Community caring for mangroves in the Wet Tropics

A case study on building citizen science pathways for impact

"Citizen science brings the community together to advocate for the environment. This project offers a rallying point – it brings people together to discuss and analyse problems. The shared experience encourages collaboration between researchers, decision makers, Traditional custodians, and passionate community members."
Lucy Graham, Director of CAFNEC

Background

Mangroves are natural guardians of the Great Barrier Reef. Their matrix of highly connected habitat helps protect shorelines, provides homes and nurseries for marine wildlife, filters water coming from the catchment, offers places for local fishing and boating, and retains irreplaceable cultural values. Tidal wetlands, which include mangroves, are also significant blue carbon stores, helping combat climate change.

To protect these critical areas, it is vital to understand current habitat condition, trends, and potential actions to better care for these habitats. Wet Tropics Waterways, the partnership that produces the waterway health report card for the Wet Tropics region, has been able to report on mangrove habitat area, but identified a monitoring gap in condition for mangroves and other tidal wetlands.

To help address this gap, Cairns and Far North Environment Centre (CAFNEC), MangroveWatch and Earthwatch teamed up with local partners to build a network for tidal wetland monitoring and action through partnerships with Traditional Owners, community groups, education centres, and Wet Tropics Waterways.

In 2019, the collaborative project expanded MangroveWatch citizen science monitoring across seven estuaries within the Wet Tropics and Southern Cape York region.

Community volunteers in the field. Credit: CAFNEC

Monitoring locations were identified with the help of the Wet Tropics Waterways team, Traditional Owners, passionate locals, and scientists. Indicators were developed using citizen science data to report on key ecosystem service benefits, providing the first citizen science assessment of mangrove condition for the region.

Building on that formal data reporting pathway, the team has set their sights on transforming citizen science information into action. In another first for the region, CAFNEC is working with partners and passionate community members to undertake a series of four Local Action Plans to review monitoring data and identify community-led actions for mangrove protection and recovery in the face of climate change and other local threats.

Citizen science engages community members in collecting valuable information to help understand and care for the Reef. The Citizen Science for Change grants enable community-led initiatives to collect and translate information into pathways for impact and action. Projects aim to strengthen community leadership to deliver outcomes for the Reef and their communities.

Community Action Impacts

The Community MangroveWatch Monitoring to Enhance Tidal Wetlands project is already making an impact for the Reef and community.

A citizen science data use first

This is the first citizen science assessment for mangrove and tidal wetland health across the Wet Tropics and Southern Cape York region. Project leads worked with Wet Tropics Waterways to design an indicator that used citizen science data to report on mangrove health. The reporting was launched in the 2022 report card. The indicator and methods have been through a constructive peer review process, and can now be adapted and applied in other report card regions. The data aims to inform effective actions to care for mangroves in the catchment and estuaries.

Early wins for mangrove care

In 2021, volunteers recorded new mangrove species records of *Nypa fruticans* (Nipa palms or mangrove palms) for the Johnstone River and Barron River, showcasing the role citizen science can play in recording observations to understand species migration with climate change.

Wet Tropics MangroveWatch network partners and their data helped to support a broader successful effort to restore the Jack Barnes Mangrove Boardwalk, an important community assets to the region.

CAFNEC members are establishing a better understanding of tidal wetlands and identifying potential conservation projects, strengthening a network for local stewardship to support coastal resilience in the face of climate change.

Growing networks for local knowledge and leadership to drive action

This project has been intentionally and incrementally building a community-championed program that can provide a model for other areas. The network brings together multiple partner organisations and individuals to lead on-ground work in a coordinated way. Community leaders have opportunities to develop leadership and coordination skills.

These pathways are being formalised through Local Action Plans, using community monitoring data and local knowledge to highlight trends and identify priority actions. This collaborative planning process provides a pathway to translate citizen science data into action. It offers a proof point for the varied and meaningful applications of citizen science data and local knowledge to contribute to formal reporting and drive real locally-led positive action.

Improving coordination and networks

Stronger partnerships are developing with Land and Sea Rangers and other groups doing on-ground work to protect tidal wetlands from across the Wet Tropics region. The collaborative nature of this work is offering a platform for community members and groups to work together in ways they haven't before.

9

Project partners delivering on-ground activities

16

Estuaries and salt marshes monitored

42

Education, outreach and training activities

8

Planning initiatives for knowledge exchange and collaborative decision making

1

New mangrove species documented for the region

1

A mangrove habitat report card indicator developmed

4

Local Action Plans developed using citizen science data and local knowledge

55,177

Points of data collected during 37 field days

Mangrove monitoring with CAFNEC volunteers and First Nations Partners. Credit: CAFNEC

Ingredients for success

Many factors have enabled the success of the project. Unique factors include:

Intention to connect a network and grow leadership

The project is built upon a legacy of established trust, capacity, and partnerships. Over several years, key leads worked to enable a network of local organisations and individuals who could lead the charge in their area for monitoring. CAFNEC embedded building capacity for leadership through the project activities.

