



INTERPRETATION MANUAL

A large, dark, metallic sculpture of a boat's hull is displayed underwater. The sculpture is composed of several vertical ribs and a curved keel, creating a sense of depth and perspective. The water is a deep blue, and the lighting is dramatic, highlighting the metallic surfaces of the sculpture.

Be Inspired Discover the Reef's greatest stories
with the Museum of Underwater Art.

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Document designed by Townsville Enterprise

Welcome to Country

Protocols for welcoming visitors to Country have been a part of Aboriginal and Torres Strait Islander cultures for thousands of years

Despite the absence of fences or visible borders, Aboriginal and Torres Strait Islander groups had clear boundaries separating their Country from that of other groups. Crossing into another group's Country required a request for permission to enter. When permission was granted the hosting group would welcome the visitors, offering them safe passage and protection of their spiritual being during the journey. While visitors were provided with a safe passage, they also had to respect the protocols and rules of the land owner group while on their Country.

Today, obviously much has changed, and these protocols have been adapted to contemporary circumstances. However, the essential elements of welcoming visitors and offering safe passage remain in place.

The Palm Island Group including **John Brewer Reef** is home to the Traditional

Owners, the **Manbarra** people – (Mun-burra) and the indigenous **Bwngolman** people and their descendants that were sent to the Palm Island mission from a number of communities around Queensland. The land and waters around Townsville (**Gurambilburu**) and Magnetic Island (**Yunbenun**) are home to the **Wulgurukaba** people. Our tribes share significant history including language.

The Museum of Underwater Art (MOUA) respectfully acknowledges the history, culture and role of Traditional Owners in caring for land and sea country. The Museum of Underwater Art acknowledges the Sea Country on which we operate, the Manbarra and Wulgurukaba Traditional Owners. We recognise their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging, and to all Traditional Owners of the Great Barrier Reef.



Vicki Saylor

Traditional Owner and
MOUA Board member



What is MOUA?

A beautiful blend of art, science, culture and conservation to create a thought-provoking encounter with the world's greatest natural asset - the Great Barrier Reef.

The Museum of Underwater Art (MOUA) is a globally-significant asset to Townsville North Queensland and the surrounding regions and more broadly to Queensland and Australia. As the first of its kind in the Southern Hemisphere, MOUA will act to highlight reef conservation, restoration and education on a global scale.

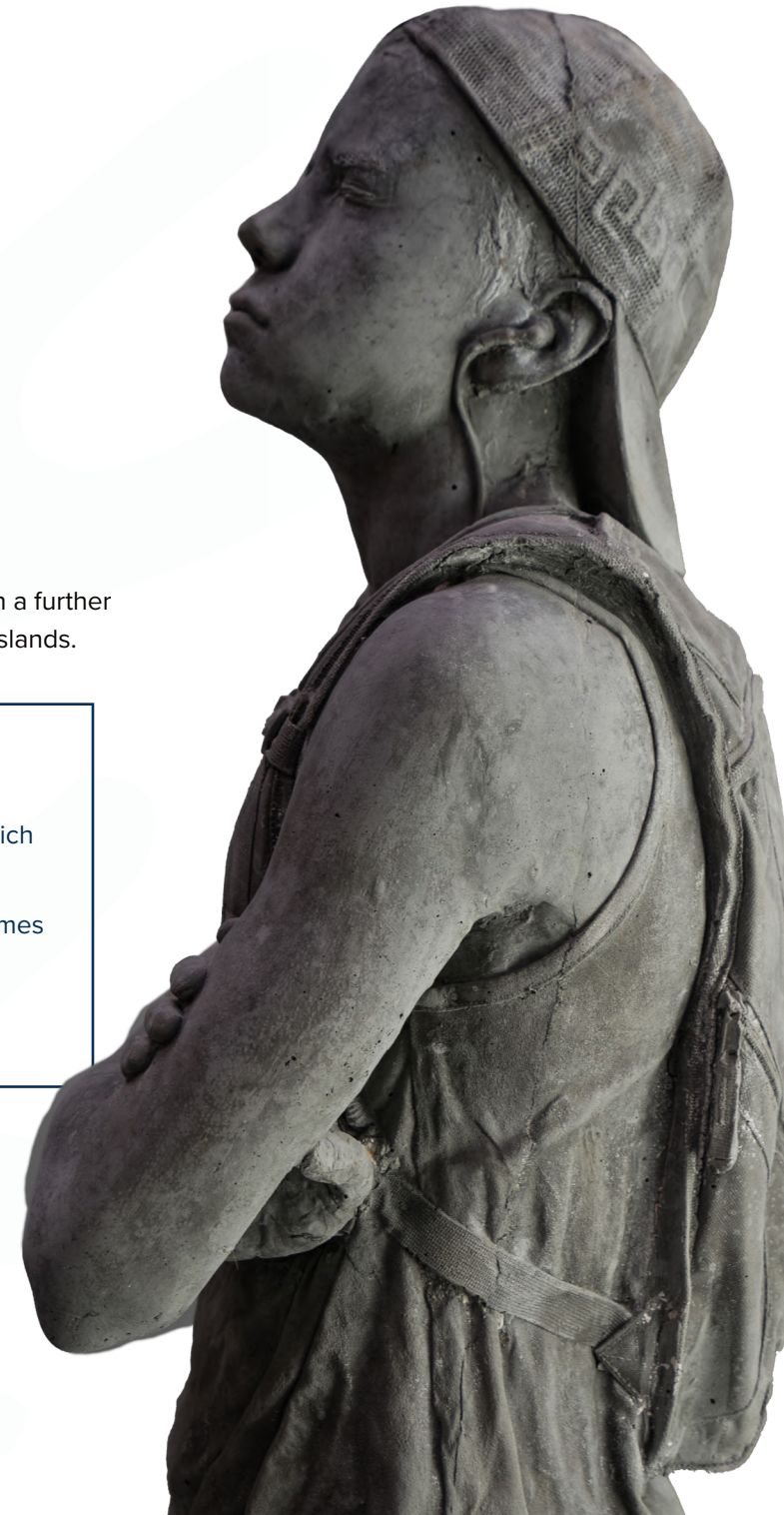
MOUA offers a contemporary platform to share the stories of the reef, and the culture of its First Nations people, as well as spark a meaningful conversation and solution to reef conservation.

The sculptures have been conceptualized by world-famous underwater sculptor Jason deCaires Taylor. Two installations are already in place on The Strand and at John Brewer Reef –

approximately 80 kilometres off the coast with a further two locations planned at Magnetic and Palm Islands.

The vision of MOUA is to:

- Provide an underwater experience which inspires reef conversation
- Achieve positive environmental outcomes
- Engage the community in the cultural stories of land and sea



Where is MOUA?

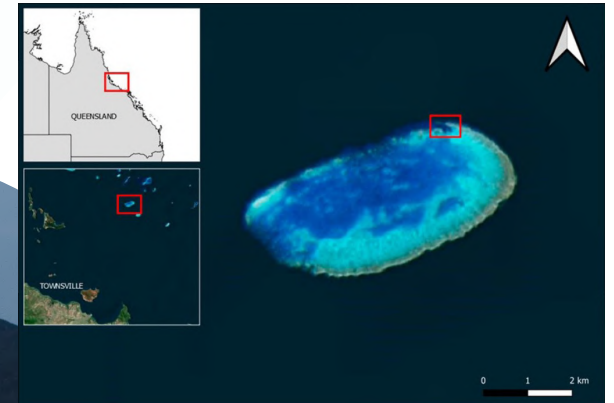
The Museum of Underwater Art has permanent sculptures at two locations: the Strand and John Brewer Reef.

The sculpture at **the Strand** is an intertidal sculpture called **Ocean Siren** and it is observed from a nearby jetty and shoreline during the day and night. It is not a snorkelling or diving location.

The underwater sculptures of the Museum of Underwater Art are located at John Brewer Reef in the Great Barrier Reef Marine Park (GBRMP). Located approximately 75 km offshore from Townsville, Queensland. **The Coral Greenhouse** underwater sculptures were installed on a sandy bottom of a sheltered lagoon on the north side of **John Brewer Reef** in December 2019.

During the planning process the community was consulted about potential locations for underwater sculptures at Palm and Magnetic Island. These locations were not progressed due to local concerns.

Ocean Siren

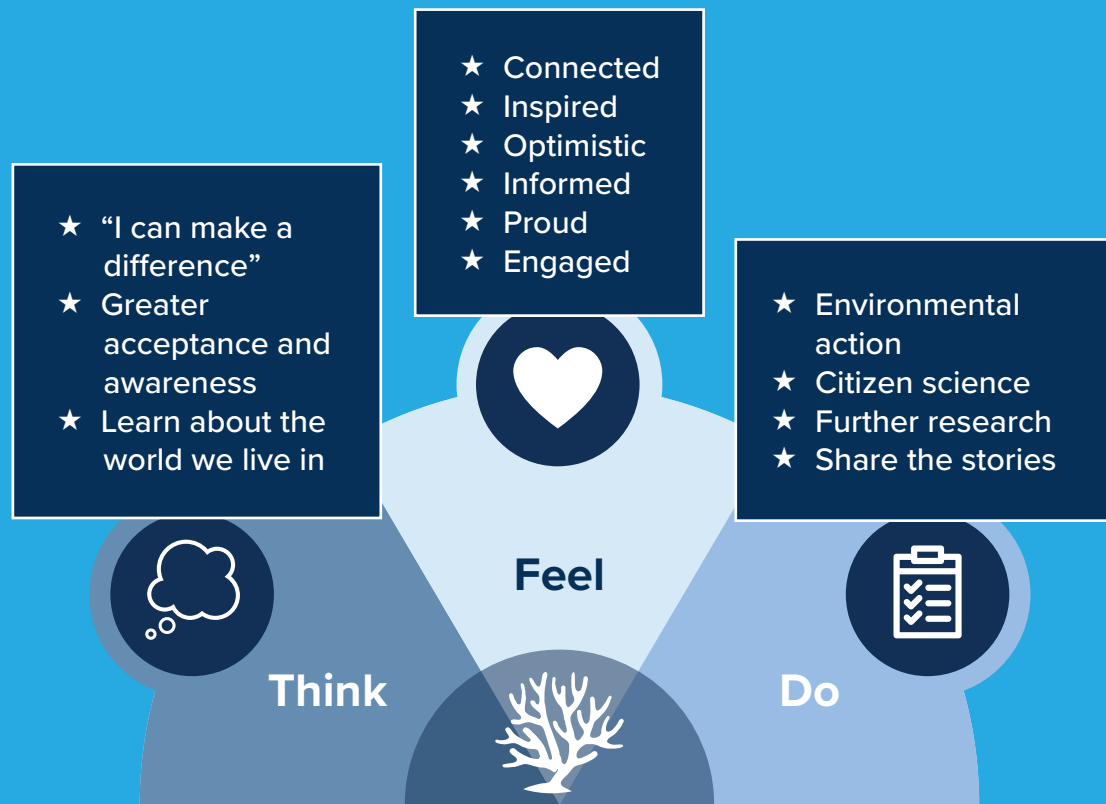


The MOUA Experience

MOUA aims to inspire visitors to take action around reef conservation.

