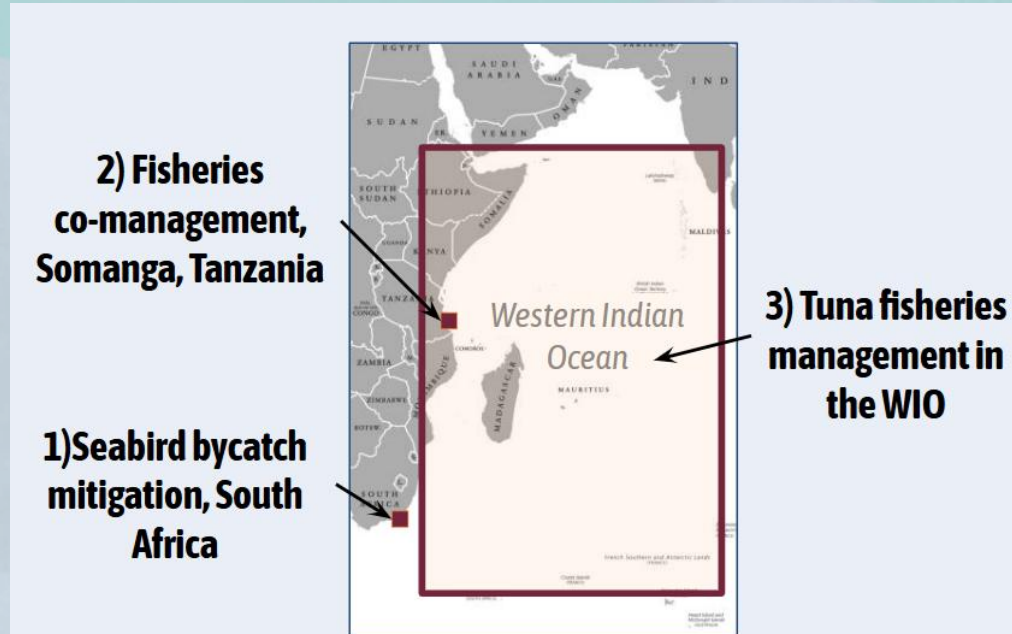


# What does the study of transformations in marine social-ecological systems in the southwest Indian Ocean reveal?



**Adrien Comte**, Research Scientist at IRD in Sustainability Science and co-lead of the BRIDGES IMPACT project

## A case study approach



# Four decades of social-ecological transformations in the Western Indian Ocean

Rachel Bitoun\*, **Adrien Comte\***, Nathan J. Bennett, Patricia Charvet, Joachim Claudet, Fabien Forget, Patrice Guillotreau, Janne B. Haugen, Robert Katikiro, Rocío López de la Lama, Shauna Mahajan, Kolobe Mmonwa, Ryan O'Connor, Laura Pereira, Samantha Petersen, Andrea D. Phillott, Ethan Prall, Quentin Schull, Mariana Tolotti, Rodolphe Devillers



1. SWIO regional site, including the Scattered Islands



- Co-develop knowledge and strengthen capacities



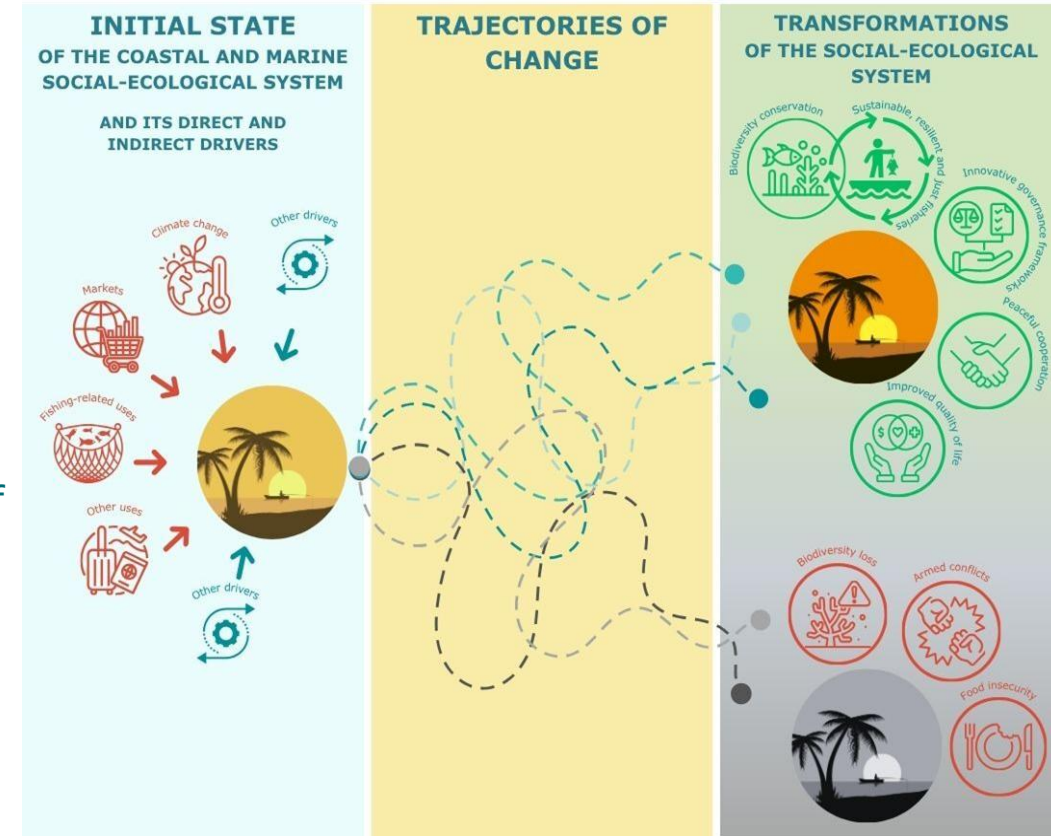
- Contribute to participatory, transparent, equitable, and adaptive decision-making



