

Climate Adaptation Initiative Strategy

National Environmental Science Program
Climate Systems Hub



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Acknowledgement of Country

Climate Systems Hub recognises and acknowledges First Nations peoples across the length and breadth of Australia land and sea country and their ongoing connection to Country.

The Climate Systems Hub pays respect and acknowledgement to Elders past and present, as knowledge holders and keepers.

The Climate Systems Hub pays respect and acknowledgement to senior community leaders of their Country and communities.

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Introduction

The second phase of the National Environmental Science Program (NESP) introduced 4 cross-cutting initiatives. These initiatives are considered priority challenges by government, that require a cross-discipline research agenda to assist decision-makers and the community in developing responses.

Each NESP hub hosts an initiative and has appointed an Initiative leader. Collaboration across hubs on the initiatives is vital to their success and the hubs are expected to work together to contribute to all initiatives. The Climate Adaptation Initiative is being delivered through the Climate Systems Hub.

Adaptation represents the decisions and actions that help to prepare for the adverse consequences of unavoidable climate change. Australia released its second [National Climate Change Resilience and Adaptation Strategy](#) (NCRAS) in 2021. The strategy set out an ambitious plan to build Australia's climate science capability, undertake a national risk assessment and monitor, and evaluate Australia's progress toward a well-adapted nation. The process of undertaking a national climate risk assessment began in 2023, with an ambition to deliver its findings in 2025. The outcomes will inform the delivery of a National Adaptation Plan.

The activities of the Climate Adaptation Initiative will help support the implementation of that strategy by building the evidence to support adaptation planning and implementation, research that hones best practice and delivery of useable and accessible information needed by decision-makers.

This document outlines the strategic approach of the Climate Adaptation Initiative, including its vision and proposed outcomes. Climate Adaptation Initiative activities have been designed to deliver adaptation outcomes across the 4 NESP hubs by adding value to existing activities through identifying opportunities, initiating adaptation focused activities, and synthesising and delivering information to support adaptation action.

Vision for the Initiative

At its heart, the Climate Adaptation Initiative aspires to improve Australia's adaptive capacity and resilience in response to climate change. It does this through driving integrated research and activities.

Outcomes

The Climate Adaptation Initiative seeks to drive integrated climate change adaptation research across the NESP program to support evidence-based decision-making. We have identified Initiative outcomes linked to each of the hubs (Appendix 1 - Program Logic).

The activities of the Climate Adaptation Initiative are directed towards 4 key program-level outcomes supported by key activities (KA):

- Climate change adaptation focused research and outputs are produced across the NESP hubs (**Integrated adaptation research – KA1**)
- Strong end-user capacity, uptake and application of evidence-based climate systems research and adaptation information (**Synthesise, communicate, disseminate – KA2**)
- Decision support tools are delivered that enable application of climate change adaptation on the ground (**Planning and decision support – KA3**)
- Adaptation decision-makers, adaptation researchers and climate scientists are supported to share learnings and build relationships (**Community of practice – KA4**).

Outputs

Outputs are being delivered against 4 key activities (Table 1, Appendix 2) that target performance of the outcomes. Outputs continue to be further refined in consultation with users, hubs and the Department.

Table 1: Key activities of the Climate Adaptation Initiative and indicative outputs

| Key activities | Description | Outputs* |
|---|--|--|
| KA1 Integrated adaptation research | Through co-design and cross hub collaboration, identify and carry out climate change adaptation research to meet sector needs. Engage with individual hub-led projects to identify opportunities to include consideration of adaptation outcomes. Develop Initiative-led projects that specifically address adaptation challenges and knowledge needs. | Research reports Technical reports Searchable data sets Manuals/methods Case studies/test cases |
| KA2 Synthesise, communicate, disseminate | Identify and co-develop synthesis products in formats readily accessible to end users. Initially these will be derived from existing knowledge (e.g. ESCC Hub outputs) and will focus on communicating information in formats and ways that end-users will find useful and accessible. Over the course of NESP, the products will build on new knowledge. | Synthesis products including factsheets, videos, infographics, summaries for policy-makers and practitioners |
| KA3 Planning and decision support | Through stakeholder engagement, identify gaps in tools, resources and approaches to adaptation planning to inform development of new management and decision tools to support climate change adaptation activities. | Decision support tool/s and systems |
| KA4 Community of practice | Provide continual support for maintenance and growth of national adaptation capacity in research and end-user communities, including investment in early career professionals focused on both climate science and adaptation. Foster peer-to-peer and inter-generational learning in the areas of natural terrestrial and marine ecosystems, sustainable communities and waste. | Platform for communication Adaptation forums, workshops and events Early career professional network Training |

*Outputs will be co-designed with key users and stakeholders on a project-by-project basis

Users and user needs

Key stakeholder types and their role in the Initiative are identified in Table 2.

Table 2: A typology of stakeholders for the Climate Adaptation Initiative. Note that a stakeholder may appear in more than one category. Based on the typology for climate change research from Carney et al. 2009¹.

