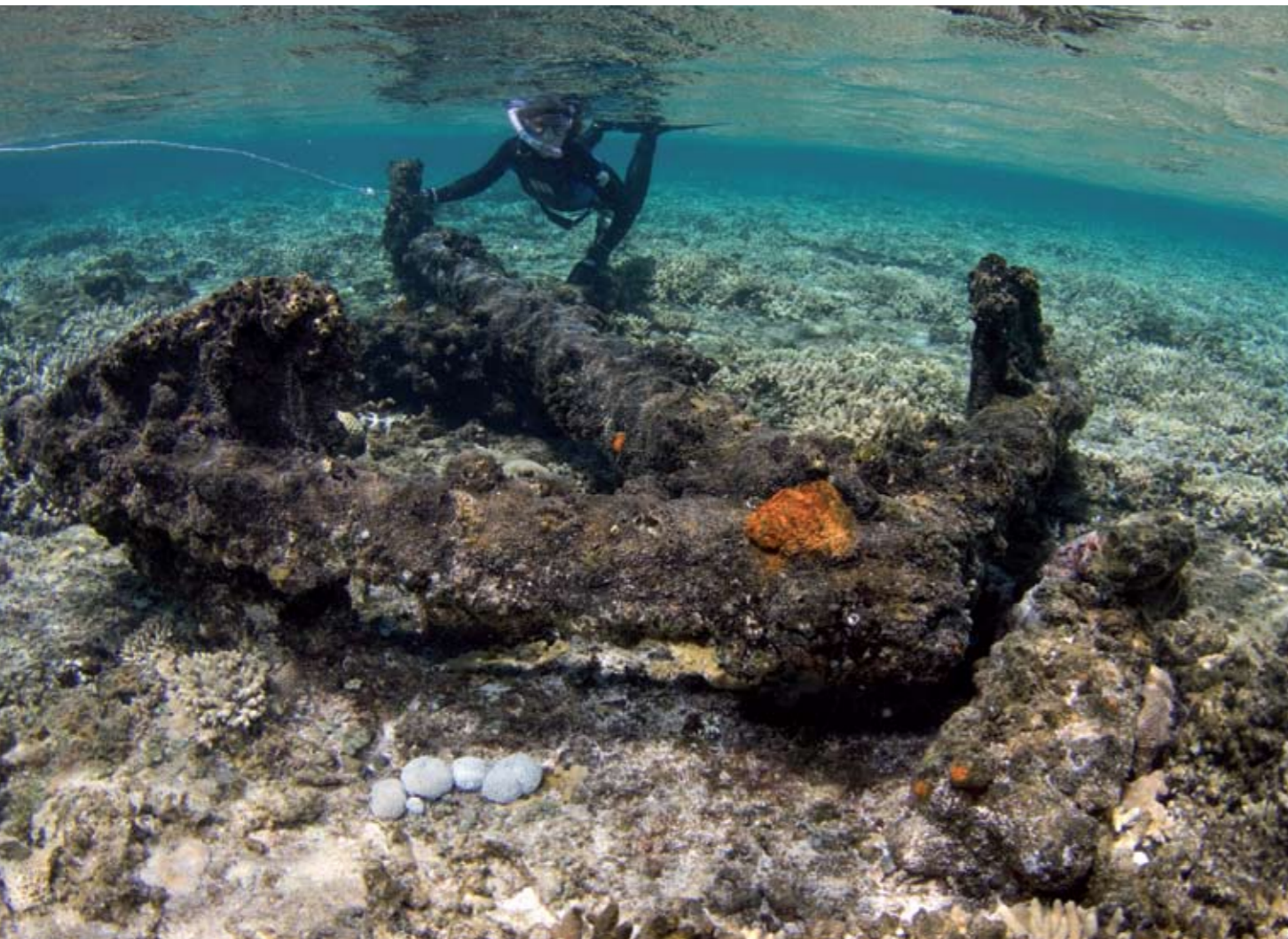


wrecks reefs

and guano



In about a minute, the ship was carried amongst the breakers; and striking upon a coral head, took a fearful heel over onto her larboard beam ends



The Australian National Maritime Museum has completed a second successful collaborative project with the Silentworld Foundation – an archaeological expedition in tropical waters to learn more about the site of Matthew Flinders' dramatic shipwreck during his historic survey of the Australian continent. This account comes from expedition leader and museum curator and maritime archaeologist Kieran Hosty.