- Improve the sustainability of stakeholders' practices and value chains



- Ensure equitable access to resources and benefits distribution



En savoir plus : [TP 6 : IMPACT | PEPR BRIDGES](#)

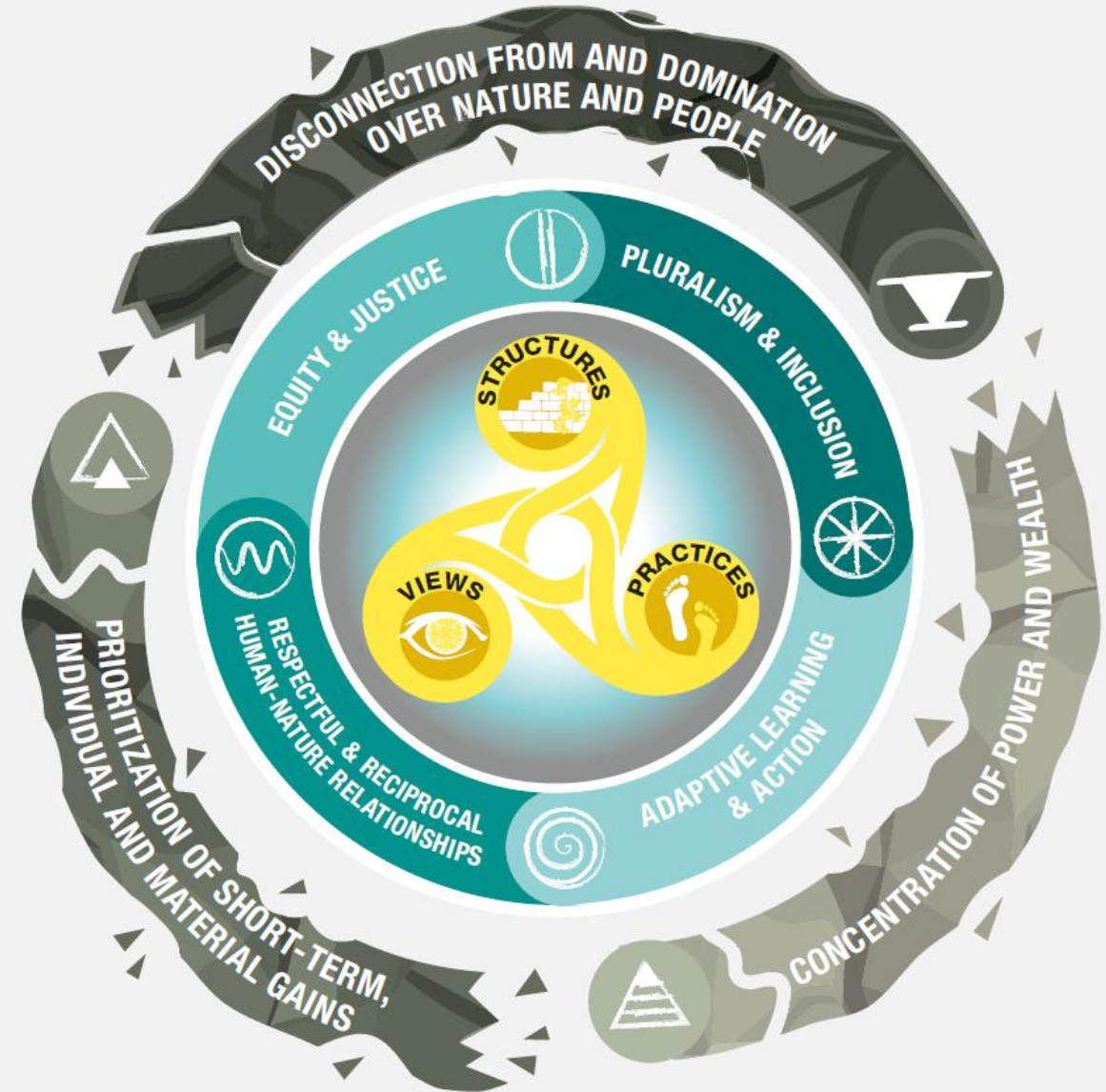




## Transformation

The IPBES Global Assessment defines **transformative change** as a fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values. We build on this definition through reference to the depth, breadth and dynamics of system reorganisation.