¹ Carney, S., Whitmarsh, L., Nicholson-Cole, S.A. and Shackley, S. (2009) A Dynamic Typology of Stakeholder Engagement within Climate Change Research. Tyndall Working Paper 128, Tyndall Centre for Climate Change Research, Norwich

| Role in Climate Systems Hub | Examples of stakeholders (non-exhaustive list) |
|---|---|
| Initiators (Develop, drive, instigate program) | Department of Climate Change, Energy, the Environment and Water (DCCEEW) - in particular National Adaptation Policy Office and Climate Active, Risk and Disclosure Branch |
| Developers (Consolidate and support research plan at an early stage) | DCCEEW - including the National Adaptation Policy Office and Climate Active, Risk and Disclosure Branch Hub partner organisations NESP Program (Other hubs and initiatives, NESP Cross-hub Committee) Other research programs e.g. Australian Climate Service |
| Informants and facilitators (Stakeholders who directly inform a research study) | Government at all levels Land managers (for example, World Heritage property managers, on-ground rangers, Aboriginal Prescribed Bodies, NRM groups, NGOs) Community groups/representatives |
| Central (Stakeholders that play a focal role in research and activities) | Climate Systems Hub steering committee NAPO Adaptation Working Group (AWG) CJ COP CS Adaptation specialists Australia-wide |
| Reviewers (Review research and outputs) | Adaptation specialists Australia-wide |
| End-users (Not directly involved, but specific interest in outcome) | Service delivery organisations (for example, Australian Climate Service, National Emergency Management Agency) All levels of government Place-based decision-makers and advisory committees Indigenous communities Natural Resource Management (NRM) groups |
| Reflectors (Reflect on the program, provide feedback and ideas) | Climate Systems Hub Steering Committee Adaptation specialists Australia-wide External M&E DCCEEW Science Partnerships |
| Beneficiaries (Wider stakeholders who may be affected by program) | Australian community |

Engagement with stakeholders likely to act as developers, informants and facilitators (Table 2) commenced in June 2021. Feedback from stakeholders highlighted several climate change adaptation needs and research questions that are a priority for stakeholders. These are summarised below (Table 3) and in Appendix 3. Three common themes were heard: the need for accessible information and guidance, an improved understanding of impacts, adaptation options and management approaches; and provision of tools and decision support.

Needs are often specific to sectors, places or organisations, with some common themes and related needs identified. We would expect prioritised projects to be a mix of place-based or sector-based investigations and more general activities supporting climate change adaptation more broadly.

Table 3: Summary of user needs identified to date.

| Common themes | High level needs |
|-------------------------------------|---|
| Accessible information and guidance | <ul style="list-style-type: none"> • Standardised climate information, tailored to regions • Understand and communicate climate hazards and risks • Trends in climate pressures that impact natural values • Case studies of good adaptation practice and planning |
| Improved understanding | <ul style="list-style-type: none"> • Increased understanding of climate impacts on species, ecosystems, values, communities, including attribution • Interaction between social risks and climate risks • Feasible adaptation options and adaptation outcomes • Approaches to vulnerability assessment • Aligning biodiversity and carbon sequestration benefits • Develop methods to monitor and measure adaptation success • Methods and approaches to risk assessment |
| Tools and decision support | <ul style="list-style-type: none"> • Web-based integrated assessment tools • Methods and approaches for monitoring and evaluation (for example, to support NCRAS) • Support to develop adaptation plans for threatened species and protected places • Support to apply climate information • Develop adaptation innovation and practice |

Roles, linkages and contributions

Delivery of the Climate Adaptation Initiative outcomes relies on collaboration and cooperation with and beyond the NESP program. Key contributors and their role in delivering the Climate Adaptation Initiative are outlined below.

Climate Systems Hub

The Climate Systems Hub hosts the Climate Adaptation Initiative. It will **lead** research projects relevant to the Adaptation Initiative that:

- focus on climate information and areas of adaptation research broadly applicable to a range of sectors (CS2.1)
- develop new methods of providing climate projection information to suit user needs (CS2.2, 2.5, 2.6, 3.2, 4.2, 4.3)
- provide evidence and guidance to identify and implement adaptation options (CS2.1, 2.7)

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- deliver decision support tools for adaptation planning (CS2.1, 2.2, 2.7, 2.10, 4.3)
- build the capacity of communities to support Indigenous-led adaptation (CS2.3, 2.4, 4.1).

In addition, it will provide support through:

- brokering engagement with stakeholders to include adaptation outcomes in projects where possible (*NESP Climate Systems Hub Knowledge Brokering Strategy*)
- co-delivery of synthesis outputs (for example, policy guidance briefs, sector briefs) including through a single gateway identified/developed through user engagement
- data capture and accessible delivery (*NESP Climate Systems Hub Data Management Strategy*)
- investment in the community of practice through an Early Career Professional (ECP) program (the *Climate College*), webinars, conference and/or events (*NESP Climate Systems Hub Communications Strategy*).

