



**End-user  
engagement report  
Adapt Land&Sea**

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Cover image photo: Abhijit Gate

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Photo: Mark Jensen

## Executive Summary

Land and sea managers participated in an extensive end-user engagement process to inform the development of the Adapt Land&Sea online platform. Seven face-to-face workshops and a shorter online workshop resulted in 184 people contributing and brainstorming information needs for decision makers to increase the update of climate adaptation in the biodiversity sector. Common themes emerged from the engagement process, and, where feasible, these will inform the content and format of information available on Adapt Land&Sea.

## Introduction

An extensive consultation process was undertaken to better understand the adaptation needs and support systems for land and sea managers and to test content ideas for Adapt Land&Sea. Face-to-face workshops were held in major population centres around Australia between February and August 2024 (Table 1).

**Table 1** Workshop location, date and number of participants

Location	Date	Number of participants
Hobart	26 February 2024	23
Perth	1 May 2024	21
Adelaide	3 May 2024	22
Canberra	23 May 2024	12
Brisbane	4 June 2024	18
Melbourne	6 June 2024	16
Cairns	9 August 2024	12
Online	22 October 2024	60

## Overview of engagement

The consultation found that adaptation thinking for biodiversity assets is still at an immature level in Australia and that many biodiversity managers do not feel the institutional structures, support systems, or frameworks exist to support decision-making and on-ground action. Although many organisations are now developing adaptation plans, it was commonly supposed that no risk appetite or resources were required to implement the plans.

## Content

End-users expressed that any tools or guidance – the offering of Adapt Land&Sea – should be easily accessible, consistent, user-friendly, intuitive, and engaging, as well as dynamic and capable of incorporating change. Curated information, with a strong preference for data visualisation, was often cited as a core need. Participants also regularly stressed the importance of including unsuccessful adaptation stories to increase learning experiences.

Bringing the community along on the adaptation journey was another common theme that emerged, and community engagement was often cited as an enabler of adaptation decision-making. The link between community support and executive/political level support was usually recognised, while consultation fatigue was acknowledged as a challenge to achieving community support.

End-users also expressed a need for information to be regionally relevant and a concern that trying to cater for all users all at once would result in generic products that were of limited use. Ensuring a balance between a product that is relevant at a national level and at the same time contains regionally relevant information will be a challenge for Adapt Land&Sea to overcome.

One of the most common constraints raised was the unsuitability of the funding model for biodiversity management. Short-term and non-continuous funding that leads to high staff turnover is especially prevalent in the NRM sector. Almost all other sectors, including the NRM sector, are dependent on grant funding. Participants reported that the available grant opportunities often impose priorities of little relevance for the local region. The flip side of this has meant that adaptation projects considered highly relevant in a regional context are frequently not eligible for funding opportunities.

The time spent writing grant applications, along with excessive reporting requirements, were commonly raised as barriers to achieving on-ground work as staff were continuously chasing money and writing reports rather than implementing and evaluating projects.

End-users reported that the current focus from the commonwealth on priority threatened species and priority places has meant that many regions have been cut off from funding opportunities as they contain none of these priority species or places, whilst other areas are overwhelmed and do not have the people-resources to meet all the opportunities.

## One-stop shop

Participants regularly stated they were after a 'one-stop shop' for climate information and adaptation guidance. However, drilling further down made it apparent that everyone's idea of a one-stop shop was different and impossible to achieve, with a strong preference for regionally relevant information. As such, Adapt Land&Sea will recognise that it is just one source of adaptation information and present guideposts to direct users to other sources of information that may be more relevant or provide a different perspective.

## Community of practice

Many participants discussed that they would like to see Adapt Land&Sea host a Community of Practice (CoP). However, drawing on the experiences from CoastAdapt, where efforts made to establish a CoP were unsuccessful, we feel that a formal CoP for platform users is unachievable for Adapt Land&Sea. Instead, we intend to deliver a less formal CoP through the provision of case studies and other NESP events, including the biannual Climate Adaptation Conference.

## Traditional Owners

This round of consultation did not specifically target Traditional Owners. However, Traditional Owners, or their representatives, were often present at workshops. They stressed the importance of including First Nations world views into the platform, recognising Traditional Owner autonomy and the importance of Elder support and warned of consultation fatigue.

