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Assessing past marine social-ecological systems transformations in the southwestern Indian Ocean: A case study approach

Rachel Bitoun, Adrien Comte, Shauna Mahajan, Rodolphe Devillers

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#TCESG25



TC/ESG2025 CONFERENCE

AUGUST 18-21 • 2025

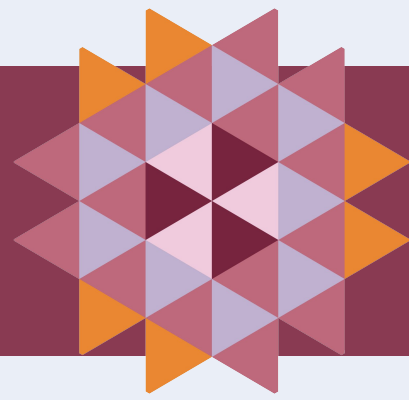
SOUTH AFRICA

Rachel Bitoun, IRD, France



Assessing past marine
social-ecological systems
transformations in the
southwestern Indian Ocean:
A case study approach





OBJECTIVES OF THE STUDY

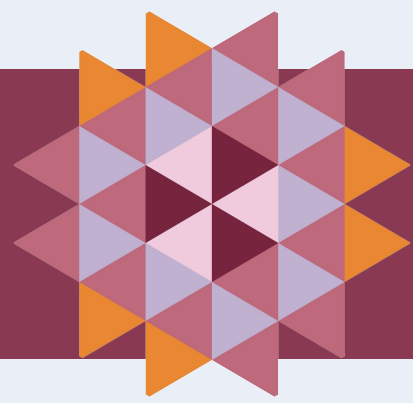
Research question

How do transformations unfold in marine SES of the WIO?

Aim of the study

- Apply theory to real experiences within nested governance scales
- Identify patterns and context-specific drivers of change
- Inject this knowledge into an action-oriented 10-year research program





CASE STUDIES

Selection of 3 **contrasting** case studies.

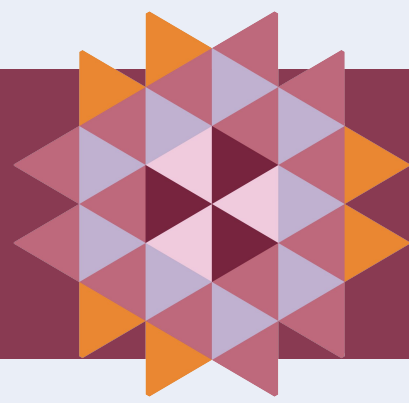
Transformations explored in a workshop with **25 participants**, 6-month follow-up process, work in progress.