Other Hubs

KA 1 (Integrated adaptation research) will be delivered through all NESP hubs. Projects are identified through the engagement and co-design process of each hub, individual specialists in each hub (for example, Initiative champions) and the NESP Cross-hub Committee. The Initiative leader works closely with the 4 research hub leaders as they develop annual research plans to deliver against the Initiative objectives and outcomes.

Appendix 6 lists Initiative aligned projects from each hub. Adaptation planning and action are underpinned by a systems approach and need to consider climate impacts, vulnerability, risk assessment, implementing adaptation action and monitoring change and adaptation outcomes. NESP projects deliver general management information and research that might feed into adaptive management and planning. In order to deliver that information in an accessible format for decision-makers, the Initiative, in partnership with all hubs, is developing an online platform that supports adaptation management for biodiversity outcomes.

Collaboration and expert input from each hub will help to deliver the online platform and in turn KA2 (Synthesise and communicate) and KA3 (Support for adaptation planning and decision-making). The Initiative leader will work with individual project leads and hub knowledge brokers to identify information and findings relevant to adaptation needs. Co-development of synthesis products bringing together cross-hub expertise and findings will also be informed by this engagement.

The Initiative leader will look to recruit hub members into the adaptation community of practice (KA4) to both learn from peers and to share research findings and outcomes through networking events.

Other Initiatives

The Initiative leaders meet monthly to identify opportunities for building connections, collaborating and sharing information. Peer learning and exchanging ideas helps improve our effectiveness.

The Initiative leads will collaborate on approaches to cross-cutting research projects.

Other Organisations

The National Adaptation Policy Office (NAPO) was established in late 2021 under the NCRAS. It is an important end-user and collaborator for the Climate Adaptation Initiative. Early engagement highlighted the potential role of NESP research to inform the national risk assessment, including through collaboration with the Australian Climate Service (ACS), and to support the definition of methods and supply of data for national monitoring and evaluation. NAPO is an important conduit for engagement and communication.

To support the Climate Adaptation Initiative, the need for a technical advisory group that includes representatives from research, policy and practice to provide high-level advice to the Initiative's strategic direction were explored. Options included the existing Adaptation Working Group, and the Initiative lead is working with NAPO to build that engagement link.

DCCEEW has also established the Climate Change Policy, Adaptation and Risk Division who are responsible for delivering the National Climate Risk Assessment for the Government. The Hub engages monthly with the office and members of NAPO. Since initial discussions, the Department has made new NESP governance arrangements and determined that the Initiative strategies should be signed-off by the Hub Steering Committees. Additional independent members on the HSC bring additional adaptation experience.

An 'Adaptation think tank' that drew together collective expertise and experience on adaptation was convened to give input on possible research projects prior to RP2022 submission. This was very much focused on research needs.

The need to supplement ongoing engagement with NAPO, the HSC and other adaptation experts to provide high-level advice to the Initiative's strategic direction will be revisited as required.

KA4 (Foster community of practice) is aimed at engaging with and supporting the broader climate adaptation community. We have been building communication networking opportunities to facilitate peer-to-peer learning and collaborative opportunities. We expect this community to engage a very broad audience. A one-day National Adaptation Forum was successfully held in November 2022, followed by the re-establishment of a biennial national adaptation conference series with Climate Adaptation 2023 in Adelaide attended by over 440 delegates in July 2023. We are currently planning for an adaptation conference in 2025 to be held in Perth from 23-25 July with support from the WA Government. A final conference early in 2027 may be possible if there is interest from a major sponsor.

The states and territories, through the Cross-Jurisdictional Community of Practice for Climate Science (CJ CoP CS), are a partner in the Climate Systems Hub. This partnership has been instrumental in building broader collaborative linkages in projects and activities. To-date they have been instrumental in supporting the hub develop a research strategy and advance project plans that consider links to the Climate Adaptation Initiative. They have also facilitated the collation of state and territory user needs information. This is an on-going role for the CJ COP CS.

We are also engaging with several organisations with whom there is significant potential to build linkages. This includes divisions within the department, Natural Resource Management (NRM) Regions Australia, the Australian Climate Service (ACS), ARC Centre of Excellence

for Climate Extremes (CLEX), Australian Antarctic Program Partnership (AAPP), Australian Centre for Excellence in Antarctic Science (ACEAS) and the Australian Local Government Association (ALGA).

Timeline

Over the life of the Initiative (Table 4), we will build strong relationships and linkages (Year 1), invest in evaluating progress to date (Year 2), target growth in adaptation research and activities that address well understood needs (Years 3-5), and finally evaluate and consolidate our achievements (Years 6-7).

Appendix 4 outlines a detailed timeline, workplan and progress for 2024-2025.

