

# ABROLHOS ISLANDS ARCHAEOLOGICAL SITES: INTERIM REPORT

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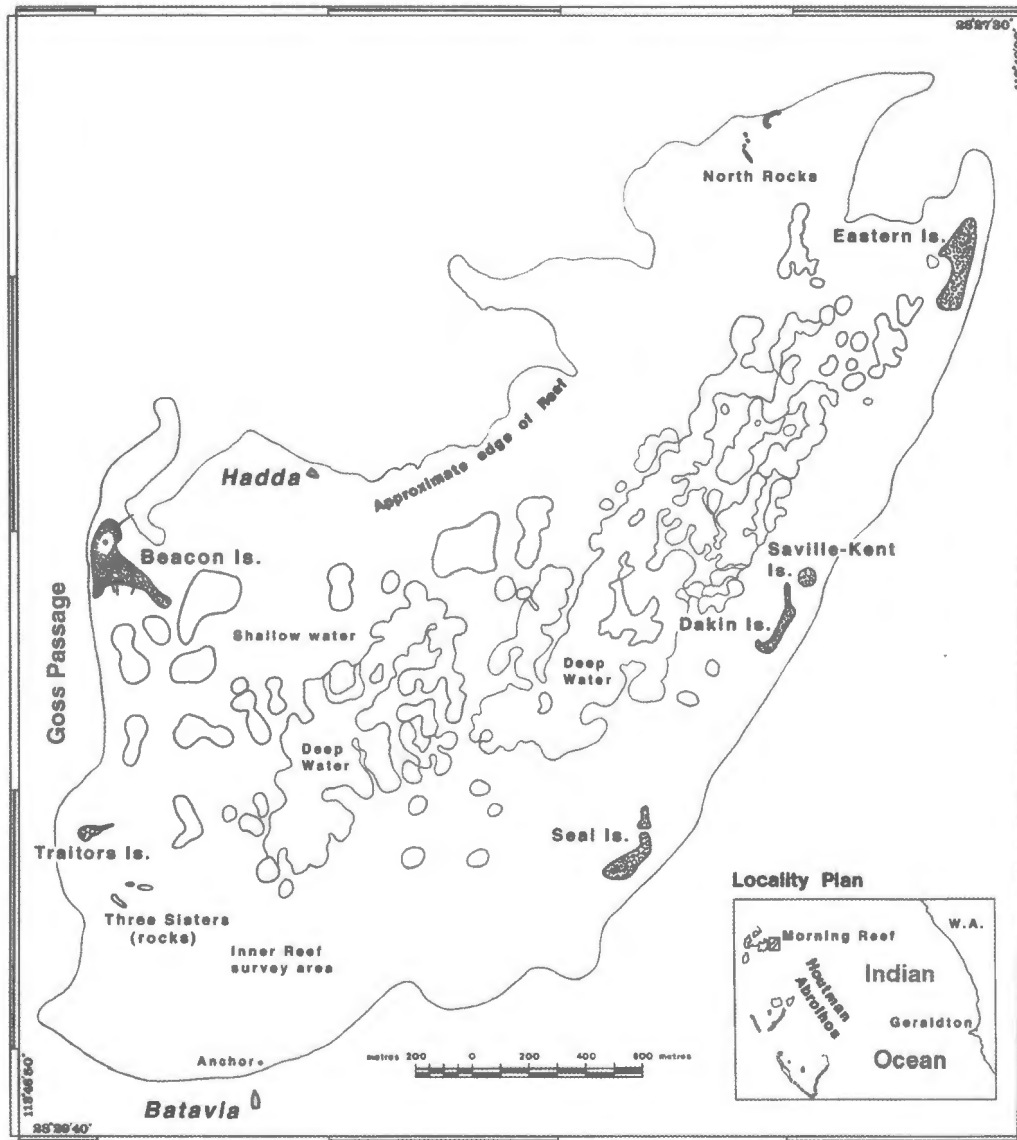
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# Coastcare: Abrolhos Islands Project 1999

Myra Stanbury



## Introduction

### *The Houtman Abrolhos Islands*

The Houtman Abrolhos Islands and the waters which surround them are important to many sectors of the Western Australian community. As the Minister for Fisheries, the Hon. Monty House MLA, states in the Minister's Foreword to *Management of the Houtman Abrolhos System* (Fisheries WA, 1998), they are of 'distinct environmental and historical significance and have 'high economic and social value'. Demand for use of this unique environment is placing the Abrolhos Islands ecosystem under increasing pressure. Careful and co-ordinated management is required, therefore, to ensure that those features which make the Houtman Abrolhos unique are protected for the future.

The islands are an A-Class reserve (A20253) vested in the Minister for Fisheries for the conservation of flora and fauna, tourism and purposes associated with the fishing industry. They are managed by Fisheries WA under regulations established pursuant to the *Fish Resources Management Act 1994 (WA)*. A plan, *Management of the Houtman Abrolhos System* (Fisheries WA, 1998), was published in December 1998 with proposed strategies ('immediate' and 'ongoing') to address marine and terrestrial management issues at the Abrolhos Islands.

The primary management goal is:

To conserve the environment of the Abrolhos Islands for present and future generations as a viable ecosystem, by protecting natural diversity, cultural heritage and ensuring ecologically sustainable use (Fisheries WA, 1998: 19).

### **Role of the Western Australian Museum**

As stated in the management plan:

The Abrolhos Islands are a unique part of Australia's heritage with a violent and colourful past. There is increasing interest in the historical, archaeological, cultural and heritage values of the Abrolhos Islands... [and]... a significant recent increase in the numbers of people making the effort to visit historic sites (Fisheries WA, 1998: 65).

The Western Australian Museum has administrative responsibilities for the State's *Maritime Archaeology Act 1973* and the Commonwealth *Historic Shipwrecks Act 1976*. These Acts effectively combine to protect valuable State and Commonwealth maritime heritage sites, both above and below the water. The Department of Maritime Archaeology at the Western Australian Maritime Museum,

Fremantle, is entrusted with the responsibility of managing State and Commonwealth protected historic shipwrecks and associated historic sites on land throughout Western Australia.

The Abrolhos Islands are noted for some of the most important maritime archaeological sites in Australia, sites which are internationally significant and a major attraction for visitors to the islands. The complex of sites in the Wallabi Group associated with the loss of the Dutch East-Indiaman *Batavia* in 1629, and the fate of its survivors, are among the most well known. They represent some of the oldest European habitation sites in Australia. Yet surprisingly they remain poorly understood.

Many of the archaeological sites in the Abrolhos Islands have suffered with the passage of time, and uncontrolled access. Souvenir hunting, fossicking, metal detector probes, removal and/or 'reconstruction' of standing structures, and unauthorised 'diggings' have resulted in considerable loss of archaeological information. This results in a confused rather than a clear picture of what actually happened in the past.

During the developmental phases of the planning strategy for the Houtman Abrolhos, it was recommended that:

Further research into archaeological and historical sites on and around the islands is to be encouraged (Abrolhos Islands Task Force, 1988: 23).

Acting on that recommendation, the Western Australian Maritime Museum has systematically sought funding from various research and heritage organisations to carry out research investigations of significant maritime heritage sites in the Abrolhos Islands. Further supported by recommendations from the Australia Netherlands Committee on Old Dutch Shipwrecks (ANCOODS) (Green, Stanbury & Gaastra, 1998), one of its principal aims has been to undertake a comprehensive survey, evaluation and limited excavation of selected sites associated with the survivors of the *Batavia*.

Although extensive archaeological work has been undertaken by the Museum on the *Batavia* underwater site (see Green, 1989), the associated land sites have not received the same degree of attention. Small mapping projects and test excavations have been carried out on some of the islands with the aim of recording and verifying the location of previously reported finds (see Stanbury, 1998). However, new systems of surveying now allow these sites to be positioned more accurately. Furthermore, non-destructive, remote-sensing technology, such as Ground Penetrating Radar, has the potential to locate

new and possibly undisturbed archaeological remains which could reveal new research information about the historical events which took place in the Abrolhos centuries ago.

Modern scientific and forensic techniques, not available when the *Batavia* was first located in the 1960s, can now assist archaeologists in their analyses and interpretations, particularly with regard to human osteological (skeletal) material. Existing evidence, and new data, can be treated in much more sophisticated ways, opening up new vistas on the past.

Sir Mortimer Wheeler maintained that 'archaeology is digging up people, not things', meaning that it was important to use the artefacts found in excavations to bring to life the people who made and used them (Wheeler, quoted in Prag & Neave, 1997: 11). In recent times, his precept has been taken one step further: techniques are now available which enable the facial characteristics of ancient human skulls to be reconstructed, giving historical figures a lifelike identity. Although the reconstruction may not be a totally accurate representation of how the person appeared in real life, scientific developments in the field of cranio-facial reconstruction have led to the production of credible likeness when images of known historical persons have been compared with the reconstruction.

The combination of stereolithography and Computer Tomography (CT), or three dimensional (3-D) X-ray images, is enabling complex archaeological material, such as skulls and other skeletal material, to be replicated with a degree of accuracy and detail not obtainable by conventional replication methods (see Arnold III & McAllister, 1998). The diagnostic features of the skeletal components can be stored on computer, forming a permanent part of the archaeological record for a particular individual(s). The data can be used at any time to view the skull or other bone from any perspective and to make prototype models for casting and facial reconstruction. Experimental work using this technique has been undertaken successfully on the remains of a French sailor whose remains were recovered in 1996 from the hold of the wreck of Rene-Robert Cavalier Sieur de La Salle's supply ship the *Belle*, lost off the coast of Texas in 1696 (see Hamilton, 1997). La Salle was endeavouring to establish a French colony along the Gulf coast.

Similarly, recent developments in DNA testing have opened up a new area of study called 'molecular archaeology' (Blau, in Zarmati & Cremin, 1998: 144). This potentially allows archaeologists to trace the genetic relatives of the ancient bodies they have discovered, possibly even establishing links between ancient and modern people. In this way, they are able to come another step closer to meeting the historical people they are studying. This technique, too, is being used on the La Salle victim in the hopes that the DNA profile may link this individual to modern relatives (Hamilton, 1997). Similar studies are proposed for skeletal remains recovered

from the British Admiralty ship HMS *Pandora*, wrecked in 1796 off the coast of north Queensland (Gesner, P. and Steptoe, D., 1999, pers. comm.).

#### **The Coastwest/Coastcare Abrolhos Islands Project**

A Coastwest/Coastcare grant was awarded to the Western Australian Maritime Museum, Fisheries WA and associated government agencies and community groups to assess the extent of the archaeological evidence relating to the *Batavia* (1629) incident in the Wallabi Group, Houtman Abrolhos. Having evaluated the evidence, the project will make management recommendations and implement strategies to ensure that the heritage content of the sites is protected and, at the same time, accessible for the benefit of the public. The objective is to improve inter-agency cooperation, and provide both increased information to visitors and community involvement in management.

As outlined in the First Phase Planning document (Green, 1999), circulated to participating organisations and community groups, the first phase of the project involved a fieldwork component in the Abrolhos focussing on two aspects: archaeology and survey.

This Interim Report aims to provide a brief outline of the organisation of the project, the work carried out and preliminary results.

#### *Project organisation*

The Abrolhos Islands Project was initiated as a joint undertaking between the following government agencies and community groups, each offering support and assistance with the planning and logistics, field operations and volunteer labour:

- Western Australian Maritime Museum
- Fisheries WA
- Conservation and Land Management (CALM)
- Geraldton Professional Fishermen's Association (GPFA)
- Maritime Archaeological Association of Western Australia (MAAWA)

In addition, a number of volunteers and professional consultants were drawn from private enterprise, tertiary institutions, other government agencies and community associations including:

- Curtin University of Technology
- Geraldton TAFE
- University of Western Australia
- Queen Elizabeth II Path Centre
- PRISM Australia
- Batavia Coast Maritime Heritage Association
- Fisheries WA: Volunteer Group

A complete list of personnel involved in the project is given in Appendix 1. A total of 31 persons directly participated in the field operations.

The project team was based on Beacon Island during the three-week field season from 25 September to 16 October 1999. They were accommodated in 'Dransfield House' (courtesy Fisheries WA) and in private camps



belonging to Beacon Island fishermen (courtesy Rod Dransfield and John Ashplant).

A core team of Museum personnel and 'permanent' volunteers remained on the island for the duration of the expedition, additional assistance being provided by changing teams of volunteers, specialists and media personnel on a weekly basis. The first group travelled from Geraldton to Beacon Island on the Fisheries patrol boat PV *Walcott* under the command of Quine Parkes, with crew Bruce Webber, Garry Johannesen and Murray Verne. After assisting the pearling lugger *Willie* to return to the Geraldton wharf to attend to mechanical problems, the team arrived at Beacon Island in about 31/2 hours.

All equipment, personal gear, food, and other supplies, including the Department of Maritime Archaeology's dive boat *Seaspray*, had to be brought to Geraldton from Fremantle by road, and similarly returned. Towing services for *Seaspray* were provided by Accredited Towing Services. At Geraldton, volunteers assisted Museum and Fisheries personnel with the loading of the *Walcott* and became quite familiar and adept with the process of packing, loading, unloading and unpacking gear throughout the expedition. The return trip on the *Southern Lady*, skippered by Bevan Suckling with crewman Nick Linton was a somewhat slower voyage, with less favourable sea conditions.

Intermediate changes of teams were made by air charter (Shine Aviation) between Geraldton and East Wallabi Island, *Seaspray*, skippered by Geoff Kimpton, ferrying passengers to and from Beacon Island. Fortunately, weather and sea conditions on transfer days were in our favour and planned schedules were able to be maintained. Ray Howarth, skipper of the supply/charter boat *Island Leader*, also assisted with the transport of sensitive technical equipment too heavy to be flown to Beacon Island.

