

WATERLINES

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WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS



nature-based solutions



STEVE CLARK
Managing Director

Welcome to our latest issue of Waterlines

"Water Technology has a wealth of on-the-ground experience designing, implementing and monitoring nature-based solutions."

The restoration of habitat has become a priority for many citizens and governments as the ecological and societal benefits of these habitats have been become more widely recognised.

Water Technology is committed to the consideration of natural and nature-based solutions when facing planning and engineering challenges, using the best available science and knowledge.

Nature-based solutions can have benefits over typical hard engineering solutions, allowing for erosion (and flooding) risk reduction and resilience improvements, whilst also providing a host of environmental, biodiversity and socio-economic benefits.

Water Technology has a wealth of on-the-ground experience designing, implementing and monitoring nature-based solutions. A range of examples from across Australia and New Zealand is included in this edition of our newsletter.

Thank you for taking the time to read Waterlines and please do not hesitate to contact me, or any of the Water Technology team, if we can be of assistance.

Steve Clark

Nature-Based Solutions

Nature-Based Solutions is an umbrella term which encompasses innovative strategies that harness and enhance natural processes to deliver environmental, societal and economic benefits. They offer integrated approaches that can help address critical societal challenges such as climate change, disaster risk reduction, water security, biodiversity loss and human health.

These solutions are based on restoring or imitating ecological processes and aim to re-establish the relationship between anthropogenic and natural systems through multifunctional and adaptive interventions. They also incorporate multiple benefits including greater habitat values, carbon sequestration and increased natural amenity values.

They also help to strengthen resilience. A robust Nature-Based Solution can be self-sustaining, by repairing itself after a disturbance and adapting to change. Consequently, it is often cheaper and more sustainable than hard engineering responses.

Nature-Based Solutions is not a new concept, but represents a synthesis and evolution of previous ideas. Nature-Based Solutions has its roots in past concepts like green infrastructure, natural capital, ecosystem services, ecological design and design ecology.

The potential of Nature-Based Solutions to tackle environmental issues and socio-economic challenges is internationally recognised.



The International Union for Conservation of Nature defined Nature-Based Solutions as “actions taken to protect, manage and restore natural or modified ecosystems that can effectively and adaptively address societal challenges while benefiting human well-being and biodiversity.”

The European Commission defined Nature-Based Solutions as “solutions originating from and relying on nature, addressing various challenges adaptively and efficiently, ensuring simultaneous economic, social and environmental benefits.”

Among the many definitions, these two are often frequently cited, with each emphasising a different aspect. The International Union for Conservation of Nature’s definition stresses the importance of natural conservation and restoration, while the European Commission’s definition considers the three pillars of sustainability. Although there is not a unified definition, the core content is consistent.



There are a wide range of terms that are used for Nature-Based Solutions which vary depending on location, sector and context, some of which are described here:

Nature-Based Solutions (NBS): Actions aimed at protecting, conserving, restoring, and sustainably managing natural or modified ecosystems to address social, economic and environmental challenges.

Nature-Based Infrastructure (NBI): An approach that uses natural systems to provide critical services, such as wetlands for flood mitigation or mangroves to reduce the impact of waves, storm surge, and coastal erosion.

Building with Nature (BwN): A design approach for the realisation of Nature-Based Solutions by embedding natural processes in hydraulic engineering while taking the natural, social and economic systems into account.

Working with Nature (WwN): A project approach that considers the project objectives from the perspective of the natural system rather than from the perspective of technical design.

Engineering with Nature (EwN): The intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes.

These terms highlight the diverse approaches and frameworks used to implement Nature-Based Solutions, each with its own set of principles and applications.

Nature-Based Solutions are increasingly being adopted and implemented worldwide and the knowledge on Nature-Based Solutions and their expected and actual performance over time is expanding.

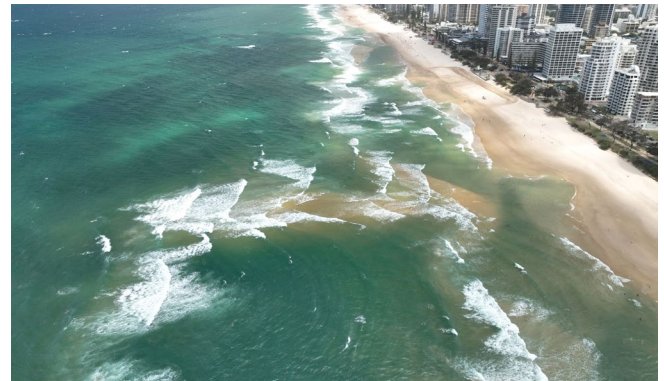
The findings of reviewing projects with successful implementation of Nature-Based Solutions includes involving having a clearly defined problem, with all stakeholders aligned on the specific nature-based approach(es) and the benefit(s) it should deliver.

