

dry tropics partnership
for healthy waters

TOWNSVILLE DRY TROPICS
**Waterways
Report Card**
2023

How healthy are
our rivers, creeks
and coasts?

Local fishing
and swimming
spots revealed!

Reporting on data collected 2021-2022

Our town, our waters

Waterways have always been at the heart of Townsville and the Dry Tropics: winding their way into the stories of the Bindal, Wulgurukaba, Nywaigi, and Manbarra First Nations people, watering the lands of crops and livestock to see our region and population grow, flowing into our weekends and family memories, and forming the undercurrents of our daily lives.

“Cleveland Bay is a playground for so many of us here – it’s a beautiful, accessible waterway. There isn’t a lot of marine traffic, so it’s a safe place to teach people how to sail, to paddleboard, dragon boat, and kitesurf. We see a lot of turtles, rays and fish life in the Bay, even the odd dolphin or dugong.”

— Diane Kelsey



“I bring my grandkids fishing off the Picnic Bay jetty and they love it. They’re also in two surf clubs around here, always in the water.”

— Col Andersen



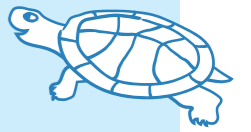
“Alligator Creek is my place to escape after work and decompress. It’s peaceful and the water’s cool. You can always find a spot that feels like it’s all yours.”

— Anna Wells



5 top swimming holes

- Alligator Creek
- Little Crystal Creek
- Paluma Dam
- Rollingstone Creek
- Paradise Waterhole



“The name Yunbenun (Magnetic Island) means we’re canoe people. That’s how we got back and forwards between the island and the mainland. Our cultural values include the lands and waters here that we’re connected to.”

— Troy Johnson



“I work every day with good people from this town to keep it tidy, but more rubbish ends up in our creeks than we can chase. We need to do better.”

— Dave Dudley



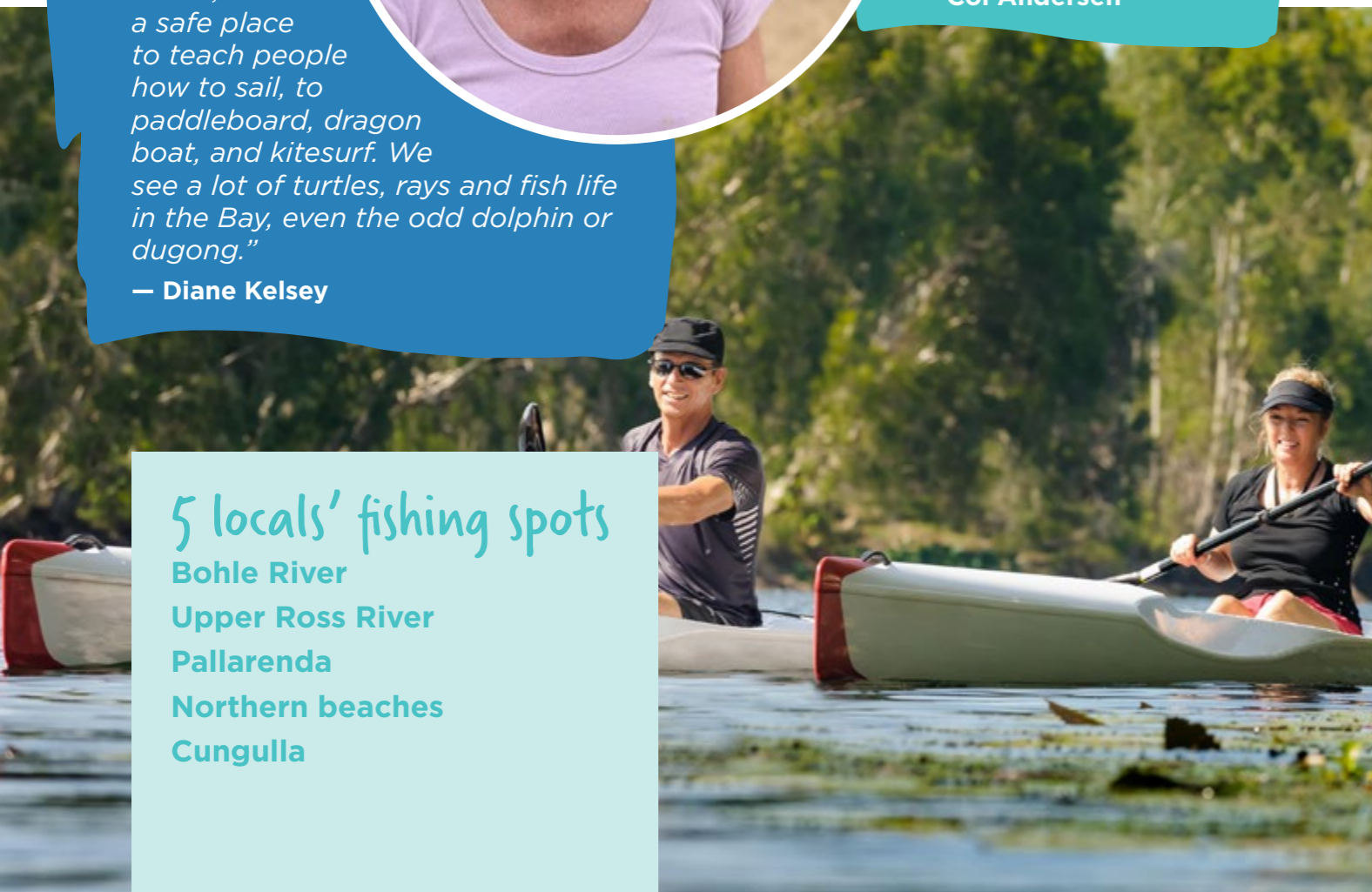
“You can throw a net in here and pull up enough bait fish for the whole day.”