All participants were given a briefing document in advance of the expedition (see Appendix 2) together with Volunteer Worker Indemnity Forms as required by the Museum. Emphasis was placed on the unique nature of the Abrolhos System and protective policies applicable to the area, together with general advice as to weather, accommodation, safety and personal requirements.

Many of the volunteers had never been to the Abrolhos Islands before; living a relatively Spartan existence on a small island was a new experience. In addition to assisting with the various project activities, all personnel were rostered to share with the catering and general camp duties—recycling rubbish and managing the intricacies of the composting toilet. For some, even cooking was a first-time event!

Each group consisted of men and women of differing ages and diverse backgrounds representing a broad range of skills and expertise. This proved to be one of the most beneficial aspects of the project; everyone had something valuable to offer, whether it was technical expertise in one form or another, or simply a delicious new recipe to

sustain the workforce. Working days commenced with a meeting at 0800 (following breakfast), to plan and discuss the day's activities; this was important in order that everyone clearly understood what was happening. Apart from the project leaders and volunteers assigned to specific projects, all expedition volunteers were given the opportunity to participate in a variety of tasks so that they were not permanently assigned to the same job. Evenings, particularly those spent around the barbecue, proved to be an extremely sociable time and generated a good team spirit.

Many of the volunteers maintained their own personal journals, MAAWA members being specifically asked by their association to do so in order that these accounts can contribute to the final Coastcare report.







Figure 1. Illustrations from the 1647 Jan Jansz book *Ongeluckige Voyagie van't Schip Batavia*. Above the events leading to the wreck, below the final fate of the mutineers.

### Introduction

In the late 1980s human bones were located during the digging of a trench for a leach drain in the backyard of a fishing camp on Beacon Island, currently licensed to the Ashplant family, but occupied in the 1960s by Mr O. 'Pop' Marten who made the accidental discovery of the first of a series of skeletons on the island. Unbeknown to him at that time, he had also discovered, in the vicinity of his camp, the first dated object from the *Batavia*—an engraved brass trumpet garland marked with the Roman numerals for the year 1628 (see Halls, 1964: 25; Stanbury, 1998: 108). Although some of the local fishermen had knowledge of curiously-shaped objects on the sea-bed at a site on nearby Morning Reef, it was not until 1963 that this proved to be the remains of the VOC *Retourschip Batavia*, wrecked on 1 June 1629.

News of the discovery of the underwater site led to a frenzy of 'digging' and uncontrolled excavations on Beacon and other islands in the Wallabi Group (see Edwards, [1966] 1973: 169; Stanbury, 1998: 107–108). Searches uncovered various items including broken ceramics, beads, metal objects, faunal assemblages etc., and more human remains. In recent years, the collection of *Batavia* human skeletal material held at the Western Australian Museum, Geraldton Region Museum, the Australian National Maritime Museum and the Nederlands Scheepvaart Museum, Amsterdam, has been subject to intensive re-investigation as new analytical techniques have become available. The combined expertise of physical and forensic anthropologists, historians and others has greatly expanded the existing body of knowledge of the victims of the *Batavia* mutiny and continues to do so (see Pasveer, *et al.*, 1998; Amalfi, 1999).

The bones, including some skull fragments, unearthed in the 1980s, were put back into the trench and covered up when the drain was finished. The Museum was not informed about the finds until a Commonwealth Historic Shipwrecks Amnesty was declared in 1993–94. This allowed people to make reports without fear of prosecution under the *Historic Shipwrecks Act 1976* and to declare any unregistered cultural material that they might have in their possession.

Unfortunately, in this instance, the site had already been subjected to vandalism, some bones having been reportedly removed. In 1994, a small team from the Western Australian Maritime Museum, led by Myra Stanbury, went to the island to investigate the site and to assess the extent of the damage. For this purpose a small test pit was dug (about 4 m<sup>2</sup>) and some scattered skeletal remains were found and taken back to the Museum to be

curated and studied. From these remains it was established that there were at least three individuals (two adults and a child) buried at the site (Hunnebury, 1995; Pasveer, *et al.*, 1998).

The degree of prior human disturbance and ongoing disturbance by local wildlife (especially various species of mutton birds), together with the risk of future vandalism led to the decision to fully excavate the site. This would also provide an opportunity to extend the research on the historical skeletal remains.

The results presented here should be considered preliminary, as the finds are still in the process of being cleaned, identified, catalogued and restored.

### Excavation methods

Weeds and a *c.* 1 m strip of bushes and shrubs at the southern edge of Ashplant's backyard were removed to provide access to the area of the 1994 test excavation (Gibbs, 1994). An excavation grid was set up starting from this location, and extended over most of the surface of Ashplant's backyard (see Fig. 2). The excavated squares are D4 and E4 (the southern halves), D5 and E5, D6 and E6. This covers the area of the 1994 excavation, plus an extension of 0.5 m in a southerly direction. The squares excavated in 1994 have been renamed to conform with the new and larger grid system. Excavation was done in square metres, but to relate the grid to the area excavated in 1994, only half the square was excavated in some cases.

The squares were excavated in 5 cm spits (designated depths of soil), except in those areas which had already been excavated in 1994. All removed soil was sieved in both a 5 mm and 3 mm sieve, and the residues were searched on site for archaeological material. Recent domestic materials (old batteries, plastics, nails, broken pegs, etc.) were properly disposed of. Finds were extensively filmed, photographed and drawn (see Franke & Green, this report). The exact location of every find was three-dimensionally measured. All finds were removed, with the exception of a deposit of dense, black soil of uncertain origin and significance (see further discussion); this was left *in situ* and covered with black plastic and coral slabs, for protection, before the pit was back-filled with the sieved deposit. The excavation area was finally re-greened.

Excavation was done under the cover of a tarpaulin not only to protect the excavated material from the sun and rain, but also to allow excavation to continue regardless of the weather. The bones were continuously sprayed with fresh water to prevent them from drying out too quickly. After removal, all finds were allowed to dry slowly, wrapped in pH neutral paper within unsealed

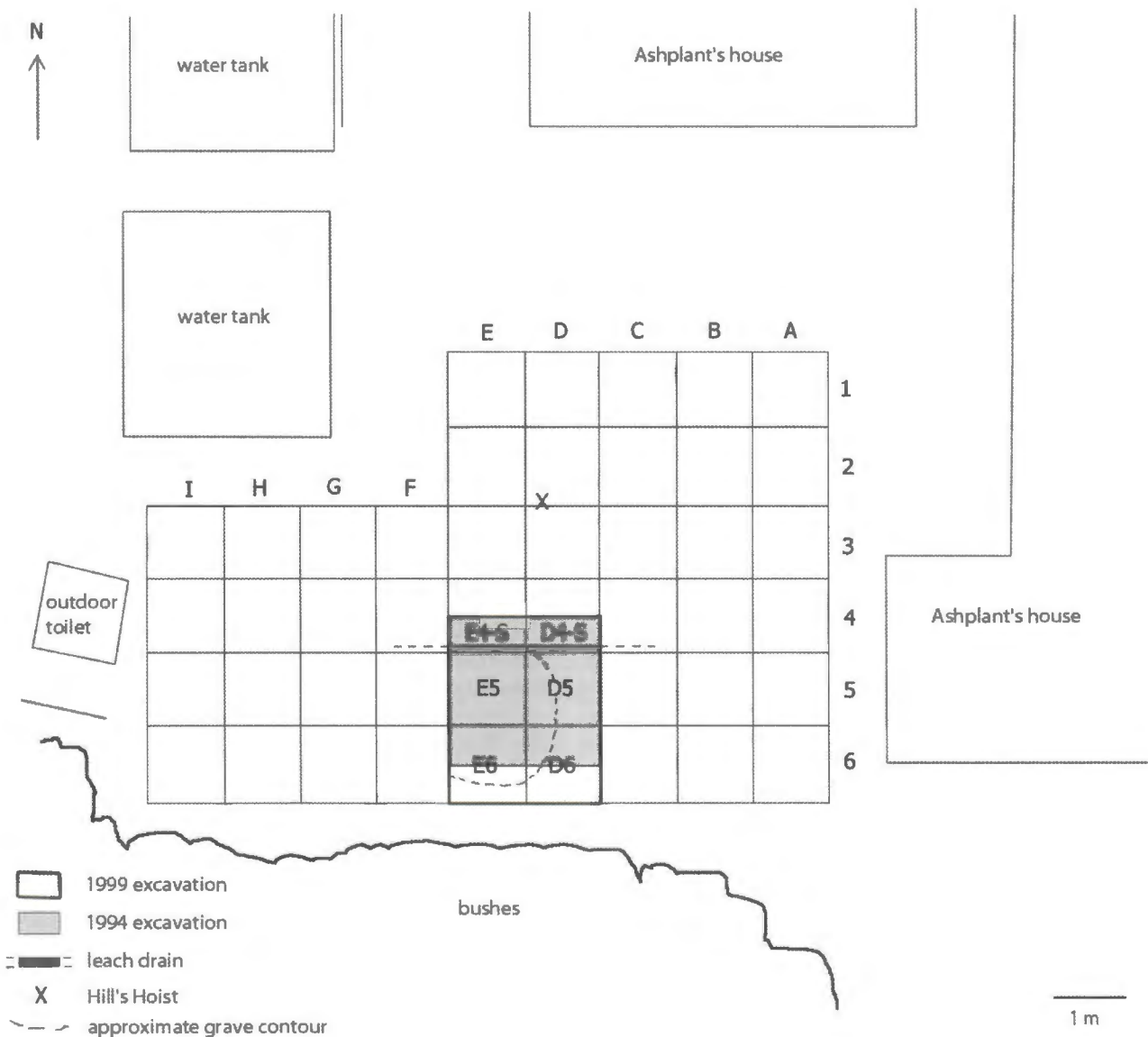


Figure 2. Excavation grid and the excavated area.

plastic bags, and then packed for transport (see Appendix 4).

**The finds**

The excavated area contained five individuals (named SK7, 8, 9, 10 and 11), with most bones still in anatomical position. The individuals were all located in a circular pit and had been laid curved against each other. The head and shoulder region of two individuals had been damaged during construction of the leach drain. The remains that were found in 1994 (SK5 and SK6) are considered to belong to these individuals. Three of the individuals are adult, two are children of about 12 and 5 years old. The bodies were found to lie over, under, or in a large deposit

of black, dense soil penetrated by numerous fine roots. The nature of this deposit is currently being investigated. Embedded in this black deposit were metal buttons, some fibrous material and impressions of woven, fibrous material, which may indicate the presence of fabric. Since this black deposit obviously needed special care and investigation it was left *in situ* for future excavation.

Because some bones were firmly embedded in the black deposit they could not be removed. Those which were removed from this material proved to be very damp and less well preserved than those bones located in the surrounding sand. It is likely, therefore, that any bone material remaining in the black deposit will be in a very poor condition. As the black deposit was found amidst





Figure 3. The mass grave. The bones of the 5-year-old child (SK9), originally located against the back of the adult skeleton (SK7), had to be removed at an early stage of the excavation.

the individuals, most of the recovered skeletons are currently incomplete.

#### *The individuals*

SK7 is an adult skeleton of a man in his early twenties. His body is almost complete, but some bones had to be left *in situ* as they were embedded in the black material. The sex is convincingly determined on the basis of the skull and the robustness of the bones in general; the pelvis is too incomplete to add any useful information. The initial age estimate is based on the tooth wear, and will be further assessed when all bones have been cleaned. The individual was buried more or less on his right side, legs slightly flexed, head facing down and his left arm folded underneath his body (protruding into the black soil). His right arm was positioned alongside his head with the lower arm folded underneath.

SK8 is the body of a 12 to 13-year-old child. Most of the bones above the pelvis were found in anatomical position, but the pelvis and any other bones below that are embedded in the black soil and could not be removed. It is possible that they are completely deteriorated. The age of this individual was determined on the basis of tooth eruption and the fusion of the bone epiphyses (none of which are fused). It is not possible to determine the sex of juvenile individuals on the basis of bone morphology, because the sex-specific features in the skeleton have not

yet developed fully; hopefully, a DNA analysis will reveal whether this child was male or female. The child was buried on its right side, the head facing down but slightly on its right side. In the region of the rib cage numerous buttons were found, *in situ*, in a row from the chin down along the chest. Buttons were also found in the wrist area of the left arm. These buttons are currently being cleaned and investigated. Historical research may hint at the kind of clothes they may have been attached to.

The body of the 5-year-old child (SK9) is incomplete because it was severely disturbed by mutton bird activity. The skull was badly crushed due to the pressure of the soil and, because it was undermined by a mutton bird hole, it had to be removed at a very early stage of the excavation. Though the bones were scattered, the original position of the body is clear, namely laid against the back of the adult skeleton SK7, probably right side and face down, in the same flexed position. The tooth eruption and the size of the bones indicate that the child was between 5 and 6 years old when it died. The sex will have to be determined with DNA analysis.

The bones of the skeleton of SK10 are in a very bad condition. The head and shoulder region were damaged and disturbed by the digging of the sewer trench, and only the very fragile rib cage and vertebrae were recovered. The remainder of the body was embedded in the black deposit and probably is also in a bad condition. Some isolated leg,



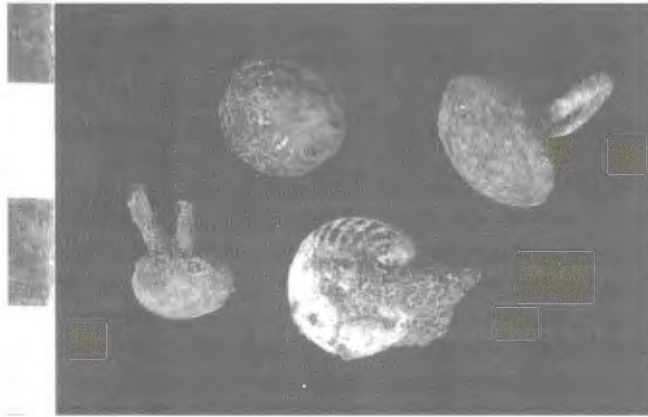


Figure 4. Some of the metal buttons found during the excavation.

hand and foot bones may also belong to this individual. The position of this body is presently uncertain. It belongs to an adult individual of an, as yet, unknown age and sex.

