

Effective Restoration

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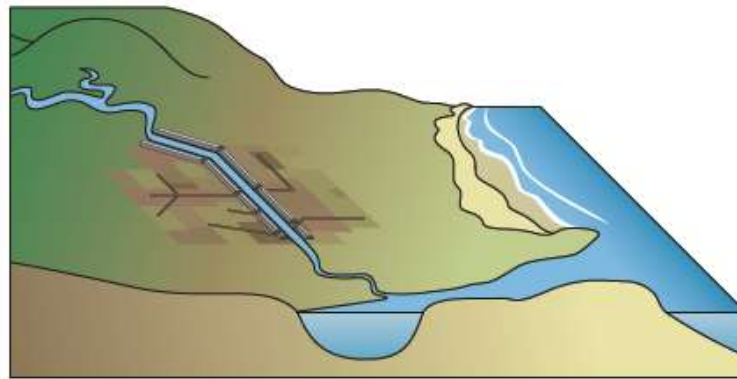
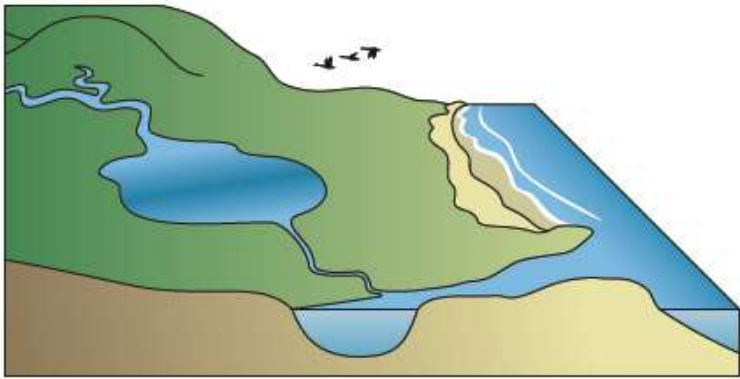
Coastal Wetlands



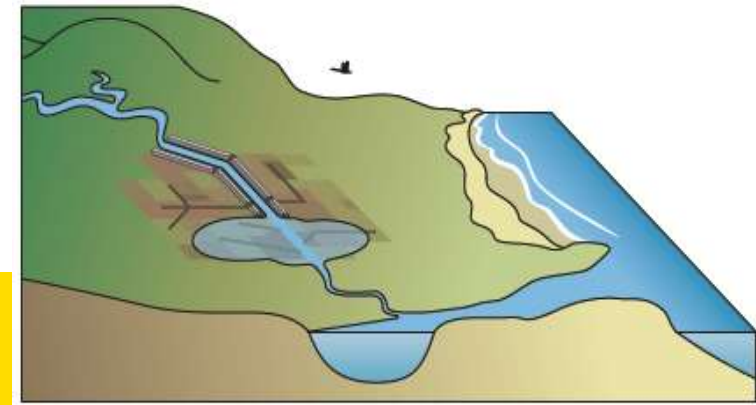
UNSW
SYDNEY

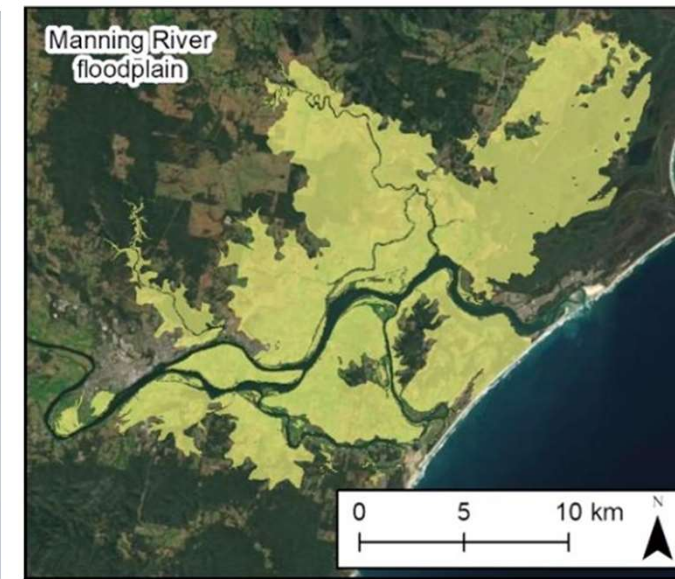
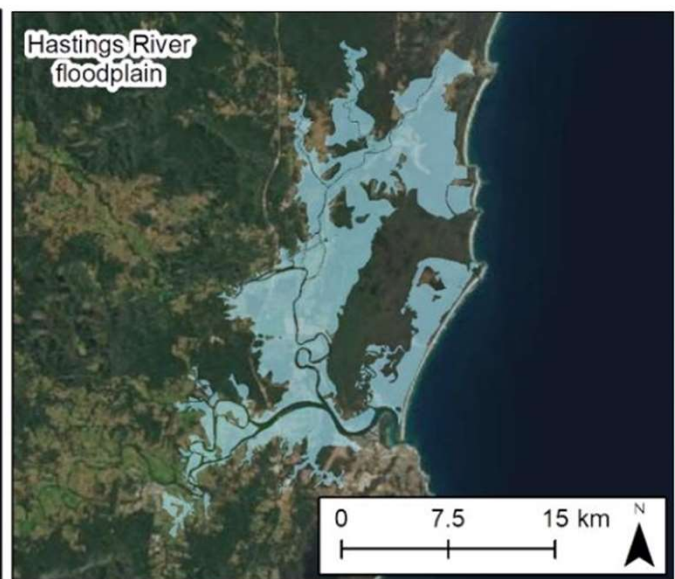
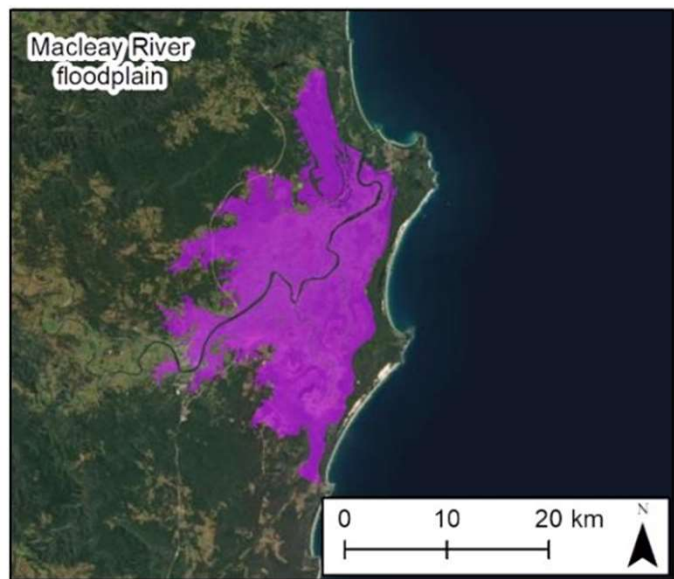
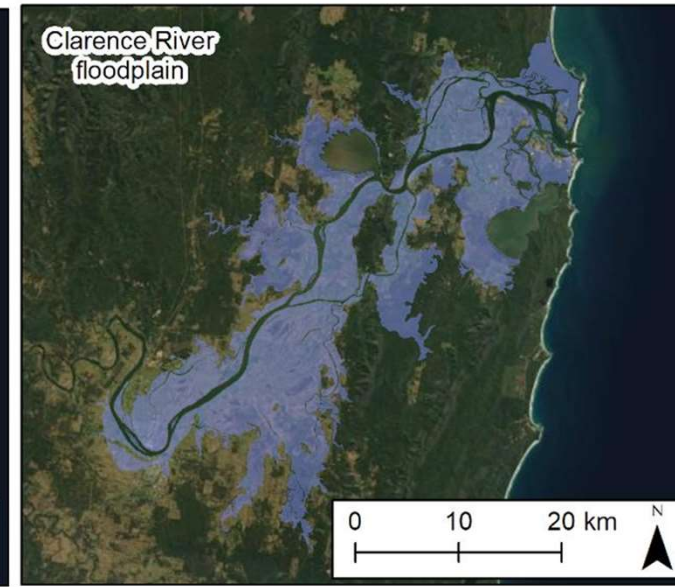
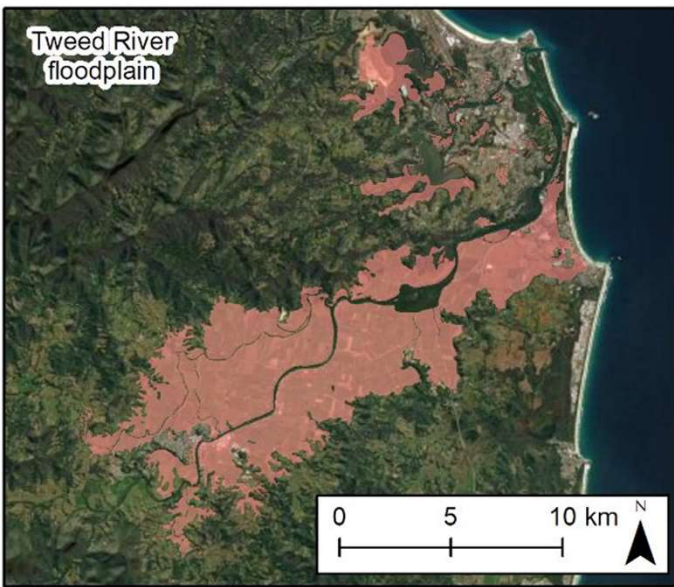
Water Research Laboratory
School of Civil and
Environmental Engineering

