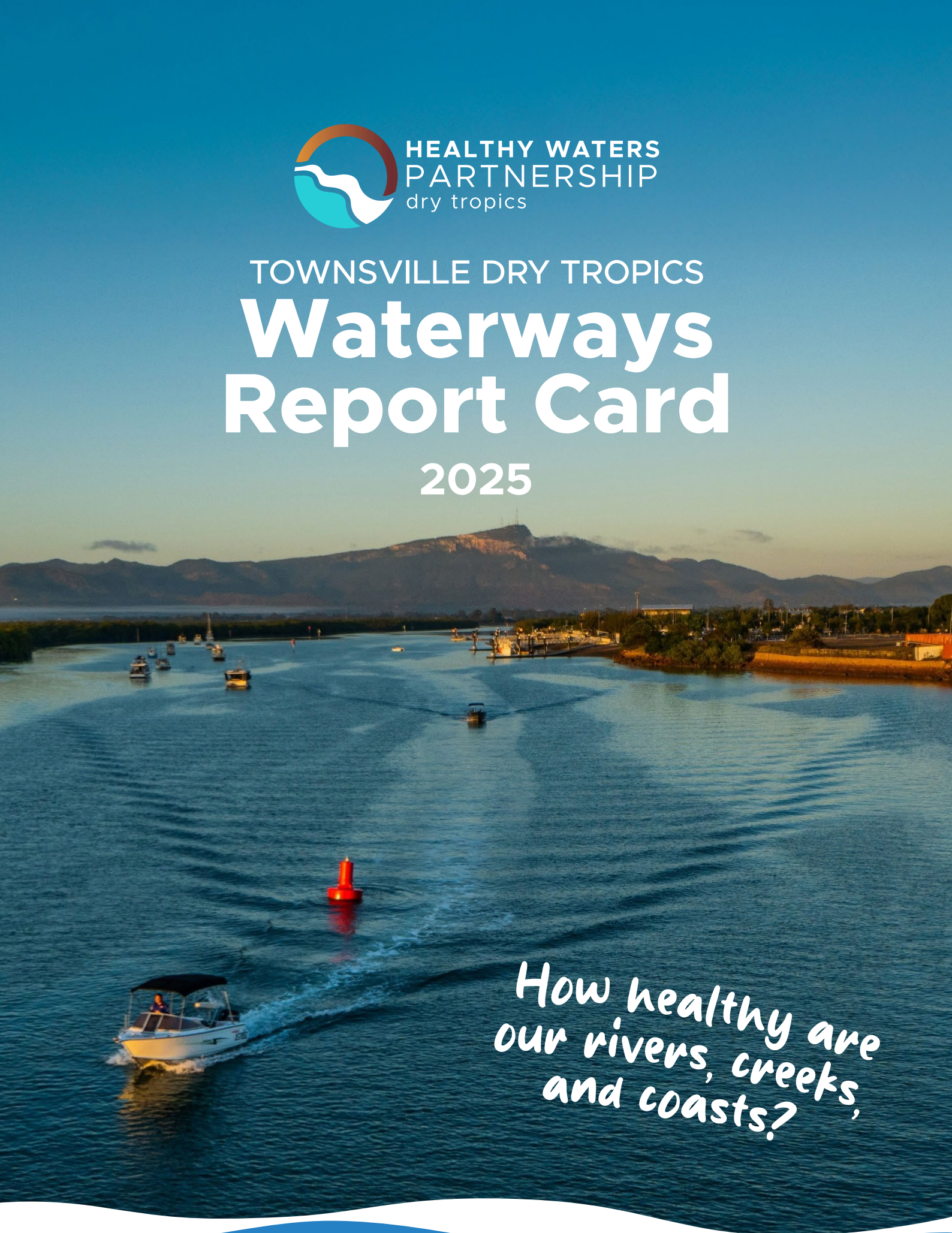
HEALTHY WATERS PARTNERSHIP
dry tropics

TOWNSVILLE DRY TROPICS

Waterways Report Card

2025



How healthy are our rivers, creeks, and coasts?

Reporting on data collected 2023-2024

Our town, our waters

The Healthy Waters Partnership for the Dry Tropics acknowledges the Wulgurukaba, Bindal, Nywaigi, and Manbarra people as the Traditional Custodians of the land and sea country that is valued by all who have contributed to this Report Card. We walk together in our shared responsibility to protect and respect the waterways that support our community and cherished lifestyle.

"Healthy waters mean healthy and abundant fishes, corals and other marine life. As a keen underwater photographer and occasional rec fisher, good water quality is essential for my lifestyle and wellbeing."

— Matt Curnock

"Paddling is life for me. I just love the supportive communities that you find around waterways. There is such a shared respect for the river environment. It's water that connects us, brings us together, and so we care for it in return."

— Bek Rogerson

Where we wet a line

Bohle River
Ross River
Pallarenda
Northern beaches
The Great Barrier Reef

Where we spot wildlife

- The Strand
- Ross River
- The Town Common
- Magnetic Island
- The Great Barrier Reef

"It is a wondrous escape. Whether walking next to it or gliding across its surface, there is never a time we don't notice the jacanas or cormorants, the white lilies or tall pink lotus. Whether human or animal or plant, the Ross River provides life and wonder to so many."

— Jim Fitzgerald

"I love exploring the beach to find new animals and fish. Fishing is fun."