The skeleton of SK11 also is very incomplete; again, the head was removed by the digging of the trench, and most of the body from the pelvic region and below is embedded in the black deposit. The rib cage and the left arm, however, are in a relatively good condition. This individual was buried on its back but tilted slightly to the right side, with the left arm folded over the chest. In the shoulder region a bright green stain is present on some of the ribs and part of the shoulder blade. This is indicative of the presence of copper, although no large copper alloy objects were found in the area. The skeleton belongs to an adult individual of, as yet, unknown age and sex.

The skull labelled SK6 was located in 1994 and then left where it was found by the excavator. It was removed during the 1999 excavation. The skull was found out of original context, not associated with any post-cranial bones, and surrounded by modern materials (batteries, plastic etc.). It is obvious that this was one of the skulls that was removed and then reburied during digging of the sewer trench. The skull is incomplete and cracked but the bone is in reasonable condition. The crack was possibly caused by a blow on the head, reopening the suture on the right side of the skull (Buck, A. & Cooke, C., 1999, pers. comm., 5 Nov.). Also, the right upper incisor has been forced into the bone of the upper jaw. This is likely to have been caused by a heavy blow against the teeth. It is possible that both the dislocated tooth and the crack in the skull are the result of violence. Skull SK6 probably belonged to a male individual in his early twenties.

The skull fragments of SK5 were recovered in 1994 and have been subject to prior study (Hunneybun, 1995; Pasveer, 1997; Pasveer *et al.*, 1998). They probably belong to an adult individual of around 40–45 years old. The sex could not be determined.

It is very likely that SK5 and SK6, along with some other post-cranial bones recovered in 1994, belong to

SK10 and SK11 of the 1999 excavation. However, at present it is not clear which skull might belong to which skeleton. As both age determinations of SK5 and SK6, and the sex determination of SK6 are only based on incomplete skulls, these determinations must be considered as preliminary.

#### *Metal*

Various pieces of old and more recent metal objects were found *in situ* or in the sieve residues. The study of these metal artefacts is at a very early stage.

Nineteen metal buttons were found, most of them *in situ*, but some in the sieve residue. A row of buttons was found close to the rib cage of the 12–13-year-old individual SK8, extending from the chin down across the chest. A few also were discovered in the wrist area of the left arm. These buttons obviously come from the clothes that the child was wearing when it died, and may tell us something about the kind of clothing that was worn in those days. Most of the buttons are heavily encrusted, but a few show a very finely decorated pattern (Fig. 4).

Several decorated and plain brass buttons with loop shanks, similar to those recovered from the Beacon Island site, have been found among the shipwreck remains, many of them embedded in iron concretions (see Green, 1989: 174, ill. BAT 565A). Others of brass and silver were found on Gun Island in the Pelsaert Group of the Houtman Abrolhos where the survivors from the VOC ship *Zeewijk* spent nine months in 1727 (see Ingleman-Sundberg, 1978: 37), and, a finely decorated silver button survived the ravages of the *Zuytdorp* wreck in 1711. Several varieties of buttons and other clothing accessories have been excavated from 17th century sites in Amsterdam (Baart, *et al.*, 1977) and serve as comparative examples.

A piece of very fine copper wire was found in the sieve residue. This fragment is obviously manufactured and modified into a very small circular object (*c.* 5 mm in diameter) and is bent in places into very curved loops. Its identity is unclear, but suggestions are that it may have formed part of a piece of jewellery, for holding a gemstone, or simply functioned as a decorative device. This clearly needs to be studied further.

Some fragile pieces of copper wire were also found during the cleaning of one of the shoulder blades of individual SK11. These are curved, as if part of a very thin chain or necklace.

A small fragment of pewter was found on the rib cage of individual SK7. (This unfortunately cracked into three pieces before it was raised from the site.) The fragments fit to form part of a spoon, similar to those recovered from the wreck of the *Batavia* (see illustrations in Green, 1989: 153). One fragment shows the point, on the reverse of the bowl, where the handle would have been attached (see Green, 1989: 153, ill. BAT 7092).

Finally, a small metal buckle was found in the sieve. Its age or association is currently undetermined.





*Glass*

Two glass bottles were found in the area outside the burial pit. This area contained scattered remains of modern rubbish. The bottles appear to date from this century. One bottle (BILS 220) has the embossed letters 'AGM' on the base indicating that it was made by the Australian Glass Manufacturing Company Limited (see Arnold, 1985: 25–34; 1987: 8; Boow, 1991: 176). The company was originally established in Melbourne as the Melbourne Glass Bottle Works (MGBW) but following an amalgamation with the Waterloo Glass Bottle Works Company Limited, in 1915, changed its name to Australian Glass Manufacturing Company Limited; it is now part of Australian Consolidated Industries (ACI). Raised letters and symbols created on the glass through use of full-size moulds, either blown, pressed, or machine-made was the most common form of commercial marking on containers and tableware in the 18th and 19th centuries (see Jones & Sullivan, 1989: 16).

The letter 'A' has a square top, with the left arm slightly shorter than the right; both are slightly concave. The letter 'G' is set above the cross bar of the 'A'; with the letter 'M' below (see Arnold, 1985: 27). The style of the AGM mark changed over time and allows the bottle to be dated to the period c. 1930–1948 (see Arnold, 1985: 27), although it continues in a similar form to date (Boow, 1991: 176).

Adjacent to the AGM the bottle is marked 'F 1855 (627 vertical) M'; either side of the 1855 are the numerals '0' and '8'. These probably relate to the mould number in the set, the design number and the factory of origin (e.g. 'M' for Melbourne) (see Boow, 1991: 176).

Bottle BILS 220 (ht c. 153 mm; base 60 x 28 mm) is a colourless, rectangular moulded bottle with slightly concave sides, each with three circular indentations. The finish is externally threaded to accommodate a patent bakelite screw cap of 23 mm diameter. The bore consists of a small, circular opening, seemingly designed to restrict the flow of contents from the bottle. The top of the bakelite cap bears an embossed monogram formed from the letters 'CMCO', probably the trade mark of the company producing the contents. Remains of the contents—an oily, yellow substance/residue—suggest a toiletry product such as hair oil/restorer. Inside the cap are the remains of a dark brown, oily, 'fibrous' material, possibly remnants of an internal seal.

The second bottle (BILS 132) is a brown glass, moulded bottle (ht 147.5 mm). The body is Philadelphia oval-shaped (see Jones & Sullivan, 1989: 101, fig. 68) with scooped shoulders (Jones & Sullivan, 1989: 99, fig. 66) and an externally threaded finish, sealed with a metal cap. An embossed numeral '6' is present on one of the chamfered sides, near the base.

These bottles are clearly intrusive finds and have no association with the *Batavia*.

*Animal bone*

Animal remains were found in the sieve residues, but none of them have been identified yet. Most of them are probably recent, coming from native wildlife or remains of cray-pot bait. However, further study is needed to establish whether any of them are associated with the *Batavia* survivors.

**Preliminary interpretation, planned studies and future projects**

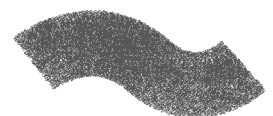
The history of the leach drain illustrates how vulnerable the historical sites in the Houtman Abrolhos are to human activity, particularly when their exact location is unknown. But for such 'accidental' discoveries, sites such as that presently under investigation might never be found at all. This emphasises the need to test various remote sensing and other survey techniques which may assist in identifying the locations of potential archaeological sites so that similar disturbance can be avoided. Once the potential location of sites is determined, management strategies can then be put in place to control development activities.

If the trench for the sewer had been dug 30 cm to the south, the damage to the existing site would have been much worse than it is now. On the other hand, had the trench been 30 cm to the north, the burial pit would have been completely by-passed with minimal or no damage being incurred. Had the location of the site been known, alternative recommendations for the placement of the leach drain could have been made.

An important result of the 1999 excavation is that the existence of a mass burial pit has been confirmed. This has important implications for the interpretation of Pelsaert's Journal; for the identification of the victims; and also for the study of behavioural aspects of the mutiny.

The position of the individuals in the burial pit is such that they cannot be considered to have had a 'normal' Christian burial. Although indications for a violent death are not abundant, the circumstances of their burial strongly suggests that they did not die a natural death. It appears that either SK10, or maybe SK11 or SK8, were thrown into the pit first, with SK7 deposited on top. The 5-year-old child may have been laid down last, pushed tightly against SK7's back to ensure all individuals would fit into the pit. Although the relatively large deposit of black soil was not excavated, we can be quite certain that the total number of individuals in this grave is five; so far there are no indications of the presence of other individuals and most of the margin of the pit is clearly defined.

An important objective of this study is to identify the individuals. At this stage, however, no positive identifications have been made. One research hypothesis being tested is that the mass burial may be associated with the slaughter of the Predicant's family on the night of 21 July 1629 (see van



Huystee, this report). However, there are several other candidates mentioned in Pelsaert's Journal who could have been buried in this way. The combined results of the historical and archaeological research, therefore, will provide essential information to support or refute the existing hypothesis, and indicate alternative interpretations.

After all the bones have been cleaned and catalogued, an attempt will be made to reassociate isolated bones to any of the individuals. Age and sex determinations will be finalised and, if necessary, radiology or DNA analysis will be applied to the bones to provide, or support, the determinations. Traces of disease and trauma will be further investigated, also with the aid of X-rays. For the identification of the individuals, DNA analysis will be applied to at least the two children, but preferably to all individuals. If this grave contains members of the Predicant's family, then at least the two children should be related. If we find no genetic similarities in the bone, then other potential candidates will need to be considered.

The diet of the people is planned to be investigated using Scanning Electron Microscopy (SEM) of the teeth; stable isotope analysis of the bones; and, possible study of stomach contents (which may be evident in samples

taken from the soil in the stomach area). The metal cloth accessories need to be cleaned and studied in the context of 17th-century clothing. All this, in combination with the people's health and physical condition, will provide a wealth of information about general life standards in the 17th century in north-western Europe and the people on board an ocean-going ship like the *Batavia*.

The black deposit that was left *in situ* in 1999 will need to be excavated in the near future, possibly with different equipment and expertise. However, prior to excavation, it is essential to establish the organic nature of the deposit, its origin and significance, and the condition of any embedded bones or artefacts. Samples have been submitted to the Departments of Soil Science and Chemistry at the University of Western Australia for analysis.

An indication of the nature of any soluble organic components will be gained by solvent extraction and nuclear magnetic resonance (NMR) spectroscopy (see Ghisalberti & Godfrey, 1990, 1998). This technique provides information about the type of chemical functional groups and the structures of constituents present in mixtures of organic compounds.



Figure 5. Illustration from the Jan Jansz book of 1647 showing the massacres on Beacon Island .

# Historical evidence of the *Batavia* mutiny: Beacon Island expedition

Marit van Huystee



## Introduction

The identification of the *Batavia* mutiny victims is part of a larger project of the Western Australian Maritime Museum that started several years ago under the supervision of Myra Stanbury. The project's title is 'The historical archaeology of the *Batavia* shipwreck (1629) survivor camps'. The project investigates historical and archaeological evidence of how the castaways of the *Batavia* managed to survive on the islands of the Houtman Abrolhos after the *Batavia* wrecked.

Two important parts of this project are the historical background and the study of the human remains found on the islands in the last three decades.

## Historical evidence

Practically all the historical evidence on the *Batavia* mutiny can be found in the Pelsaert Journal, a handwritten 17th-century Dutch document, which is kept in the Netherlands (Algemeen Rijksarchief [ARA], The Hague, Document 1630: 1098 QQ II, fol. 232–316; see also Huystee, 1998).

E.D. Drok's translation of the manuscript was published in Henrietta Drake-Brockman's book *Voyage to Disaster* in 1963 (Drake-Brockman, [1963] 1995: 122 ff.). This translation, and a translation of the first book published on the *Batavia* disaster by William Siebenhaar (1897) at the end of the 19th century, have been used as the main sources for further historical research in Australia. Although Drok's translation in many respects is of a very high standard, there are a few instances where his translation of the Dutch text is, in my opinion, too interpretative. This is understandable, as the original text is indeed often ambiguous, especially in regard to the islands and the locations where the recorded events took place.

## The Wallabi Group, Houtman Abrolhos

In the Pelsaert Journal the two biggest islands in the Wallabi Group of the Houtman Abrolhos are called *Batavia's Kerkhof* (*Batavia's Graveyard*), and *Robben Eiland* (Seals Island) (see Roeper, 1993: 27, fig. 5). Nowadays, these are thought to be Beacon and Long Islands. There are, however, people who have doubts even about this (see Melrose, 1998).

We assume that *Hoge Eiland* (High Island) refers to both East and West Wallabi until folio 295v/296r (see Roeper, 1993: 172). From this page onwards, Pelsaert starts to use the name 'Wiebbe Haijes'.

From folio 261v onwards (Roeper, 1993: 115) a *Verraders Eiland* (Traitors Island) features in the text. It is not clear which island is meant here and why it is called Traitors Island. Each time Traitors Island is mentioned, it is in

relation to the drowning of two men on 5 July 1629, and the drowning of a group of fifteen people on 9 July. It seems that this island cannot have been far away from *Batavia's Graveyard* as some of the men make an effort to save themselves by swimming to that latter island.

On folio 269r fifteen people who built two rafts were first sent to *Batavia's Graveyard* (from Traitors Island) by Sevanck and Van Huijssen, but when they reached the shallows of the island, they were killed. This event, like most of the more important events, is mentioned various times in the journal. Only this particular occasion, more detailed information on the location is given. The fifteen people had planned to sail to High Island, (to Wiebbe Haijes and his men?), and it could be that Jeronimus Cornelisz and his consorts saw them as traitors, and therefore called the island, on which they built their rafts, Traitors Island.