ON 17 AUGUST 1803 the great navigator and charter of the Australian continent, Captain Matthew Flinders RN, was shipwrecked on an isolated, uncharted coral reef off Australia's east coast, while returning to England with the precious, as yet unpublished charts, journals and manuscripts of his epic Australian voyages. Wreck Reefs, which gained their name from the loss of the ship that was carrying Flinders – HMS *Porpoise*, and an accompanying merchant ship *Cato* – are a group of low-lying coral reefs and sand cays 18 nautical miles (25 kilometres) long and lying 230 nautical miles (450 kilometres) east of Gladstone, Queensland.

Flinders had not yet fully completed the survey of Australian coasts that had been entrusted to him by the Lords of the Admiralty. His previous ship HMS *Investigator* – on which he had circumnavigated the continent and done masterful survey work – had become perilously rotten and was unfit for further voyaging. No suitable replacement was available in the colony, so he was returning to England to seek another expedition ship. To get there, Governor King had assigned him HMS *Porpoise*, a 308-ton Spanish-built vessel captured by the Royal Navy in 1799 and commissioned as a 10-gun sloop. Her master was Lt Robert Fowler. His orders were to allow Flinders whatever time he needed to chart Torres Strait, and then to carry him to England by Flinders' preferred route.

On 10 August 1803 *Porpoise* left Sydney in company with two other ships. The 430-ton, English armed merchant ship *Cato*, John Park master, was bound for Batavia in the Dutch East Indies. With them sailed a 750-ton, 32-gun East India Company Extra Ship *Bridgewater*, master E H Palmer, bound for Calcutta. Taking the outer route around the Great Barrier Reef, the three vessels travelled in convoy.

On the evening of 17 August the convoy was under reduced sail after sighting some reefs and a sand cay in uncharted waters that afternoon. *Porpoise* was in the lead, *Cato* on its port stern quarter and *Bridgewater* on the starboard. The watch on *Porpoise* sighted breakers but the ship, unable to come around under reefed topsails, struck the southern edge of a reef and was driven up onto its platform by the prevailing weather.

...In about a minute, the ship was carried amongst the breakers; and striking upon a coral head, took a fearful heel over onto her larboard beam ends, her head being north-eastward... When the surfs permitted us to look to windward the Bridgewater and the Cato were perceived at not more than a cable's length distance; and approaching each other so closely, that their running aboard seemed to us inevitable...

Matthew Flinders, *A Voyage to Terra Australis*, London 1814

Cato's Captain Park, seeing *Porpoise* go up onto the reef, had tacked to the east at the same time *Bridgewater* tacked to the west, putting both vessels on a collision course. Park ordered *Cato* to come off the wind, but while this averted collision it resulted in further disaster, as Flinders relates:

...the Cato struck upon the reef about two cables length from the Porpoise, we saw her fall over her broad side and the masts almost instantly disappeared...

Porpoise lay with its hull facing towards the wind and seas, protecting the decks and offering shelter to the crew and passengers on board. The *Cato*, however, turned side-on to the surf and rolled into the direction of the prevailing wind, exposing the decks to the pounding waves. The vessel quickly began to break

left: Toni Massey from Flinders University, SA, inspecting an old Admiralty long-shank anchor, one of three bower anchors carried by HMS *Porpoise*.

top: A Brown-face Boobie and its chick on Porpoise Cay, Wreck Reefs. All expedition photography by Xanthe Rivett



Before dark, five hogsheads of water, some four of salt meat, rice and spirits were landed, with such of the pigs and sheep as had escaped drowning

up and by morning had almost disappeared, with just the bow and foremast chains exposed above the surf. Three crew had drowned.

The East India Company ship *Bridgewater* missed the reefs and Captain Palmer made what some would call a half-hearted attempt to work back to windward to the reefs, to determine the fate of the wrecked ships and their people. Instead of coming to their aid Palmer continued to his destination India, where some of the crew left the ship in protest over his actions. But fate had not finished with Palmer; *Bridgewater* disappeared with the captain and his remaining crew on its very next voyage, somewhere in the Indian Ocean.

