STRANDING OF
PS *COLLAROY,* 1881

Investigation of features
Collaroy Beach, Sydney

CONSERVATION MANAGEMENT PLAN

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ACKNOWLEDGMENTS

Figure 1 Collaroy Beach on Sydney's Northern Beaches. Scene of the stranding of the paddle steamer Collaroy in 1881. Photo: Tim Smith.

COLLAROY BEACH ANCHOR SITE

CONSERVATION MANAGEMENT PLAN

1.0 INTRODUCTION

This report details several inspections of the historic stranding site of ps *Collaroy* in 1881. Located at Collaroy Beach on Sydney's Northern Beaches, the stranding gave rise to the name of the beach, suburb and a street after the wreck. After almost four years ashore, the iron paddle steamer was successfully recovered and put back into service.

However, records indicate that several anchors had been deployed around the vessel as part of the stranding event and salvage work (1881-1884). The possibility of anchors remaining offshore was high.

A diving inspection of the offshore areas was initiated by the Heritage Office's Underwater Heritage Program. This followed the compilation of historic research notes relative to the incident, for the NSW *Historic Shipwreck Database*.

The report summarises the pre-disturbance survey of the offshore area adjacent to the stranding site and the discovery of two historic anchors located underwater. This work is ongoing, in line with continued historic research and future archaeological inspections of the wider area.

A number of people provided expertise in the recording, management and interpretation of the site. Their contributions are listed in "*Acknowledgments*".

The survey had a number of general objectives. These included:

- establishing the stranding location from historic photographs
- conducting an offshore search of the target area in the hope of locating historic anchors known to have been used to steady the wrecked steamer and deployed in the salvage attempts
- documenting any located anchors or related material
- notifying the site to the local council, surf club, historical society and interest groups
- Promoting public interpretation opportunities

Historic research into the stranding of *Collaroy* and its later salvage was undertaken by the NSW Heritage Office as part of its role in administering the State's component of the *National Historic Shipwreck Program* (NHSP).   Heritage Office Maritime Archaeologist, Tim Smith, coordinated the diving inspections on 23 June 2001, 16 September 2001 and 15 January 2002 [1].

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[1] NB the underwater survey work was undertaken by a dive team comprising Tim Smith, Heritage Office, and two recreational divers, Robert Smith and Richard Smith. The diving based work was not undertaken as part of the Heritage Office work-related dive program and therefore did not have to
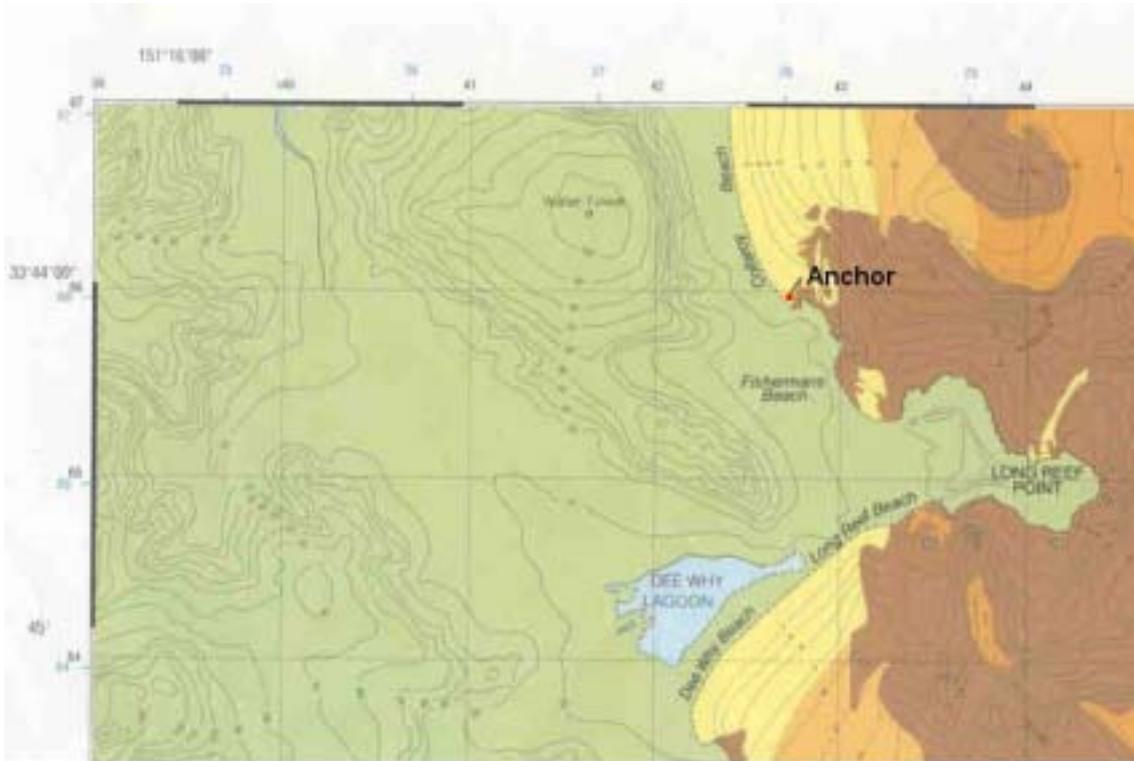
Figure 2 *Location map -The ps* Collaroy *stranding location and position of historic anchors located as part of the field survey.*

2.0 OBJECTIVES

2.1 General

To investigate the 1881 scene of the historic stranding of the iron paddle steamer *Collaroy*. To coordinate underwater inspections of the adjacent sea area in an attempt to relocate any anchors used to stabilise the beached vessel and in later salvage operations. To undertake the preliminary archaeological assessment of any located examples. To use this documentation in the management and advancement of the archaeological site.

2.2 Specific

1. to establish the 1881 site of the ps *Collaroy* stranding from historic photographs;

2. to record an accurate position;

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meet diving regulation standards imposed by WorkCover Australia under the AS2299 for workplace related Commercial diving operations.

3. to complete a general visual inspection of the offshore waters;

4. to initiate a site plan or other graphic representation of any located relics;

5. to liaise with finders of previously discovered anchors at the site;

6. to implement site protection measures under the *Heritage Act* 1977*;*

7. to liaise with Warringah Council, Collaroy Surf Life Saving Club, Manly & Pittwater Historical Society, local business and others over the survey work;

8. to utilise the results of the site survey in the development of management options for the identified archaeological items.

9. to utilise the results of the site survey in the development of public interpretation concepts for the historic precinct – particularly the possibility for the installation of a plinth with signage marking the historic event;

10. to assess human impacts at the site.