Key principles of Nature-Based Solutions include:

- Address the cause not the symptom
- Intervention as a last resort
- Build resilience
- Preference for a catchment scale approach

Water Technology has utilised designs that complement and mimic nature, where possible and feasible for coastal protection, riverbank stabilisation, water quality improvements and biodiversity enhancement for many years.

Some specific examples of Nature-Based Solutions in a range of environments and locations are described in the following articles.





“The potential of Nature-Based Solutions to tackle environmental issues and socio-economic challenges is internationally recognised.”

Mangrove Forest Establishment for Water Quality Improvement

Located 44 kilometres southeast of Brisbane's CBD and 59 kilometres north of the Gold Coast, Stockland's "Shoreline" development is a master-planned community in Redland Bay set to grow to around 3,500 homes and an estimated 10,500 residents at completion. Offering direct access to Moreton Bay, it features 2.8 kilometres of foreshore parkland, over 35 per cent green space, and views across the bay and islands. There will also be a town centre, schools and recreation areas over time as the community grows.

A Wastewater Treatment Plant has been constructed to service the current and future residents and businesses of the "Shoreline" development, in addition to other nearby residents who are not currently connected to a sewer system. The Southern Redland Bay Wastewater Treatment Plant utilises Membrane Bioreactor technology and the treated wastewater will be utilised as much as possible for irrigation and construction requirements.

Receiving environmental constraints meant that a direct release of surplus treated wastewater from the Southern Redland Bay Wastewater Treatment Plant to the Logan River would result in even greater exceedances of regulatory water quality guidelines than currently occur.

Development approval for "Shoreline" therefore required an innovative approach to be taken via application of the Queensland Nutrient Offset Policy to build a separate 'nature-based' mangrove and saltmarsh system to enable receiving water quality to be protected.

This idea was based on existing knowledge and strong scientific understanding of the processes involved and the subsequent broad range of benefits provided by mangrove wetlands – including their ability to improve water quality, provide bank protection, be a carbon sink and provide valuable habitat.

A 25-ha piece of land located on an outer bend of the Logan River, about 7.5 km upstream from the mouth of the River, was identified as a suitable option for the mangrove wetland.

Technical assessments were conducted to support and demonstrate the concept including nutrient uptake studies, water quality monitoring, coastal modelling, hydrodynamic modelling, bank assessments, ecological reviews, pathogen testing and flooding assessments. The scientific assessments indicated a net improvement or non-worsening of water quality of the Logan River after the project.



Based on the technical assessments and existing knowledge, approval was granted by regulatory authorities to develop the mangrove wetland. Subsequently, the mangrove wetland was designed with this work overseen by Water Technology and informed by state-of-the-art hydraulic and water quality modelling.

In addition to assimilating nutrients from tidal flows in the Logan River, hence providing the 'offset' to enable the treatment plant release to occur, an important co-benefit is the addition of mangrove vegetation to the net wetland area in the estuarine reaches of the Logan-Albert Drainage Basin, whilst providing a barrier for erosion and storm tide events. Sediment influx into the area may also assist in very gradual soil accretion which would assist in mangrove growth, mitigation of impacts from sea level rise and climate change.

Mangrove plants were rescued from nearby locations including stormwater drains and construction sites and then grown in a nursery.

Significant earthworks were undertaken in preparing the land before more than 35,000 individual mangrove seedlings were planted in the wetland area by ecological specialists over a period of 18 months. Cultural monitoring was undertaken throughout construction by the Traditional Owners, the Danggana Balun (Five Rivers people).

Water Technology has been involved in the development of the innovative mangrove wetland, from the vision to the conceptual design through to the current stage of monitoring post construction. A major milestone was achieved in early 2026 when treated wastewater releases commenced into the wetland system.



The early vision has now become a reality. Degraded land on the banks of the Logan River in South East Queensland has been transformed into a vibrant intertidal mangrove wetland that is already delivering measurable environmental, ecological and climate benefits, which will only increase in magnitude as the mangroves grow and mature over coming years.

The project is supported by science, with the Shoreline project forming part of a four-year Australian Research Council (ARC) Linkage Grant led by Griffith University with input from Stockland, Water Technology, Redland City Council, and the Queensland Government. The research is assessing the wetland's environmental performance compared to traditional 'grey' infrastructure and has been peer-reviewed by specialists from CSIRO, the University of Queensland, and other leading experts. Researchers will keep tracking how this wetland protects the Logan River and supports local biodiversity.