Table 4: Timeline for Climate Adaptation Initiative activities over the life of the program.

| | Year 1 Foundation | Year 2 Evaluation and bridging | Year 3-5 Growth | Year 6-7 Evaluate and consolidate |
|--|--|---|--|---|
| KA1 Integrated adaptation research | Build relationships, engage stakeholders, identify and prioritise research needs | Research program early wins, evaluate existing approaches, practices and progress | New research addressing identified gaps and partnerships | Short-term, targeted projects addressing gaps/follow-up Evaluation |
| KA2 Synthesise, communicate, disseminate | Build relationships, engage stakeholders, identify information needs | Suite of synthesis and communication products built on existing knowledge and targeting needs | Continue program of delivering synthesis and communication products built on new knowledge and targeting needs | Establish legacy Evaluation |
| KA3 Planning and decision support | Build relationships, engage stakeholders, identify decision approaches and needs | Develop plan for engagement platform | Develop and deliver engagement platform | Establish legacy Evaluation |
| KA4 Community of practice | Map stakeholders and existing networks Establish key contacts in each hub, such as Initiative champions Identify opportunities for outreach and engagement | Building and nurturing community of practice Establish work program of outreach and engagement | Continue work program of outreach and engagement | Establish legacy Evaluation |

Monitoring and evaluation

To ensure the Climate Adaptation Initiative is impactful, and to track progress in meeting milestones and achieving intended outcomes, the hub has invested in a monitoring and evaluation (M&E) program that engages external evaluation expertise.

Monitoring and evaluation will seek to assess the Initiative program for the following characteristics:

- **Effectiveness** – does the program meet its intended outcome? Are project activities being performed as per contractual obligations (for example, meeting timelines and standards expected)?
- **Efficiency** – is the method and approach of the program the most efficient or cost-effective approach? Are there alternative approaches that might meet the program outcomes which are more resource effective? Is the approach achievable within the life of the program?
- **Appropriateness** – is the program (as designed) appropriate and needed by stakeholders, and will it meet its objectives?
- **Impact** – what is the impact of the program? For example, are stakeholders changing their behaviour and/or practice?
- **Legacy** – will the program foster long-term investment and use of the program outputs (for example, is there learning happening, by whom and how?).

The Climate Systems Hub has developed a M&E Framework that incorporates the program logic for the Initiative. The Framework describes what the Hub aims to achieve, by whom, how and when; define performance measures and develop methods of measurement. An example of our approach is shown in Appendix 5.

Appendix 1: Program logic for the Climate Adaptation Initiative

| | | | | |
|---|---|--|--|--|
| Aim | Improve Australia's adaptive capacity and resilience in response to climate change | | | |
| Objectives aligned to hubs | Climate Systems Hub Adaptation decision-making is supported through the delivery of fit-for-purpose data, | Marine and Coastal Hub Management of Australia's marine and coastal environments increasingly protect | Resilient Landscapes Hub Australia's terrestrial and freshwater habitats are increasingly managed | Sustainable Communities and Waste Hub Communities are better prepared for and adapted to |
| Program-level outcomes | Adaptation focused research and outputs are produced across the NESP hubs Strong end-user capacity, uptake and application of evidence-based adaptation information Decision support tools are delivered that enable application of climate change adaptation on the ground | | | |
| Hub outputs aligned to the Climate Adaptation Initiative | Climate Systems Hub Understand and communicate climate hazards and risks Better planning tools and guidance Adaptation innovation and practice Measuring adaptation | Marine and Coastal Hub Climate vulnerability of Australia's coasts and marine environments Build adaptive capacity in marine and coastal environments Adaptation options | Resilient Landscapes Hub Climate vulnerability of Australia's biodiversity and landscapes Build adaptive capacity Australia's biodiversity and landscapes Adaptation options | Sustainable Communities and Waste Hub Understand community vulnerability to climate change Urban adaptation solutions Tools and guidance to help communities |
| Climate Adaptation Initiative | Integrated adaptation research | | Synthesise and communicate climate adaptation research and information | |
| | Support for adaptation planning and decision-making community of practice | | | Foster the adaptation |
| Foundational capabilities | Indigenous Knowledge Modelling Behaviour change Legal & policy analysis Urban design Ecology Biology Atmospheric science Social science | | | |

Appendix 2: Program plan

| KA 1 Integrated adaptation research | KA2 Synthesise, communicate, | KA3 Planning and decision support | KA4 Community of practice |
|---|--|---|--|
| Planning activities: <ul style="list-style-type: none"> - Stakeholder engagement - Scoping and planning meetings with each hub - Adaptation think-tank - Prioritise projects Annual research plan: <ul style="list-style-type: none"> - Negotiate priority projects - Co-design projects: Reporting <ul style="list-style-type: none"> - Annual report Monitoring and evaluation (M&E) <ul style="list-style-type: none"> - M&E work program established - Quarterly M&E reporting | <ul style="list-style-type: none"> - Stakeholder engagement - Annual knowledge brokering and communication workplan/s - Draft written communication material, test and evaluate with end-users - Extensive dissemination of synthesis and communication materials - CS Hub monthly newsletter Reporting <ul style="list-style-type: none"> - Annual report - Include activities in annual workplan of Knowledge Brokering and Communications strategies | Planning activities: <ul style="list-style-type: none"> - Stakeholder engagement - Adaptation think-tank - Scope options and develop workplan Annual research plan: <ul style="list-style-type: none"> - Co-design project/s to deliver decision support tool/s Reporting <ul style="list-style-type: none"> - Annual report Monitoring and evaluation (M&E) <ul style="list-style-type: none"> - M&E work program established - Quarterly M&E reporting | <ul style="list-style-type: none"> - Map stakeholders and existing networks - Establish key contacts in each hub, such as Initiative champions - Identify opportunities for outreach and networking - Quarterly adaptation communiqué - Support dissemination of communication and synthesis activities - Training - Webinars, workshops, conference Early career professional engagement programReporting <ul style="list-style-type: none"> - Annual report includes activity report |

