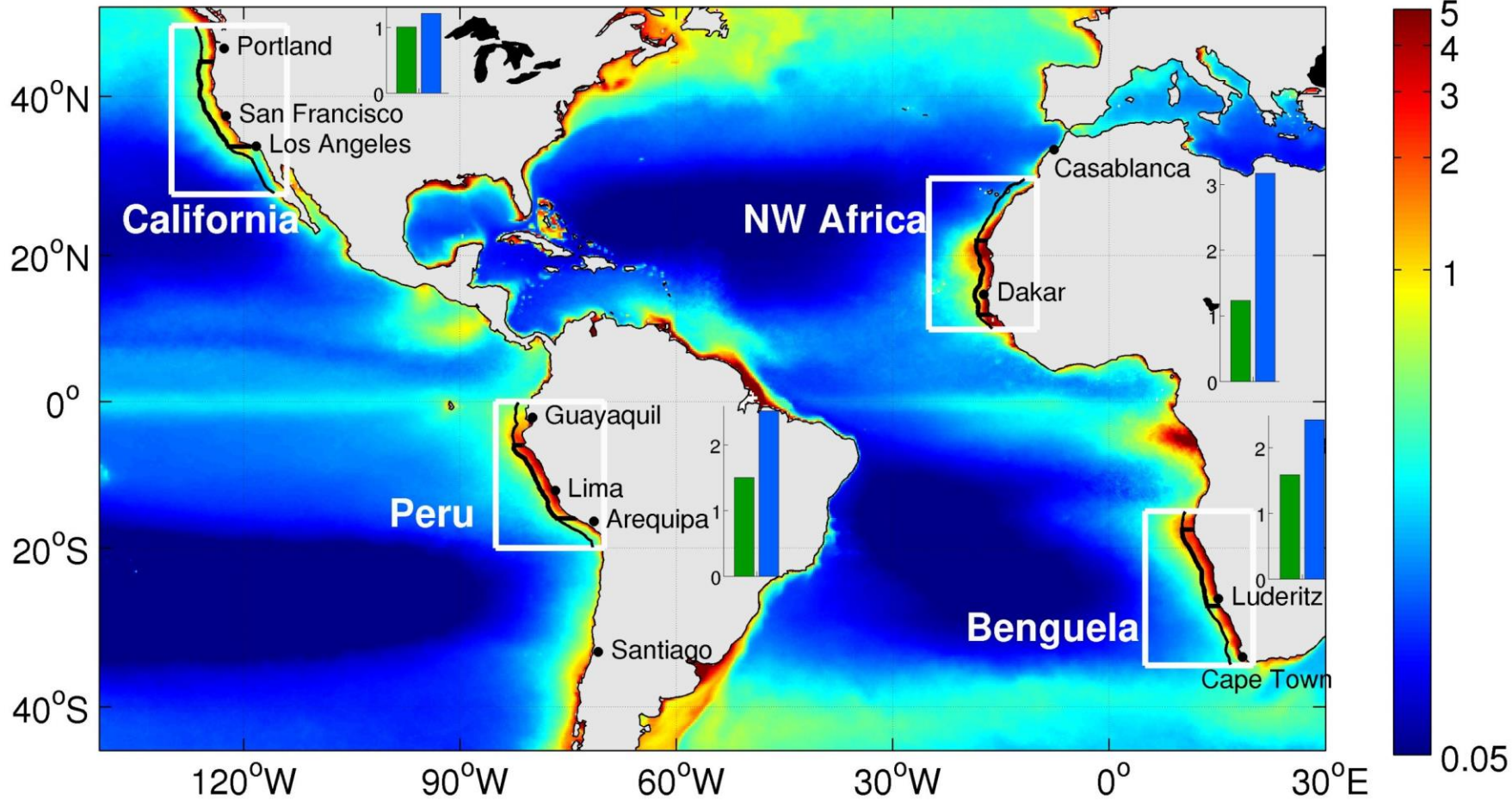
Specific process:

- ❖ physical
- ❖ biogeochemical
- ❖ biological





■ NP_{pot} (gC m⁻² d⁻¹) ■ PP
 mean SeaWiFS chlorophyll concentration



© Messie and Chavez, Progr. Oceanogr. 2015.

