Symposium Report

Symposium report: Inaugural Australian Coastal Restoration Symposium

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Summary

Globally, coastal habitat restoration is growing in recognition as a viable management tool to repair and reinstate valuable coastal habitats and species, such as mangrove and macroalgae forests, salt marshes, seagrass meadows, shellfish and coral reefs (Aronson & Alexander (2013), *Restoration Ecology, 293*; Anthony *et al.* (2017) *Nature Ecology and Evolution, 1420*; TNC (2017) Caribbean: A revolution to save coral reefs in the Caribbean and beyond). In Australia, there is increasing interest and investment in coastal restoration and habitat conservation, particularly with respect to growing national concerns around habitat loss, coastal inundation and erosion, loss of fisheries and climate change (Maggini *et al.* (2013) Protecting and restoring habitat to help Australia's threatened species adapt to climate change; GBRMPA (2017) Reef summit sets new course of action for the Great Barrier Reef). This has led to new community of practices being formed for shellfish reef restoration (Shellfish Reef Restoration Network shellfishrestoration.org.au), seagrass restoration (Seagrass Restoration Network seagrassrestoration.net), and saltmarsh and mangrove (Saltmarsh and Mangrove Network, amsn.net.au) conservation. However, despite this interest, there has been no national coordination, network or society with coastal restoration as a primary focus. The inaugural Australian Coastal Restoration Symposium brought together 60 Australian restoration practitioners, researchers and managers at James Cook University, Townsville for three days from the 31st of August 2017. The symposium goals were to enhance collaboration and national coordination amongst coastal restoration projects and practitioners, as well as to connect researchers and practitioners working in the restoration space with one another. Three international keynote speakers shared their experiences and advice. Delegates were enthusiastic about continuing to meet at future symposiu, meetings and workshops, and noted the value of being able to connect, share project experiences and learnings, and collaborate. The Australian Coastal Restoration Network has been formed with the goal of meeting annually to continue to share knowledge and improve collaboration. View a video about the symposium by following this link – https://www.youtube.com/watch?v=lukSpo3mM-4

Introduction

Coastal habitat conservation and restoration is growing in recognition in Australia as a viable, often complementary management option to more traditional strategies, such as marine protection and management of land-based threats such as pollution and sediment runoff. Restoration is the process of assisting the recovery of a habitat that has been degraded and is critical for habitats where natural recovery is slow or has been hindered. Undertaking best practice restoration requires scientific understanding of historical disturbances, causes of habitat decline and innovative methods for reinstating the structure and function of coastal habitats. Recently, networks such as the Seagrass Restoration Network, the Saltmarsh and Mangrove Network and the Shellfish Reef Restoration Network have formed to help guide restoration practitioners and researchers in the practice of habitat conservation and restoration and to connect individuals and groups working in the field nationally and internationally. Key challenges of these practice-based networks include network sustainability, effective communication amongst all network and external stakeholders and ensuring networks and projects take a strategic approach to restoration, where habitats and the coastal system are considered collectively (Figure 1).

Symposium Themes and Presentations

The inaugural Coastal Restoration Symposium was held over 2 days at James Cook University, Townsville, QLD, Australia, from 31 August 2017. It followed a structured programme with two main themes: (i) restoration projects

Figure 1. The inaugural Coastal Restoration Symposium attendees. [Colour figure can be viewed at wileyonlinelibrary.com]

and (ii) restoration research. Both themes provided opportunities for 15-minute presentations and 5-minute speed talks. The overall symposium atmosphere was informal and low-key, with lots of long breaks to encourage discussion and the development of collaborative partnerships. In response to rising costs of conferences (even domestic conferences are starting to cost close to AU$1,000) to attend that often prohibit student and public sector attendance, costs were kept down to $100 per attendee or $50 for students. This was achieved by not hiring a conference organiser, having no giveaways, taking advantage of free facilities at JCU and opting for inexpensive mainstream catering options such as pizza and sushi. The organisation of the symposium was also kept informal, and an 'invitation-only' format was primarily selected with the view that 'founding members' would help gauge the need, direction and future format of the Network and symposia.