2) Fisheries co-management, Somanga, Tanzania

1) Seabird bycatch mitigation, South Africa

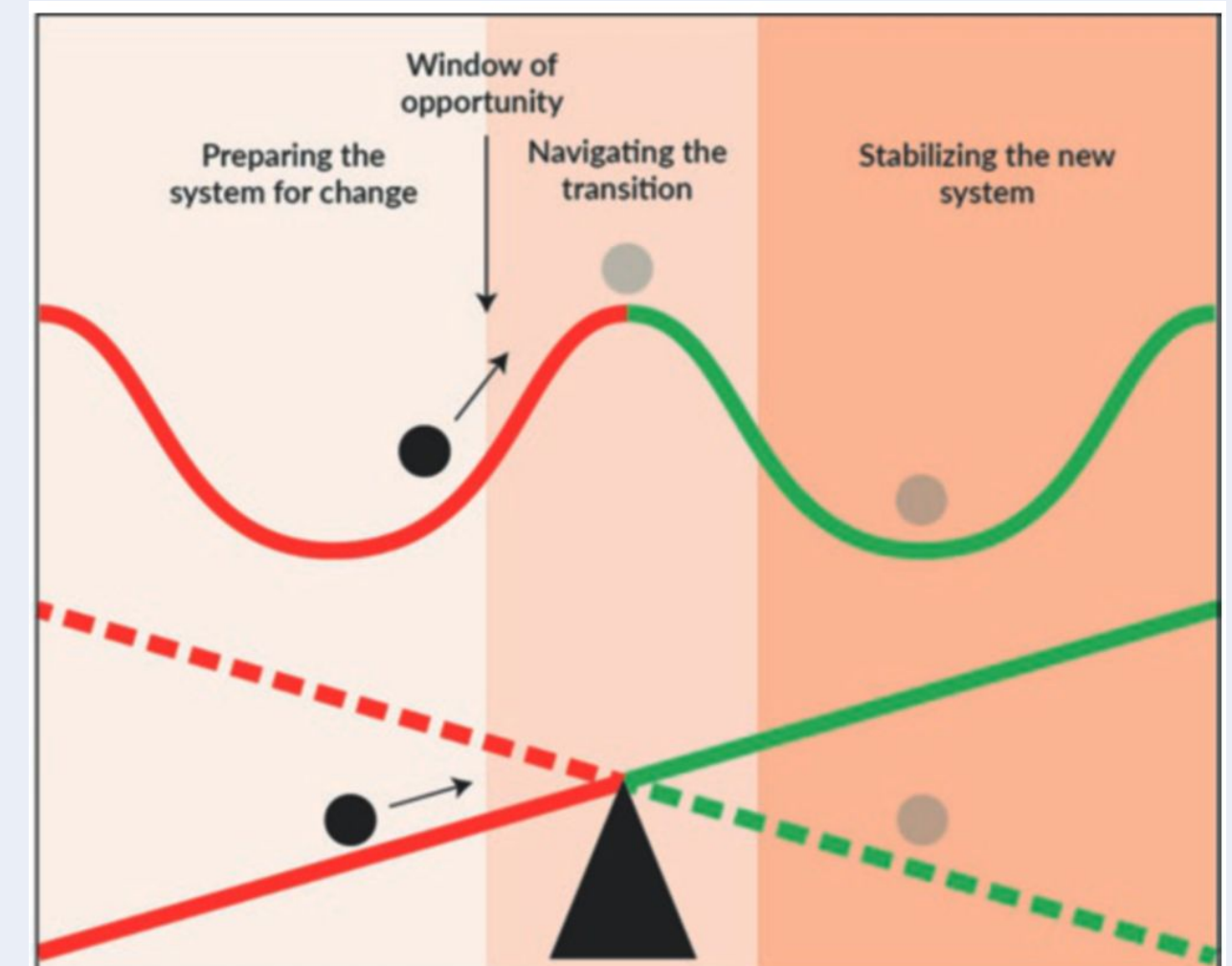


3) Tuna fisheries management in the WIO



METHODS

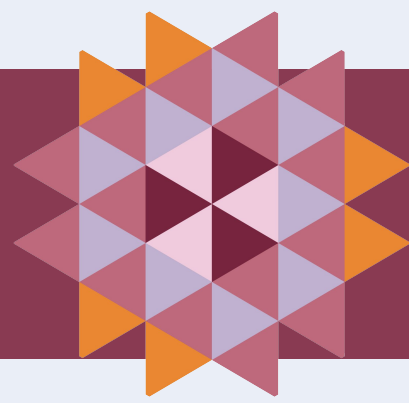
- **Standardize transformative narratives** through Olsson's 3-phase model framework (2006)
- Characterize the **nature of the transformation**: scope, depth, and speed (Evans et al., 2023)
- Understand the **role of change agents** in shaping these transformation (Westley et al., 2013)



From Olsson, P., & Moore, M.-L. (2024).
https://doi.org/10.1007/978-3-031-50762-5_4