Figure 3 *A contemporary photo of the* **Collaroy** *ashore just north of Long Reef, Sydney. Courtesy: Mitchell Library, State Library of NSW.*
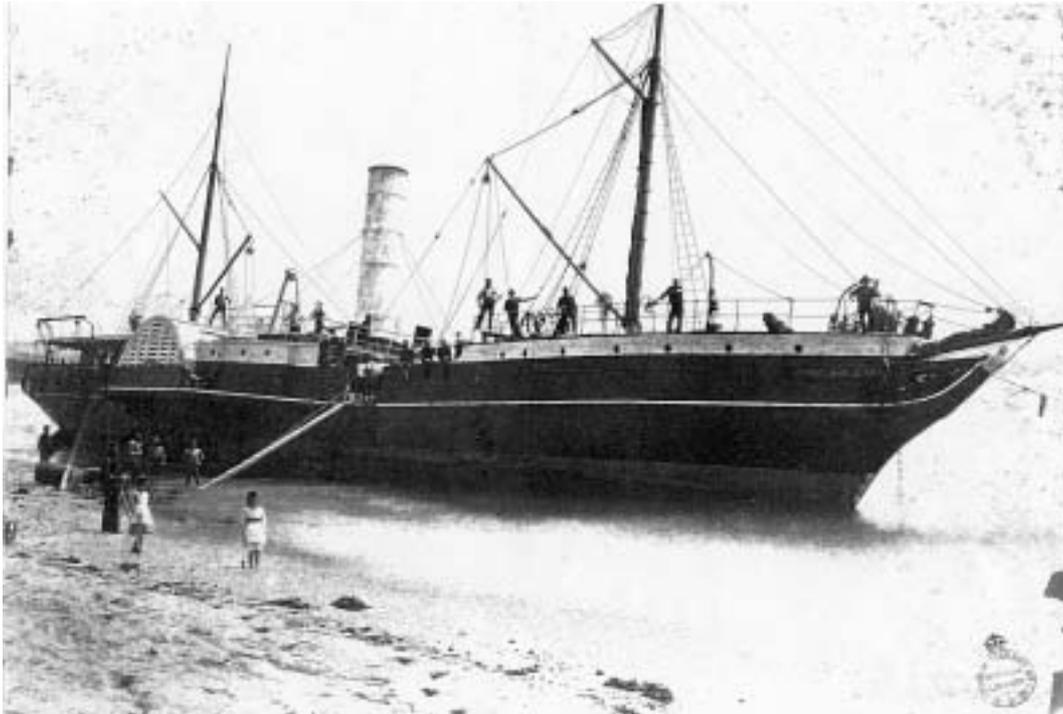
Figure 4 *Another in the contemporary series of photos showing the* Collaroy
ashore. Courtesy: Mitchell Library, State Library of NSW.

3.0 METHODOLOGY

The Heritage Office compiled background information on the *Collaroy* stranding prior to the initial site inspection. This documentation provided information on the general history of event, contemporary salvage attempts and the recovery of the steamer.

The association of the name with the beach and the suburb was secure. While today a popular surfing beach, the history of the event is not well known by local residents, and the actual location lost to memory. The offshore area is not heavily frequented by SCUBA divers, as it comprises sterile shelving sand deposits and a low relief reef system. Diving, when it occurs, is usually concentrated in the immediate vicinity of the reef extending from the modern ocean pool at the southernmost end of Collaroy Beach.

While several vessels have been wrecked in the area adjacent to Long Reef (see Appendix), no other direct wreck events or strandings have been identified at Collaroy Beach [2]. Any archaeological relics located offshore therefore retained a high potential of being associated with the 1881 stranding of *Collaroy*.

At the time of the initial inspection (23 June 2001), the Heritage Office was not aware of previous searches for anchors related to the stranding.

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[2] The timber vessel *Sophia Maria* wrecked in 1803 remains a slight possibility. Although details are few, it is thought to have wrecked ashore between Long Reef and North Head, possibly on Dee Why Beach. It is unlikely that the vessel could have cleared the Long Reef to wreck where *Collaroy* came ashore.

Following the successful location of an anchor (without chain) at the site, a September 1963 *Sun* newspaper article was located[3] that detailed a previous discovery of an anchor there. It was apparent that this anchor was significantly different to the one located by the Heritage Office, being much larger and connected to a chain cable. A subsequent search successfully re-located the '1963 anchor' out in slightly deeper water.

The earlier discovery had been made by a former Manly-based Police Detective, John Whiteman (and the anchor photographed by well-known diver and film-maker, Ben Cropp). Mr Whiteman was contacted and confirmed his discovery of the large anchor and associated chain. He noted that it was lying very close to another large anchor (ie 3rd anchor), also associated with anchor chain (Whiteman pers.com. 2001). Later enquiries revealed that this anchor had later removed by sports divers.

3.1   Constraints

Research into the history of the steamer and the stranding is continuing through archives located in Australia and the United Kingdom. Detailed drawings, plans and specifications for the *Collaroy* have not been located at the time of writing.

The paddle steamer *Collaroy* managed to survive ashore at Collaroy Beach for nearly four years. This was only possible because the vessel ran aground on the southern end of the beach, protected by a small headland and reef, and by the extensive Long Reef Peninsula further to the southeast. These coastal features helped to reduce the impact of storm and sea activity from the south.

Access to the site is readily achieved due to its close proximity to the shore, local amenities and transport links. Vehicle access is direct from Pittwater Road with council car parking provided along the coastal strip adjacent to the Collaroy Surf Lifesaving Club.

In terms of the preservation of the iron anchors located offshore, their location in shallow water (between 4-8 metres) has some impact. Bedded on a low relief reef system that commonly breaks in extreme wave and swell conditions, the anchors are prone to wave pounding, sediment abrasion and accelerated levels of oxygen within the water column. These factors can raise the corrosion potential of submerged artefacts and their condition. It must be noted however that, due to the nature of iron anchors, their manufactured strength and bulk, it is unlikely that site conditions would seriously undermine their long term in-water survival.

The natural barriers that provided protection to the steamer also produce conditions suitable for shore-based diving inspection work. Access to the site is however impossible when large swells occur, due to the shallow nature of the area causing increased wave activity and reduced visibility. Care must also be taken to stay clear of patrolled beach areas and rescue water craft.

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[3] Provided to the Heritage Office by diver, John Riley.

4.0 HISTORICAL CONTEXT

4.1 Introduction

The *Collaroy* was an iron hulled paddle steamer constructed at Liverpool, United Kingdom in 1853 by John Laird & Company, UK. The oscillating steam engine was built by Fawcett & Preston and generated 140 horsepower (Parsons, 1961). It was fitted with feathering paddle wheels – the first introduced into Australia (Richards, 1987: 27).

Originally registered at Liverpool (622 of 1853), the steamer was purchased by the Australasian Steam Navigation Company (ASN) in 1854 and registered at Sydney. It had a built tonnage of 356 tons gross and overall length of 158 feet 6 inches.

Collaroy was extended in 1859 to 180 feet 9 inches (55 metres), with further modifications in 1873. At this time, the gross tonnage was registered at 419 tons. Originally built with three masts, the 1859 modifications reduced that to two, schooner rigged (Official Number 32279).

Figure 5 *A view of the* Collaroy *taken from the current site of the ocean pool. It provides important topographical information to allow the actual site of the stranding to be located today. Photo courtesy, Mitchell Library, State Library of NSW.*

Collaroy appears to have been involved in a collision with the vessel *Ida* between Long Reef and Sydney on 4 August 1875 (*Marine Board of Enquiry* records, State Records of NSW).

The vessel was sold to the Newcastle Steam Navigation Company in 1879 with registry transferred to that port. Following its successful recovery off the beach on 9 September 1884, ownership was transferred to John Robertson and registry to Sydney.

Alexander Burns, a timber merchant from Balmain, purchased the steamer again in 1888. He converted *Collaroy* to a four-masted schooner rigged sailing vessel that year. The vessel was finally wrecked near California, USA in 1889 (Richards, 1987; Parsons, 1961; *British Register of Ships*, 53/1854; 52/1859 Sydney; 68/1873 Sydney; 5/1879 Newcastle; 126/1884 Sydney & 44/1888 Sydney).

4.2   Stranding Event

The iron steamer was on its regular voyage from Newcastle to Sydney when it ran ashore in thick fog at 4.15 a.m. on the night of 20 January 1881. With five trips per week, the vessel was regarded as safe and reliable.

The *Collaroy* left Newcastle at night in company with another steamer, the Hunter River Company's *Morpeth* and they remained in sight up to fifteen minutes before the tragedy (*Sydney Morning Herald*, 21 January 1881). The suggestion that they were locked in an unofficial race to Sydney is unconfirmed (*Manly Daily*, 15 September 1999).