— Victor and Jesse



5 locals' fishing spots

- Bohle River
- Upper Ross River
- Pallarenda
- Northern beaches
- Cungulla



Overall Results



We keep watch on our waters

Healthy waterways are essential to our region, supporting life, tourism, agriculture, and recreation – and they have critical flow-on effects on marine ecosystems and the Great Barrier Reef.

But waterways are not simple systems. Enmeshed with our infrastructure, developments and industries, our catchments, rivers, and creeks are also affected by complex weather systems, changing climate, and growing human activity.

This report collates high quality data from organisations within our partnership to show a snapshot of waterway health in our Dry Tropics region. Together we're building a long-term picture that will show the trends and triumphs of our always connected water stories.

This report is informed by data from the most recent year of monitoring: July 2021 to June 2022.

- A** Very good
- B** Good
- C** Moderate
- D** Poor
- E** Very poor
- Not enough information
- Improved since last year

Climate info for context

Climate change is one source of pressure on our waterways, affecting rainfall, runoff, groundwater, temperatures, and ecosystems.

In the reporting period, both the Ross and Black basins received average rainfall overall, and both experienced warmer-than-average air temperatures.

Sea surface temperatures were notably high, and risks of coral bleaching in our region were above average – ranging from 'possible' to 'highly likely'.

Want to dive deeper?

Get the technical report behind our grades:



Scan me!

Ross Basin Freshwater (upstream)

The Bohle out of balance

Sub-basins of the Ross Freshwater catchment get 'good' (B) or 'very good' (A) grades for water quality, where data is available, except for the Bohle River. For the fourth Report Card in a row, Bohle water quality results show high levels of nutrients. Total phosphorus levels remain 'very poor' and grades for dissolved inorganic nitrogen have declined since the last report, resulting in an overall 'poor' (D) grade for the River's freshwater sub-basin.

The Bohle catches runoff from every kind of activity in our region: factories, farms, urban suburbs, and roads, and its consistently high levels of nutrients indicate it is a system out of balance.

Many partners of the Dry Tropics Partnership for Healthy Waters are already working on projects to bring the Bohle back to better health, including Townsville City Council, Ausfield Services, Port of Townsville, and Landcare.

What gets monitored

Habitat and hydrology



Water quality Fish Litter

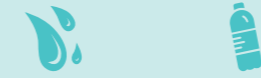


What gets monitored

Habitat



Water quality Litter



Ross Basin Estuarine (downstream)

Estuaries: where fresh and salt meet

Estuaries are transitional zones where freshwater meets and mixes with saltwater from the ocean. These waterway areas result in unique ecosystems that support diverse plant and animal species. In our region, estuaries are characterised by mangroves and saltmarshes — coastal wetlands that flood and drain with every tide.