Presented by:
Prof. Will Glamore

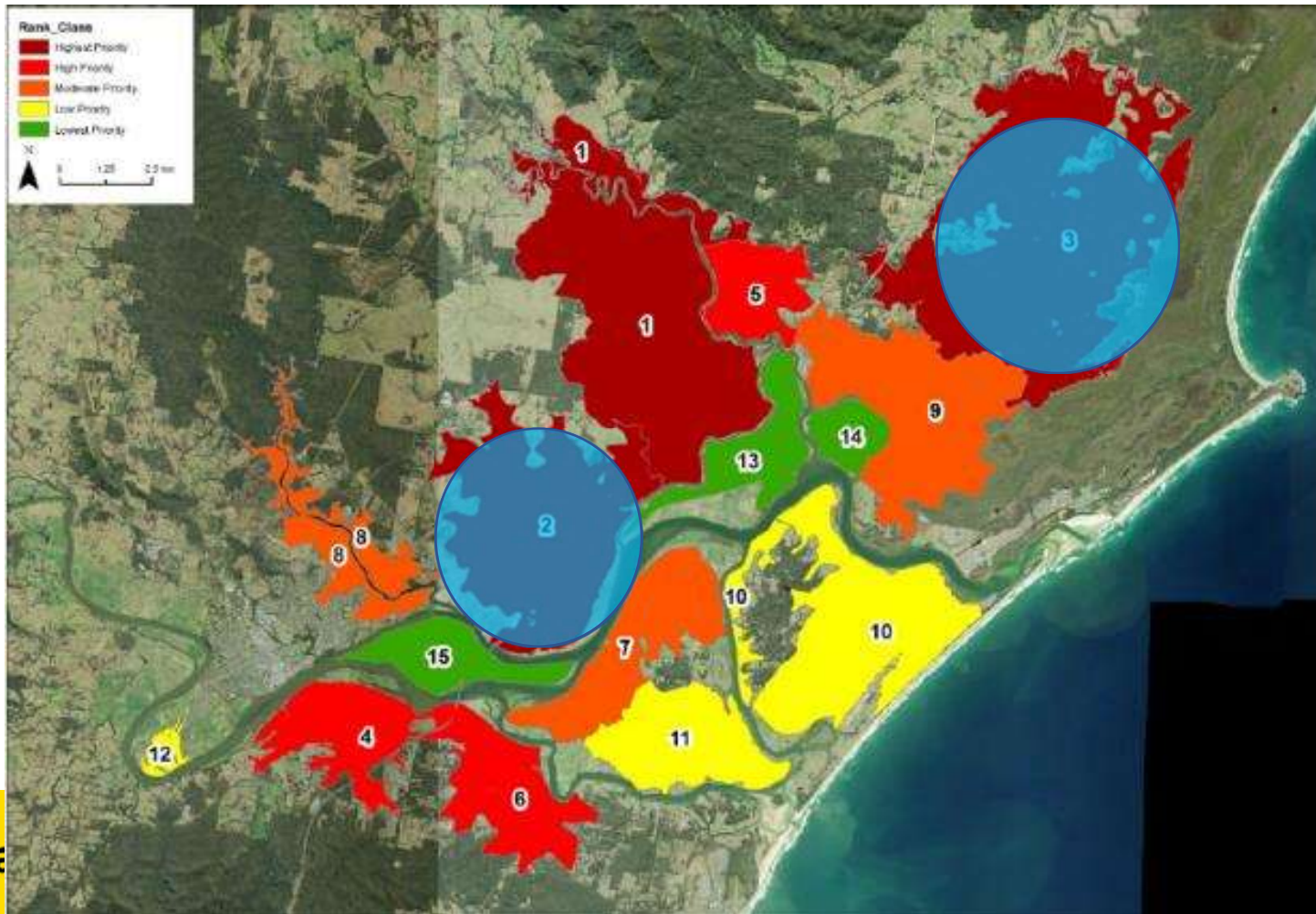


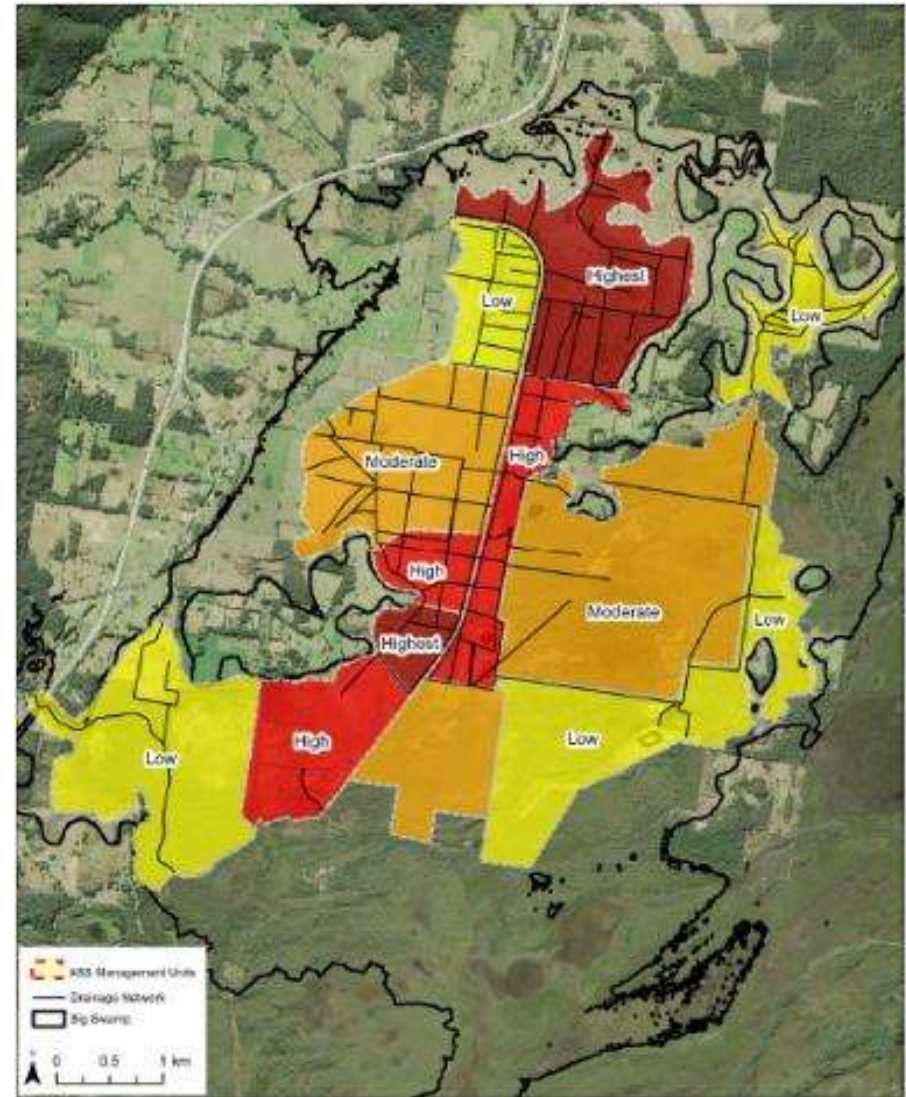
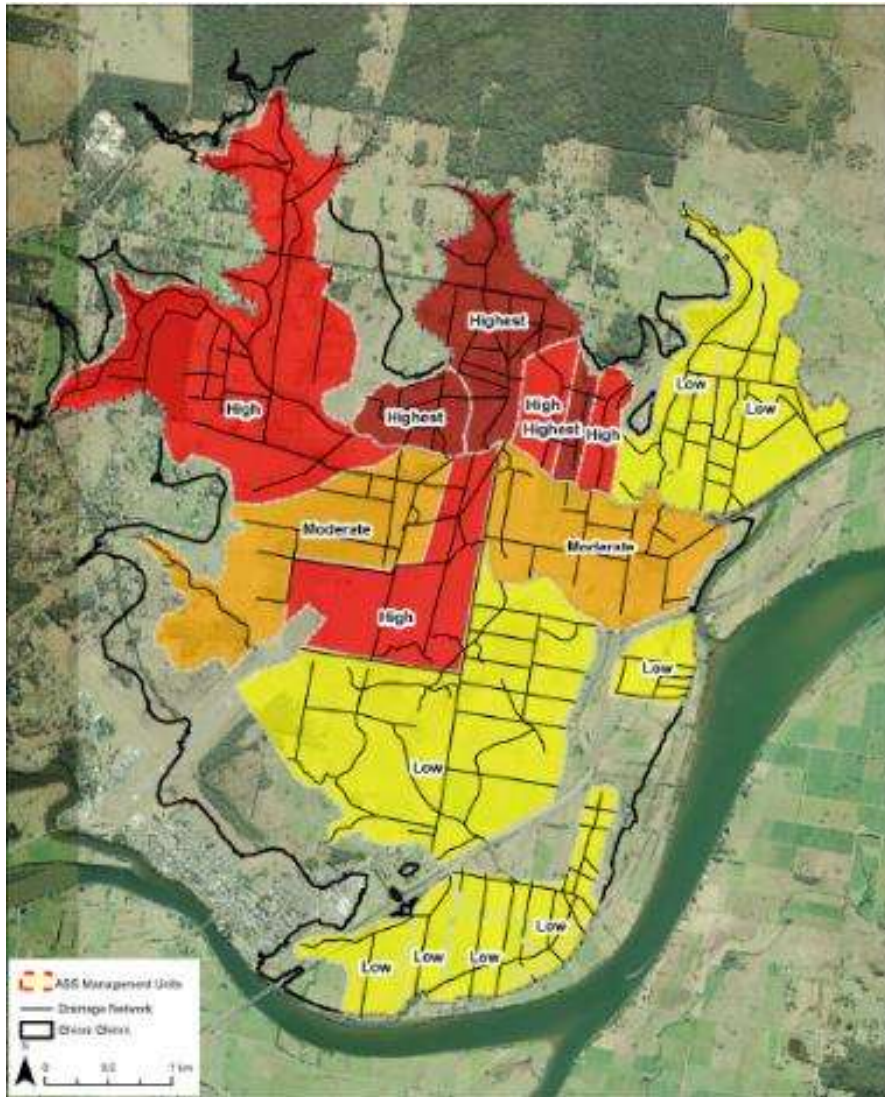
Where should be restored?
How should it be restored?
When should it be restored?