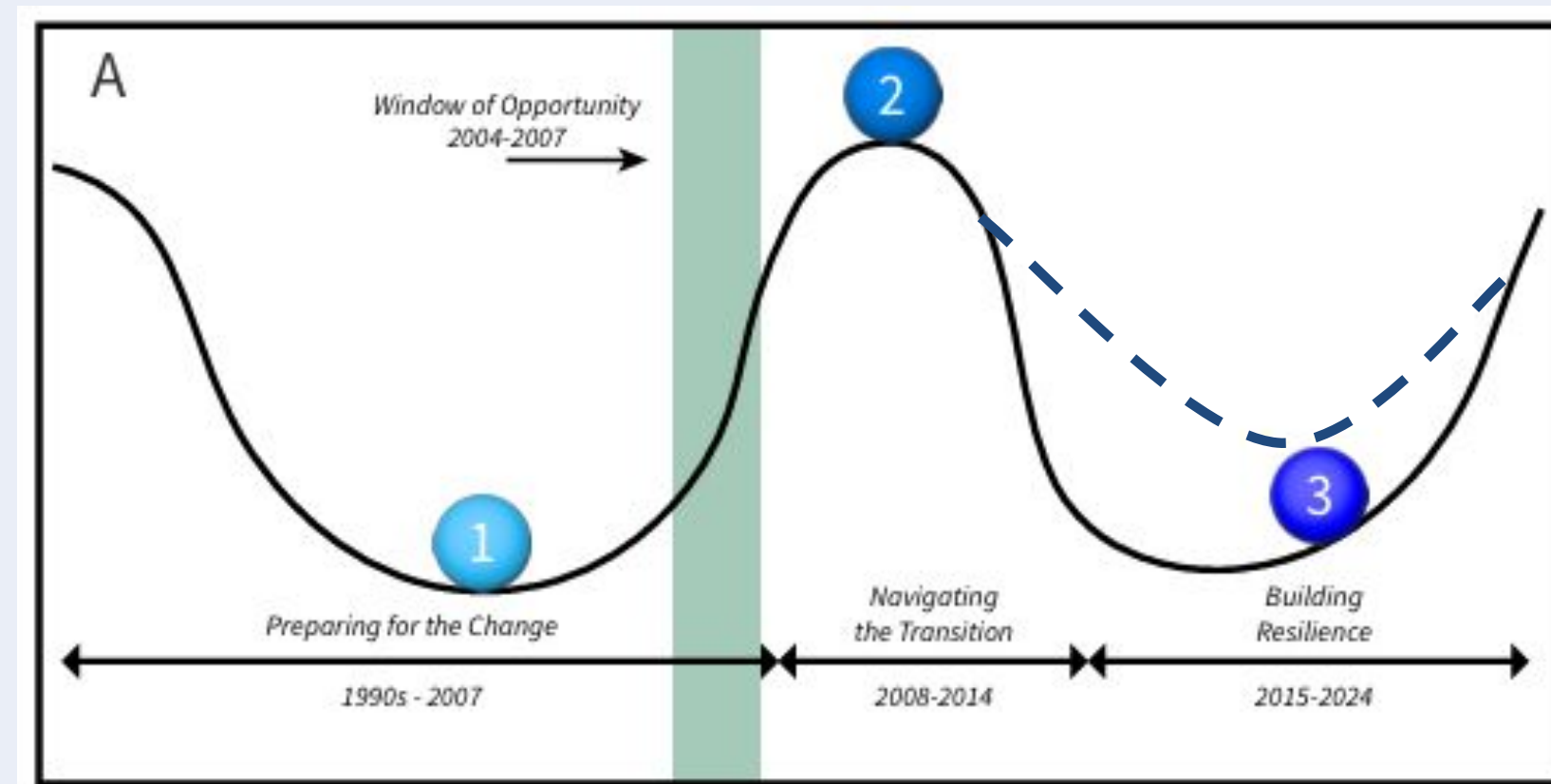
**SEABIRD BYCATCH MITIGATION,
SOUTH AFRICA**



THE TRANSFORMATIVE PROCESS

1) Scientists and NGOs raise awareness, develop solutions

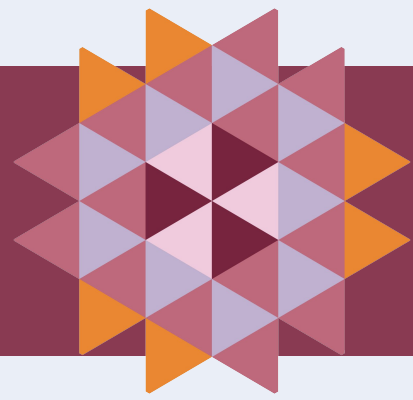
1a) Global trends for EAFM, government introduces observer coverage, Market- & consumer-based incentives (MSC, SASSI)