Visitors can experience MOUA in multiple ways:

- Above the water the Ocean Siren which can be seen from the Strand
- Diving through the Coral Greenhouse for close up encounters with the sculptures and marine life
- Snorkelling on the reef to see the artwork and marine life surrounding the Coral Greenhouse (generally 10-15 metre visibility)
- Activity sheets include a guided tour of the Coral Greenhouse, wildlife identification including Wulgurukaba names for animals, citizen science monitoring marine life



The key themes to incorporate throughout the experience, and are included in this interpretation manual, include:

- **Conservation** reef health and awareness, reef conservation, importance of the Great Barrier Reef ecosystem, protection, role of the next generation (youth)
- **Art** art with a purpose, a mechanism to share important messages
- **Culture** Indigenous culture, ongoing custodianship of Traditional Owners, connection to land and sea, history
- **Science** understanding the impacts on the reef, our individual role in Great Barrier Reef protection, marine ecosystems

Supplementary themes:

- Environmental sustainability
- Educational, and thought-provoking
- Inspiring, uplifting, informative

Traditional Owners & Culture

In Australia there are more than 250 Indigenous languages including 800 dialects. Each language is specific to a particular place and people. **The Coral Greenhouse is located on the Manbarra Sea Country and people travel through Wulgurukaba Sea Country.**

The Wulgurukaba people call their country “Gurrumbilbarra”. Wulgurukaba means “canoe people”. An important symbol of the Wulgurukaba people is the carpet snake. Wulgurukaba’s creation story tells the story of the creation snake that comes down from the Herbert River, went out to sea, creating the Hinchinbrook Channel, and down to Palm and Magnetic Islands. His body broke up, leaving parts along the coast. The tail of the snake is at Halifax Bay, his body is at Palm Island, while his head rests at Arcadia, Magnetic Island.



On 5 June 2020, Virginia Wyles and Others on behalf of the Gurumbilbarra Wulgurukaba People for the GW Mada Claim (Gurumbilbarra Wulgurukaba Mada Claim) filed a claim for the area of Magnetic Island and surrounding waters. There is no claim for the area surrounding Palm Island.

Through research and consultation MOUA have compiled a Traditional Owner / English dictionary of over 60 words for relevant places, activities and species. We encourage you to learn at least several words during your journey to show your respect for Traditional Owners and culture.

The dictionary is here:

<https://static1.squarespace.com/static/603f2835dbfa405f5903bf5b/t/6167af64e6e81a2a34d80d76/1634185060664/Wulguru+Words.pdf>

Today, Traditional Owners work closely with government agencies such as the Great Barrier Reef Marine Park Authority to protect and care for their sea country.



Traditional Owners claim on behalf of the Gurumbilbarra Wulgurukaba People for the area of Magnetic Island and surrounding waters.

Artist & Sculptures

The artist behind the MOUA installations is the world's leading underwater sculptor, **Jason deCaires Taylor**. Over 1 billion people have seen Jason's works in locations across the world.

Molinere Underwater Sculpture Park, Grenada: the world's first public underwater sculpture park, Public stone sculpture: Palini, Crete, Greece, Alluvia: The Stour River, Canterbury, Kent, UK, Inverted Solitude: National Diving and Activities Centre, Chepstow, UK, Museo Subacuático de Arte: Cancún, Mexico - over 500 sculptures - the world's first underwater museum, The Musician: Musha Cay, Copperfield Bay, Bahamas, Ocean Atlas: New Providence in Nassau, Bahamas - the largest single underwater sculpture in the world at 5 metres tall and weighing 60 tons, The Rising Tide: Thames Foreshore, London, United Kingdom, Museo Atlantico: Lanzarote, Canary Islands, Spain, 300 statues refugee messages, Coralarium: Maldives, NEST: Gili Islands, Indonesia,

Museum of Underwater Art: Great Barrier Reef, Townsville, Australia

Jason is British, born in 1974. He is an accomplished diver and underwater photographer, but most of all a sculptor, having graduated from the London Institute of Arts in 1998 with a BA Honours in Sculpture. He is also a committed conservationist:

- The stories in each artwork convey strong messages and encourage people to find out more about environmental issues.
- The materials he chooses promote coral growth, and the natural processes of fish seeking protection and coral growth over years around the sculptures are a continuously changing part of the artwork.
- Jason's work has been used by Greenpeace and the United Nations in climate change awareness campaigns.

Jason deCaires Taylor



“

Once my works are submerged they no longer belong to me – they belong to the ocean and all the creatures that live there.

”

Ocean Siren

The Ocean Siren provides a warning about rising global sea temperatures and the risk to the Great Barrier Reef.



Ocean Siren

ARTIST & SCULPTURES

The Ocean Siren provides a warning about rising global sea temperatures and the risk to the Great Barrier Reef.

The Ocean Siren is a 4m-high illuminated sculpture modelled on Takoda Johnson, a young indigenous girl from the Wulgurukaba tribe. At night, the sculpture's changing surface colour visually represents daily average water temperature data relayed from the weather station installed at Davies Reef on the Great Barrier Reef.

Ocean Siren is a visual representation of the current conditions out on the reef and can potentially warn of risks to coral reefs from warming seas. The sculpture celebrates the scientific and technological expertise of Townsville and the region. The live data feed indicating the water temperature around the Reef is provided by a 4G live internet connection to the Australian Institute of Marine Science (AIMS).

The structure of the Ocean Siren is fabricated in two halves, one facing the ocean in solid welded plate 316 stainless steel, the other facing the shore in a highly durable translucent acrylic. The sculpture remains out of the water at all times and is elevated six metres off the seabed. Internally a matrix of 202 multi coloured LED lights are illuminated each day at sunset and gradually change colour from the centre of the figure to its extremities, similar to the display of a heat sensing camera image. It can be viewed at various points along the coastline and up close from the adjacent public pier. The lighting is entirely powered by nearby solar panels to ensure it is self sufficient and carbon neutral.

The young girl holds in her hands a traditional Baler shell, an indigenous communication device. She holds it as a flare or a siren, a warning signal that warm seas could be a risk to the Great Barrier Reef. She looks out at Yunbenun (Magnetic Island), the traditional home of her great grandfather, and to the Great Barrier Reef beyond. Her inherent youth is a strong symbol of how she will help shape its future.



Learning from the data

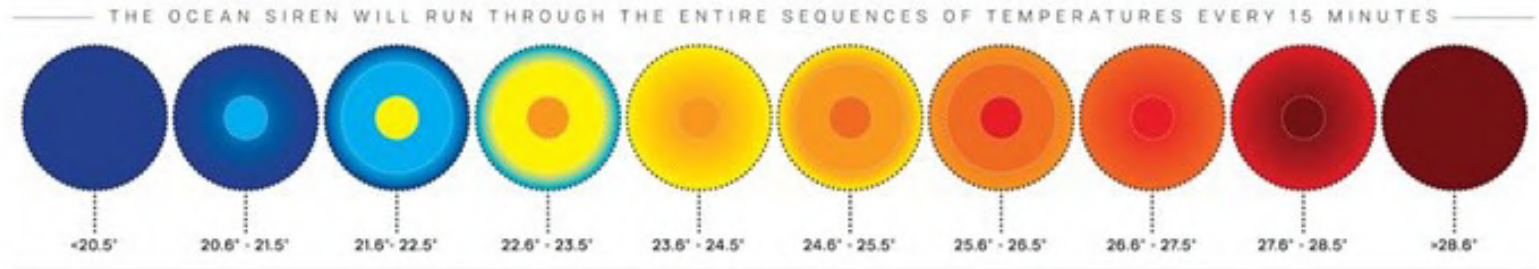
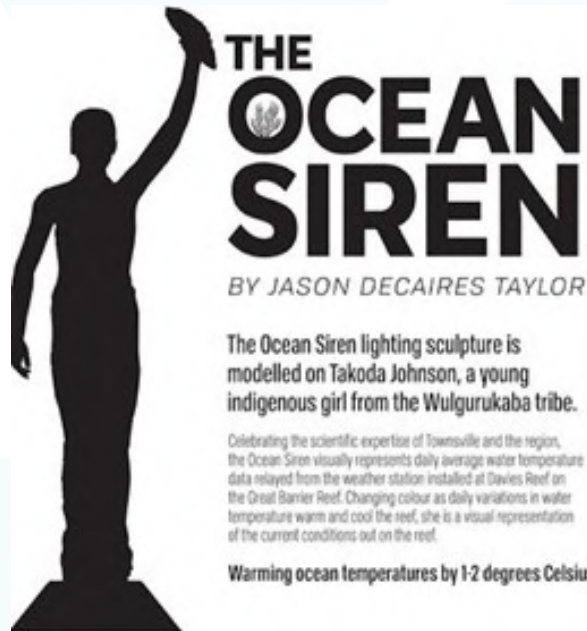
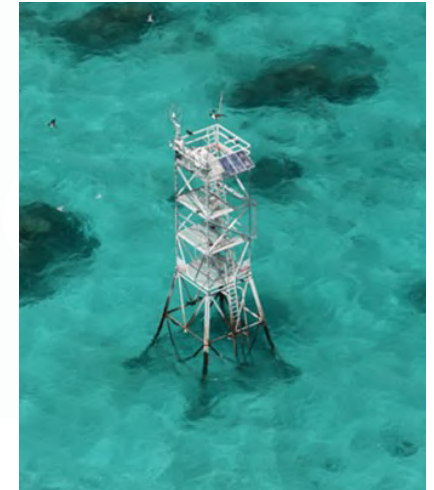
ARTIST & SCULPTURES

Ocean Siren aims to bring reef science directly into an urban environment in a live, visual, and emotive way, distilling this complex issue into a clear and stark message.

The colour changes of the Ocean Siren visually displays changes in sea temperatures via live data feed from Davies Reef, Townsville.

Davies Reef is approximately 100 kilometres off shore of Townsville, and is one of few reefs within the Great Barrier Reef Marine Park that has its own automatic weather stations connected to the Australian Institute of Marine Science. Data including wind speed, water temperature, air pressure and humidity, is captured hourly, and fed directly to an online and publicly accessible database. An underwater web cam also updates images from the reef at 10 minute intervals!

Weather stations, such as the Davies Reef weather station, provide essential information to the meteorological and scientific communities as well as an important source of information to the local boating community. Once the data is captured - in the case of MOUA's Ocean Siren - it is interpreted into a colour scale explaining the temperature range and its impact/potential impact on the Great Barrier Reef.