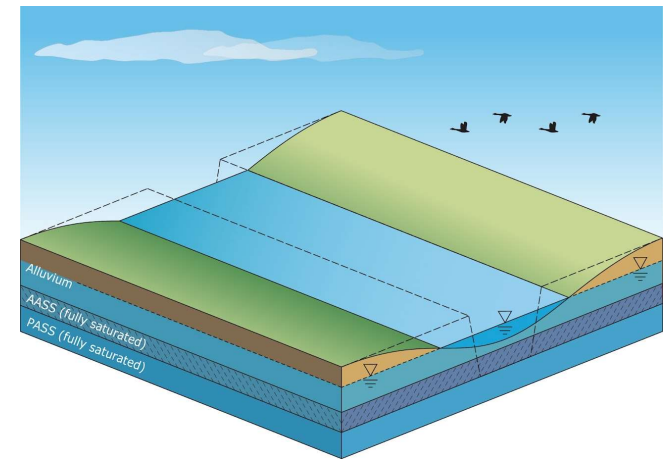
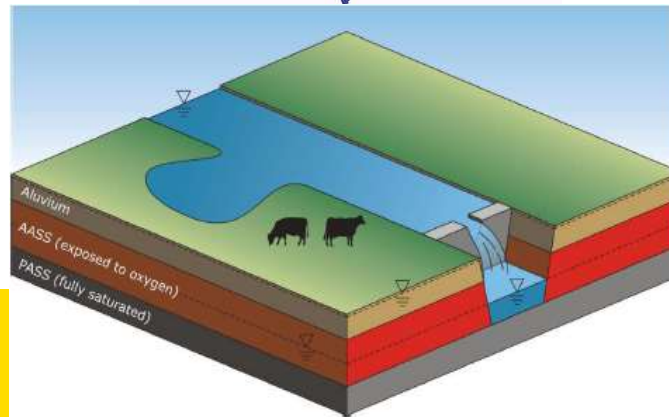
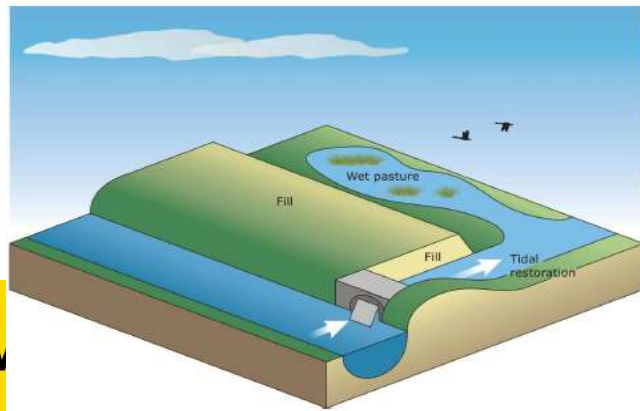
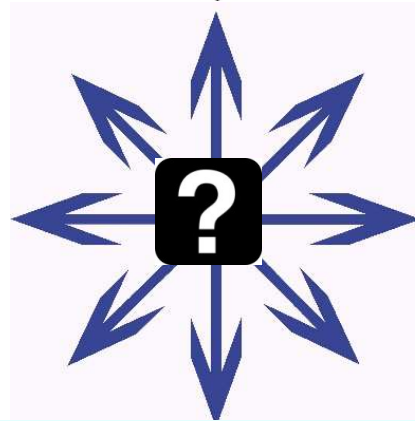
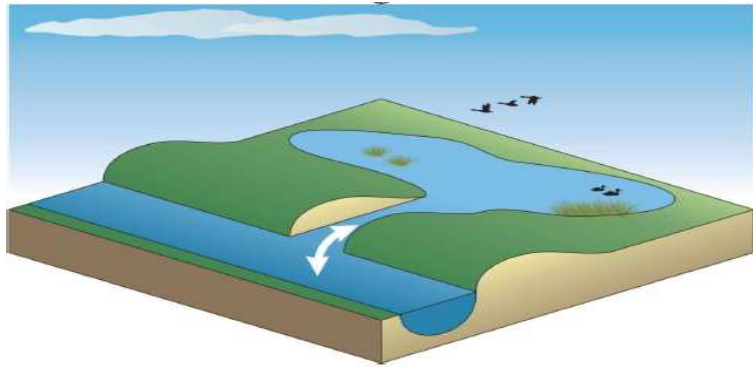
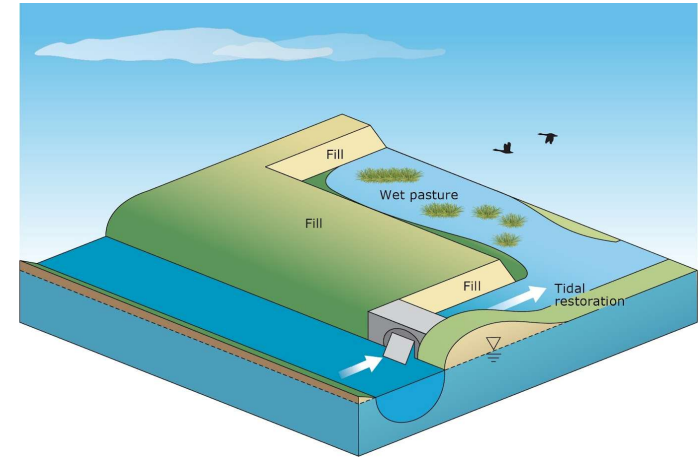
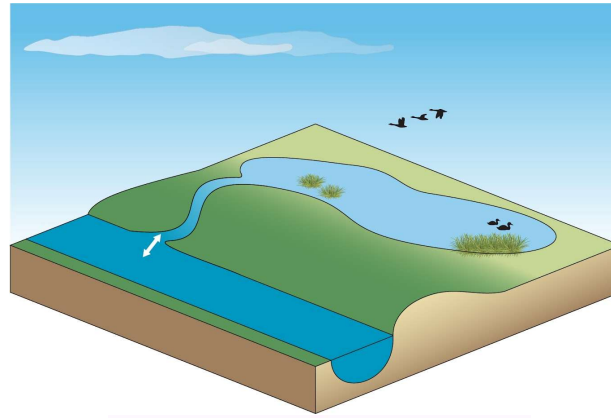
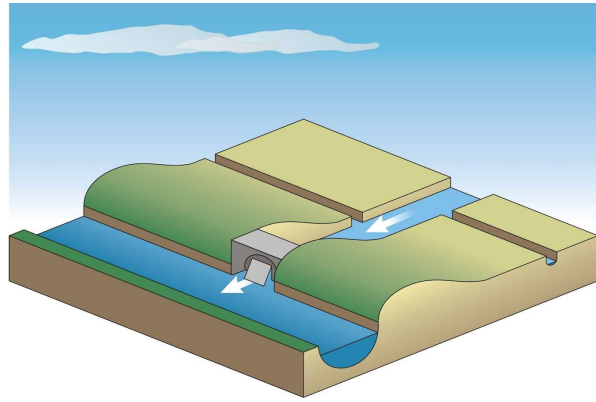




Restoration Action Plans

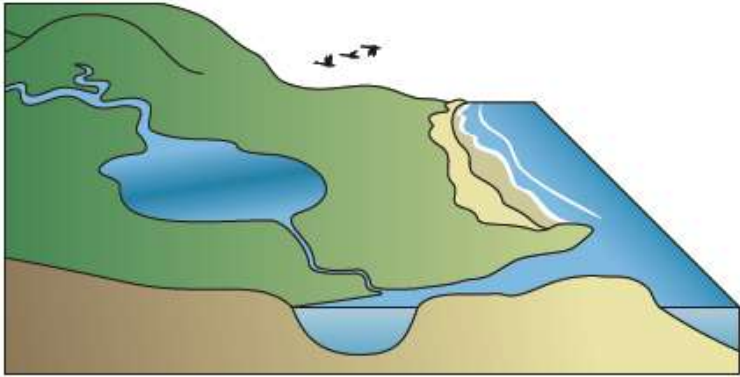






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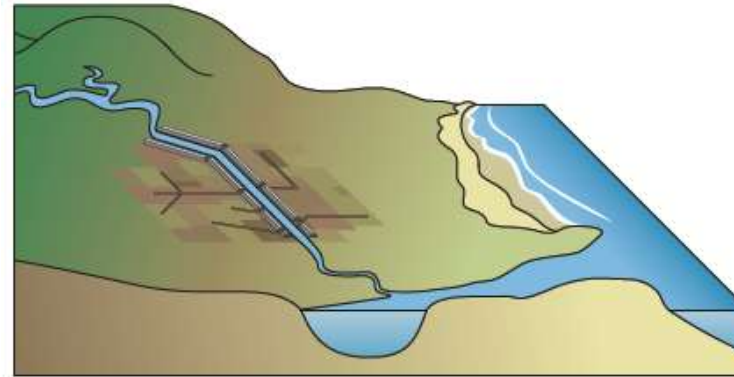
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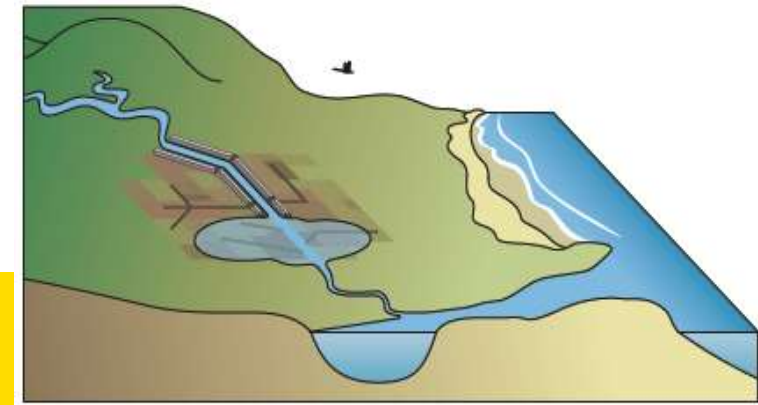
Where should be restored?