## Final note

Finally, not all the user needs identified through the workshop process are suitable for addressing in Adapt Land&Sea. Some fall outside the intended project scope, while others are wish lists for fixes (either technological or based on knowledge gaps) that do not yet exist or would be too time-consuming to undertake with the resources allocated to this project. Table 2 presents a summary of the key workshop findings.

**Table 2** Summary of the themes and key ideas from the consultation process

Theme	Key ideas	Examples
<b>Design and delivery</b>	<ol style="list-style-type: none"> <li>1. Locally relevant narrative information</li> <li>2. Tools to enable people to make decisions</li> <li>3. Risk assessments</li> <li>4. Development of audience specific information</li> <li>5. Identifying priorities through partnerships</li> <li>6. Knowledge sharing</li> </ol>	<ul style="list-style-type: none"> <li>• Adaptation library based around threats</li> <li>• Best-practice repository</li> <li>• Coastal hazard and risk maps</li> <li>• Nature maps (user-friendly for people without expertise)</li> <li>• Webinars</li> <li>• Community of Practice</li> <li>• Databases that follow the FAIR data principles</li> <li>• Climate analogues explorer</li> <li>• Dashboards</li> <li>• Stories about success</li> </ul>
<b>Decision-making frameworks</b>	<ol style="list-style-type: none"> <li>1. Place-based plans               <ol style="list-style-type: none"> <li>a. Centred on community consultation</li> <li>b. Stakeholder engagement early and through life of the project</li> <li>c. Communicating to different levels of literacy</li> </ol> </li> <li>2. Adaptive management               <ol style="list-style-type: none"> <li>a. Proactive and reactive</li> <li>b. Focus on long-term planning</li> <li>c. Trigger events for action</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Integrated and removing silos (e.g. One Health approach)</li> <li>• World Heritage Area Adaptation Toolkit</li> <li>• Regional NRM Strategies</li> <li>• Resist Accept Direct framework</li> </ul> <p><i>Missing frameworks:</i></p> <ul style="list-style-type: none"> <li>• Triage and prioritisation</li> <li>• Cost-benefit tool</li> </ul>
<b>Decision-making enablers</b>	<ol style="list-style-type: none"> <li>1. Institutional support for adaptive decision making</li> <li>2. Outreach and education</li> <li>3. Awareness raising</li> <li>4. Transparency and clear explanation of methods               <ol style="list-style-type: none"> <li>a. Road testing with end-users</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Review cycles</li> <li>• Trigger events (extreme events with strong community visibility)</li> <li>• Traditional Owner autonomy and Elders support</li> <li>• External pressures e.g. public demand</li> <li>• Relevant case studies to demonstrate success or precedent</li> <li>• Positive examples set by other jurisdictions</li> </ul>



