

# Marine biodiversity offsets – pragmatic approaches towards better conservation outcomes

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# Sustainable ocean management : a major issue and wicked problem



- ❑ Ocean potential for huge future growth (OECD, 2016)
- ❑ Only 13.2% of the world's ocean considered free of human impacts (Jones et al., 2018)

# Increased uptake of marine offsets

- ❑ Marine offset increasingly recognized in national mitigation policies but limited application (Niner et al., 2017; Shumway et al., 2018)
- ❑ Scarce studies of the efficacy of marine offsets (Bos et al., 2014; Jacob, et al., 2016; Levrel, et al., 2012; Vaissière et al., 2014)
- ❑ Real or perceived implementation difficulty, paucity of data to inform management, complexity of monitoring and enforcement, and a limited understanding of impacts

# Key differences between marine and terrestrial environments

- ❑ Dynamic and diffuse environment
- ❑ Extensive connectivity
- ❑ Data gaps
- ❑ Governance regimes
- ❑ Perception of impacts

**Fundamental offset principles, types, and approaches apply equally on land and at sea**



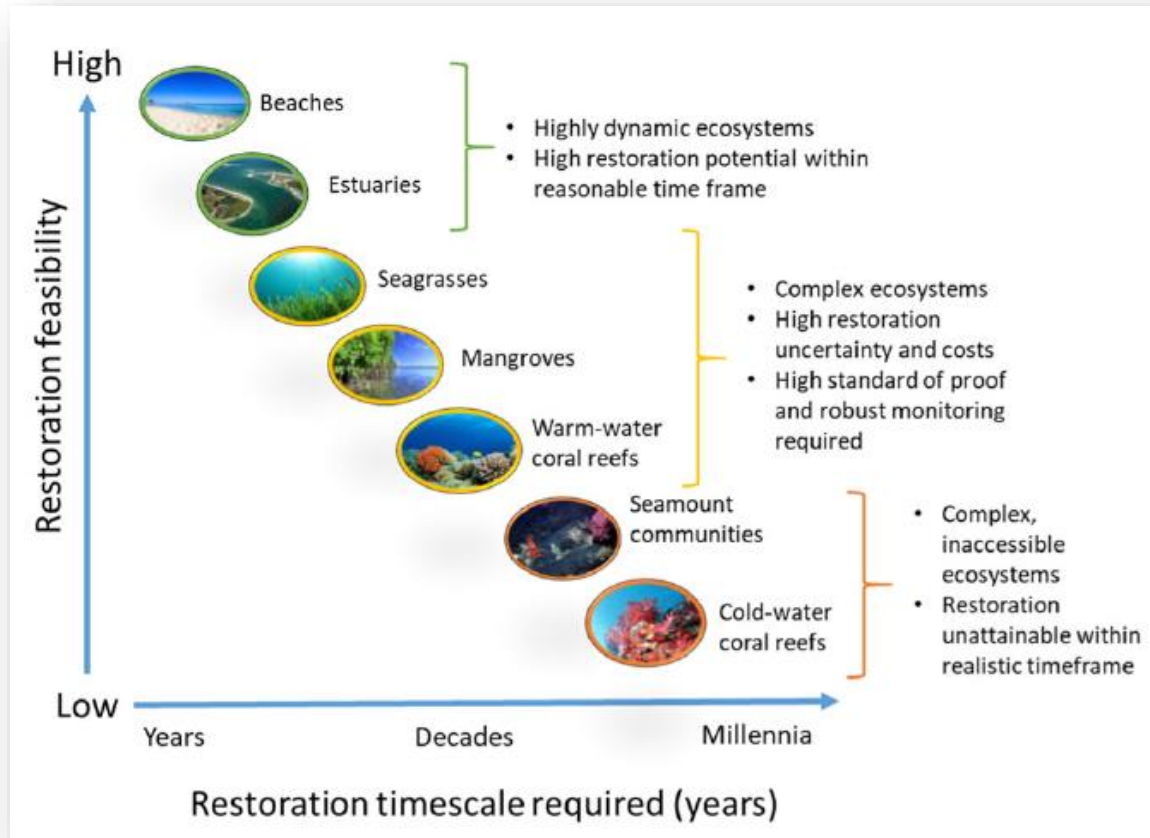


# Opportunities of averted loss-type offsets

- ❑ 7.3% of the world's oceans currently under some form of protection (UNEP-WCMC, IUCN & NGS, 2018)
- ❑ Port of Rotterdam expansion offset: creation of 25,000 ha of protected seabed (no-take zones which prevent bottom trawling)