Appendix 3: Project areas

Potential project areas identified to date. Ongoing co-design will help prioritise questions or needs to be addressed through hub projects

| <i>Project area</i> | <i>Example user questions or needs</i> |
|--|--|
| <i>Climate Systems Hub</i> | |
| Useable and accessible climate information and projections | What do the new AR6/CMIP6 projections mean for Australia/ states? I want simple-to-use guidance on the best approach from an authoritative source, information/data in forms that suit the needs of my sector, and someone to go to for help when needed. |
| Decision support tools | How can I undertake climate adaptation planning for this protected place? |
| Adaptation practice | Tools, data and training at the local government level. |
| <i>Marine and Coastal Hub</i> | |
| Protected places and threatened species | Climate change as a threat multiplier, exacerbating existing stresses on species and places |
| Monitor & evaluate Marine Parks & restoration work | Designing methods and approaches for implementing of monitoring programs for priority natural and cultural values, and social and economic benefits at a range of scales from site-level to across the parks network. |
| Coastal & marine ecosystem restoration | Evidence to support uptake and investment in wetland restoration including development of new methods under the ERF and incentive programs for land managers. |
| Nature-based solutions for coastal hazards | What adaptation strategies could be used to improve the resilience and/or adaptation of natural values and support associated social and economic benefits in response to the changing climate? |
| Species redistribution and movement | Understand existing distributions and threats. Are we protecting the right places? |
| Adaptation options including blue carbon | What are the benefits of mangrove restoration for blue carbon? |
| <i>Resilient Landscapes Hub</i> | |
| Species distribution modelling | Safe havens or refugia in the future. Developing evidence to support decision-making and the development of adaptation measures for terrestrial and freshwater threatened species (including migratory species), and threatened ecosystems management. |
| Building resilience in ecosystems | How to best manage connected seascapes/landscapes to promote listed ecological community resilience (for example, adjacent mangroves help coral reefs/seagrass in trapping sediment runoff from increase extreme flooding events). |

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|--|---|
| Landscape restoration | Turning rainfall changes into inflow changes, levers for adaptation options. Adaptive experimental management to test the effectiveness of management approaches/options. |
| Socioeconomic insights | What effect is management and zoning arrangements and associated management actions having on key natural and cultural values, social and economic benefits, and pressures? |
| Monitoring adaptation and restoration outcomes | Designing methods and approaches for implementing of monitoring programs for priority natural and cultural values, and social and economic benefits at a range of scales from site-level to across the parks network. |
| Protected places and threatened species | Climate change as a threat multiplier, exacerbating existing stresses on species and places. |
| <i>Sustainable Communities and Waste Hub</i> | |
| Building well-adapted communities | Where are vulnerable communities? |
| Water sensitive design | How can we build cities to better manage overland flow and flash flooding? |
| Nature-based solutions | How can we reduce the impact of heat stress in urban areas? |
| Air quality forecasts and data | How does air quality interact with climate change and what are the health risks to communities? |
| <i>Cross-hub, cross-initiative</i> | |
| Place based or sector based | Building a consistent, standard approach to collecting, analysing, managing, and reporting environmental data to identify the key drivers of resilient populations in protected places. |
| Government policy | Contribute to development of the Australian Government's adaptation policy and program agenda e.g. methodology for risk assessment |

Appendix 4: Annual workplan and key activity progress

2024-2025 workplan

| Period | Activities |
|-------------------------|--|
| July – September 2024 | <ul style="list-style-type: none"> - Work with hub project teams to co-design projects to RP2025 (<i>Completed</i>) - Ongoing progress of projects: CS2.1, 4.2, 2.3, 2.7, 4.3 (<i>Ongoing</i>) - Co-host <i>Workshop on risks to threatened terrestrial and freshwater species from extreme weather and climate change</i> with TSP&MEC Initiative lead (<i>Completed</i>) - User needs and Development plans for 'Adapt Land&Sea' (<i>Completed</i>) - Development of content for Adapt Land&Sea (<i>Ongoing</i>) - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) - Plan and deliver Climate College content (<i>Ongoing</i>) |
| October – December 2024 | <ul style="list-style-type: none"> - Contribute to projects: CS2.1, 4.2, 2.3, 2.7, 4.3 (<i>ongoing</i>) - Commence project CS4.1 – contracts signed, kick-off meetings, present to Traditional Owner reference group BMRAC - Deliver Climate College on the road – weeklong immersive course in NSW Northern Rivers (<i>Complete</i>) - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) - Deliver adaptation literacy training for LGAT in Tasmania (<i>Complete</i>) - Publication and distribution of adaptation intervention calendar (CS2.7) (<i>Complete</i>) - Launch of AdaptLog (CS2.7) (<i>Complete</i>) - Publication of 'Learning Centre' pages and materials on Hub website (<i>Complete</i>) - Planning for CA2025 (<i>ongoing</i>) - Sign contract WA Government partnership for CA2025 (<i>completed</i>) |