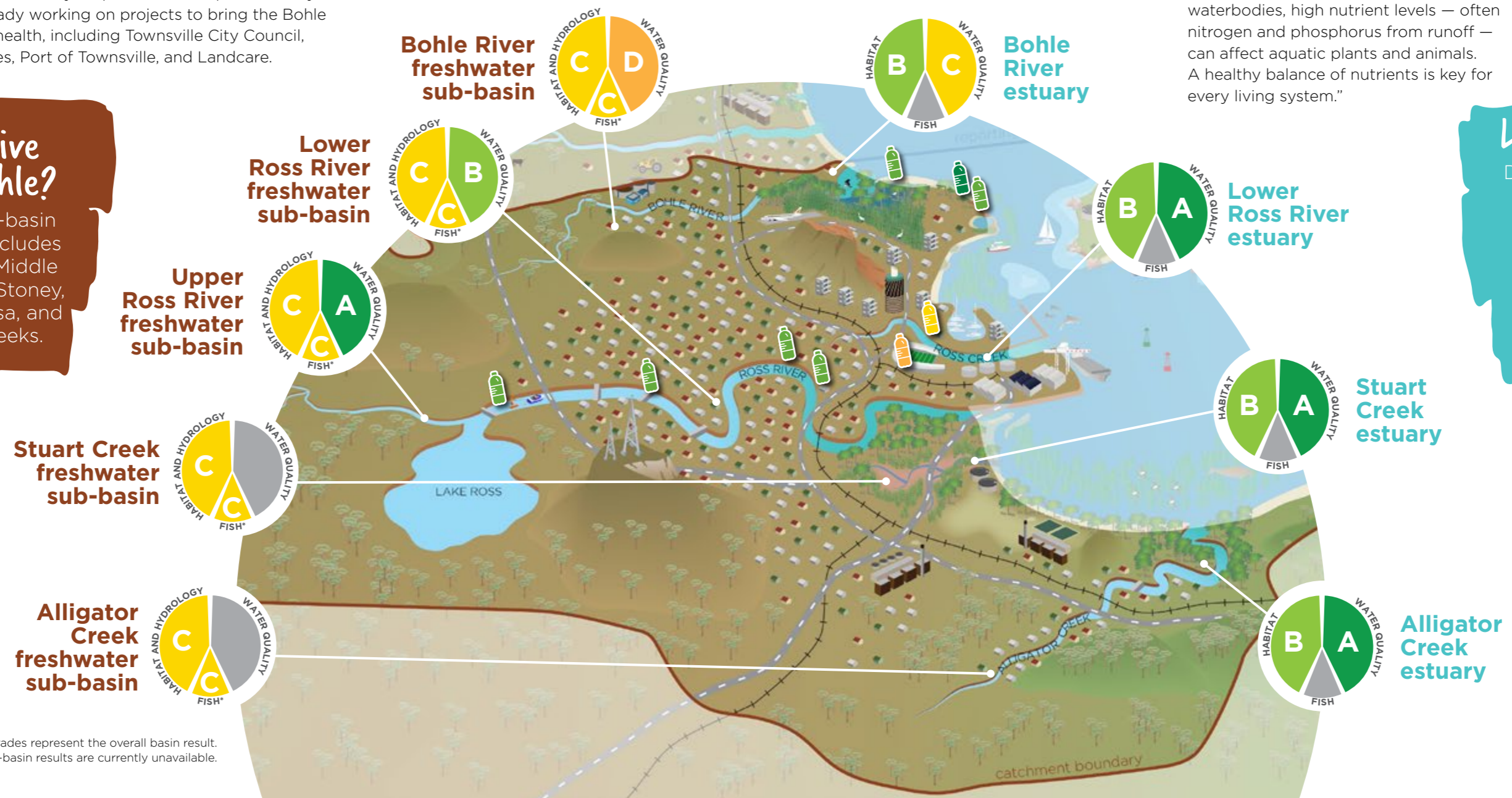
Why our rivers need nutritionists

"Like in a human body, too much of a particular nutrient can be unhealthy," says our Executive Officer, Kara-Mae Coulter-Atkins. "Too much salt, for example, can be damaging for our bodies. For our waterbodies, high nutrient levels — often nitrogen and phosphorus from runoff — can affect aquatic plants and animals. A healthy balance of nutrients is key for every living system."



Do you live in the Bohle?

The Bohle sub-basin is a biggie! It includes Little Bohle & Middle Bohle Rivers + Stoney, Saunders, Louisa, and Three Mile creeks.



Learn more

Discover the Ross Catchment



*Fish grades represent the overall basin result. Sub-basin results are currently unavailable.

Black Basin Freshwater (upstream)

The Black is in good shape

Almost all sub-basins in the Black Basin receive 'good' (B) grades across all categories. Compared to the Ross, the Black catchment has a number of factors working in its favour for water health: development in this area is less prevalent, residential population is lower, the basin receives higher rates of rainfall, and vegetation is more dense. When rain runs down the vegetated hillsides of the ridges in this area, plants catch surface runoff and pollutants before they reach the water, and we tend to see cleaner creeks and rivers.

Where hydrology grades are concerned, there are fewer weirs and artificial barriers creating obstructions for fish and water flows in this catchment.

Learn more

Discover the Black Catchment



What gets monitored

Habitat and hydrology



Riparian vegetation and wetlands



Weirs and dams

Water quality



Fish



What gets monitored

Habitat



Mangroves



Saltmarsh

Water quality



Litter



Black Basin Estuarine (downstream)