How should it be restored?

When should it be restored?



How do incentives play a role in effective restoration?

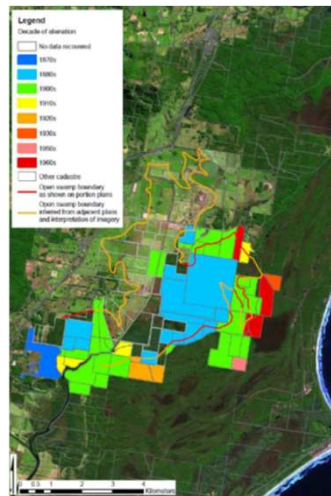


'Red' Gold to 'Blue' Markets

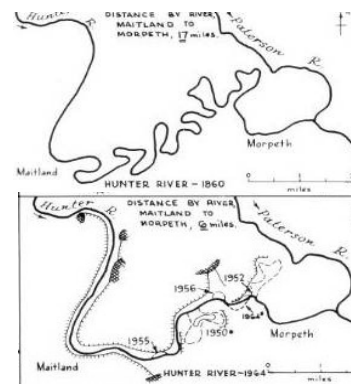
Exploitation Era



Establishment Era



Interventionist Era



Management Era



Next Era??

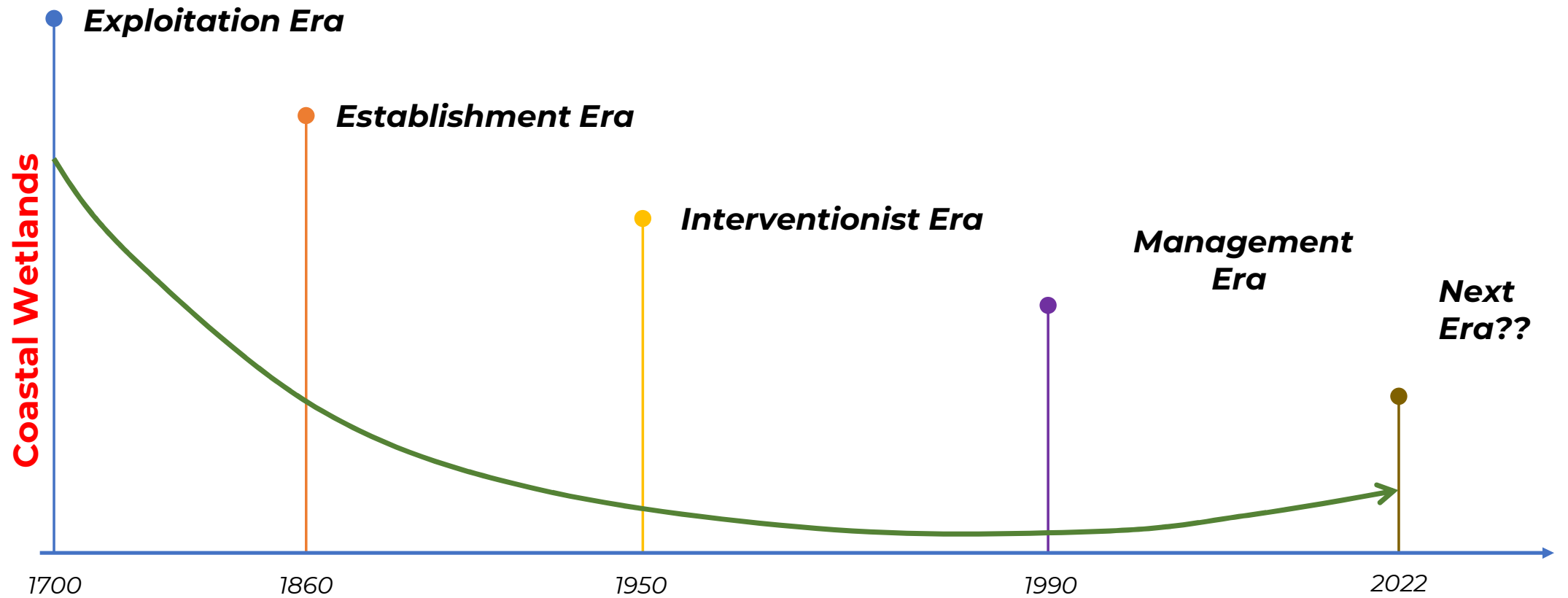
1800

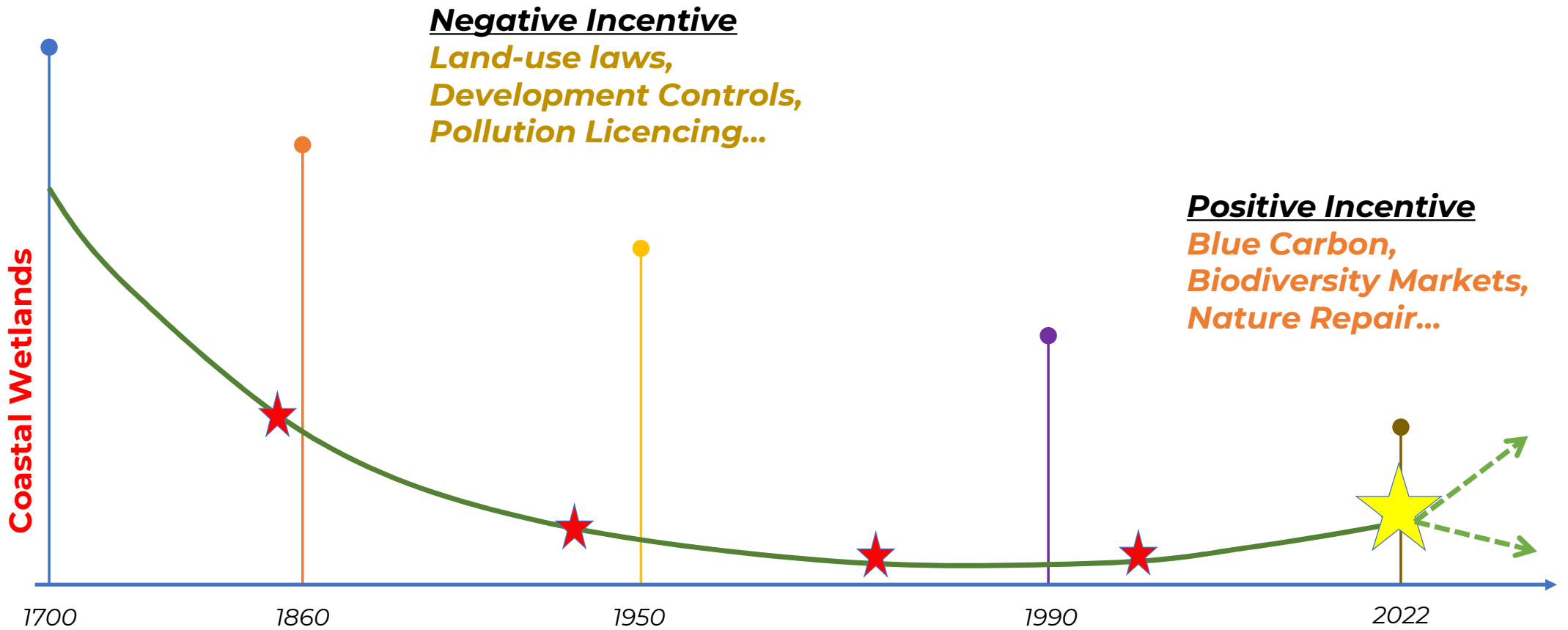
1860

1950

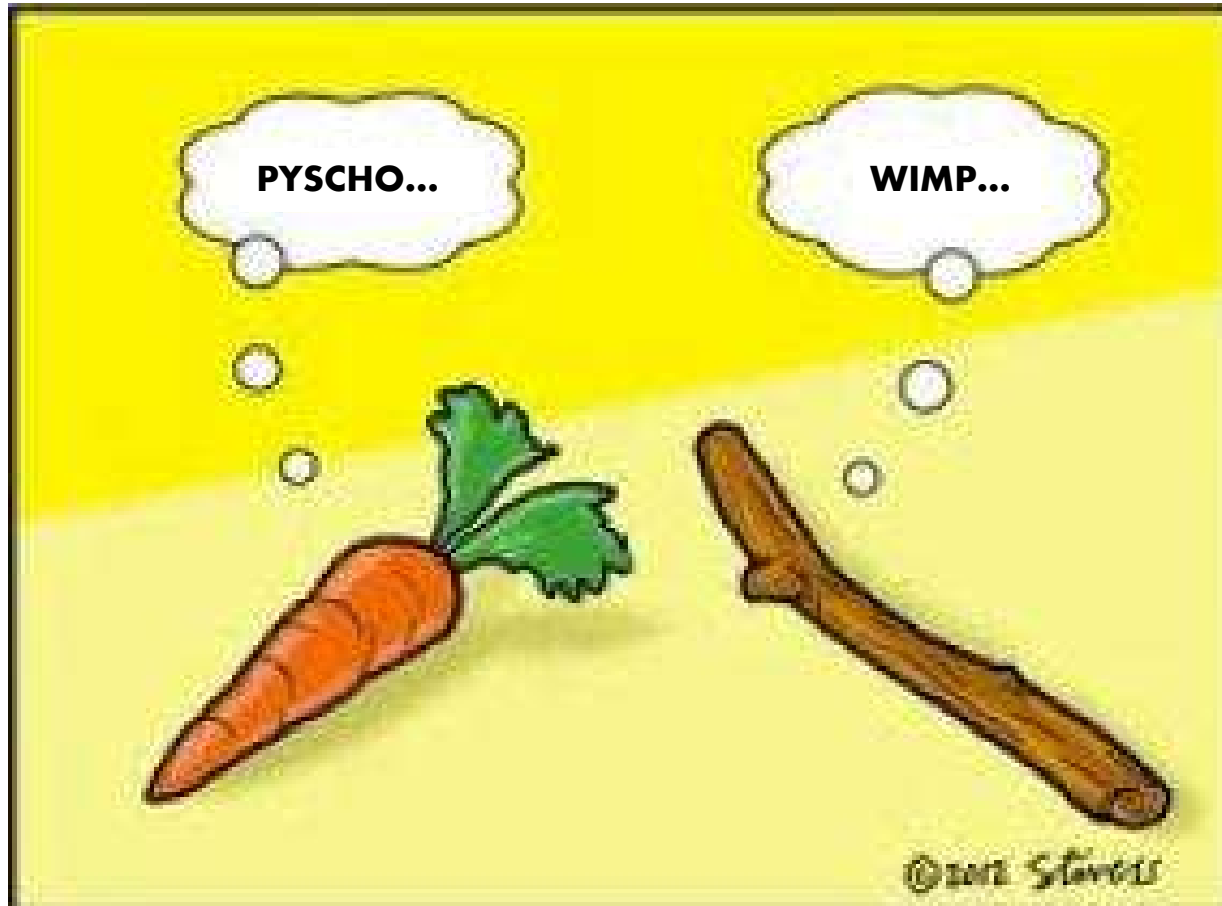
1990

2022



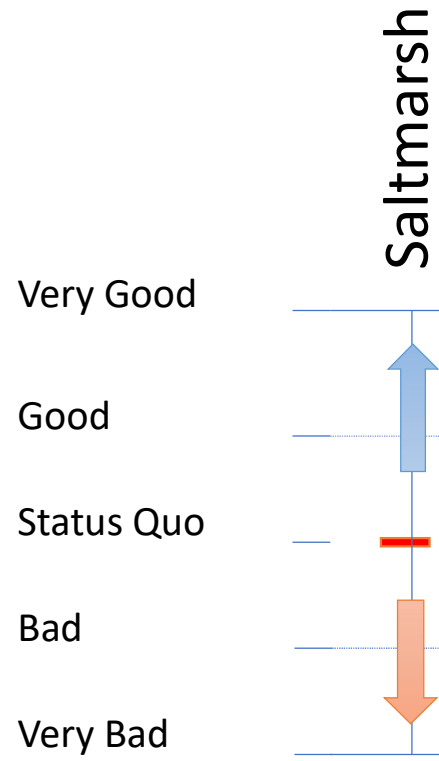


Incentives for Effective Restoration?



- **Stick:**
 - Punitive
 - Reactive
 - Government driven
 - Promote status quo
 - Same laws apply to restoration
- **Carrot:**
 - Incentivised
 - Proactive