The Shoreline Mangrove Wetland Project was awarded the 2025 Sustainability Award at the UDIA Queensland Awards for Excellence and a Commendation at the 2026 National UDIA Awards, recognising an innovative, nature-based approach to water quality, climate resilience and environmental restoration. A project that truly works with nature.

This recognition reflects the hard work and collaborative efforts of the project team (Stockland, KN Group, Hall Contracting, Evolve, Griffith University, in collaboration with Redland City Council and the Queensland Government) over many years, from project conception to completion.

To learn more about the project, there are a range of videos that can be watched on YouTube by following the links:

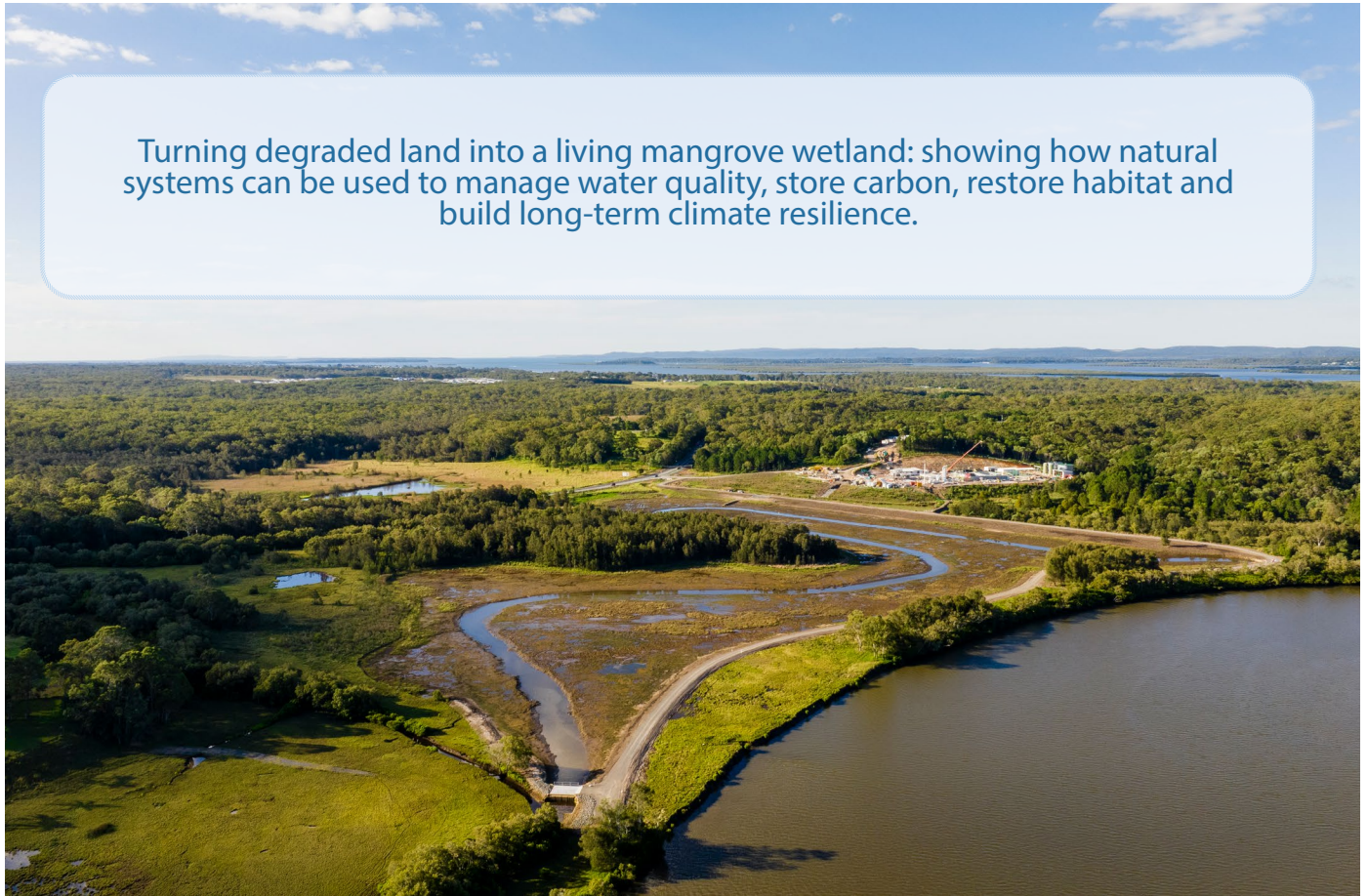
[Update by Hall Contracting](#)

[Project Overview by Water Technology](#)



For further information please contact: Tony McAlister, Director and Queensland State Manager tony.mcalister@watertech.com.au

Turning degraded land into a living mangrove wetland: showing how natural systems can be used to manage water quality, store carbon, restore habitat and build long-term climate resilience.