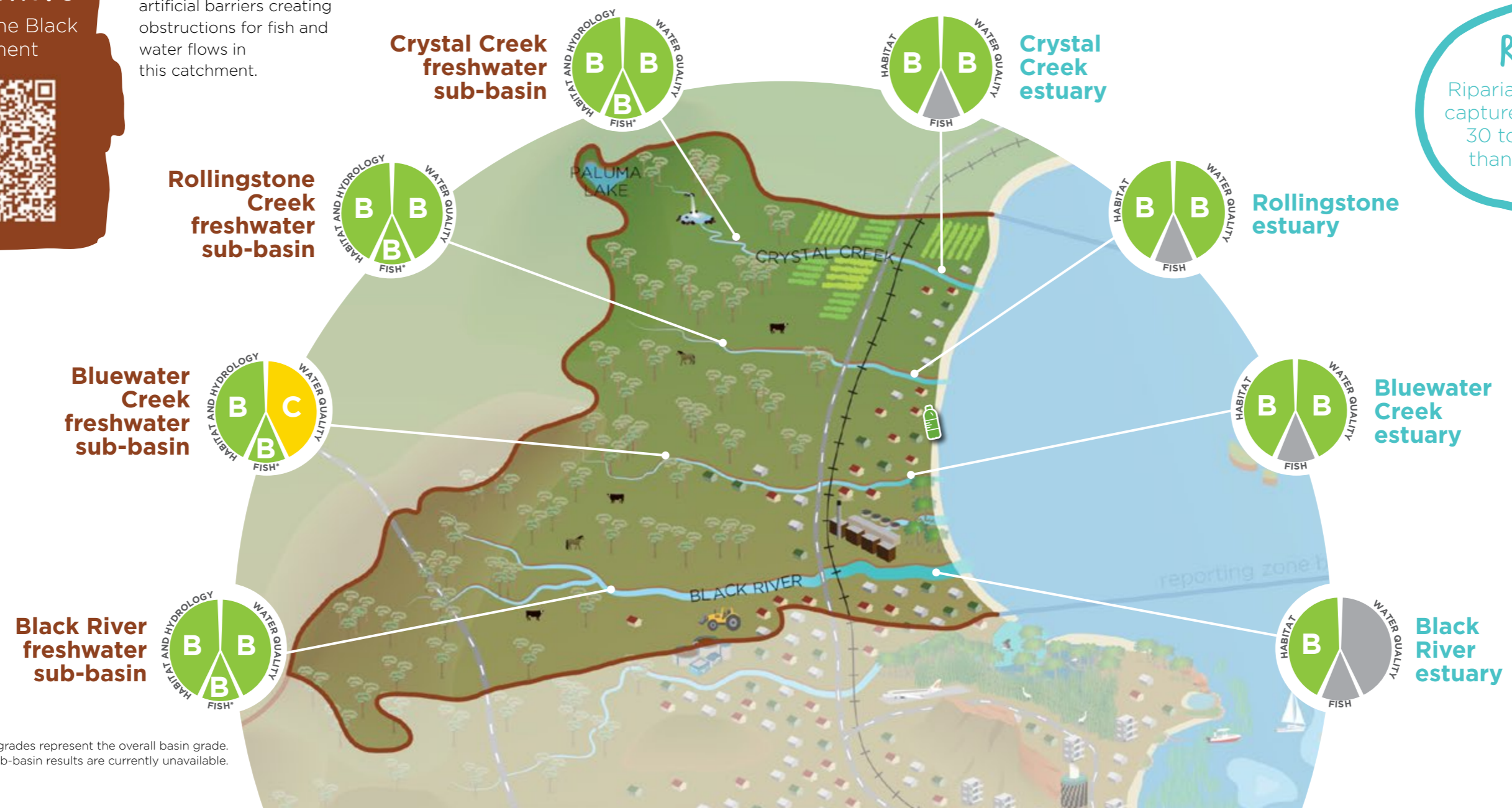
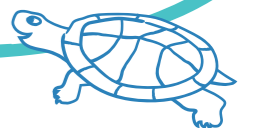
Riparian heroes: the magic of mangroves

'Riparian zones' serve as bridges between the two worlds of water and land. Like kidneys in a human body, they filter out pollutants and sediment, stabilise waterway edges, and are bustling living networks of fish, crabs, birds, insects, and other water creatures. Estuaries of the Black Basin feature mangrove forests, paperbark trees (Melaleuca), and saltmarshes.

To calculate habitat grades for the Report Card, riparian mangrove and saltmarsh vegetation areas are mapped and changes revealed. This year's Report finds that where these kinds of vegetation are measured in our region, less than 1% of waterway habitat has been lost since 2013.

Ripe fact

Riparian ecosystems can capture and store carbon 30 to 50 times faster than forests on land.



*Fish grades represent the overall basin grade. Sub-basin results are currently unavailable.

Halifax Bay

Marine litter pressure unrelenting

Litter grades across the Dry Tropics reporting region are defined by 'pressure' levels: how much pressure the local environment is likely to be under from the amount of litter present. The data used to calculate the litter grades comes from Tangaroa Blue Foundation's Australian Marine Debris Initiative database. The data is collected by volunteers and partners through the ReefClean program, which is funded through the Australian Government's Reef Trust.

Litter was collected at 21 sites in our region. All seven island sites within the Palm Islands are under either 'very high pressure' or 'high pressure', with over 80% of litter being marine debris - washed onto land from the sea.

"We have spectacular, world-class islands on our doorstep in Townsville," says our Executive Officer. "But given their position and exposure to the marine litter that washes onto their shores, they are raising a red flag. The message is clear: we need to keep litter away from our waters."