| | |
|-----------------------------|--|
| <p>January – March 2025</p> | <ul style="list-style-type: none"> - Update Climate System Hub Climate Adaptation Initiative Strategy - Contribute to projects: CS2.1, 4.1, 4.3 (<i>Ongoing</i>) - Deliver Climate College monthly webinars (<i>Ongoing</i>) - On-ground workshops and engagement Kakadu and Gondwana World Heritage areas. - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) - Planning for CA2025 (<i>ongoing</i>) - Release of CoastAdapt update - Limited release Australian Adaptation Database (CS2.1) |
| <p>April – June 2025</p> | <ul style="list-style-type: none"> - Contribute to projects: CS2.1, 4.1, 4.3 - Deliver Climate College in-person workshop at AMOS (TBC) - On-ground workshops and engagement Kakadu and Gondwana World Heritage areas - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) - Planning for CA2025 (<i>ongoing</i>) |
| <p>July – Sep 2025</p> | <ul style="list-style-type: none"> - Delivery of Climate Adaptation 2025 conference - In-person adaptation workshop for ECPs at CA2025 - Soft Launch Adapt Land&Sea - Contribute to projects: CS2.1, 4.1, 4.3 (<i>ongoing</i>) - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) - Convene discussion on adaptation research needs (TBC) - Climate College On-the-Road 2025 delivered |
| <p>Oct – Dec 2025</p> | <ul style="list-style-type: none"> - Contribute to projects: CS2.1, 4.1, 4.3 - Deliver Climate College monthly webinars - Work with hub knowledge brokering team to develop synthesis and communication program including monthly campaigns and co-designed synthesis factsheets (<i>Ongoing</i>) <p>On-ground workshops and engagement Kakadu and Gondwana World Heritage areas</p> |

2023-2025 activity progress

| 10 February 2025 | Activity 1: Integrated adaptation research | Activity 2: Synthesise, communicate, disseminate | Activity 3: Adaptation planning and decision support | Activity 4: Community of practice |
|-------------------------|--|---|--|--|
| Progress to date | <p>CS2.1, 2.3, 2.4, 2.7, 4.1, 4.2, 4.3 projects with strong adaptation focus funded</p> <p>CS2.3, 2.4, 2.7, 4.2 successfully delivered</p> <p>Identified projects in SCaW Hub and MaC Hub with easy wins</p> <p>Cross-hub place-based project/s in Kakadu NP and Northern Rivers NSW</p> <p>Cross-Initiative workshop focused on managing and planning for threatened species under climate change</p> | <p>Webinars and briefing note to coincide with release of IPCC WGII report</p> <p>Workshops to both understand practice and extract key research outcomes (Nov 2022)</p> <p>Deliver Adaptation literacy training in 5 states/territories. Publish supporting guides and training videos to new Hub 'Learning Centre'</p> <p>Deliver <i>National Adaptation Conference 2023</i></p> <p>Evaluation of existing information and developing a synthesis and communication plan</p> <p>Contribute analysis of Australian Adaptation Database (CS2.1) to NCRA</p> | <p>Projects CS2.1, 2.3, 2.4, 2.7, 4.1, 4.3 with ambition to build decision support tools/guidance approved</p> <p>CS4.3 to deliver cross-hub Adapt Land&Sea platform to support decision making</p> <p>CS2.7 published AdaptLog to support conservationists identify adaptation interventions.</p> <p>Case study of adaptation planning completed for K'gari World Heritage Area.</p> <p>Partnering with Parks Australia and Qld Government to co-develop adaptation plans for Kakadu and Gondwana World Heritage Areas</p> <p>Completion of 'Enablers' review</p> | <p>Hub capacity building workshops</p> <p>National Adaptation Forum held November 2022</p> <p>Early Career Professional network Climate College delivered 2 years of lunchbox webinars, in-person training and networking and week-long immersive experience in NSW Northern Rivers district</p> <p>Deliver <i>National Adaptation Conference 2023</i> (attended by 440 delegates)</p> <p>Engagement with First Nations Platform on Climate Change</p> |
| Underway | <p>Ongoing stakeholder engagement and consultation</p> <p>Finalisation of cross-Initiative workshop report: <i>Towards a better understanding of information on risk of extreme weather and climate change to Australia's threatened terrestrial and freshwater species.</i></p> | <p>Explainers and guides targeting users.</p> | <p>Building online platform for Australian Adaptation Database to publish early 2025</p> <p>Development of Adapt Land&Sea for soft launch July 2025</p> <p>Ongoing co-design to understand needs and opportunities</p> | <p>Climate College program of webinars and workshops for 2025</p> <p>Convening Climate Adaptation 2025 conference July 2025, Perth</p> |

