



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Coastal wetland restoration law – uncertainty, flexibility and adaptability

Justine Bell-James

This research was funded by the Australian Government through the Australian Research Council (DP190101185, 2019-2022).



Australian Government
Australian Research Council

1



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

The coastal wetland restoration imperative

- Coastal wetlands have historically been undervalued, which has led to loss
- As the true value of wetlands has become known the rate of loss has slowed (e.g. Freiss et al, 2020)
- But widespread restoration and rehabilitation is needed
- As well as planning for inland migration of wetlands with sea-level rise (see e.g. Leo et al, 2019)
- Fits with broader global restoration goals – UN Decade on Ecosystem Restoration 2021-2030

2

2

Barriers and enablers to coastal wetland restoration

- Cost (Bayraktarov et al, 2016), legislative and policy barriers (Shumway et al, 2021), tenure issues (Bell-James and Lovelock, 2019)
- But it is also early days + success has been shown! (Saunders et al, 2020)

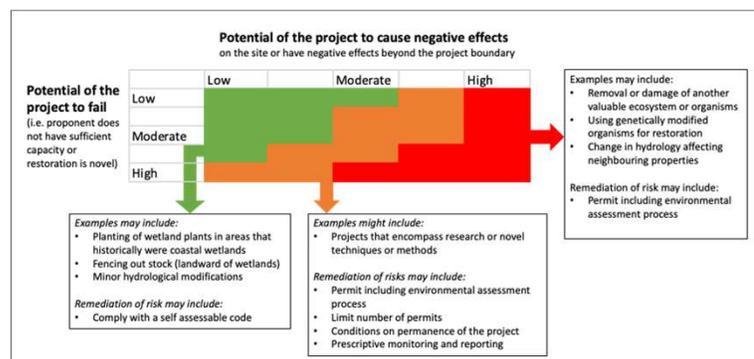


3

3

Legal and policy barriers to coastal wetland restoration

- Restoration projects need to be approved through processes designed for development
- Legislative complexity has hindered restoration
- Need a framework that balances risk against cost and complexity