 - Gov't regulate
 - Market based scalability
 - Can be done urgently

Effective Restoration?



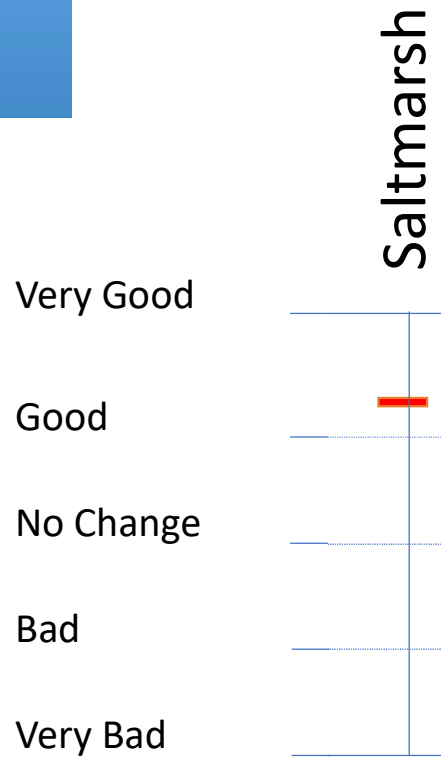
Status Quo Scenario

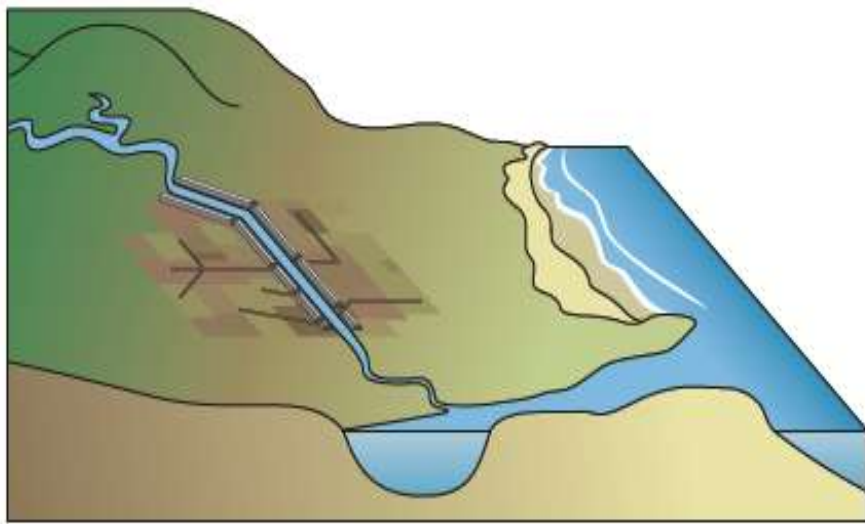


Single Incentivised Scenario



Co-Benefit Restoration Scenario



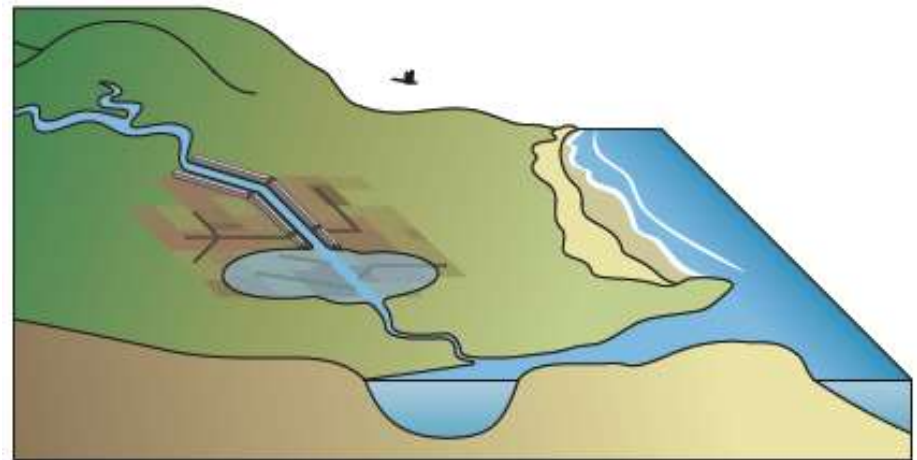
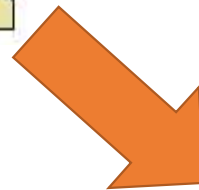


Negative incentives have stopped degradation.

Positive incentives can foster on-ground actions.

Incentivised by:

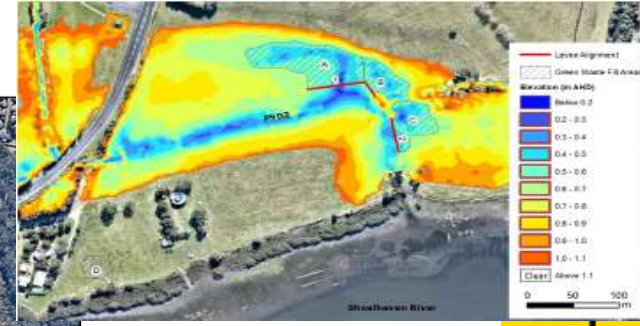
- *Growing restoration industry,*
- *Shifting community views,*
- *Political will,*
- *Tested methods,*
- *On-ground outcomes &*
- *Valuing multiple benefits.*



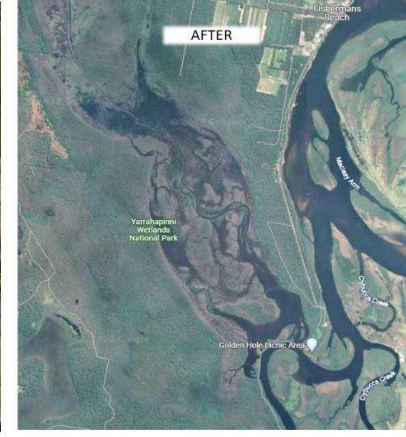
Thank you



How?