Theme	Key ideas	Examples
<b>Decision-making constraints</b>	<ol style="list-style-type: none"> <li>1. Consultation fatigue (especially for First Nations people)</li> <li>2. Limits to data and information               <ol style="list-style-type: none"> <li>a. Access to scientific literature (paywall)</li> <li>b. Lack of expertise and resources</li> <li>c. Unclear processes on how adaptation projects could be delivered within Government</li> </ol> </li> <li>3. Funding               <ol style="list-style-type: none"> <li>a. Limited, short term or only address part of the adaptation process</li> <li>b. Restrictive grant guidelines</li> </ol> </li> <li>4. Multiple stakeholders and competing values               <ol style="list-style-type: none"> <li>a. Political agenda</li> <li>b. Benchmarks and baselines not respected (traditional knowledge)</li> <li>c. Competition for resources</li> </ol> </li> <li>5. Capacity gap               <ol style="list-style-type: none"> <li>a. Many organisations do not have specialist adaptation practitioners</li> </ol> </li> </ol>	<ul style="list-style-type: none"> <li>• Community volunteers often don't have the skills or time to do strategic planning for their local area</li> <li>• Reliance on federal funding which means actions must fit into regional priorities, not necessarily local priorities</li> <li>• Emergency management framework – paramilitary approach disempowers people to adapt</li> <li>• Time spent applying for grants</li> <li>• Short-term contracts</li> <li>• Funding priorities not necessarily aligned with needs</li> <li>• Misinformed solutions in the community – popular rather than evidence based</li> <li>• Commonwealth government (e.g. EMSA protocols) – often unrealistic, prescriptive and time wasting</li> <li>• Species that are not threatened and therefore don't have plans</li> </ul>
<b>Information needs</b>	<ol style="list-style-type: none"> <li>1. Temporal information               <ol style="list-style-type: none"> <li>a. Historic data</li> <li>b. Future scenarios</li> <li>c. Long-term trends</li> </ol> </li> <li>2. Data equitability, especially for remote areas               <ol style="list-style-type: none"> <li>a. Easily accessible</li> <li>b. Single point of truth</li> <li>c. Take subjectivity into account</li> </ol> </li> <li>3. Improved information sharing across industries and agencies</li> <li>4. Information consolidation, consistency and transparency               <ol style="list-style-type: none"> <li>a. Standardised methodologies</li> <li>b. Updated regularly</li> </ol> </li> <li>5. Scalable information</li> <li>6. Examples of what has worked</li> </ol>	<ul style="list-style-type: none"> <li>• Ecosystem modelling               <ul style="list-style-type: none"> <li>◦ Seasonal variations</li> <li>◦ Fire frequency</li> <li>◦ Acidification levels</li> <li>◦ Species risks and vulnerabilities</li> <li>◦ Identifying potential refugia</li> </ul> </li> <li>• Traditional owner input</li> <li>• Global comparisons</li> <li>• Appropriate resolution of aerial photography</li> </ul>

Theme	Key ideas	Examples
<b>Information formats</b>	<ol style="list-style-type: none"> <li>1. Tools to communicate uncertainty</li> <li>2. Regionally appropriate decision support tools</li> <li>3. User-friendly – intuitive and engaging, no training requirement               <ol style="list-style-type: none"> <li>a. Curated information (rather than raw data)</li> <li>b. Compatibility between platforms (e.g. IOS and Android)</li> </ol> </li> <li>4. Harness AI to interpret and verify citizen science data</li> </ol>	<ul style="list-style-type: none"> <li>• Data visualisation platforms</li> <li>• Databases that follow the FAIR data principles</li> <li>• Regular face to face workshops</li> <li>• Worked through examples based on data</li> <li>• Scrolly telling/story maps</li> <li>• Spatial modelling</li> <li>• Visual resources e.g. short videos</li> <li>• Flow charts</li> <li>• Story boards</li> <li>• QR codes</li> <li>• Comparative photos</li> <li>• Overview fact sheet for a region</li> <li>• Dynamic products that can move/change in response to updated information</li> </ul>
<b>Support needs</b>	<ol style="list-style-type: none"> <li>1. Legislative reforms and guidance for decision-makers               <ol style="list-style-type: none"> <li>a. Training for staff to incorporate climate adaptation</li> </ol> </li> <li>2. Support for volunteers and community</li> <li>3. Traditional Owner perspectives</li> <li>4. Universal approach to cost/benefit analysis</li> <li>5. Natural capital accounting</li> </ol>	

## Levels of information

Communicating with different levels of audience – executive management, community, politicians – was regularly identified as a requirement for Adapt Land&Sea. As such, the platform will have information products tailored to different levels and accessible through multiple entry points.

Adopting the model used by CoastAdapt, information will be provided at three levels: Skimmers, Waders and Divers. Users will be able to access information at the level they require but will also be able to get to more (diver) or less detail (skimmer) if desired. (Palutikof et al. 2019)

Information for skimmers will be summary information aimed at senior managers and designed to provide high-level information in plain English. Alternatively, it may act as a stepping-stone for users to decide if they want to seek further information. Information for waders will be dot-point information intended to provide enough information to start building a business case. Information for divers will be more technical and, while still aiming to be accessible to a reasonably wide audience, will be relevant to decision-makers and their advisers who have technical and analytical responsibilities. It is anticipated that this more detailed information will support local decision-making and best-practice planning.

## References

Palutikof, J., Rissik, D., Webb, S., Tonmoy, F., Boulter, S., Leitch, A., Perez Vidaurre, A., & Campbell, M. (2019) CoastAdapt: an adaptation decision support framework for Australia's coastal managers. *Climatic Change*, 153(4), 491-507)

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