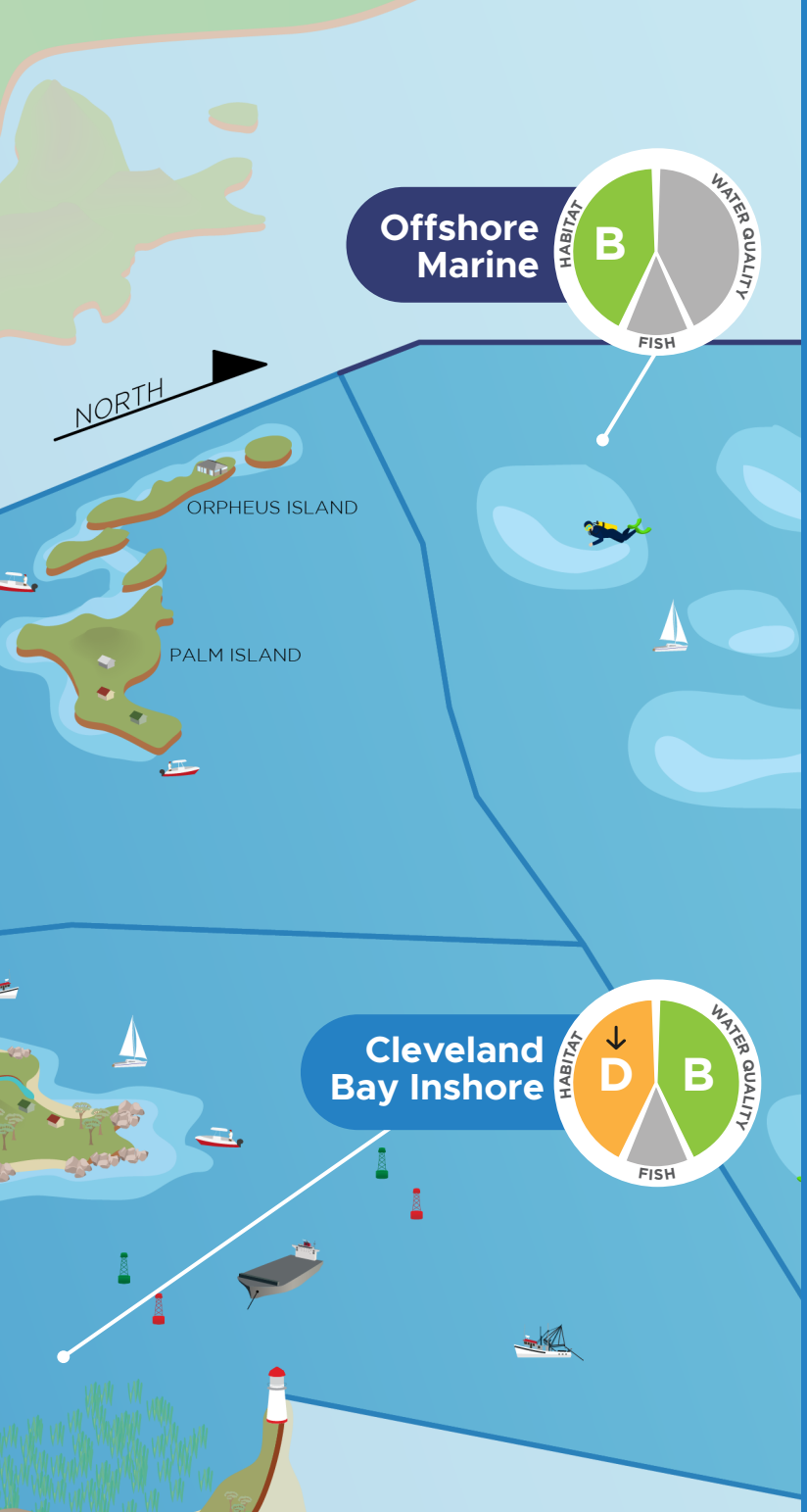
— Delilah

Where we cool off

- Alligator Creek
- Alma Bay
- Bluewater Creek
- Little Crystal Creek
- The Rockslides

Imagery thanks to Jo Hurford, Matt Curnock and our Partners.

Overall Results



Climate conditions to consider

Climate influences were far from average this reporting period, except rainfall. Every month, air temperature was warmer than the long-term average.

Sea surface temperatures were 'above average' to the 'highest 1%' on record for most of the year. Prolonged heat raises the risk of coral bleaching, which ranged from 'low' to 'very high.'

One cyclone also affected our region. Severe Tropical Cyclone Kirrily crossed the coast in the Black Basin as a Category 1 system.

Unlocking the story of our waterways

Each Report Card is like a page in a story. Together, they tell the evolving tale of our waterways. Understanding how they're changing helps to write the next chapter towards healthier, more resilient environments.

This report is informed by data collected by our Partners from July 2023 to June 2024.

- A — Very good
- B — Good
- C — Moderate
- D — Poor
- E — Very poor
- Not enough information

Since last Report Card:

- ↑ Grade has improved
- ↓ Grade has declined

Water quality has many moving parts, and while some grades appear steady year to year, what's happening beneath the surface could be shifting. That's why it's important to look at the detail in the data.

Pick up on litter pressure

As you flick through the Report Card, keep an eye out for bottles. These show the pressure of litter at clean-up locations, which may change from year to year.

Litter pressure

Dive deeper via the Technical Report and see the confidence measure for each of the grades.

Scan me!

Ross Basin Freshwater (upstream)

Sparking a wave of stewardship

EcoMarines Foundation are empowering the youngest generation, school kids, to be the eco-leaders of tomorrow through environmental education and action.

More than 20 schools across Townsville are involved. From sowing pollinator gardens to launching Containers for Change and connecting with local specialists, students are taking pride in looking after their patch.

They aren't alone. Partners use the Report Card to identify areas where stewardship activities have the greatest value, such as Townsville's most populated basin, the Bohle River sub-basin, which for the sixth consecutive year has received a 'poor' water quality grade due to high nutrients.

We celebrate all our Partners in the 'Stories of Stewardship' series, as they work to improve the health of waterways across the Townsville Dry Tropics.