IPBES Transformative change SPM

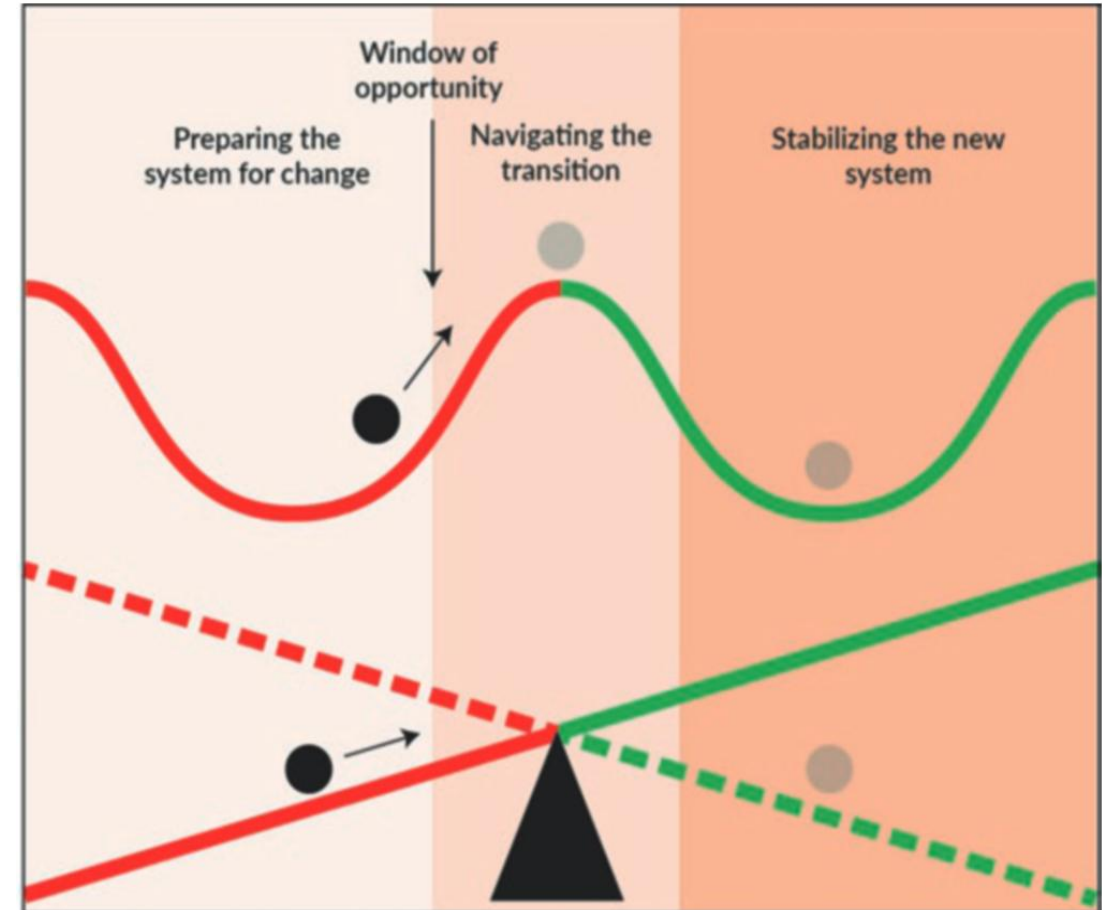




# Characterizing transformations

*Bitoun\*, Comte\*, et al. submitted Sustainability Science*

- **Standardize transformative narratives** through Olsson's 3-phase model framework (2006)
- Characterize the **nature of the transformation**: scope, depth, and speed (Evans et al., 2023)



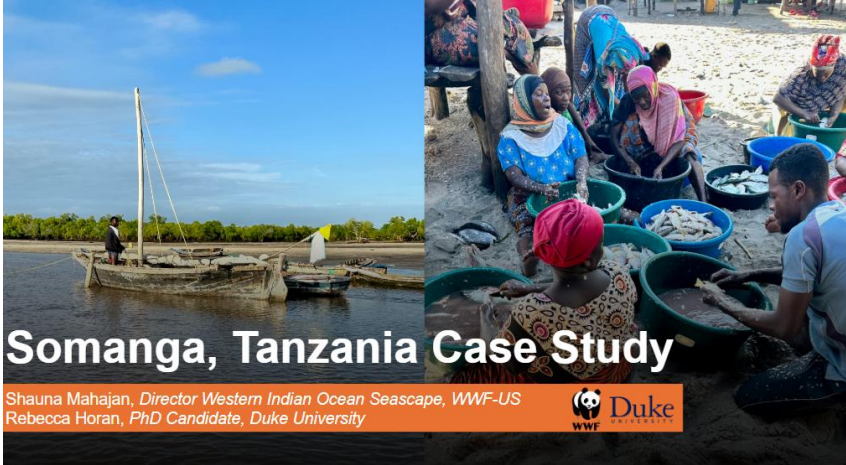
Olsson, P., & Moore, M.-L. (2024).

[https://doi.org/10.1007/978-3-031-50762-5\\_4](https://doi.org/10.1007/978-3-031-50762-5_4)