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| <p>Looking forward</p> | <p>Support co-development with users throughout projects to identify opportunities to build adaptation outcomes</p> <p>Explore updated adaptation research needs analysis e.g. build on NARPs, NCRA, think tank discussion.</p> | <p>Scope and deliver cross-hub synthesis of research to support decision makers</p> | <p>Identify opportunities for case studies demonstrating good practice</p> | <p>Cross-hub engagement</p> <p>Establish/infuse networks</p> |
|-------------------------------|---|---|--|--|

Appendix 5: Sample monitoring and evaluation logical framework

| Project logic level | What is the indicator | What is the question | Method of measurement |
|--|---|---|---|
| Long-term goal (to which project is contributing) | Improve Australia's adaptive capacity and resilience in response to climate change | | |
| | The number of stakeholders reporting inclusion of climate change risks in decision-making | Is climate change being considered as part of the assessment of risk in the sector? | <ul style="list-style-type: none"> • Survey • Stakeholder interviews |
| Interim outcomes (achievable within the life of the project) | Obj. 1 Adaptation decision-making is supported through the delivery of fit-for-purpose data, tools and knowledge | | |
| | The number of end-users who have used/intend to use products delivered through the Initiative | Did the program successfully disseminate useful and usable tailored climate adaptation information? | <ul style="list-style-type: none"> • Survey • Web user statistics • Stakeholder interviews |
| Interim outcomes (achievable within the life of the project) | Obj. 2 Management of Australia's marine and coastal environments protects ecosystems, marine life and livelihoods under a changing climate | | |
| | The number of end-users reporting inclusion of climate change risks in decision-making and management | Is climate change being considered as part of the assessment of risk and in management plans in the marine sector? | <ul style="list-style-type: none"> • Sector-wide scan of management plans • Survey • End-user interviews |
| Interim outcomes (achievable within the life of the project) | Obj. 3 Australia's terrestrial and freshwater habitats are managed to be resilient, sustainable and productive under a changing climate | | |
| | The number of end-users reporting inclusion of climate change risks in decision-making and management | Is climate change being considered as part of the assessment of risk and in management plans in the landscape management? | <ul style="list-style-type: none"> • Sector-wide scan of management plans • Survey • End-user interviews |
| Interim outcomes (achievable within the life of the project) | Obj. 4 Communities are well prepared for and adapted to climate change | | |
| | The number of communities undertaking a climate change risk scan | Are communities aware of and responding to their climate risk? | <ul style="list-style-type: none"> • Survey • End-user interviews |



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Appendix 6: NESP projects delivering to Climate Adaptation Initiative

| Lead hub | Project name | Outcome relevant to Climate Adaptation Initiative | Adaptation | | Investment | |
|----------------------|--|---|------------|-------|------------|-----------|
| | | | Prim | Secon | NESP | Co- |
| Climate Systems | CS2.1 Enabling best practice adaptation | Better planning tools and guidance Adaptation innovation and practice | x | | \$437 735 | \$561 255 |
| Climate Systems | CS2.2– Synthesis, communication, and data: | Understand and communicate climate hazards and risks | x | x | \$34 800 | \$30 859 |
| Climate Systems | CS2.3 – Understanding and Connecting Parallel Climate Knowledge of Western | Understand and communicate climate hazards and risks Better planning tools and guidance | x | | \$271 179 | \$462,099 |
| Climate Systems | CS3.2– Synthesis, communication, and data: | Understand and communicate climate hazards and risks | x | x | \$303,000 | \$339,000 |
| Climate Systems | CS2.4 – Indigenous-led climate change knowledge and | Understand and communicate climate hazards and risks | x | | \$176,588 | \$156,597 |
| Climate Systems | CS2.7– Climate-effective management for threatened species and protected places | Understand and communicate climate hazards and risks Better planning tools and guidance Adaptation innovation | x | | \$792,831 | \$783,137 |
| Resilient Landscapes | Climate-resilient landscapes: an adaptation case study in NSW's Northern Rivers region | Understand and communicate climate hazards and risks Better planning tools and guidance | x | | \$760,021 | |
| Resilient Landscapes | Enhancing climate-adaptation responses in regional NRM planning by incorporating | Build adaptive capacity Australia's biodiversity and landscapes Adaptation options and implementation | | x | \$700,000 | |