...their processes also contribute to climate change mitigation.

Ocean System



Climate change

Ocean system threats from climate change

- Rising temperatures
- Increased acidity
- Reduced oxygen content

Impacts on coastal and marine ecosystems

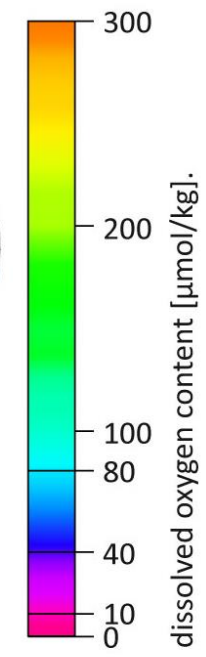
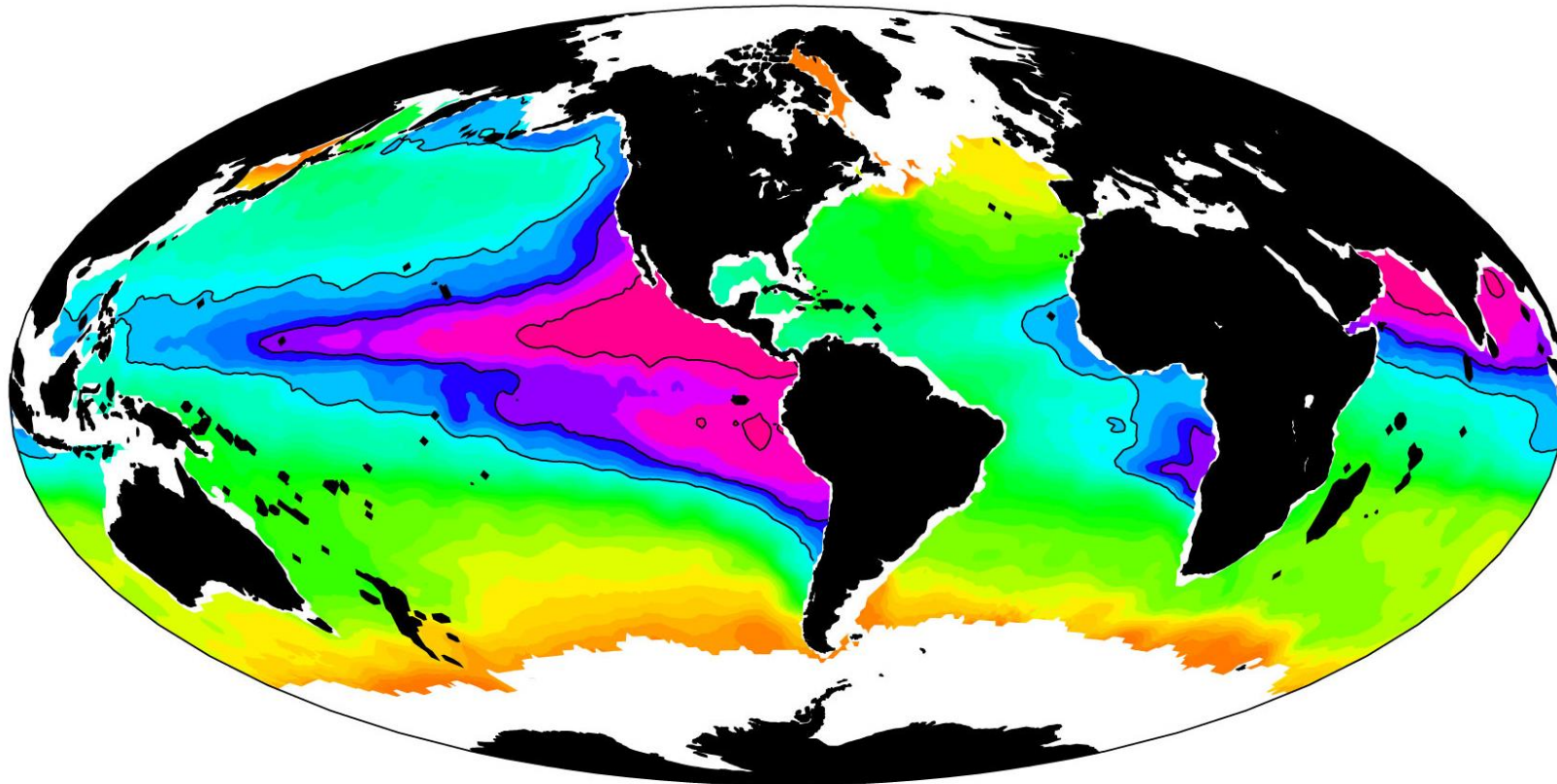
- Sea level rise
- Habitat loss
- Productivity changes
- Coral bleaching