# Selection of 3 contrasted case studies

Bitoun\*, Comte\*, et al. submitted Sustainability Science

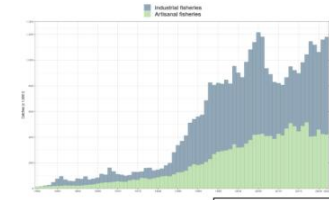


## WWF-SASSI - Theory of Change

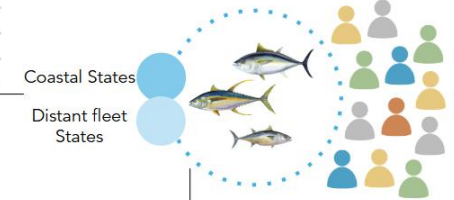


2) Fisheries co-management, Somanga, Tanzania

1) Seabird bycatch mitigation, South Africa



29 member States



catch allocations (quotas)  
IOTC  
13 years debate



3) Tuna fisheries management in the WIO

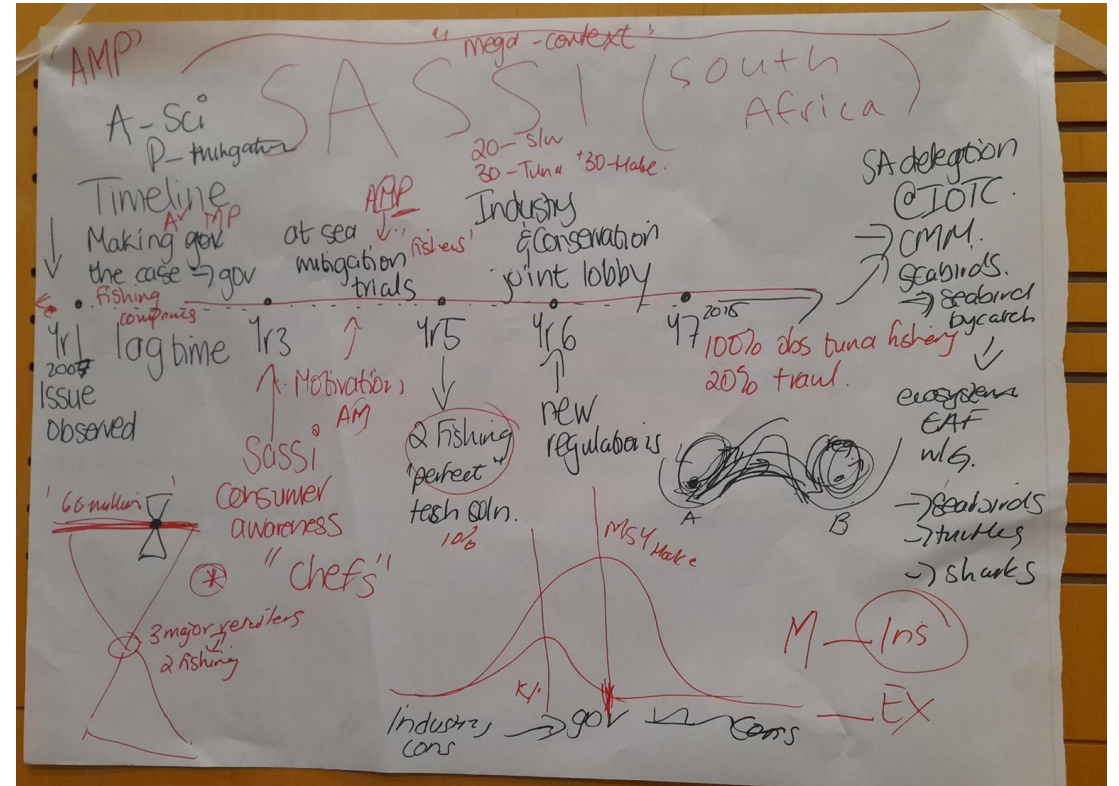
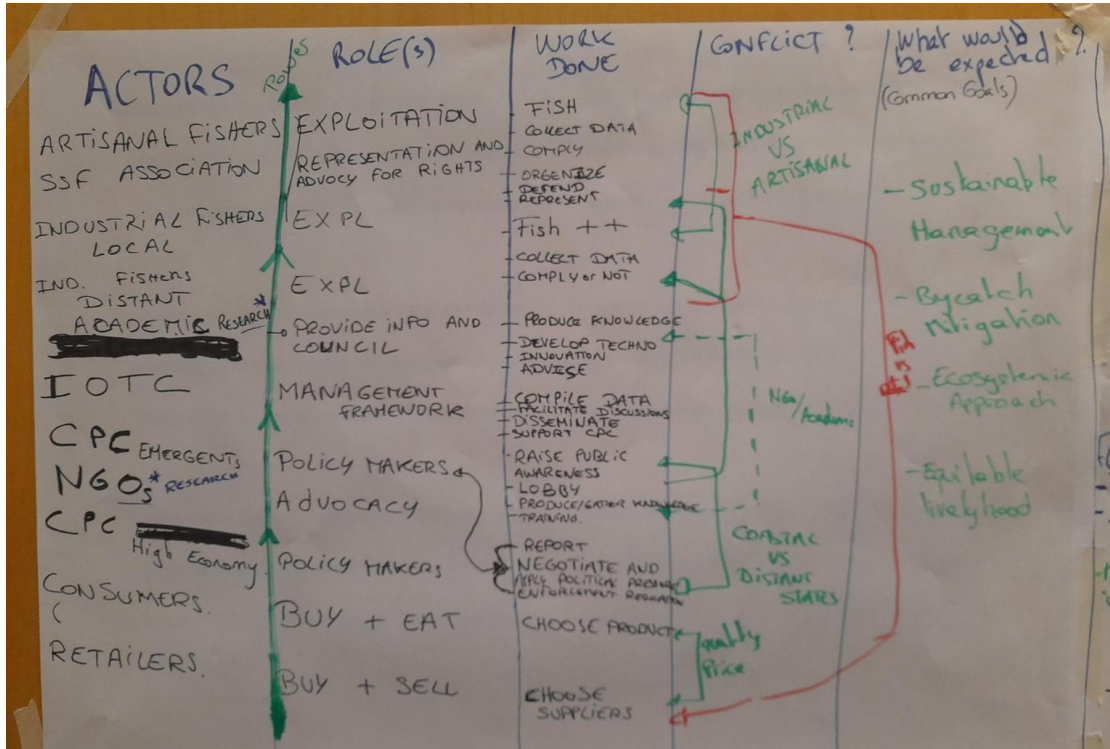