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|----------------------|---|--|---|---|-----------|-------------|
| Resilient Landscapes | Guiding the strategic management of freshwater fish | Climate vulnerability of Australia's biodiversity and landscapes | | x | \$600,000 | |
| Resilient Landscapes | Managing and monitoring resilience in | Climate vulnerability of Australia's biodiversity and landscapes | | x | \$333,000 | |
| Resilient Landscapes | National overview of monitoring frameworks and tools for Ramsar | Climate vulnerability of Australia's biodiversity and landscapes Better tools and | | x | \$176,446 | |
| Resilient Landscapes | Planning for catchment resilience and threatened species recovery from extreme events in Queensland's | Build adaptive capacity Australia's biodiversity and landscapes Better tools and guidance for biodiversity and landscape management | | x | \$550,000 | |
| Resilient Landscapes | Protecting threatened | Build adaptive capacity Australia's biodiversity | x | | \$51,000 | |
| Resilient Landscapes | Socioeconomic insights for | Build adaptive capacity Australia's biodiversity | | x | \$800,000 | |
| Resilient Landscapes | 4.1. The use and impacts of wet-season burning in tropical | Better tools and guidance for biodiversity and landscape management | | x | \$755,483 | \$1,700,542 |
| Resilient Landscapes | 5.2 Adapt Land&Sea | Build adaptive capacity Australia's biodiversity and landscapes Better tools and guidance for biodiversity and landscape | x | | \$250,000 | |
| Resilient Landscapes | Developing a Culturally Relevant Framework for | | x | | \$300,000 | |
| Marine and Coastal | Development of Indigenous led land and sea country management and monitoring in of Tebrakunna Country (NE Tasmania) | Climate vulnerability of Australia's coasts and marine environments Build adaptive capacity in marine and coastal environments Adaptation options and implementation | | x | | |

| | | | | | | |
|--------------------|---|---|---|---|------------|--------------|
| Marine and Coastal | Climate change risks to coastal | Climate vulnerability of Australia's coasts and | x | | | |
| Marine and Coastal | 3.4 – Better Management of Catchment Runoff to Marine Receiving | Climate vulnerability of Australia's coasts and marine environments Better tools and | | x | | |
| Marine and Coastal | 3.18 – Robust citizen science for reef habitat assessment in support of | Climate vulnerability of Australia's coasts and marine environments Better tools and | | x | \$ 635,795 | \$ 2,741,535 |
| Marine and Coastal | 3.19 - Addressing Kakadu's | Build adaptive capacity in marine and coastal environments | | x | \$80,000 | \$104,000 |
| Marine and Coastal | 1.1 Scoping study: Protected | Better tools and guidance for coastal | | x | | |
| Marine and Coastal | 1.3 Support for Parks Australia's Monitoring, Evaluation, Reporting and | Better tools and guidance for coastal and marine environmental management | | x | | |
| Marine and Coastal | 1.5 Scoping Study: Identify knowledge gaps and solutions for extent mapping | Climate vulnerability of Australia's coasts and marine environments | | x | | |
| Marine and Coastal | 1.6 A roadmap for coordinated landscape-scale | Better tools and guidance for coastal and marine | | x | | |
| Marine and Coastal | 1.7 Towards a consolidated and open-science | Better tools and guidance for coastal and marine | | x | | |
| Marine and Coastal | 1.10 A national inventory of implemented nature-based | Adaptation options and implementation | x | | | |
| Marine and Coastal | 1.11 OzSET: Integration and publication of the Australian | Climate vulnerability of Australia's coasts and marine environments | | x | | |
| Marine and Coastal | 1.20 Scoping Study: Marine and Coastal Threatened and | Climate vulnerability of Australia's coasts and marine environments | | x | | |

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|--------------------|--|---|---|---|-----------|--|
| Marine and Coastal | 1.21 Australia's Coastal Shorebirds: | Climate vulnerability of Australia's coasts and marine environments | | x | | |
| Marine and Coastal | 1.28 Future-proofing restoration & | Adaptation options and implementation | | x | | |
| Marine and Coastal | 1.30 National Assessment of Climate-Driven Species | Climate vulnerability of Australia's coasts and marine environments | x | | | |
| Marine and Coastal | 1.32 Scoping Study: Supporting | Better tools and guidance for coastal and marine | | x | | |
| Marine and Coastal | 5.1 Mapping sea country and investigating conservation and restoration | Adaptation options and implementation | | x | \$415,000 | |
| Marine and Coastal | 5.2 A toolkit for ranger-led seagrass monitoring in | Better tools and guidance for coastal and marine environmental | | x | \$400,000 | |
| Marine and Coastal | 5.4 Innovations to Support Crown-of-Thorns Starfish Control | Better tools and guidance for coastal and marine environmental | | x | \$901,351 | |
| Marine and Coastal | 5.5 Assessing impacts of extreme events on inshore | Climate vulnerability of Australia's coasts and marine environments | x | | \$193,000 | |
| Marine and Coastal | 5.10 – Improving socio-ecological understanding of natural values of | Build adaptive capacity Australia's biodiversity and landscapes | | | \$273,722 | |
| Marine and Coastal | 5.9 Making marine environmental data | Better tools and guidance for coastal and marine environmental | | x | \$397,434 | |
| Marine and Coastal | EP 4.26 Assessing disease incursion risk by mapping and | Better tools and guidance for coastal and marine environmental management | x | | \$396,878 | |

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| Sustainable Communities and Waste | Impact Priority 1 - Sustainable people-environment interactions | <p>Understand community vulnerability to climate change</p> <p>Urban adaptation solutions</p> <p>Tools and guidance to help communities adapt</p> <p>Better urban planning</p> | | x | | |
|-----------------------------------|---|--|--|---|--|--|