What gets monitored

Water quality

Habitat and hydrology

- Riparian vegetation and wetlands
- Weirs and dams

Fish*

Litter

*Monitored at a basin level, not sub-basin level

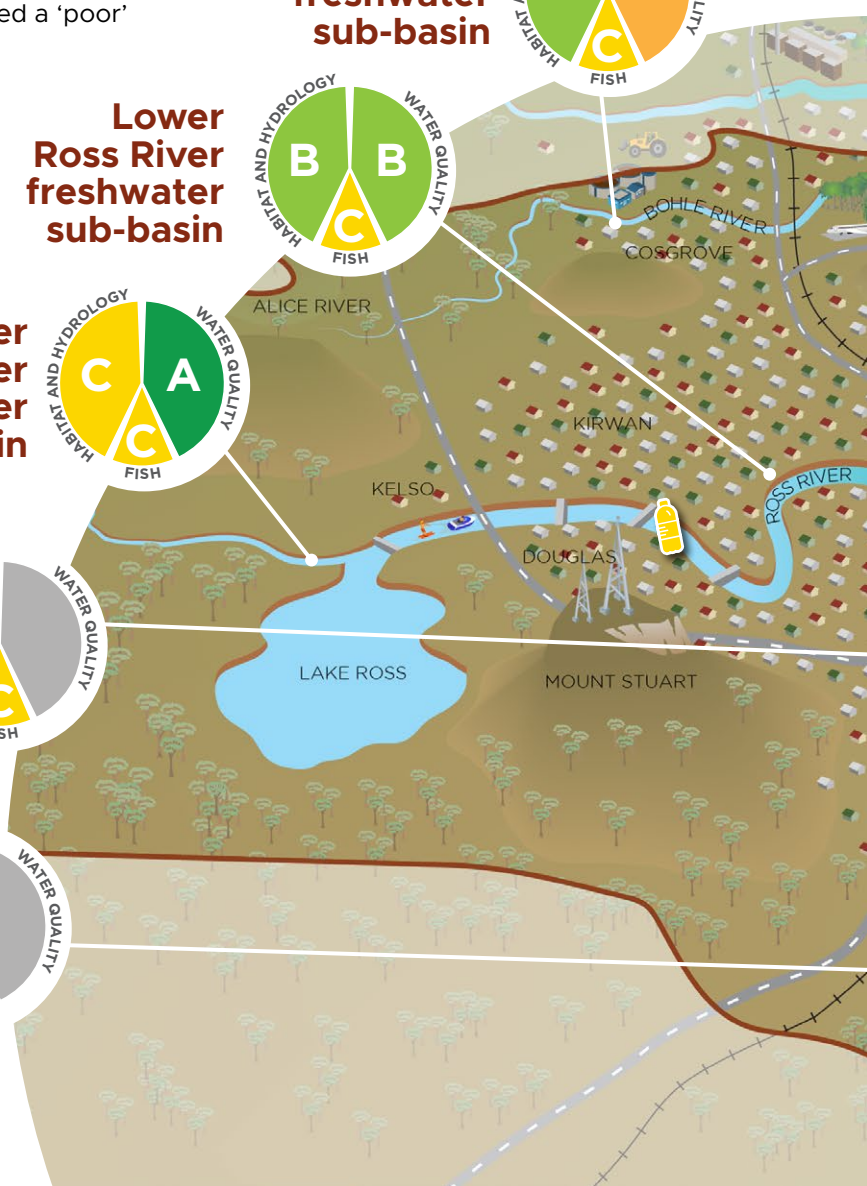
Bohle River freshwater sub-basin

Lower Ross River freshwater sub-basin

Upper Ross River freshwater sub-basin

Stuart Creek freshwater sub-basin

Alligator Creek freshwater sub-basin



What gets monitored

Water quality

Habitat

Mangroves and Saltmarsh

Riparian vegetation

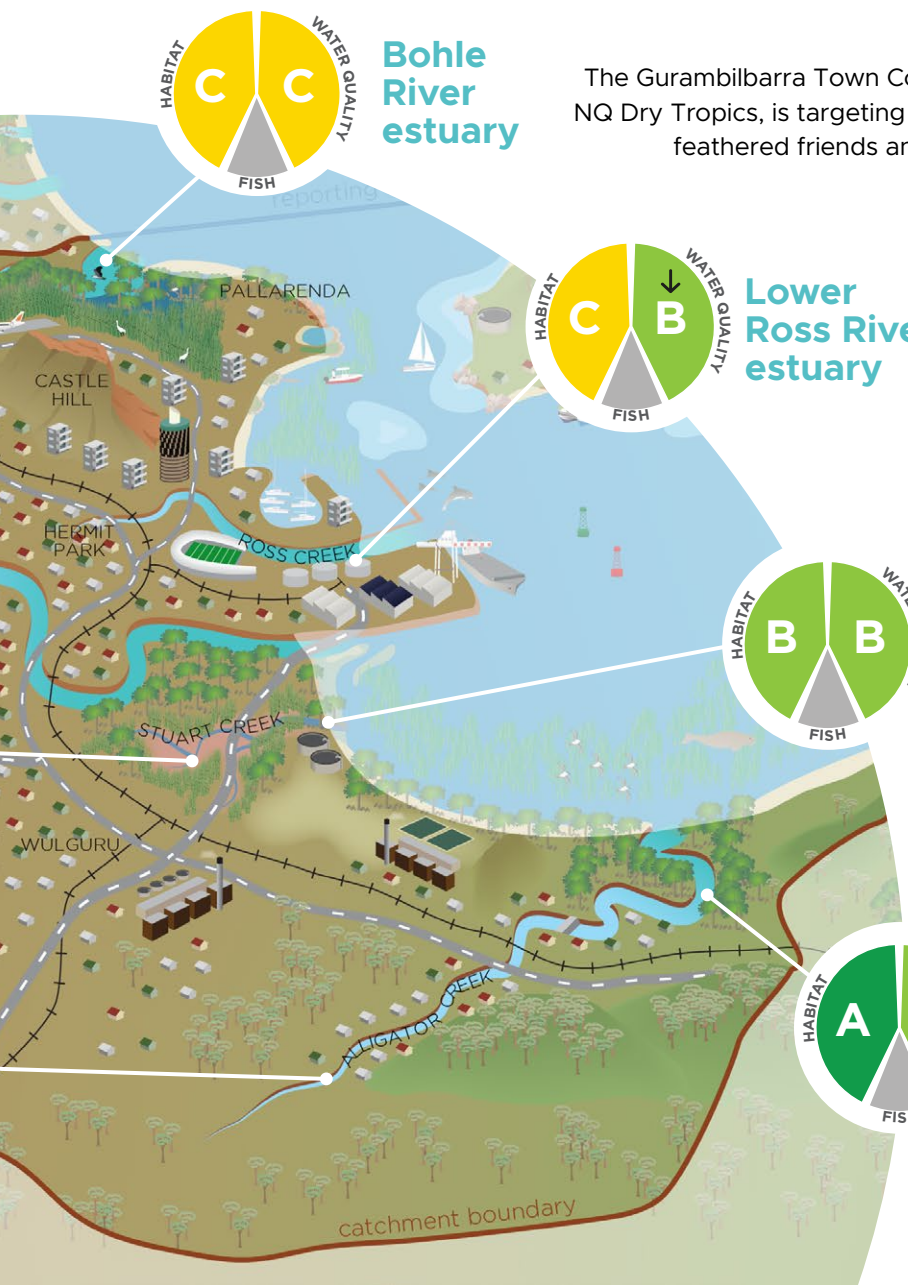
Ross Basin Estuarine (downstream)

Restoring a popular wetland wonderland

The Town Common is a hot spot for birdos, hikers, cyclists, and up to 280 bird species. With many of the rivers and creeks in the Bohle sub-basin flowing in part through the wetlands, it plays a vital role in the quality of water that runs to the Reef.

Unfortunately, this important habitat has been taken over by para grass, an invasive species that lowers oxygen in the water and displaces native plants, such as bulkuru sedge, an important food source for brolgas.

The Gurambilbarra Town Common Wetlands Project, led by our partner NQ Dry Tropics, is targeting the para grass to open water bodies for our feathered friends and improve water quality flowing to the Reef.



What do the grey areas mean?
Grey indicates there's simply not enough suitable data to calculate a grade. We're committed to finding and using the best possible data and value your input.

Black Basin Freshwater (upstream)

Keeping watch on your favourite creek

Every week, volunteers join Creekwatch, a hands-on citizen science gig that monitors the health of rivers and creeks around Townsville.

Healthy creeks are full of life. Counting waterbugs gives an insight into pollutants, as some critters need pollution-free water to thrive. Whilst knowing the number of native vs non-native fish species shows how balanced the ecosystem is. Water quality samples are also taken to measure things like nutrients. Too many or too few can harm aquatic life.

The data, whilst not included in the Report Card, helps to better manage Townsville's waterways and improve habitat for fish. Creekwatch is run by our partner OzFish Unlimited with support from Townsville City Council.