Disruption ecosystem services

- Fisheries
- Coastal protection
- Recreation ...

Other stressors

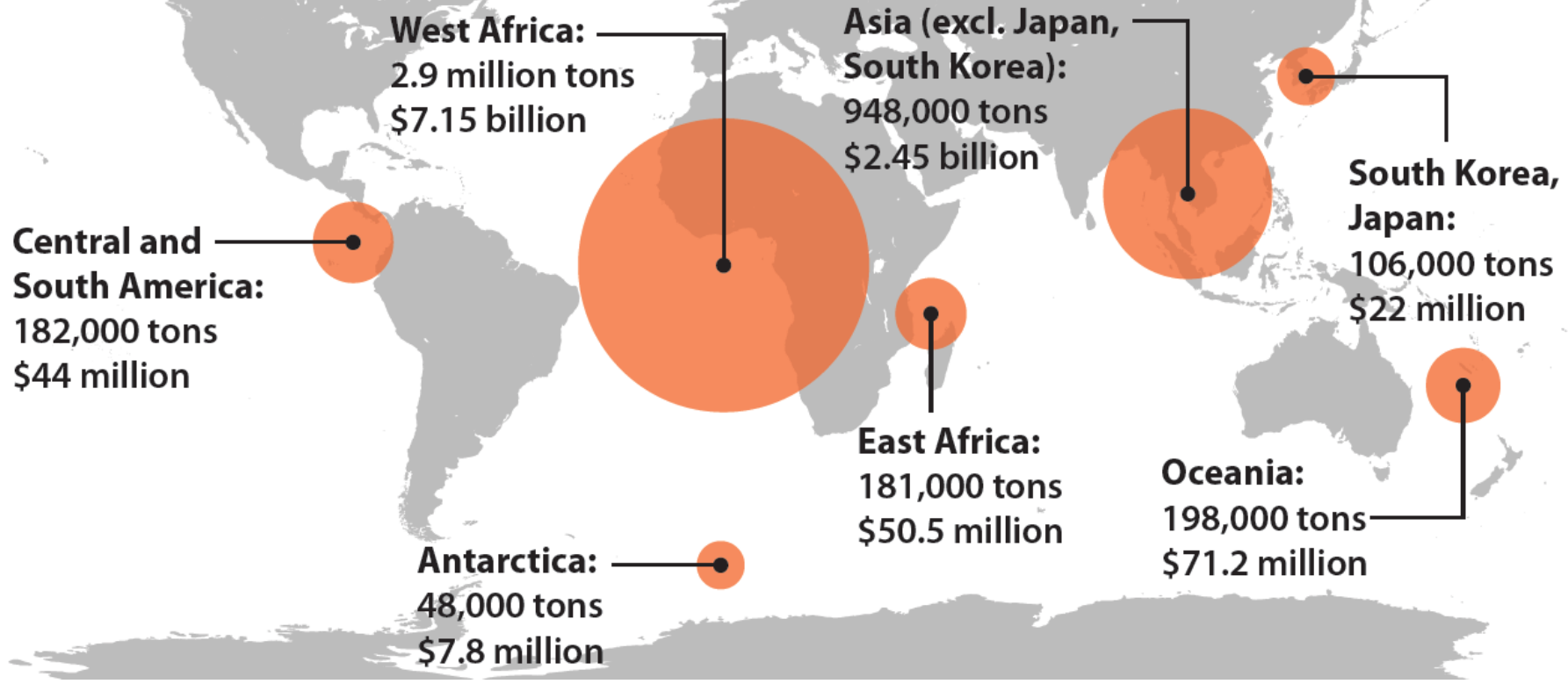