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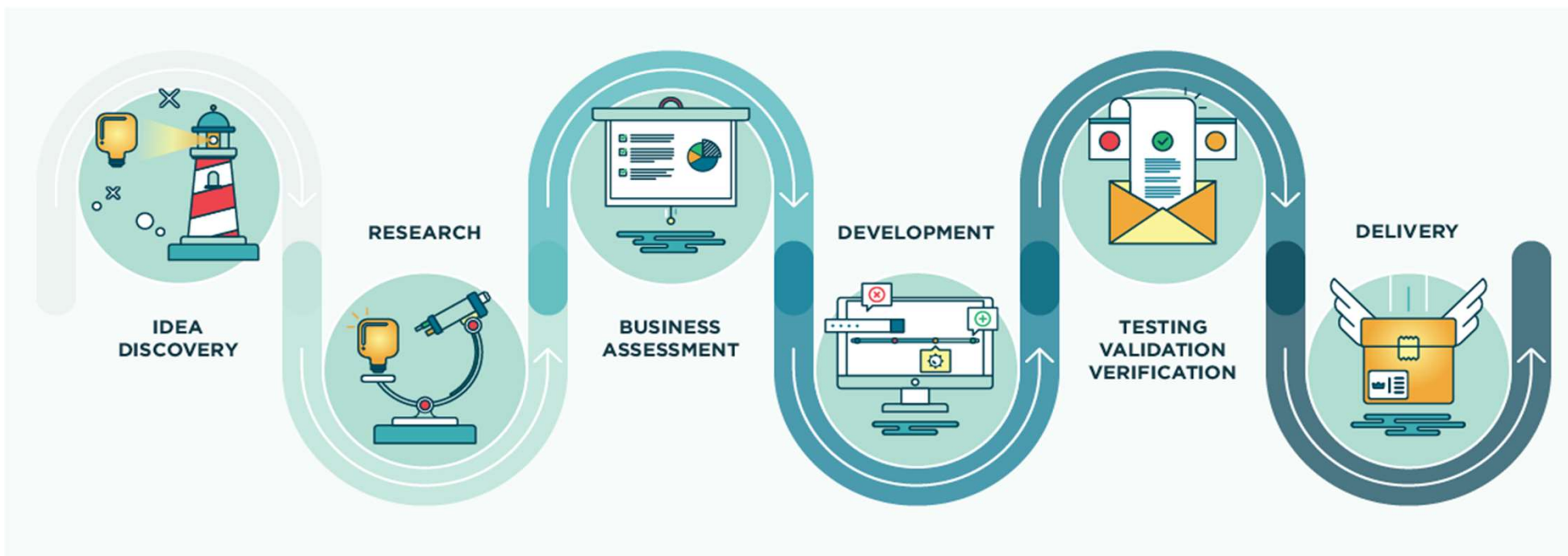


Effective Restoration

Three key points:

1. Restoration has historically been driven by a single negative incentive (**stick**).
2. Multiple positive incentives (**carrots**) are being developed for restoration with different players involved.
3. If our aim to achieve scale, our strategies need to **adapt**.

Effective Restoration at Scale



Research



Pilot Projects



Accredited Methods



Scalable Outcomes

University



NGOs



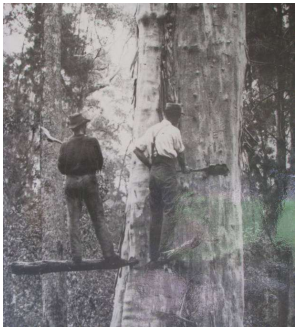
Government



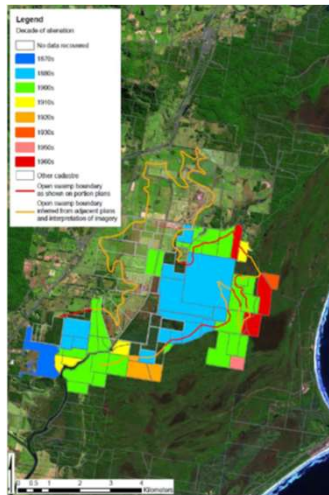
Market

<https://innovationcloud.com/blog/innovation-roadmap-pave-your-path-to-successful-innovation.html>

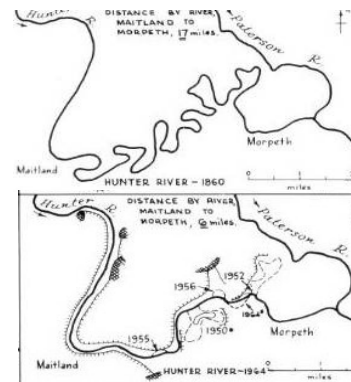
Extractive Sector



Agricultural Sector



Industrial Sector



EPA Era



Restoration industry?

1800

1860

1950

1990

2022

Coastal Floodplain Prioritisation Study – Background and Methodology

WRL TR 2020/32, May 2023

By D S Rayner, A J Harrison, T A Tucker, G Lumiatti, P F Rahman, D Juma, K Waddington and W C Glamore



Review

Restoring estuarine ecosystems using nature-based solutions: Towards an integrated eco-engineering design guideline

Thomas Dunlop*, William Glamore, Stefan Felder

Water Research Laboratory, School of Civil and Environmental Engineering, UNSW Sydney, Manly Vale 2093, NSW, Australia

Water Resources Research

Research Article | [Open Access](#) |

Quantifying the Effects of Sea Level Rise on Estuarine Drainage Systems

K. Waddington , D. Khojasteh, L. Marshall, D. Rayner, W. Glamore

Research article

Upscaling the remediation of acidic landscapes – the coastal floodplain prioritisation method

[K. Waddington](#), [A. Harrison](#), [D. Rayner](#), [T. Tucker](#), [W. Glamore](#)

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Estuarine Hypoxia—Identifying High Risk Catchments Now and Under Future Climate Scenarios

K. Waddington, A. Harrison, D. Rayner, T. Tucker, W. Glamore

Restoring Blue Carbon Ecosystems: A Best Practice Guideline for Hydrologic Assessments

SEPTEMBER 2023

By William Glamore, Valentin Heimhuber, Jamie Ruprecht, and Duncan Rayner



Takeaway points

- Effective outcomes are:
 - Incentivised
 - Supported
 - Trusted
 - Proven
 - Targeted

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communications earth & environment

ARTICLE



<https://doi.org/10.1038/s43247-023-00920-4> **OPEN**

The evolving landscape of sea-level rise science from 1990 to 2021

Danial Khojasteh ¹, Milad Haghani², Robert J. Nicholls ³, Hamed Moftakhari ⁴, Mahmood Sadat-Noori ¹, Katharine J. Mach⁵, Sergio Fagherazzi ⁶, Athanasios T. Vafeidis⁷, Edward Barbier⁸, Abbas Shamsipour⁹ & William Glamore¹

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Review

Sea level rise impacts on estuarine dynamics: A review

Danial Khojasteh , William Glamore , Valentin Heimhuber , Stefan Felder

Wastewater effluents cause microbial community shifts and change trophic status

J.E. Ruprecht^a , S.C. Birrer^b , K.A. Dafforn^{b c}, S.M. Mitrovic^d, S.L. Crane^e, E.L. Johnston^b, F. Wemheuer^b, A. Navarro^b, A.J. Harrison^a, I.L. Turner^a, W.C. Glamore^a