Back on Wreck Reefs, 18 August dawned with slightly more hope than the preceding desperate night. In the words of Flinders, who was the senior naval officer and quickly took charge of the survivors:

... with the daylight appeared a dry sand bank, not more than half a mile distant, sufficiently large to receive us all with what provisions might be got out of the ship ... At low water, which happened about two o'clock, the reef was dry very near to Porpoise, and both officers and men were assiduously employed in getting upon it provisions and their clothes ... before dark, five hogsheads of water, some four of salt meat, rice and spirits were landed, with such of the pigs and sheep as had escaped drowning ...

Of equal or greater concern to Flinders were the precious charts, journals and notes from his surveys in HMS *Investigator*, most of which he salvaged although some were water-damaged. Most of the Australian botanical specimens he was carrying back to England were lost. The crews from both vessels set up camp on the small sand island that they named Porpoise Cay, erecting tents from spars and sails.

On Friday 26 August, leaving his Australian survey charts sealed in boxes on Porpoise Cay, Flinders set sail for Port Jackson in the largest of the surviving ship's cutters, which they renamed *Hope*. It carried three short, demountable masts and lugsails. With him were Captain Park of *Cato* and a dozen sailors – enough to provide two watches to man the six oars when the wind failed or was adverse – plus three weeks' provisions and two half hogsheads of water. Under Flinders' command they made the 760 nautical

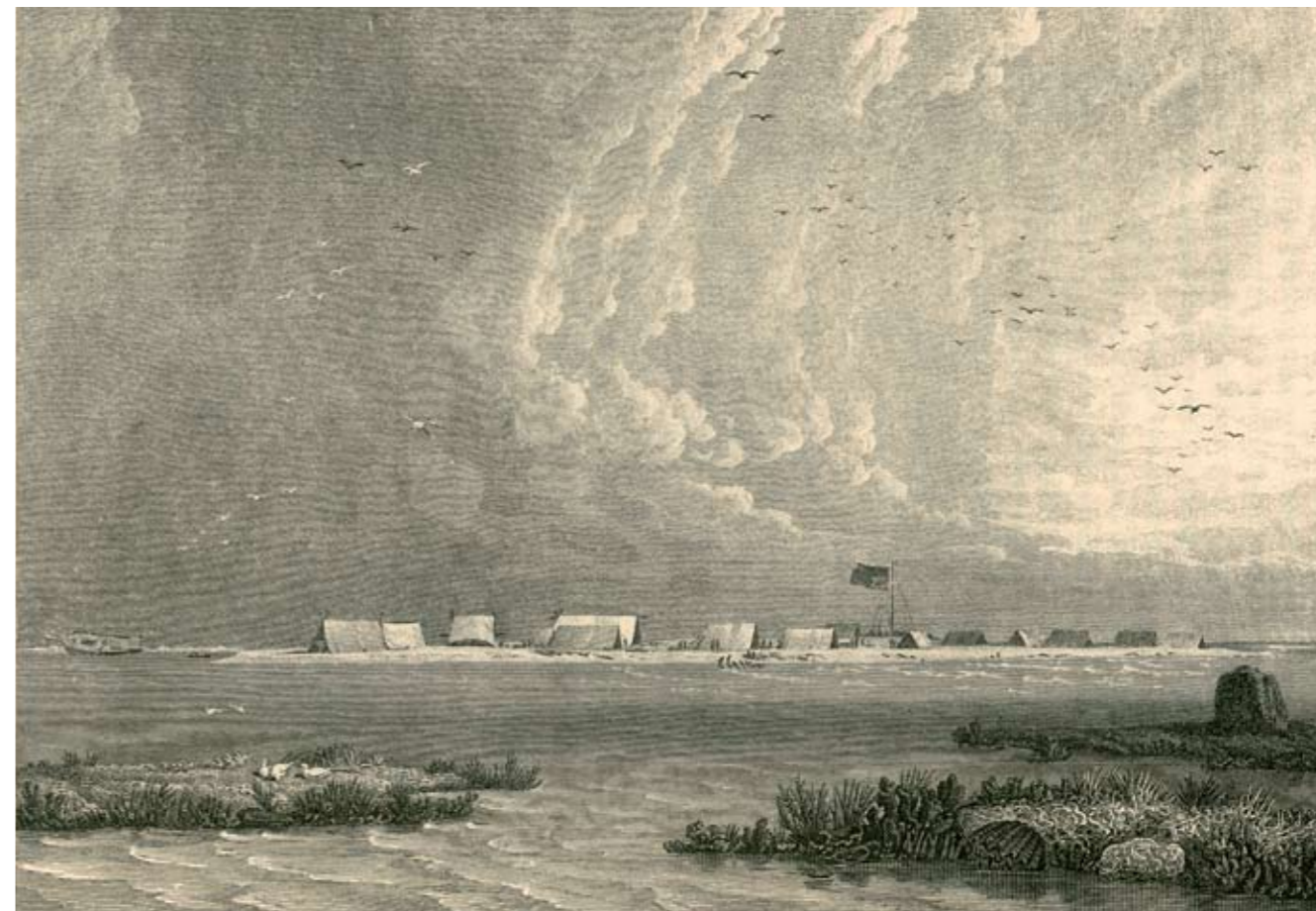
mile journey in 12½ days, another of those amazing open-boat ocean passages that the resolute sailors of those days seemed to undertake quite routinely, when the necessity arose!