What gets monitored

Habitat



Coral

Water quality



Litter



What gets monitored

Habitat



Coral



Seagrass

Water quality



Litter



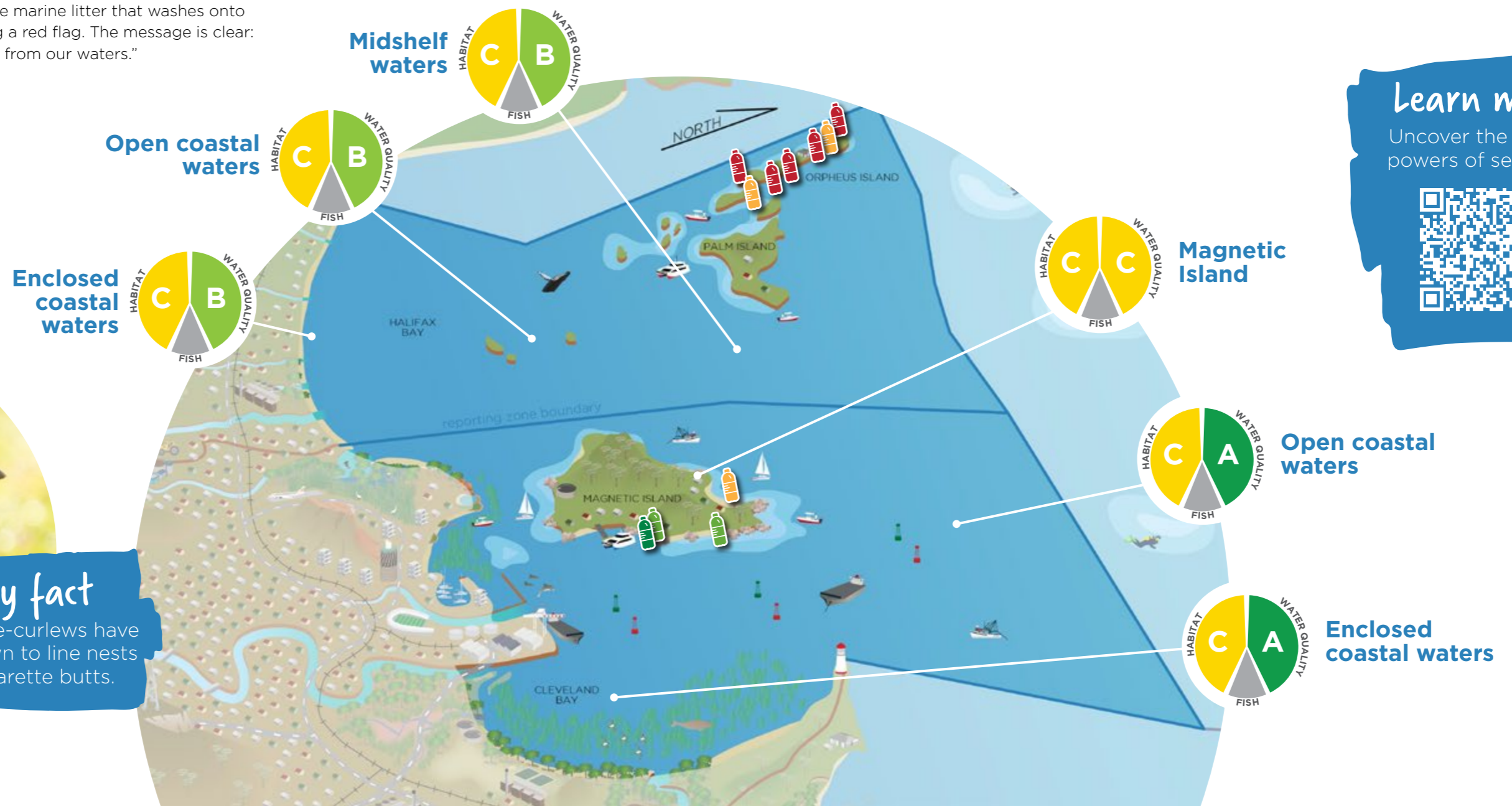
Cleveland Bay

Seagrass — our local success story

There are eleven species of seagrass found in Cleveland Bay and this year's Report Card shows these continue their return to health after a long period of decline after 2011's Tropical Cyclone Yasi.

Efforts to reduce nutrient runoff into Townsville's waterways; a reduction in coastal development; and above-average rainfall over time are all helping seagrass reclaim its hold on our bays.

Seagrass supports large populations of dugongs and sea turtles, helps improve water quality, protects the shoreline, provides essential fish and prawn habitat, and together with coral reefs and mangroves, provides a carbon capture function, helping to reduce the impacts of climate change.



Learn more

Uncover the secret powers of seagrass



Curly fact

Bush Stone-curlews have been known to line nests with cigarette butts.



Offshore Marine

What gets monitored

Habitat



Baby corals bouncing back

Our Offshore Marine zone represents data collected by the Australian Institute of Marine Science (AIMS) Long-term Monitoring Program (LTMP) at the following reefs: Chicken, Davies, Dip, Helix, John Brewer, Kelso, Knife, Myrmidon, and Rib.

