Climate Systems

National Environmental Science Program

Case study

Developing an Indigenous co-designed adaptation plan for K'gari World Heritage Area

April 2024



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Warning: Aboriginal and Torres Strait Islander peoples are advised that this webinar may contain images, voices, names and references to people who have passed away. We pay our respects to Elders past and present and acknowledge the ongoing contribution of First Nations peoples to climate knowledge, research and stewardship of Country.

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The Climate Systems Hub is a partnership of CSIRO, Bureau of Meteorology, Australian National University, Monash University, University of Melbourne, University of New South Wales and University of Tasmania and the Cross-jurisdictional Community of Practice for Climate Science.

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The Climate Systems Hub acknowledges the Butchulla people, Traditional Custodians of K'gari and Hervey Bay where this work occurred. We pay our respects to Elders past, present and future and recognise the important role traditional knowledge plays in understanding Australia's climate.

Cover image: Boorangoora, K'gari (Source: DESI).

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Map showing the K'gari World Heritage Area.

Developing an Indigenous co-designed adaptation plan for K'gari World Heritage Area

The Butchulla people, custodians of K'gari, a World Heritage listed sand island of south-eastern Queensland, partnered with the Climate Systems Hub and the Queensland Government Department of Environment, Science and Innovation (DESI) to pilot the development of a climate change adaptation plan. Adapting the process outlined in the Australian government's Climate Change Toolkit for World Heritage Properties in Australia, an Indigenous-driven process focused on cultural governance and engagement.

The resulting K'gari Climate Adaptation Plan (CAP) is based on a set of cultural and natural values meaningful to the Butchulla people and local community. The case study provides an approach that could guide similar responses to the risks of climate change.



Pictured L-R: Blayde Foley, Myles Broome, Toni Thwaites, Chantel van Wamelen, Melita Baird, Wayne Minniecon and Russ Simpkins.

Introduction

K'gari is a World Heritage-listed sand island along the south-eastern coast in the Wide Bay–Burnett region, Queensland, Australia. For Butchulla people, K'gari is their homeland, it holds their history, and culture, and is part of their future. "Our people have lived and cared for K'gari for millennia and it is where we continue the tradition of looking after country."[1] Butchulla, through the Butchulla Aboriginal Corporation (BAC), want to understand how climate change might impact K'gari and find ways they can proactively manage these risks.

Day-to-day management of K'gari is managed by Queensland Parks and Wildlife Service, with the Queensland Government also providing state-wide coordination of World Heritage matters, policy and strategic planning. The Queensland Government also coordinates the K'gari World Heritage Advisory Committee with representatives from Butchulla people, community and scientific experts to provide input into matters of importance to the management of the World Heritage area. Butchulla native title bodies have Butchulla ranger programs.

An interest in undertaking a climate vulnerability assessment and adaptation plan for K'gari was identified, in discussion with the National Environmental Science Program (NESP) phase 1 Earth Systems and Climate Change Hub in 2020. BAC, the Climate Systems Hub and the Queensland Government Department of Environment, Science and Innovation (DESI) established a project collaboration in 2022, to pilot the development of an adaptation plan for the K'gari World Heritage Area. At the time, the Australian Government was developing the Climate Change Toolkit for World Heritage Properties in Australia[2] (the toolkit) and the project looked to test aspects of the toolkit. The project delivered an adaptation plan that was meaningful to the island's Traditional Owners, could inform future management tools and provided actionable, achievable outcomes.

This case study details the steps and learnings of an Indigenous-directed process and the integration of two knowledge systems – traditional and western. It provides an approach that could be used by other Aboriginal and Torres Strait Islander organisations and their partners.

[1] https://bac-kgari.org/butchulla-people-and-country/

[2] https://www.dcceew.gov.au/parks-heritage/heritage/publications/climate-change-toolkit-world-properties

Approach to develop an adaptation plan

Through advice of our Butchulla partners, we applied the toolkit principles to better fit the Butchulla ways of working and thinking. An early effort was made to agree good cultural governance and an approach aligned with Butchulla values. The steps we followed are considered in more detail in the following sections.

Cultural governance

The Butchulla people are represented by two Native Title bodies, the Butchulla Aboriginal Corporation (BAC) and the Butchulla Native Title Aboriginal Corporation (BNTAC). While the project was contracted through BAC (corporate governance), the project needed to establish broader cultural governance arrangements to ensure the project outputs and outcomes met Butchulla aspirations.