What gets monitored

Water quality

Habitat and hydrology

Riparian vegetation and wetlands

Weirs and dams

Fish*

*Monitored at a basin level, not sub-basin level

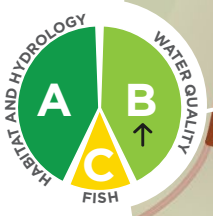
Become a citizen scientist! Find out how you can help collect data or join events with our Partners.

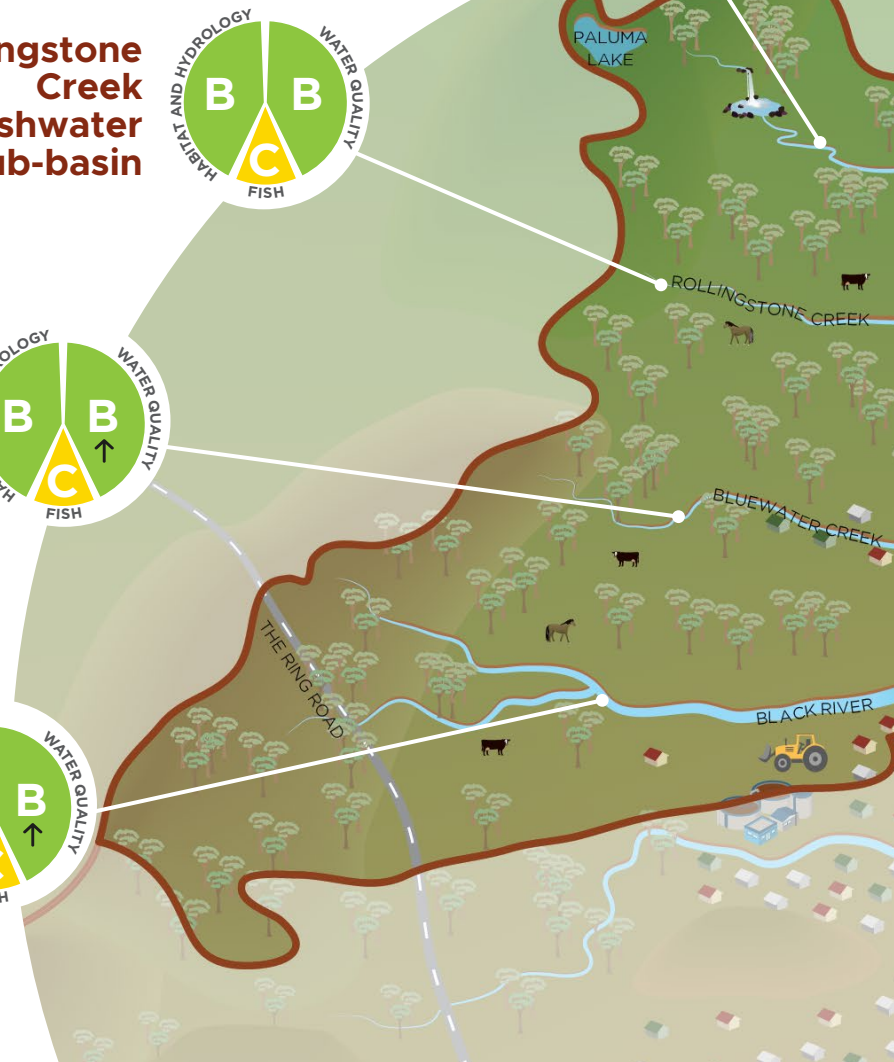
Crystal Creek freshwater sub-basin

Rollingstone Creek freshwater sub-basin

Bluewater Creek freshwater sub-basin

Black River freshwater sub-basin





What gets monitored

Water quality

Habitat

Mangroves and Saltmarsh

Riparian vegetation

Black Basin Estuarine (downstream)

Make your sightings count

In the age of smart phones, citizen science is in the palm of your hands, literally. When you snap a photo of an animal or plant, upload it to iNaturalist, a global database of observations.

Every observation logged and verified by the iNaturalist community is powered up to 'research grade' status, making it an official part of biodiversity research. It can also be shared with other online databases, including the Atlas of Living Australia.

Our partner, Reef Ecologic, has been a strong contributor to iNaturalist, logging thousands of fish observations to scale up our understanding of when, where and what aquatic life is on Townsville's doorstep.

Crystal Creek estuary

Rollingstone estuary

Bluewater Creek estuary

Black River estuary

A fin-tastic sight!

From July 2023 to June 2024, the blacktip reef shark was the top sighted fish in the Black Basin estuarine environment. The shark pups use mangroves to hide. As they grow, they cruise out to coral reefs.

Halifax Bay

Real estate on the Reef

Prime underwater reef real estate is being snapped up, but not by corals. Instead, fast-growing macroalgae (seaweed) is dominating the neighbourhood, making competition tough for corals.

The tall seaweed limits sunlight reaching corals and it takes up valuable space needed by baby corals to settle and grow. Other changes to the reef community may be seen, as many fish are wary of predators hiding among the dense growth and will avoid the area.

Behind the coral habitat health grade, are scores for macroalgae and juvenile density. Four of seven coral reefs surveyed in Cleveland and Halifax Bays, received a 'very poor' grade for macroalgae again, while all bar one reef, measured 'very poor' or 'poor' for the number of juvenile corals.