Restoring the Banks of Waterways in the Shoalhaven Region

The Shoalhaven Region is located approximately 200km south of Sydney, encompassing a diverse landscape that includes coastal plains, beaches, mountains and rivers.

The local communities and visitors highly value the local environment and access to the waterways within the area. The region also has a rich Indigenous history, with many sites of cultural significance.

Council has previously identified riverbank and foreshore erosion across seven sites in the Shoalhaven Region (varying in reach length between 150 – 900 m), which is threatening natural habitats, infrastructure, safety and cultural heritage.

While riverbank and foreshore erosion can occur naturally due to streamflow, tidal processes and wave dynamics typical of estuarine environments, these effects are normally balanced by natural deposition. However, anthropogenic disturbances combined with more frequent storm events have disrupted these complex processes across the sites, leading to increased occurrence of erosion.

Shoalhaven City Council engaged Water Technology to assess the extent of bank erosion, determine the feasibility of bank treatment options and develop concept designs of preferred treatment options at each of the seven sites.

Site visits were conducted with representatives of the Department of Climate Change, Energy, the Environment and Water, Council and Water Technology to determine the specific issues, associated risks, constraints and opportunities at each of the sites.



The use of nature-based solutions was considered throughout the optioneering and concept design processes to ensure that nature positive approaches were incorporated and hard engineering solutions were avoided where possible.


This approach creates opportunities to address environmental challenges through designs that enhance both land and water ecosystems while minimising the negative impacts typically associated with more hard-engineered solutions.



The nature-based solutions considered as part of the options assessment included:

- Vegetation management including:
 - »Revegetation of the riparian zone.
 - »Not mowing to the foreshore edge to ensure that a vegetated buffer can be maintained.
 - »Formalise access points to provide safe and easy access to the water while directing people away from revegetated sections (i.e. preventing informal access points into the water).
- Incorporation of mangroves and / or saltmarshes into the design to provide habitat, in addition to encouraging sediment deposition and toe protection.
- Implementation of environmentally friendly seawalls that mimic natural intertidal shorelines through estuarine and riparian vegetation, artificial reef habitats and surface texture variation.
- Construction of oyster reefs which act as a natural breakwater and they also have the benefit of being able to adapt to climate change and associated sea level rise by naturally growing in height.

Several treatment options were proposed for each of the seven sites, which included high level information on costs, benefits, potential adverse impacts, configuration and expected effectiveness.



Implementation of the recommendations has commenced for one of the sites, with on-ground work to proceed in due course for other sites.

We acknowledge that this project has been funded by the Australian Government's Urban Rivers and Catchments Program.

For further information please contact: Daniel Trnovsky, Senior Engineer daniel.trnovsky@watertech.com.au

Flooding Mitigation in Two Northern New Zealand Catchments

Riverine flooding can result in widespread infrastructure and river bed damage, in addition to disruption and distress to the communities affected.

Flooding is the most common hazard in New Zealand in terms of frequency, losses and declared emergencies.

Water Technology worked with two Regional Councils in New Zealand to undertake an innovative hydrodynamic modelling approach to determine if Nature-Based Solutions could help combat flooding in these areas.

The two areas on the North Island were Waitōtara catchment (Taranaki region) and Te Tai Tokerau (Northland) and the approach and findings are described for each area.

Waitōtara catchment

Water Technology worked collaboratively with both Taranaki Regional Council and the local community to identify potential nature-based solutions which could make a difference to flood risk in the Waitōtara catchment.

The catchment had experienced several large flooding events in 2004, 2011, 2015 and 2018. The 2004 event was the most significant in recent years, with 41 homes inundated within the Waitōtara township, and 14 later condemned. The iwi (extended kinship group) also has several Marae (local gathering place) and other cultural significant sites (including cemeteries/urupā) which they want to protect against future flooding associated with climate change.



Water Technology developed a hydraulic model using TUFLOW HPC, calibrated against two events (June 2015 and June 2018) using available gauges with record stage and flow.