Mr Drew, the Chief Officer or Mate, had command of the vessel as the Captain was below. He had orders to raise Captain Thomson when the vessel was off Long Reef. He dutifully raised the captain at 3.55 am and they were discussing what looked like the Long Reef headland ahead when waves were sighted on the landward side. Before the vessel could be slowed from its top speed of ten knots, *Collaroy* ran ashore in fairly calm conditions. The engines were placed in reverse immediately and run for half an hour, but the vessel drove higher on the beach (*Sydney Morning Herald*, 21 January, 1881).

The cargo comprised 7 bales of wool, 170 bags of potatoes, 200 hides, 40 casks of tallow, 40 pigs and 30 sheep. The livestock was successfully landed and driven into a paddock close to the wreck. All twenty-four passengers (including 14 saloon and ten in steerage) were successfully brought ashore with their luggage in the starboard lifeboat, in three or four trips. The ladies and children were either carried through the breakers or waded ashore themselves (*Sydney Morning Herald*, 21 January 1881). All forty aboard were safely landed, many being taken to Manly by a fleet of horse-drawn coaches.

A trusted steamer, *Collaroy* had completed extensive repairs just four months earlier. This work included the renewal of worn hull plates, a new super heater fitted to the boiler, new sponsons, paddle boxes, smoke stack, and the fitting of a donkey engine (*Sydney Morning Herald*, 21 January 1881).

4.2   Salvage Attempts

Once on the beach in the early hours of 21 January, a passenger was dispatched to seek help.

The first vessel to accidentally arrive on the scene at 11.30 am, was the tug *Commodore* en route from Sydney. Captain Thomson of *Collaroy* went over to the vessel in one the lifeboats, his crew nearly swamped during several attempts.

A small line was brought back to *Collaroy* and a heavier hawser passed between the vessels. At this time the steamer *Mystery* also arrived from Sydney and attached itself to the *Commodore*. Both tugs steamed seaward in an attempt to drag the stranded vessel off the beach, but the hawser snapped (the Mate indicated that the government steamer *Captain Cook* was now also involved in the tow).

While waiting for this assistance, *Collaroy's* crew had been busy attempting to place the ship's anchors out into deeper water. This action aimed to stop the vessel being pushed higher up the beach by the swell.

The port anchor had been taken out and sunk with 30 fathoms of chain (55 metres), but it "*came home*" (ie dragged back) when tension was applied from the winch. The line of anchor chain attached to this anchor can clearly be seen in several of the historic photographs, close by the vessel's side. It is probable that this anchor was later winched back aboard.

Figure 6 *The steamer* Commodore *used in the salvage attempts. Photo courtesy, Newcastle Regional Maritime Museum.*

The starboard anchor was then let go into a lifeboat to be carried out wide. The boat was damaged when going through the surf and the anchor lost overboard.

Collaroy's Mate provided further information, "*we got the lifeboat under the starboard bow and got the starboard anchor and line in the boat to run out seaward, but after several efforts could not succeed as the surf was very heavy and we had therefore to cut the anchor away from the stern of the boat*" (*Sydney Morning Herald*, 21 January 1881).

The *Collaroy's* small dingy was nearby to offer assistance but capsized in the surf, nearly drowning Wilson who suffered a cramp, and its other crew member. One of the crew stated that it was at this time that the <u>port anchor</u> was also deployed but did not hold (*Sydney Morning Herald*, 21 January 1881).

At 5.30 p.m. that first day, the steam tug *Prince Alfred* arrived from Newcastle. An order had earlier been requested by the company for two powerful tugs and a diver to be sent down from Newcastle, with "*additional anchors and chains*". Captain Thomson of the *Collaroy* attempted to go out to the steamer in a lifeboat but was almost capsized again and communication became impossible (*Sydney Morning Herald*, 21 January 1881).

The tugs *Commodore* and the newly arrived *Bungaree* made another attempt, "*to make the necessary arrangements such as getting out cables and moorings so that the stranded vessel may be towed off*". The *Commodore* had brought up a heavy anchor and 120 fathoms (220 metres) of chain cable (*Sydney Morning Herald*, 22 January 1881).

The tug *Bungaree* from Newcastle had also brought an anchor and 150 fathoms (275 metres) of chain cable. This anchor, "*with one end of the cable attached to it, was sunk some distance from the shore and the other end of the cable, having two strong purchases on it, was attached to the steam winches of the Collaroy*". The bow of the *Collaroy* actually shifted thirty feet (10 metres) but the chain snapped and the vessel moved back to its original position (*Sydney Morning Herald*, 31 January 1881).

The next day, a (rope) hawser was attached to the same anchor and made fast to the wreck. The vessel again moved slightly until, it too, snapped. At this time, Captain Thomson and five of the crew were tending the hawser in a small boat, when they were capsized in the surf. One crewman, known as Hercules, was drowned, possibly in the seaweed seen near the rocks (*Sydney Morning Herald*, 31 January 1881). It is not known whether this mooring anchor was ever recovered.

The action of up to five steamers working off the beach and the sight of the *Collaroy* ashore, made for an amazing spectacle. During the week, "*hundreds of persons proceeded to Long Reef to see her*".

Attempts to re-float the vessel were abandoned when a sandbank formed on the seaward side, making it almost impossible to drag the steamer out to deeper water.

Figure 7 *The* **Collaroy** *after some time ashore. Notice the build up of sandbanks around the beached hull. Probably taken at time of 1884 recovery operations due to the form work evident around the hull and boarding ladder onto sponsons. Photo courtesy: Macleay Museum, University of Sydney.*

4.3   Final recovery in 1884

The steamer lay ashore for almost four years until successfully dragged off the beach, refloated and towed to Sydney for major repairs.

The amazing salvage success was undertaken by a Sydney businessman, Mr John Robertson of Bondi, in September 1884. The operation took four months.

Mr Robertson bought salvage rights to the vessel which had "*made a bed for herself*" into the sand and thwarted a number of other salvage attempts (*Sydney Morning Herald*, 20 September 1884). The Collaroy was described as so deep in the sand that the workmen could "step on her sponsons", while its hull was described as "full of water". Blocks were placed under the vessel that was then raised with hydraulic power. A purpose-built cradle was made around the hull which was then swung so that the bow pointed seaward. A 'way' or launching ramp was then built ahead of the recovered steamer towards the water.

Three additional ' kedge' anchors was placed out in the water adjacent to the steamer and attached to the bows. There size was not noted, although it is likely that the Admiralty anchor discovered by the Heritage Office might be of these.

The steam tug *Commodore* again assisted in pulling *Collaroy* down the purpose-built ramp when the cable snapped. Later attempts were made by the steamer *Leveret* which finally pulled *Collaroy* into the water and towed it to Sydney, amidst great rejoicing (undated SMH clipping in Mitchell Library small pictures file and *Sydney Morning Herald*, 20 September 1884).

An interesting account of earlier salvage attempts appeared in the *Newcastle Herald* of 29 December 1950.

Mr W. Alexander, Principle of the firm, F & H Langwill Pty Ltd., recalled attempts by his father, Captain W. Alexander in refloating the *Collaroy*. Mr Alexander has apparently been given charge of the operation and was partly successful in getting the vessel floating when a southerly change drove it back ashore in the same position. He recalled the family living on the steamer during this time.

Storms in December 1950 removed a large quantity of sand from Collaroy Beach and revealed a 24-foot (7.30 metre) length of iron anchor chain. This section was apparently recovered at the time (*Newcastle Herald*, 29 December 1950).

This recalls a later recollection by Mr John Whiteman who noted a large section of chain exposed on the beach near the surf club (possibly in the 1970's). This chain was running seaward and a section of that was stated to have been detached and recovered (Whiteman, pers.com, 2001).

The stranding of *Collaroy* is remembered by the Narrabeen Lakes Primary School that has a memorial to the vessel in the school grounds. Comprising a cement (replica) life-ring painted with the name Collaroy, it incorporates a small Admiralty pattern anchor within the ring.