What gets monitored

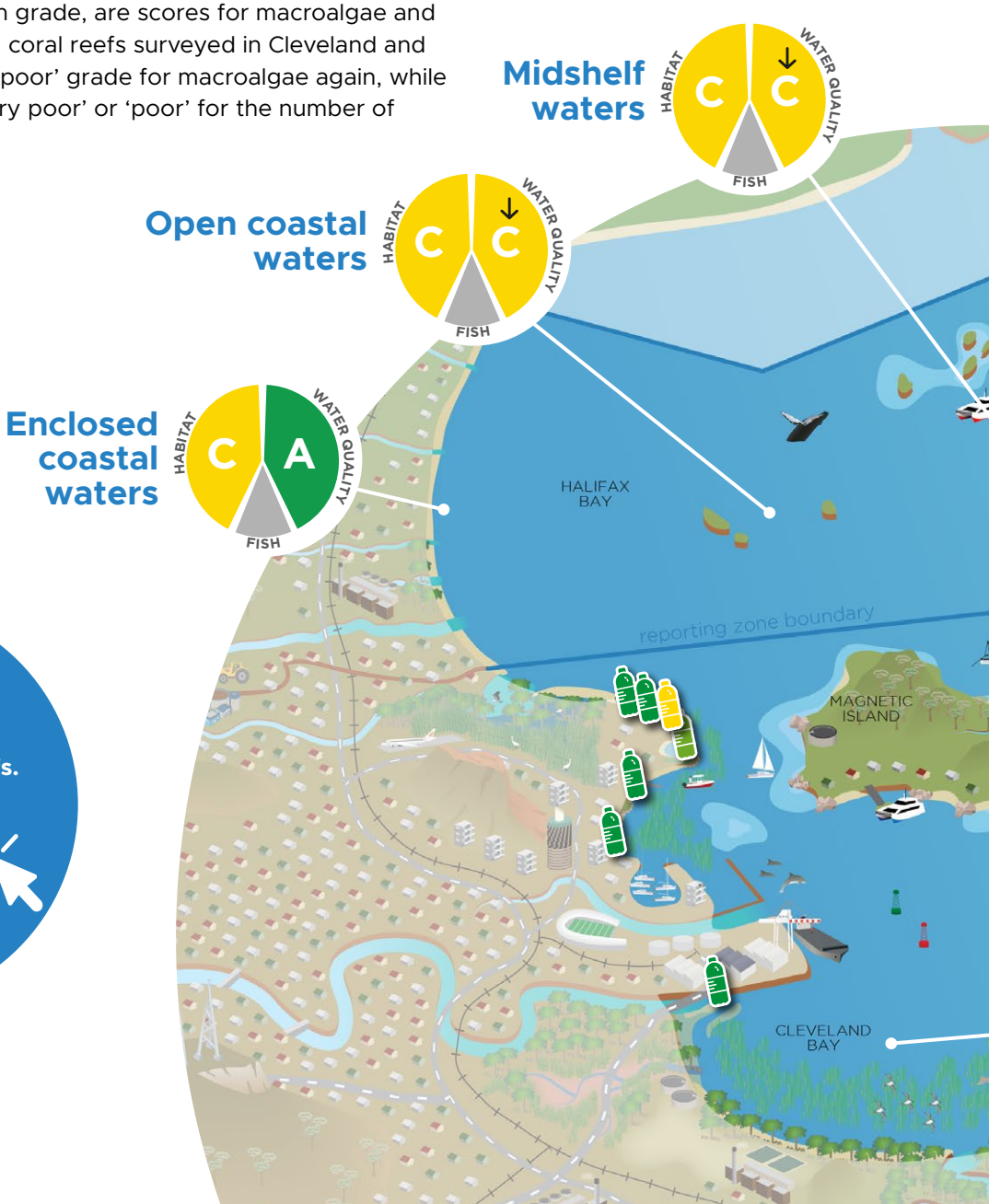
Water quality

Habitat*

Coral

*Results are graded at a Bay level, not for each sub-zone

Litter



Dive in and explore a digital scrollytelling experience that celebrates our local reefs.

What gets monitored

Water quality

Habitat*

Coral Seagrass

*Results are graded at a Bay level, not for each sub-zone

Litter

Cleveland Bay

What chlorophyll *a* tells us

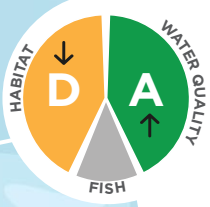
In coastal waters, most of the declines in water quality scores were due to chlorophyll *a*.

Chlorophyll *a* reflects the level of phytoplankton in the water. Phytoplankton are microscopic algae that thrive in nutrient-rich water, rapidly consuming nutrients as they become available.

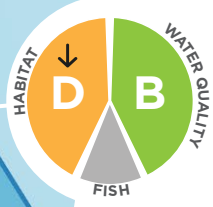
When environmental conditions are right and nutrient levels are high, phytoplankton (algal) blooms can occur, turning the water green and reducing water clarity. While phytoplankton are a natural and essential part of marine food webs, high concentrations generally coincide with an increase in macroalgae, which competes with coral on a reef.

Measuring chlorophyll *a* provides a clearer picture of nutrient enrichment than direct nutrient measurements alone.

Water quality objectives vary across the Townsville Dry Tropics, with invisible boundaries setting different targets for each area. Places like Magnetic Island have stricter targets, while zones near urban areas are less so. That's why water quality grades can differ, even when measurements are the same.



Open coastal waters



Enclosed coastal waters

Photo: Matt Kretschmann

Magnetic Island

Shell-ebrating teamwork

On Maggie, 15+ years of data shows that more frequent climate extremes are changing the shoreline and affecting sea turtle nesting success.

Envite Environment is leading the 'Turtle friendly climate resilient coastlines' project, to boost shoreline resilience through coastal revegetation in collaboration with Townsville City Council. The Port of Townsville is aiding this by funding the planting and care of up to 5,000 native plants to help reduce coastal erosion and lower sand temperatures, both key factors for turtle nesting success.

We're proud to shell-ebrate the teamwork and stewardship efforts of our Partners. The project is funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation.

