

The *Pandora* Wreck Site

The *Pandora* wreck lay undetected for almost 200 years. Today, it's one of the most significant shipwrecks in the Southern Hemisphere. Museum staff excavating the wreck will tell you it's also one of the most challenging!

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Rediscovering HMS *Pandora*

1977

Steve Domm/John Heyer's and Ben Cropp's expeditions

In November 1977, the wreck of the *Pandora* was located-186 years after its loss. Its rediscovery-by Steve Domm, John Heyer and Ben Cropp-was the result of a methodological search based on analysis of historical information compiled by John Heyer. A magnetometer carried by an RAAF maritime reconnaissance aircraft initially indicated the approximate location of the wreck within Pandora Entrance. The exact location-near the spot where a flare had been dropped by the RAAF Neptune-was discovered the next day by Ron Bell, one of the divers on Ben Cropp's expedition vessel.*

* Cropp 1980-82 - This Rugged Coast

1979

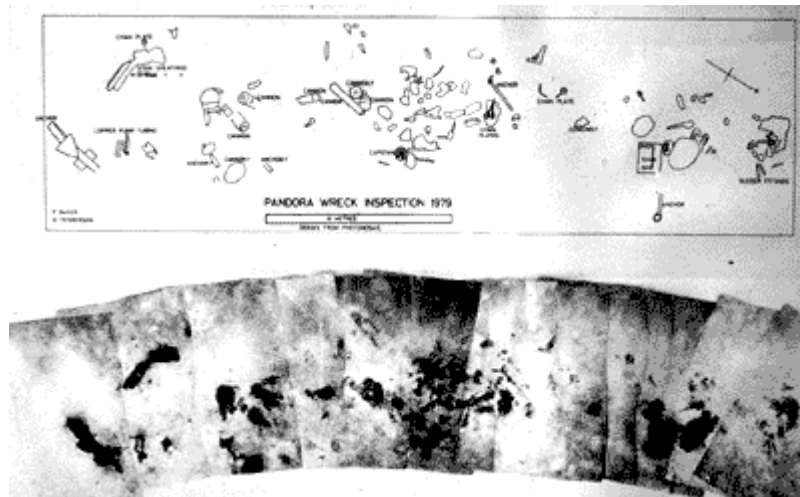
Western Australian Maritime Museum survey

A survey to confirm the identity of the wreck and assess its archaeological potential was commissioned in April 1979 by the Commonwealth Department of Home Affairs and Environment. The archaeologist who conducted the survey was Graeme Henderson, accompanied by photographer Patrick Baker, both from the Western Australian Maritime Museum (WAMM).

Rudder fittings, retrieved from the wreck by the finders in November 1977, had been sent to the WAMM's Fremantle laboratory for conservation and investigation. One of these fittings-a pintle-was found to be marked with a series of dots punched onto the surface in the form of the number "24". It also had the name "FORBES" embossed on it, in addition to a broad arrow, indicating the property of the British government.

These were the most positive clues that the wreck was a Royal Navy vessel of the *Pandora*'s size-a 24 gun frigate. Archival information subsequently provided additional confirmation, as a foundry operated by William Forbes was documented as a supplier of fittings to the yard in Deptford where the *Pandora* was built. The evidence was conclusive-the wreck was definitely HMS *Pandora*.

After the 1979 survey, WAMM's photographer Patrick Baker compiled a photomosaic of the site. By analysing the distribution of objects shown in the mosaic, Graeme Henderson concluded that the wreck had been intact after it had settled on the seabed. Clearly it had suffered some disintegration since. Nevertheless, Henderson surmised that it would be the most intact 18th century wreck in Australian waters.



A photomosaic of the site (Patrick Baker, Courtesy WAMM)

The *Pandora* wreck was considered to have substantial archaeological potential. Because its location had become generally known, additional protection was invoked in 1981 through Section 7 of the *Historic Shipwrecks Act, 1976*. Since then, a permit has been required to enter the protected zone created around the wreck.

The Queensland Museum's involvement with the *Pandora* wreck did not begin until the Museum's director was appointed the Commonwealth Minister's Queensland delegate under the *Historic Shipwrecks Act*.

In 1982, a Maritime Archaeology section was formally set up at the Queensland Museum, with the appointment of senior exhibition designer Ron Coleman as Curator of Maritime Archaeology. This marked the beginning of a maritime archaeology program in Queensland. The *Pandora* wreck would figure prominently in this program.

The location of the *Pandora* wreck

The *Pandora* wreck is located within Pandora Entrance, approximately 5 km to the north-west of Moulter Cay. This sand cay is on the outer Great Barrier Reef, approximately 140 km east of Cape York, on the edge of the Coral Sea. It is a remote and challenging environment.