The Ocean Siren forms part of the Museum of Underwater Art (MOUA.com.au) a series of art installations in the Townsville region and on the Great Barrier Reef.

MOUA's vision is to inspire reef and ocean conservation action and achieve positive environmental outcomes.

MOUA aims to advance education and offer opportunities for scientists, marine students and tourists to engage in action-based learning and to conduct globally important research on coral reef restoration and new technology. The live data feed for Ocean Siren is provided by the Australian Institute of Marine Science.

Jason deCaires Taylor is an internationally acclaimed artist and his projects aim to open a debate about our relationship with our marine environments, and highlight the importance of conserving them.

Through his work, Jason hopes to usher in a new era of culturally and environmentally aware tourism with the goal that more visitors will see our natural wonders as living breathing ecosystems.

The Museum of Underwater Art acknowledges the Sea Country on which we operate, the Marbarra and Wulgurukaba Traditional Owners. We recognise their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging, and to all Traditional Owners of the Great Barrier Reef.

Ocean Siren was made possible through a Queensland Government grant, support from the Australian Institute of Marine Science and MOUA founding sponsors:

HIGH RES/VECTOR
AIMS LOGO TO BE
SUPPLIED BY CLIENT

HIGH RES/VECTOR
MOUA LOGO TO BE
SUPPLIED BY CLIENT



• Reef Ecologic • Townsville City Council • Townsville Airport • The Hive • Port of Townsville • Pacific Marine Group • Gleeson Group • W. Wightman Advisory
• PWW Partners • Wilson Ryan Grace • James Cook University • AEC • Blue Kings • TBD • Huxley Press • Consolidated Plastics • Townsville Enterprise

Warming ocean temperatures by 1-2 degrees Celsius above a normal historical summer maximum can result in temperature stress to tropical marine ecosystems.

Coral Greenhouse

A spectacular installation with a powerful message about conservation and our future.



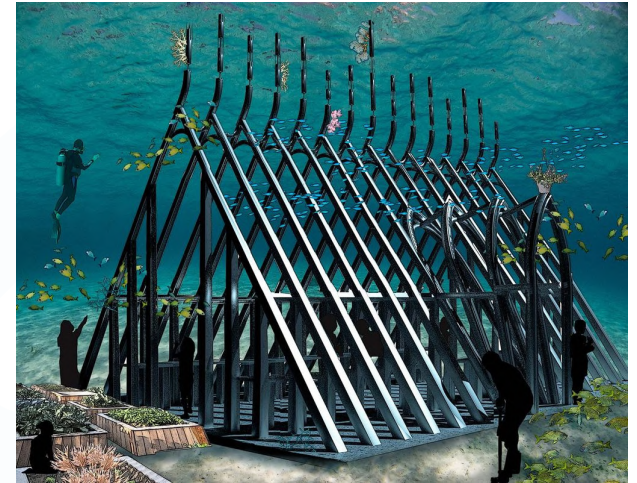
Coral Greenhouse

A spectacular installation with a powerful message about conservation and our future.

The Coral Greenhouse sculpture brings into focus diverse fields of study - marine science, coral gardening, underwater and environmental art and architecture - providing a starting point and new perspective for an understanding of the Great Barrier Reef and its ecology.

The design of the Greenhouse is biomorphic, its form determined by the forces of nature. As the Greenhouse is slowly colonised and built upon by the reef, it will be gradually absorbed into its surroundings, illustrating an organic architectural philosophy which centres on the unification and connection of designs to their surroundings. The porous skeletal structure provides a space suitable for ever changing marine conditions, a refuge for marine species. It allows for excellent overhead light penetration and dive access.

Specifically designed for the underwater environment, The Coral Greenhouse and surrounding sculptures are made from pH neutral cement compounds and corrosion resistant 316 stainless steel. Its triangular cross sections are engineered to have a very low centre of gravity for stability. Its extensive cement base and integrated cyclone tethers provide heavy duty protection during adverse weather conditions. The elevated beam sections provide minimal resistance to wave energy, whilst providing an ideal elevated substrate for filter feeding organisms and schooling fish to congregate. The 165 tonne structure also plays with gravitational elements, as the heavy base is contrasted with light floating spires which oscillate in the prevailing currents, a pioneering technique only feasible in this unique marine setting. Workbenches inside the Greenhouse are a series of practical reef units, each in turn designed to house individual local marine creatures. It contains small intricate matrices for small fish looking to escape predation, and glass enclaves for octopus and sea urchins looking for shelter in the day.

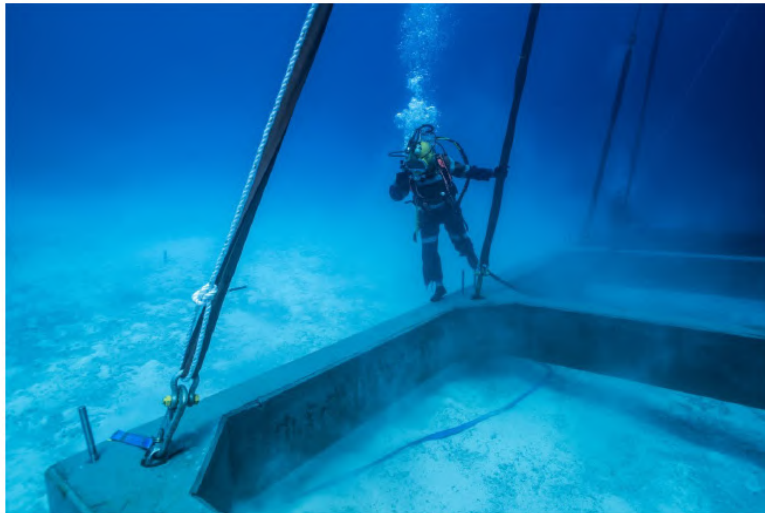


About the Coral Greenhouse

ARTIST & SCULPTURES

- **Dimensions of 12m long 6m wide x 9.4m height**
- **16m deep (to sea floor, and base of The Coral Greenhouse), and rises to a depth of 12m**
- **72m squared in area and has three main entrance points**
- **25 sculptures outside the Greenhouse, and 8 human figures, benches and other small sculptures (including pots, cups, and a microscope) inside the Greenhouse. Total of 33 sculptures**
- **More than art: also an underwater laboratory with salinity testers, PH testers, and dissolved oxygen testers monitoring the environment, and an underwater camera tracking the growth and health of the coral**

The Coral Greenhouse - first submerged building designed by artist Jason deCaires Taylor - is at John Brewer Reef on the Great Barrier Reef, which is 75km offshore from Townsville (around 90 minutes by boat). Five commercial tour operators have permits to access the commercial moorings at John Brewer Reef and private/recreational boats can also visit. Each tourism trip to John Brewer Reef consumes approximately 1000 litres of fuel - visitors and operators are encouraged to be mindful of their carbon footprint in their travels and find ways to reduce or offset their impacts where possible.





The Coral Greenhouse aims to promote conservation through tourism and education, picking up on the concept of growth. In a normal greenhouse, with its glass walls and temperature control, people grow fruit or flowers. This greenhouse is about coral, regenerating our precious reef and helping it through various impacts (see Coral and its impacts for more information).

The figures - or Reef Guardians (see Reef Guardians for more information) are local school students who draw our attention to their coral tending and research activities. They are actively protecting and regrowing the reef, and are a symbol of our future.

The structure took nine months to fabricate in Townsville using stainless steel and pH-neutral materials and is built to withstand wave pressures and cyclones, weighing approximately 58 tonnes. The structure was taken by barge to John Brewer Reef and installed by local marine engineers - Pacific Marine Group.

Positioned within a natural inlet of John Brewer Reef, the Greenhouse features surrounding gardens and paving. These lead to a variety of large scale planter boxes for coral and a series of floating trees supported by buoyancy devices. The trees are all based on local terrestrial species such as eucalyptus and umbrella palm.

Access to the Greenhouse is provided by three large two-metre entrances points and expansive floor space allows for divers to rest and view the artworks. The internal spaces of the Greenhouse are populated with a series of figurative sculptures cast from children from local and international schools. The children study and tend to planted coral cuttings. Thus they are tending to their future, building a different relationship with our marine world, one which recognises it as precious, fragile, and in need of protection.

Our children are the guardians of the Great Barrier Reef.

Reef Guardians

Communities and industries who work
to protect the Great Barrier Reef.

Reef Guardians

ARTIST & SCULPTURES

Communities and industries who work to protect the Great Barrier Reef.

The MOUA project is all about highlighting the importance of the next generation in the ongoing protection of the Great Barrier Reef. The artwork specifically at The Coral Greenhouse - in the form of Reef Guardians - demonstrates this; but the term also has a foundation in the Great Barrier Reef Marine Park Authority's (GBRMPA) management of the Reef.

Reef Guardian program recognises the good environmental work undertaken by communities and industries to protect the Great Barrier Reef. The program involves working closely with those who use and rely on the Reef, or its catchment, for recreation or business, to help build a healthier and more resilient Reef. The GBRMPA's Reef Guardian program, which began in 2003, involves

communities building a healthier and more resilient Reef. An important part of caring for the reef is paying attention to the catchment - over 25% of Queensland - that drains water off the coast into the reef lagoon.

One Reef Guardian School is St Patrick's College Townsville, a leading girls' school with over 200 Reef Guardian students who keep up to date with important marine threats and participate in community activities such as Clean Up Australia Day and turtle releases. Some of the students were the models for The Coral Greenhouse sculptures, representing the importance of youth recognising the threats to the reef and taking action. The girls were excited but a bit nervous about the casting process, which took around 15 minutes with a team of four people under the tutelage of Jason deCaires Taylor. The casting process started from their legs all the way up to their faces, remaining quite still throughout the process.



Reef Guardians

ARTIST & SCULPTURES



Ayva Gilbert

was 16 years old at the time and has a passion for the ocean. Although home is in New South Wales, she chose to study in Townsville because she wants to be a Marine Biologist and the school has strong connections to James Cook University where she wants to study. Ayva likes the idea of the artwork supporting sustainable tourism and reef education, and has taken a dive course to explore MOUA. Hopefully she can realise her dream and be a marine biologist in the future, working to protect the marine environment and diving on her statue.



Margaret Chong

is a proud Ganagalidda Woman from Doomadgee which is a small outback community in Queensland. Like Ayva, Margaret is a keen art student, so working with Jason deCaires Taylor was an inspiring moment. Margaret combines her cultural background and nature in her artwork. In the Coral Greenhouse Margaret is standing looking into a microscope.

Plant Sculptures

A series of floating trees based on local terrestrial species showcasing the connection of land and sea.