Water Technology worked closely with both Taranaki Regional Council and residents to validate the model with their local knowledge and recollection of events. The engagement included:

- Meeting with Te Kaahui o Rauru early in the project, to discuss their aspirations for community resilience and identify locations of significant community assets;
- Two community meetings (hui), where the initial model results were presented and discussion around model results against historical and anecdotal evidence occurred; and
- The development of an online flood portal to enable residents to share photos of flooding events which was led by the Taranaki Regional Council.

The outcomes were that the community were interested in nature-based solutions for the catchment, as they are concerned by water quality and biodiversity issues.



However, flooding was looked at from a different perspective. Residents wanted hard engineering interventions to address the existing flood risks. The nature, extent and hardship of flooding experienced in Waitōtara (in the township and near the Marae) led the community members to ask for stopbank, bypass and pump options. Additionally, the confined or margin-controlled nature of the streams in the catchment also limited opportunities for nature-based solutions to materially influence flooding.

Desktop assessment and modelling was still completed to help understand the potential benefit of the Taranaki Regional Council soil conservation initiative.

A subsidy program was developed by the Taranaki Regional Council to help reduce erosion in the hill country and activities include afforestation of slopes with a gradient greater than 35 degrees. Slope afforestation increases surface roughness and infiltration losses on the steeper slopes where rainfall runs off quickly. This both delays and reduces rainfall runoff from the steep slopes which consequently reduces the peak flood levels in waterways. There are also benefits such as the reduction of sediment entering the waterways due to the afforestation stabilising steeper slopes.

Afforestation across the whole Waitōtara catchment showed a decrease in flood levels in Waitōtara Township of 40-50 mm to the west of State Highway 3 during a 20-year event culminating in a 53 mm decrease near Waitōtara Community Hall. There was also some redistribution of flooding, with both increases (including near Marae) and reductions observed across the catchment area.

Other nature-based solutions, such as leaky weirs and riparian vegetation were also tested in the models, with similar results.

The modelling suggested that flood benefits associated with nature-based solutions would not justify the significant investments needed in this particular catchment. To meet flood protection levels which the community aspired to, would likely require engineering solutions. However, nature-based solutions should still be explored for the multitude of other benefits they could provide within the catchment area.

Mangamaku Marae

Northland Regional Council works with iwi and hapu (clan) across the area as part of an ongoing region-wide initiative to help improve resilience of vulnerable Marae. Mangamuka Marae is located south of the Mangamuka range. This Marae belongs to the Ngāpuhi confederation (Puhi Kai Ariki, Puhi Moana Ariki, Puhi Taniwharau).

The Mangamuka Marae is prone to flooding during the 100-year flood event and the community raised concerns around erosion “eating up” the bank immediately adjacent to the buildings.

Northland Regional Council identified several potential options to address the issues, including creating an overflow spillway and re-profiling of the waterway benches.

Water Technology worked closely with Northland Regional Council to test the potential options using modelling approaches and produced comparison maps that were used to inform several community hui (meetings).

Northland Regional Council decided to progress with benching and civil works were completed in 2025.



The works resulted in the removal of significant sediment volumes, including below the Iwitaua Road bridge. This improved the conveyance of water across the wider area.

The project demonstrated that at local scale, nature-based solutions can make a significant difference to existing erosion and flooding concerns.

Northland Regional Council shared photos with us which showed the marked differences caused by the work, enabling us to see how our modelling can translate into real-life improvements.

We acknowledge the funding awarded from the Ministry for the Environment in New Zealand for supporting this work.



For further information contact: Bertrand F. Salmi, bertrand.salmi@watertech.com.au

Blue Carbon Assessments & Implementation

Blue Carbon is carbon captured and sequestered by coastal wetlands (mangroves, saltmarshes and seagrasses). This carbon can remain in the sediment for thousands of years, making it one of the longest-term natural solutions to climate change.

Coastal wetlands also absorb and store carbon at a much greater rate than forests and grasslands. This type of carbon sequestration has been termed 'blue carbon' because it takes place in marine ecosystems. Rehabilitated coastal wetlands also provide long-term resilience to sea level rise and storms and improve the birdlife and fisheries of the area.

The Blue Carbon Method creates opportunities for landholders to restore wetlands, sequester carbon and earn Australian Carbon Credit Units (ACCU) for economic benefit.

South Australian Blue Carbon Ecosystem Restoration Project

Works to allow tidal reconnection at a landmark South Australian Blue Carbon Ecosystem Restoration Project site have been completed. The site was the first one to be registered with the Australian Government's Clean Energy Regulator for blue carbon credits in South Australia.