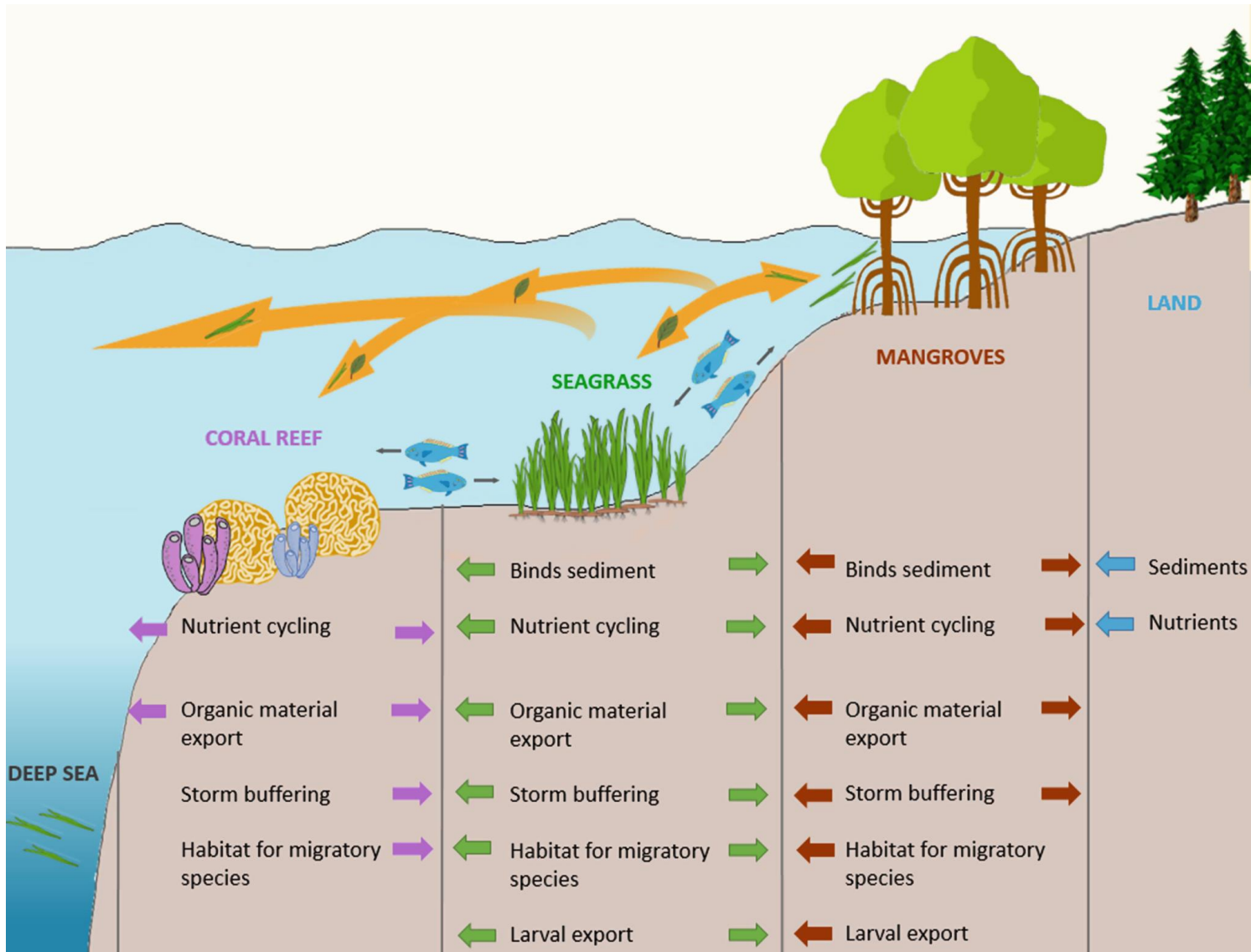


Distribution of oxygen at about 300 – 500 m depth ($\sigma_\theta=26.9 \text{ kg}/\text{m}^3$).