For six weeks the rest of the survivors, under the command of *Porpoise's* Fowler, subsisted on Porpoise Cay. With them was Flinders' brother Samuel, a capable navigator who had accompanied the explorer to Australia, and who spent some of his time accurately plotting the location of Wreck Reefs. Naval discipline prevailed and the men salvaged what they could from the two wrecks and began work constructing two small, 'rakish schooners' from timbers salvaged from the wrecks. They completed one, which they named *Resource*, and used it to visit Bird Islet, the eastern-most cay in the group and a rich dietary source of sea-birds and eggs.

Fortunately for the survivors it was not the cyclone season, since a strong tropical cyclone would have swept them from the low sand cay. Instead, on 7 October, they used their salvaged carronades to fire a salute to Flinders who had returned to rescue them with not one but three ships – the merchant ship *Rolla* and two colonial schooners, *Francis* and *Cumberland*! Flinders called this triumphal return 'one of the happiest moments of my life'.

In Port Jackson the resourceful Flinders had secured the help of Governor King to contract the visiting merchant ship *Rolla*, bound for Canton, to sail via Wreck Reefs and rescue some of the shipwrecked men. Others would return to Port Jackson on the *Francis*, a small schooner that was one of the first sea-going ships built in the colony. The third rescue vessel was the government schooner *Cumberland*, launched in Port Jackson in 1801. Flinders had obtained *Cumberland* to continue his voyage through Torres Strait to England.

The officers and crew of *Porpoise* and *Cato* were distributed among the flotilla. *Rolla* sailed on to China, *Francis* and the 'rakish schooner' *Resource* built on Porpoise Cay by the survivors returned to Port Jackson, while *Cumberland* sailed for England under the command of Matthew Flinders, carrying most of his Australian survey materials. But unfortunately for him war had broken out between France and England and when Flinders arrived in Mauritius in December 1803 he was detained as a spy by the island's commander General Charles DeCaen for seven long years – until June 1810!



above: Matthew Flinders, lithograph, 1814. ANMM collection

opposite top: The survivors' encampment on Porpoise Cay in 1803, with the hull of the wrecked HMS *Porpoise* on the reef at the left. Engraving by I Pye, based on the drawing by expedition artist William Westall, from Matthew Flinders' *A Voyage to Terra Australis*, G & W Nicol, London 1814

right: A school of Blue Parrotfish, also known as Mini-fin Parrotfish, on the southern edge of the *Cato* Gutter, Wreck Reefs.

left to right: Silentworld Foundation dive supervisor Kate Thompson with Olive-green Sea Snake, Bird Islet Reef.

Shawn Arnold from Flinders University, SA, recording artefacts recovered from Porpoise Cay.

Silentworld Foundation volunteer Andrew Turner in the surf break near the Cato Gutter



Wreck Reefs after Flinders

Following Flinders' departure Wreck Reefs were visited infrequently by beche-de-mer fishers from the colony, until May 1854 when the reefs claimed another ship, the 250-ton *Mahaica*. The position of the reefs – lying across the main outer shipping route from Sydney to China – along with growing traffic and increasing activity in the South Seas whale fishery led to further shipwrecks in 1856, 1861, 1870, 1879, 1882 and 1886.