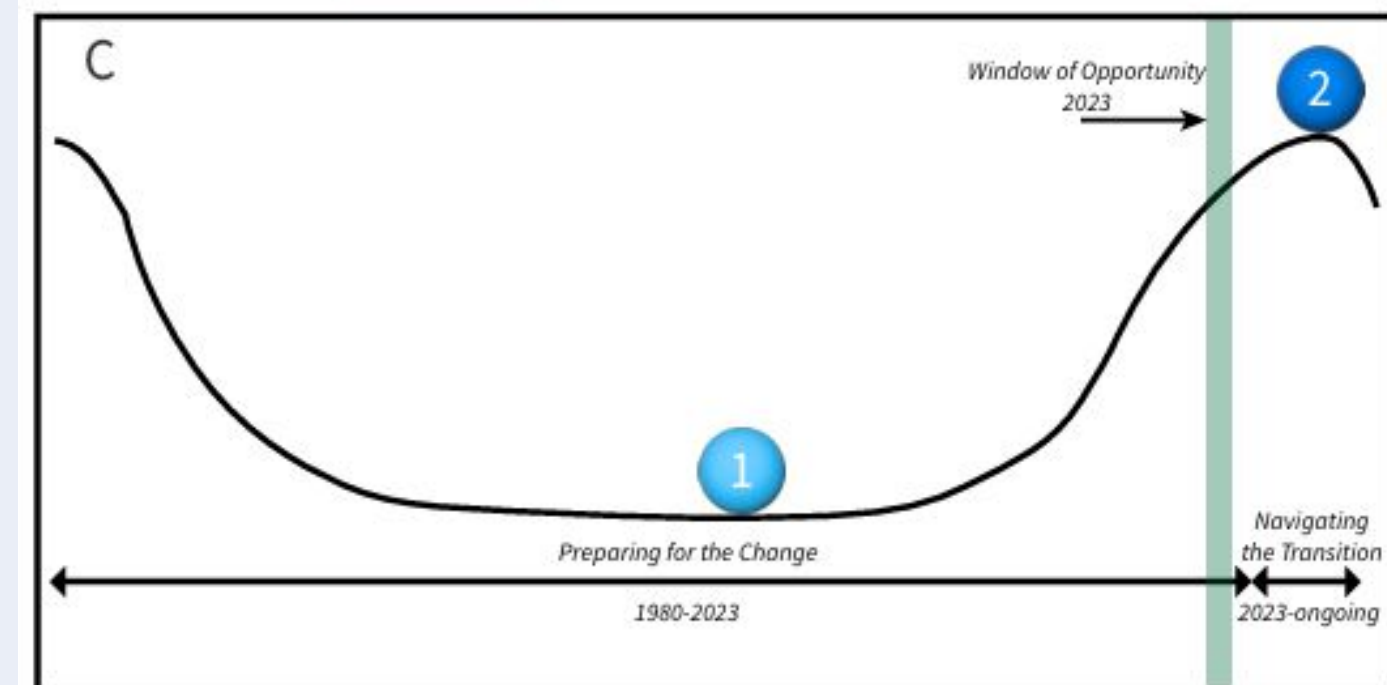
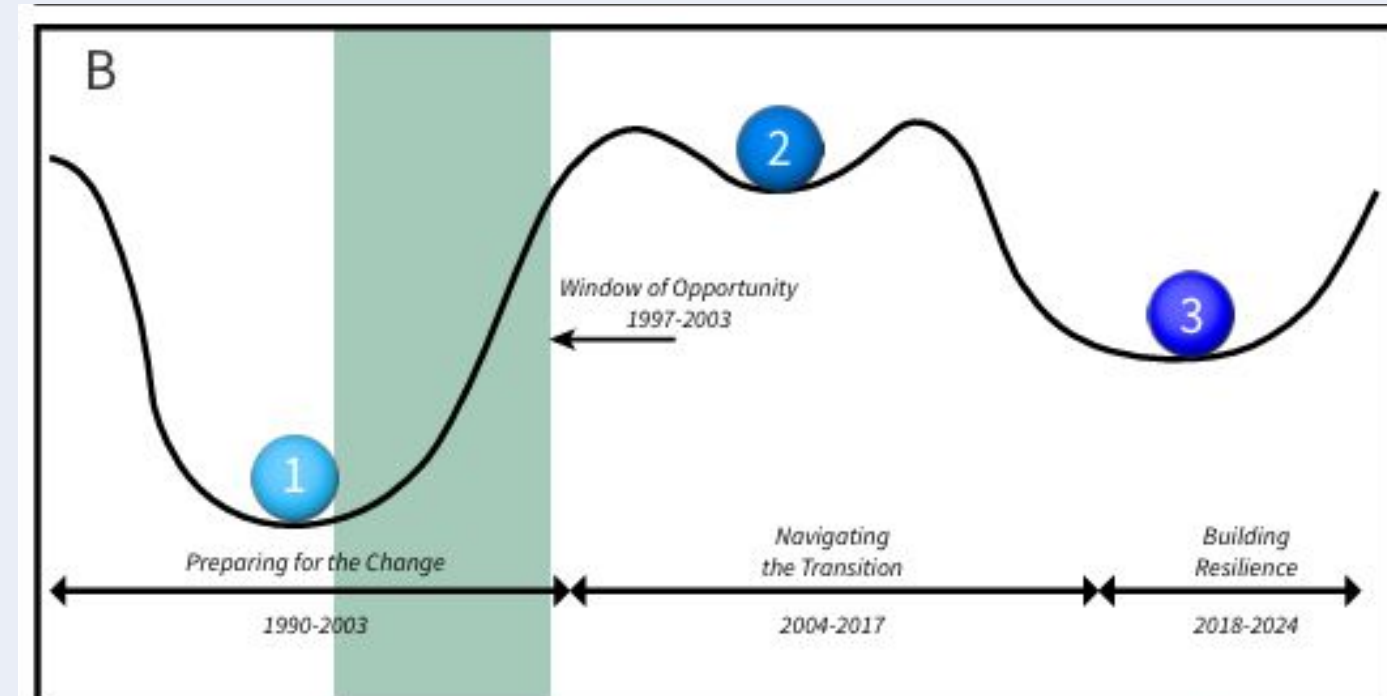
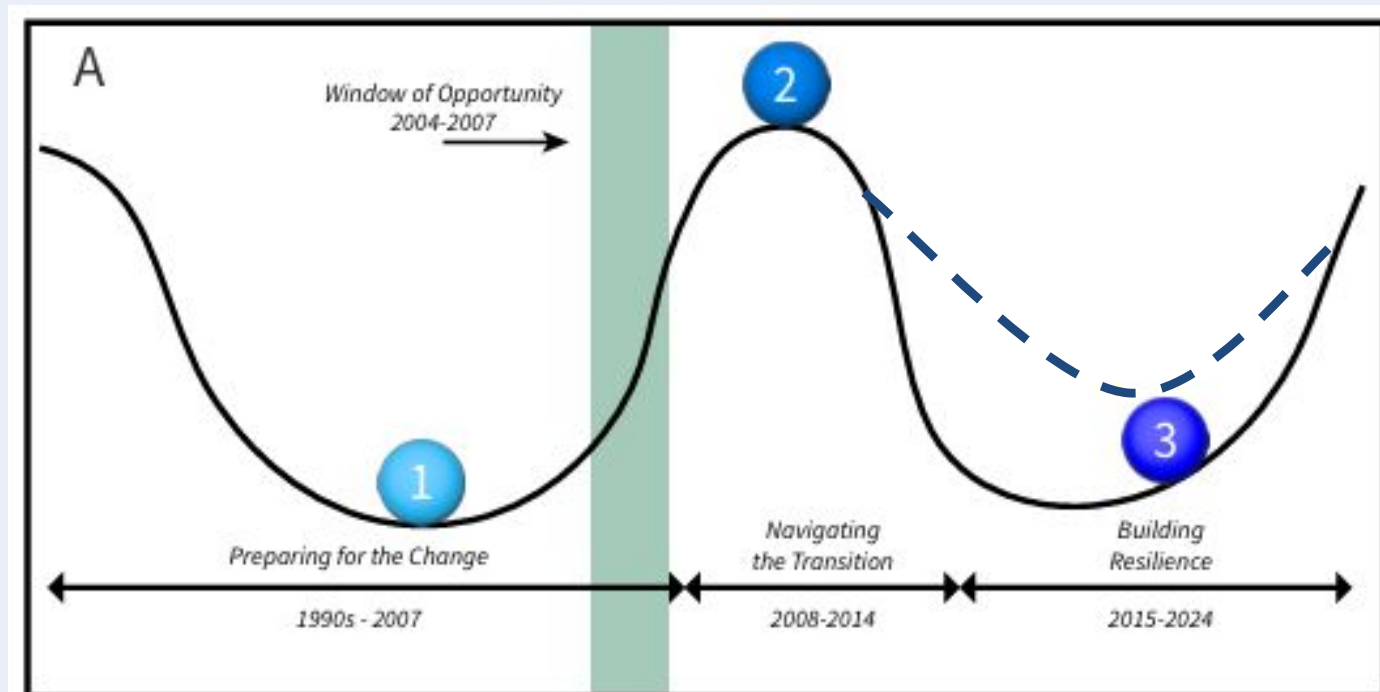
2) Vessel bycatch limits, solutions are tested, industry uptake, growing public awareness