Estuarine tidal range dynamics under rising sea levels

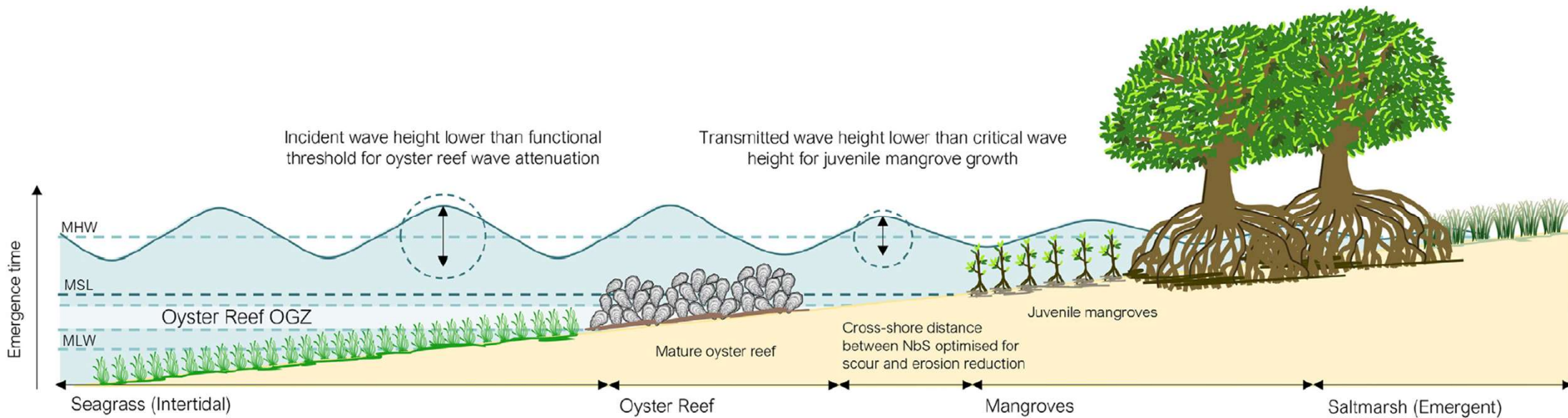
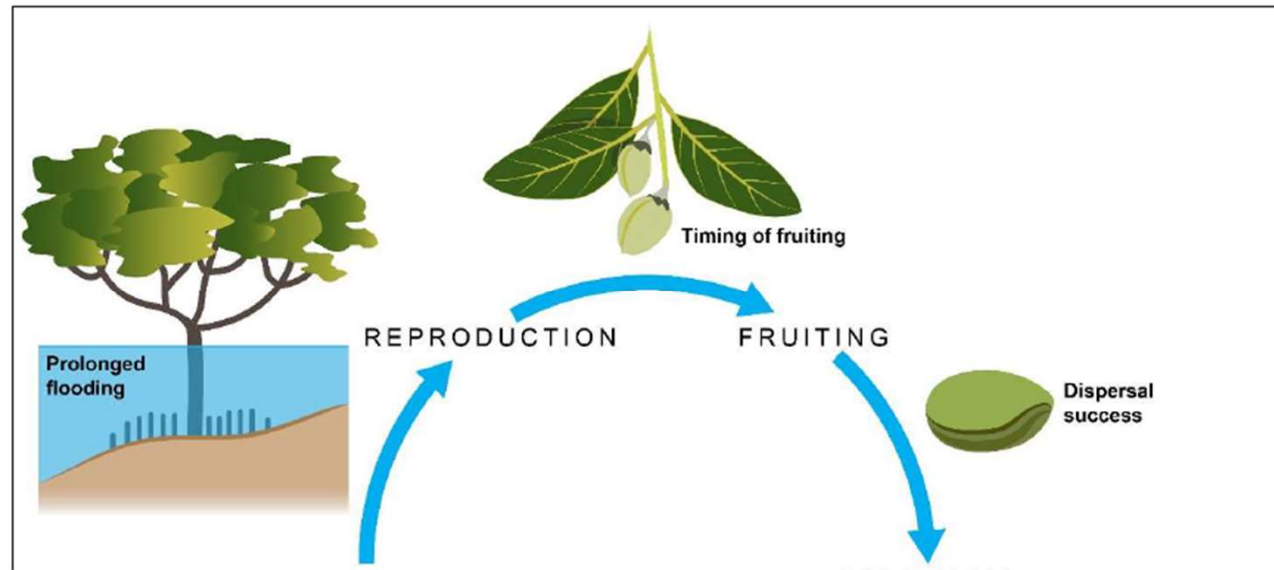
Danial Khojasteh , Shengyang Chen, Stefan Felder, Valentin Heimhuber, William Glamore

Published: September 20, 2021 • <https://doi.org/10.1371/journal.pone.0257538>

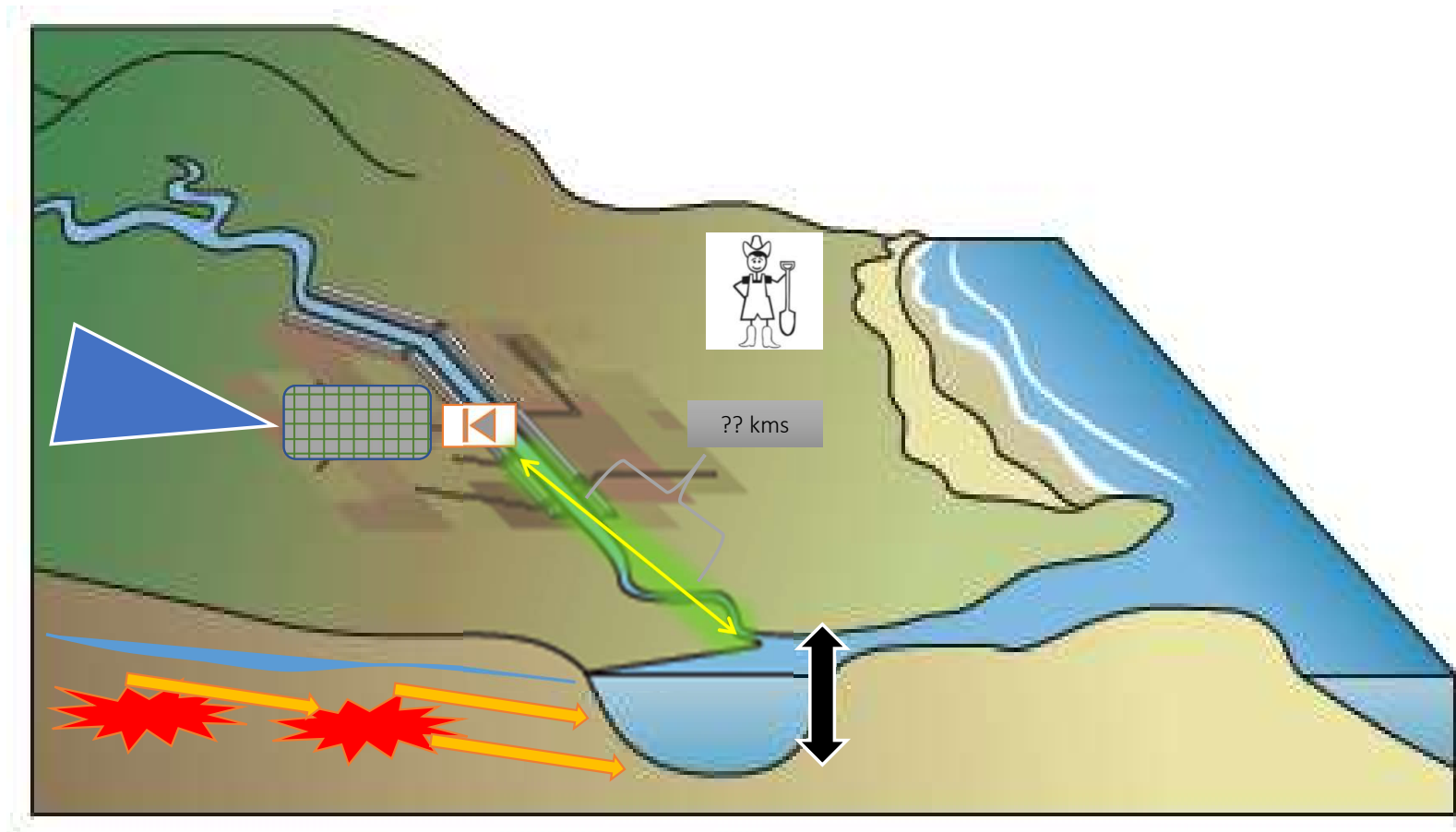
A global assessment of estuarine tidal response to sea level rise

