



Australian Government



National  
Environmental  
Science  
Programme

# Indigenous collaboration for Australia's environmental science

NESP projects deliver collaborative, practical and applied research to inform **decision making and on-ground action**

The **NESP connects** scientists, policy makers, Indigenous people and communities

NESP research has real **impact** through the partnerships and collaboration between policy makers and scientists



## Showing and sharing knowledge through a hands-on map

A huge 3D map of the Kimberley's Fitzroy River catchment has facilitated knowledge sharing to inform decision-making about land management. The work has impacted at levels ranging from the ministerial via the North Australian Indigenous Reference Group, to the personal – “[it] brought me back to life, it brought me back to understanding what is important” (Ngarinyin Traditional Owner, 2019).

In the Kimberley's Fitzroy River catchment, Northern Australia Environmental Resources Hub research is supporting Indigenous land managers to use both scientific and Indigenous knowledge to influence decisions to meet their aspirations for country. And it's happening through co-research, where land managers themselves co-design, use and test a culturally tailored method for showing and sharing knowledge around a topic of their choice.

Traditional Owners from eight different language groups have come together to build the 3D model of the catchment, identify how different groups influence decisions, and discuss the river's future. The 3D map is augmented with projected GIS data, such as big flood and fire scars, connecting with everyone including kids, and government water planners in the Fitzroy region, and Australian Government officials in Canberra. After seeing a video of a project workshop, a senior government staff member commented “It's such an engaging way to show country, to show the complexity, to show systems, to show so much. It's so powerful”.

Real innovation has come from co-owning research with our Bunuba, Gooniyandi, Jaru, Kija, Yi-Martuwarra-Ngurrara, Nyikina-Mangala, Tiya-Tiya, Warrwa, Wilinggin, Yungngora and Kimberley Land Council partners.

The process of creating, building and sharing the 3D map, and other ways of strengthening and sharing knowledge, will be presented in an upcoming publication *Our Knowledge, Our Way Guidelines*, currently being developed by NAILSMA and CSIRO in collaboration with the International Union for Conservation of Nature. It will be available on the Hub website by June 2020.



### Image credits

3D map (© CSIRO, reproduced with the permission of the Traditional Owners)

Participants and map (© CSIRO, reproduced with the permission of the Traditional Owners)

## Helping hands for northern sawfish and sharks

Australia's northern rivers are a last remaining stronghold for the threatened Largetooth Sawfish (*Pristis pristis*), but even in this relatively pristine part of the world sawfish populations are severely depleted.

Indigenous ranger groups and Marine Biodiversity Hub scientists are taking practical steps to conserve the species in these rivers, which may be its only hope for survival. They have collaborated in enduring partnerships to locate, tag, DNA sample and rescue Largetooth Sawfish, exchange knowledge, and develop educational materials including videos, signage and handling protocols.

Indigenous community knowledge and experiences relevant to sawfish conservation and related ranger work is very important. The rangers know the best places and times to find sawfish, and how they are valued and used by the community. Ranger groups from Malak Malak, Numbulwar Numburindi Amalahgayag Injung, Yugul Mangi – in the Northern Territory's Daly and Roper rivers country – have contributed to conservation initiatives.

The Malak Malak name for Largetooth Sawfish is Tyemirerriny. In 2012, the Malak Malak Rangers initiated an annual search for Largetooth Sawfish as a locally driven conservation measure, because the sawfish can become trapped and die in isolated, drying waterholes on the Daly River floodplain.

Working together, the rangers and scientists have successfully relocated more than 60 Largetooth Sawfish. They are also collaborating to learn more about the connectivity of threatened Speartooth Shark (*Glyphis glyphis*) populations.



## Indigenous engagement and research leadership

The participation of Indigenous people in NESP's research is a core focus of the program and in the past year the hub has further strengthened relationships with Indigenous researchers and leaders.

To better support the involvement of Aboriginal and Torres Strait Islander people in its research and the important role custodianship of Country and Traditional Ecological Knowledge play in threatened species conservation, the hub has integrated and made explicit roles for Indigenous people in its governance structure.

The hub's Indigenous Liaison Officer, Brad Moggridge, undertakes a pivotal role to identify opportunities for Indigenous involvement at all levels of research and shape how cultural considerations and Indigenous community needs influence research development. Spanning the bridge of cultural knowledge and Western science, Brad's leadership provides a strong pathway for connecting both worlds. In addition, the hub's Indigenous Reference Group provides a breadth of guidance and advice for their biodiversity research activities.

Indigenous leadership roles are supporting increased Indigenous opportunity in the hub's threatened species research.

The hub's Indigenous governance structure and Indigenous-led engagement activities are strengthening the oversight and leadership of research, involving Indigenous conservation leaders in the work of the hub, and providing vital connections for future collaborations and Indigenous-led science.