Jeronimus Cornelisz must have deliberately decided to stay on the small and bare *Batavia's Graveyard*. He could have moved with the people to one of the larger islands west of the wreck. A larger island would provide more protection, food and water. It is unclear why he decided to remain on one of the least suitable islands.

## Field investigations

The above gives a brief overview of some of the issues related to the location of the islands mentioned in the Pelsaert Journal, and the different events that took place on these islands. Further research into, and clarification of these matters, therefore, was considered necessary. Thus, it was proposed that, during my stay at the Abrolhos Islands, I would undertake research to identify the different islands and the events that took place on each of them, as mentioned in the Pelsaert Journal, by comparing the descriptions in the Dutch text with the actual environment.

## Method

The following methodology was adopted:

- a. copy the *Batavia* Journal (Roeper, 1993) and highlight all references that are relevant to the location of the islands and the events that took place on each of them;
- b. categorise the information:
  - geomorphological;
  - fauna/flora descriptions;
  - references to distances between islands, etc.;
- c. compare, and where possible, correlate the information with the actual environment.



### Preliminary observations

At this stage I have not been able to conduct all the proposed work. This report, therefore, must be seen as a preliminary attempt to clarify some of the issues mentioned.

During my stay at Beacon Island there was no opportunity for me to visit East Wallabi, West Wallabi, or Traitors Island. Also, since so many skeletons were found during the week I stayed on the islands, I concentrated on the possible identifications of the individuals found.

Nevertheless, I acquired a very good impression of the general area, and the islands. My visit was extremely useful as I am now much better able to visualise the events described in the Pelsaert Journal, and to place them in the context of the environment.

### The islands

The first thing that struck me when arriving by air at the Wallabi Group of the Houtman Abrolhos on 2 October 1990 was that the islands are much closer together than I had expected from reading the maps. This probably has to do with the fact that, except for East and West Wallabi, they are all small to very small islands, separated by relatively large areas of water—on paper at least.

It is obvious that all the islands are relatively easily accessible. It would not have been difficult for experienced sailors to sail back and forth from island to island in small boats and on rafts. The reef (Morning Reef) protects many of the islands, and during my stay, there was never a large swell. Although we experienced strong winds, the sea around the islands stayed quite calm.

At the wreck site, sea conditions can change considerably as is mentioned several times in the Pelsaert Journal. Only occasionally could Pelsaert let his men dive at the wreck site for the chests with money.

### Beacon Island (*Batavia's Kerkhof*)

Although Beacon Island is small (5 ha), a large group of people can stay on this island. The *Batavia* people probably stayed in several groups of tents on the higher, sandy part of the island.

Beacon Island has a triangular shape with three beaches entirely composed of broken coral. It is interesting that the problem this may have caused for the people's feet is not mentioned in Pelsaert's Journal. The Predicant, Gijsbert Bastiaansz, does refer to the problem in a letter, which he wrote after the disaster (see Drake-Brockman, [1963] 1995: 263–269). He writes that he will be grateful forever for the clogs people on Weibbe Haijes Island made for him (Drake-Brockman, 1995: 267).

The vegetation on Beacon Island is quite high, sometimes up to 2 m. I was told that 30 years ago the bushes and shrubs on the island were much lower than they are now—their present density probably being a reflection of the effects of human habitation of the island over many years. Shelter provided by the fishermen's huts, artificial walls of coral and old bottles, and other factors have likely stimulated their growth.

In the 17th century, the island would probably have been less vegetated than it is now, offering little shelter and making it almost impossible to do anything in daylight without being noticed. (The illustrations of the *Batavia* massacres in Jan Jansz' 1647 publication of the *Ongelukige Voyagie van't Schip Batavia, Naer Oost-Indien...* show the islands distinctly devoid of any bushes or shrubs of any substance, though being produced from eyewitness accounts they may not depict true representations: see Green, *et al.*, 1998: 82–84; Figs 1 and 5).

I was told that the prevailing current would have brought a lot of material from the wreck site to Beacon Island. It is very likely, therefore, that all sorts of material and provisions washed ashore on the island and would have been readily available for reuse. This could be a reason for the leader, Jeronimus Cornelisz, and his men to stay on this island. In the Pelsaert Journal it is mentioned on several occasions that people sailed to other islands to rescue provisions. Clearly then, not all the material washed up on Beacon Island.

People must have met each other constantly, like we did with around 25 people on the island. It would have been difficult to keep something private or secret there. With so many people killed with axes and adzes, a lot of screaming and crying must have occurred. I have difficulty believing people did not hear anything during the night of 21 July when the Predicant's family was murdered for instance.

Evidence for the identification of Beacon Island as *Batavia's* Graveyard can be found in the Pelsaert Journal (the big yawl was sent to the 'High Island' earlier):

[298 r] ...to it in order to lift it, but it was too heavy for the light little yawl so that we stuck a buoy and went back to the island in order to see if the big yawl had not come, but coming there, found not yet. Therefore ordered the smallest yawl to go to Seals Island [Long Island], because they could see them better from there and give better signals from there.

Looking from Beacon Island towards East and West Wallabi Islands or 'High Island' as they were referred to, 'Seals Island' (*Robben Eiland*/or present Long Island) is situated between Beacon Island and 'High Island'. When trying to have a good view of 'High Island' or to signal to people there, it would make sense to sail to 'Seals Island' as it is closer to 'High Island'.

According to the Journal, two groups of murdered people were buried on Beacon Island. On 12 July 1629 Passchier van den Enden (gunner), Jacob Hendricxsz (carpenter) and a sick boy were killed and buried in a hole (see Drake-Brockman, 1995: 186).

On 21 July the Predicant's wife, his youngest male child, Roelant, three other children, his middle daughter, Willemtyngien, and his eldest son, Bastiaen Gijsbertsz were beaten to death and buried in a hole which had been prepared for that purpose (see Drake-Brockman, 1995:



181, 184). The same night, the maid, Wijbrecht Claes, a woman named Maijken Cardoes, and a man named Hendrick Denijs were also killed.

Although in no other case is it specifically mentioned that people were buried, it is still possible that they actually were. (See the attached list for other killings on Beacon Island.)

**Long Island (Robben Eiland/Seals Island)**

Long Island is, not surprisingly, a long narrow island close to Beacon Island. It is flat and it has some brackish or salt-water pools in the middle of it. In these pools a sort of 'glasswort' or samphire (plant of genus *Salicornia* or *Salsola*) grows, which is eaten in the Netherlands. The aromatic saline fleshy leaves are used in pickles. In France, the plant was known as 'samb(i)ere' or St Peter's herb (Sykes, 1976: 1000). The plant was not observed on any of the other islands visited.

Contrary to Beacon Island, Long Island consists, as far as I could see, of little or no sand. I have more difficulty imagining a large group of around 40 people staying on this island than on Beacon Island.

The people staying on Long Island were virtually all killed on 15 and 18 July. Also, seven of the murderers were hanged there on 2 October 1629.

**High Island (Hoge Eiland)**

With regard to 'High Island', I referred to this earlier as relating to both West Wallabi and East Wallabi.

Having visited the islands, I now believe that it could well have been possible that, before a certain date, the people on Beacon Island and Long Island did not realise that East and West Wallabi were separate islands. Again,

looking from Beacon Island towards the 'High' Island(s), this is understandable: there is no obvious boundary between the two islands. For the people on Beacon Island, High Island and Wiebbe Hajjes' Island could have been construed as being one and the same.

**Conclusion**

Although further clarification as to the location and identification of the islands has been achieved, it is obvious that more can be said about the nature of the islands and the people who stayed on them. Also, more can be said about information regarding the native flora and fauna, and so on.

The Pelsaert Journal is structured in a complicated fashion and has important information scattered throughout the text. This information is not always easy to find. More extensive research into the Dutch text and other historical sources (e.g. the Predicant's letter, contemporary books, etc.) is necessary to obtain a more complete picture of the events that took place from 4 June to 15 November 1629 on the islands of the Wallabi Group of the Houtman Abrolhos.

**Endnotes**

1. Like many of the names in the Pelsaert Journal, *Batavia's Kerkhof* and *Robben Eiland* are spelled in various ways. In this case I chose to use the modern Dutch spelling. *Hoge Eiland* and *Verraders Eiland* are also spelled in modern Dutch, although *Hoge Eiland* is not grammatically correct in modern Dutch.
2. Almost without exception the names of the people mentioned in the Pelsaert Journal are spelled in various ways. The most commonly used spelling has been used in this text.

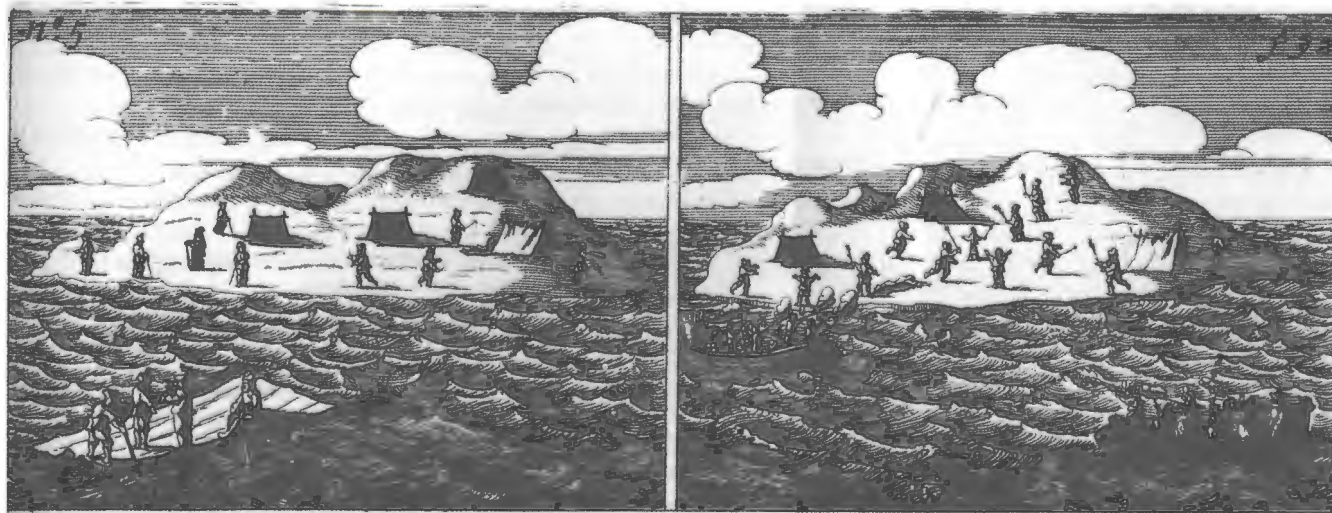


Figure 6. Illustration from the Jan Jansz book of 1647 showing the attack on Wiebbe Hajjes Island.



DATE	EVENT	NAMES (when known)
4 June 1629	Wrecking of <i>Batavia</i>	
8 June 1629	Pelsaert and 36 people leave in the boat in search of water and sail for Batavia.	
3 July 1629	3 men drowned at Traitors Island	Hendrick Jonas; Thomas Wensel; Jan Cornelis
4 July 1629	2 men beaten to death on Beacon Island	Egbert Roeloffsz; Warnar Dircxsz
5 July 1629	2 men drowned at <u>an island</u> , hands and feet tied	Hans Radder van Dansig; Jacob Groenewald
7 July 1629	Arrival of Pelsaert in Batavia	
8 July 1629	Child (aged 6 yrs) strangled on Beacon Island	Gilletgjen Hardens
9 July 1629	13 people drowned from 2 rafts between Traitors Island and 'High Island'.	Pieter Jans, wife child; Claas Harmansz*, wife; Glaudine Patoijs, child; Cristoffel Quist; Wouter Joel; Nicolaas Winckelhaak*; Paul Barentsz*; Bessel Janssz*; Pieter Arentsz. * Tried to save themselves on Beacon Island, but were killed there.
10 July 1629	11 sick people killed on Beacon Island —throats cut	Jan Pinten
12 July 1629	2 men and sick boy killed on Beacon Island and buried in hole—throats cut	Passchier van den Enden; Jacob Hendricxsz
13 July 1629	Some more sick people killed on Beacon Island	
14 July 1629	Man publicly executed on Beacon Island	Andries de Vries
15 July 1629	18 men/boys beaten to death on Long Island ( <i>Robben Eiland</i> = Seals Island)	
18 July 1629	Youngsters + 4 women killed on Long Island	Maijken Soers (pregnant); Jannetgjen Gist; Laurentia Thomas; Geertien Willemsz
20 July 1629	Child strangled by Salomon Deschamps	Suckling child of Maijken Cardoes
21 July 1629	Predicant's family: wife and six children beaten to death; maid Predicant's family stabbed; 1 female throat cut + head beaten in, buried in hole; 1 man head battered in. All on Beacon Island.	Predicant's wife; youngest male child Roelant; child #2; middle daughter Willemtyngien; child #4; child #5; eldest son Bastiaen Gijsbertsz; Wijbrecht Claes; Maijken Cardoes; Hendrick Denijs
25 July 1629	Man stabbed in heart on Beacon Island	Hendrick Jansz van Purmerent* * see also later entry on 10 August.
25 July 1629	2 men drowned at the mast	Obbe Jansz; Jan Gerritsz van Leijen
28 July 1629	Woman strangled with ribbon on Beacon Island	Anneke Hardens
29 July 1629	Boy's throat cut on Beacon Island	Andries de Bruyn
5 August 1629	Man killed on 'High Island'	Frans Jansz van Hoorn
6 August 1629	Man stabbed to death on Beacon Island	Stoffel Stoffelz
10 August 1629	Man stabbed to death on Beacon Island	Hendrick Jansz van Purmerent* *This is also given as happening on an earlier date
16 August 1629	Man beheaded with sabre	Cornelis Aldersz
2 September 1629	Jeronimus Cornelisz captured. 4 men killed on 'High Island'	David van Sevanck; Coenraat van Huysen; Gijsbrecht van Welderen; Cornelis Pieter van Utrecht
17 September 1629	Pelsaert finds wreck site	
2 October 1629	7 men hanged on Long Island	Jeronimus Cornelisz; Jan Hendricxsz van Bremen; Leendert Michielsz van Os; Mattijs Beer; Allert Jansz van Assendelft; Andries Jonas van Luyck; Rutger Fredericxsz van Groeningen
15 November 1629	Departure <i>Sardam</i> with all survivors and the salvaged goods	

 Table 1. Brief summary of the events concerning the *Batavia* mutiny (1629).

