

# 2019 Site Assessment of Palm Island for a proposed Museum of Underwater Art (MoUA)



A report for the Museum of Underwater Art Pty Ltd  
c\PVW Partners, 52 Walker Street, Townsville, QLD 4810



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## 1. Executive summary

Environmental site assessments of three potential intertidal and subtidal sites for underwater sculptures adjacent to the Palm Island township were conducted in October 2019. Aerial drone and underwater photographs were obtained, sites measured and species lists of coral, fish and invertebrates collated. The 2019 site assessment builds on the previous 2017 site

assessment, and collectively five potential sites at Greater Palm Island have now been assessed: Casement Bay, shipwreck south of Jetty, shipwreck north of Jetty, sandspit north of Jetty and Wallaby Point.

The purpose of this report is to share knowledge with the Palm Island community, MOUA Board, artist Jason deCaires Taylor and stakeholders and discuss and agree the preferred sites, number of sites and artworks. When these decisions have been made by the Palm Island community and the MOUA Board it will facilitate detailed site assessments, engineering, logistics and application for permits. The preferred date for the decisions by Palm Island community and MOUA Board is Dec 2019 to coincide with grant deadlines of 21 January for submission of permit application to GBRMPA.

The Reef Ecologic team has a short-term funding opportunity for capacity building for one or more Palm Island people to be trained in marine survey techniques and assist with the environmental assessment. Applicants with snorkeling skills and knowledge of marine species and project management are welcome to contact Dr Adam Smith.

## 2. Background

Stage 1 of the Museum of Underwater Art involving the Ocean Siren sculpture located at the Strand and Coral Greenhouse sculpture at John Brewer Reef has been funded by government grants and there has been considerable progress with design of artworks, contracts, governance, project management, fund raising, communication and environmental assessment. It is expected that these sculptures will be installed by Dec 2019.

Stage 2 of the Museum of Underwater Art proposes sculptures at Palm Island, an Aboriginal community located on Great Palm Island, also called by the Aboriginal name "Bwgcolman", an island on the Great Barrier Reef in North Queensland, Australia.

With its crystal-clear waters, great visibility, clear sandy bottom and natural coral reef, Palm Island is a nature lover's paradise.

The Museum of Underwater Art aims to make the most of the natural beauty of the Island through an installation which connects the cultural story of Palm Island to the land and sea.

Extensive consultation and engagement around the concept designs is ongoing with the Palm Island community and Traditional Owners.

It is expected the Palm Island sculptures will be installed by the end of 2020.

## 3. Environmental assessment and approvals

Reef Ecologic Pty Ltd have been sub-contracted by the Museum of Underwater Art Pty Ltd to collect baseline environmental surveys and prepare key documents for environmental assessment and permit processes for Palm Island from regulatory agencies. These include:

1. Baseline environmental surveys of sites
2. Permit applications (GBRMP Act, Sea Dumping Act)

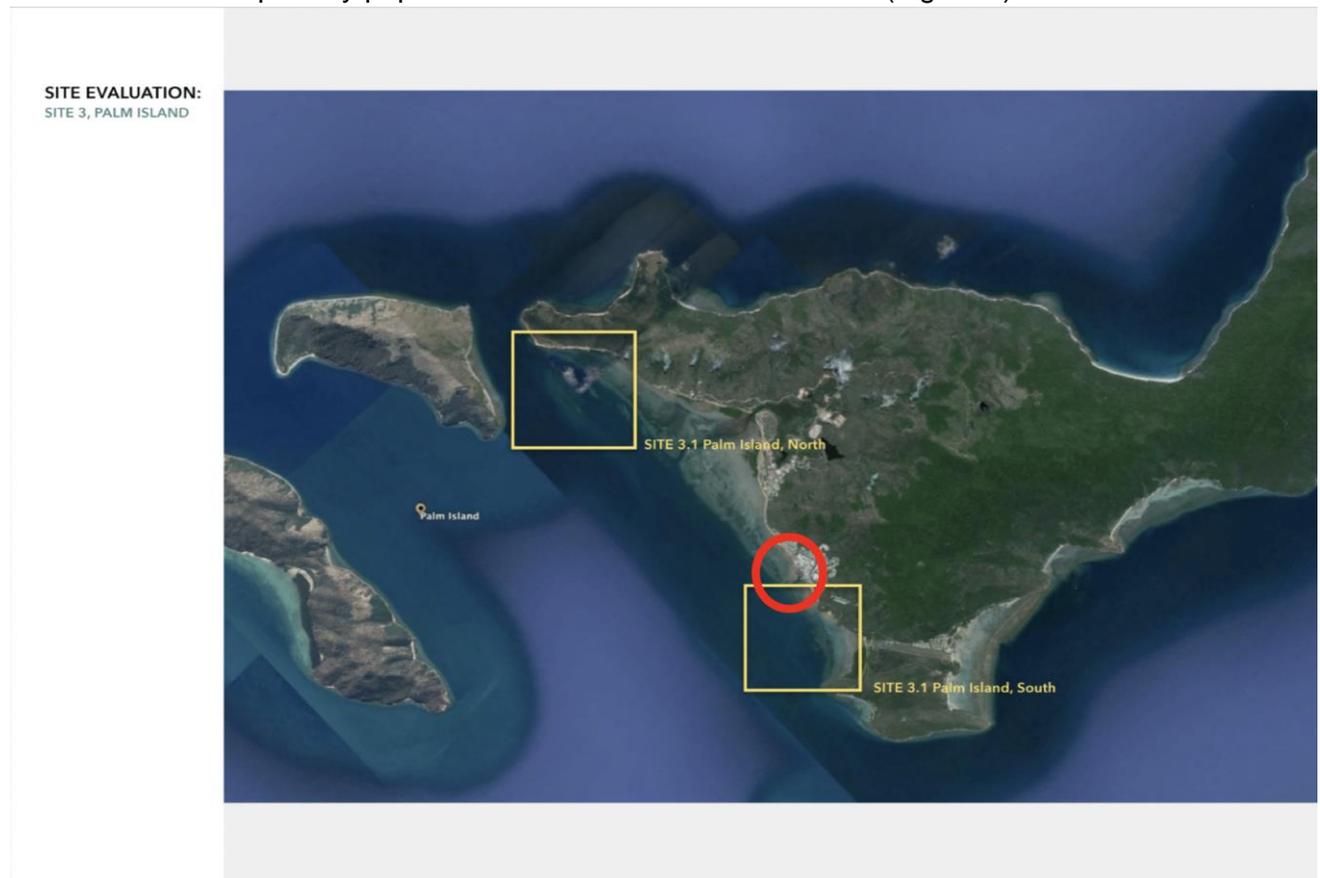
3. Public Information Package
4. Environmental Management Plan
5. Risk assessment

Key dates from the environmental assessment process are:

- Oct-Dec 2019 Site inspection(s)  
 21/01/2020 All statutory approvals have been lodged.  
 30/09/2020 All approvals required to enable public access and use of the facility have been met.  
 30/09/2020 The project is fully operational.

## 4. Methods

A scoping trip was undertaken by Jason deCaires Taylor, Reef Ecologic, Sealink Queensland, Adrenalin Dive and community stakeholders in July 2017 to investigate two sites (Figure 1, Appendix 1). This report is the second site assessment and focused on the area in front of the primary population centre at Great Palm Island (Figure 1).



**Figure 1. The two sites; Palm Island North (Wallaby Point) and Palm Island South (Casement Bay) investigated in 2017 and the focus of this 2019 second scoping study (Red circle)**

The site selected for the second scoping study was based on consultation with the Palm Island Aboriginal Shire Council between 2018-19. A scoping trip to the Palm Islands on the 9 October 2019 assessed a variety of locations adjacent to the sand spit in front of the township and next to the jetty in Coolgood Bay on Great Palm Island. Reef Ecologic Director Adam Smith and Marine Scientist Nathan Cook met with Palm Island Aboriginal Shire Council A\CEO Allison Rossetto and councillors Cr Robert Castors Jnr and Cr Deniece Geia. We discussed potential sites of underwater or intertidal art and the pros and cons of various location near the town at Palm Island prior to our in-water assessments.