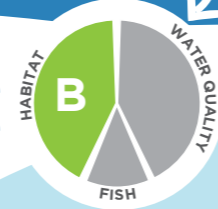
In this reporting year, this zone received its highest overall habitat grade of the past four Report Cards. Juvenile coral density was graded as 'very good' (A) at 8 of 9 reefs surveyed, indicating that young corals are faring well. All coral reefs in the zone received an overall habitat grade of 'moderate' (C) or 'good' (B).

"Coral reefs undergo cycles of disturbance and recovery," says the AIMS team. "These cycles take place over decades, meaning that the task of understanding changes on the Reef is complex."

Why the grey gaps?

The data we collate from across our region must meet certain standards of collection and analysis for inclusion in our Report Card. Grey results indicate there is not enough of the right type of data (eg water quality data) in a region to fairly calculate a grade. We are always striving to find and use the best possible data and we welcome your input.

Offshore Marine



Coral wishlist

What do our corals need to thrive?

- ✓ **Sunlight:** to produce energy
- ✓ **Stable water temperatures:** too warm or too cold can lead to bleaching
- ✓ **Clear water:** sediment and other pollutants can block sunlight essential for seagrass and corals to thrive
- ✓ **The right pH levels:** ocean acidity due to carbon dioxide absorption can make reef building more difficult
- ✓ **Nutrients:** but not too many — algal blooms, sometimes caused by excess nutrients, can smother and kill coral. Excess nutrients may also contribute to outbreaks of the coral eating crown-of-thorns starfish



Urban water stewardship

How does Townsville City Council score?

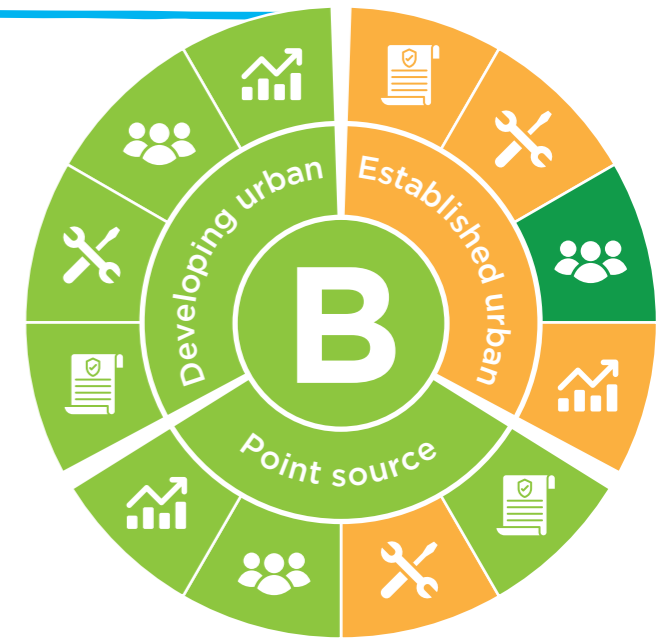
Stormwater runoff, sediment runoff from building sites, household sewage, and sewer pipe leaks are all examples of 'urban water' that can affect our local waterways, and ultimately, the Great Barrier Reef.

In 2023 Townsville City Council receives a 'B — Achieving Best Practice' score for its urban water management practices.

This represents a commendable improvement since the last review in 2021, which saw Council receive a 'C: Achieving Current Minimum Standard'.

Improvements have been seen mostly in the area of 'Developing Urban' water — managing pollutants from construction and development. Council also scores an 'A: Above Best Practice' for its collaboration with industry and community regarding 'Established Urban' water — the management of pollutants from established urban areas.

Scores are based on an independent review against standards set in the Urban Water Stewardship Framework, a tool developed by the Queensland Department of Environment and Science (DES) as part of the Reef 2050 Water Quality Improvement Plan. Learn more on our website.



- | | | | |
|--|---|----------|-----------------------|
| | Policy, planning and governance | A | Above best practice |
| | Infrastructure management and maintenance | B | Current best practice |
| | Social approaches | C | Minimum standard |
| | Monitoring and evaluation | D | Superseded standard |