Presentations were delivered from delegates from government organisations, environmental conservation groups, natural resource management (NRM) groups, Traditional Owners, universities, environmental consultancies, funding agencies, industry, students and community groups. Keynotes included three international presenters: Bob Stokes, President of Texas-based restoration organisation, Galveston Bay Foundation; Todd Miller, Executive of the North Carolina Coastal Federation; and Mike Elliott, a restoration expert from the University of Hull.

The need for a new national coastal restoration network was assessed. How this would complement the existing group of Australian professional marine science and conservation societies and networks was workshopped in a breakout session on the second day. Delegates at this session included representatives from the Australian Coastal Society, Australian Marine Science Association,

Environment Institute of Australia and New Zealand, James Cook University, Reef Check, Reef Ecologic, TropWATER, Society for Ecological Restoration Australia, Shellfish Reef Restoration Network, Seagrass Restoration Network, Mangrove and Saltmarsh Network, The Nature Conservancy and OceanWatch. There was general agreement that (i) there was a need for a society of practice that specialised in coastal restoration, but was more broad than the networks focussing on particular habitats, (ii) the community of practice should have no fees to join, be open entry and closely link to existing societies/professional networks and (iii) the community of practice should not seek to replace or compete with existing national societies or professional networks, but complement them by enabling a more specialised 'home' for coastal restoration.

Symposium Outcomes

The Australian Coastal Restoration Network

The attendees agreed to join together to create the Australian Coastal Restoration Network as a community of practice with links with existing societies such as the Society of Ecological Restoration Australia, Australian Marine Science Association and the Australian Coastal Society, as well as other groups targeting particular habitat types, such as the Shellfish Reef Restoration Network, the Seagrass Restoration Network and the Mangrove and Saltmarsh Network.

There was significant discussion relating to the creation of the Network, the format it could or should take and the relationship the Network and future symposia could and should have with other national, international and ecosystem-specific groups, networks, societies and conferences.

General consensus was reached for the following:

- The Network should not seek to compete with existing networks, societies or associations. It was identified that a gap exists between the national bodies and the ecosystem-specific bodies, and that the Network should seek to close that gap and provide a link between specific habitat restoration networks and larger environmental societies.

- There are currently numerous national conferences held across each year by national societies, such as Coast to Coast hosted biannually by the Australian Coastal Society, the Australian Marine Science Association's annual conference and the annual Society for Ecological Restoration Australasia conference. It was agreed that an additional conference was therefore not necessary each year, but that the Network should seek to collaborate with these existing conferences and organisers to establish a coastal restoration programme stream, subfocus or side-meeting specific to restoration within the above national conferences.

- The increasing size, costs and breath of national and international society conferences may prohibit attendances and networking in some instances, and therefore, there was still value in smaller, informal, low-cost symposia for the Coastal Restoration Network. These should be held biennially and in different states each time.

- The Network should remain free/low cost and informal. It should provide a link to other societies and information relevant to coastal restoration, as well as an avenue for network members to provide input into other activities. This may include the provision for members to provide input to lobbying conducted by other groups such as the Australian Coastal Society or the Australian Marine Science Association.

- The Australian Coastal Restoration Network would lobby or otherwise engage in political matters as an organisation.

Summary of lessons learned

The symposium highlighted a range of restoration projects and the breadth of knowledge in Australia. Feedback from delegates highlighted the need for these types of specialised, but cross-disciplinary opportunities to share knowledge. There was general consensus from delegates that the symposium provided an insight into the breadth and depth of existing coastal and marine restoration that was previously poorly known.

The key messages that recurred throughout the event were as follows:

- Legislative approval is a major barrier for restoration projects, and funding is difficult to secure in Australia.

- Restoration projects and their design should be staged to give opportunity for adaptive learning and changes.