Looking at historical images of site over time shows that the sandbank does change slightly over the years (Figure 5) but some areas have shown constancy over time and would be good sites for the sculptures. There are two unknown shipwrecks in Coolgood Bay with close proximity to the shore that could be complementary sites with the Museum of underwater art, so people could snorkel above the artworks, wrecks and reef in one snorkel outing. Visibility and current are highly weather and tide dependent at both sites due to being located on the fringing island reef. We are researching more information about these shipwrecks and are working with [GBRMPA](#), [The Museum of Tropical Queensland](#) to find out more and we will also add our findings to the [Australasian Underwater Cultural Heritage Database](#) as more public information is available.

## 5. Sites

### Site 1. Wreck 1 - North of the Channel

The first wreck is situated in 1-2m of water depth on a sandy habitat approximately 20 m parallel to a shallow fringing reef. The location of the bow is 18° 44.048'S, 146° 34.370'E, it is on its side with some of the structure out of the water (Figure 2). Swimming south of the bow you cross a sandy area sandy which leads up to the midship 18° 44.070'S, 146° 34.381'E which had been flattened and leads towards the stern 18° 44.091'S, 146° 34.377'E. The wreck is 80m in length and the structure has broken down over time (Figure1). There is a wide variety of coral species growing on the structure of the wreck as well as diverse fish and invertebrate species (Appendices 2). Beyond the sand, there is surrounding reef with a large fringing section on the inside in one meter of water.



**Figure 2: Drone image of Wreck 1 and in-water image of bow of Wreck 1 partially out of the water.**

### Site 2. Wreck 2 - South of the Channel

The second wreck is situated in 5 meters of water with parts of the wreck visible above water (Figure 3). It is 18 meters in length and 5 meters at its widest point. The locations of the vessel is 18° 44.107'S, 146° 34.366'E. It is thought to be an old commercial line fishing boat that sunk and was subject to a removal order by GBRMPA, however, due to good coral settlement, it was determined to remain in situ. The wreck is covered in a variety of coral species and hosts an abundance of fish species and other marine life (Figure 3). The second wreck was encrusted with a variety of coral species covering approximately 20% of the wreck surface. An additional 40% was covered with encrusting sponges. We are working towards trying to find more information about this vessel including name and historical information regarding its grounding.



**Figure 3: Image of Wreck 2 partially out of the water and in water image of bow of Wreck 2 encrusted in corals.**

### Site 3. Palm Island Sandspit/ Intertidal area



**Figure 4: Image of the sand spit area in front of the Palm Island community and jetty.**

In front of the Palm Island Jetty and community is a large sand spit area (Figure 4). To examine the fluctuation of sand over time we examined historical images from Google Earth and have seen a slight shift over time since 2006 (Figure 5). This could be a potential site for

above water or intertidal sculpture. This site would have high visibility for the community and be seen by everyone arriving and leaving the island. Additional community consultation would need to be carried out to see if the local community would prefer underwater, intertidal or land-based art. More investigation would need to be undertaken for the exact site location if used for an art piece.



**Figure 5: Google Earth historical images of the sand spit area in front of the Palm Island community and jetty between 2006 and 2019.**

## 6. Discussion and recommendations

After an initial investigation of the bay area in front of Great Palm Island, we have further information on three potential sites for sculptures proposed for the Museum of Underwater Art, Palm Island depending on whether they will be on land (Site 3-sand spit area), intertidal and partially submerged, (Wreck 1 - North of the Channel) or fully submerged (Wreck 2 - South of the Channel). This decision-making process will involve community consultation, further site inspection, artist involvement, underwater assessments of the area and government permit application for the sites.