A detailed project plan was prepared outlining each partner's goals, establishing a governance and approval process (Figure 1), and the steps in delivering the plan including engagement and participation. Importantly, it also included arrangements for Indigenous Cultural and Intellectual Property (ICIP) and Free, Prior and Informed Consent (FPIC) (Box 1). The project followed the principles of co-design and was informed by a values framework developed by the National First Peoples Gathering on Climate Change steering committee.

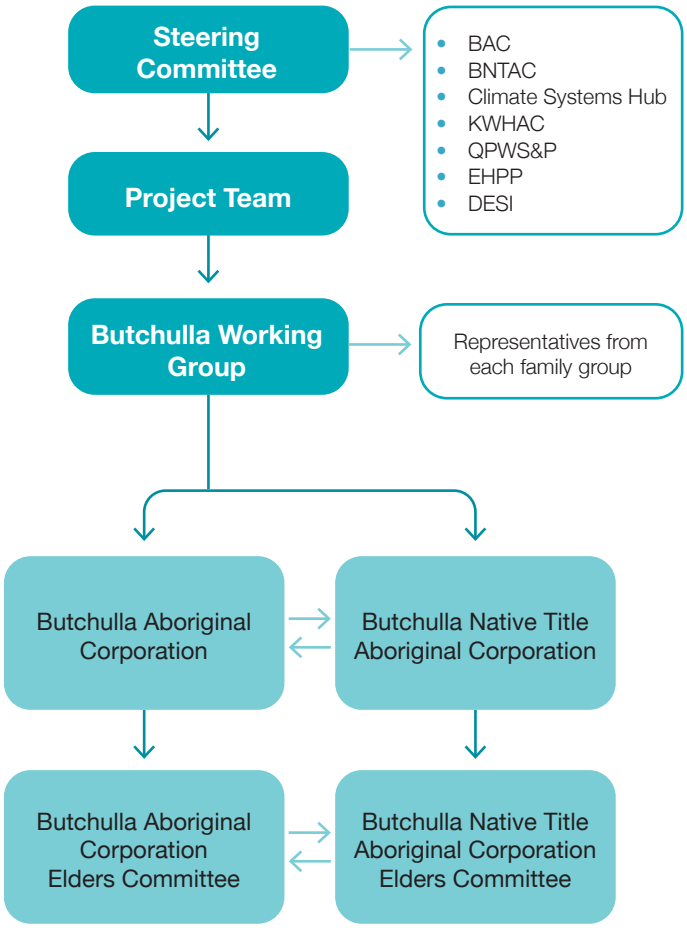


Figure 1: The governance and sign-off process for the project.



Troy Broome, Toni Thwaites, Aunty Joyce Bonner and Myles Broome at Champagne Pools, K'gari (Source: Troy Broome).

Project team and governance

Day-to-day coordination of the project was led by staff from DESI. They worked closely with staff at BAC and with Climate Systems Hub team members that provided adaptation expertise, climate and sea-level rise specialists. In addition, there were key capabilities that performed critical roles:

- The Climate Systems Hub's Indigenous Facilitator helped negotiate the project between the hub and DESI. The Indigenous Facilitator was essential in brokering discussions around ICIP, FPIC and co-design principles.
- A project officer at BAC who worked with Butchulla to collect stories and information.
- An independent consultant (Butchulla) who had been involved in developing the toolkit and had project design skills and knowledge as well as cultural and community insights. The consultant provided support and guidance to the BAC project officer, engaged directly with Butchulla community and facilitated the Butchulla Working Group. This capability was a unique and powerful inclusion to the project.

A project steering committee was established early in the project to ensure key interests could help direct the project (Figure 2). Importantly this included representatives from the two Native Title bodies and Queensland National Parks and Wildlife Service – key rightsholders for K'gari World Heritage Area. The committee guided culturally appropriate governance processes.



Jade Gould, independent Butchulla consultant, speaking during a community workshop.

