

Clarence City Council's coastal adaptation pathway

Summary

Over the last eight years, Clarence City Council in Tasmania has implemented a three stage adaptation pathway, involving 'no/low regrets' and 'win-win' projects along with a more focussed adaptation strategy for the highest risk site at Lauderdale. This pathway has involved extensive community consultation, stepped beach access ways, signage and fencing, sand biodiversity surveys, dune in-fill with beach-scraped sand, photogrammetry, high-resolution aerial beach photo-monitoring, citizen science and hazard line refinement. Ratepayers support the idea of shared fiscal responsibility for adaptation options such as sand pumping, groynes and rock walling. Lessons learned include avoiding actions that limit or constrain future adaptation options, along with ensuring elected representatives, staff and community are well informed and supportive.

After three years of consultative adaptation planning, the Clarence City Council (2009) released the innovative *Climate Change Impacts on Clarence Coastal Areas Plan*. The Plan revealed thousands of houses are subject to present and future coastal recession and inundation. The Plan's communication strategy, robust science and transparent approach generated nationwide interest. This enshrined it as the benchmark for coastal vulnerability assessments for small to medium sized coastal councils. Although the development of the Plan was demanding, the implementation of its adaptation pathway has proved to be even more complex and challenging.

The adaptation pathway is being implemented in three stages, a 'no/low regrets' stage, a 'win-win' stage and a stage that focusses on the development of specific adaptations for the highest risk site along Lauderdale's coast.



Figure 1: Filling in low points, new stepped access and revegetation — Lauderdale. Source: © Clarence City Council 2012.

Keywords

No regrets, win-win, adaptation pathway, photogrammetry, staged projects

The first and second stage projects include photogrammetry and beach monitoring using high-resolution aerial photography, beach surveys run by citizen scientists and provision of stepped beach access and signage/fencing to protect dunes. A more challenging project has been filling in low points in the dunes along vulnerable beaches, using the limited sand supplied by beach scraping. Public acceptance of this process has been contingent on careful monitoring and management of sand biodiversity, which required detailed sand biodiversity surveys and a mosaic scraping pattern to allow for recolonisation of sand biota.

Within Council there has been steady progress toward the acceptance of climate change through a process of comprehensive assessment of climate change impacts on all of the Council's operations, as well as through employing a climate change officer.

Results from photogrammetry and sand transport modelling have revealed a 20 m beach recession since the 1960s and this finding resulted in the third stage project, whereby concentrated efforts were directed towards the region's most vulnerable site at Lauderdale. This led to the design of a specific adaptation pathway, based on the local community's desire to protect built assets, while maintaining the beach and the internationally important saltmarsh for as long as possible.



Figure 2: Dune nourishment using beach scraping — Lauderdale Beach Tasmania. Source: © Clarence City Council, 2011.



Figure 3: Rebuilt Sea wall — Lauderdale Beach. Source: © Clarence City Council, 2011.

This community desire triggered a detailed evaluation of hard and soft adaptations options. These included identifying a sustainable sand supply, ongoing beach nourishment and constructing a trial groyne to calibrate modelling as a means to help evaluate the potential for a groyne field. Long-term protection of the Lauderdale Township may include a sea wall on the swell-dominated side of the town and elevation of the main highway on the embayment side. Community engagement has resulted in widespread acceptance of a shared responsibility funding model and potential for densification of Lauderdale to defray the costs.

These are some of the lessons that have been learned along the way:

Organisation Factors

- 1 A staged approach helps to cope with uncertainty
- 2 Promote the value of no/low regrets and win-win adaptation options
- 3 Avoid actions that limit or constrain future adaptation options (path dependency)
- 4 Make sure people understand the roles and responsibilities for the delivery of an adaptation pathway
- 5 Allocate time and resources specifically to adaptation
- 6 Mainstream/embed climate change risk approaches over all operations.

People Factors

- 1 Ensure elected representatives, staff and community-members are well informed and supportive of the adaptation pathway
- 2 Gain high level support from key staff
- 3 Identify and support climate change champions
- 4 Engage talented consultants with excellent communication skills.

Enabling Factors

- 1 Engage in partnerships for regional climate change projects
- 2 Expect and enable a shift to private adaptation while ensuring protection of neighbouring sites
- 3 Don't waste a storm or crisis – have projects that are shovel ready
- 4 Encourage shared responsibility of funding with no/minimal subsidies for recent purchasers who are already aware of vulnerability.

References

Clarence City Council, 2009: *Climate-Change Impacts on Clarence Coastal Areas*. Accessed 16 June 2017. [Available online at <http://www.ccc.tas.gov.au/webdata/resources/files/CCICCA-Final-Report-A415375.pdf>].

This Snapshot was prepared by Phil Watson from Clarence City Council. Please cite as: Watson, P., 2017: Clarence City Council's coastal adaptation pathway. Snapshot for CoastAdapt, National Climate Change Adaptation Research Facility, Gold Coast.

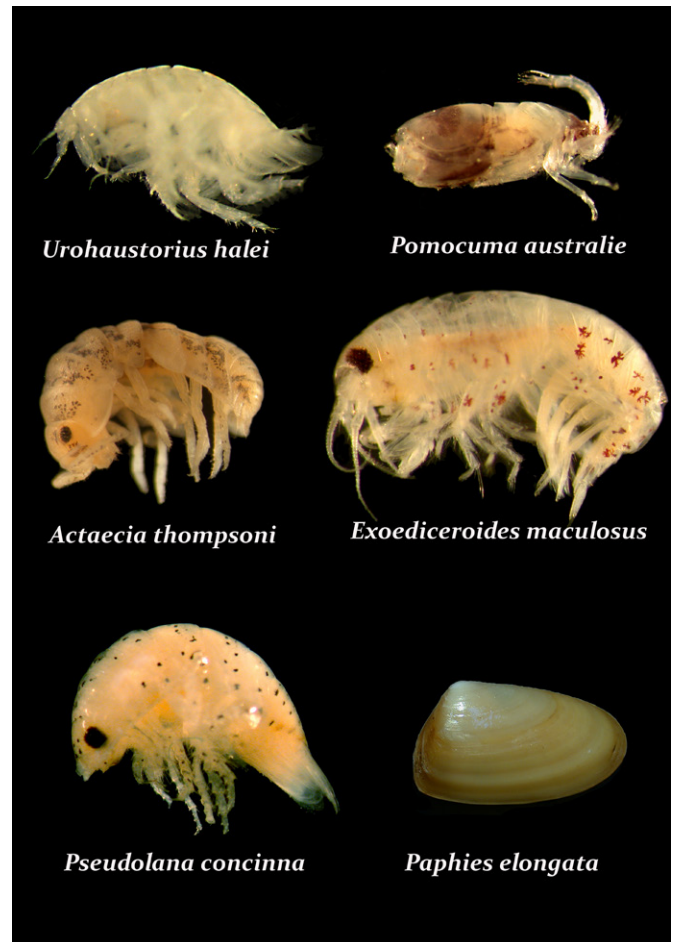


Figure 4: Lauderdale Beach macrofauna survey – pippies, pillbugs and sand hoppers. Source: © Clarence City Council.



Australian Government
Department of the Environment and Energy