Multiple advocates for action with a trusted coordinator

The collaborative approach brought together Traditional Owners, scientists, data users, and local leaders who are knowledgeable and passionate about caring for tidal wetlands. The collaboration was nurtured through an established grassroots partner who has worked with the local community to build readiness, trust and capacity for the work.

Building pathways to impact

Over time, the project has grown in phases to develop opportunities for impact and drive investment. As a next step from data use in the report card, the Local Action Plans will identify tangible, fundable projects informed by citizen science with strong community and science support for impact.

Targeting knowledge gaps with trusted citizen science

The project set out to design a way to address an identified data gap together with data users from the start. It uses the long-standing MangroveWatch method, with a peer-reviewed approach, which helped to build trust of technical reviewers in the data and the findings. The methods also use georeferenced video data, which contribute to a library of high-quality data for analysis. The data is available in a spatial and visual format that is well suited to targeted, spatial planning for on-ground actions.

An open dialogue to design monitoring

From the beginning, partners recognised that the project would be exploratory in approach and rely on strong communication. This included matching information needs with program capacity and figuring out solutions together. Some of the topics the team grappled with for designing an effective monitoring program included representativeness of monitoring data, and developing meaningful measures for annual monitoring of ecosystem health.

Dedicated volunteers and partners both out in the field collecting data and also back from the field discussing what to do with the data in preparation for the Local Action Plans. Credit: CAFNEC & Earthwatch Australia

What are we working on?

The program is designed to be adaptive and responsive. The next areas of growth identified for the Wet Tropics local action plans are:

Walking in step with Traditional Owners

The project strongly recognises the inherent rights, custodianship and knowledge that Traditional Owners bring to caring for coastal habitats and is actively seeking to strengthen ways of working together.

Building community leadership

The Local Action Plans are a pathway for growing community agency and leadership in tangible solutions to shape a better future for the local environment and people.

Strengthtening partnerships for action

The Local Action Plans are unearthing a range of opportunities for community work, and areas where it will be critical to partner for outcomes.

Growing partnerships to drive action and investment in protecting and regenerating coastal tidal wetlands is essential.

Monitoring data and substantial on-ground action requires long-term investment, and this will be a focus for next steps.

Sharing the story and learnings

The strong project network with distributed local leadership offers interesting insights that can be shared as a model for community Reef protection.

Replicating the model

This project's collaborative citizen science approach to Reef environmental monitoring, planning and action is well-placed to be replicated in other regions.

People driving change

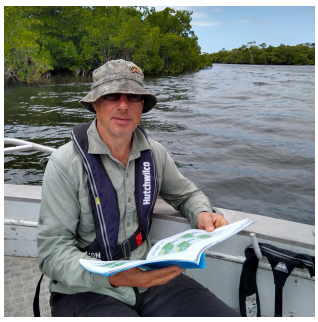
A diverse range of people are driving the work by bringing their local knowledge, identifying priorities, delivering activities and coordinating efforts to harness community contributions.

"Mangroves are among the most efficient ecosystems in the world at sequestering and storing carbon, and we must look after them. Our monitoring identifies the health of the mangrove, and present threats in the ecosystem, which informs us on how best to help them. We can use this information to inform local stewardship and then lobby for investment in targeted rehabilitation and management."

Alex Sinchak, Cairns & Far North Environment Centre

"Having citizen science data being used for a purpose such as regional report cards is a fantastic win. It's motivating for citizen science participants as it provides meaning to see where their information is going, and it demonstrates that citizen science data can be robust and informative to management."

Jock Mackenzie, Earthwatch Australia



"This project is an example of the Partnership doing what it's intended to do – providing a forum to bring together different partners around key issues for waterway health. The commitment and knowledge of community groups and science partners is absolutely critical, it's the crux, the vital part – it enables this project to deliver meaningful and cost-effective data to help track mangrove health."

Richard Hunt, Wet Tropics Healthy Waterways Partnership

"Translating citizen science data into tangible, evidence-based actions is complex. It's inspiring to watch the process unfold and watch the genuine partnerships grow. I'm excited about this project for the local community and other places that can learn from their innovative work."

Jennifer Loder, Great Barrier Reef Foundation

"As a citizen science project, MangroveWatch is a great opportunity for the local community to learn about and engage with the scientific method and apply it within their local vicinity. I have enjoyed helping those who have a desire to care for the environment become empowered to put those feelings into action. The locals know the history of the waterways and their insight provides invaluable context to trends shown by the scientific data."

Shannon Bredeson, Cairns & Far North Environment Centre

A collaborative approach

The Wet Tropics Community Action Plan is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

Technical expertise for the program is provided by Conservation Management and social science support from the University of Queensland.

A team conducting surveys in the mangroves. Credit: CAFNEC

We extend our deepest respect and recognition to all Traditional Owners of the Great Barrier Reef and its Catchments as First Nations Peoples holding the hopes, dreams, traditions and cultures of the Reef.

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