The reefs surrounding and growing the wrecks has a wide variety of corals and marine life (Appendices 2-4) with large sandy areas around them which would be suitable sites for underwater artwork. This would be advantageous for community engagement and potential tourism opportunity for both diving and snorkeling. Wreck 1 is shallow, so the sculptures could be partially exposed at low tide and become submerged at high tide. This could be seen from boats, the Island while walking on the sand spit and snorkeling over the site. Situating the underwater artworks next to wreck 2 would make a great underwater dive and slightly deeper snorkel site where people can explore the wreck, artworks and see the associated marine life simultaneously. The third potential site is the sand spit which could be an above-water site. This site would be highly visible at all times. It would be important that the local people supported and were involved with selecting the design of this artwork, as it could be a prominent feature for the community. It would also involve more surveys to determine a good site location.

In the next few months, it will be beneficial to share this knowledge of the first and second site inspections with the Palm Island community and stakeholders to discuss preferred location of the artworks and obtain baseline ecological surveys and more detailed mapping of the preferred site(s).

The Reef Ecologic team has a short-term funding opportunity for capacity building for one or more Palm Island people to be trained in marine survey techniques and assist with the environmental assessment. Applicants with snorkelling skills and knowledge of marine species and project management are welcome to contact Dr Adam Smith at [adam.smith@reefecologic.org](mailto:adam.smith@reefecologic.org) or 0418726584 to discuss future opportunities.

## Appendices

### Appendix 1. Scoping trip of Palm Island July 2017

**SITE EVALUATION: SITE 3, PALM ISLAND, North Bay**



	<b>Visibility:</b> 6/10 3-8m		<b>GPS:</b> -18.700533 146.56800
	<b>Reef Biomass:</b> 8/10		<b>Substrate Level:</b> 5/10
	<b>Depth:</b> 0 - 8 meters		<b>Art Aesthetics:</b> 7/10
	<b>Access:</b> 5/10 Excellent		<b>Logistics Accessibility:</b> 5/10
	<b>Storm Exposure:</b> 6/10 Medium Periodic Typhoons		<b>Community Engagement:</b> 8/10
	<b>AnchoringSubstrate:</b> 5/10 Reef/ Rock/ broken coral		

**SUMMARY**

Situated towards the western point of Palm Island the reef consists of a mixture of developed coral bommies and fringing reef with a variety of hard and soft corals. The proximity of the adjacent island concentrates water movement in the area.

**Advantages**

- Nutrient rich current supports high diversity of life
- Improved visibility
- Opportunity to place works in-between coral formations
- Job opportunities to local community

**Disadvantages**

- Limited areas of flat substrate
- Currents become problematic to novice divers/snorkellers
- Inter tidal works difficult

Palm Island North

**SITE EVALUATION: SITE 3, PALM ISLAND**




	Visibility: 5/10 3-8m		GPS: -18.700533 146.56800
	Reef Biomass: 6/10		Substrate Level: 5/10
	Depth: 0 - 8 meters		Art Aesthetics: 6/10
	Access: 6/10 Excellent		Logistics Accessibility: 5/10
	Storm Exposure 7/10 Medium Periodic Typhoons		Community Engagement: 8/10
	AnchoringSubstrate: 5/10 Reef/ Rock/ broken coral		

**SUMMARY**

Situated towards the southern point of Palm Island the reef consists of a mixture of coral bommies and fringing reef with a variety of hard and soft corals. Small signs of bleaching in areas.