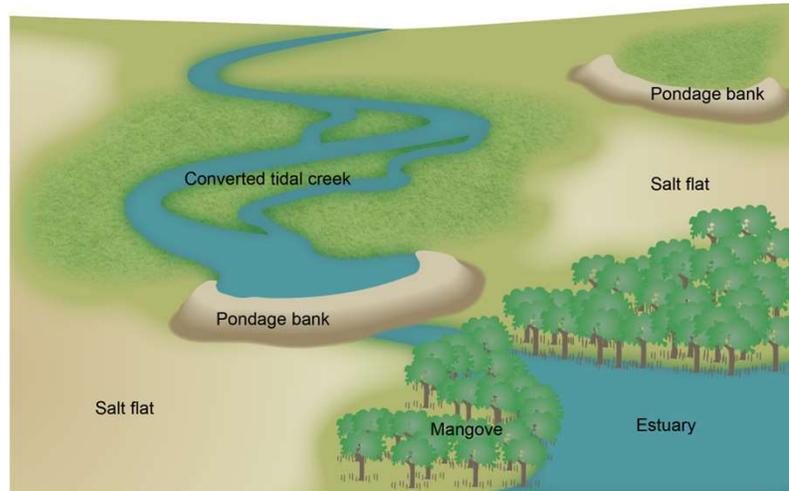


Shumway et al, 2021

4

4

Coastal restoration – blue carbon and restoration of tidal flows

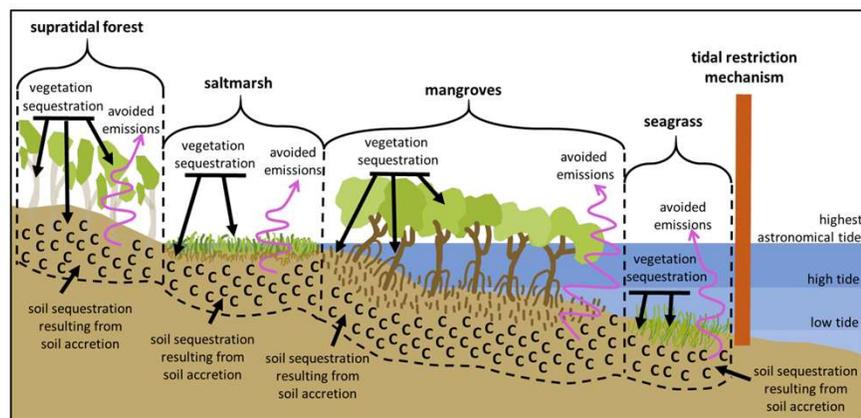


Bell-James and Lovelock, 2019

5

Coastal restoration – blue carbon and restoration of tidal flows

- ‘Blue carbon’ method took effect January 2022
- Projects to restore tidal flows and create blue carbon sinks can be accredited



Source – CER, Blue Carbon Method Guide, 2022

6

Restoration of a moving target – the issue of ‘coastal squeeze’

- Sea-level rise projections
- Coastal wetlands thrive in the intertidal zone where they are subject to periodic inundation by the tides (Rogers, 2021).
- Adaptation through vertical accretion or horizontal migration
- But if structures prevent migration ‘coastal squeeze’ can occur (e.g. Doody, 2013)



7

7

Dealing with coastal squeeze – flexibility in planning policy

State Environmental Planning Policy (Coastal Management) 2018 [NSW]
Part 2 Development controls for coastal management areas

11 Development on land in proximity to coastal wetlands or littoral rainforest

Note. The Coastal Wetlands and Littoral Rainforests Area Map identifies certain land that is inside the coastal wetlands and littoral rainforests area as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” or both.

- (1) Development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on:
 - (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or
 - (b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.
- (2) This clause does not apply to land that is identified as “coastal wetlands” or “littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map.

8

8

Dealing with coastal squeeze where existing use is protected

- What about where there is no 'proposed development', just 'existing use'?
- Incentives for land use change to private protected areas (e.g. Fitzsimons, 2015)
- But trade off certainty vs flexibility with covenants
- Can you have certainty AND flexibility? 'Rolling easement' concept from the United States:
 - "a legally enforceable expectation that the shore or human access along the shore can migrate inland instead of being squeezed between an advancing sea and a fixed property line or physical structure" (Titus, 2011)

9

9

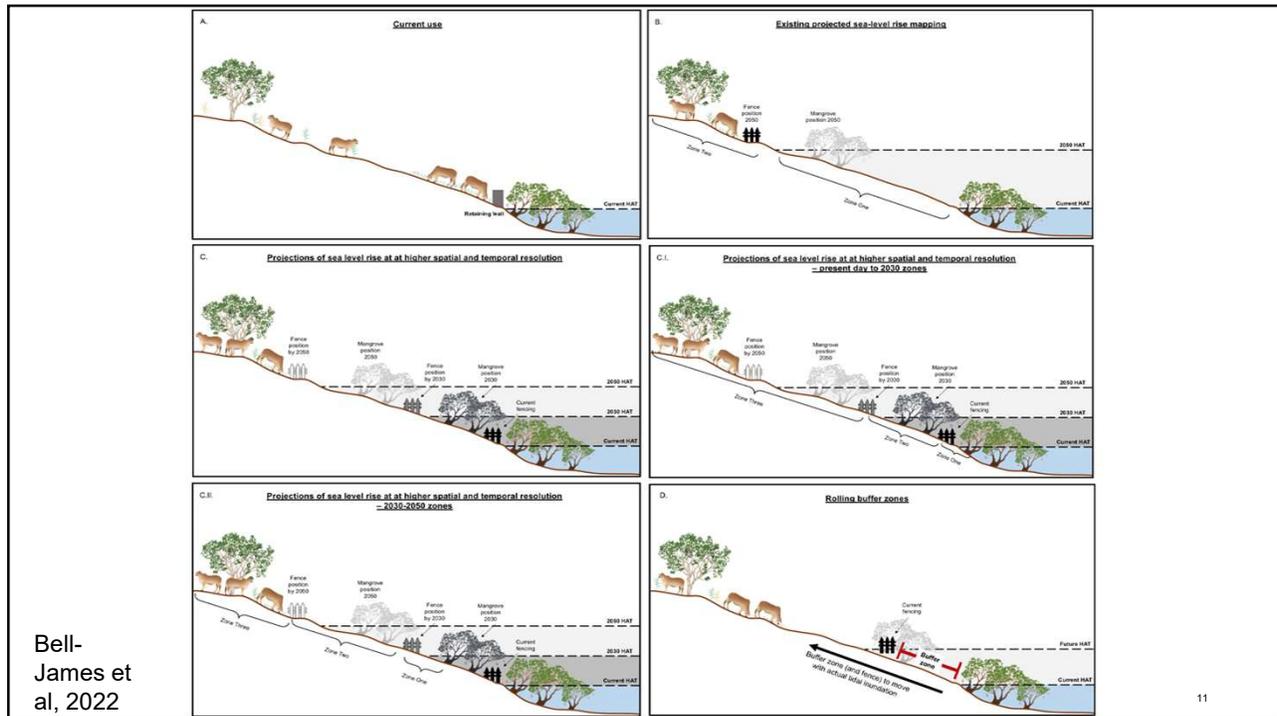
Dealing with coastal squeeze – 'rolling covenants'