This anchor is locally believed to have come from the vessel but is too small for anything but an anchor from one of *Collaroy's* small boats. Its association with the wreck cannot be confirmed. The life-ring is allegedly a replica of an original one from the steamer and obtained by the school. The monument was unveiled with great ceremony on 20 October 1928 and built with funds from the (then) Manly Warringah & Pittwater Historical Society, the Parents & Citizens Association (Bosler, 1989).

4.4 *Collaroy* - Construction Details

At time of loss in 1881 (*British Register of Ships*).

Name:	*Collaroy*
Type:	steamship (paddle)
Materials:	Iron
Builder:	John Laird & Co.
Built:	1853
Where built:	Liverpool, United Kingdom
Owner in 1881:	Newcastle Steam Navigation Company
Port of Registry:	Newcastle
Captain:	Thomson
Length:	180 feet (55 metres)

Breadth: 22 feet 3 inches
Depth: 11 feet 3 inches
Gross tonnage: 419 tons
Engine: Oscillating 140 horsepower
Masts: Two
Rig: Schooner

5.0   THE ON-SITE SURVEY WORK

The anchor located in 1963 by local diver John Whiteman attracted media interest and was linked to the *Collaroy* event. Then a Manly-based Police Detective, Mr Whiteman was contacted and his recollections of the event recorded.

Figure 8   *Copy of an article appearing in the Sun Newspaper of 29 September 1963 recording the discovery of an anchor off Collaroy Beach that year. Courtesy: John Riley.*

It transpired that, while the *Sun* Newspaper reported the discovery of a single anchor and chain, he had actually found two anchors together. Legendary diver Ben Cropp photographed one of the anchors, reported several lines of anchor chain associated

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with nearby and running at least 100 yards back towards shore (*The Sun*, 29 September 1963).

This discovery was not known at the time of the 23 June 2001 Heritage Office inspection. That work resulted in a separate anchor being detected, smaller in size and not associated with any chain.

5.1 Initial Fieldwork Planning

Based on the background knowledge of the stranding and contemporary salvage attempts, an underwater inspection of Collaroy Beach was initiated.

The historical evidence suggested that at least one anchor could remain underwater in the vicinity of the original stranding spot. This was the *Collaroy's* starboard anchor dropped from the lifeboat during the initial attempts to stop the vessel washing further ashore. If located, it was expected to be in the order of three metres in overall length (see below).

Another anchor had been dropped by the tug *Bungaree* and used to haul *Collaroy's* bow out to deeper water. The chain, then rope hawser, attached to this anchor was known to have snapped, with no reports of the anchor being recovered.

Further anchors may have been placed by the other steamers in attendance, particularly that brought up from Sydney in the *Commodore*.

The first objective was to determine the probable stranding position of *Collaroy* on the beach. Several historic photographs show the steamer ashore. They were taken from a variety of angles, two shots in particular being of importance. One was taken from the exposed reef platform at the southern-most end of the beach where today the ocean rock pool stands. This view shows the *Collaroy* ashore in relation to the land mass today known as Collaroy Plateau. Another shows the vessel from the beach looking back to the same spot.

These visual transits provided accurate information on the relative position of the vessel, even though the modern built structures such as the Collaroy Surf Lifesaving Club were not in existence. An area was marked on the shore that tallied with the observed features.

5.2 The Diving Inspections

With a refined search area mapped out, an underwater diving inspection was begun. As the 1963 anchor discoveries were not yet known, a general area visual survey was commenced SCUBA. The survey extended immediately south of the modern offshore storm water drain, to the rock pool, a distance of approximately three hundred linear metres. Survey lanes were run parallel to the shoreline within this area. The divers began two tracks within this zone, the first following the 3 metre depth contour of the bay (N-S), the second at 4 metres (S-N).

The first survey lane extended over barren sand deposits off the beach from north to south and no features were observed. The second survey lane in deeper water

following the four-metre depth contour from the pool back towards the pipeline. When close to the start position adjacent to the pipeline, an iron anchor was located.

The anchor was a small example of the standard Admiralty pattern anchor commonly used from the nineteenth century.

A detailed inspection was initiated, together with a closer inspection of the surrounding it for approximately twenty metres in all directions. The anchor was measured, drawn and recorded using digital video. A temporary buoy was attached to the anchor to aid later recording of the find spot using a Global Positioning System (GPS), but lost to subsequent storm activity.

Another inspection of the anchor was undertaken on 16 September 2001 but the anchor could not be located due to swell activity and minimal visibility.

Second inspection

Following information on the discovery of two large anchors in the area in 1963, a further search for these anchors was commenced on 15 January 2002.

The dive team began similar search lanes in deeper water (6-11 metres), and successfully located a large iron anchor attached to a significant length of iron anchor chain. In fact the chain was located first running across the reef top but camouflaged by kelp and marine growth. The anchor was located at the end of the chain and immediately identified as a Lieutenant Rodgers Small Palm Anchor type. This anchor measured approximately 2.75 metres in length and matched reports of the 1963 discoveries. It is likely that the recovered anchor had lain close by.

The anchor was in very good condition with limited marine growth coverage, lying flat on its iron stock with one fluke 'picked' over the side of the reef platform. The anchor and chain were directed back towards the Surf Life Saving Club, and the probable resting location of the *Collaroy*.

A search of the immediate vicinity eliminated the presence of any other historic anchors or cultural materials.

5.3   Possibilities for the Located Anchors

Admiralty Anchor

The first anchor of the Admiralty type was located in four metres of water firmly attached to the underlying reef.

Measuring 1.57 metres (5 feet 2 inches) in overall length, the anchor was immediately recognised as of the standard Admiralty (New Style) pattern, developed from 1841 in the United Kingdom. The anchor was positioned with one of its arms and flukes pointed skyward in the usual resting position, and had an iron stock lying flat against the reef. Heavily encrusted with marine growth and iron corrosion products, the anchor was orientated towards the beach on a bearing of 310 degrees.

A small example by the standards of ship-borne anchors, its principle point of interest was the absence of a shackle used to attach the anchor cable (commonly chain). There was no evidence for any anchor chain cable in the area.

Using the known naval treatises that cover anchor development during the nineteenth century, the anchor was found to approximate a one-cubit weight (cwt) example (based on the length of the shank). This size was compared to the probable compliment of anchors carried by a vessel with the *Collaroy's* tonnage. Using Lloyds Rules for British Shipbuilding, an iron steamer of the *Collaroy's* date of build and tonnage would normally have a compliment of some six anchors. This would have included three main (or Bower) anchors, a smaller Stream anchor, and two smaller Kedge anchors used for warping the vessel around (particularly in anchorages).

The located anchor is of the right size (cwt) and type for a second kedge anchor carried by a steamer of that tonnage.

The difficulty lies however, in that the contemporary records do not mention a kedge anchor from *Collaroy* being deployed during the wrecking process or in subsequent salvage operations. While it would have been a convenient size for the crew to take aboard the small lifeboat and rowed out to deeper water, the records clearly indicate that the port and starboard main (bower) anchors were deployed in this fashion.

While the port anchor was pulled back in towards the vessel (and its connecting chain appears in contemporary photographs of the stranded vessel, the starboard one was apparently lost in the surf and not recovered. This anchor should be a much larger example measuring approximately 10 feet 4 inches in length (3 metres, 10 cwt) based on the standards of the day.

It is possible that one of *Collaroy's* kedge anchors were later deployed from the vessel in an attempt to arrest its movement up the beach, although not recorded in contemporary records, or during the successful recovery in 1884.

It is interesting to note the placement of three anchors described as ' kedge anchors' during the 1884 attempts to pull the vessel off shore. It is very possible that the located anchor is in fact, one of these anchors (see below).