**Advantages**

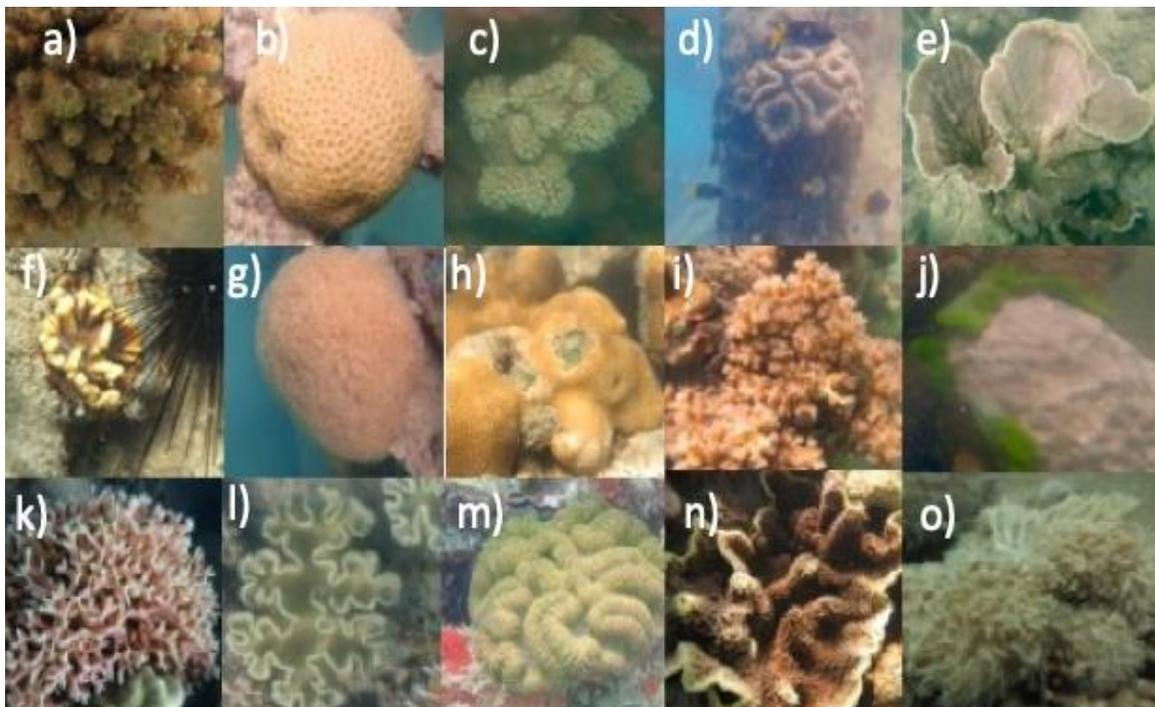
- . Proximity to town centre
- . Protection by headland
- . Opportunity to place works in-between coral formations
- . Job opportunities to local community

**Disadvantages**

- . Limited areas of flat substrate
- . Visibility

## Appendix 2: Corals present at underwater sites

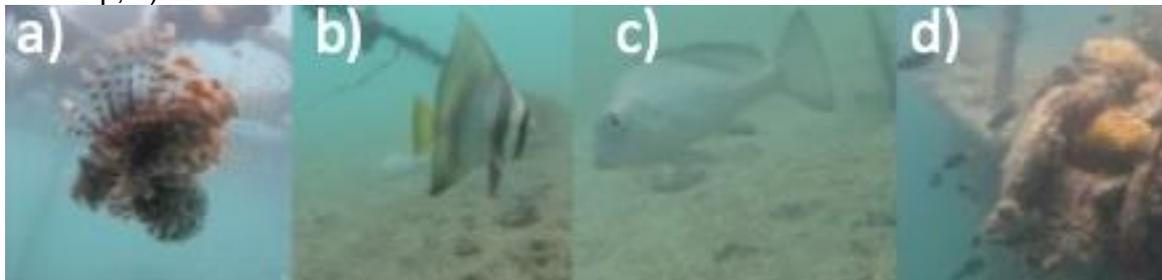
Appendix 2: Corals present at underwater sites. Images of corals from diverse genus a) *Acropora*, b) *Favid*, c) *Galaxea*, d) *Lobophyllia*, e) *Monitpora*, f) *Pectinia*, g) *Physogyra*, h) *Platygyra*, i) *Pocillopora*, j) *Porites*, k) *Seriatopora*, l) *Sarcophyton*, m) *Symphyllia*, n) *Turbinaria*, o) *Xenia*.