### Introduction

This interim report details completed and future *Batavia* site mapping procedures conducted under a research collaboration between the Western Australian Maritime Museum and the School of Spatial Sciences at Curtin University for the 1999 Abrolhos Coastcare Project. The project gave Senior Lecturer Bruce Montgomery and Research Fellow Jochen Franke an opportunity to further develop various mapping strategies and system set-ups. It also served surveying student Dean Henry as his final year project.

The first part of the report refers to aerial mapping of islands centred around Beacon Island; the second part concerns close range photogrammetric modelling of the skeleton excavation site. For detailed explanations regarding planning of the aerial island survey please refer to the author's report '1999 Abrolhos Coastcare Aerial Mapping Strategy'. For each of those two parts there are various stages to complete. Those stages are grouped into achievements to date and steps still to be completed. Generally speaking, data collection is completed and data processing is pending. Complete and comprehensive explanations will be given in the final report following completion of the project.

### Aerial island mapping: achievements to date

#### *Preparation for data collection*

- Detailed planning of static Global Positioning System (GPS) reference station survey network. This includes collection of information regarding suitably accurate existing reference survey marks within the Wallabi Group from other government agencies and consultants.
- Detailed planning of ground control layout to be acquired by Total Station. This includes collection of existing cartographic and photographic material.
- Detailed planning of aerial photo acquisition. This comprises coordination of factors such as site extent, scale, frame format, minimum aircraft speed, fastest shutter speed available, maximum scan resolution and many others.
- Management of survey related expedition logistics and equipment issues.

#### *Data collection*

The initial goal was the acquisition of a strong static GPS reference point network comprising 7 stations and numerous baselines per station. These points formed the core of all consecutive survey work as further explained

below. Sessions were recorded at 20 second intervals with a minimum duration of one hour for short baselines of approximately 1–3 km length, and a duration of 24 hours and more for critical and/or long baselines of up to a maximum of 10 km in length. All GPS points were marked with a star picket, a metal tag imprinted with the point ID, and a protective yellow cap. It is expected that these highly accurate points will be of value for any kind of project conducted in the near or distant future in this area. The locations of the points are:

- Beacon Island Y-path (Be1)
- Beacon Island E-end (Be2)
- Long Island (Lo1)
- Dick Island (Di1)
- Seal Island (Se1)
- Saville-Kent Island (Sa1)
- Eastern Island (Ea1)

In order to be in a position to sensibly geocode project aerial photography for aero-triangulation and ultimately for the production of photo-maps it was necessary to place over 70 targets using natural or stranded material.



Figure 7. The Total Station survey team at work. The team comprised mapping coordinator Jochen Franke at left, Dean Henry, surveyor in charge at the total station and Bronson O'Donoghue, the survey hand of the day holding the prism.

For these targets to be visible in the photographs, they preferably had to have the shape of a cross with an arm width of 30 cm and an arm length of approximately 1.8 m.

All targets were then surveyed by setting up a Total Station on one of the static GPS reference markers



Figure 8. Trimble 4000 SSI Static GPS station setup on Beacon Island (BE1). The point is marked with a star picket and protected by a yellow cap when not in use.



Figure 9. Example of a target cross—this particular one was placed on Hall Island. Note the black circle in the centre which will enable identification in the photograph accurate to a few centimetres.

utilising a triple prism set up on a second marker as back-sight before recording actual target positions.

The final step in data acquisition for the island mapping stage was acquiring the aerial photographs. In case of the system in use this implies conversion of a Cessna 172 to accommodate for the School of Spatial Sciences' custom-made camera frame. The frame houses the main sensor, a Hasselblad 70 mm film camera and also a Hi8 video camera linked to a real time display monitor as the navigation aid for the camera operator.

Due to adverse weather conditions it was not possible to land on East Wallabi Island so the aircraft conversion had to take place at Geraldton airport. This significantly reduced the comfort of the team which led to postponement of originally planned experimental trials involving image acquisition by using a harness. Acquisition of camera frame photography was successful so that now all raw data is at hand to produce the required photo-maps. Coverage comprises:

- Long Island
- Beacon Island

- Dick Island
- Traitors Island
- Seal Island
- Dakin Island
- Saville-Kent Island
- Hall Island
- Eastern Island
- Far Island

#### Stages still to be completed

##### *Post-processing of all static GPS data using GPSurvey*

- Network adjustment of the post-processed static GPS data using GeoLab leading to final adjusted positions.
- Processing of all Total Station surveys leading to final adjusted positions of all target crosses.
- Integration of all survey data including site sketches into a database.
- Collection and integration of continually logged GPS position of the Australian Regional GPS Network





Figure 10. The imaging system over the site. The frame holds a Hi8 video camera in the aft section and the main sensor, a Hasselblad 70 mm metric camera in the forward section. The photo shows East Wallabi Island in the background.

station at Yaragadee near Geraldton for the relevant project period. This data will increase the redundancy of the GPS network and give a better indication regarding accuracy of existing base stations used and of project stations.

- Production of photo-maps comprising:
  - Photogrammetric scanning of imagery.
  - Project set-up on a Helava Digital Photogrammetric Workstation.
  - Interior orientation of imagery.
  - Aero-triangulation of runs using the coordinated targets as ground control, thereby providing an exterior orientation.
  - Creation of digital elevation models of the islands from the imagery using the Helava Automated Terrain Extraction algorithm.
  - Ortho-rectification of the imagery utilising the extracted DEM—thereby providing distortion-free ground representation.
  - Mosaicing of all orthophotos forming a run.

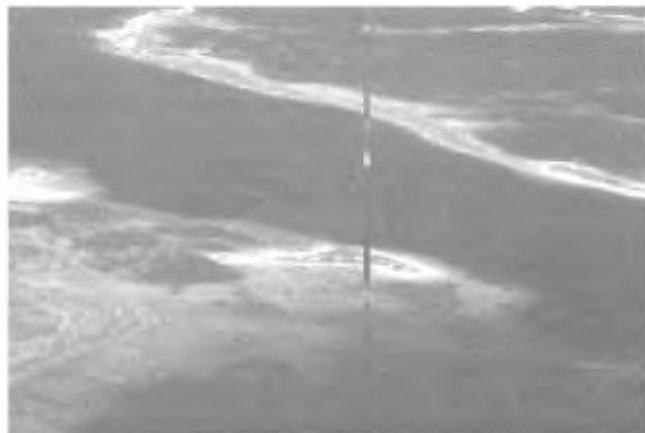


Figure 11. Aerial view of the site. The photo shows Beacon Island in the centre, the main Traitors Island to the left as well as Dick and the southern part of Long Island in the background.

Extraction of contour lines from the DEM.

Map production integrating coordinated orthophotos, contours, annotations and possibly other extracted features.

Production of stereomates for selected island coverage enabling stereo viewing of entire mosaics.

- Printing.
- Accuracy check of the Maritime Museum’s Fugro OmniStar and Trimble Scout Master Differential GPS system using data logged at point BE2 on Beacon Island. Once available, coordinate comparison of the highly accurate static GPS position with this test data will give a first-hand indication about the accuracy of the DGPS on such remote locations.
- Compilation of results into a final report.

### Photogrammetric modelling of the Beacon Island grave

#### *Achievements to date*

- Calibration of Kodak DCS420 digital camera used during third week of excavation.
- Targeting of the site with retro-reflective and other targets.
- Acquisition of several epochs of *in situ* photography suitable for close range photogrammetric modelling.
- Survey of targets by using a Total Station.
- Tape measure survey of distances between selected targets.
- Global coordination of the local grid frame by connecting origin to acquired static GPS point using the Total Station.







Figure 12. Total Station survey of targets placed on the excavation site

*Stages still to be completed*

- Calibration of Nikon F3 camera used during early stages of the excavation.
- Data processing of the Total Station grave site survey thereby providing a set of control points per epoch for photogrammetric modelling.
- Photogrammetric modelling of the site using the collected imagery within Australis, PhotoModeler 3.1 and 3DMapper where appropriate.
- Additional acquisition of photography and associated data processing of *excavated* skeletal material for conservation reasons.
- Investigation into the applicability and practicability of other visualisation technologies such as laser scanning to assist in minimum impact investigations and in presentation.



**Differential Global Positioning System (DGPS) Project**

The objective of this project was to produce interim mapping of the islands and subsidiary features so that they could be incorporated in a Geographical Information System (GIS). It was expected, in the long run, that the aerial mapping conducted by Montgomery and Franke from Curtin University and the terrestrial surveying project conducted by Dean Henry would largely supersede this work.

The DGPS system used was an OmniStar system loaned to the Australian National Centre of Excellence in Maritime Archaeology by Fugro Surveys. The project involved two components: outline surveys of all the main islands in the eastern group of the Wallabi Islands (Long, Traitors, Seal, Middle, East and North-East Islands); and precise location of particular sites within the area (main *Batavia*, *Hadda* wreck sites, inside reef site and prominent

features on Beacon Island). The outline survey was carried out by simply mounting the DGPS system in a back-pack and walking around the perimeter of the islands, and logging position on the data-logger. This was a very effective way of obtaining a reasonably accurate plan of the islands. For example, it took 20 minutes to walk around Beacon Island and in that time a plan, accurate to  $\pm 2$  m was obtained. The data was downloaded, the positions converted to decimal degrees (the position format used by the GIS software ArcView) and saved in dBase format. The various files were combined and then imported into the ArcView program.

The system was also used to plot the position of various features and sites. This data was treated in the same way and entered as a separate data file. All positions were recorded using WGS84 datum.

Figure 13 shows the resulting GIS.

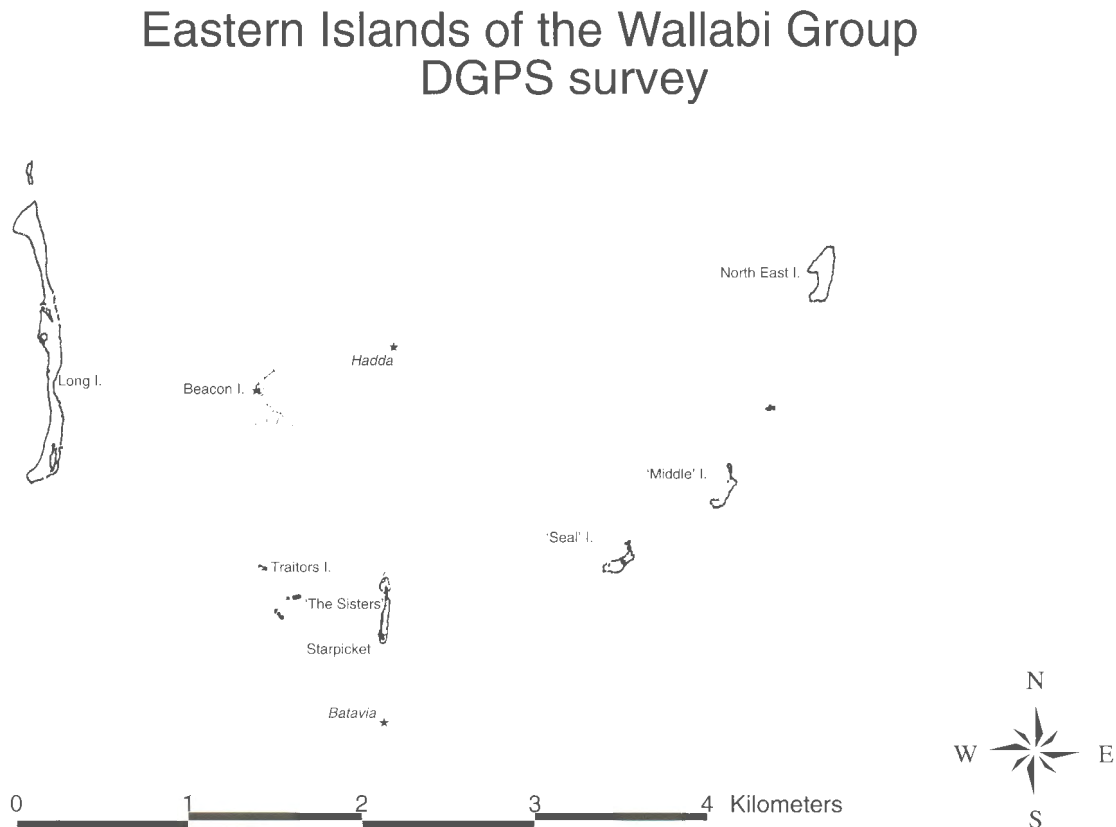


Figure 13. Map of the Eastern Islands of the Wallabi Group from GIS data.

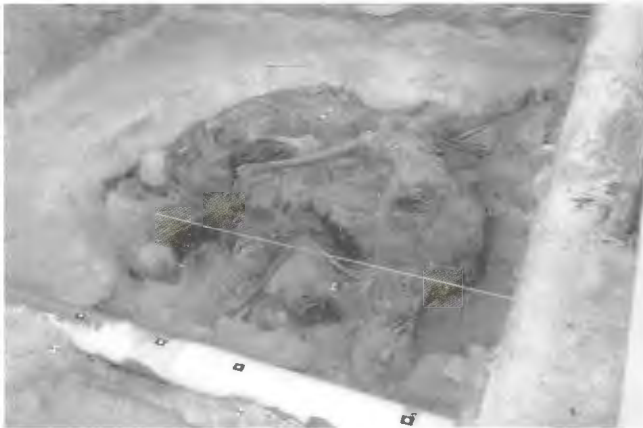


Figure 14. PhotoModeler view of grave site showing targets, photograph taken using KodakDCS 420 digital camera.