Lt Rodgers Anchor

The second located anchor was much larger and still associated with a significant length of anchor chain.

This anchor is of the contemporary Lieutenant Rodgers Small Palm type. Both these and Admiralty pattern anchors were common on coastal streamers of the day.

The anchor measured 2.75 metres in length (~ 9 feet) and would be in the order of 9-10 cubit-weight in size. This corresponds favourably with the dimensions of the main anchors aboard a steamer of *Collaroy's* tonnage (see above).

There is no indication that this anchor actually came from *Collaroy* however. *Collaroy's* starboard anchor lost overboard from the open boat, was not connected to

its chain cable. Further, up to two anchors had been reported here side by side, a deployment not noted with the anchors taken from steamer at the time.

The salvage vessel anchors

Another explanation for the presence of the anchors is found in the contemporary salvage operations. The historic records confirm that several steamers were engaged in trying to pull *Collaroy* off the beach in the week after the stranding, some using anchors and cable.

The records only provide details of one actual deployment, an anchor brought specially to the scene by the steamer *Bungaree*. That vessel positioned an anchor in water seaward of the *Collaroy,* passing the chain cable to the winches of the stranded vessel. The size or type of anchor was not disclosed. The records do indicate that when hauled tight, the chain separated from the anchor, requiring a second pulling attempt using a rope hawser made fast to the same anchor. This too, snapped.
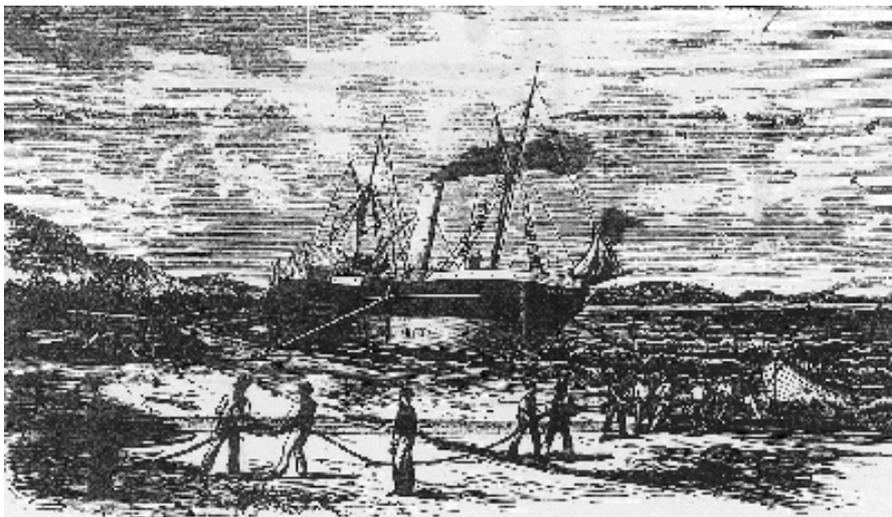
Figure 9: Lithograph from the *Illustrated Sydney News* (Vol 18:2 1881),
depicting the initial salvage operations where *Collaroy's*
anchors were taken out into deep water by the crew. Courtesy:
Mitchell Library, State Library of New South Wales.

Here it is interesting to note that the located Admiralty pattern anchor is missing its shackle – the standard attachment point for chains and cables. Was it wrenched off the anchor when the immense strains were introduced by the *Collaroy's* winch? How the second rope hawser was attached to the anchor is not recorded, but the operation might have utilised the services of the hard-hat diver ordered from Newcastle. The records do not indicate whether this diver arrived on the scene or was ever used in the operations.

The records do indicate that the cable from this anchor was attached to the bows of the *Collaroy*, in an attempt to pull the steamer's head (bow) out towards the sea. In

this, it was partially successful. The bow was the obvious point of attachment, the vessel already lying with its head pointing more towards the open sea than the shore. Pulling the vessel out by its fine bow would also be the path of least resistance for the hull on underlying beach sand. The anchor's location appears to support this argument. It is angled towards the beach in a line towards where the Heritage Office predicted the bow of the steamer to lie, based on the historic photographs.

The three 'kedge anchors' placed offshore during the 1884 salvage operations have already been noted (above). It is not known whether these were recovered or not. The report in the *Sydney Morning Herald* of 20 September 1884 notes that the "*moorings*" (presumably the three anchors), were "*buoyed*" prior to the steamer *Leverett* leaving the scene with *Collaroy* in tow.

The second anchor detected, the Lt Rodgers example, was almost certainly one of the anchors brought specifically aboard the rescue steamers. It is still attached to a great line of chain extending in a direction back to where *Collaroy* was presumed to lie ashore. The other anchor once associated with it was similarly configured.

It too, might be a contender for the anchor deployed from the steam tug *Bungaree*. Alternatively, the anchor may have been the one brought down by the *Commodore* (NB: the recorded do not indicate whether it was ever used).

5.4   The Admiralty New Style Anchor

The standard Admiralty style anchor had a direct development from the preceding variant, the Admiralty Old Plan Long Shank Anchor commonly seen on Royal Navy vessels throughout the eighteenth century.

Great advances were made in anchor design and manufacturing during the early stages of the nineteenth century, with a variety of new styles being developed and promoted by their designers.

One type that gained precedence and widespread use was Admiral William Parker's *New Style Admiralty Pattern Anchor* design. This anchor type was developed from 1841 and became common on both naval and merchant vessels from the 1850's. Its main features were its stockier construction, shortened shank, sweeping curve at the crown and junction of arms, and oval cross-sectional shape. It became the standard anchor type deployed on vessels into the twentieth century.
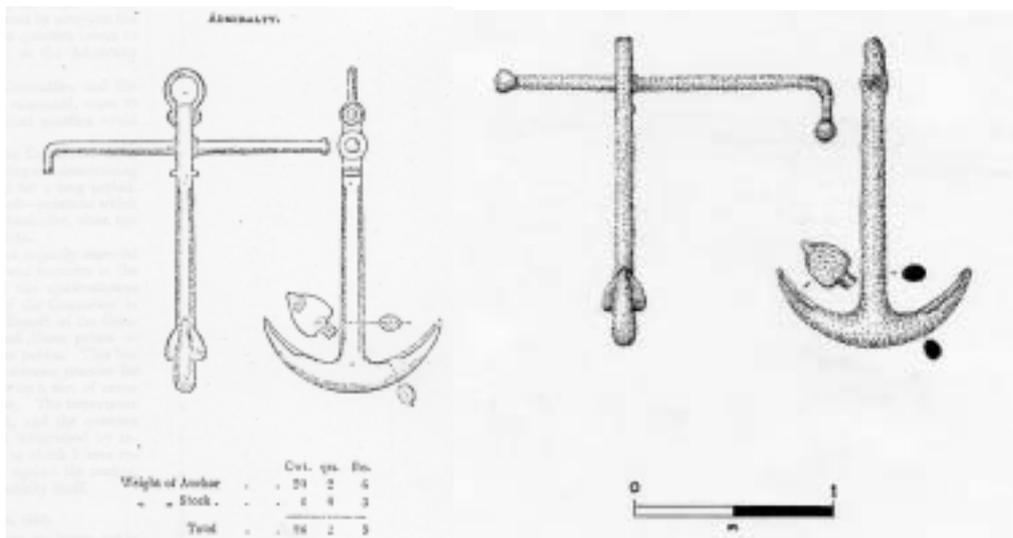
Figure 10 *The Admiralty "New Style" anchor developed from the 1840's (after Cotsell, 1856), and the located anchor, right (drawn by Tim Smith).*

5.5   The Lieutenant Rodgers Small Palm Anchor

Developed by Lieutenant (later Commander) William Rodgers from 1832, the type saw a few improvements and lasted into the twentieth century (Upham, 1983:19-20).