...deoxygenation, habitat loss
overfishing

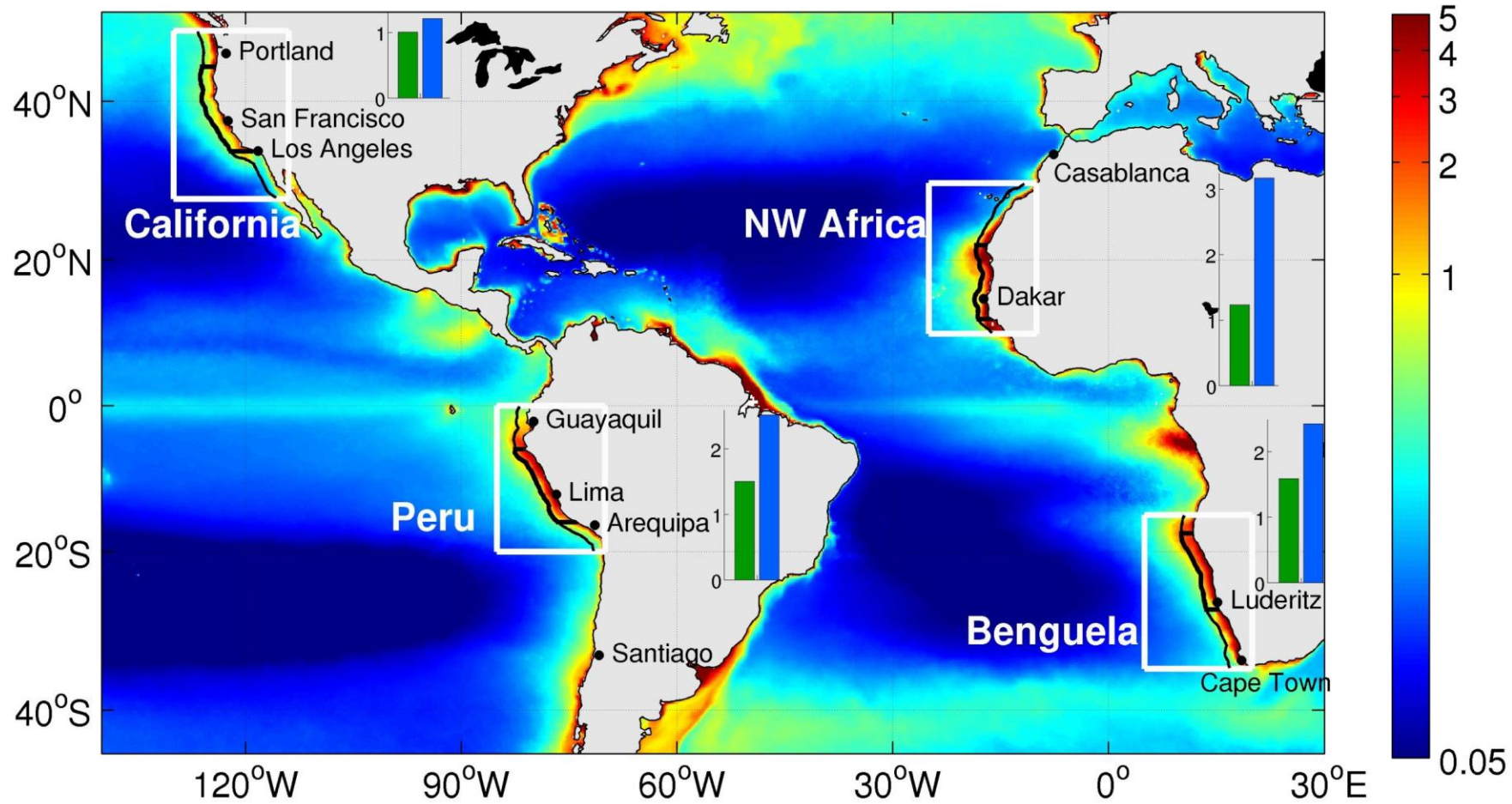
Estimated average annual catch by region, in metric tons, 2000-2011