Box 1: Indigenous Cultural and Intellectual Property and Free, Prior and Informed Consent

Indigenous Cultural and Intellectual Property (ICIP) refers to the Indigenous Peoples rights under Article 31 of the United Nations Declaration on the Rights of Indigenous Peoples to "maintain, control, protect, and develop their cultural, heritage, traditional knowledge and traditional cultural expressions" [3]. The project relied on Butchulla knowledge and stories so it was important to set out clearly how information would be handled, where it would be stored, who would have access to it.

Free, Prior and Informed Consent (FPIC) is a principle protected by international human rights standards, that states 'all peoples have the right to self-determination'. In the research context it allows Indigenous Peoples to provide or withhold/withdraw consent, at any point, regarding projects impacting their Country. Consent should be obtained in a culturally appropriate manner from all research participants and stakeholders.

During engagement, participants were provided with information about who was involved in the project, what participating in workshops or discussions would involve, any potential benefits or risks and how information would be handled and stored, as well as participants' rights to revoke consent or edit/remove cultural material at any time. Time was taken at each workshop (listed in the section below) to discuss what consent entailed prior to signing the consent form. Both Butchulla and non-Butchulla were asked to provide consent.

In addition, scientists and experts were asked to abide a code of conduct developed by the National First Peoples Gathering on Climate Change steering committee.

[3] Office of the High Commissioner for Human Rights and Indigenous Peoples. 2017. UN Declaration on the Rights of Indigenous Peoples.

Building around Butchulla values

The project assessed the impact of climate change on the values Butchulla and other stakeholders held for K'gari. The values identified ranged from Traditional Knowledge and stories to individual species and ecosystems and current threats and management practices. A Butchulla project officer, employed through BAC, began by meeting with Butchulla knowledge holders and Elders, to socialise the idea of the project, and to collate an understanding of what was valued by the Butchulla community, and Traditional Knowledge and stories tied to those values. As is often the case with oral traditions, particularly following a history of displacement and removal, the information collected was at times fragmented or contradictory between knowledge holders. A process was needed to ensure there was consensus on information across family groups. The project steering committee determined that a Butchulla Working Group be established to consider the information collated by the project officer, to identify and fill any information gaps and prioritise cultural values for climate change risks to be considered.

The Butchulla Working Group was established through an expression of interest process, and garnered representation from most of the Butchulla family groups, endorsed by the Elders of the family group. The Working Group met regularly to continue collating the tangible and intangible cultural values and confirming stories. The work garnered over 350 cultural values for K'gari. This information is now held by BAC as a record for the Butchulla community.

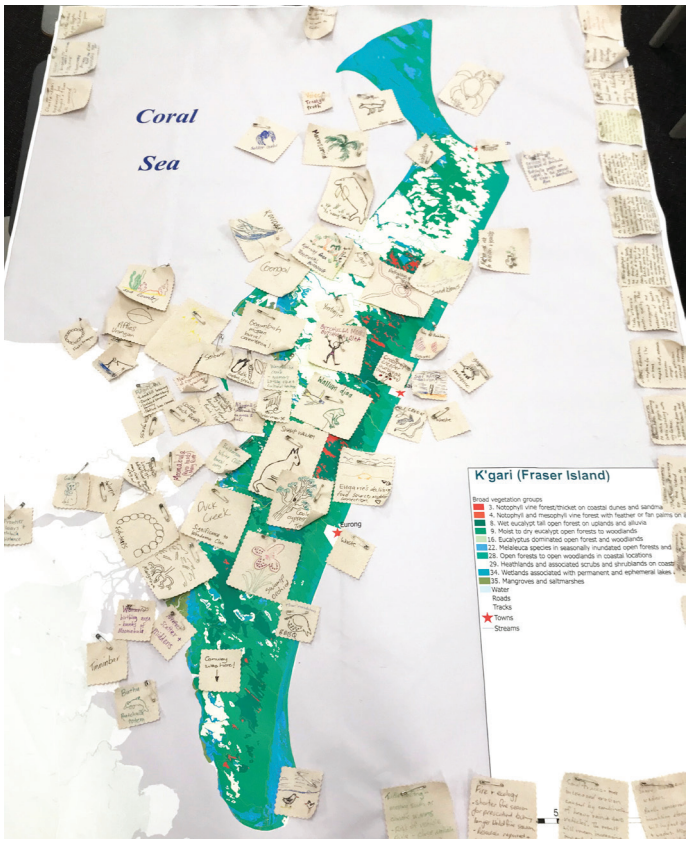
Engagement and participation

An inclusive participation and engagement approach was central to ensuring the vulnerability assessment and resulting adaptation plan were meaningful and empowering to K'gari's Traditional Owners and the broader rightsholders and stakeholders (Figure 2). The governance arrangements were set-up to be inclusive, with the Working Group ensuring the 13 Butchulla family groups had a voice.