Bird Islet at the eastern end of Wreck Reefs was occupied from the mid-1860s to the early 1900s by the Tasmanian-based Anglo-Australian Guano Company. It quarried the metre-thick deposits of sea-bird excrement known as guano, and exported thousands of tons of the dried and bagged fertiliser to Melbourne, Sydney, Launceston and Hobart where it fetched £8 a ton.

From the early 1900s the reefs and cays were largely undisturbed until the early 1960s when a growing interest in Australia's maritime past, together with the development of recreational scuba diving, saw a series of private expeditions visit the reefs searching for the remains of shipwrecks. Scuba diving pioneers led by Ben Cropp visited in 1965 and quickly found the remains of HMS *Porpoise* on the reef top in shallow water directly east of Porpoise Cay.

The divers also located another wreck approximately 400 metres to the west of HMS *Porpoise*, which they took to be *Cato*. Further visits to Wreck Reefs are

Searching for something wherewith to make a fire on the first night of our landing a spar and a piece of timber, worm eaten and almost rotten, were found and burnt

recorded in 1966, 1967 and again in 1983 when divers from the Maritime Archaeological Association of Queensland relocated the two wrecks near Porpoise Cay, along with a third wreck found at Bird Islet that was tentatively identified as the 151-ton brigantine *Harp* wrecked in 1861.

Divers from the Queensland Museum and the Maritime Archaeological Association of Queensland visited Wreck Reefs and the site of HMS *Porpoise* in May 1987 and again in May 1988. A bronze bell – unfortunately lacking a name – was raised. It was during these visits that the earlier identification of the second shipwreck site as that of *Cato* was questioned, since the presence of copper sheathing and the style of anchor at the

site indicated a vessel of a much later date than 1803. It was hypothesised that *Cato* lay further towards the east.

In 1990 crew from the dive charter vessel *Boomerang* reported a cluster of shipwreck material consisting of a single iron cannon, Spanish coins and casuarina logs approximately 400 metres east of the *Porpoise* site. This suggested an association with *Cato*, which was carrying a cargo of Australian timber. The cannon was raised in 1991 by a team from the Queensland Museum. It was later identified from the trunnion marks as having been manufactured by the Carron Iron Foundry at Falkirk in Scotland between 1770 and 1780.

The Silentworld–Australian National Maritime Museum expedition

In 2008 the Australian National Maritime Museum began a fruitful collaboration in Australian maritime archaeological projects with the Silentworld Foundation, part of the Australian-based shipping company Silentworld Ltd. Our first joint expedition that year located the wreck of Lieutenant Phillip Parker King's survey vessel, HMCS *Mermaid*, lost on an uncharted reef south of Cairns in 1829. In December 2009 the museum and the Silentworld Foundation came together once again in another collaborative expedition – this time to locate and survey the remains of HMS *Porpoise* and the merchantman *Cato*, which played such an important role in the dramatic story of Flinders' encounter with Wreck Reefs.

Since much archaeological work had already been conducted there, our primary aims were to survey several areas not previously examined, attempt to pin down the location of *Cato*, survey the guano workings and associated shipwrecks at Bird Islet, and try to solve one other interesting and puzzling maritime riddle that Flinders had recorded on that very first night cast up amid the breakers of Wreck Reefs.

In searching for something wherewith to make a fire on the first night of our landing a spar and a piece of timber, worm eaten and almost rotten, were found and burnt. The timber was seen by the master of the Porpoise, who judged it to have been part of the stern post of a ship of about 400 hundred tons ...

Matthew Flinders, *A Voyage to Terra Australis*, London 1814

This was also recorded by the captain of HMS *Porpoise*, Lieutenant Fowler. Before the timber remains were burnt on that cold winter's night they were identified as being part of a stern post and the quarter galleries of a large, European-built ship, possibly a frigate. Both Fowler and Flinders interviewed the sailors who found the wreckage and later passed on the information to Sir Joseph Banks. Even when under house arrest in Mauritius, Flinders reported the discovery of the wreck to his French captors since he believed that it may have been associated with one of the ships from La Perouse's expedition that had disappeared after departing Botany Bay in March 1788. The fate of La Perouse had been one of the great mysteries of that great age of Pacific exploration.