### Digital photomosaic

The archaeological excavation was recorded at all stages using conventional photography, but as there were no facilities for developing or printing on-site, plans could not be produced in the field using this system. During the excavation of the grave site, a need arose to have good plans of each step of the excavation. Since the project had both a digital video camera, a colour printer and the appropriate software to print, it was decided, as an interim measure, to use the video capture mode of the Sony Digital Video Camera Recorder (Model DCR-TRV900E) to create photomosaics of the excavation. Initially, a grid was set up on the site using photographic targets at the intersection of the grid squares. Later when a Total Station system became available (brought by Dean Henry, Curtin University), the targets were set up in convenient

positions and surveyed in using the Total Station. Each survey consisted of a series of approximately vertical video shots of each of the nine quadrants containing skeletal material. These were previewed and the selected frame saved onto floppy disk. These images were then saved onto the computer and the frames then opened in PhotoShop. Knowing the coordinates of the photographic targets, these were scaled onto a large PhotoShop 'pasteboard' document at a 1:10 scale as points. The individual screen grabs were then cropped to include the phototargets and then placed one-by-one on the pasteboard and then transformed (by scaling and distorting) so that the screen grab coordinates correspond with the plotted positions. The process is best illustrated in Figures 14 and 15.

### PhotoModeler

As part of the excavation programme, surveying and recording of the work became critical as the complexity of the site emerged. It was decided that there was a need for detailed photogrammetric recording to supplement the standard surveying methods. This was considered particularly important to capture the complex three dimensional features of the site. Initially, a standard, uncalibrated single lens reflex (SLR) camera was used, however, the Department of Spatial Sciences at Curtin University of Technology provided a high-resolution Kodak DCS420 digital camera which enabled more accurate and immediate results to be obtained. Using this camera, results could be obtained in the field and processed and analysed as the excavation proceeded. The PhotoModeler program has some significant applications in this field, being able to provide accurate and precise measurements of control points.



Figure 15. Interim plan of grave site targets and skeletal material using PhotoModeler.

# Abrolhos geophysical survey

## Corioli Souter



### Introduction

Prior to excavation of the Beacon Island land site, geophysical survey techniques were used to map sub-surface details and to locate further archaeological deposits. Human activities often change the resistivity and magnetic susceptibility of the sub-surface. Remote sensing was used to obtain baseline data of the undisturbed sections of the grave site by detecting soil profile changes and archaeological material, which was later identified by excavation. This data provided a calibrated signature of the cultural deposits which could then be compared with results from other survey areas selected on the island. This type of survey provides archaeologists with a non-intrusive and non-destructive indication of the archaeological resource on Beacon Island. A small-scale geophysical survey of Seal Island was also undertaken.

Magnetic and radar methods were used to locate cultural material in the Abrolhos Islands. From previous discoveries and excavations, archaeological material was anticipated in only the top 50 cm of deposit. High resolution shallow penetration surveys were required to map sub-surface material at this depth.

### Geology

The Wallabi Group comprises a number of islands of various sizes, banks and reefs of rather irregular shape. Both East and West Wallabi islands rise from a limestone platform situated at or slightly below low-water level (see Teichert, 1946; Storr, 1965). These limestone platforms consist of a lower coral reef limestone which is overlain by shell limestone which forms the flat tops of the platforms. By contrast, the low islets in the Wallabi Group such as Beacon and Long Islands, and others, are made up of coral boulders and shingle.

Coral reef limestone forms the foundation for every island in the Abrolhos Group. It consists primarily of the skeletons of coral colonies. The spaces between the coral colonies are filled with coral debris, shells and shell grit, cemented together into one solid mass by deposits of secondary calcite. In some places in the vicinity of the Wallabi Group the coral limestone contains pockets of grey-coloured, fine-grained limestone with shell remains. Sand and guano deposits make up the top layer with the guano layer up to 30 cm thick. At high tide some of the islands become partially submerged. As a result, the islands have a very high moisture and salinity content.

### Magnetometer survey

A magnetometer survey utilising a proton precession magnetometer was undertaken of the grave site area prior to excavation. This survey technique essentially

locates objects by the changes their presence creates in the earth's magnetic field. The survey was used to define general regions of archaeological activity.

### Ground Penetrating Radar (GPR) survey

GPR is a sub-surface exploration system that uses electromagnetic (EM) waves. The system sends EM pulses through the soil by a transmitting antenna and picks up the reflections with a receiving antenna. The radar wave is reflected by variations in the electrical properties of the various materials it penetrates i.e. different dielectric constants. The reflection of the signal is recorded according to the time taken for the radar wave to go into the ground, then return to the surface. This is known as the 'time-window' and is interpreted in nanoseconds (ns). These signals are amplified and processed to produce a sub-surface profile. It is the amplitude of the measured reflections which gives an indication of the sub-surface structure. Effectiveness of this technique is determined by porosity, water content, clay content and salinity of the soil. Each of these factors influence the electrical conductivity. The more resistive the soil, the greater the radar wave penetration at all frequencies of antennae.

GPR data, consisting of many closely-spaced individual traces is transposed to create a colour section image which clearly indicates anomalies. The radar data is basically a cross-section through the ground, which provides a result that is in two dimensions, length and depth. The amount of data recorded, (or the number of passes or sweeps), is selected to maximise the information gained, whilst minimising the expense of excessive data acquisition and analysis.

Two types of GPR were used for profiling selected survey areas on Beacon Island. PRISM Australia volunteered a system produced by Geophysical Survey Systems Incorporated (GSSI) and operator, Mr Greg Joyce. The system is known as an SIR 2, (Surface Impulse Radar - System 2). In this operation, 600 MHz and 900 MHz antennae were utilised. This system provided a high frequency survey to investigate the top 50 cm of deposit. The University of Western Australia (UWA), Department of Geophysics, provided a Pulse EKKO 100 GPR using a 100 MHz antenna. This system was operated by geophysicist, Mr Adam O'Neill.

### Survey programme

27 September 1999

- Tested GPR equipment on the south side of camp formerly occupied by Johnson.
- Grid-up exterior of house, 20 cm intervals parallel to each wall.



Figure 16. Juliette Pasveer and Greg Joyce discussing the GPR image of the grave site.



Figure 18. GPR survey of the Ashplant yard using the Surface Impulse Radar-System 2 (SIR 2) courtesy PRISM Australia.



Figure 17. Adam O'Neill assisted by MAAWA volunteer, Holly Cassin, using the Pulse Echo 100 GPR to survey a path on Beacon Island.



Figure 19. Corioli Souter downloading magnetometer data on-site.

- GPR survey of Ashplant backyard and proposed excavation area. 100 mm line spacing. 25 mm trace spacing.
- Metal detector survey of Ashplant yard. Targets flagged and plotted.

28 September 1999

- Magnetometer survey of Ashplant yard.
- Close plot metal detector survey of gridded excavation area.
- Pulse Echo 100 GPR survey of path between Ashplant and ex-Johnson camps in order to test equipment and produce a profile of Beacon Island.
- Attempt to create flying fox assembly for Pulse EKKO 100 GPR so the ground covering and birds' nests would not be damaged by the survey. The radar antenna is moved across the area being investigated and can be in contact with the surface medium or can have a dielectric spacer such as air, between the



Figure 20. Geoff Kimpton and Holly Cassin deploying magnetometer over Ashplant yard.



antenna and the surface of the material being investigated. The dielectric spacer both absorbs and reflects the wave form, and it helps to prevent scatter of the radar pulses. The GPR assembly was too heavy to be manoeuvred in this manner and the operators resorted to minimal disturbance ground survey.

29 September 1999

- Using a contour program called Surfer, the magnetometer data from the excavation area was imported and a colour representation created. As expected, only the Hill's Hoist clothes line was clearly visible. Smaller, subtle changes were 'smeared' by these greater differences in the magnetic field—up to 1000 nT, ranging from 5500–57500.
- NS/EW survey grid erected behind Ashplant and ex-Johnson properties, 30 x 20 m utilising the 0,0 baseline.

30 September 1999

- GPR survey of circumference of accessible area around ex-Johnson's house.
- SIR 2 GPR deep probe survey of path between Ashplant and ex-Johnson properties.
- Calibration of SIR 2 GPR using sieved soil from excavation and star picket. This was done to determine the time window of the signals (20 ns).

1 October 1999

- SIR 2 GPR survey of Seal Island.
- 3 x 90 m runs (240°), 2 x 40 m runs (240°), 2 x 33 m runs (240°), 5 x 33 m runs (340°).
- Close plot survey of scrub behind ex-Johnson's house in area of suspected burial (Cramer, M., 1999, pers. comm.).
- 9 m x 5 m NS/EW. 0.25 m line spacing, 0.10 trace spacing.

**Preliminary conclusions**

Cultural material in the Houtman Abrolhos is best detected and imaged using the SIR 2 GPR which has the capabilities for high frequency surveys in this environment. As a result of the type and size of the archaeological material sought, interpretation of the data is difficult. Cultural material will often appear in one layer or slice of deposit and not in the ones below it. Geological material, which GPR was originally designed to detect, is more pervasive, appearing in successive layers. Interim interpretations of the data indicate that the archaeological material is identifiable and this will be used to delineate other archaeological sites on Beacon Island.

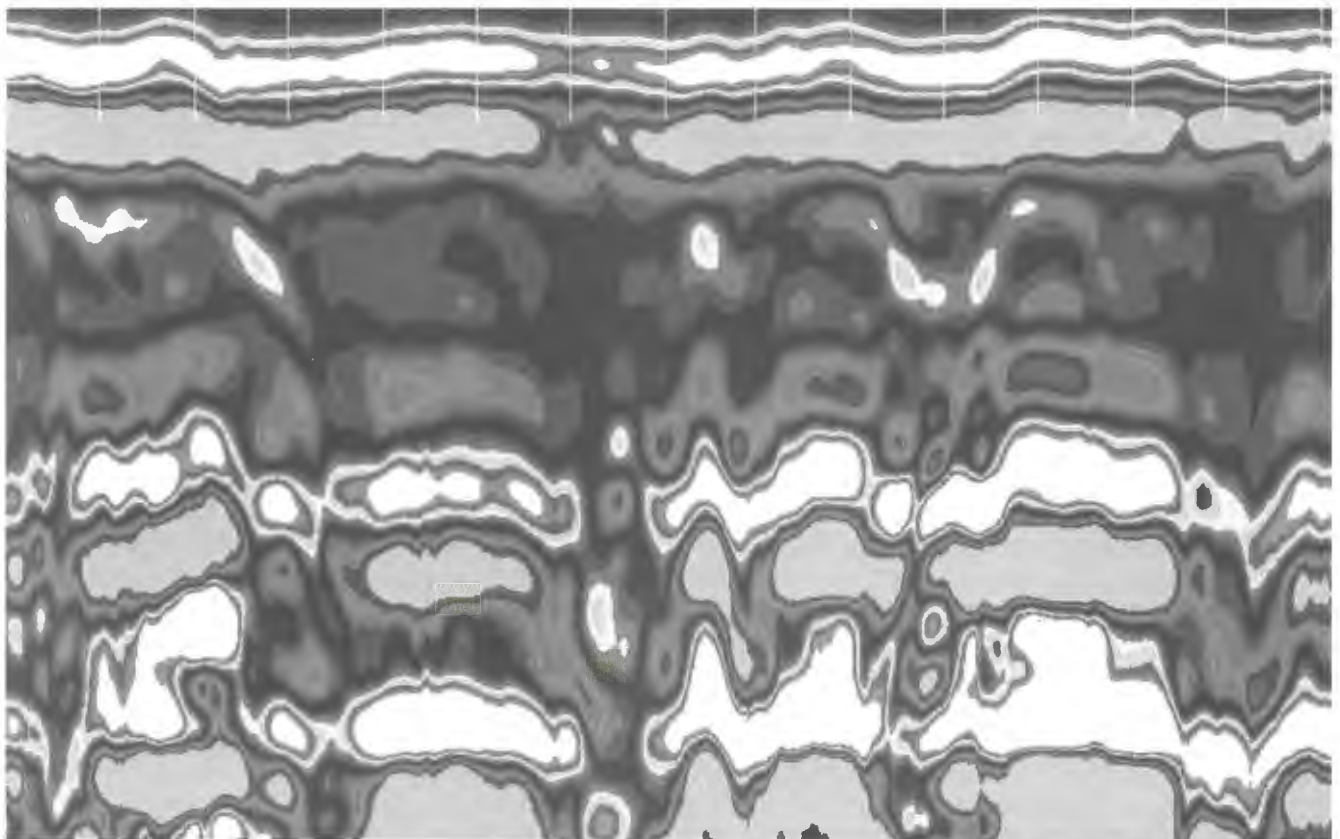


Figure 21. Image from SIR2 GPR over the grave site.





## MAAWA Report—Beacon Island

Clive Tolley



The Maritime Archaeology Association of WA (MAAWA) has had a long-standing contact with Beacon Island and the wreck of the *Batavia*. This dates back to September 1976 when MAAWA were invited to participate on the *Batavia* site by the WA Maritime Museum.

As a result of the previous archaeological excavation work in 1994 carried out on Beacon Island in the Houtman Abrolhos Group, the Western Australian Maritime Museum applied to CoastCare in the 1997/98 period for a grant to continue the work already started. There was a resubmission of the grant application in the 1998/99 period, which was subsequently accepted.

Under the grant's application there was a strong emphasis on community participation and it was under this umbrella that MAAWA was asked to participate as a community organisation.

From MAAWA there were nine volunteers to be used over the period from 26 September to 16 October 1999. This was worked with three volunteer members per week on a rotational basis.