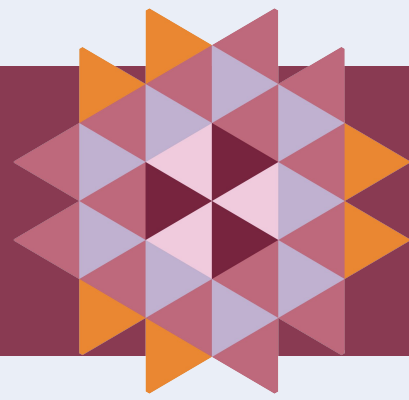
3) Dramatic decrease in bycatch, improved coverage, retailer & restaurant uptake, changes in consumption patterns

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



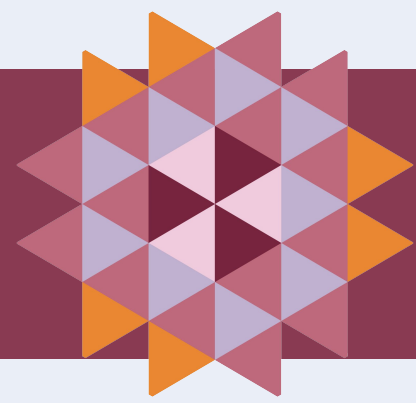
TRANSFORMATIVE CHANGE CAN TAKE MANY SHAPES





CHANGE AGENT FUNCTIONS

01	Actors change functions during transformations	<ul style="list-style-type: none">● Resource users : resistors to reinforcers● Networkers become facilitators
02	Some functions are required early in the process	<ul style="list-style-type: none">● Knowledge carriers (scientists) and visionaries (actors with high interest in change)
03	Some are required to sustain transformations	<ul style="list-style-type: none">● Reinforcers
04	Three functions are required to navigate transitions	<ul style="list-style-type: none">● Information and knowledge● Connection and coordination● Action and implementation



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 global transformations?*

#TCESG25



RESEARCH PROGRAM

FISHERIES AND BIODIVERSITY IN THE WESTERN INDIAN OCEAN



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THANK YOU!

For more information, please contact:

Rachel E. Bitoun

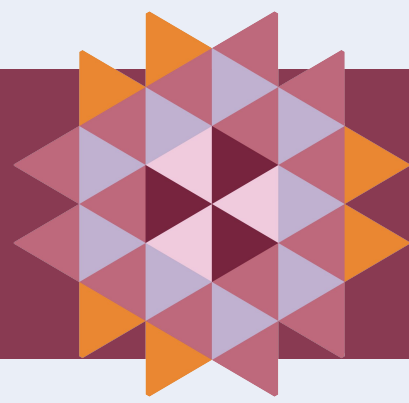
IRD, Montpellier, France

Email: rachel.bitoun@ird.fr

BRIDGES Program : www.bridges-wio.com

Navigating Sustainability Transformations Towards Justice & Equity

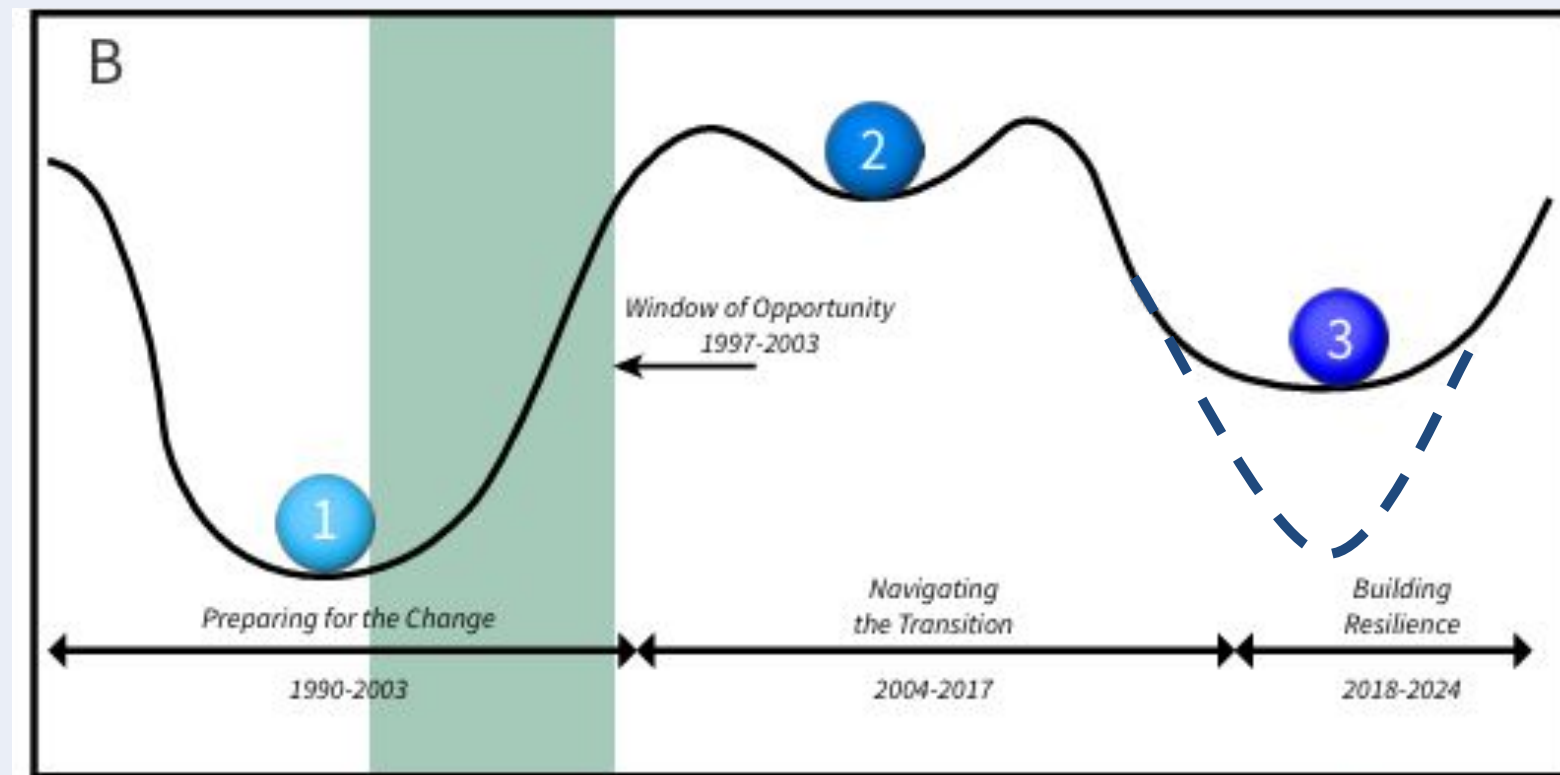




FISHERIES CO-MANAGEMENT, TANZANIA

1) Export incentives, government committed to decentralization, legal frameworks for MPAs, external funding

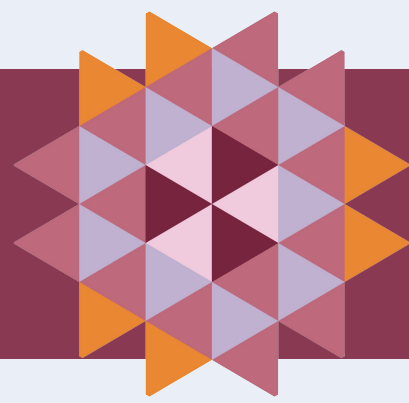
1a) Successful projects set the example, regional commitments for marine protection, policy for BMUs



2) NGOs work first on less conflictual topics, policy guidelines, buy-in for conservation, BMU leader training