Plant Sculptures

ARTIST & SCULPTURES

A series of floating trees based on local terrestrial species showcasing the connection of land and sea.

The fabulous plant sculptures outside The Coral Greenhouse are based on local terrestrial species, including the Queensland Fan Palms (or Licuala Ramsayi). These are a glorious feature of our World Heritage-Listed Wet Tropics that cover the mountains north of Townsville, and as far north as Cape York. They grow to 15 metres in height and the zigzag edged leaves can be almost 2 metres across.

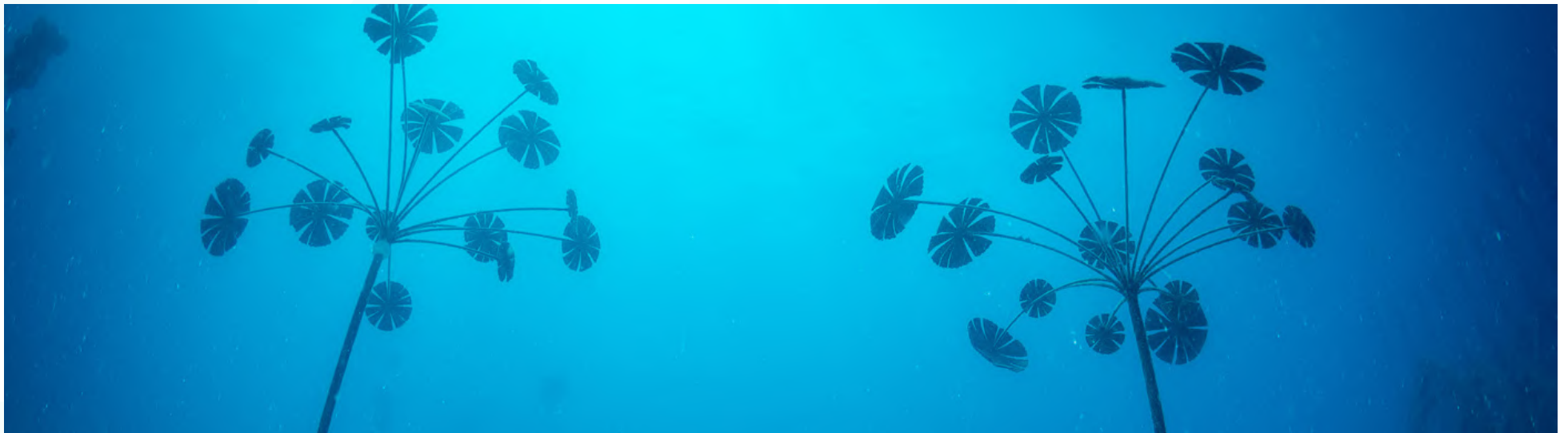
These palms have been around in Gondwana (a supercontinent that existed about 550 million years ago) for 170 million years and appear in fossils found in the Antarctic. They are a great survivor of many changes in our climate.

These trees provided edible cabbage to Aboriginal people, as well as thatch for making huts, food wrapping, and even later cigarette papers from the

young leaves. People have always had a strong connection to palms - they are mentioned more than 30 times in the Bible, and at least 22 times in the Quran.

In the rainforest you find these majestic parasols around creeks because they love water. They are very good at collecting rain, with the leaves funnelling water down into the hollow stem. Looking up at the translucent canopy they form is a stunning photographic opportunity as the sunlight flickers around them. You can get the same wonderful sensation looking up from underneath the frond sculptures at The Coral Greenhouse.

Interestingly, scientists have discovered that the fan palm has a massive capacity for gathering solar energy while not overheating due to the aerodynamics of the leaves, so it is a great example of efficient energy and how technology can learn from nature. Typically, most man-made solar panels heat up and lose around a third of their capacity for energy generation.

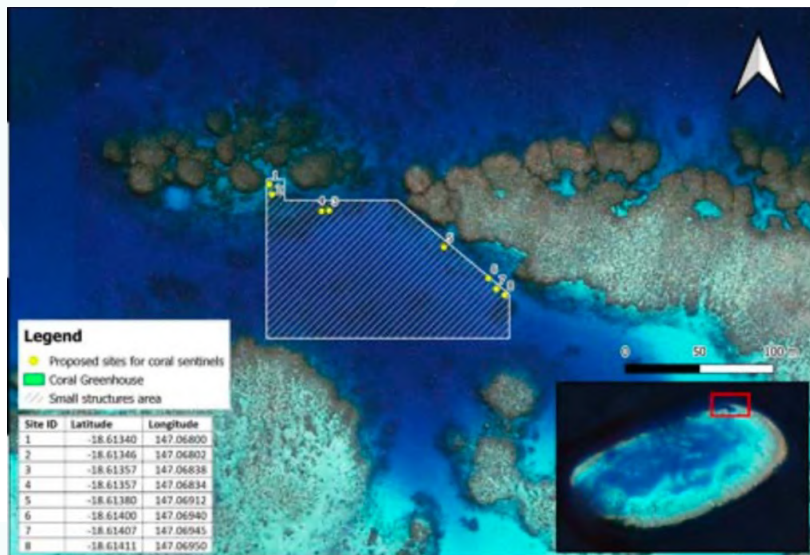


Ocean Sentinels

Larger than life hybrid marine creatures with famous scientists and conservationists.

Ocean Sentinels is a series of eight sculptures, in hybrid form, a synthesis of human figures and natural marine forms. The human figures are predominantly Australians whose work in the field of marine science and marine conservation has been highly commended and influential in our understanding of reef protection. All eight models are renowned for their expertise in the field of marine science and marine conservation and their hybrid forms make reference to their contribution to their specific field of study.

All the sculptures are constructed with a low centre of gravity in order to resist strong oceanic forces. They are made from a new high grade, low carbon Earth Friendly Concrete and reinforced with marine stainless steel.



Meet the Ocean Sentinels

ARTIST & SCULPTURES

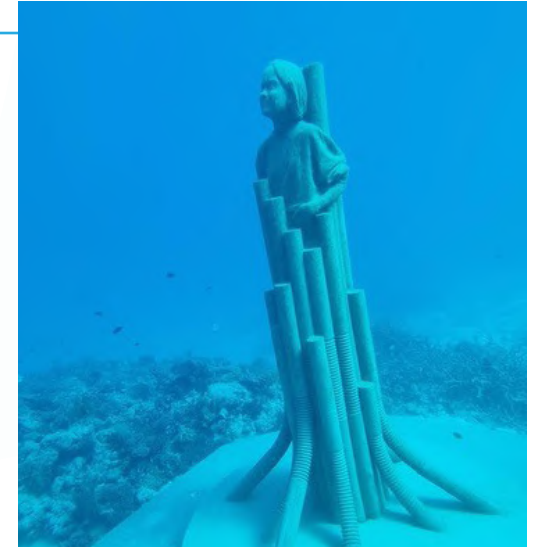


MOLLY STEER

Molly Steer was just nine years old when she decided to take the war on plastic straws into her own hands. Watching the documentary 'A Plastic Ocean' sparked Molly's desire to help make a difference and eradicate single use plastic straws.

The youngster's mission is to encourage every school in Australia to pledge to stop using plastic straws, through her 'Straw No More' movement. The impressive initiative has been taken up by more than 3,000 Aussie schools, with hundreds of thousands of individuals around the globe also making the pledge.

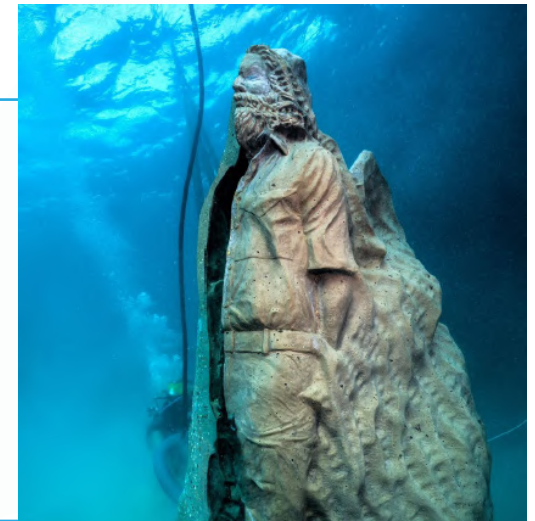
As a next generation leader, Molly uses her campaign to shine a light on a critical issue and shows how young voices have the power to instigate real change



DR DAVID VAUGHAN

Dr David Vaughan is the pioneer of the Plant a Million Corals initiative which aims to restore and revive coral populations in reefs across the globe by... planting a million corals!

David is author of several books including 'Active Reef Restoration- techniques for a changing planet' and 'The secret life of corals: sex, war and rocks that don't roll'.



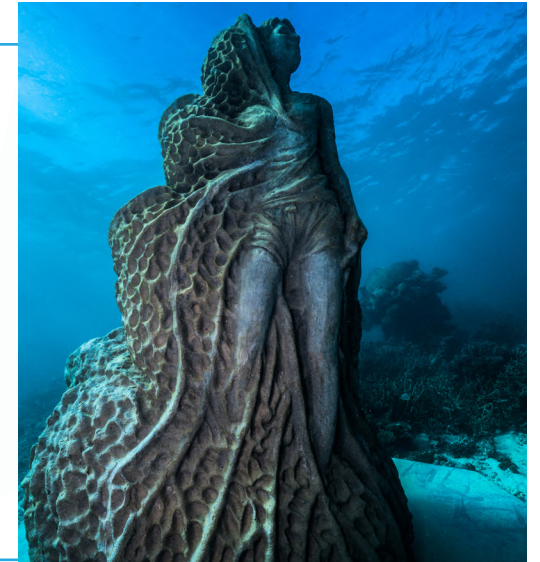
Meet the Ocean Sentinels

ARTIST & SCULPTURES



DR KATHARINA FABRICIUS

Dr Katharina Fabricius started her coral reef research at the Australian Institute of Marine Science (AIMS) in 1988. She is one of the region's most respected coral ecologists – researching the effects of ocean acidification and climate change on reef health, and how good water quality can help the reef recover faster. She is also an expert on soft corals and sea fans, and has published a comprehensive field guide on this colourful, diverse and important group of sea life. She started her career at a time when few females worked in reef science, and is proud to see that science has now matured to integrate the science of women and indigenous traditional knowledge. Dr Fabricius calls Magnetic Island home and loves that she is surrounded by coral reefs.



DR RICHARD BRALEY

Also known as 'The Giant Clam Man', Dr Richard (Rick) Braley turned a memorable encounter with a giant clam in Ha'apai (central Tonga) more than four decades ago into his life's work.

Dr Braley made Magnetic Island home and conducted research on every corner of the Great Barrier Reef, which has the highest density population of giant clams in the world – making it the perfect place for him to work. Dr Braley set up the Aquasearch Aquarium on Magnetic Island in 1998.