# Selection of 3 contrasted case studies

Bitoun\*, Comte\*, et al. submitted Sustainability Science

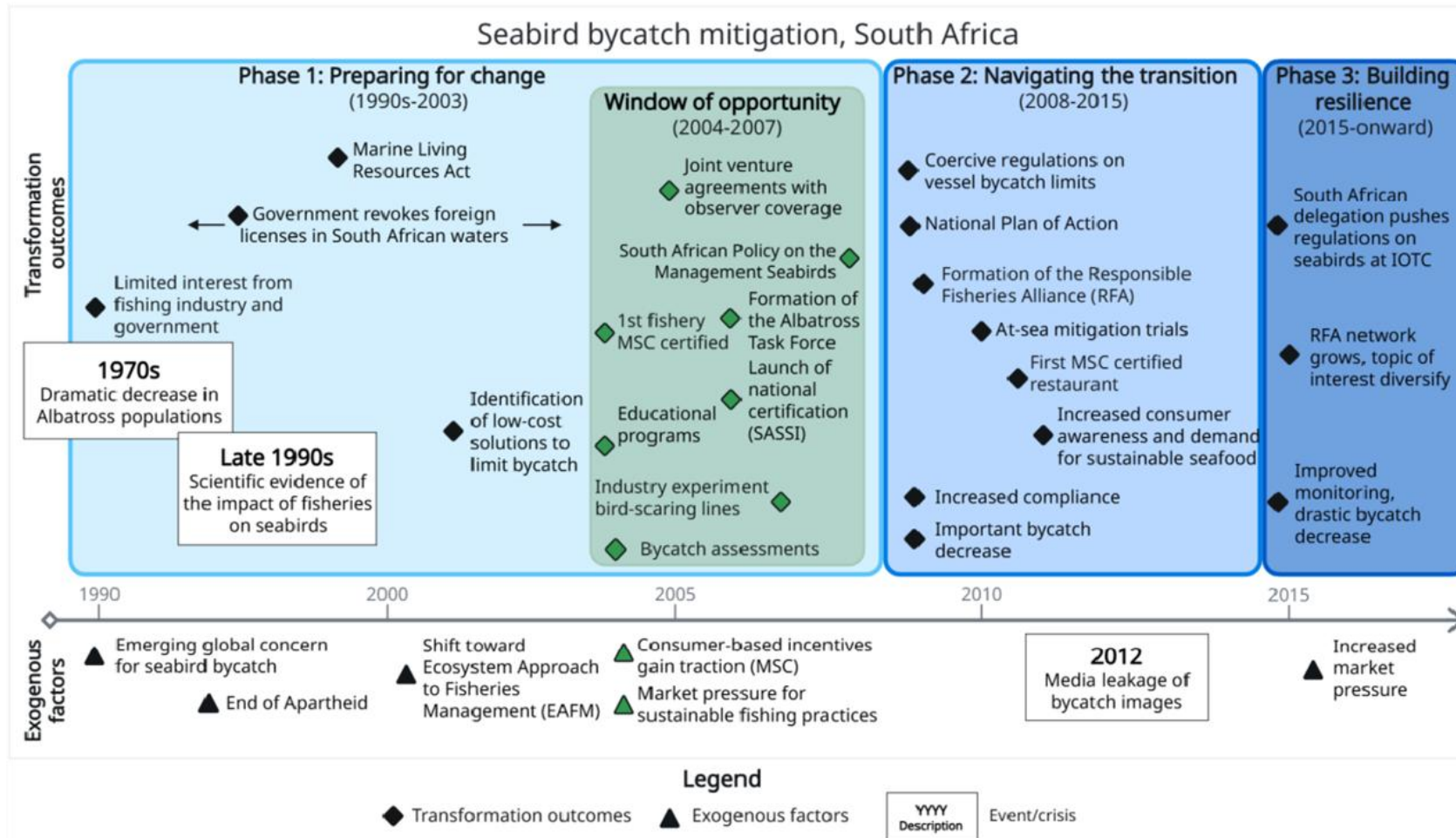
Transformations explored in a one day workshop with 25 participants, ahead of the International Marine Conservation Congress IMCC7 in Cape Town, South-Africa, 6-month follow-up process.





# The transformative process : South African example

*Bitoun\*, Comte\*, et al. under review Sustainability Science*



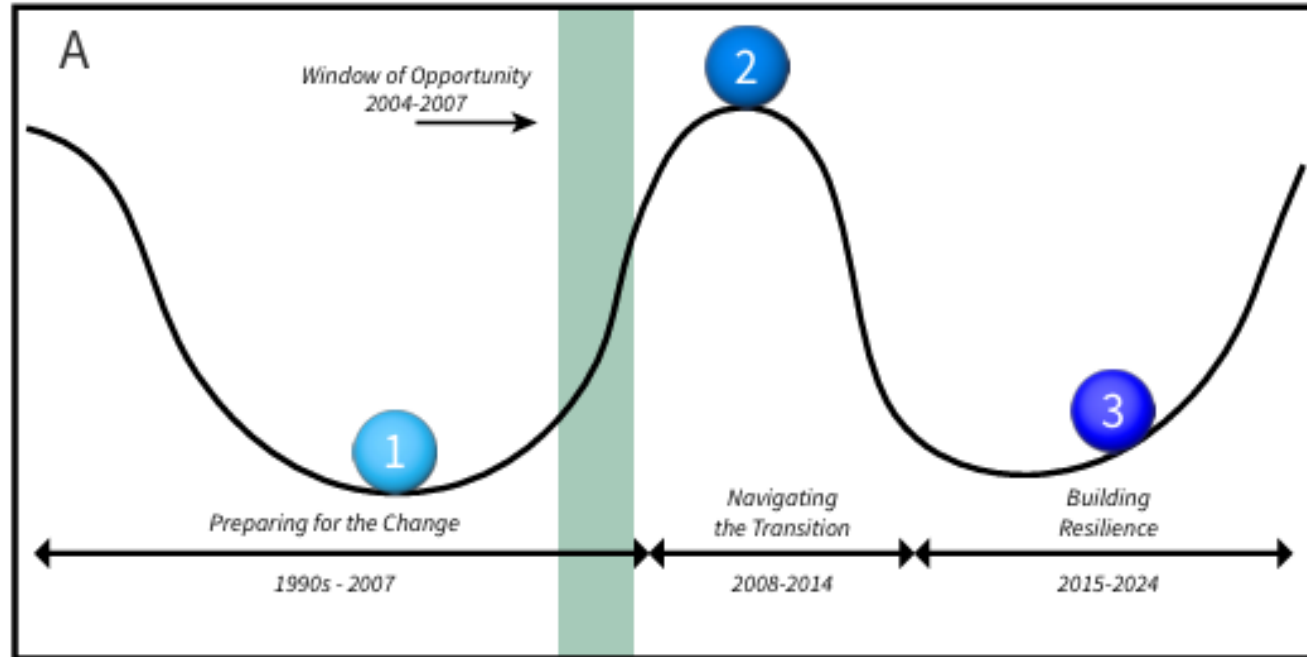


# The transformative process : South African example

*Bitoun\*, Comte\*, et al. under review Sustainability Science*

1 ) Scientists and NGOs raise awareness, develop solutions

1a ) Global trends for EAFM, government introduces observer coverage, Market- & consumer -based incentives (MSC, SASSI)



2 ) Vessel bycatch limits, solutions are tested, industry uptake, growing public awareness