What gets monitored

Freshwater habitat

Riparian vegetation and wetlands

Estuarine habitat

Mangroves and Saltmarsh

Riparian vegetation

Marine water quality

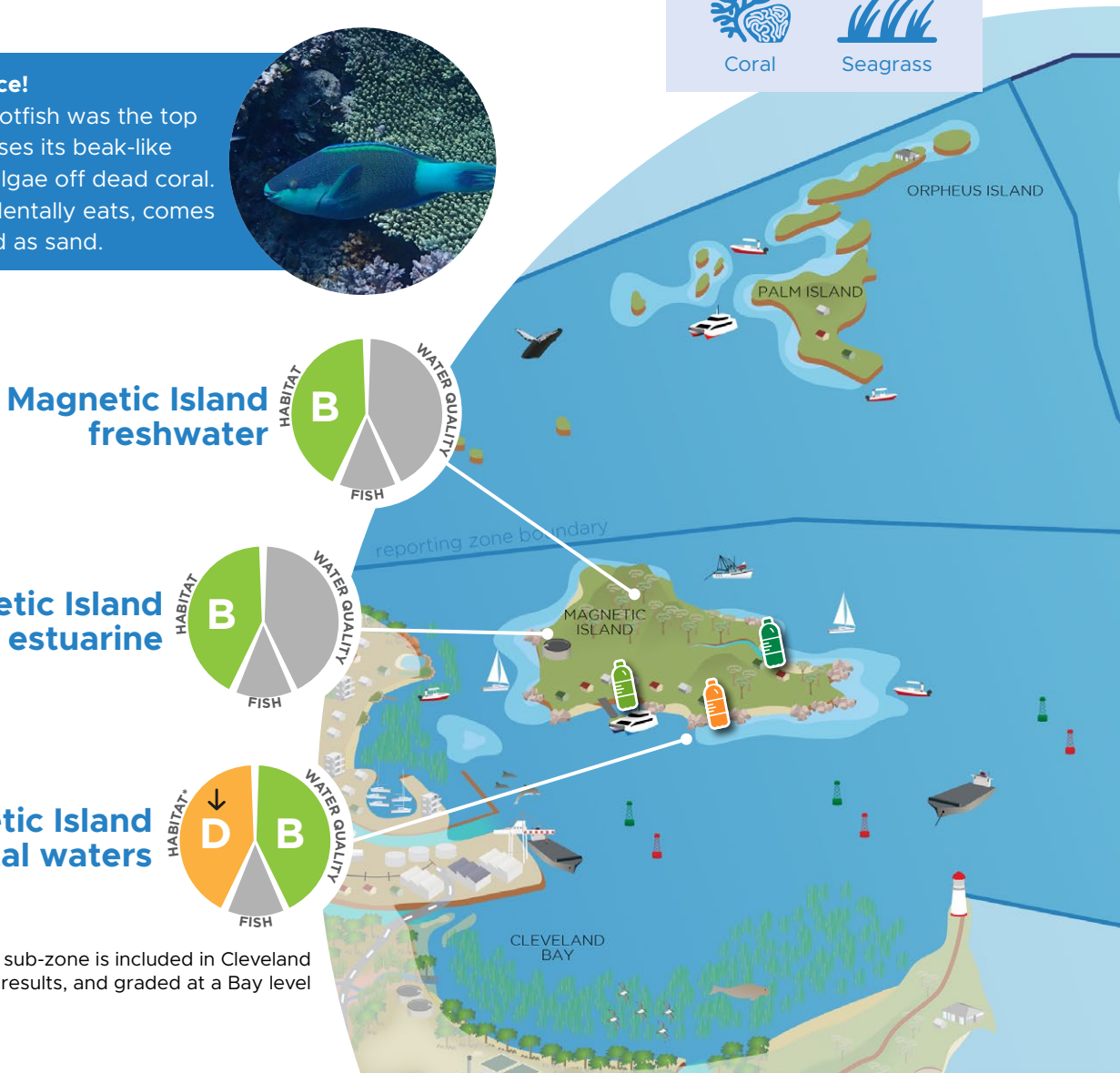
Litter

Marine habitat

Coral

Seagrass

Beak performance!
The sixband parrotfish was the top reef sighting. It uses its beak-like teeth to scrape algae off dead coral. Any coral it accidentally eats, comes out the other end as sand.



Magnetic Island freshwater

Magnetic Island estuarine

Magnetic Island coastal waters

*This sub-zone is included in Cleveland Bay results, and graded at a Bay level

John Brewer Reef, 16 February 2024

What gets monitored

Marine habitat

Coral

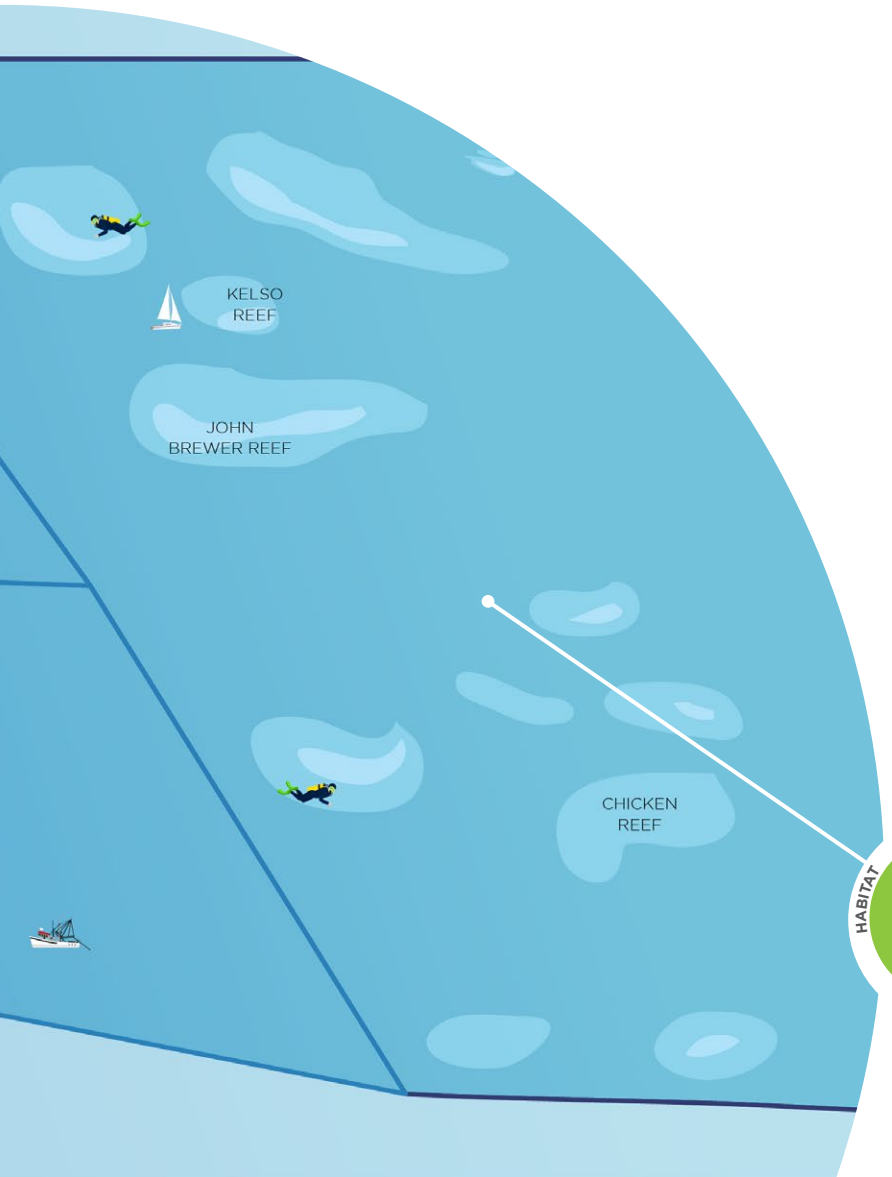
Offshore Marine

Corals were feeling the heat

Despite one cyclone and a prolonged marine heatwave, results for coral reefs furthest from the coast seem promising, with the habitat grade remaining 'good.' However, most of the surveys occurred during a mass bleaching event, the fifth on the Great Barrier Reef since 2016.

Bleaching is a coral's response to stress, but they are still alive and during surveys are recorded as live corals. Therefore, the results don't show how many corals recovered or died following bleaching.

But what the data shows is reef health prior to bleaching. Counts of baby coral remained 'very good' at 7 of 9 reefs surveyed, and more than half scored a 'good' for overall health. This provides a valuable baseline to understand impacts from the bleaching event.



Recent survey data for individual reefs and regions can be explored on the Australian Institute of Marine Science's Reef Monitoring Dashboard. Dive in!