Since La Perouse's ships were later found off Vanikoro in the Solomon Islands, and no pre-1803 vessels are known to have been wrecked off this part of the Queensland coast, the wreckage seen by the survivors in 1803 presented an intriguing mystery. Was it a Spanish vessel blown off course on a voyage to one of Spain's Pacific colonies? Or an early American or British whaling vessel that had disappeared into the vastness of the Pacific Ocean? Our archaeologists would be alert for any clues to the identity of this mystery shipwreck on Wreck Reefs.

The team to carry out our land and sea survey in December 2009 comprised archaeologists, historians, students and volunteer divers from this museum, the Silentworld Foundation, Oceania Maritime, the Maritime Archaeological Association of Queensland, James Cook

University and the Department of Environment, Water, Heritage and the Arts. We had worked with many of these people during our earlier *Mermaid* expedition, but in December we were also joined by Dr David Booth and Ashley Fowler, two marine biologists from the Sydney Institute of Marine Science (SIMS), as well as Jennifer McKinnon, Toni Massey and Shawn Arnold, three marine archaeologists from Flinders University in South Australia.

After the teams had been organised, permits acquired, equipment tracked down, hired and/or serviced, medical supplies (including vials of incredibly expensive sea snake antivenom) sourced and emergency procedures arranged and tested, the two expedition vessels *Nimrod Silentworld* and *Silentworld II* left Gladstone for the voyage to Wreck Reefs. We punched into steady easterlies for more than 35 hours before West Islet, the first of the Wreck Reefs sand cays, appeared on the horizon as a dash of brilliant white sand among foaming breakers. Hope Cay and Porpoise Cay appeared shortly afterwards and the two expedition vessels were soon moored up on the northern side of Porpoise Cay in 15 metres of crystal-clear water.

To survey the large areas of seabed at our target locations, our plan was to use magnetometers – towed submersible electronic devices that measure changes in the earth's magnetic field caused by the presence of iron artefacts such as cannons or anchors. Such instruments had been used to great effect on the earlier *Mermaid* expedition.

Our personnel were briefed, small boats were fuelled and the various teams were away almost as soon as the two main expedition vessels had moored up. Warren Delaney, a member of the Maritime Archaeological Association of Queensland and formerly with the Queensland Museum, had visited Wreck Reefs on several earlier expeditions, and he quickly located and buoyed the site of HMS *Porpoise* on the southern side of the Porpoise Cay lagoon.

Although more than two centuries had passed since HMS *Porpoise* went up onto the top of the reef, the site is liberally strewn with the remains of the ship. A large, old-style Admiralty-pattern anchor lies palm down in the breaking surf, while a second lies 30 metres or so back from the reef edge in one or two metres of water. Surrounding the anchors and stretching northwards for several hundred metres are dozens of iron ballast blocks – kentledge in 18th-century

terminology – along with numerous copper-alloy hull fastenings, sheathing nails and hull fittings.

The magnetometer boat and two teams of snorkel divers commenced their survey work along the exposed outer edge of the reef looking for any signs of the pre-1803 shipwreck, as well as the wreck site of the *Cato*. Although the surf was high the divers located several reef gutters – valleys in the coral reef filled with sand and coral rubble – which could possibly be the site of the *Cato* wreck.

Unfortunately for us neither of the two magnetometers that the expedition had brought appeared to be functioning properly, although both units had been serviced and tested before departure. Over the next few days, while the magnetometer teams battled with their recalcitrant equipment and sourced a replacement from Western Australia, our divers continued searching for the remains of the *Cato* and also began surveying the remains of the 1803 encampment on Porpoise Cay. This was where the 90 survivors had built their shelters, erected a flag pole, planted a garden with oats, maize and pumpkins, dug a saw pit for cutting timber, established a forge for working metal and set aside an area on the north-eastern side of the cay to build their two schooners.

... from this time on hands are employed, some about our new boat whose keel is laid down 32 feet, others employed in getting anything serviceable from the Wreck;

Hands are employed, some about our new boat whose keel is laid down 32 feet, others employed in getting anything serviceable from the Wreck

our guns and carriages we got from the Wreck and placed them in a half moon form close to our flagstaff... on the 4th of October was launched and gave her the name Resource, on the 7th we loaded her with wood in order to take it over to the Island ... to make charcoal, for our smith to make the iron work for our next boat...
Journal of Samuel Smith, HMS *Porpoise*

Referring to the original drawings of William Westall, the artist with Flinders' expedition, it would appear that time, cyclones and winter storms, the prevailing wind and the actions of nest-building seabirds and turtles have altered the shape and size of Porpoise Cay considerably; it is now about 50 metres shorter, and further to the west, than it was in Flinders' time. Nonetheless, the survey team immediately started to find numerous artefacts associated with the survivors' camp.