Meet the Ocean Sentinels

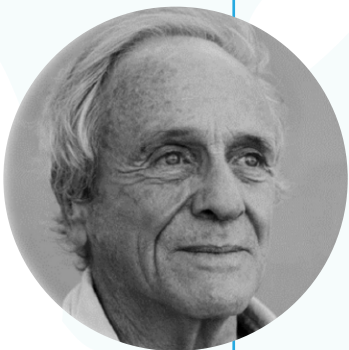
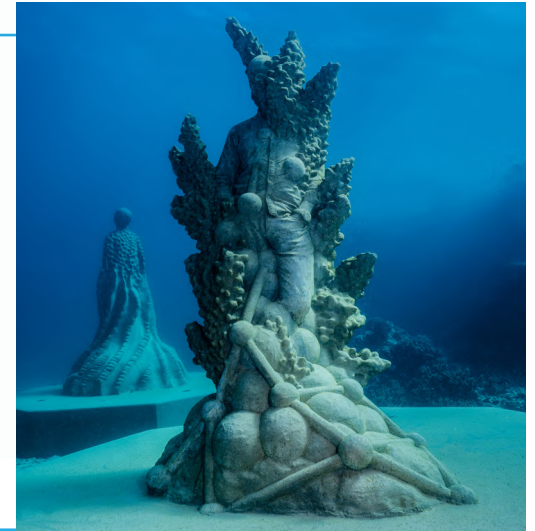
ARTIST & SCULPTURES



PROFESSOR PETER HARRISON

Peter Harrison was conducting research for his PhD at Townsville's James Cook University in 1981 and was diving by torchlight at night alongside a group of curious marine biology students. They witnessed a spectacular underwater show where millions of microscopic eggs and sperm filled the waters around them in a mass mating ritual. This was the first recording of what we now know of as a mass coral spawning event.

Professor Harrison has gone on to pioneer a world-first technique dubbed 'coral IVF', whereby millions of coral sperm and eggs are captured during coral spawning and left to form into larvae in floating pools on the reef. Once the larvae are ready to settle, they are released into damaged areas of the reef to help them recover



PROFESSOR JOHN 'CHARLIE' VERON

Professor John Edward Norwood "Charlie" Veron, dubbed the 'Godfather of Coral', is an acclaimed marine scientist who has dedicated his life to charting the world's coral reefs.

He has discovered and described 20% of all coral species on the globe, and was awarded the Darwin Medal for his work on evolution. He was the first full-time researcher on the Great Barrier Reef, held the title of Chief Scientist at the Australian Institute of Marine Science, and he is currently working on the bold plan of collecting 400 species of coral from the Great Barrier Reef to preserve in a biobank.



Meet the Ocean Sentinels

ARTIST & SCULPTURES



SIR CHARLES MAURICE YONGE

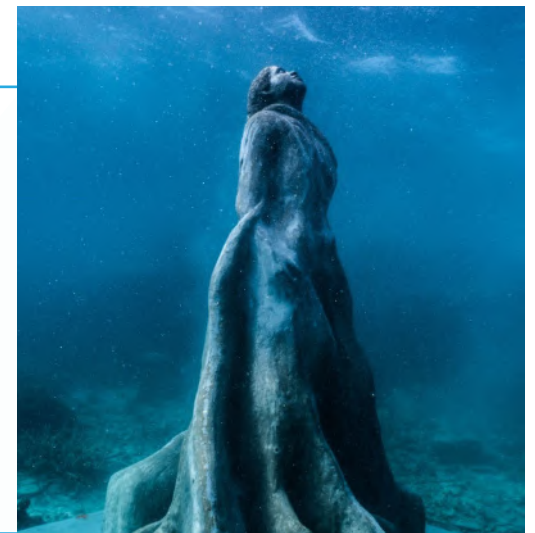
Internationally renowned marine zoologist, the late Sir Charles Maurice Yonge (1899-1986), led the Great Barrier Reef Expedition in the 1920s – a 13-month voyage that opened up the scientific world to the wonders of the Great Barrier Reef and laid the foundation of scientific study into modern coral reef biology.

An Englishman, Sir Yonge forged research on marine invertebrate feeding and digestion. He also spent much of his life teaching and fostering a love of science in the next generation.



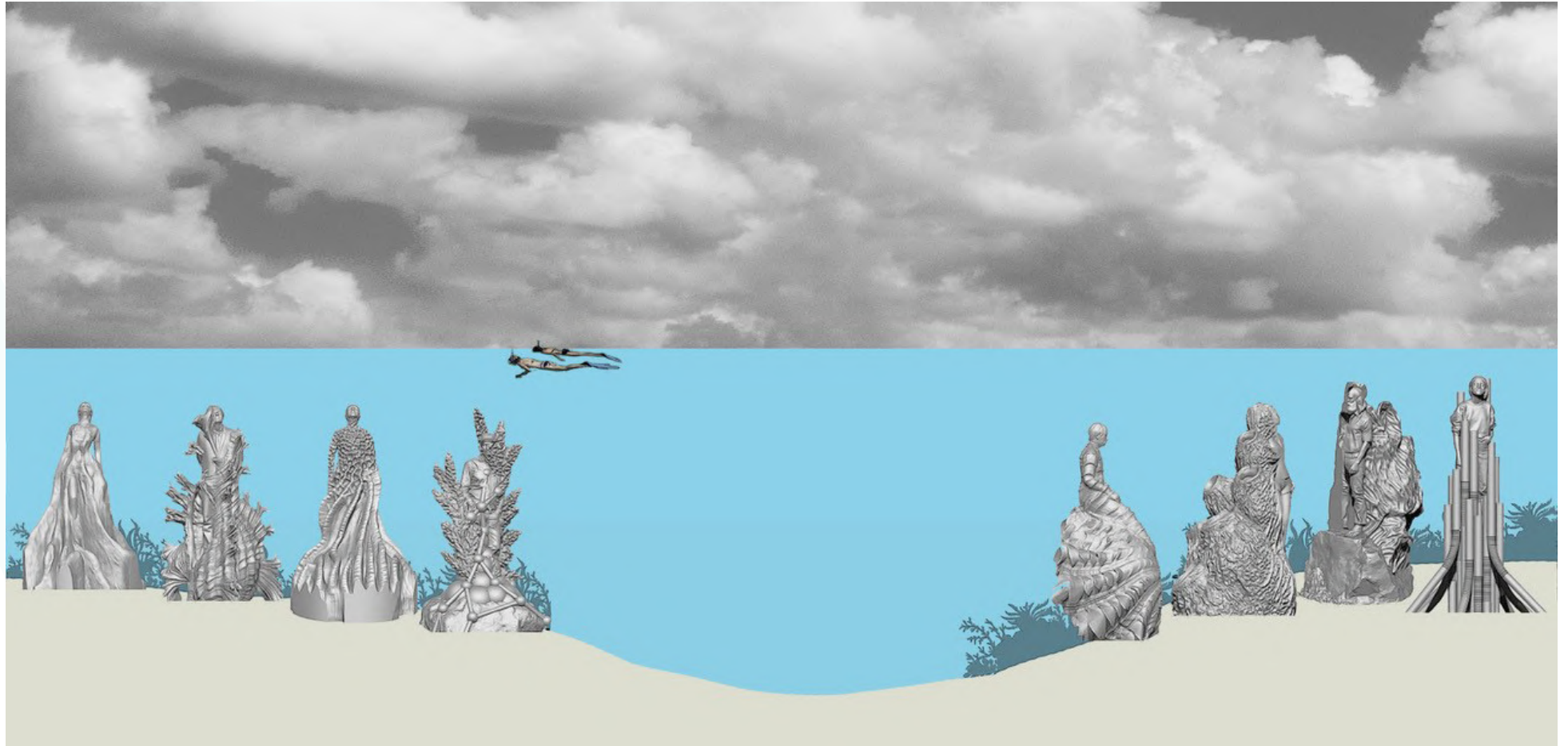
JAYME MARSHALL

Wulgurukaba and Yunbenun woman Jayme Marshall represents the next generation of Indigenous leaders, and her sculpture highlights the role Traditional Owners play in protecting the future of the Great Barrier Reef and surrounding Sea Country. Miss Marshall's involvement in the project emphasises how stories and traditions of the reef are passed down through generations and still hold significant weight within Indigenous culture to this day.



Placement & Order

ARTIST & SCULPTURES



John Brewer Reef

The Great Barrier Reef

The John Brewer Reef, located offshore from Townsville in the Great Barrier Reef Marine Park, is a naturally-formed reef, with some weather protection, 10-15metre visibility, natural coral walls and a flat sandy base.



About the Great Barrier Reef

The Great Barrier Reef is a global icon and an integral part of Australia's national identity. The Great Barrier Reef is a vast and spectacular ecosystem, and one of the most complex natural systems on Earth. It is also the sea country home for the first Australians — more than 70 Traditional Owner groups — whose connections to the marine environment date back more than 60,000 years.

As the world's largest coral reef ecosystem, it is bigger in size than Italy, and spans 2300 kilometres of Australia's north east coast. It comprises almost 3000 individual reefs, about 10 percent of the world's coral reefs.

Extending over 14 degrees of latitude, from shallow estuarine areas to deep oceanic waters, the reef is a unique range of ecological communities, habitats and species and is protected by the Great Barrier Reef Marine Park Authority (GBRMPA). In 1981, the Great Barrier Reef became the first coral reef ecosystem in the world to receive a World Heritage listing, and remains one of the best-managed marine ecosystems in the world.



AREA
344,400 km²

LENGTH
2,300 km

70 million
football fields

Roughly the
same area as



ITALY



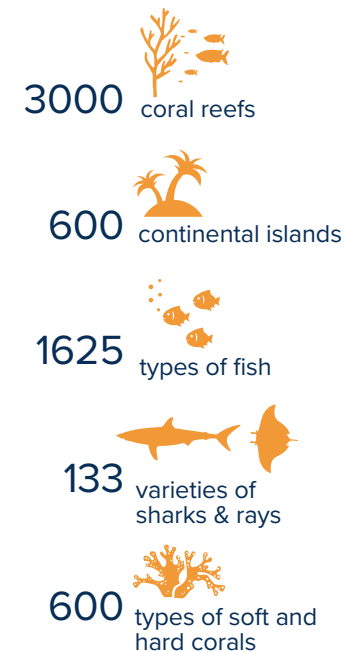
JAPAN



GERMANY



MALAYSIA



History of John Brewer Reef

Of course, for thousands of years the Wulgurukaba people and other groups paddled these waters in their canoes, hunting turtle and fish. There was trading along the coast between tribal groups. These people had an intimate understanding of their environment, the seasons and the spirituality behind it all. As far as we know this individual reef did not have a name in those times.