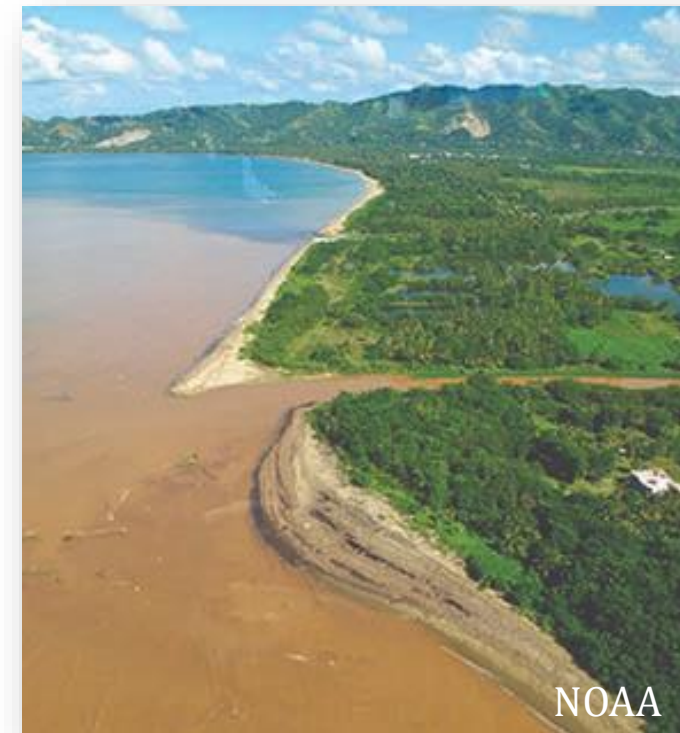
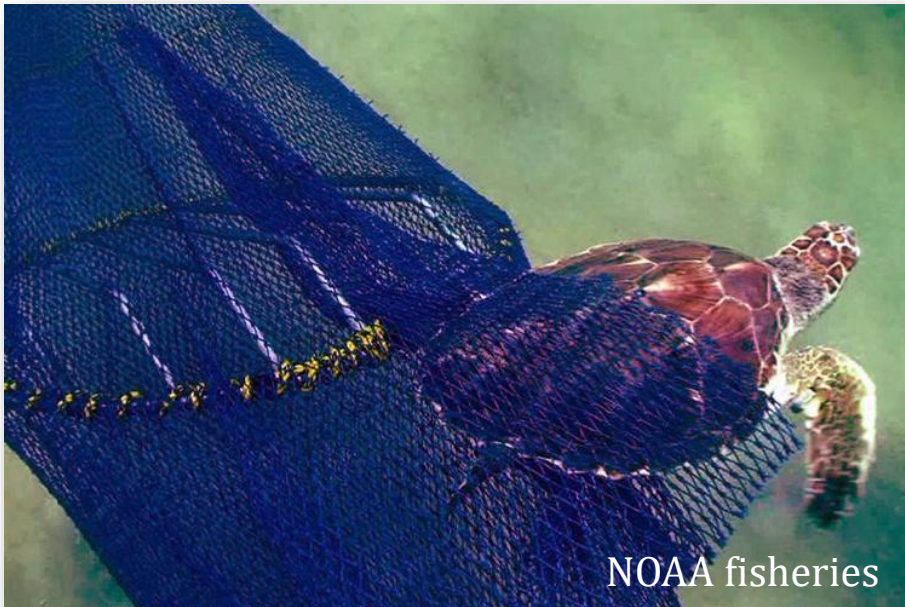
# Opportunities for restoration offsets



- ❑ Restoration literature on ecosystem engineers such as kelp, coral, and biogenic reefs (Jacob et al., 2018)
- ❑ These structuring species can support restoration of ecosystem functioning (Elliott et al., 2007)
- ❑ Limits to what can be restored (e.g. slow-growing and sensitive deep-sea systems)