The vulnerability assessment and agreeing on adaptation actions was primarily done through two workshops with knowledge holders. The workshops were held over two days, with day 1 exclusively Butchulla people plus project team facilitators, and day 2 a broader stakeholder group. A one-day community meeting, open to all stakeholders, was held in the months prior to the workshops to introduce the project and enable participants to start thinking about what was valued about K'gari by different stakeholders. A pre-meeting of subject experts (e.g. geomorphology, sea-level rise etc.) was also held to consider sensitivities and exposure risks of species, ecosystems and geomorphic features.

Community meeting – September 2022

This initial meeting began the process of engaging Butchulla. The day introduced the project and started the conversation on cultural values. A large canvas map of K'gari was used to begin drawing and writing on values and features by Butchulla. Non-Butchulla stakeholders also recorded what they valued about K'gari and these were then pinned to the map for sharing.





A canvas map of K'gari, with Butchulla values, created during community workshops (Source Left: Sue Sargent; Right: Jade Gould).

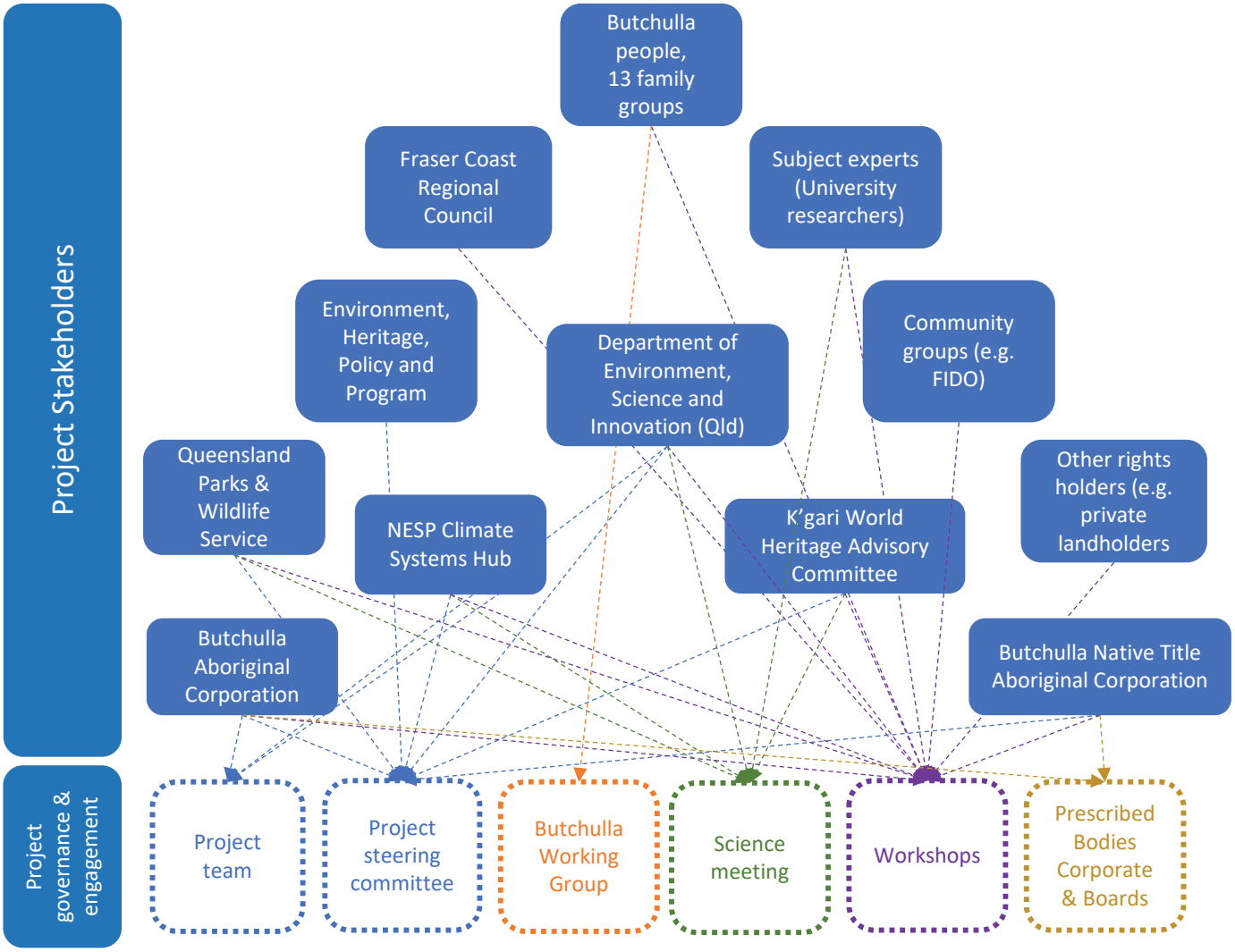


Figure 2: Project stakeholders and partners were engaged in several different ways through the project process.



Sarah Boulter (left) and Butchulla Traditional Owners during a community workshop.

Workshop #1 Vulnerability assessment – May 2023

Workshop 1 brought together key subject experts, Butchulla people, land managers and other community members to talk about climate change impacts including sea-level rise. The workshop worked through a vulnerability assessment following these discussion steps:

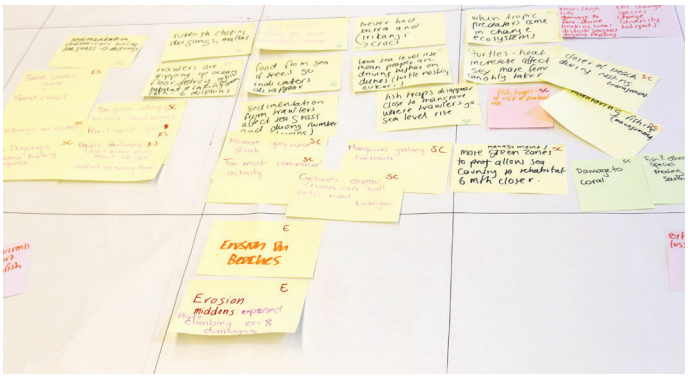