The reef was actually named after a troop ship named John Brewer that was sailing from Sydney to India in 1842, a barque (a sailing ship, typically with three masts) similar to Cook's Endeavour. That ship and two others in a convoy all struck separate reefs on 30 June 1842, and all were refloated and repaired.

Biologically, John Brewer Reef was first surveyed in 1984. Since then it has had a similar story

to many reefs along our coast, with fluctuating Crown of Thorns Starfish outbreaks and live coral cover varying from 5-50%. It was mildly affected by coral bleaching in 2017. In 2019, 74 different fish species were recorded here.

The Floating Hotel

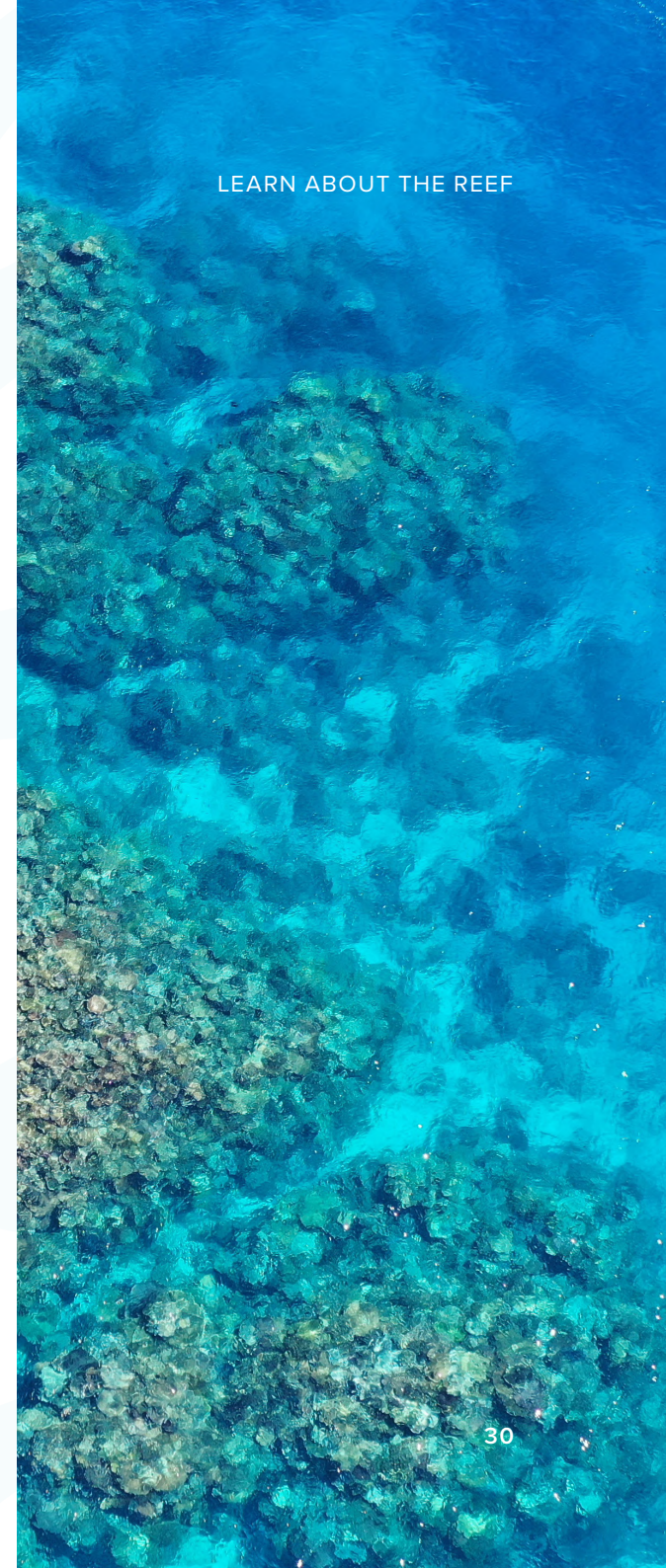
One of the weirdest chapters in Queensland tourism history happened on John Brewer Reef, and is still playing out in North Korea. In 1988, a five-storey self-contained floating building was constructed in Singapore and towed over 5000km to John Brewer Reef on a huge heavy lift ship - and became the Four Seasons Barrier Reef Resort. The hotel was the first of its kind in the world and had 140 double rooms and 34 luxury suites. Floating pontoons provided walkways, moorings, a swimming pool and tennis courts, and there

was also a glowing neon nightclub, bars, restaurants and a helipad. The hotel was 24 metres high above sea level with a draught of 3 metres and had capacity for 356 guests and 98 staff.

After only operating for 12-months, the hotel was decommissioned after numerous issues, and bought by a Japanese company and moved to Vietnam as The Saigon Floating Hotel. After a short stay, the building was then sold to a new buyer who took it to North Korea where it remains to this day at Kumgang port on the east coast, called Hotel Haegumgang. Over the past 30 years it has travelled over 14,000km.

John Brewer Reef is, to this day, one of the finest examples of the Great Barrier Reef, and teeming with a vast array of marine life.

LEARN ABOUT THE REEF



What is Coral?

LEARN ABOUT THE REEF

The amazing array of coral on the Great Barrier Reef is responsible for many of the bright and beautiful colours that this natural icon is internationally renowned for. About 600 different types of coral can be found in the Great Barrier Reef Marine Park, and all of them come in a variety of shapes, sizes and colours. Despite looking like plants, these corals are actually colonies of very small animals called coral polyps which are closely related to jellyfish!

- **Soft coral** - Soft corals are flexible because they lack a solid skeleton which means they are often mistaken for plants. Instead they are supported by tiny limestone spike-like structures called spicules. Apart from their swaying bodies and jelly-like feel, soft corals also have eight tentacles on each polyp. The tentacles have a feathery appearance, whereas hard corals have smooth tentacles. Soft corals tend to be brightly coloured, with bright pinks and mauves rarely seen in hard corals.
- **Hard coral** - Hard corals act as building blocks for the Reef. They form when colonies of coral polyps produce limestone skeletons to support themselves. In most cases, a hard coral consists of hundreds, thousands or even millions of individual coral polyps living together as a colony. They have six (or multiples of six) smooth tentacles.

What do coral eat?

Most of the coral's nutrients come from the zooxanthellae. Like plants, zooxanthellae use the sun to make food for themselves and the coral. This is why it is important for corals to live in clear, shallow waters where they can get lots of sunlight. Corals also eat plankton, or even small fish.

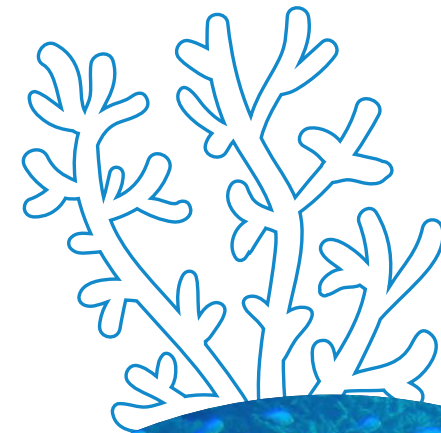
How fast do coral grow?

The exact rate at which coral colonies grow varies between types. Colonies of boulder coral — which can live up to one thousand years — are likely to be the longest living corals on the Great Barrier Reef, and grow in height at about one centimetre each year. Some branching coral species, such as staghorn corals, can grow up to 30 centimetres each year, while the porites (stony corals with finger-like structures) grow at an annual average of one to three millimetres. Meanwhile, soft corals grow relatively quickly and may

double or triple the size of their colonies over a year.

Why are coral different colours, and sometimes brown?

Some corals have pigments, or fluorescent proteins, in their tissues that give them their orange, yellow, green, blue, red and purple colours; while others get their golden-brown colour from the algae, called zooxanthallae, that live within their tissues.



Common Species

LEARN ABOUT THE REEF

The 10 most common species observed by naturalists on John Brewer Reef are available from an online project 'Citizen science at Coral Greenhouse' which is available here: <https://inaturalist.ala.org.au/projects/coral-greenhouse-john-brewer-reef?tab=species>.

Interestingly, nine of these species are fish and one is a shark.



19 observations

Lemon Damsel

Pomacentrus moluccensis



18 observations

Blackaxil Puller

Chromis triptoralis



17 observations

Common Coral Trout

Plectropomus leopardus



16 observations

Sixband Parrotfish

Scarus frenatus



16 observations

Staghorn Damsel

Amblyglyphidodon curacao



15 observations

Sixbar Wrasse

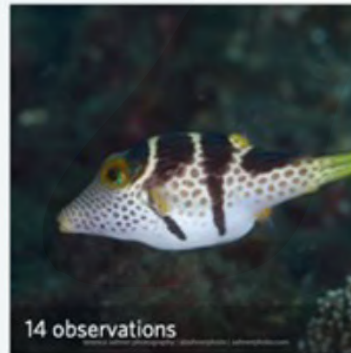
Thalassoma hardwicke



14 observations

Whitetip Reef Shark

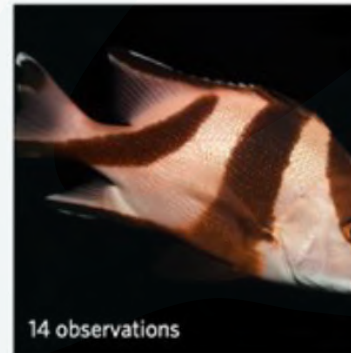
Triaenodon obesus



14 observations

Blacksaddle Toby

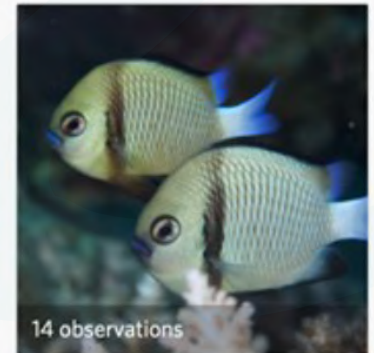
Canthigaster valentini



14 observations

Red Emperor Snapper

Lutjanus sebae



14 observations

Headband Humbug

Dascyllus reticulatus

Rare and Unusual Species

As of 1 May 2023 there have been 1464 observations of 378 species by 18 observers and 101 identifiers at John Brewer Reef. The full list can be seen here <https://inaturalist.ala.org.au/projects/coral-greenhouse-john-brewer-reef?tab=species>.

This is a fraction of the estimated 1625 types of fish, 600 types of soft and hard corals, 3000 varieties of molluscs, 500 species of worms, 133 varieties of sharks and rays and more than 30 species of whales and dolphins that live in the Great Barrier Reef region.