- Choosing the right location for restoration to maximise ecosystem benefits, cost-effectiveness and community support.

- Restoration costs need to be estimated for the area of habitat restoration and reported to help support management and planning through mechanisms such as benefit–cost analysis.

- Practitioners should adhere to the National Standards for Ecological Restoration (McDonald *et al.* 2016) and consider adaptation required to make these applicable to the marine and coastal context. The Recovery Wheel provided in the National Standards provides a useful tool for ecosystems, but social, economic and other metrics need further consideration.

- Restore America's Estuaries (RAE; a coalition of coastal conservation and restoration groups in the USA) could be a potential organisational network model for Australia. RAE provides a more united national voice on restoration and conservation matters whilst also helping to advance the science and practice of protecting and restoring estuaries.

- A decision framework needs to be established to enable calculated risks to be taken.

- An open dialogue to discuss lessons learnt on projects should also be conducted to provide continual improvement and drive best practice.

- Some existing frameworks are useful for formulating restoration projects, for example DPSIR (Driver, Pressure, State, Impact, Response) and the 10 tenets (one environmental, one economic and eight social) (Elliott *et al.* 2017).

- OceanWatch is coordinating an opportunity to better align marine habitat restoration with the National Landcare Program.

- It would be beneficial to develop a list of what materials and approaches work for coastal restoration and in which setting.

- Project communication is critical. Operation Crayweed was presented as a great example of community engagement and awareness building of an otherwise unknown issue. The use of video and social media campaigns that portray the story of restoration was essential for the success of this project and can assist with funding (including crowd funding).

- Most large projects (1–2000 hectares) in Queensland and New South Wales are funded by offsets ($1–2

Table 1. SWOT Analysis of where we are and where we could focus in future

Strength	Weakness
• Society for Ecological Restoration	• Legislative barrier/time
• National standards	• No or limited funding for ongoing management
• Numerous estuarine wetlands projects	• Limited political support/policy
• Fishways	• Inconsistent terminology
Opportunity	• Lack of specificity in standards to the marine or coastal environment
• Annual restoration symposium	**Threat**
• Coalition of restoration practitioners	• Risk of failing to achieve outcomes
• Coordinated funding for projects	• Backlash from 'business-as-usual' scientists and managers who are threatened by new ways of doing business
• Better project communication (including videos)	• Funding restrictions
• Economic research of benefits/jobs	• Restrictive policy/legislation
• Involving community volunteers	
• Coral reef rehabilitation	
• Policy/guidelines for research	
• Training	
• Knowledge sharing and learning from others successes/failures	

million each project); however, there is ambiguity on whether an offset can be considered restoration. Legislation and offset definition should be consulted and considered when conducting restoration as an offset. There is also the need to consider ongoing maintenance of projects.

We summarised the current Strength and Weakness of Coastal Restoration in Australia and the future Opportunities and Threats of Coastal Restoration in a SWOT analysis (Table 1).

Symposium Field Trip

A one-day field day was organised by Reef Ecologic on 2 September for the Australian Coastal Restoration Symposium and friends. The field trip location was Nelly Bay Snorkel Trail, Magnetic Island. The description of the field trip was a 'hands-on reef recovery day to share knowledge, undertake research and take action to help our local reefs'. There were 23 attendees. The field trip involved a 20-minute walk from the ferry to the snorkel trail, a snorkel on a shallow reef and several outdoor talks by local scientists and practitioners about coral reefs, macroalgae, citizen science, reef recovery, research, risk assessment and local projects. Several of the field trip participants assisted with a marine park research project to remove macroalgae from a 10 m × 10 m quadrat.

The cost of the field trip varied from free to $80 and included ferry transport, hire of snorkel gear, morning tea and lunch. The field trip was organised as a plastic-free and carbon-neutral event. Participants were encouraged to bring their own water bottle and coffee cup. Participants were requested to consider the environment when planning their transportation to this event by biking, using public transportation or carpooling.

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