1. Reviewing, confirming, adding to, and yarning about the values gathered by the Butchulla Working Group.
2. Talking about the past impacts, conditions, and management of each value.
3. Reflecting on the current condition, threats, and management of each value.
4. Understanding how the climate might change and what that might look like.
5. Thinking about what might happen to values under climate change.

Day 1 of the 2-day workshop involved Butchulla people only. Values identified by the Butchulla Working Group were discussed and expanded. The workshop decided that the values could be grouped into six broad themes which were a mix of cultural, landscape and threats:

- Butchulla knowledge system
- freshwater
- sea country
- biosecurity
- erosion
- fire

These groupings became a useful way to communicate and discuss the vulnerability assessment of each value. They were adopted in the final climate adaptation plan.

Day 2 of the workshop was an opportunity for Butchulla to share outcomes of the previous day's work, to add additional information and knowledge from other stakeholders and invited research scientists. The participants also worked to assign vulnerability ratings to each of the identified values.



Workshop #2 Adaptation options– August 2023

The second workshop focused on refining the vulnerability assessment to identify places where values might be at greatest risk. This included more detailed input from subject experts from the K'gari World Heritage Advisory Committee and the Climate Systems Hub.

The workshop also considered in greater detail identifying, discussing, and then sequencing the adaptation actions. Actions were classified as short-term, easy-wins, or urgent actions, through to longer term actions that might need to be considered in the future.

As in workshop #1, Day 1 was Butchulla people only, with additional stakeholders joining on Day 2.