## Learning from the National Indigenous Dialogue on Climate Change

Indigenous communities are custodians of a wealth of knowledge about Australia's weather and climate. Indigenous knowledge systems provide invaluable experience that can complement and benefit research based on scientific knowledge systems.

The Earth Systems and Climate Change Hub is facilitating the exchange of information between traditional weather and climate knowledge and western climate change science. The Hub's focus is on developing targeted partnerships, expertise and products to meet the needs of Indigenous stakeholders through case studies and engagement. Our aim is to provide instructive examples of success that provide the building blocks for future engagement and delivery.

A key activity in this engagement was the 2018 National Indigenous Dialogue on Climate Change, a three-day workshop supporting Indigenous peoples from across Australia (see map) to come together to provide recommendations regarding what climate change information, capacity building and forms of engagement would be of greatest value to Indigenous communities. The planning of the workshop was guided by a seven-person Steering Committee to ensure Indigenous leadership and input.

Outcomes of the workshop include recommendations from Indigenous Australians to: continue the dialogue between scientific and Traditional (two-way) Knowledge of climate change; support Indigenous led projects based on two way knowledge about the risk of climate change; ensure opportunities for peer-to-peer learning between Traditional Owners as the best means of strengthening the application of their Traditional knowledge; and provide Traditional Owners the opportunity to shape the forms of communication and engagement that represent the best value for their Indigenous communities.



This map shows the locations that Indigenous participants came from to attend the National Indigenous Dialogue on Climate Change

(© Earth Systems and Climate Change Hub)

## Embedding Indigenous perspectives in Perth urban planning

The quality of urban environmental planning benefits from the inclusion of Indigenous perspectives. Noongar, Indigenous people and Traditional Owners of Southwest Western Australia, are partnering with the Clean Air and Urban Landscapes Hub and other stakeholders responsible for planning, managing and caring for the Perth region, to support embedding Indigenous perspectives in city planning and urban nature management.

Noongar people would like to map out their collective knowledge about their traditional lands. While government and non-government agencies that plan, manage and care for the Perth Metropolitan Region recognise the immense value of Indigenous knowledge and perspectives, they have found it difficult to incorporate these into their approaches and actions.

A new research project is taking a collaborative approach to urban planning from the start, to identify and bring together issues that are important to the Indigenous community with issues that are relevant for other stakeholders. This approach will address the many challenges that prevent meaningful engagement with Indigenous peoples and their knowledge in urban research and policies. It will facilitate a productive discussion about a shared responsibility for caring for country.



## Boosting Indigenous skills while controlling Crown-of-Thorns Starfish

Employment and skills for Indigenous people are welcome co-benefits from marine pest control. Outbreaks of coral-eating Crown-of-Thorns Starfish (COTS) are responsible for substantial losses of live coral cover on the Great Barrier Reef. Tropical Water Quality Hub research is addressing this threat, and also contributing to the Queensland Government's *Skilling Queenslanders for Work* program.

The program aims for 50 per cent Indigenous trainees, so in addition to COTS control, the program is changing lives in far north Queensland Indigenous communities. Trainees gain skills to improve their opportunities for employment in the marine and reef tourism industries amongst other careers. Current NESP research is examining the training, employment and social development outcomes of Indigenous trainees through this program.

COTS outbreaks are considered one of the worst threats to the health and integrity of the Great Barrier Reef, and in the past there has been controversy over the effectiveness of control efforts. Collaborative research, coordinated through the Tropical Water Quality Hub, has not only enabled a revolution in how control is conducted, it has for the first time enabled scientifically rigorous demonstration that manual control of COTS outbreaks can successfully defend and even improve, live coral cover.



### Image credits

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#### Cover:

Hand holding Quandongs  
Brain coral  
Forest Red-tailed Black Cockatoo  
Rose Mallee

#### Inside:

Malak Malak Rangers (© Michael Lawrence-Taylor)  
Largetooth Sawfish (© Michael Lawrence-Taylor)  
Daly Floodplain waterbirds (© Michael Lawrence-Taylor)

Indigenous Liaison Officer, Brad Moggridge.  
Greater Bilby (© Bernard Dupont, Flickr CC BY SA 2.0)  
Aerial view of Barmah Lake

Matt Trueman filling out data sheets (© Suzanne Long)  
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Native plants in urban greening (© Cristina E Ramahlo)  
Landscaping at Optus Stadium (© Cristina E Ramahlo)



The National Environmental Science Program (NESP) is a long-term commitment by the Australian Government to environment and climate research. NESP-funded research will ensure the management of Australia's biodiversity and environmental resources is based on the best available information.

*The NESP supports the integration of science into decision-making as a key principle of good environmental policy.*

NESP funding of \$145 million over the six years from 2015 to 2021 supports six themed research hubs, along with projects to address emerging environmental research needs.



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