- Conservation covenants not widely used in the marine context
 - Tenure issues
 - Timescale of sea-level rise impacts and need for flexibility
 - Historical reluctance to time-limit development
- Potential carbon credits could be a lever for action
- Can 'rolling covenants' be a solution?
 - Technically – yes
 - Practically - yes



10

10



Bell-James et al., 2022

Dealing with coastal squeeze – ‘rolling covenants’

- Other considerations:
 - Regular updating of covenants terms
 - Positive obligations and prohibitions
 - Must attach to land

Received: 20 April 2022 | Accepted: 12 September 2022 | Accepted: 12 November 2022
 DOI: 10.1111/1365-3113.12155

CONTRIBUTED PAPER WILEY

Rolling covenants to protect coastal ecosystems in the face of sea-level rise

Justine Bell-James^{1,2} | James A. Fitzsimons^{3,4} | Chris L. Gillies^{5,6} |
 Nicole Shunway^{7,8} | Catherine E. Lovelock^{9,10}

¹TC Bevan School of Law, The University of Queensland, St. Lucia, Queensland, Australia
²School for Biodiversity and Conservation Science, The University of Queensland, St. Lucia, Queensland, Australia
³The Nature Conservancy Australia, Carlton, Victoria, Australia
⁴School of Life and Environmental Sciences, Deakin University, Geelong, Victoria, Australia
⁵TRAPACIS, The Centre for Tropical Water and Aquatic Ecosystem Research, James Cook University, Townsville, Queensland, Australia
⁶School of Policy Futures, The University of Queensland, St. Lucia, Queensland, Australia
⁷School of Biological Sciences, The University of Queensland, St. Lucia, Queensland, Australia
⁸Queensland Government
⁹Centre for Environmental and Estuarine Science, The University of Queensland, St. Lucia, Queensland, Australia
¹⁰Research Institute for Marine and Coastal Science

ABSTRACT
 This article considers how ‘rolling covenants’ (i.e., covenants on land title that can operate in a ‘rolling’ geographic area to keep pace with sea-level rise) can be used to permit productive use of land in the short term, while ensuring land use can shift over time to allow for coastal ecosystem migration in the medium to long term. We use Australia as a case study, and through analysis of legislation and a series of semi-structured interviews, we demonstrate how land title-based covenants can be used to give legal effect to ‘rolling covenant’ arrangements where land is subject to existing use and occupation. We then consider practical issues associated with drafting a rolling covenant arrangement, including an analysis of the types of events or scenarios that could be used as a basis for land use changing (e.g., projected sea level rise, actual ecosystem migration), and the advantages and disadvantages of each. We conclude that rolling covenants are a viable option for land management in the coastal zone, especially in circumstances where funding sources are available to incentivize uptake. Rolling covenants may provide opportunities for coastal wetlands to be maintained and even enhanced in cover, thereby delivering important ecosystem services (e.g., blue carbon) into the future.