Elders meeting – December 2023

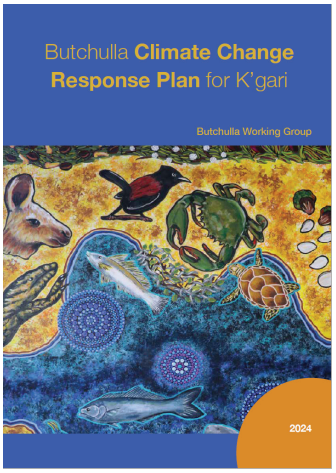
A meeting of Elders was an opportunity to take back the information that had been gathered and agreed through the project's various stages. Elders had an opportunity to see what had been achieved, add to, and approve the findings. Impact posters were well received by Elders and proved a useful communication tool. Temperature record scarves, knitted by the Wide Bay Women's Health Centre - A Women's Yarning Circle on Butchulla Country because of project engagement were presented to the Elders (Figure 3).



Figure 3: The project team met with Butchulla Elders to share the project information and gift climate scarves produced by the Wide Bay Women's Health Centre - A Women's Yarning Circle on Butchulla Country.



Posters talking about climate impacts were used to communicate information to Butchulla and the wider community (Source: Jade Gould).



Butchulla story developed into the booklet 'Butchulla Climate Change Response Plan for K'gari'.

What was created

The project produced several resources, some specifically for Butchulla, some to use through the project and some to document the project outcomes for sharing broadly.

☑ Curated record of cultural knowledge:

A record of identified tangible and intangible cultural values, including why it was important to the Butchulla. This record is for Butchulla use only and is held by BAC.

☑ Infographics and posters:

To help share knowledge, infographics and posters of climate change and its impacts were created for using at workshops and a meeting of Elders.

☑ Butchulla story:

An abridged and illustrated version of the findings and outcomes of the project was developed as a small booklet for the community.

☑ Vulnerability assessment and adaptation plan:

A final record of the process, the vulnerability assessment, and the agreed action plan.

What would K'gari be like in the Hottest, driest future? (2050)

Scientists tell us the weather on K'gari could get hotter & drier for our grandchildren.

Daytime maximum temperatures 1-2 degrees warmer all year long

Overnight temperatures 1-2 degrees warmer all year long

Longer hotter summer, less winter weather

Every month would be about 20% drier

More days with high fire risk and a longer fire season

Seas will keep slowly rising

When today's grandparents were born: 1961-1990
When today's parents were born: 1990s
Their children: 2030
Their grandchildren: 2050

Jan	29.0	29.8	29.8	32.1
Feb	28.9	29.7	29.7	32
Mar	28.2	28.8	28.8	31
Apr	26.5	27.0	27.0	29.2
May	24.0	24.4	24.4	26.6
Jun	21.6	22.0	22.0	24.1
Jul	21.0	21.6	21.6	23.7
Aug	22.1	22.6	22.6	24.7
Sep	24.0	24.7	24.7	27
Oct	25.6	26.3	26.3	28.6
Nov	27.1	27.6	27.6	29.9
Dec	28.3	29.1	29.1	31.4

Hottest months are shaded red

Changes in average temperature (°C)

Coolest months are shaded blue

When today's grandparents were born: 1961-1990
When today's parents were born: 1990s
Their children: 2030
Their grandchildren: 2050

Jan	160.6	125.9	125.9	105.756
Feb	172.0	156.0	156	131.04
Mar	153.0	132.3	132.3	106.1046
Apr	130.3	135.5	135.5	108.671
May	115.3	132.8	132.8	106.5056
Jun	109.8	115.1	115.1	86.7854
Jul	106.0	89.2	89.2	67.2568
Aug	63.3	63.8	63.8	48.1052
Sep	38.1	42.1	42.1	32.3749
Oct	73.4	74.6	74.6	57.3674
Nov	103.2	86.2	86.2	66.2878
Dec	102.2	97.6	97.6	81.984

Wettest months are shaded green

Changes in monthly rainfall totals (mm)

Driest months are shaded red

K'gari's climate will be more like that of Bowen today

A poster showing climate information for the 'Hottest, driest scenario'.

Box 2: Scenarios of the future

To understand and communicate how climate might change in the future on K'gari, we selected two plausible future scenarios of climate change.

They allowed exploration of the range of possible climate futures with one considering the 'Hottest and driest future', and the other the 'Least hot and wettest future'. These were paired with information on sea level rise and inundation and likely changes in fire weather.

Information was presented at the first workshop as posters and infographics marking time with family generations, grandparents, parents, children and children to be born.