Collective impact for cleaner catchments



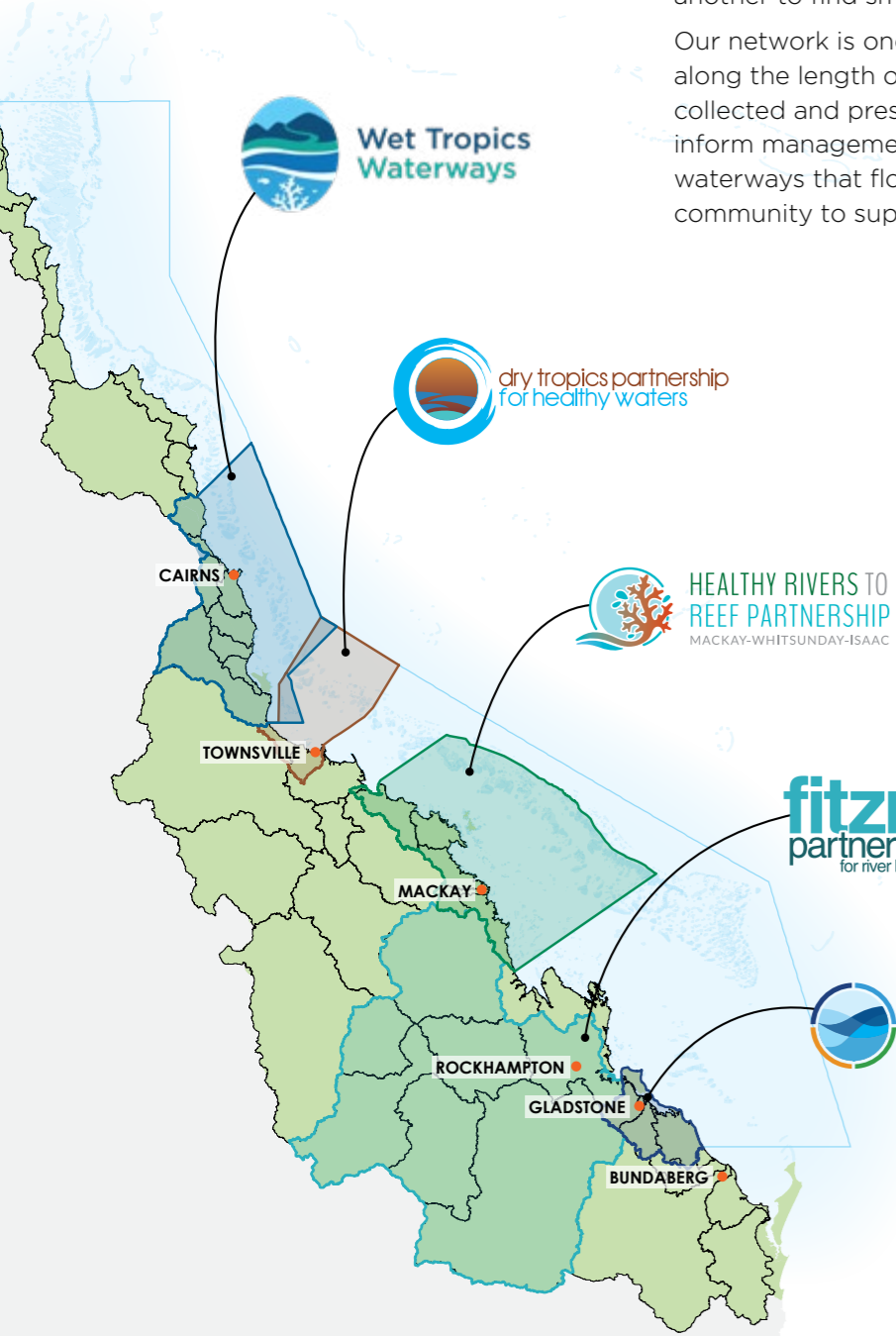
Join or follow us

We recognise the value of collective problem solving and meet regularly to share learning and maximise our impact. Ask us about becoming a member partner, sign up to our newsletter, or follow us on social media to learn more. drytropicshealthywaters.org

The Townsville Dry Tropics Partnership for Healthy Waters is a collaboration made up of partners from business, industry, research, education, community, and all levels of government.

Together, we collate and analyse water and environmental data to produce reports and scientific summaries that provide our community with an independent picture of the health of our waterways and Reef. We collaborate on projects to improve waterway health and support one another to find smart solutions to complex challenges.

Our network is one of five regional report card partnerships along the length of the Great Barrier Reef. The data collected and presented in this annual Report Card aims to inform management decisions around water quality in local waterways that flow to the Reef, and to empower our local community to support waterway health in our region.



→ Get stuck in

There are plenty of ways to contribute to waterway health: with your hands, with your decisions, and with your neighbours. Find a local clean-up or tree planting opportunity with one of our partner organisations.

From creek to coral

They're called 'catchments' for a reason! From source to sea, pollutants accumulate along the waterway journey and interact with one another and the environmental conditions. Waterway pollution is a cumulative issue that calls for collective thinking.