KEYWORDS
 covenants, coastal ecosystems, coastal squeeze, sea level rise, rolling covenants, wetlands

1 | INTRODUCTION
 As sea levels rise, some coastal ecosystems such as saltmarsh and mangroves will need to migrate inland to keep pace with rising seas. Where land structures prevent this natural migration, these wetlands may be lost through a process known as ‘coastal squeeze’ (see, e.g., Lee, Collins, Fitzsimons, Hale, & Beck, 2016; Mills et al., 2016; Poston, 2013). Setting aside areas to accommodate future landward migration has therefore become an important area of research (Houston, Pardo, & Surinikak, 2020; Rogers et al., 2016) and in some instances, has cascaded into government policy: for example, the European Natura 2000 sites often contain requirements to restore habitat where it is lost to the sea (see, e.g., Poston, 2013). In Australia, the ‘Landmark State Covenant’ has provided for the mapping of ‘future coastal refugia areas’ to ensure land remains available for future wetland migration (see, e.g., Prabalak, Whitbread, Lattimore, & Kirkpatrick, 2019). However, these planning regulations

In summary



13

13

References

- Bayraktarov, E., Saunders, M. I., Abdullah, S., Mills, M., Beher, J., Possingham, H. P., . . . Lovelock, C. E. 2016. The cost and feasibility of marine coastal restoration. *Ecol Appl*, 26(4), 1055-1074. doi: 10.1890/15-1077.1
- Bell-James, J and Lovelock, C, E. 2019. Legal barriers and enablers for reintroducing tides: an Australian case study in reconverting ponded pasture for climate change mitigation. *Land Use Policy* 88, 104192.
- Bell-James, J., Fitzsimons, J.A., Gillies, C.L., Shumway, N., Lovelock, C.E., 2022. Rolling covenants to protect coastal ecosystems in the face of sea-level rise. *Conservation Science and Practice* 4, e593. <https://doi.org/10.1111/csp2.593>.
- Doody, J. 2013. Coastal Squeeze and Managed Realignment in Southeast England, Does It Tell Us Anything About the Future?. *Ocean and Coastal Management*. 79, 34-41.
- Fitzsimons, J.A. 2015. Private protected areas in Australia: current status and future directions. *Nature Conservation*. 10, 1-23.
- Freiss, D.A., Yando, E.S., Abuchahla, G.M.O, Adams J.B., Cannicci, S.W.J., Cauty, S.W.J., Cavanaugh, K.C., Connolly, R.M., Cormier, N., Dahdouh-Guebas, F., Diele, K., Feller, I.C., Frantini, S., Jennerjahn, T.C., Lee, S.Y., Ogurcak, D.E., Ouyang, X., Rogers, K., Rowntree, J.K., Sharma, S., Sloey, T.M., Wee, A.K.S. 2020. Mangroves give cause for conservation optimism, for now. *Current Biology Magazine*. 30. R 135-158.

14

14

References

- Kelleway, J.K., et al. 2020. A national approach to greenhouse gas abatement through blue carbon. *Global Environmental* . 63, 102083.
- Leo, K., Gillies, C.L., Fitzsimons, J.A., Hale, L.Z., Beck, M.W. 2019. Coastal habitat squeeze: A review of adaptation solutions for saltmarsh, mangrove and beach habitats. *Ocean & Coastal Management*. 175, 180-190.
- Rogers, K. 2021. Accommodation space as a framework for assessing the response of mangroves to relative sea-level rise. *Singapore Journal of Tropical Geography*. 42(2),163-183.
- Saunders, M, et al, 2020. Bright Spots in Coastal Marine Ecosystem Restoration. *Current Biology*. 30(24) R1500-R1510.
- Shumway, N, Bell-James, J, Fitzsimons, J.A, Foster, R, Gillies, C and Lovelock, C.E. 2021. Policy solutions to facilitate restoration in coastal marine environments. *Marine Policy*. 134, 104789
- Titus, J. G. 2011. Rolling easements (Report prepared for Climate Ready Estuaries Program). US Environment Protection Agency. Retrieved from <https://www.epa.gov/sites/default/files/documents/rollingeasementsprimer.pdf>

15

15

Thank you

Dr Justine Bell-James | Associate Professor
School of Law
j.bell-james@law.uq.edu.au
07 3365 6588

 facebook.com/uniofqld
 Instagram.com/uniofqld
 [@justinebellj](https://twitter.com/justinebellj)
 Justine Bell-James

16