A 250 Ha area of coastal wetlands located to the north of Adelaide was identified as being stranded from tidal inflows which was affecting the health of the ecosystem. These coastal wetlands are an important habitat for a diversity of wildlife and plants, including for migratory birds, nursery and feeding areas for fish, as well as future growth of native saltmarsh and mangrove stands.

Water Technology assisted the project by undertaking numerical tidal hydraulic modelling simulations to assess the flow and inundation of the area (i) in existing conditions and (ii) as a result of various adaptation options. Based on the modelling outputs, a technical feasibility assessment was conducted, which showed that a road, constructed in the early 1950s, was found to be acting as an artificial barrier to tidal flows. The coastal wetland was only being inundated when storm conditions coincided with high astronomical tides to overtop the road.

The aim was therefore to look at ways to reintroduce the natural tidal waters and tidal flushing to expand the area where saltmarsh can grow, restore the mangrove and saltmarsh habitats and protect threatened species.



A concept design was created and further developed into a detailed design using the modelling outputs to optimise for constructability, cost and effectiveness in bringing tidal flows back into the area.

The outcome was the construction of a series of culverts running beneath the road at a range of locations which was completed in early 2025. A series of high tide events have shown good connectivity to the tidal wetlands. Monitoring of the impact of the works is ongoing including the biodiversity and associated carbon gains. This will increase the knowledge of this emerging approach and help with the development of further projects to help decarbonise the atmosphere.

Blue Carbon Assessment in the Adelaide and Mary River Catchments

The Mary River catchment is located to the east of Darwin in the Northern Territory. Within the catchment there are many different land use types including low-lying coastal wetland ecosystems, pastoral leaseholds, the Mary River National Park and numerous creek systems.

Saltwater intrusion from erosion and widening of freshwater channels and Sea Level Rise (SLR) resulted in the significant loss of freshwater wetlands. Shady Camp Barrage was implemented as a management tool in the late 1970s to reduce further losses.

In 1987, the Northern Territory Government began a saltwater intrusion program leading to the construction of numerous earthen barrages in the lower catchment.



Despite the positive benefits of the barrages for the freshwater wetlands, they can also have a detrimental effect on the landscape due to flow restrictions including a lack of nutrient cycling, reduced fish habitat, and barriers to the natural processes of mangrove and marsh colonisation. This often leaves a landscape that is saline and unable to adapt to form sustainable and productive mangrove wetlands. The resulting land is marginal in terms of pastoral use and has a limited resilience to Sea Level Rise. In areas on the Mary River without active barrages (barrages that failed and are not restricting flow) the landscape is in natural transition from freshwater melaleuca to mangrove communities. Proving that the removal of barrages can lead to long-term benefits and resilience as mangrove wetlands rise with sea level rise and can continue to thrive.

Water Technology were engaged by Charles Darwin University to assess the potential for active intervention and restoration in the Lower Mary River catchment by establishing Blue Carbon sites.



For further information contact: Dr Michael Miloshis, Principal Scientist michael.miloshis@watertech.com.au

Water Technology used spatial analysis to identify land tenure and existing barrage locations with 110 barrages identified. Sentinel imagery from 2015 to 2022 was assessed to visually determine changes to the extent of the mangroves. The findings included that where earthen barrages are no longer effective the mangrove areas have expanded. However, in other areas where the barrages are intact, there was limited or no mangrove expansion.

Hydrodynamic modelling was undertaken to assess changes upstream of the barrages and modelling of changes to inundation from potential barrage removal at a number of selected sites.

Preliminary Blue Carbon Assessment Method (or BlueCAM) modelling was also undertaken to estimate the potential Australian Carbon Credit Units (ACCUs) generated at each site selected and the associated potential revenue. The reporting period for blue carbon projects is 25 years from project start date. The assumption is made that each site begins as a tidally restricted fresh or brackish wetland and that returning the tidal flow to the area naturally restores the area to mangroves over time.

There were three sites in the Mary River catchment and one in the Adelaide River catchment that were found to have potential for Blue Carbon rehabilitation by active barrage removal to restore tidal flows to upstream areas.

Factors that need to be considered when selecting potential sites include: is there any public use of the area, how long the barrier has been in place, and would the removal of the barrier cause a negative environmental impact upstream.

Further detailed modelling of key sites, including sea level rise modelling, indicated that positive benefits are highly likely.

Waterway Stability Monitoring of a River with Constructed Oyster Reefs

Oysters, which are one form of shellfish, are bivalves that like to live in aggregations, resulting in structure-forming populations or shellfish reefs. Shellfish have historically played a large role in nutrient removal, but overharvesting and other human activity has led to their numbers reducing drastically across Australia.