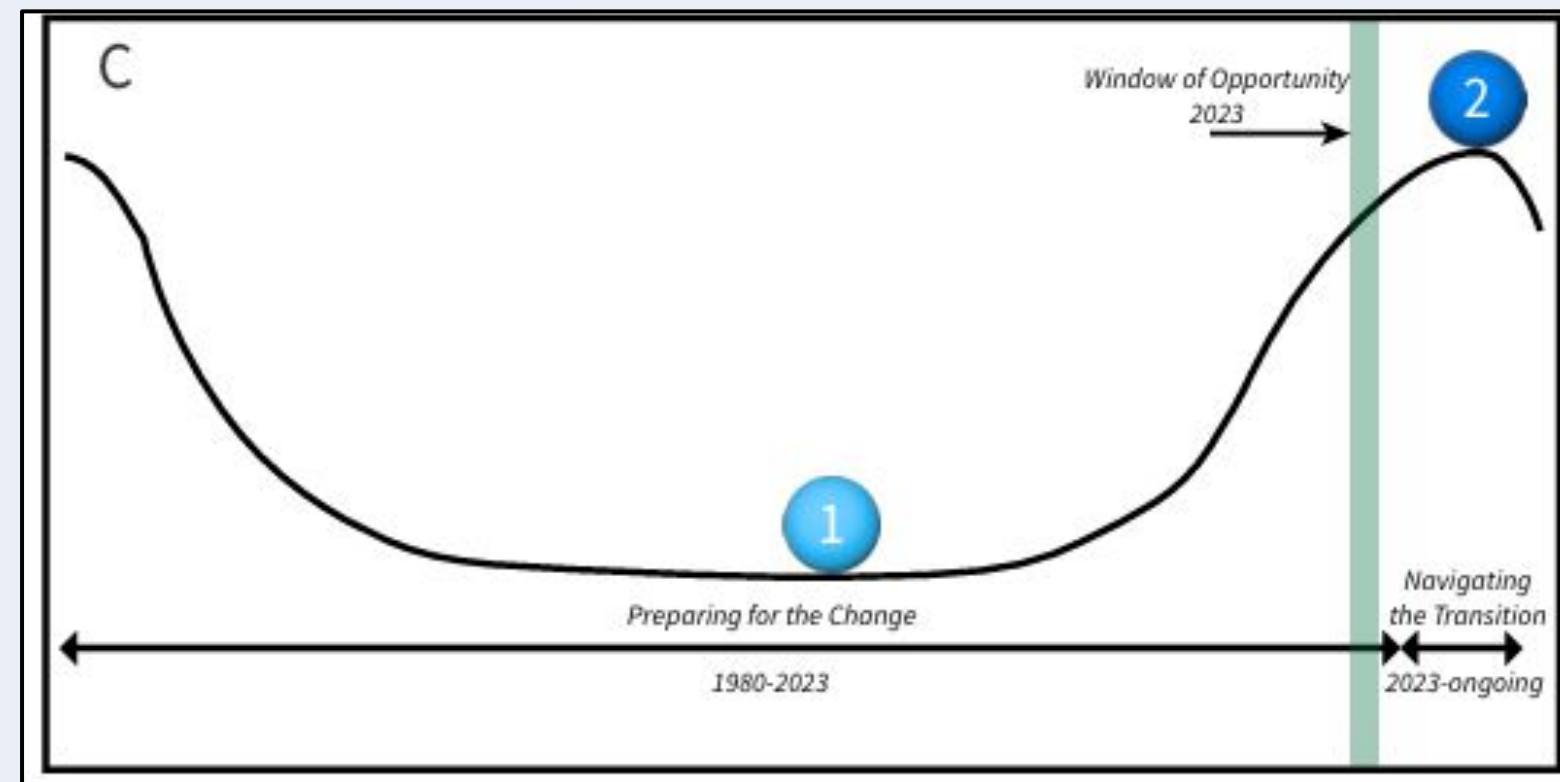
3) BMUs coordinate in wider networks, specialized community organization emerge, BMU responsibility (eg., auction)

Scope	Speed	Depth
Broad - multiple domains	Gradual - adaptive process, 35 years (ongoing)	Deep(ening) - fundamental social change, but little environmental outcomes



TUNA FISHERIES MANAGEMENT IN THE WIO

1) Creation of an RFMO (IOTC), member states form coalitions with conflicting views, recognition that stock management is required, scientists show the benefits of FAD closures and quotas



1a) IOTC shows leadership and takes ambitious resolutions, triggered by the MSC certification of skipjack tuna (competition)

2) Transitioning process has just begun, resolution cancelled, conflicts remain

Scope	Speed	Depth
Limited - international setting, but focused topics	Slow , 45y process	Shallow - policy adaptations/measures