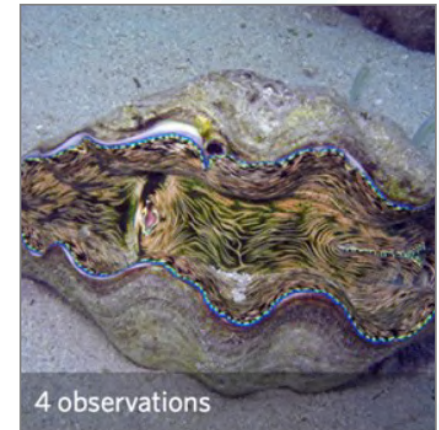
Examples of rare, favourite, unusual and popular species at John Brewer Reef are the Blackback Anemonefish, Longfin Batfish, Blue Linckia, Hermann's Sea Cucumber and the Smooth Giant Clam (not to be confused with the Gigas Giant Clam):



10 observations

Blue Linckia

Linckia laevigata



4 observations

Smooth Giant Clam

Tridacna derasa



11 observations

Longfin Batfish

Platax teira



7 observations

Herrmann's Sea Cucumber

Stichopus herrmanni



12 observations

Blackback Anemonefish

Amphiprion melanopus

Protecting the Reef

Sustainability and Conservation

A number of government, industry and community groups are passionately researching and learning about the Reef to gain a greater understanding of what can be done to protect it from further impact. This can range from large-scale underwater research surveys, data analysis, seeking involvement from visitors to the reef by choosing eco-certified tours, and being more environmentally-friendly.

- Marine park zoning - zoning provides for a range of ecologically sustainable recreational, commercial and research opportunities and for the continuation of traditional activities on the Great Barrier Reef, to help manage and protect the values of the Marine Park that people enjoy.
- Reef 2050 Plan - lead by the Great Barrier Reef Marine Park Authority, this plan is an integrative management tool covering the activities designed to support ongoing research and management of the Reef, including both government and privately funded projects
- Integrated citizen science programs - reef conservation/management groups are working with visitors to the reef to help capture more information and extend education on reef protection; e.g. iNaturalist, Eye on the Reef, Reef Check Australia
- Eco-certifications - Eco-Certified operators go 'above and beyond' for the Reef and their actions and leadership make them a High Standard Tourism operator.
- Field management and rehabilitation programs - various programs are underway to respond to direct impacts on sections of reef, particularly following natural disasters.

Tourism

Tourists can visit the MOUA on their own vessels or through a commercial tourism operator. Tourism operators and tourists have a great opportunity to be leaders in sustainable practices and care for the reef.

Marine Debris

Marine debris can result from deliberate or accidental activities of individuals and businesses. Marine debris or rubbish such as plastic and fishing line negatively impacts all of the Reef's values. Marine debris kills marine life. It can smother coral, entangle wildlife or be ingested by animals. The MOUA and associated tourism businesses, scientists, Traditional Owners and partners advocate that no marine debris or rubbish is disposed of in the water and if any is observed it is removed and disposed of on land.

Climate Impacts and Offsets

Climate change is the biggest issue for the Great Barrier Reef. Many businesses have voluntary carbon offset programs. MOUA offers the opportunity for divers, businesses and concerned individuals to make a donation towards carbon offsetting of this project and also helping the future health of the reef. Even if you're not visiting the MOUA site you can help by donating to offset trips. MOUA offers a product for individuals to reduce their individual travel to John Brewer reef for \$10 <https://www.moua.com.au/checkout/donate?donatePagelId=615fcac918112a270c150d34> or for a larger vessel offset at \$200 <https://www.moua.com.au/checkout/donate?donatePagelId=615fcb5312c20e6db5070f3a>

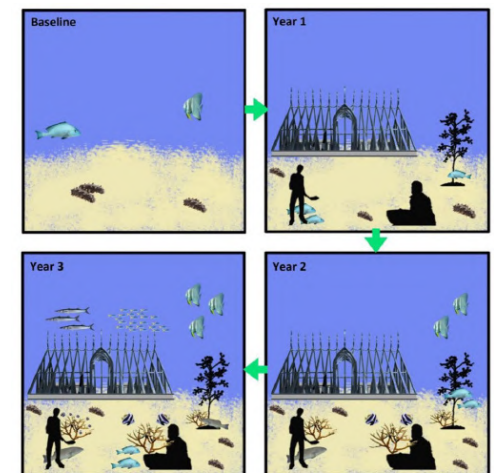
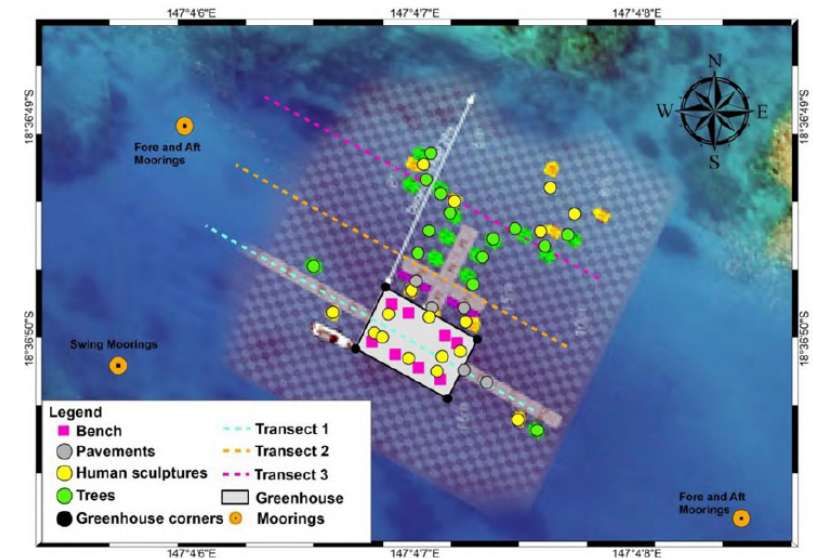
Research and Monitoring

An innovative project such as the Museum of Underwater Art (MOUA) is based on years of planning, science, engineering, public consultation and assessment. MOUA has engaged with experts in the design, consultation and assessments of environmental and social indicators at pre-proposal and post-installation phases. Commonwealth and state regulatory authorities have granted several permits MOUA for facilities and research. The permits have conditions which require monitoring and reporting on an annual basis. These reports are publicly available on the MOUA website.

MOUA collaborates with scientists such as Reef Ecologic, Reef Check Australia, Great Barrier Reef Marine Park Authority, Australian Institute of Marine Science and James Cook University to monitor the long-term health of John Brewer Reef.

In 2022 a scientific paper was published Engineering, Ecological and Social Monitoring of the Largest Underwater Sculpture in the World at John Brewer Reef, Australia. A summary of the methods and research is three permanent transects and a before/after rapid monitoring assessment of substrate, fish, and invertebrates

- Substrate surveys indicated 11% concrete and 89% sand.
- Fish surveys indicated significant increases of diversity and abundance, with 12 species and 65 individuals recorded in 2018 compared to 46 species and 365 individuals recorded in 2022.
- Macroinvertebrate species maintained no significant trends in abundance, species richness, and diversity with respect to time between 2018 and 2022.
- MOUA and Reef Ecologic have undertaken research on coral transplantation. Of 131 corals transplanted in March 2020, survivorship was 100% at 1 month, 92% at 6 months, and 91.6% at 12 months. Hard and soft corals were recruited to the structure at a density of 8.35 hard corals/m² and 10.9 soft corals/m² over 26 months.



Citizen Science

MOUA is about bringing people and science together, and one way to do that is through citizen science. Citizen science as defined by the Oxford dictionary is the collection and analysis of data relating to the natural world by members of the general public.

Citizen science is a large part of the message of MOUA, and there are ways that you can also help capture information that will aid in the reef's ongoing protection and management:

Citizen science at Coral Greenhouse we have created a project that enables everyone to make an observation, upload and identify the species. To date this has been very popular with over 1000 observations of over 300 species. It is easy to join the app iNaturalist through the QR code or online. You can see all the species observed and learn more about them.

Eye on the Reef The Great Barrier Reef Marine Park Authority's Reef monitoring and assessment program enables anyone who visits the Great Barrier Reef to contribute to its long-term protection by collecting valuable information about reef health, marine animals and incidents that is used to understand the bigger picture and inform how we manage the Reef. Whether you're a regular day tripper, tourist on their first visit, fisher, Marine Park ranger, marine tourism staff or marine scientist, you can download the free Eye on the Reef app to record reef health, animal sightings or incidents.

Onboard activity cards Make your visit to MOUA a productive one! While you take in the magic and wonder of the artwork and surrounding reef, conduct your own mini-survey using the onboard activity cards. The information captured in these will be added to the database held by the Great Barrier Reef Marine Park Authority and the Australian Institute of Marine Science.



Ongoing Management of MOUA

Permits

The MOUA has several permits from GBRMPA with conditions associated with installation, maintenance and research associated with the Coral greenhouse sculptures and infrastructure. Copies of these permits are available on the GBRMPA and MOUA websites. The permits may also require more detailed plans for monitoring which are also available.

Moorings

The MOUA has two approved private moorings at John Brewer Reef. One is a fore and aft mooring system (two moorings) for large vessels. There is also a single mooring for smaller vessels.

Fees for approved tourism operators

The MOUA provides approved tourism operators access to private moorings plus training and educational materials.

There are currently three local approved tourism operators who take visitors to MOUA: Adrenalin Dive, Yongala Dive and Sealink Queensland.

Other operators may apply for a daily pass which costs \$500 or discuss arrangements for more frequent use at \$15 per passenger

Other tourism operators are NOT approved to use the MOUA private moorings unless they are certified to operate as a high standard and have a written endorsement from MOUA and pay a small fee to assist ongoing management and maintenance.



**Educational
tools and activities**

a dive guide

MOUA
MUSEUM OF UNDERWATER ART

**John Brewer Reef
Coral Greenhouse**

Fore and Aft Mooring

Swing Mooring

Fore and Aft Mooring

Guide:

	Depth
1. Cheese plant	16m
2. Umbrella palm	14m
3. Flat leaf Eucalyptus	14m
4. Fine leaf Eucalyptus	13m
5. Gardener with shovel	16m
6. Gardener with crossed arms	17m
7. Sitting boy with tray	15m
8. Gardener with watering can	12m
9. Sitting girl with flower cup	11m
10. Gardener with scissors	13m
11. Sitting girl with tray	14m
12. Flower pots	15m
13. Coral Greenhouse	16m
14. Pavements	15m

CORAL GREENHOUSE

The "Coral Greenhouse" is part of the Museum of Underwater Art (MOUA) project on the Great Barrier Reef Marine Park. It is the first submerged building designed by world famous artist Jason deCaires Taylor. The underwater art is envisioned to inspire reef and ocean conservation action and achieve positive outcomes through tourism and education. The site may also serve as a demonstration site for conservation, coral restoration and other scientific research. The concrete and steel structures also provide ideal substrate for coral recruits and attract other marine life.