<i>Coral Genus</i>	<i>Present</i>
<i>Acropora</i>	Sites 1 & 2
<i>Echinopora</i>	Sites 1 & 2
<i>Favid</i>	Sites 1 & 2
<i>Galaxea</i>	Site 2
<i>Lobophyllia</i>	Sites 1 & 2
<i>Monitpora</i>	Sites 1 & 2
<i>Pectinia</i>	Sites 1 & 2
<i>Physogyra</i>	Sites 1 & 2
<i>Platygyra</i>	Sites 1 & 2
<i>Pocillopora</i>	Sites 1 & 2
<i>Porites</i>	Sites 1 & 2
<i>Sarcophyton</i>	Sites 1 & 2
<i>Seriatopora</i>	Sites 1 & 2
<i>Sinularia</i>	Site 1
<i>Symphyllia</i>	Sites 1 & 2
<i>Turbinaria</i>	Sites 1 & 2
<i>Xenia</i>	Sites 1 & 2

### Appendix 3: Fish present at underwater sites

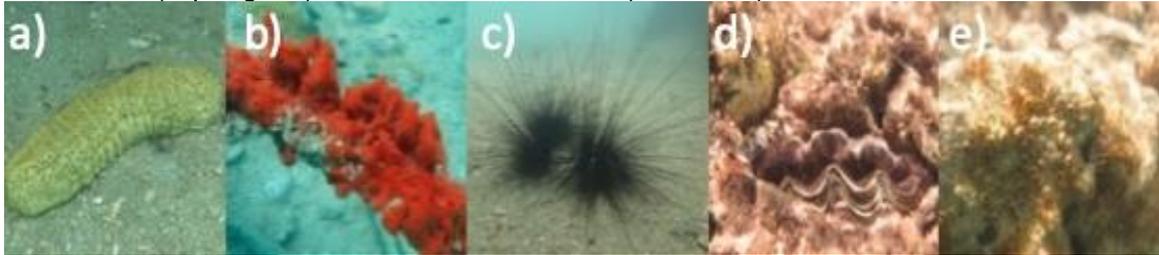
Appendix 3: Fish present at underwater sites. Images of a) Lionfish, b) Batfish, c) Painted Sweetlip, d) Damselfish.



<i>Fish Family</i>	<i>Common Names</i>	<i>Present</i>
<i>Pomacentridae</i>	Damsels	Sites 1 & 2
<i>Lethrinidae</i>	Sweetlips	Site 2
<i>Siganidae</i>	Rabbitfish	Sites 1 & 2
<i>Sphyrnaeidae</i>	Barracuda	Site 2
<i>Ephippidae</i>	Batfish	Site 2
<i>Chaetodontidae</i>	Butterfly fish	Sites 1 & 2
<i>Cyprinidae</i>	Baitfish	Site 2
<i>Scorpaenidae</i>	Lionfish	Site 2
<i>Labridae</i>	Cleaner wrasse	Sites 1 & 2

**Appendix 4: Invertebrates and marine life present at underwater.**

Appendix 4: Invertebrates and marine life present at underwater. Images of a) sea cucumber, b) sponge, c) diadema sea urchins, d) clams, e) zooanthids.



<i>Invertebrates and other Marine Life</i>	<i>Present</i>
<i>Diadema Urchins</i>	Sites 1 & 2
<i>Barnacles</i>	Sites 1 & 2
<i>Oysters</i>	Sites 1 & 2
<i>Sponges</i>	Sites 1 & 2
<i>Zooanthids</i>	Sites 1 & 2
<i>Sea Cucumber</i>	Sites 1 & 2
<i>Giant Clams</i>	Sites 1 & 2
<i>Sea Grass</i>	Site 1
<i>Chlorodesmis</i>	Sites 1 & 2