The Collaroy example closely resembles original drawings of the type made by Rodgers. A successful design, this example appears to date from after 1854 when Rodgers patented his "Moveable iron stock" (Curryer, 1999:89). The anchor is noted for its square cross-section and palms in the shape of hearts. Earlier versions of his Small-Palmed Anchor had the palms on the upper (ie inner) surfaces of the arms.
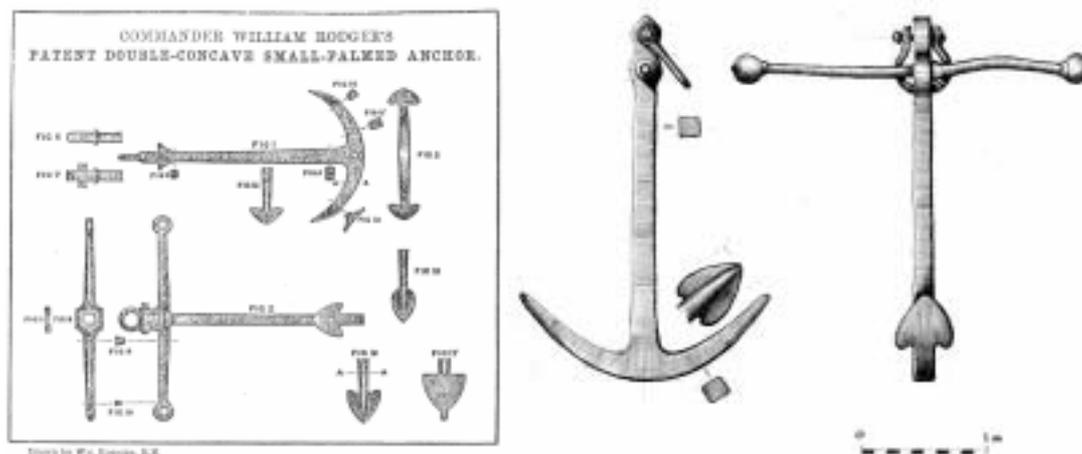
Figure 11:   Lt Rodgers Double Concave Small-Palmed Anchor type as depicted in contemporary advertising. Reprinted from Curryer, 1999:90. With a similar example to the anchor located at Collaroy Beach, on display at the Coffs Harbour Yacht Club. Drawn by Tim Smith.

5.6 Collaroy Beach Anchors – Locational information

The following positions need confirmation by GPS system.

Target: Admiralty anchor, 1.57 metres in length
Depth: four metres
Orientation: bearing 310 degrees towards shore

Target: Lt Rodgers Small palmed anchor anchor - 2.75 metres in length
Depth: eight metres

5.6 Legislative Protection

Shipwrecks and submerged cultural heritage in NSW are protected by legislation that aims to limit interference, damage or destruction to individual sites, while encouraging responsible public access.

Shipwrecks and other archaeological relics located within the waters of the State (within rivers, harbours, lakes and enclosed bays and within the State-controlled coastal 3-mile zone) which are more than 75 years of age, are protected under the *Heritage Act*, 1977 (State). Underwater heritage generally (including shipwrecks) is also protected from disturbance if over fifty years of age under the Act's relics provisions.

The located anchors are protected as relics within the provisions of this act. An Excavation Permit endorsed by the Heritage Council of New South Wales is required before the anchors can be disturbed in any way, including recovery for conservation, research and display.

6.0   ASSESSMENT OF SIGNIFICANCE

Significance has been assessed in accordance with the nature and degree of significance of the anchor's primary attributes. These include attributes related to historical, social, archaeological, scientific and interpretative significance.

COLLAROY BEACH ANCHORS

6.1 Nature of Significance

Historical (Concerned with range of context)

The loss of the steamer *Collaroy* on Sydney's Northern Beaches in 1881 was a significant event for the local population.

The presence of the imposing wreck structure led to the official naming of the beach, *Collaroy*, a name also adopted by the suburb and an adjacent street during later development.

The event demonstrated the dangers of coastal sea travel and inadequate navigational aids during the nineteenth century.

Social (Concerned with community regard or esteem)

The site of the stranding remains an important place for the local community.

Many visitors travelled to the Peninsula to view the vessel, which remained a significant local landmark for almost four years.

A monument commemorating the event had previously been established in the grounds of the nearby Narrabeen Lakes Public School, consisting of a replica life-ring of an original allegedly recovered from the vessel, and a small (probably unrelated) anchor.

The newly located anchors are another important and accessible cultural heritage asset suitable for local interpretation, particularly of the dangers of maritime trade last century.

Technical (Concerned with technical or creative achievement)

The located anchors retain minimal technological significance, other than being representative of standard anchor designs of the nineteenth century.

Archaeological (Concerned with research potential through investigation of material remains)

A site with minimal potential for contributing additional knowledge of standard nineteenth century anchor technology and deployment practices.

As the vessel was fully recovered, its potential for scientific archaeological study was removed.

Interpretative (Concerned with public education values)

The anchors confirm the location of the significant 1881 local shipping incident.

Their location can be used to illustrate aspects of the 1881 salvage operations, together with the successful wreck recovery in 1884.

An important event to the local community, the grounding of the PS *Collaroy* determined the subsequent name of the beach and surrounding suburb.

The anchors provide an important focus for broad public interpretation of the event and maritime tragedies that have occurred on Sydney's Northern Beaches.

Their location adjacent to a popular public beach frequented by local residents, Sydney-siders, national and international tourists.

The anchors are located in a water depth easily visited by recreational SCUBA divers, and serviced by many local dive companies.

A marker plinth or other signage system could conveniently interpret the underwater anchors and site of the 1881 stranding. The adjacent foreshore between the existing Collaroy Beach Surf Lifesaving Club and Collaroy Services Beach Club would provide an excellent venue. It lies immediately opposite the stranding site, is serviced by established access paths, a coastal boardwalk, landscaping and council parking areas.

The interpretation strategy could include the production of a history pamphlet, fact sheet, web site page attached to existing web sites (eg Warringah Council, Collaroy Surf Life Saving Club and the NSW Heritage Office), and local history projects targeted at school groups, etc.

6.2   Statement of Significance

The 1881 stranding of the *Collaroy* was a significant local event that led to the naming of the beach, suburb and local street. The located historic anchors mark the historic location and are a reminder of the dangers of nineteenth century coastal trade. The anchors retain high educational significance and could form part of a wider maritime heritage walking and/or driving trail, linking significant heritage sites along Sydney's Northern Beaches.

7.0 SITE MANAGEMENT

7.1 Background

Heritage Office investigations at Collaroy Beach have identified two historic anchors associated with the stranding of the steamer *Collaroy*. It appears likely that they were brought to the site aboard one or more of the dedicated salvage vessels in 1881. Alternatively, they might have been placed during the 1884 successful recovery, although records of this work are scarce. While the anchors are of a size and type that could have been carried aboard *Collaroy*, there is no certainty that they are actually *Collaroy's* anchors.

There is no strong evidence that the anchors derives from another source, such as a separate shipwreck event, vessel grounding, or secondary use such as a mooring for shark nets (as was an anchor located off nearby Dee Why ocean pool).

The anchors are an important component of the regions maritime heritage resource. Their significance is evident on a number of levels, notably as a marker of an historic event, in the age of the relics (over 120 years), and because the stranding had special importance to the local area and its naming.

As archaeological items, they are also important for their tourism and public education potential, being located in close proximity to shore, with an ease of visitation and high interpretative potential.

It is known that recreational SCUBA divers have visited the area since the 1960's and that two anchors had previously been located in the offshore zone. Anecdotal evidence suggests one at least was recovered (John Morcombe pers.com 2001). The period coincided with a lack of community awareness for the need to preserve irreplaceable archaeological sites and relics.