# Opportunities for policy-based offsets

- ❑ Supporting changes in policy or practice that have a positive impact on biodiversity
- ❑ Opportunities for migratory or wide-ranging species and land-based solutions





# Robust marine spatial conservation planning

- ❑ Identifying priority conservation and/or restoration areas to inform avoidance (reducing the need for offsets)
- ❑ Moving away from a siloed project-by-project approach





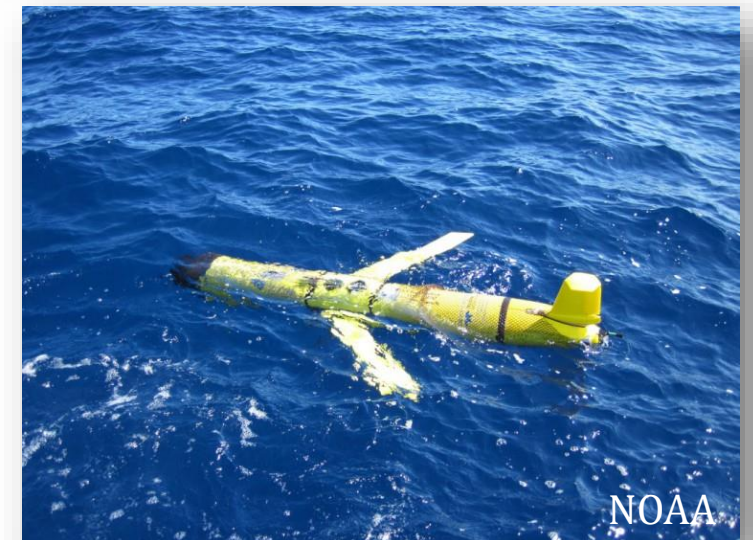
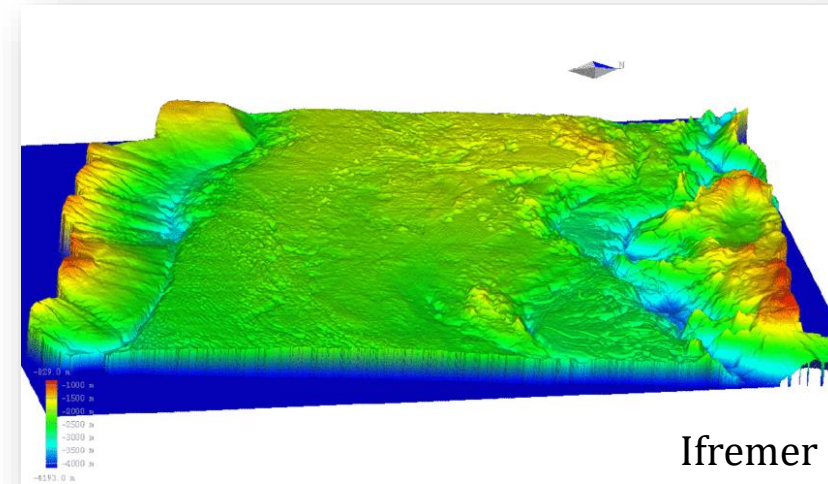
# Practice at the project level also needs to evolve



- Marine impact assessment needs to be undertaken at spatial and temporal scales that are broad enough to account for the ecological characteristics of the marine environment
- Cumulative impact
- Land-sea interface

# Better knowledge and data

- ❑ Proper characterization of impacts, baselines, and counterfactuals relying on robust monitoring beyond the scope of individual projects (e.g. Marine Strategy Framework Directive)
- ❑ Better use of modelling, new technologies to support collection of large volumes of data at reduced costs



# Improved national ocean governance initiatives and inclusion of local stakeholders



- ❑ Public engagement and stakeholders' involvement to generate awareness about project impacts and mitigation approach
- ❑ Identifying limits to what can be offset through consultative processes
- ❑ Approaches anchored to broader processes linked to ocean governance especially concerning the high seas



# Effective marine mitigation and offset mechanisms:

- **Addressing challenges currently faced by marine conservation policies**
- **Moving beyond the Environmental Impact Assessment process**



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