What we learnt

Building on the toolkit

The Climate Change Toolkit for World Heritage Properties in Australia includes a handbook and workbook. It offers a step-by-step approach to identifying, prioritising, and planning for climate risks for a World Heritage property. It was designed to support property managers. The K'gari project relied on the toolkit to help plan and structure our approach, incorporating elements of the toolkit's 4-modules: Scope, Impact, Vulnerability, Plan.

Several steps were modified to better suit the different stakeholders and to flip the approach to be led by Indigenous values and priorities. While much of modules 2, 3 and 4 were combined in workshops, the 'scoping' stage took well over a year. Our approach mapped against the toolkit is shown in the table below.

Table 1: Our approach to developing the K'gari climate adaptation plan mapped against the toolkit approach.

Toolkit modules and steps	What we did
Module 1 - Scoping • Establish core facilitation team • Additional stakeholders/experts • Convene meeting • Determine risk tolerance	• Negotiate partnership between BAC, DESI and the Climate Systems Hub • Develop project plan, establish governance, stand-up steering committee • Present to K'gari World Heritage Advisory Committee (KWHAC) and key Directors of BAC and BNTAC and Queensland Parks and Wildlife Services (QPWS) • Engage project officer, commence engagement and yarning to capture values • Community kick-off meeting to introduce project and capture values • Reviewed the Toolkit with Butchulla to identify what was missing and what needed to be simplified • Built a simplistic version of the vulnerability toolkit • Completed a desk top analysis of current data • Identified and progressed the Butchulla Working Group
Module 2 – Impact assessment • Climate variables • Identify attributes • Sensitivities/thresholds • Impact (climate data) • Knowledge gaps	• Climate scenarios and summaries developed with topic experts and project team. Posters and infographics produced • Workshop #1 looked at values and attributes to assess, looked at past and present conditions and management of values and attributes, considered climate change impact to understand sensitivities • Topic expert input and literature review to understand sensitivities • Workshop with KWHAC looked at the World Heritage listed values and attributes
Module 3 – Vulnerability assessment • Change-persistence • Management actions • Vulnerability as risk • Prioritise risks	• Workshop #1 first pass vulnerability assessment • Workshop #2 discussed change and persistence, vulnerability review • Topic expert input and literature review to understand sensitivities and vulnerability • Vulnerability assessment reviewed by KWHAC • Elders meeting
Module 4 – Adaptation Planning • Identify new actions • When to implement • Bundling of actions • Monitoring strategy • Implement and evaluate	• Workshop #2 identified management actions, sequenced and bundled actions • Elders meeting • Final report and plan drafted by project team, reviewed by project steering committee, Boards of BAC and BNTAC • Butchulla Community Celebration Day to launch the final reports and products

Framing through an Indigenous lens

The Climate Change Toolkit for World Heritage Properties in Australia uses a property's Outstanding Universal Value (OUV) to assess vulnerability to climate change. The K'gari World Heritage Area is only listed for natural values and does not include the Butchulla people's cultural values. The Butchulla people did not see the OUV descriptions as reflecting all that is important to them or in the language that is meaningful to them - despite some of the essence or intention of World Heritage listed attributes and values aligning to Butchulla described values. Part of the challenge is the language and framing of OUV attributes. To ensure the assessment was meaningful, we used values identified through engagement with stakeholders.

Once information was collected via engagement with Butchulla, other rightsholders, stakeholders, and the K'gari World Heritage Advisory Committee (KWHAC); we crossmatched the vulnerability assessment to OUV where possible. For example:

Butchulla value: Biosecurity - invasive plants

K'gari OUV: Both heathland and closed forest communities provide refugia for relict and disjunct populations, which are important to ongoing speciation and radiation. Majestic remnants of tall rainforest growing on tall sand dunes, a phenomenon believed to be unique in the world.

The OUV were also considered by the KWHAC in a separate process and this was brought into the vulnerability assessment.

The clear advantage of our approach was the sustained engagement by Butchulla people and the valuable information and decisions fostered through that engagement. Identifying a set of values that is meaningful to those managing properties proved to still address the vulnerability of the OUV.

Investing in time and revisiting information

From initial ideas to the completion of the adaptation plan took several years. This time reflects the complexity and time required to negotiate a project with a range of stakeholders and an intent to build a co-designed process driven by Indigenous values and priorities. There were also delays due to COVID and changes of staff.