As a result of MAAWA members' participation in the Australian Institute for Maritime Archaeology (AIMA)/Nautical Archaeology Society (NAS) maritime archaeology accreditation training programme (Parts 1 & 2), the Beacon Island experience provided a practical reinforcement to the skills already acquired.

During the period on Beacon Island, participants were involved in formal site survey techniques; site

recording and reassessment of techniques used previously; weighing, sieving and bagging of excavated spit material; recording, registration and packing of archaeological finds.

During this period, MAAWA members also participated in the use of the DGPS for the survey of outer lying islands from Beacon. This was along with assistance in the use of the GPR, metal detecting and magnetometers within the island group.

Wreck inspections of the *Batavia* and relocation of the *Hudda* site were also carried out during this time frame.

There was a strong consensus by MAAWA members of the value of heritage protection, and the need for adequate time and resources be allocated to fully develop the potential of this site.

Whilst awareness of the wreck of the *Batavia* is high amongst most West Australians, the importance of this early European contact is not appreciated by those of other states. This is a problem that may only be addressed over a period of time through ongoing education programmes.

It is the belief of MAAWA that a high priority should be paid to the Beacon Island site because of its cultural and heritage significance, and any assistance MAAWA could provide to further these goals would be fully supported by members in the future.

## Appendices

### Appendix 1: Project organisations, support groups and expedition personnel

Name	Position Organisation	Name	Position Organisation
Jeremy Green	Head, Maritime Archaeology, Project Co-ordinator WA Maritime Museum	Dean Henry	Volunteer (Survey Assistant, Aerial surveying) Curtin University of Technology
Wendy Ambury	Curator, Maritime Archaeology, Project Co-ordinator WA Maritime Museum	Bruce Montgomery	Volunteer (Aerial Survey Operator) Curtin University of Technology
Judith Pasveer	Project Archaeologist WA Maritime Museum	Todd Montgomery	Volunteer (Pilot, Aerial surveying) Curtin University of Technology
Marion Huystee	Project Linguist/historian WA Maritime Museum	Gary Abbott	Digital Mapping Department of Land Administration DOLA
Colin Chalmers	Program Manager, Fish & Fish Habitat Protection Fisheries WA (Perth)	Greg Joyce	Volunteer (Ground Penetrating Radar) Private Consultant,
Russell Dyson	Executive Officer, Abrolhos Fisheries WA (Perth)		Professional Radar Inspection Services and Management (PRISM) Australia, Perth
Paul Fitzpatrick	Regional Manager, Midwest Region Fisheries WA (Geraldton)	Adam O'Neill	Volunteer (Geophysicist) (ex graduate Curtin University of Technology) Private Consultant
Rod O'Halloran	Senior Fisheries Officer, Abrolhos Islands Management Fisheries WA (Geraldton)	Justin Anning	Volunteer (Geophysicist) Private Consultant
Quine Parkes	Skipper PV <i>Walcott</i> Fisheries WA	Clive Cooke	Chief Forensic Pathologist QE II PathCentre
Bruce Webber	PV <i>Walcott</i> Fisheries WA	Alanah Buck	Volunteer (Forensic Anthropologist) QE II PathCentre
Garry Johannesen	PV <i>Walcott</i> Fisheries WA	Stephen Knott	Volunteer (Forensic Dentist) QE II PathCentre
Murray Verne	PV <i>Walcott</i> Fisheries WA	Neil Hicks	Radiographer Sir Charles Gardiner Hospital
Mike Minena	Conservation and Land Management CALM (Geraldton)	Peter Hancock	Volunteer (Student) MAAWA
Clive Tolley	President (1998-99) Maritime Archaeological Association of Western Australia (MAAWA) Volunteer (Service Supervisor)	Holly Cassin	Volunteer (Dental Therapist) MAAWA
Roderick Dransfield	President (1998-99) Geraldton Professional Fishermen's Association GPFA	Brunhilde Prince	Volunteer (Teacher) MAAWA
E.J. and D.K. Ashplant	Beacon Island fishing community GPFA	Richard Russell	Volunteer (Fitter) MAAWA
Bevan Suckling	Skipper <i>Southern Lady</i> GPFA	Paul Lawrence	Volunteer (Fire Fighter) MAAWA
Nick Linton	<i>Southern Lady</i> GPFA	Sandra Wilson	Volunteer (Director) MAAWA
Ray Howarth	Skipper <i>Island Leader</i> GPFA	Michael Myers	Volunteer (Retired University Lecturer) MAAWA
Patrick Baker	Photographer WA Maritime Museum	Colin Cockram	Volunteer (Architect) MAAWA
Geoff Kimpton	Boat skipper WA Maritime Museum	Chris Fleming	Volunteer (Student) Fisheries WA Volunteer & Batavia Coast Maritime Heritage Association
Corioli Souter	Maritime/Historical Archaeologist WA Maritime Museum	Bronson O'Donoghue	Volunteer (Student) Geraldton TAFE
Nikki Sinclair	Volunteer Archaeologist WA Maritime Museum	Carmelo Amalfi	Volunteer (Science Journalist) <i>The West Australian</i>
Ambika Flavel	Volunteer Archaeologist University of Western Australia	John Mokrzycki	Volunteer (Photographer) <i>The West Australian</i>
Dan Franklin	Volunteer Archaeologist University of Western Australia	Susan Green	Volunteer (Writer/Journalist) The Chipped Quill
Gabrielle Fabri	Volunteer Archaeologist Southampton University, UK	Rik Malhotra	Director Geraldton Region Museum
John Penrose	Director, Marine Science and Technology Curtin University of Technology	Leonie Noble	President Friends of the Abrolhos
Jochen Franke	Volunteer (Coordinator, Aerial surveying) Curtin University of Technology	Jo Bunker	Secretary Batavia Coast Maritime Heritage Association

Appendix 2: Volunteer information and check list sheet



# Coastcare

## Abrolhos Islands Project

### Volunteer Information and Check List

#### About the Houtman Abrolhos

The Houtman Abrolhos and their surrounding coral reef communities form one of Western Australia's most unique marine areas. The islands are protected as an A-Class Reserve and are situated approximately 45–60 km off the coast of Geraldton.

During your stay you will be based on **Beacon Island** in the northern, **Wallabi Group**. Beacon Island is a small coral island which is occupied for part of the year by licensed commercial rock lobster fishermen. The island environment—both marine and terrestrial—is fragile, and needs the protection of island residents and visitors alike. Several species of birds make it their regular nesting ground and surrounding waters have a rich marine fauna and flora, and of course a number of historic shipwreck sites. As a visitor to the Abrolhos you will be able to enjoy a unique experience and assist in a Project designed to create an even greater community awareness of the significant heritage sites located throughout the islands, and the need to ensure their long-term conservation and protection so that other visitors may better understand and enjoy them.

#### Weather

Weather conditions at the Abrolhos can be very variable, from warm, calm sunny days to blustery, howling gales! Most of the time there is a cool to cold wind blowing and evenings can find you wanting to snuggle up in something warm around a camp fire.

#### Accommodation

The only accommodation on the island is the Fisheries house (formerly the WA Maritime Museum field station) and the private camps of the fishing community. The Fisheries house will be the main expedition base with additional sleeping accommodation being provided in one of the private fishing camps. Facilities are basic and you will be required to provide your own sleeping bag/pillow; some air mattresses will be available but if you have your own special one that packs up small then you would be advised to bring that too—just in case there are not enough regular beds to go around!

There are no natural sources of fresh water on the island. Fresh water is collected from roof catchments during the winter rains and supplies stored in rainwater tanks which then have to last through the summer months. The supplies, therefore, are for essential use only—drinking, rather than daily showers! Cleaning teeth and washing hands under running taps is a definite 'no-no' so please practice conserving water at home before you come! You are advised to bring one of the pH neutral shower/shampoos available on the market that lather well in **salt water** and/or sorbelene cream if you suffer from any skin condition that might be affected by salt water baths! A bucket 'bush-shower' is available in the house, but for restricted use only depending on water availability. 'Share a bucket' is the motto for any use of this facility!

An indoor toilet and/or outdoor 'dunny' will provide a private contemplative retreat but the flushing mechanism will need to be replenished at high tide—one of the daily duties of camp maintenance that all Project members will be expected to participate in.



### Catering and camp duties

There will be no cook on Beacon Island—but many mouths to feed! Each team member will be expected to assist with the preparation of meals and camp duties. Our normal practice is to compile a roster for ‘mother’ and ‘assistant mother’ duties. So, come prepared with your favourite recipe for a meal you know how to cook for you will certainly be required to implement it! If there are special ingredients that you will need—herbs/spices etc.—please indicate this on the form attached and return it with your other paperwork. It will then be forwarded to Patrick Baker and Marit van Huystee who have volunteered to purchase the provisions. We cannot guarantee, but will endeavour to ensure that everything you need is available. Four-star fare is not anticipated but wholesome, nourishing meals are!!

### Special dietary requirements

If you have any special dietary requirements either for cultural and/or medical reasons could you please indicate on the form attached. In order to cater for specific needs it may be preferable for you to purchase the items you require and label these clearly for your personal use.

### Transport

Transport arrangements will vary for different groups of project personnel and these will be advised individually. The general schedule of personnel movement to and from Geraldton and the Abrolhos is as per the attached spreadsheet.

The basic schedule is as follows:

**Thursday, 23 September** Geoff Kimpton/Patrick Baker will be loading the hire trailer with heavy gear and stores. **Volunteer help would be appreciated.** Any **dive gear and/or heavy bags will need to be delivered to the Maritime Museum by lunchtime Thursday** for inclusion in this transport. This will be conveyed to the Abrolhos on the Fisheries patrol boat *Walcott* and will be returned by boat at the end of the expedition i.e. 16/17 October. **Persons who are scheduled to travel to the Abrolhos by air at one of the change-overs on Saturday 2 and 9 October need to take this into account as only a small personal bag can be taken on the aircraft.**

**Friday, 24 September** Museum dive boat *Seaspray* will be towed to Geraldton. Geoff Kimpton and Patrick Baker will accompany the tow vehicle with the heavy freight. Overnight accommodation in Geraldton (Separation Point Caravan Park—to be confirmed).

**Saturday, 25 September** Fisheries patrol boat *Walcott* will be berthed at the Fisheries wharf ready for loading on Saturday. **Assistance with loading will be appreciated.** Early arrivals in Geraldton should contact Geoff Kimpton and/or Patrick for exact timings of operations.

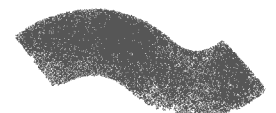
Main body of staff/student volunteers will travel by bus from Perth to Geraldton arriving c. 16.30 hrs. Overnight in Geraldton (Separation Point Caravan Park—to be confirmed).

**Sunday, 26 September** Depart Geraldton on patrol boat *Walcott*. Time to be confirmed (probably c. 0630–0700). Arrive Beacon Island c. 1200–1230 hrs.

### Change-over schedules: **Saturday 2 October and 9 October**

Team members will need to arrive in Geraldton in time to take early morning (c. 0630 hrs) flight departures with Shine Aviation from Geraldton Airport. The Greyhound bus schedules (see attached) have a late departure on Friday evening for those having to work on that day. Alternatively there is an earlier daytime departure arriving Geraldton at c. 1630 hrs. The early flight departures are necessary to ensure that persons returning from the Abrolhos have time to catch the return bus to Perth. Flight time from Geraldton to the Abrolhos is about 30 minutes.

Flights land at East Wallabi Island. From here it is a c. 30–40 minute boat journey to Beacon Island depending on weather conditions. You will need to have a **weatherproof (wet-weather/spray) jacket** for this journey as the *Seaspray* is an open boat with little protection from spray! We will try to ensure that there is plastic sheeting/garbage bags on board to protect luggage as best as possible but you would be advised to ensure that any sensitive and/or valuable cameras or other equipment are carefully wrapped in a watertight bag or container. The Museum holds no responsibility for personal negligence.





**Parking:** At present there is no guarantee of parking facilities at the Fisheries Department, Geraldton, as available space will be taken by the *Seaspray* trailer, hire trailer and Museum vehicle. Parking facilities at the airport will be investigated.

**Saturday, 16 October** Return of expedition from Abrolhos. Estimated time of departure is early morning (exact time TBA). Offload boat and load up trailer. *Seaspray* towed to Fremantle in convoy with Kimpton. Overnight accommodation in Geraldton may be required by team members returning to Perth by bus (see schedules).

**Saturday/Sunday 16/17 October** Training Course for Fisheries Inspectors (WAMM and Heritage Victoria).

**Personal check list**

The following list is provided as a guide to the essential things that you will need to bring with you. Unless you **submit a list of personal items and their valuation** together with your Voluntary Worker Form the Museum will hold **no insurance liability for any loss or damage** incurred.

1. Warm sleeping bag and pillow. [Some air mattresses will be available but if you have a compact, light-weight camping mattress this may be useful—there is no guarantee that there will be regular beds available for everyone.]
2. Torch—to find your way to bed when the generator has run out.
3. Warm track-suit and/or similar outfit (e.g. long pants/warm jumper/windproof/waterproof jacket)
4. Beanie or warm head-gear
5. Shorts
6. T-shirts
7. Bathers
8. Long sleeve shirt (for Sun protection)
9. Sun hat/visor (Sun protection)
10. Sun screen (slip, slap, slop is essential; burning can occur even on a cloudy day)
11. Sun glasses (Sun protection)
12. Wet-suit booties or shoes suitable for walking on sharp coral (in and out of water).  
NOTE: Coral cuts and grazes can be painful and take a long time to heal. Open-toe thongs and sandals, therefore, are NOT IDEAL for walking in this environment.
13. Pair of long socks (for wet and dry work)
14. Personal toiletries (including salt-water pH neutral shampoo/shower gel or one of the sea water products)
15. Towel/chammy sport towel
16. Personal reading/writing matter (the maintenance of a personal field diary is recommended, especially for student volunteers)
17. Camera
18. Other personal equipment: prescription glasses + cord to secure when on boat trips and case to store in when swimming etc. (to prevent them being stepped on and broken!); spare glasses in case of accidental breakage.
19. Prescription medicines; knee/arm and or other supportive bandages normally or occasionally worn; etc.
20. Snorkelling/dive gear (NO SCUBA TANKS OR WEIGHTS).  
[PLEASE NOTE: All diving on air will be at the discretion and under the supervision of Museum staff. A supply of weights will be aboard the *Seaspray* for use when required. Potential divers must provide evidence of qualifications and current diver medical certificate when returning the Voluntary Worker paperwork.]
21. If you are a non-swimmer and/or lack confidence in the water or travelling on boats please advise the Museum officer-in-charge and/or the *Seaspray* skipper. This will enable us to assist you in overcoming any apprehensions you may have and advise the safest places for you to swim.