With the introduction of the State *Heritage Act* in 1977, and the Commonwealth *Historic Shipwrecks Act*, 1976 (invoked in NSW during 1988), underwater sites gained a greater level of protection. This was particularly due to wide ranging community education programs run by the Heritage Office (formerly Heritage Branch, Department of Urban Affairs & Planning). The results of these programs are evident in the awakened interest shown to wreck sites by concerned individual divers, residents and researchers since that time.

Today, the main users of Collaroy Beach are swimmers and surfboard riders. It is unlikely that they would impact on the archaeological remains. The located anchors might become the focus of limited diver visitation in the immediate short term, but that activity should not be detrimental to their survival, if appropriate care is taken with diving equipment and limited physical handling.

It is unlikely that commercial fishing operators would impact on the site because the underwater reef system provides a natural hazard to any boat or shore-based netting operations.

The provisions of the NSW *Heritage Act* 1977 are sufficient to safeguard the survival of the anchors in their current underwater setting.

7.2   Development of a site management strategy

The survival of the anchors in their unique underwater setting is assured so long as human interaction is carefully managed. While the anchors are deteriorating at an equilibrium rate as part of the natural process of archaeological degradation, their manufactured strength means that they will be retained in their present form probably for several centuries to come. The anchors do not pose a danger to beach uses, and mirror the low relief structure of the existing reef system.

It is anticipated that additional community interest will be generated through media coverage. The Heritage Office seeks to build upon this interest by promoting the importance of protecting, learning from, and carefully managing our rare and intriguing underwater archaeological sites.

The Northern Beaches is rich in maritime history including the discovered historic shipwrecks, *Duckenfield* (1889), *Euroka* (1913), *Myola* (1919), *Birchgrove Park* (1956) and *Valiant* (1981), that form the focus of constant SCUBA diver visitation. It area also has the State's most significant purpose-built shipwreck graveyard off Narrabeen/Long Reef, built from scuttled vessels since 1976.

The wider area is ideally suited for local maritime heritage interpretation programs. If considered appropriate by local authorities and interest groups, any interpretation program must be in keeping with the unique character of the place and be sensitive to local interest in maintaining those significance attributes.

One approach might be to establish unobtrusive site interpretation plaques or markers within the region. These could be restricted to areas that already have established public access routes. The stranding of the *Collaroy* (1881) could be conveniently identified by the placement of a marker plinth near to the Collaroy Surf Lifesaving Club, adjacent to the site. The range of shipwrecks surrounding Long Reef could be interpreted through one or more plaques established on the headland, providing a sweeping view of the water area.

Tourism strategies could also include the incorporation of sites like the *Collaroy* in tourist and general information brochures.

The Heritage Office has undertaken additional survey work at several wreck sites in and around North Head (*Catherine Adamson* 1857; *Centurion* 1887), and the Northern Beaches; *Duckenfield* 1889; *Valiant* (1881), and these sites could become incorporated into a local site interpretation program. All located sites have previously been incorporated into the Office's *Shipwreck Atlas of NSW 1996*, and recently its innovative Web site, *Maritime Heritage Online* (http://maritime.heritage.nsw.gov.au). This site allows users, including primary and secondary school students, to undertake data searches of the *NSW Historic Shipwreck Database*, to learn of vessel histories, and to access a wide range of sources and knowledge about maritime heritage sites.

The Office has also undertaken extensive research on as yet unlocated wreck sites adjacent to the Northern Beaches Peninsula. This work has been associated with a study of coastal place names in NSW that derived from historic shipwreck events. This research formed the basis for the current inspection off Collaroy Beach. That study

also suggested that Whale Beach might also owe its name to a shipwreck, the coastal trader *Whale* lost in 1816 (*Manly Daily*, 28 July 1999; 15 September 1999).

To foster a continued interest in the preservation of these sites, the Heritage Office seeks to establish a broad community interest in the management and protection of its local shipwreck resource. This can be achieved by establishing liaison with Warringah Council, the local fishing industry, recreational divers, local NSW Police (as inspectors under the Commonwealth *Historic Shipwrecks Act*, 1976), dive charter operators to the area, the Manly, Warringah & Pittwater Historical Society, community based historians, local business and interested individuals. Discussions should focus on the protection of the located heritage assets in the region, access arrangements and the potential to work jointly to manage the sites.

A primary consideration in all of the Heritage Office's shipwreck management considerations is in assuring a broad base of public access to Historic Shipwrecks and associated relics, and involvement in historic shipwrecks management. In this regard, it is considered highly desirable that all interested parties become aware of the nature of the resource and to develop familiarity with it. This enables them to comply with the provisions of the *Heritage Act*, 1977 and the *Historic Shipwrecks Act*, 1976, and to forge stronger communication links with the Heritage Office. The Office is therefore keen to encourage site users to assist with the scientific recording of these sites.

A recent initiative was the community based *Wreck Survey Project* which encouraged groups to research, record and publish survey activities at various wreck sites. A similar project entitled, *Wrecks Alive* is currently being run and seeks community input from the Sydney region. A starter kit is available from the Heritage Office.

Publication of wreck surveys and diving visits plays an important role in promoting sound management of these sites. The Office has therefore assisted several private shipwreck interpretation projects in the Sydney area. This has included research support for books covering local wrecks by diver and researcher, Max Gleeson (Gleeson, 1993; 1996).

In line with the Heritage Office's commitment to acknowledge and publicise significant contributions to the Maritime Heritage Program in NSW, the award of Finder/Reporter's Recognition Plaques was arranged in 1994 to John Riley and Peter Fields for their discovery of the *Myola* wreck site off Long Reef. The award is a mark of the dedication and interest shown by recreational divers and others in the documentation and promotion of shipwreck management principles in NSW.

7.3   Possibilities

A standard management option therefore is to leave anchors underwater where they are retained in a relatively stable environment. Management strategies would revolve around the presentation of the anchors and the story of the *Collaroy* grounding to the wider public, through a variety of educational opportunities.

The success of this management approach would be confirmed by divers and beach users willing to inspect the anchors within the terms of the *Heritage Act*, 1977 – ie by "looking but not disturbing". Here the community would be actively promoting their

long-term preservation. The results would be seen in the retention of the site's integrity.

Another outcome would be the raised local awareness of the Northern Beaches historic shipwreck resource generally. Encouragement of the local dive operators and diving public in visiting this site and the many other key local Historic Shipwrecks, has benefits in terms of promoting local business. The tourism value of both diver and land-based visitation to these sites and established public heritage trails is known. The scope of recreational interaction with these rare underwater heritage sites builds greater community interest in learning about them.

Taken as a whole, this management approach, in development with key parties, will assist in the long-term preservation of the anchor and related sites. The system will not work effectively without local interest in maintaining the historical and archaeological importance of the remains, generated from knowledge of the resource. Here the input from local government is important.

The potential exists to establish targeted educational products to assist with these aims. This can include a brochure/Fact Sheet featuring details of the *Collaroy* stranding and anchor sites for wide distribution, and the installation of an interpretative plinth or marker near to the site for access by the public. Other avenues include the regular promotion of the area's heritage assets through local media, Internet sites, and regional tourist networks.

Local government can play and active role in the preservation of important local heritage by encouraging their listing as heritage assets within Local Environmental Plans (LEP's), Regional Environmental Plans (REP's), and by the inclusion of maritime heritage sites in local Heritage Studies and annual State of the Environment Reports.

7.4 Issues

7.4.1 Anchor retention in situ

The anchors detected off Collaroy Beach are an important component of the maritime heritage of New South Wales. The site's tourism potential is closely associated with the retention of its archaeological potential. The appeal of the site is enhanced by the knowledge that they have not been heavily disturbed, either by souvenir hunters or archaeologists.