The concreted remains of cannon balls were located on the eastern end of the cay along with furniture fittings, a uniform button, the eye-piece of a navigational instrument and ship's fastenings. At the south-western end were found a lens of burnt material and fragments of coal, possibly associated with the signal fire and forge that had been erected downwind from the survivors' tents.

Without the larger towed magnetometers, the dive teams searching for the remains of the *Cato* and the pre-1803 shipwreck used a less powerful hand-held magnetometer, supplemented by several hand-held metal detectors, looking for indications of these two wrecks. The team located a series of significant anomalies in a gutter some 250 metres east of the *Porpoise* site, in the area where an iron cannon and Spanish coins were recovered by the Queensland Museum in 1991. We called this the *Cato* Gutter Site. Here we found fragments of lead and shards of blue glass.

Snorkel divers working inshore from both the *Porpoise* and the *Cato* Gutter Site

had more luck. As both wrecks broke up a plume of material had been swept into the lagoon by the prevailing weather and tide. The heavier material was deposited closer to the reef edge and lighter material such as rigging components was carried hundreds of metres across the reef top until it snagged on the coral bottom or became waterlogged and sank in the lagoon.

One such find was a 600 mm-long copper-alloy gudgeon – a cast rudder hinge fitting – found more than 300 metres inshore from the *Cato* Gutter Site. It is more than likely that this heavy fitting was still attached to part of the stern post of the vessel when it floated into this position and eventually sank. All the timber has subsequently disintegrated, but the presence of copper fastenings in the vicinity of the gudgeon supports this scenario. Artefacts such as this gudgeon can provide accurate information on the nationality, size and age of a wreck. It is currently being conserved in the museum's conservation laboratory along with a number of other recovered artefacts.

With a third magnetometer brought in from the mainland on our resupply vessel, we quickly confirmed that a significant iron anomaly existed in the *Cato* Gutter Site. Divers with hand-held metal detectors combed the site again and this time located an iron cannon heavily concreted into the northern wall of the gutter, in three to four metres of water. A second anomaly, possibly another cannon, was located adjacent to the first. It is apparent that this gutter is more than likely the main wreck site of the *Cato*.

The museum and Silentworld Foundation were pleased with this progress in identifying the last resting place of *Cato*, one of the earliest colonial merchant vessels lost in Australian waters. Although the pre-1803 mystery shipwreck has eluded us this time, we collected significant archaeological information on the *Porpoise* wreck site

ANMM senior curator Dr Nigel Erskine with the gudgeon (rudder hinge fitting) probably from the merchantman *Cato*. Expedition photographer Canthe Rivett

and the survivors' campsite. We surveyed and assessed two other mid-19th-century shipwrecks, the *Mahaica* and the *Annie*, located and surveyed the inner mooring field of the guano settlement at Bird Islet, and conducted an archaeological survey of Bird Islet itself.

The participation of two marine biologists from the Sydney Institute of Marine Science also provided valuable information on the health of the marine environment of the Wreck Reefs, one of Australia's most remote coral reef systems. This work is most important, since coral reefs are early indicators of global warming. Although analysis of their data is still ongoing, some of their initial observations – particularly in relation to the low population density of certain fish species – is surprising given the area's remoteness. It highlights the need to conduct further work in this area.

The archaeological, historical and environmental information obtained from the Wreck Reefs Project will be used by the museum, in consultation with the Department of Environment, Water, Heritage and the Arts and National Marine Parks, to develop conservation management plans which will assist in planning future research, interpretation, public access and management on the *Porpoise* and *Cato* shipwreck sites along with wrecks and sites associated with guano settlement on Bird Islet. ■

The Wreck Reefs Project would not have been possible without the contribution of our sponsor and collaborative partner the Silentworld Foundation, and the valuable assistance of Oceania Maritime, The Maritime Archaeological Association of Queensland, James Cook University, Flinders University, the Sydney Institute of Marine Science, the crew of *Nimrod Silentworld* and *Silentworld II*, and all our enthusiastic divers and snorkellers from Victoria, New South Wales, Queensland, ACT and the USA.