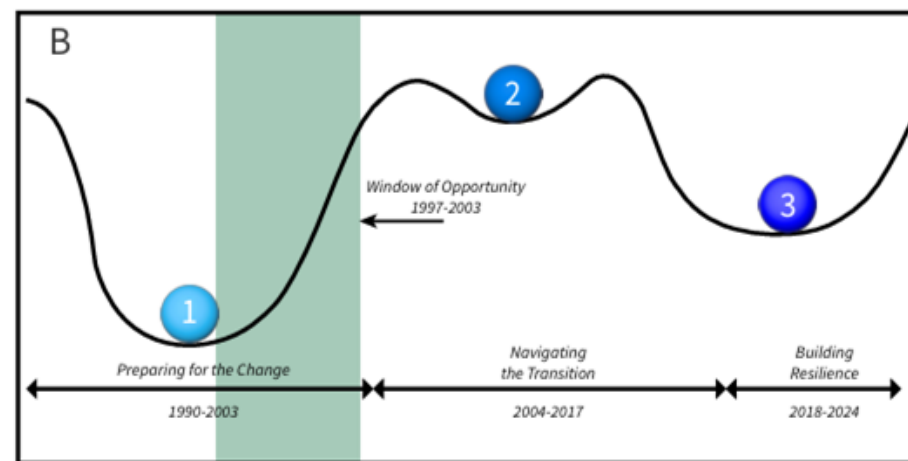
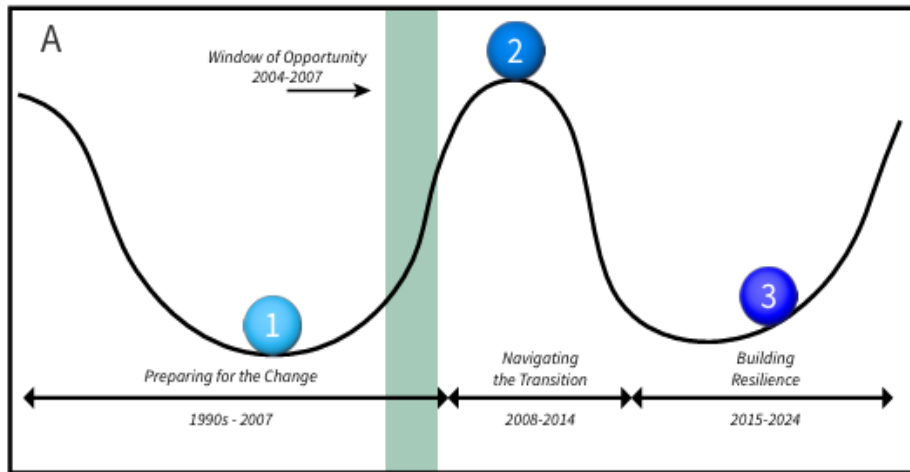
3 ) Dramatic decrease in bycatch, improved coverage, retailer & restaurant uptake, changes in consumption patterns

Scope	Speed	Depth
<b>Limited</b> - specific issue in a given sector	<b>Rapid</b> , solution oriented, quick transition, 35y process	<b>Deep(-to-moderate)</b> - reshaped industry practices, not values, actor dependent, failure to replicate to shark bycatch