In our approach we revisited information several times either with different stakeholders, through literature searching, expert elicitation or different levels of governance. This provided an opportunity to build confidence in information, build a more granular story and increase a sense of ownership among stakeholders. The final plan represented a perspective that was not always at the decision-making table.

We also reviewed the project plan to update timelines as required when more time was needed for Traditional Owner engagement and Elder endorsements. The project was very fluid as priorities shifted for the key stakeholders.

Pictured L-R: Toni Thwaites, Melita Baird and Chantel van Wamelen at Pile Valley, K'gari (Source: Troy Broome).





Butchulla Aboriginal Corporation Project Officer, Melita Baird, reports back in a Butchulla workshop (Source: Sue Sargent).



Independent Butchulla consultant Jade Gould speaking during a Butchulla community workshop.

Outcomes / next steps

The plan once finalised was endorsed through both the BAC and BNTAC Boards. It identifies management actions and interventions under five action areas:

- Protecting and using Traditional Butchulla Knowledge
- Managing biosecurity risks
- Protecting and building resilience of freshwater systems
- Right way fire management
- Protecting vulnerable species

During development of the plan, discussion of the need for urgent action on biosecurity led to a successful application for funding a K'gari biosecurity strategy. There is clear commitment from BAC, BNTAC and the KWHAC to implement the identified actions. Other on-ground management bodies have similarly expressed their enthusiasm for working with Butchulla to implement the plan – including Queensland Parks and Wildlife Service and local community groups.

The Butchulla community agreed that they wanted to mark the end of the project with a celebration. The project represents a major community effort and partnership with Traditional Knowledge and information secured for future generations and an opportunity to express Butchulla ambitions for leading caring for K'gari in the future.

The Climate Systems Hub and the Queensland Government are also building on the experience. They are partnering to build an adaptation plan for the Gondwana Rainforests of Australia (Queensland Section) World Heritage Area. The hub is also partnering with Parks Australia to further develop applying the approach to update the adaptation plan for Kakadu National Park. The Climate Systems Hub will also showcase the approach to inform other groups looking to undertake adaptation planning projects, particularly where there is a strong Traditional Owner connection or ambition. The outcomes of the project are also being shared with the Department of Climate Change, Energy, the Environment and Water as a case study on implementing the Climate change toolkit for World Heritage properties in Australia. The project provides an opportunity to showcase an approach to engaging with communities and supporting Indigenous-directed decision making processes applicable to a range of scenarios.

What we would tell others undertaking an adaptation planning process

While the Australian Government's toolkit is an excellent product, many of the project team reflected that we found it to be useful only in the hands of people that understand the process and can adapt it to differing community needs/ priorities. Pairing this expertise with specific (relevant) communication tools and good cultural governance was essential to the success of this project.

The Chair of the K'gari World Heritage Advisory Committee, Sue Sargent, shared her reflections on the keys to success.

"If we were to write a blueprint for another group trying to undertake the same process it would be as follows:

1. Allow enough time to get the cultural governance right (including ICIP and FPIC) from the start. If the governance is right, then the rest of the project will follow.
2. Resource project leaders including an independent expert facilitator and community-based project officer for the duration of the project. Be prepared to be flexible.
3. Identify locally relevant and culturally significant species, ecosystems or places that may be impacted by climate change to demonstrate risk/vulnerability to climate change. These may or may not be attributes of the property's Outstanding Universal Value.
4. Ask First Nations community members how they would like information to be presented in a way that is relevant to their community. This may include art e.g. posters or knitted scarves.
5. Provide First Nations community members with a culturally safe space to share and reflect on information.
6. Celebrate the process and acknowledge peoples' contribution.
7. Return any knowledge or materials shared or gathered through the project to the First Nations community/ communities for future reference or community use."



Pictured, from back to front: Myles Broome, Toni Thwaites, Chantel van Wamelen and Tessa Waia, on a K'gari field trip for the K'gari Climate Adaptation Project (Source: Tessa Waia).

Butchulla Sand Art depicting key totemic images important to the Butchulla (Source: Toni Thwaites).



For more information:

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The Climate Systems Hub acknowledges the Traditional Custodians of the land on which we live, work across Australia. We pay our respects to Elders past, present, and future and recognise the important role traditional knowledge plays in understanding Australia's climate.

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