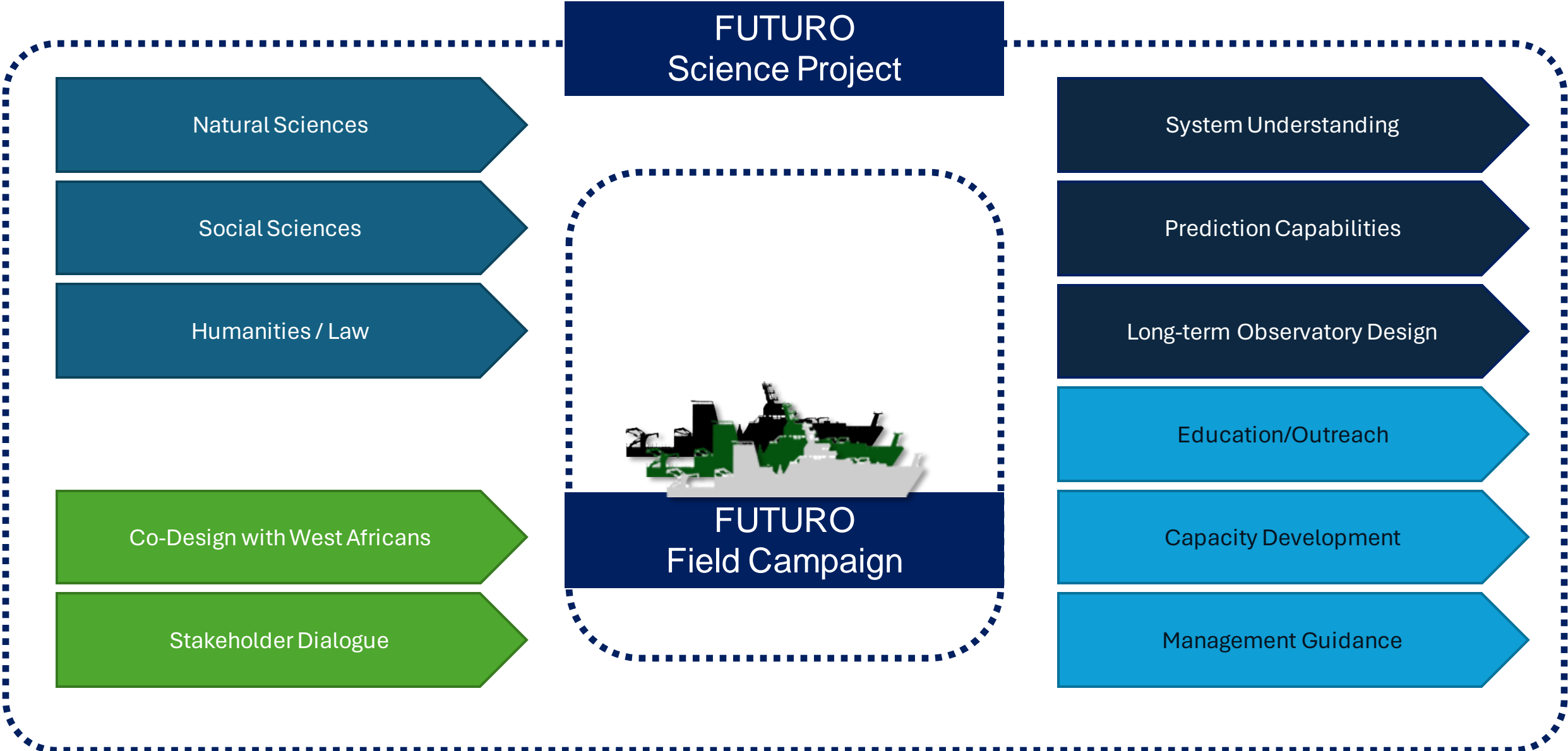
...services,
interconnectivity,
climate change
mitigation