There has been a recent focus in Australia on the potential to use constructed shellfish reefs as a nature-based solution to water quality issues.

The construction of shellfish reefs is being trialled in numerous locations to help increase their numbers, but also to help improve our understanding of their benefits for water quality.

One of these trials is being led by Unitywater in partnership with the University of the Sunshine Coast, OzFish and Healthy Land and Water. They are testing the value of oyster reefs in abating nutrients (in particular Total Nitrogen) downstream from Unitywater's Murrumba Downs Wastewater Treatment Plant in Queensland.

Additionally, this project seeks to assist with obtaining regulatory recognition for oyster reefs as an option for nutrient offsets.

The constructed oyster reefs, located in three places in North Pine River, are made up of durable baskets developed by OzFish volunteers, and each filled with recycled and decontaminated oyster shells.

The University of the Sunshine Coast has been monitoring the reef installation(s) since the first site was installed in 2023 (and a further two sites added in October 2025).

The findings have shown that the reefs are helping to filter the water and are improving the quality in the North Pine River. Nutrients are being stored within the shellfish tissue, the reef structure itself and the sediments.

Water Technology has been involved in this exciting project – from providing support with the design and certification of the oyster reef installation to now monitoring and recording any changes in the upstream and downstream locations of the oyster reefs - in the river banks, mudflats, intertidal zones and the floodplain.



Initial baseline assessments of the North Pine River (reach and bank condition) were undertaken by Water Technology prior to each installation of the oyster baskets. Ongoing monitoring methods were also recommended and installed by Water Technology including the use of: (i) erosion pins, (ii) buried plates, (iii) photo point monitoring and (iv) Real-Time Kinematic Global Navigation Satellite System (RTK-GNSS) monitoring. Regular measurements are undertaken and reported on.

We are proud to be involved in this program of work to support the monitoring and knowledge building of an innovative nature based approach to water treatment and river health that also has broader sustainability outcomes in terms of recycling, bank stabilisation and maintaining biodiversity.



For further information contact: Dr Daryl Lam, Principal Scientist daryl.lam@watertech.com.au

Exchange Program 2025 Highlights

The Water Technology Exchange Program offers a fantastic opportunity for our staff to spend two weeks in one of our offices. This enables staff to immerse in a different regional team and helps to build face to face connections with colleagues, experience life in a different place, work on different projects and fosters collaboration across our offices and our teams.

The following seven Water Techers embarked on their exchanges in 2025:

- Callan Schonrock, Project Engineer: Travelled from the Brisbane office to the Notting Hill and Geelong offices
- Isaac Goessling, Project Scientist: Travelled from the Brisbane office to the Notting Hill and Geelong offices
- Jamie Kaye, Senior Principal Scientist: Travelled from the Wangaratta office to the Brisbane office
- Miriam Warren, Scientist: Travelled from the Sydney office to the Notting Hill & Geelong offices
- Michelle Townsend, Finance Systems and Governance Coordinator: Travelled from the Wangaratta office to the Adelaide office
- Piper Hofstee, Operations Support Coordinator: Travelled from the Brisbane office to the Fremantle office
- Tim Davies, Senior Engineer: Travelled from the Brisbane office to the Notting Hill, Geelong and Wangaratta offices



Exchange Program 2025 Highlights

Callan said: "While I had seen a lot of the Flooding Tem (floodies) online, I had limited understanding of everyone's expertise and capabilities."

Isaac said: "A stand-out was seeing and experiencing the Water Technology culture beyond my home office. This was very apparent with the welcoming culture that I encountered with colleagues outside of my discipline. Before I started here, I was told that Water Technology is about great people working on great projects— and I feel like that was evident with everyone I met."

Jamie said: "This exchange program provides a unique opportunity to strengthen relationships and connections with our colleagues in different disciplines. Having the opportunity to sit in another office for up to two weeks gives you time to stop, talk and make those non-work connections that are really valuable. You also get to feel the 'vibe' and dynamics of another office."

Michelle said: "What a fantastic 2 weeks! The Adelaide crew were very inviting, and I really enjoyed my time there."

Miriam said: "It was really valuable to work more closely with some of the people I've recently been working with, and being able to ask questions in person — without needing to Teams call — made a huge difference. I really enjoyed experiencing the different office environments and getting involved in more flooding projects with the Victorian team."

Piper said: "I had never been to Western Australia before so I was very excited to check out the sights. Everyone in the Fremantle office was so welcoming and it was lovely to meet them all."