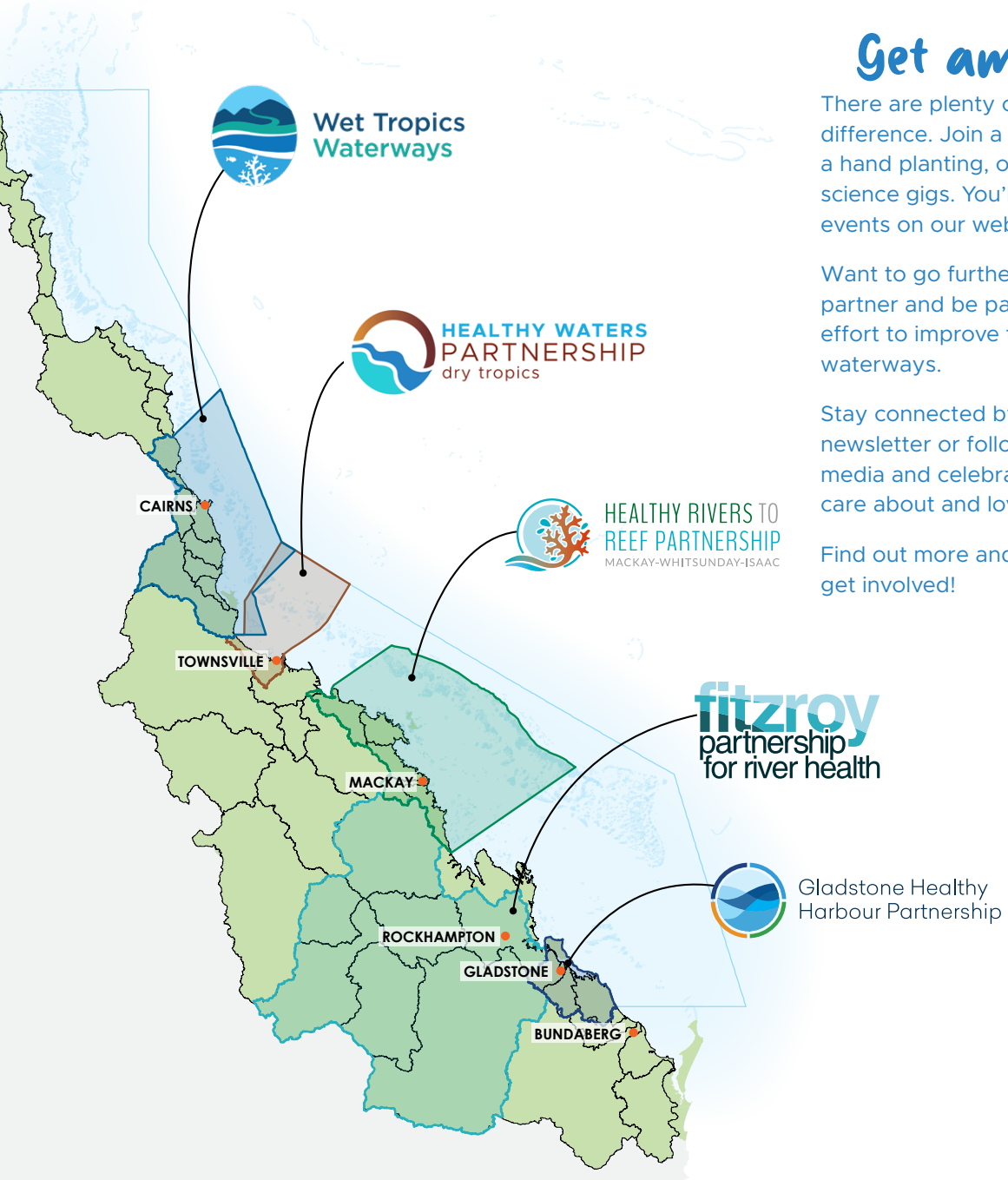
Offshore Marine

Collective action for impact

The Healthy Waters Partnership for the Dry Tropics is a collective of partners from business, industry, research, education, community, and all levels of government.

We bring together existing data from multiple sources to produce an annual Report Card, a snapshot of waterway health in our regions. It's a crucial tool used to inform management about water quality in local waterways that flow to the Reef.

With our Partners, we are committed to uncovering the entire story of our waterways, and collaborating on projects that improve the health and resilience of our rivers, creeks, and coasts, whilst empowering the local community to get involved and support waterway health across the Townsville Dry Tropics region. Our network is one of five Regional Report Card Partnerships along the length of the Great Barrier Reef.



Get amongst it!

There are plenty of ways to make a difference. Join a local clean-up, lend a hand planting, or take part in citizen science gigs. You'll find upcoming events on our website.

Want to go further? Become a member partner and be part of the collective effort to improve the health of our waterways.

Stay connected by signing up to our newsletter or following us on social media and celebrate the places we all care about and love.

Find out more and get involved!

The effect of weather events from rivers to reef

Climate change, the greatest threat to the Great Barrier Reef, is driving more frequent and intense weather events that are leaving a lasting mark on our rivers, creeks, and coasts.

Prolonged droughts

Prolonged droughts reduce freshwater flow into rivers, estuaries, and coastal areas. That means saltier water, and a build-up of pollutants. Without regular flushing, water quality can drop, putting more stress on aquatic plants and animals.

Rainfall and flooding

Floods can be good and bad for our waterways. They can help flush out weeds that reduce sunlight and deplete oxygen. But they can also erode riverbanks, wash debris and pollutants into the sea, inundate marine areas with freshwater, and blanket reefs and seagrass with sediment.

In early 2025, Townsville had record-breaking rainfall. We'll report on how this affected our waterways in next year's Report Card.