Danial Khojasteh , Stefan Felder , Valentin Heimhuber , William Glamore

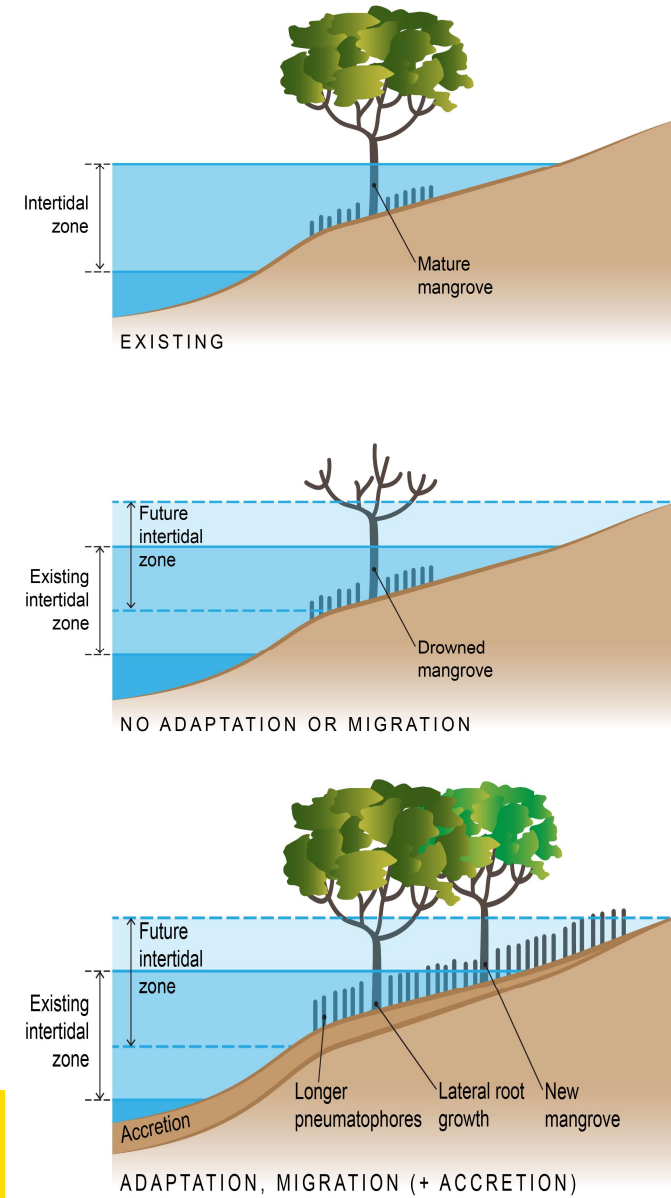
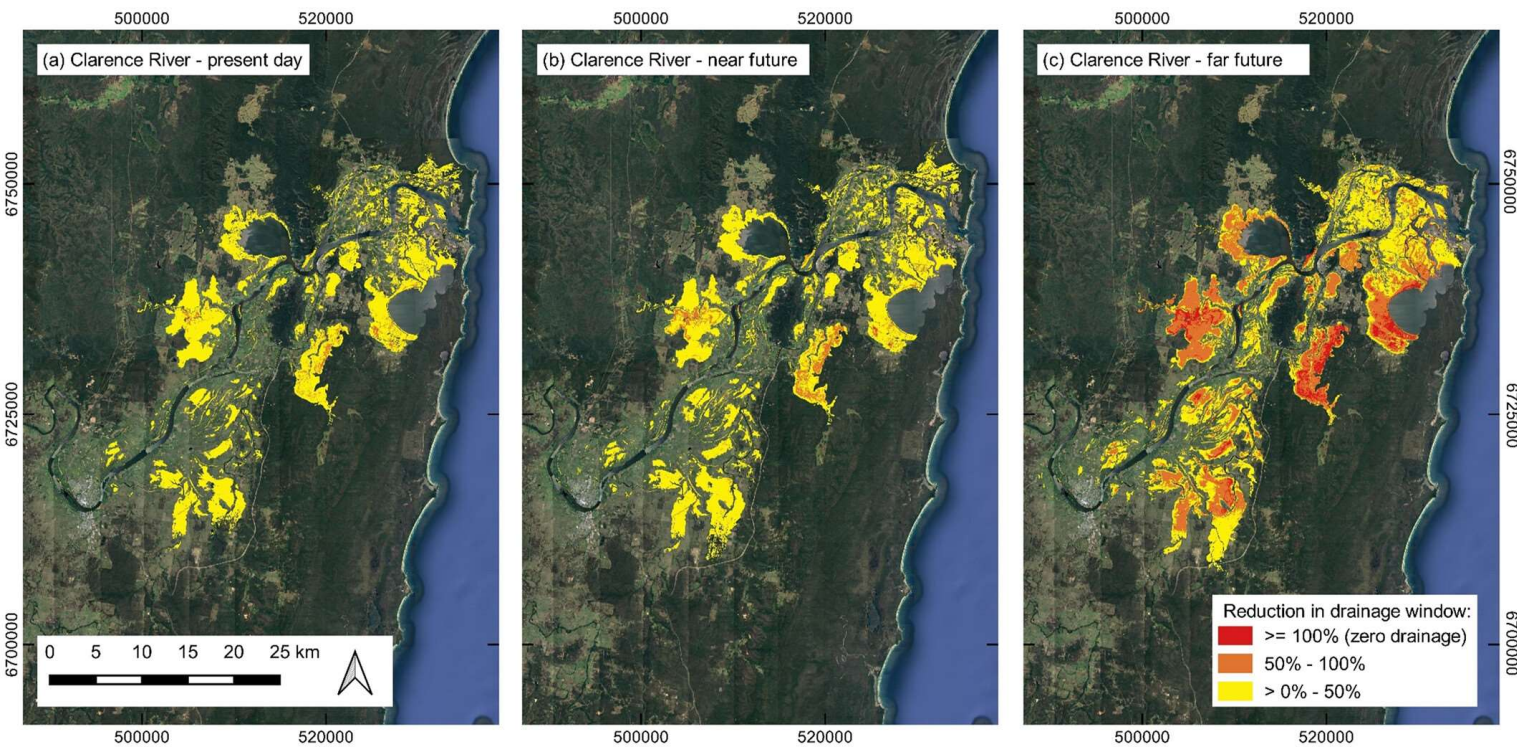
(2) Integrated Eco-Design



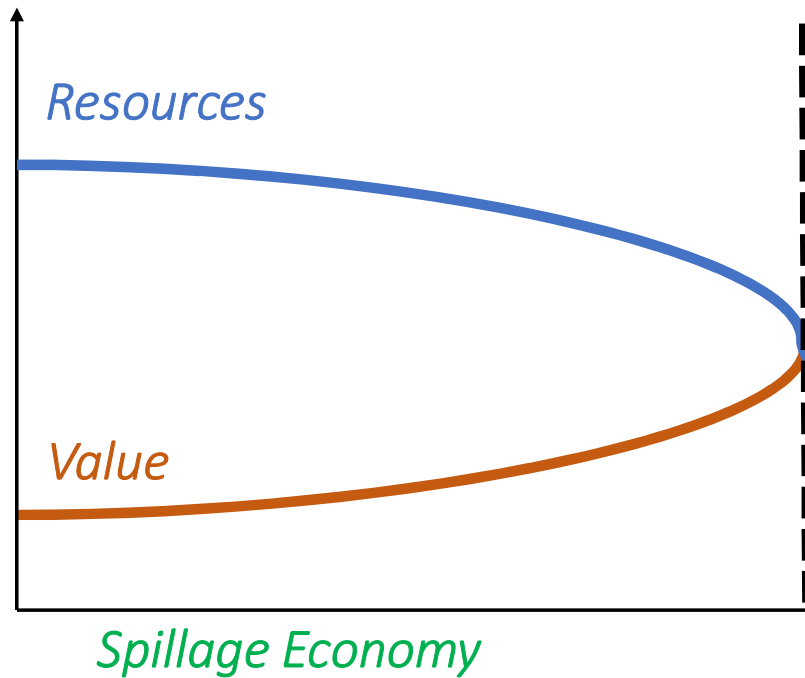
Multi-Criteria Risk-Based Priority Assessment



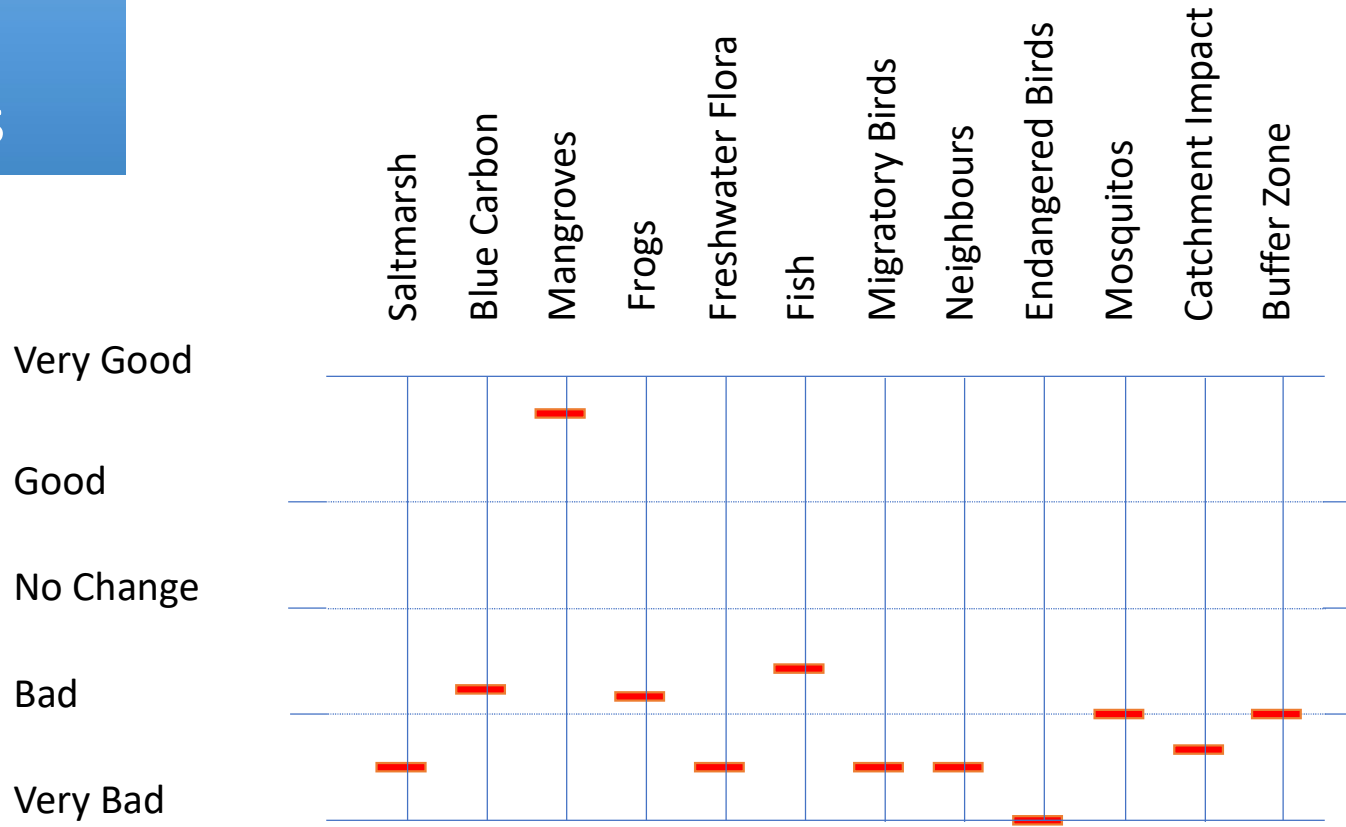
(3) Future planning



Resource Economics



CLIMATE CHANGE Scenarios



Opportunities...

(1) On-ground outcomes