Inside the Greenhouse

The coral greenhouse is 16m deep and rises up to 12m. The 72 m² skeletal greenhouse structure has 3 main entrance points (red). There are 25 sculptures outside the greenhouse and 8 human figures, benches and other small sculptures including pots, cups, and a microscope inside the greenhouse. The figures depict scientists, conservationists and coral gardeners. On top of the greenhouse, we can also see floating structures that move along with the currents.

The synergy of artificial and natural attractions at John Brewer Reef makes it perfect for snorkelers, scuba and free divers. Scuba and free divers can see the sculptures up close and even swim through the greenhouse. Snorkelers can see the attraction from above, especially during low tide or swim over the wonderful reefs a few metres from the sculptures.

How to get there

John Brewer Reef is 40 Nm (74km) offshore from Townsville. The Coral Greenhouse is located at 18°36'49.9032" S 147°47.0644" E in a sheltered lagoon area protected by surrounding coral reefs. Access to the Coral Greenhouse is available through different commercial tourism operators using MOUA's moorings. Private and recreational users may also visit MOUA under their own anchorage.

Prepared by:
Reef Ecologic (May 2020)
Adam Smith, Nathan Cook, Jo Stacey,
Gemma Molinaro, Greta Sartori, Al Songcuan

For more information visit moua.com.au

Photos provided by: Jason deCaires Taylor, Matt Curnock, Nathan Cook

The collage features several key elements: a map of Queensland with Townsville marked by a red 'x' and a white box; an aerial satellite-style image of the Great Barrier Reef with a white box highlighting the greenhouse location; a diagram titled 'Inside the Greenhouse' showing a perspective view of the structure with silhouettes of people; a large blue background with silhouettes of people, trees, and a satellite; a compass rose in the top right; and two bronze statues of a man and a woman at the bottom. The text 'John Brewer Reef Coral Greenhouse' is prominently displayed at the bottom right.

Reef Ecologic
For a better planet

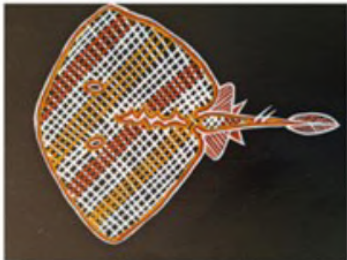
MOUA
MUSEUM OF UNDERWATER ART

Adventure Queensland

John Brewer Reef Coral Greenhouse

Reef organisms with Wulgurukaba art and language

Artist: Jordan Kahle Wyles



Minggamingga (Stingray)



Bururu (Shark)



Guya (Fish)



Galgun (Dolphin)



Dugaru (Whale)



Angugan (Turtle)



Dhambi (Coral)



Guburu (Clam)



Dabu (Sea cucumber)

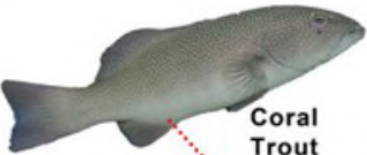
Common fishes at the Coral Greenhouse



Painted Sweetlips



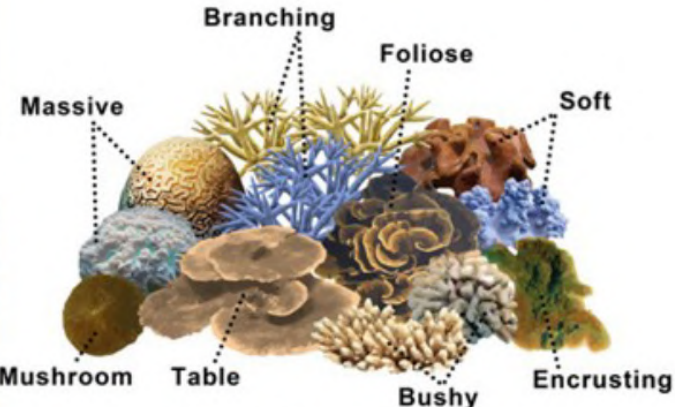
Batfish



Coral Trout



Bannerfish



Coral Morphology



John Brewer Reef Coral Greenhouse

Article
Engineering, Ecological and Social Monitoring of the Largest Underwater Sculpture in the World at John Brewer Reef, Australia

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- * Correspondence: adam.smith@reefecologic.org; Tel.: +61-0418-726-584

Abstract: The largest underwater sculpture in the world, the ‘Coral Greenhouse’ by artist Jason deCaires Taylor, was commissioned by the Museum of Underwater Art and installed at John Brewer Reef, Australia, in December 2019. The planning process required certified engineering design drawings associated with design life, durability and suitability of materials, and baseline ecological surveys. Following approval, the operational phase required annual monitoring of substrate, ecology, social values, and marine debris. We geo-referenced three permanent transects and designed a before/after rapid monitoring assessment of substrate, fish, and invertebrates. Substrate surveys indicated 11% concrete and 89% sand. Fish surveys indicated significant increases of diversity and abundance, with 12 species and 65 individuals recorded in 2018 compared to 46 species and 365 individuals recorded in 2022. Macroinvertebrate species maintained no significant trends in abundance, species richness, and diversity with respect to time between 2018 and 2022. We monitored coral restoration and natural recruitment at the site, measuring aesthetics, survivorship of planted corals, and coral recruitment. Of 131 corals transplanted in March 2020, survivorship was 100% at 1 month, 92% at 6 months, and 91.6% at 12 months. Hard and soft corals were recruited to the structure at a density of 8.35 hard corals/m² and 10.9 soft corals/m² over 26 months.

Keywords: underwater art; aesthetics; benthos; fish; coral; sea cucumber; artificial reef; concrete; stainless steel

check for updates
 Citation: Smith, A.; Songcuan, A.J.; Cook, N.; Brown, R.; Cook, K.; Richardson, R. Engineering, Ecological and Social Monitoring of the Largest Underwater Sculpture in the World at John Brewer Reef, Australia. *J. Mar. Sci. Eng.* **2022**, *10*, 1617. <https://doi.org/10.3390/jmse10111617>

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 Accepted: 30 October 2022



April 2023

MOUA Reef Protectors Program

The Museum of Underwater Art in partnership with Reef Ecologic and Savannah Guides are helping individuals and businesses make a positive difference to their health, happiness, community and future. Tour Guides and interested visitors are invited to become MOUA Ambassadors.

The requirements to become a MOUA Reef Protector are:

1. Complete at least one dive and one snorkel on the John Brewer Reef installations
2. Be registered with iNaturalist and have at least 10 observations logged at the Coral Greenhouse
3. Complete a MOUA Reef Quiz and achieve over 80%
4. Ensure that your activities are environmentally sustainable (and from June 2024 are carbon neutral)
5. Sign the Ocean Sentinels Pledge
6. Like the Museum of Underwater Art Facebook page (and contribute as appropriate)

MOUA Dive and Snorkel Operators

To dive or snorkel on the Coral Greenhouse, Reef Guardians and Ocean Sentinels please contact:

Adrenalin Dive: <https://adrenalindive.com.au/>

Sealink Townsville: <https://www.sealink.com.au/magnetic-island/experiences/great-barrier-reef-snorkeling-day-tour/>



Frequently Asked MOUA Questions

Will there be a cost to see the underwater sculptures?

The sculptures are public art and are freely accessible for Marine Park recreational visitors. If tourists wish to access the John Brewer Reef sites by vessel with an expert guide there are multiple commercial tourism opportunities available.

Can I go SCUBA diving and snorkelling at the sculpture sites?

Yes. SCUBA diving and snorkelling are encouraged and a great way to view the underwater sculptures and adjacent reefs at the proposed sites. These include shallow water (4-6m) designed for snorkelling and deeper water (12-18m) designed for SCUBA diving.

Can I go fishing or spearfishing near the sculptures?

Limited recreational fishing and spearfishing are allowed in Conservation Park Zones (limited in yellow zones). These zones include John Brewer Reef. The MOUA requests that fishers do not undertake their activities within 50m of the underwater sculptures for public safety and appreciation.

Can I touch the underwater sculptures?

Like coral reefs we advocate a no touching policy of the artworks. We will document and encourage Responsible Reef Practices through interpretive manuals, training, websites and brochures. Over time the proposed sculptures will accumulate marine life as corals and other life forms attach to them, making the sculptures more interesting and more integrated ecologically into the local environment.

Will the underwater sculptures be cleaned and maintained?

The proposed sculptures will not be cleaned and coral and other marine organisms are growing naturally on the underwater sculptures. This ongoing transformation is part of the artistry of underwater installations and marine life is already adding another dimension to the underwater sculptures.

Is it safe for visitors to interact with underwater sculptures?

Visitor (and marine life) safety is a key consideration, and the individual pieces are designed to avoid entanglement and entrapment. The location, arrangement, and method of installation are all important considerations to ensure minimal risk to visitors. The potential safety issues associated with marine life (sharks, stingers) and weather (currents, visibility), vessel traffic and snorkelling/SCUBA activities must be considered and managed.

What is the size of the individual sculptures?

The sculptures are 3-dimensional and vary in size. The human figurative sculptures are life-size. The largest sculpture is approximately 2-2.5m tall.

Will cyclones or extreme weather damage the underwater sculptures?

The sculptures are located in sheltered waters, secured with anchors, and are extremely heavy with a low centre of gravity and are certified by an engineer to withstand a category 4 cyclone. If the sculptures are damaged as a result of any severe weather, the MOUA will clean-up, repair and restore.

Who owns the sculptures and who is responsible for them long-term?

The sculptures are owned by the Museum of Underwater Art Ltd and they will be responsible for their care and maintenance. MOUA in consultation with the artist is responsible for ongoing maintenance of the sculptures in accordance with an approved permit and Environmental Management Plan.

What happens if sculptures are damaged?

If the sculptures are damaged, they will be assessed and a decision made by the Museum of Underwater Art Ltd in consultation with the artist and GBRMPA to accept, repair or remove the sculpture in accordance with an approved permit and Environmental Management Plan.

What can citizen scientists do to help with research and education?

Citizen scientists can assist by monitoring the habitats and species in the vicinity of the sculptures. We encourage GBRMPA Eye on the Reef monitoring protocols. We also encourage sharing of photographs on social media and discussions about the environmental, social and educational benefits of underwater sculptures to raise awareness of issues and solutions. Hashtags?

How can I support the Museum of Underwater Art?

Donate to MOUA. Donations to MOUA allow coral plantation, Indigenous tourism engagement and support the ongoing requirements of the art installations. Please visit: <https://www.moua.com.au/support>

Encourage your friends to visit MOUA and the reef, and share your experiences on social media, participate in citizen science by using iNaturalist on the reef and on land, donate money to programs ensuring your travel is carbon neutral.

Acknowledgements

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