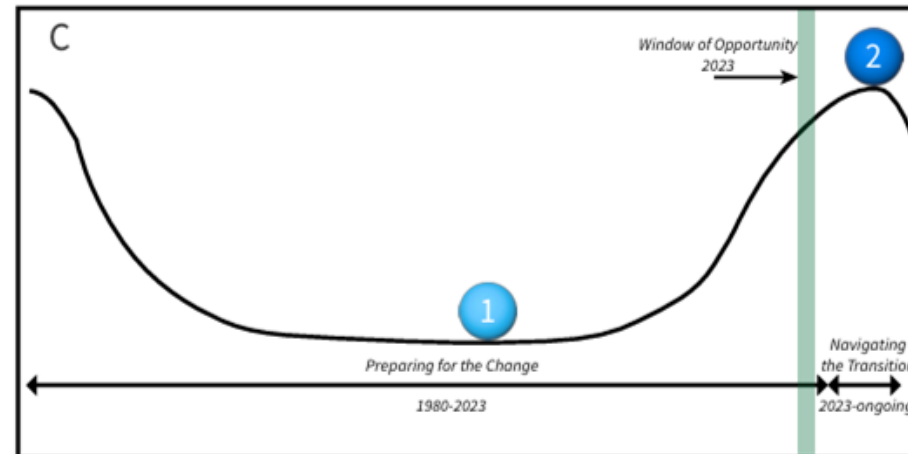


# Transformative change can take many forms

*Bitoun\*, Comte\*, et al. under review Sustainability Science*



Fisheries co-management,  
Somanga, Tanzania



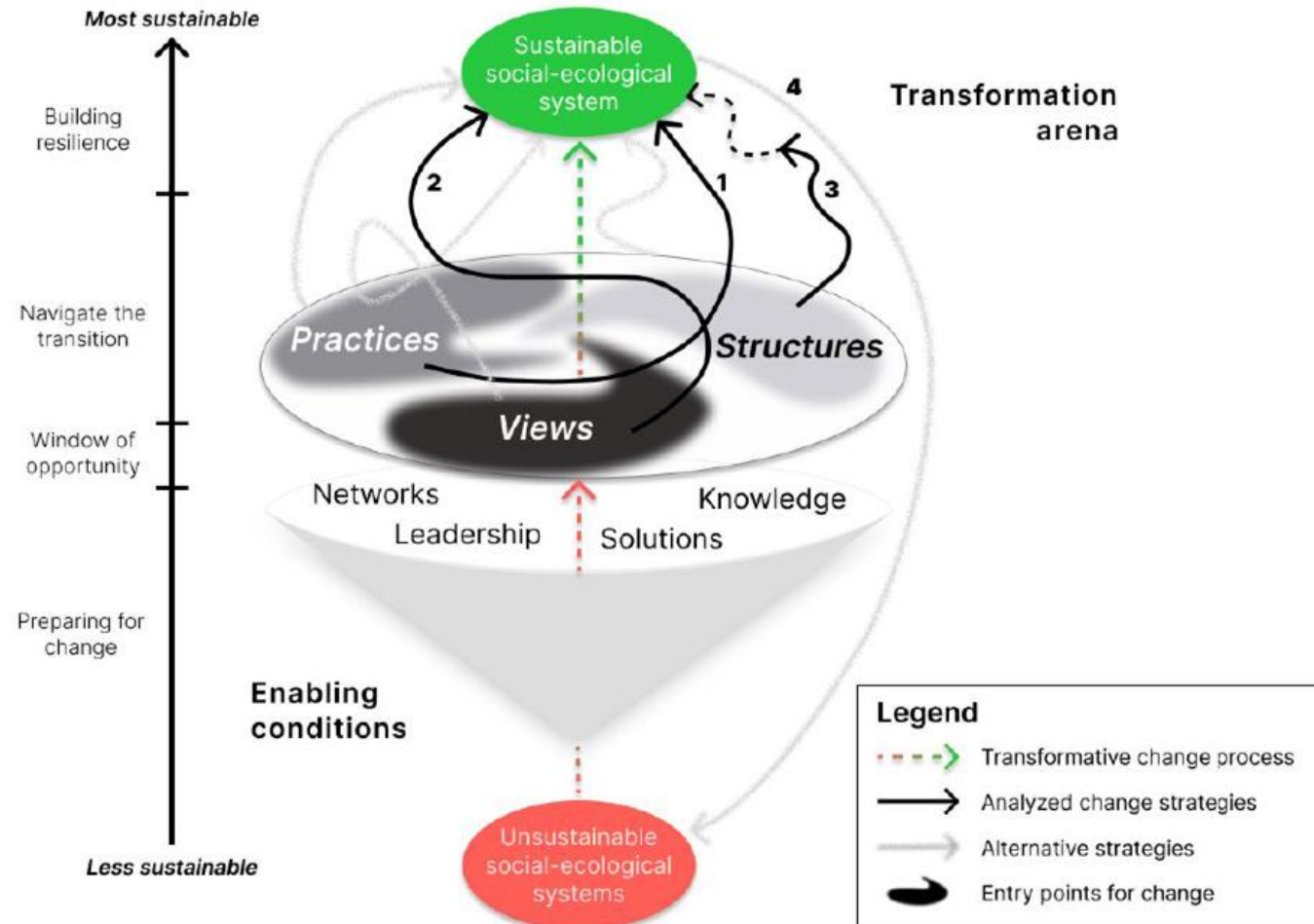
Tuna fisheries  
management in the WIO



# Characterizing transformations

*Bitoun\*, Comte\*, et al. under review Sustainability Science*

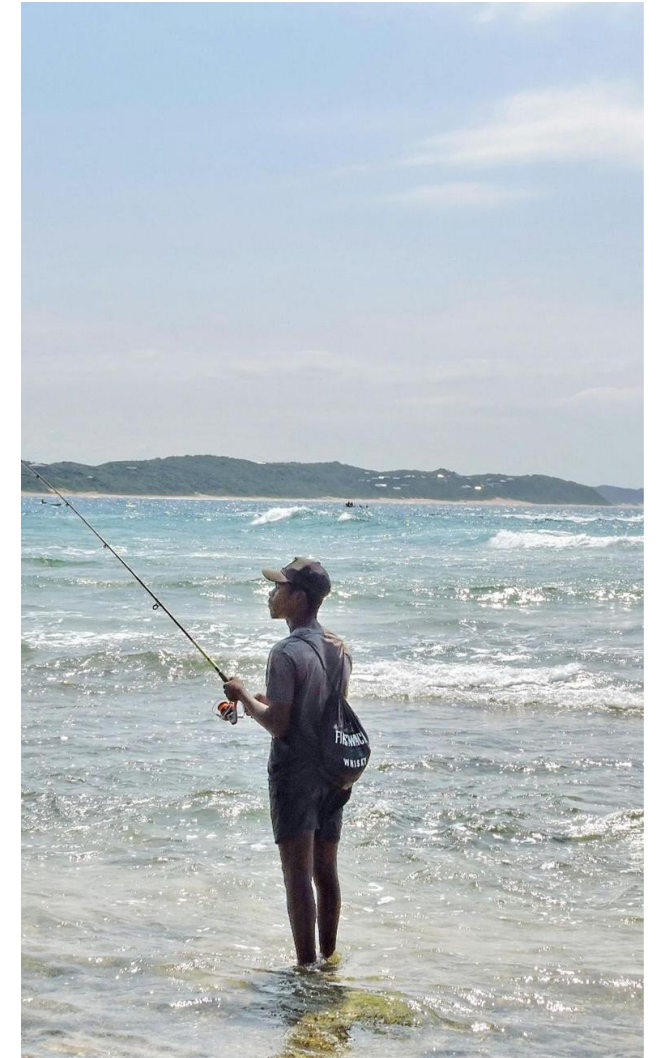
- Inverse relationship between governance scale and the depth of achievable transformation
- Durable transformations require the integration of strategies that engage practices, structures, and views
- Importance of contextualized, action-oriented research towards equitable, safe, and sustainable futures





# Key takeaways

- *We study how transformations occur at different scales*
- *Transformative processes have many shapes, they are not homogeneous*
- *Expectations for rapid transformation may be unrealistic*
- *Deeper transformations are more likely in collaborative settings*
- *More case studies are needed to assess the potential for strategy transfer (scaling out)*
- **Perspectives :** *How can successful initiatives contribute to regional transformations?*





# BRIDGES as enabling transformations ?

Transformations characteristics	BRIDGES contributions
Views	Values of and relations to nature
Practices	Sustainable practices
Structures	Governance trajectories, conflicts mapping
Enabling factors	BRIDGES activities
Networks	Co-construction workshops, participatory research, mirror projects
Leadership	Empower students, researchers, professionals through trainings
Knowledge	Data, models, frameworks, insights, ethnographies, etc.
Solutions	ABMT, scenarios, evaluations, living lab