Beach visitors can experience this enhancement by actually visiting the underwater remains or by being made aware that these items lie somewhere nearby. Good quality photographic records can be compiled to enable non-divers to experience the visual context of the site.

There are no costs for leaving the anchors in their underwater setting where they can be monitored over the long term but still be incorporated into public education initiatives.

7.1.2 Recovery Options

Recovery of the anchors for public education purposes is another option for the management of the site. While the safeguarding of the anchors is considered low risk, display them onshore would generate heightened interest in the story of the *Collaroy's* stranding and subsequent salvage operations. Many historic anchors have been incorporated into memorials and used as markers around Australia. The majority of those recovered from a marine environment have not been given appropriate conservation care.

Any planned recovery of relics, such as the located anchors, would entail significant conservation costs, depending on the size and nature of each item, the level of conservation required and the preparation or construction of suitable storage and display facilities. It is anticipated that each located anchor would require conservation costs in the vicinity of $10 – 15,000 each.

Recovery would require Excavation Approval under Section 139 of the *Heritage Act*, 1977. The Heritage Council of New South Wales is the determining authority and would assess any proposed recovery plans. Approval is at the discretion of the Council but a proposal would need to address issues of recovery planning, conservation, mounting, and display design. The project would need to have established funding and resource support.

The current heritage legislation has proven to be an effective tool to manage shipwreck sites and related underwater heritage items. The basis of the Commonwealth's National Historic Shipwrecks Program is public education. This is seen as the most important way to foster an interest and understanding in the preservation and management of the complete range of underwater cultural assets.

Appropriate recovery and display of these items would also meet these objectives.

7.0   MANAGEMENT RECOMMENDATIONS

As a result of the historical research, wreck site inspections, community input and subsequent assessment of significance, it is recommended that:

1.   the provisions of the *Heritage Act, 1977* continue to be applied in order to advance the long term survival and management of the Collaroy Beach anchors.

2.   the anchors be retained in-situ in the short-term to preserve their attraction as a possible item of interest to visiting SCUBA divers, pending discussions of possible recovery for conservation and display.

3.   management options for the anchors be developed by Warringah Council with input from site users and in consultation with the wider diving community, historical societies and relevant Government agencies.

4.   Warringah Council monitor site/beach usage and its effects on the integrity and long term survival of the located anchors and other underwater heritage items, as they are identified.

5.   the Heritage Office, Warringah Council and other bodies explore options for distributing information on the anchors to the wider community.

6.   when practicable, the anchors be investigated by a marine materials conservator, to assess their structural condition and any procedures that may prolong the retention of fabric.

7.   local historical societies, organisations and individuals are encouraged, where possible, to further research the background of the *Collaroy* stranding and other shipwreck events in the region.

8.   encourage the public, particularly the diving component, to conduct scientific surveys of wreck sites in the local area through the Heritage Office's *Wrecks Alive* project.

9.   Warringah Council, Collaroy Surf Lifesaving Club, key local businesses, the local NSW Police Service, the Manly, Warringah & Pittwater Historical Society, local dive operators and relevant individuals be provided with a copy of this report.

10.   the Heritage Office liaise with these groups to seek to promote interpretative projects suitable for the area's maritime heritage, in accordance with the areas unique setting, environmental attributes, and appropriate Plans of Management.

11.   the Heritage Office disseminate its *Northern Beaches Shipwreck Information Sheet*, through local and regional tourist networks, businesses and the Heritage Office's Web site.

12.   archaeological disturbance of the anchors only be approved where the Heritage Council of NSW receives a proposal backed by an adequate research design and funding for recovery, conservation and display to standards that ensure the long term retention of the item, archaeological documentation, and appropriate public display.

13.   The Heritage Office coordinate a continued search for the anchors located in 1963 and other potential archaeological relics within the study zone.

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APPENDIX

List of vessels wrecked in the study area.

(Based on the *National Historic Shipwrecks Database*, 2001)

Name	Type	Built	Lost		Details
Aenid	Cutter	?	1865/11/12	Wrecked	Sydney, Long Reef
Altair	Ketch	1903	1942	Wrecked	Sydney, Long Reef
Bellubera	Steamer screw	1910	1980/08/01	Wrecked	Sydney, Long Reef, off. Located.
Birchgrove Park	Steamer	1930	1956/08/02	Wrecked	Sydney, off Avalon Beach. Located.
caisson	?	?	1980	Wrecked	Sydney, Long Reef
Christina Gollan	Steamer screw	1885	1920	Wrecked	Sydney, Long Reef, 4 miles off shore
Collaroy	Steamer paddle	1853	1887/01/20	Refloated	Collaroy Beach near Long Reef, ~5mls north of Manly. Anchor's located.
Coolooli	Dredge	1955	1980/08/29	Wrecked	Sydney, off Long Reef near the *Dee Why*. Located.
Dee Why	Steamer screw	1928	1976/05/25	Wrecked	Sydney, dumping ground off Long Reef. Located.
Denmark Hill	Ship	1814	1839/4/25	Wrecked	Sydney, Broken Bay, west side of Palm Beach, ashore
Duckenfield	Steamer screw	1875	1889/05/24	Wrecked	Sydney, north of Long Reef. Located.
Eclipse	Steamer screw	1885	1931/01/16	Wrecked	Sydney, Long Reef
Euroka	Steamer paddle	1897	1913/10/19	Wrecked	Sydney, Long Reef, on north side. Located.
Pontoon			1980	Wrecked	Sydney, Long Reef.
Greyhound	Steamer screw	1886	1894/05/04	Wrecked	Sydney, Long Reef, off
Himma	Steamer screw	1942	1977/08/30	Wrecked	Sydney, dumping ground off Long Reef. Located.
Hopper	?	?	?	Wrecked	Sydney, Long Reef. Located.
Hopper barge	?	?	1980	Wrecked	Sydney, Long Reef. Located.
Hopper Barge 656	Barge	1957	1980/06/10	Wrecked	Sydney, Long Reef
Horn	Launch		1948/11/16	Wrecked	Sydney, Long Reef, off
Meggol (ex Doomba)	Steamer screw	1919	1976/12/09	Wrecked	Sydney, dumping ground off Long Reef. Located.
Messenger	Schooner	?	1860/02/08	Wrecked	Sydney, Long Reef, off
Mimmie	Cutter	?	1868/06/13	Wrecked	Sydney, Long Reef, south side
Mountain Maid	Brigantine	?	1868/02/15	Wrecked	Sydney, Long Reef, off
Myola	Steamer screw	1913	1919/04/01	Wrecked	Sydney, Long Reef. Located.
Pyrmont II	Barge	?	1976/07/05	Wrecked	Sydney, Long Reef
Rover	Cutter	1839	1842/11/03	Wrecked	Sydney, Palm Beach, Ran over wreck of *Denmark Hill*
Sophia Maria	?	?	1803/06/14	Wrecked	Sydney, probably near Dee Why, after caught in S'thly gale btn Long Reef and North Head
Standard	Launch	?	1931/03/24	Wrecked	Sydney, Long Reef, 1 mile east of
Susannah Cuthbert	Steamer screw	1864	1875/07/07	Wrecked	Sydney, Long Reef, ashore in 7' off Jenkins Point
Swift	Ketch	1859	1860/04/23	Wrecked	Sydney, Long Reef, off
Valiant	Motor vessel	?	1981	Wrecked	Sydney, off Barrenjoey Head. Located.
Verdier	Barge	1912	1983/07	Wrecked	Sydney, Long Reef, off artificial reef
Whale	Cutter	?	1816	Wrecked	Between Sydney and Broken Bay
Windsor	Sloop	?	1816/06/?	Wrecked	Sydney, ashore Long Reef.