Tim said: "Colleagues in the offices I visited were all welcoming and inclusive. It was great to see the workplace culture and meet face-to-face with colleagues that I had only met via online meetings. Nothing beats catching up over a conversation in person to get to know someone."



Family Inclusive Workplace

Water Technology is now officially a Certified Family Inclusive Workplace.

This recognition places us at the forefront of our industry and among a leading group of organisations committed to supporting employees to balance their professional, personal and family lives. It reflects our ongoing focus on creating a workplace where people feel supported, valued and able to thrive at every stage of life.

Created in 2021 by Parents At Work in partnership with UNICEF Australia, the Family Inclusive Workplace certification is underpinned by the National Work + Family Standards, which include:

- Leadership commitment to work and family inclusion
- Flexible work arrangements that support diverse needs
- Inclusive policies and practices
- Support for employee wellbeing across life stages
- A workplace culture that normalises balance and inclusion



As part of the process, we have developed a clear Action Plan, which we are excited to begin embedding over the next two years to further strengthen our family friendly and inclusive culture across Water Technology.

At Water Technology, Balance is one of our core values and we are committed to creating an environment where our people feel supported in maintaining a healthy balance between their work, personal and family lives. The future of work is family friendly and we are proud to be part of shaping that future.



Staff Profile - Gildas Colleter



"Gildas has had a lifelong connection to the sea, shaped by early interests in exploration and maritime science."

Gildas is our National Lead of our Coasts and Marine Discipline and is a Senior Principal Engineer based in our Brisbane office.

Gildas studied in Brittany, France, and later specialised in coastal engineering in Toulon on the Mediterranean Coast. In 1999, he moved to Australia for a six month internship with Kinhill Engineers (now KBR) on the Koniambo Nickel Port and Mine Project in New Caledonia, then worked on that project for over 10 years.

He spent 13 years at Aurecon delivering coastal and marine infrastructure projects, with a focus on modelling and design, followed by a project director role with the City of Gold Coast supporting large scale beach nourishment for the Commonwealth Games. Gildas joined Water Technology in 2019.

Gildas has had a lifelong connection to the sea, shaped by early interests in exploration and maritime science, and his passion for engineering was influenced by his father's electrical business.

Gildas recommends that someone starting out in their career should value learning and intellectual curiosity, observe the natural world, and invest time in building strong professional relationships.

One of the most memorable projects that Gildas has worked on is with the City of Gold Coast on sand nourishment projects, harnessing natural coastal processes to restore resilient beaches. In addition, Gildas has fond memories of working in New Caledonia, where he experienced a rich mix of international and Indigenous cultures. Another career highlight was collaborating with Dr Andrew McCowan on the Martha Cove project in the early 2000s — an early professional connection that later came full circle when commencing work at Water Technology.

Family life occupies most of Gildas' time outside work, enjoying nature based travel and cultural pursuits. There are always lots of projects on the go around his timber home and garden, and he is looking forward to spending more time on the water or in the snow.



Staff Profile - Joanna Garcia-Webb

"Joanna has always had a love for nature, maths and problem solving."

Joanna is a Senior Principal Engineer at Water Technology and is based in our Western Australian office.

Joanna has always had a love for nature, maths and problem solving, so coastal engineering was a logical choice for her. She spent the first 18 years of her career working on coastal hazard mitigation, coastal adaptation and numerical modelling studies.

Coastal projects took Joanna all over Australia, visiting beaches and viewing the local wildlife. These site-based projects, where she had to determine the cause of the issue, and then design a mitigation solution, were her favourite type of project.

Joanna has always tried to work with what was there already; be it mangroves, seagrass, dune vegetation, and the existing beach shape, and try to design a solution to mimic this as best she could.

Joanna's love for nature has led to her strong belief that it is our responsibility to make sure future generations have the chance to enjoy our beautiful world, just as we have been able to.

In the last 4 years, she has pivoted her work closer towards her passion of climate change mitigation. Now she is focused on conserving the natural environment one project at a time. She enjoys multi-disciplinary, problem-solving projects, such as a recent Nature Positive project she was involved in.

Joanna's advice to someone starting out in their career: find something that you are passionate about, and work in that field. On every project, learn as much as you can about the project as a whole as well as from everyone you work with. Finding a mentor or two is also very beneficial.

Outside of work, Joanna loves to keep fit (running is her favourite) and she loves to multi-task. For example, yoga on the grass whilst supervising a karate class. She is working on planting native lawn in her garden to save water and assist the local wildlife. She already has a great set of native trees and shrubs, so she is looking to enhance the local ecosystem.



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