# Thank you for your attention

## [adrien.comte@ird.fr](mailto:adrien.comte@ird.fr)

Rachel Bitoun\*, **Adrien Comte\***, Nathan J. Bennett, Patricia Charvet, Joachim Claudet, Fabien Forget, Patrice Guillotreau, Janne B. Haugen, Robert Katikiro, Rocío López de la Lama, Shauna Mahajan, Kolobe Mmonwa, Ryan O'Connor, Laura Pereira, Samantha Petersen, Andrea D. Phillott, Ethan Prall, Quentin Schull, Mariana Tolotti, Rodolphe Devillers

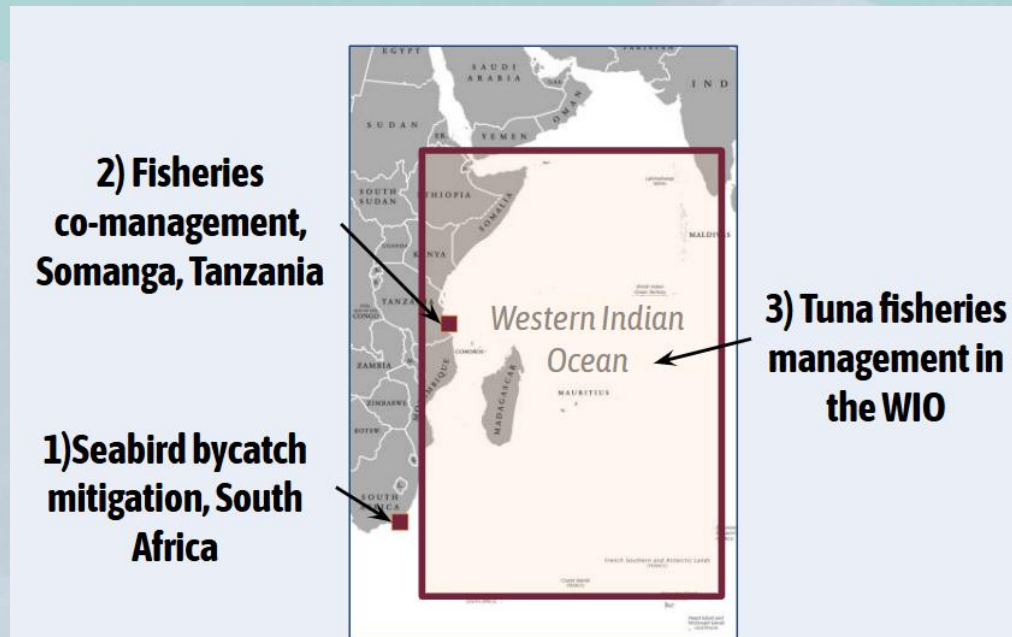


# What does the study of transformations in marine social-ecological systems in the southwest Indian Ocean reveal?



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## A case study approach



# Discover an interdisciplinary digital environment on coastal and marine socio-ecological systems in the southwestern Indian Ocean



**Julie Furiga**, Research Engineer at CNRS, within Data Terra and BRIDGES INFORMATION project

## BRIDGES Data Catalog :

The screenshot displays the BRIDGES Data Catalog interface. At the top, there is a search bar with the text "Rechercher ..." and a "Visualiser" button. Below the search bar, there are several filter sections:

- Type de ressource**: Includes "Jeu de données (114)", "Série (13)", "Initiative (1)", and "Logiciel (1)".
- Types de représentation**: Includes "Vecteur (68)", "Raster (34)", "Tabulaire (2)", and "Vidéo (1)".
- Formats**: A dropdown menu.
- Disponible via**: Includes "Service de téléchargement (35)" and "Service de visualisation (66)".
- Thèmes INSPIRE**: Includes "Conditions atmosphériques (1)", "Zones de gestion, de restriction ou... (7)", "Installations de suivi environneme... (6)", "Altitude (3)", "Géologie (4)", "Systèmes de maillage géographique... (1)", "Habitats et biotopes (3)", "Santé et sécurité des personnes (1)", "Occupation des terres (2)", "Caractéristiques géographiques... (1)", "Caractéristiques géographiques... (6)", "Ortho-imagerie (17)", "Répartition de la population - dé... (1)", "Lieux de production et sites Industr... (1)", "Sites protégés (2)", and "Répartition des espèces (1)".

The main content area shows a grid of data items, each with a thumbnail, title, and description:

- Projet MAP-IO**: "Le projet MAP-IO vise à effectuer des observations atmosphériques et de biologie marine sur le long terme dans la région de..."
- MNT et ORTHOPHOTO de la Plage de l'Hermitage - Ile de La Réunion, St-Gilles Les...**: "La plage de l'Hermitage à La Réunion ( Saint-Gilles les Bains, 97460), dans l'Océan indien Occidental, fait..."
- Représentation des reliefs des fonds marins des zones récifales du sud-ouest de...**: "Cette représentation des reliefs des fonds est issue de la combinaison du MNT. Bathymétrie..."
- Nature des fonds : taux de couvertures en sable, algues, corail, herbier et...**: "Cette cartographie raster permet de visualiser une synthèse des taux de recouvrements des 4 principaux constituants Sable,..."
- Indices topographiques des fonds marins des zones récifales du sud-ouest de...**: "Des indices topographiques liés aux reliefs des fonds ont pu être extraits de la bathymétrie sur les récifs..."
- Images en pseudo couleurs des zones récifales, corrigées des effets de surface de l'eau sur les données**: "Ces images des fonds marins sont issues de la correction des effets de surface de l'eau sur les données..."
- Images en pseudo couleurs des fonds marins des zones récifales du Sud-Ouest de l'océan Indien**: "Ces images des fonds marins sont issues de la correction de la..."
- MNT des fonds marins des zones s récifales du Sud-Ouest de l'océan Indien**: "MNT Bathymétrie des plateformes récifales et/ou des..."
- Localisations géographiques**: "Localisations géographiques..."

At the bottom of the interface, there is a footer with the text "© OSU-Réunion - Catalogue de métadonnées géospatiales GEOSUR" and "Propulsé par GeoNetwork".