■ NP_{pot} (gC m⁻² d⁻¹)
 ■ PP
 mean SeaWiFS chlorophyll concentration



FUTURO

Future of Tropical Upwelling Regions in the Atlantic Ocean



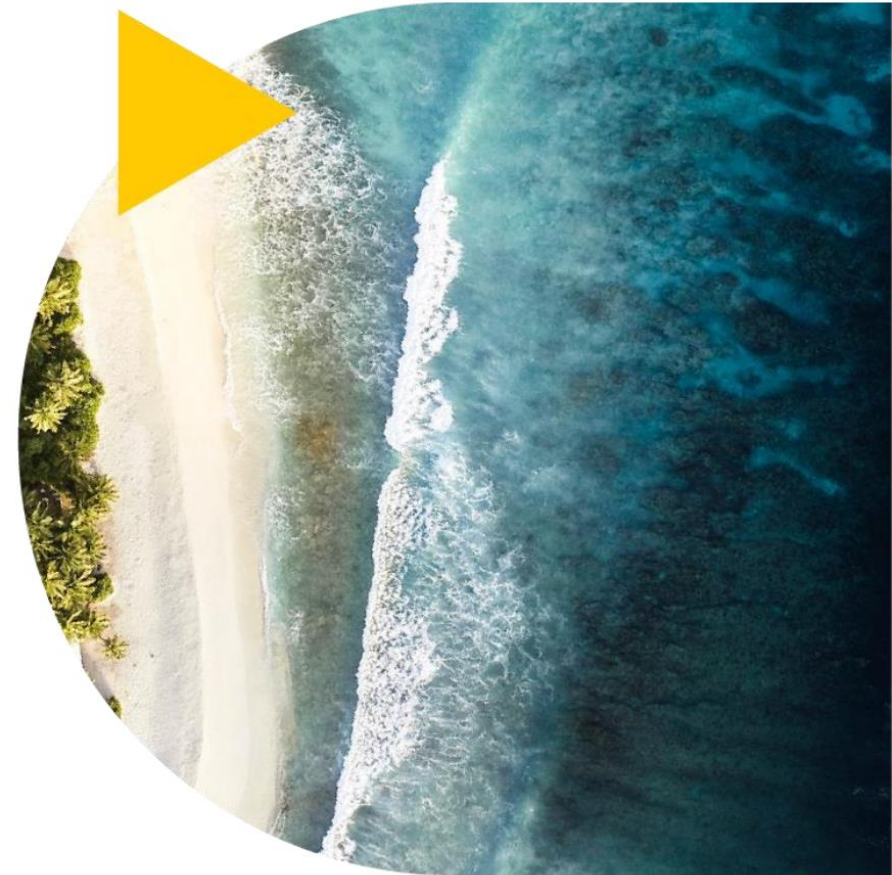
Final words

Strategic ecosystems management may enhance the climate change mitigation and adaptation

To foster the understanding of climate change threats effects are required observational, experimental and modelling studies

Capacity building, coupled with the reinforcement of research and governance institutions

Fair mutual benefits from resources uses



**OCEAN OBSERVATION AND
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References

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Emit ekati
Merci Naa Wâri
Nagode *Ndaboshi*
ABAARAKAA
OBRIGADO INOUWALY
DANKE *Djoka ndjal*
Barak Wousgo *N'Tchié Akp3*
TENKI E se ooo
Bén éra mag'bé
Nawdem A wá nü
Medaase
A Wà nû
Oshe
Thank