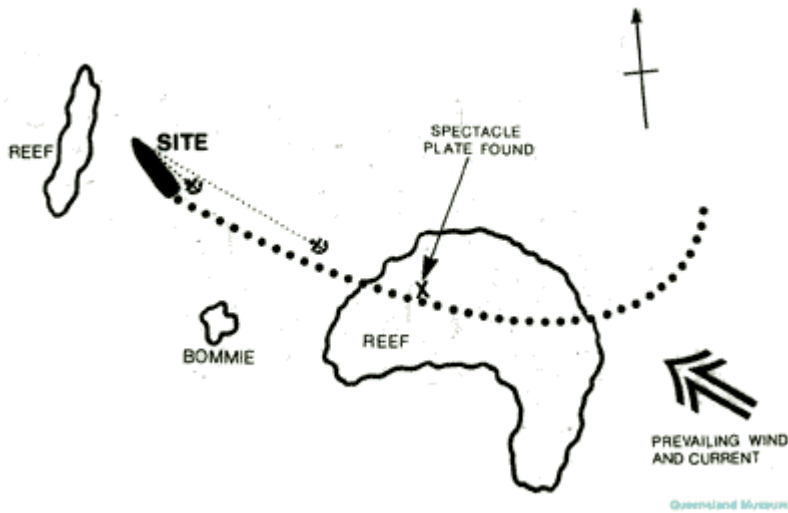
Moulter Cay was first named "Entrance Cay" by Captain Edwards. But it was officially renamed in 1984, in recognition of William Moulter's humane deed towards the trapped prisoners in "Pandora's Box".

"Escape Cay" is thought to be Preservation Cay, where the survivors stayed for two nights. This is based on James Morrison's account that it was the "middle of three cays" within Pandora Entrance.



Location of the *Pandora* wreck

A remote and challenging environment



The configuration of the three small reefs around the wreck, which is located approximately 75 metres east of "western reef".

Although the wreck lies well inside the entrance, it is exposed in the east to swells from the Coral Sea generated by the prevailing easterly winds, especially between July and December.

Directly to the east, south-east and west, the wreck is surrounded by three small reefs that offer some protection against swells. The *Pandora* struck the larger, eastern reef. This is borne out by the discovery of a bronze rudder fitting and an iron swivel gun on the reef top. The distance between the east and west reefs is approximately 350 metres. These reefs also deflect the flow of currents across the site. The pattern of these currents has not yet been determined. However, divers working on the wreck have experienced their strength and unpredictability.



Cyclonic conditions on site.

The *Pandora* wreck is very remote. The wreck site-in far northern waters of the Great Barrier Reef-is actually closer to Port Moresby in Papua New Guinea than to Townsville or Cairns. Depending on weather and sea conditions, it takes nearly three days for an expedition vessel to get there from Townsville.

Three sand cays (more or less stable) represent the only "land" within a 10 mile radius. The closest terrestrial islands-the Sir Charles Hardy Islands-are approximately 60 miles to the south-west of Pandora Entrance.

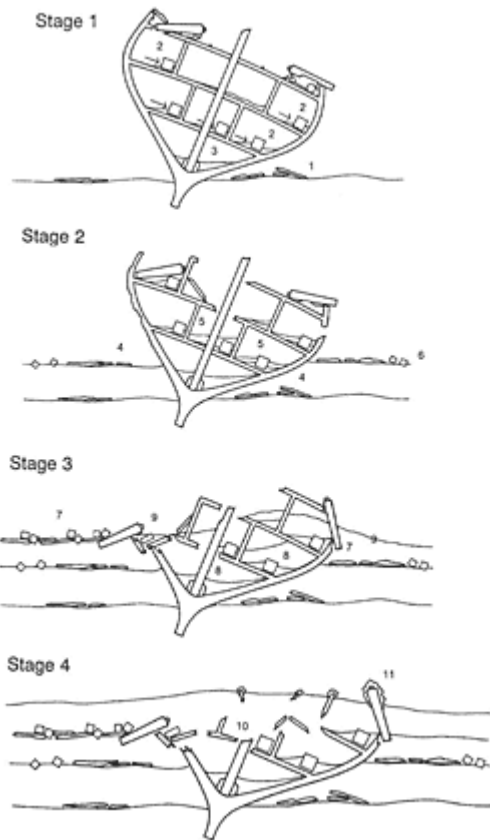
Because the depths at the wreck range from 30 to 34 metres, conditions for underwater archaeological work are difficult. Divers can be hampered by powerful currents-which often emerge with very little warning-either along the sea floor or in mid water.

The Museum's last six expeditions were conducted during the months of January and February. Although this is cyclone season, the decision to go in these months was deliberate, as the likelihood was greatest of getting long periods-sometimes days on end-of calm weather.