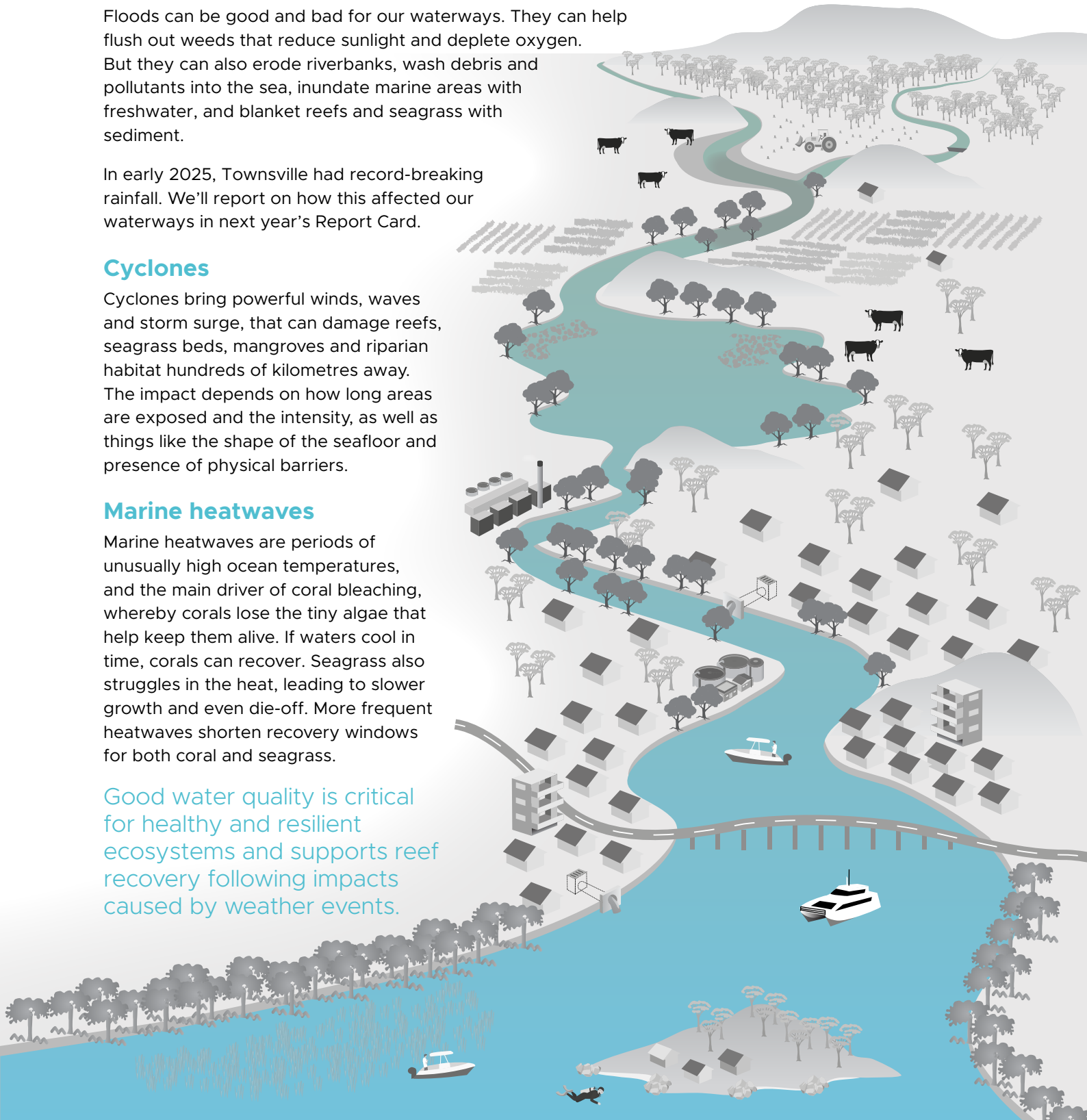
Cyclones

Cyclones bring powerful winds, waves and storm surge, that can damage reefs, seagrass beds, mangroves and riparian habitat hundreds of kilometres away. The impact depends on how long areas are exposed and the intensity, as well as things like the shape of the seafloor and presence of physical barriers.

Marine heatwaves

Marine heatwaves are periods of unusually high ocean temperatures, and the main driver of coral bleaching, whereby corals lose the tiny algae that help keep them alive. If waters cool in time, corals can recover. Seagrass also struggles in the heat, leading to slower growth and even die-off. More frequent heatwaves shorten recovery windows for both coral and seagrass.

Good water quality is critical for healthy and resilient ecosystems and supports reef recovery following impacts caused by weather events.



How to help our waters

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 an eye on the effectiveness of our wastewater systems.

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.

Become a citizen scientist

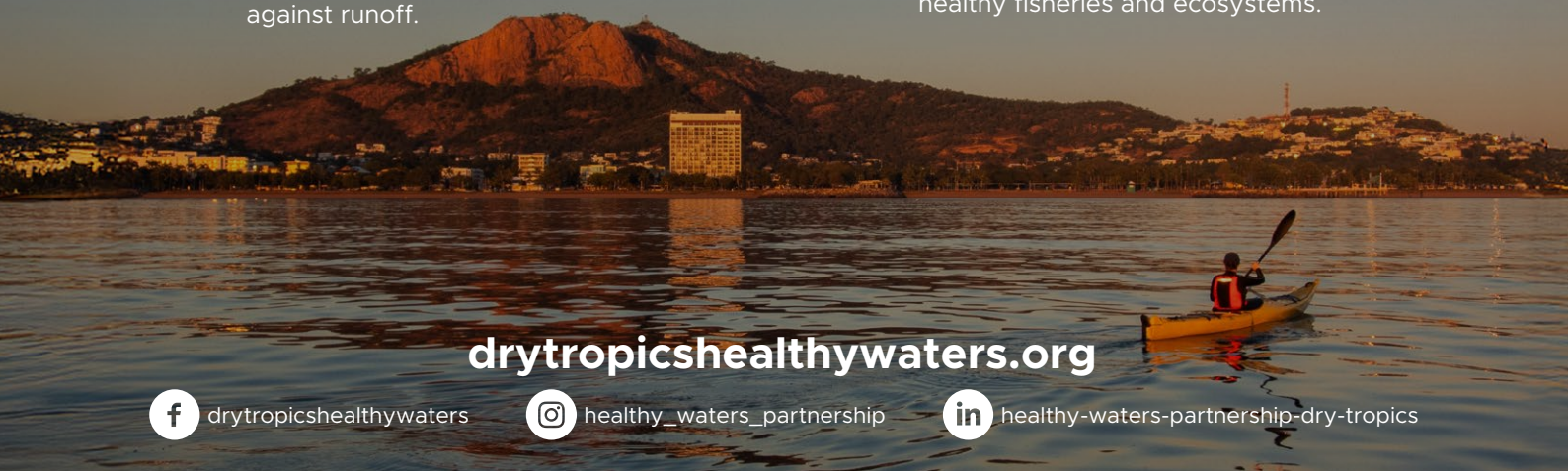
Collect data and contribute to environmental monitoring.

Minimise your carbon footprint

Use energy efficient appliances, make conscious diet choices, and walk, ride, carpool or take public transport when you can.

Fish sustainably

Follow seasonal closures, catch and size limits, and zoning rules to support healthy fisheries and ecosystems.



drytropicshealthywaters.org

drytropicshealthywaters | healthy_waters_partnership | healthy-waters-partnership-dry-tropics

Together we're keeping watch on our waters

Queensland Government | Australian Government | City of Townsville | Port of Townsville | NQ Dry Tropics | C&R

CSIRO | ornatas | Magnetic Island Community Development Association | Jet Zero | QWaLC Queensland Water & Land Carers | Reef Check Australia | Fish Powered by RCF

Coastal Dry Tropics Landcare Inc. | NQCC North Queensland Conservation Council | Tidy Up Townsville | James Cook University Australia | Australian Institute of Marine Science | TropWATER | Tangaroa Blue

EcoMarines Foundation | Australasian Groundwater & Environmental Consultants | Wildlife Surrounds | Envite Environment | Reef Ecologic For a better planet