pollutants have flow-on effects

Sediment

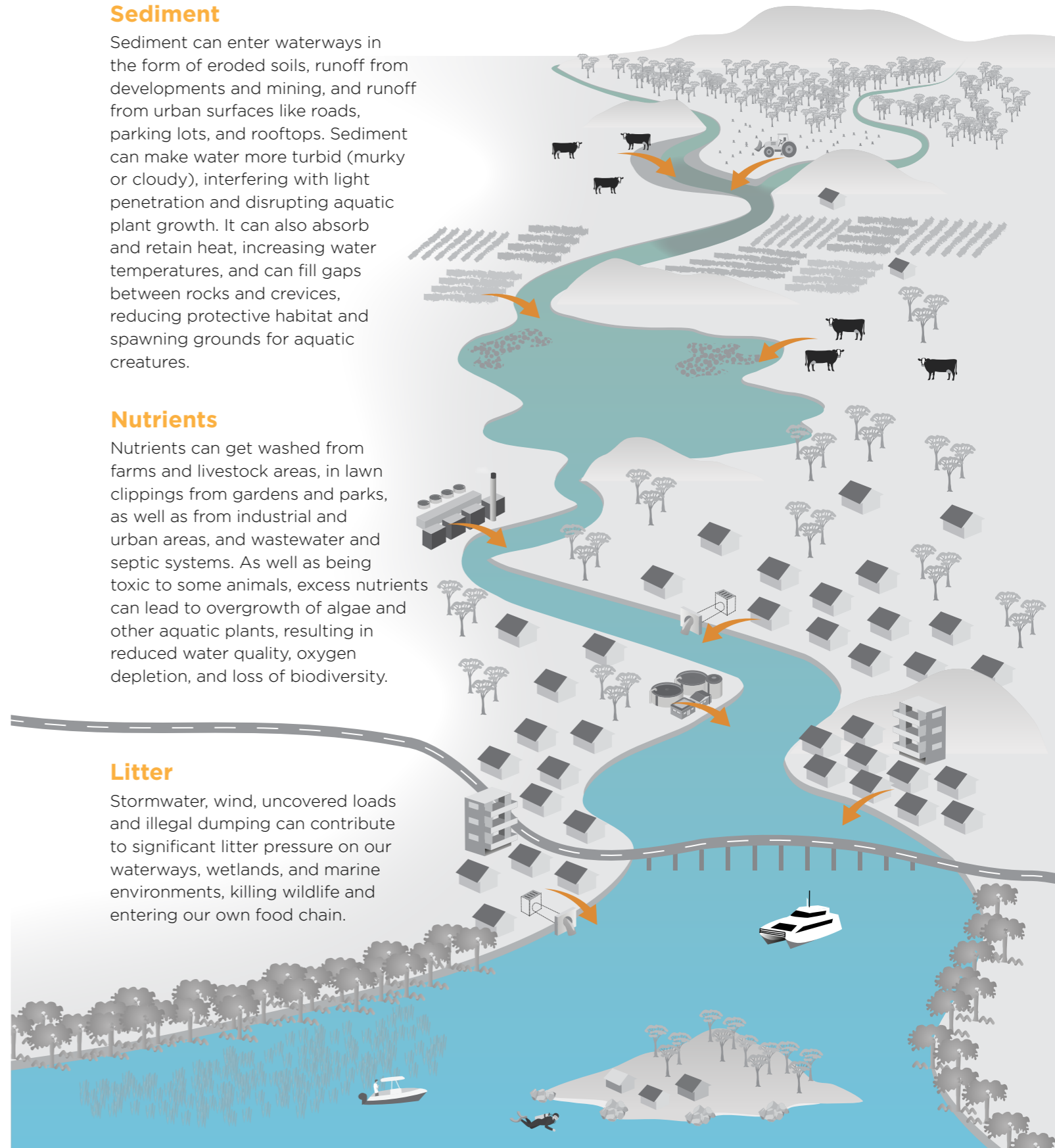
Sediment can enter waterways in the form of eroded soils, runoff from developments and mining, and runoff from urban surfaces like roads, parking lots, and rooftops. Sediment can make water more turbid (murky or cloudy), interfering with light penetration and disrupting aquatic plant growth. It can also absorb and retain heat, increasing water temperatures, and can fill gaps between rocks and crevices, reducing protective habitat and spawning grounds for aquatic creatures.

Nutrients

Nutrients can get washed from farms and livestock areas, in lawn clippings from gardens and parks, as well as from industrial and urban areas, and wastewater and septic systems. As well as being toxic to some animals, excess nutrients can lead to overgrowth of algae and other aquatic plants, resulting in reduced water quality, oxygen depletion, and loss of biodiversity.

Litter

Stormwater, wind, uncovered loads and illegal dumping can contribute to significant litter pressure on our waterways, wetlands, and marine environments, killing wildlife and entering our own food chain.



How to help our waters



Invest in water quality for our collective future

Healthy water is key to fishing, diving, and tourism thriving in our region.



Reduce use of fertilisers and pesticides

From homes, farms, and town, chemicals can wash into our waterways.



Stay smart about septic systems

Let's keep developments new and old up to standard.



Keep an eye on runoff

Every time it rains, pollutants get pushed off roads, factories, and farms. We can prevent and report pollution.



Get involved in creek restoration and tree planting

Trees, mangroves, shrubs, and grasses can be a waterway's best defence against runoff.



Tidy up Townsville!

Litter is a cumulative and collective challenge. Let's show our waters the love.

drytropicshhealthywaters.org

Partnering to improve the values of our catchments and Reef