Calm weather is always desirable for ease of operation, and was certainly preferable to the frequently blustery and choppy surface conditions experienced more or less daily by the expeditions during the 1980s, and caused by fresh south-easterly (trade) winds prevailing between July and December.

The 1996 expedition was interrupted for 36 hours as cyclone Denis passed approximately 100 miles to the south of Pandora Entrance. This was the longest disruption to diving operations due to weather between 1995 and 1999. Short disruptions to diving operations due to weather and sea conditions were, however, never completely predictable or avoidable.

What remains of the hull?



4 stages of disintegration (Gesner 1991).



The *Pandora's* Brodie stove (Photo: Brian Richard).



One of the *Pandora's* anchors on the sea floor (Photo: Pat Baker).

After sinking-damaged but substantially intact-the hull settled into the sea floor on its starboard side and appears to have been buried over time. As layers of sediment were accumulating within and around the hull, the exposed upper levels of the vessel collapsed and disintegrated as a result of attack by marine borers, the effect of currents and, to a lesser extent, wave motion (Stages 1 and 2).

The distribution of the visible features of the wreck attests to sediment build-up and the gradual collapse and disintegration of the exposed upper hull levels-i.e. burial from the bottom up and physical disintegration from the top down. These two processes probably took several decades, possibly up to 60 - 70 years (Stages 3).

As the *Pandora* disintegrated, objects tumbled out of the wreck and were deposited on the seafloor around the wreck. Some were then buried; others may have been swept some distance from the wrecked hull or become trapped under the stern before its final collapse.

The most recognisable and visible features of the wreck include several large iron objects on the sea floor-e.g. an anchor and the vessel's galley (Brodie) stove.

Using remote sensing equipment, several attempts have been made to determine the extent and condition of the hull's remains, but these have given indications only. From what has been exposed to date, indications are that approximately 30% of the original hull has been preserved (Stage 4). The timbers that have actually been seen so far appear to be in good condition. But there is evidence of collapse of deck beams and possibly of frames.

There are still numerous unanswered questions about the structural cohesion of the surviving timbers. A definitive assessment of the extent, cohesion and condition of the buried hull remains can only be made after excavation has uncovered them. This would require retrieval of the entire artefact assemblage lying buried in the sediment in and around the hull.

In 1995 it was estimated that approximately 590 cubic metres of sediment would require systematic excavation to uncover all of the hull remains. To date (2005) approximately 240 cubic metres have been excavated.

One of the *Pandora's* anchors on the sea floor. This was the anchor dropped "underfoot"-closest to the western reef-just after the crew had re-floated the vessel from the reef.

Will the *Pandora* ever be "raised"?

It is very unlikely that the *Pandora* will ever be raised-unless someone underwrites the raising with at least \$50 million! This very large sum would be needed to build another special-purpose building so the raised hull could be conserved, housed, reconstructed and displayed.

However, in reality, there doesn't appear to be sufficient reason to raise the *Pandora*.

What's more, it's unlikely that it would make an effective or attractive museum display-we don't know if the remains would be recognisable as an intact structure.

It's not known exactly how much it would cost-but the costs are likely to be so high, they could never be justified.

It's not known whether the condition of the *Pandora* would enable it to be raised in one piece (like the Tudor warship *Mary Rose*, for instance).

The museum's interest in the *Pandora*-and what makes it significant from an archaeological perspective-is "what's inside". The artefacts and stories uncovered thus far have revealed unexpected insights into 18th century seafaring, not to mention an exciting and little-known part of Pacific history.

And we've really just gone beyond scratching the surface to date! Which is why ongoing excavation-to get to the "bottom of it"-is important. As well as timely conservation and imaginative and thought-provoking interpretation, of course!

This is further discussed in the 1995 expedition summary.

Legislation & dive permits

An area with a radius of 500 metres, centred at the intersection of latitude 11°22'40"S and longitude 143°59'35"E is declared a protected zone under Section 7 of the Commonwealth's *Historic Shipwrecks Act 1976*.

A permit is required to enter this protected zone and to dive on the wreck. Permits can be applied for from the Director of the Queensland Museum, who is the minister's delegate in Queensland under the provisions of the *Historic Shipwrecks Act 1976*.

The protected zone is regularly patrolled by aerial surveillance craft. Penalties apply for entering the zone without a permit.

Pandora Entrance is also located within an area of the Great Barrier Reef Marine Park which has been gazetted as a "Marine Park B Zone" (*Great Barrier Reef Marine Park Act 1975*). Enquiries about access to the Marine Park and permissible activities within the park should be directed to the Great Barrier Reef Marine Park Authority.