[PLEASE NOTE: The Abrolhos reefs are notoriously treacherous, and any instructions issued regarding safety must be adhered to at all times. The Museum boat is equipped to Marine and Harbours Safety standards and carries all required safety and emergency equipment including radio communications. Team members should be aware at all times, however, that we will be operating in an isolated situation and every attention should be given to personal behaviour and actions such that they do not endanger the lives of others.]

**Contacts**

Jeremy Green, Myra Stanbury and Corioli Souter will be away in Sydney from 16 to 23 September. Should you have any queries please contact **Susan Cox**, Secretary, Department of Maritime Archaeology, who will either advise you and/or direct your call to one of the other expedition officers.  
Ph: 08-9431-8488; Email: susan.cox@museum.wa.gov.au

**Voluntary Worker/Indemnity Forms/Insurance**

Before you can be registered as a Project team member it is necessary for you to complete the attached Voluntary Worker and Indemnity forms. For your personal equipment to be covered by the Museum insurance you also need to submit a list of items and their value.

Please ensure that you have signed the forms in the appropriate places and return to:

**Myra Stanbury**  
**Department of Maritime Archaeology**  
**WA Maritime Museum**  
**Cliff Street**  
**FREMANTLE WA 6160**

Deadline for return is **14 September 1999**.

The attached data sheet should also be completed and returned with the above.

---

**COASTCARE: ABROLHOS ISLANDS**  
**VOLUNTEER DATA SHEET**

NAME:.....

ADDRESS:.....  
.....  
.....

PH:.....(H).....(W).....MOBILE.....  
FAX:.....Email:.....Other.....

(Please circle whichever appropriate)

VOLUNTARY WORKER/INDEMNITY FORMS ATTACHED.....Y/N

PERSONAL EQUIPMENT LIST AND VALUATIONS ATTACHED.....Y/N

DIVER MEDICAL CERTIFICATE ATTACHED.....Y/N

DIVER QUALIFICATIONS ATTACHED.....Y/N

FIRST AID QUALIFICATIONS ATTACHED..... Y/N

\*COPY OF STUDENT CONCESSION CARD ATTACHED.....Y/N

[\*Required for student concession bus travel tickets]

DO YOU HAVE ANY MEDICAL CONDITIONS WHICH MAY REQUIRE SPECIAL TREATMENT AND/OR THAT WE NEED TO BE AWARE OF ?.....Y/N

DO YOU HAVE ANY SPECIAL DIETARY NEEDS?.....Y/N  
IF 'YES' PLEASE SPECIFY:.....

PLEASE PROVIDE THE NAME/ADDRESS/PH. NO. OF SOMEONE WHO COULD BE CONTACTED IN AN EMERGENCY: .....  
.....

ARE THERE ANY SPECIAL REQUIREMENTS FOR YOUR FAVOURITE RECIPE?  
.....  
.....

WHAT ARE YOUR SPECIAL INTERESTS/SKILLS THAT YOU WILL CONTRIBUTE TO THIS PROJECT ?  
.....

SIGNED:..... DATE:.....



## Appendix 3: Beacon Island excavation 1999 photographic records

Compiled by Patrick Baker

TAPE PLACE	TYPE OP. DATE	LOG IN	LOG OUT	SUBJECT	
426	Beacon Is	DV FEB 26.9.99	0:00:00	0:00:10.0	Colour bar
426	Beacon Is	DV FEB 26.9.99	0:01:02.0	0:07:30.0	PV <i>Walcott</i> , briefing/voyage from Geraldton
426	Beacon Is	DV FEB 26.9.99	0:07:30.0	0:10:30.0	Arrival at Abrolhos
426	Beacon Is	DV FEB 26.9.99	0:10:30.0	0:16:32.0	Ashore on Beacon Is
426	Beacon Is	DV FEB 26.9.99	0:16:32.0	0:19:24.0	Meeting
426	Beacon Is	DV FEB 26.9.99	0:19:24.0	0:23:59.0	Tour of excavation area and island
426	Beacon Is	DV FEB 27.9.99	0:24:09.0	0:27:29.0	Meeting
426	Beacon Is	DV FEB 27.9.99	0:27:29.0	0:29:53.0	Clearing site
426	Beacon Is	DV FEB 27.9.99	0:29:53.0	0:31:17.0	Excavators discussion
426	Beacon Is	DV FEB 27.9.99	0:31:17.0	0:31:14.0	Setting up site
426	Beacon Is	DV FEB 27.9.99	0:34:14.0	0:37:11.0	Island path to GPR search(Greg)
426	Beacon Is	DV FEB 27.9.99	0:37:11.0	0:39:38.0	Survey (pre-excavation)
426	Beacon Is	DV FEB 27.9.99	0:39:38.0	0:45:45.0	GPR of excavation area
426	Beacon Is	DV FEB 27.9.99	0:45:45.0	0:49:26.0	GPR results
426	Beacon Is	DV FEB 28.9.99	0:49:26.0	0:57:38.0	Magnetometer survey
426	Beacon Is	DV FEB 28.9.99	0:53:22.0	0:54:00.0	Juliette and Greg
426	Beacon Is	DV FEB 28.9.99	0:55:07.0	0:56:49.0	Little Shearwater
426	Beacon Is	DV FEB 28.9.99	0:57:58.0	1:02:28.0	GPR (Adam)
426	Beacon Is	DV FEB	1:02:28.0		End
427	Beacon Is	DV FEB 29.9.99	0:00:00.0	0:00:40.0	Colour bar
427	Beacon Is	DV FEB 29.9.99	0:01:00.0	0:02:37.0	Sieving at Ashplant's pan to jetty
427	Beacon Is	DV FEB 29.9.99	0:02:37.0	0:00:40.0	Drausfield family
427	Beacon Is	DV FEB 29.9.99	0:03:05.0	0:00:40.0	Sieving
427	Beacon Is	DV FEB 29.9.99	0:04:16.0	0:00:10.0	Excavation begins
427	Beacon Is	DV FEB 29.9.99	0:06:04.0	0:00:40.0	Sieving
427	Beacon Is	DV FEB 29.9.99	0:07:52.0	0:00:40.0	Excavation (rocks and polythene layer from 94)
427	Beacon Is	DV FEB 29.9.99	0:09:07.0	0:00:40.0	GPR printout and discussion
427	Beacon Is	DV FEB 29.9.99	0:11:52.0	0:00:40.0	Excavation views
427	Beacon Is	DV FEB 29.9.99	0:12:20.0	0:00:40.0	Excavation
427	Beacon Is	DV FEB 29.9.99	0:12:47.0	0:00:40.0	Excavation views
427	Beacon Is	DV FEB 29.9.99	0:13:18.0	0:00:40.0	Excavation
427	Beacon Is	DV FEB 29.9.99	0:13:40.0	0:16:11.0	Shearwater in excavation
427	Beacon Is	DV FEB 30.9.99	0:16:11.0	0:00:40.0	Beacon
427	Beacon Is	DV FEB 30.9.99	0:16:25.0	0:00:40.0	Beacon Is, coral edge
427	Beacon Is	DV FEB 30.9.99	0:17:15.0	0:00:40.0	Crested Terns on jetty
427	Beacon Is	DV FEB 30.9.99	0:18:53.0	0:21:18.0	Osprey
427	Beacon Is	DV FEB 30.9.99	0:20:34.0	0:21:18.0	Jetty Beach
427	Beacon Is	DV FEB 30.9.99	0:21:18.0	0:23:06.0	Island end and Pacific Gull
427	Beacon Is	DV FEB 30.9.99	0:23:06.0	0:24:23.0	Beacon Island
427	Beacon Is	DV FEB 30.9.99	0:24:23.0	0:27:57.0	Plant life, bird life
427	Beacon Is	DV FEB 30.9.99	0:27:57.0	0:28:30.0	Cornelisz' Prison
427	Beacon Is	DV FEB 30.9.99	0:28:30.0	0:31:41.0	Jetty, shore, birds
427	Beacon Is	DV FEB 30.9.99	0:31:41.0	0:32:00.0	Excavation, removing plastic sheeting
427	Beacon Is	DV FEB 30.9.99	0:32:00.0	0:32:21.0	Chick
427	Beacon Is	DV FEB 30.9.99	0:32:21.0	0:33:14.0	Theodolite
427	Beacon Is	DV FEB 30.9.99	0:33:14.0	0:36:35.0	Excavation of skull
427	Beacon Is	DV FEB 30.9.99	0:36:35.0	0:37:29.0	Soil pH testing
427	Beacon Is	DV FEB 30.9.99	0:37:29.0	0:37:56.0	Excavating
427	Beacon Is	DV FEB 30.9.99	0:37:56.0	0:38:11.0	Skull stills
427	Beacon Is	DV FEB 30.9.99	0:38:11.0	0:38:35.0	"Tourists" viewing excavation
427	Beacon Is	DV FEB 30.9.99	0:38:35.0	0:43:28.0	BLANK
427	Beacon Is	DV FEB 30.9.99	0:43:28.0	0:44:23.0	Excavating ribs, root. Labelling
427	Beacon Is	DV FEB 30.9.99	0:44:23.0	0:45:04.0	Soil colour testing
427	Beacon Is	DV FEB 30.9.99	0:45:04.0	0:45:14.0	Excavating ("vertebra")
427	Beacon Is	DV FEB 30.9.99	0:45:44.0	0:46:18.0	Stills of bones, skull
427	Beacon Is	DV FEB 30.9.99	0:46:18.0	0:47:20.0	Excavating
427	Beacon Is	DV FEB 30.9.99	0:47:20.0	0:48:00.0	Lifting long bone (Rib?)
427	Beacon Is	DV FEB 30.9.99	0:48:00.0	0:49:12.0	Excavating, lifting skull
427	Beacon Is	DV FEB 30.9.99	0:49:42.0	0:50:27.0	Excavating, lifting skeletal
427	Beacon Is	DV FEB 30.9.99	0:50:27.0	0:51:07.0	Survey (staff) in pit
427	Beacon Is	DV FEB 30.9.99	0:51:07.0	0:51:31.0	Levelled pit (stills)
427	Beacon Is	DV FEB 30.9.99	0:51:31.0	0:52:49.0	Sorting sieved material
427	Beacon Is	DV FEB 1.10.99	0:52:54.0	0:55:35.0	Excavation & measuring ribs & leg bones
427	Beacon Is	DV FEB 1.10.99	0:55:35.0	0:56:54.0	Eco tourists and Max Cramer
427	Beacon Is	DV FEB 1.10.99	0:56:54.0	0:57:18.0	Viewing excavation
427	Beacon Is	DV FEB 1.10.99	0:57:18.0	0:57:50.0	Orthodontist
427	Beacon Is	DV FEB 1.10.99	0:57:50.0	0:58:15.0	Excavation & bone recovery
427	Beacon Is	DV FEB 1.10.99	0:58:15.0	0:59:31.0	Weighing soil
427	Beacon Is	DV FEB 1.10.99	0:59:31.0	1:02:26.0	Sieving
427	Beacon Is	DV FEB 1.10.99	1:02:26.0		END
428	Beacon Is	DV FEB 1.10.99	0:00:00.0	0:00:10.0	Colour bar
428	Beacon Is	DV FEB 1.10.99	0:01:01.0	0:01:36.0	DE6N Spit 4. Lifting long bones
428	Beacon Is	DV FEB 1.10.99	0:01:53.0	0:03:18.0	Carving material from dig to camp
428	Beacon Is	DV FEB 1.10.99	0:03:18.0	0:03:36.0	Sieved material into store room
428	Beacon Is	DV FEB 1.10.99	0:03:36.0	0:04:03.0	Return to dig
428	Beacon Is	DV FEB 1.10.99	0:04:03.0	0:09:13.0	GPR
428	Beacon Is	DV FEB 1.10.99	0:09:20.0	0:10:33.0	Excavation area
428	Beacon Is	DV FEB 1.10.99	0:10:33.0	0:12:31.0	Sorting material (John M)
428	Beacon Is	DV FEB 1.10.99	0:12:31.0	0:17:30.0	Excavation, Skull, Torso
428	Beacon Is	DV FEB 1.10.99	0:17:30.0	0:19:35.0	Lifting skull
428	Beacon Is	DV FEB 1.10.99	0:19:35.0	0:27:00.0	Forensic inspection (Alana, Stephen)
428	Beacon Is	DV FEB 1.10.99	0:27:00.0	0:28:23.0	Mandible, scapula analysis (Alana, Juliette)
428	Beacon Is	DV FEB	0:28:23.0	0:29:22.0	Elbow
428	Beacon Is	DV FEB	End		30 min available
429	Beacon Is	DV FEB 1.10.99	0:00:00.0	0:00:12.0	Colour bars
429	Beacon Is	DV FEB 1.10.99	0:00:12.0	0:00:44.0	Batavia Inside Reef pottery
429	Beacon Is	DV FEB 1.10.99	0:00:44.0	0:01:11.0	Blank
429	Beacon Is	DV FEB 1.10.99	0:01:11.0	0:01:15.0	Excavation photomosaic
429	Beacon Is	DV FEB 1.10.99	0:01:15.0	0:01:36.0	E5 spit 9
429	Beacon Is	DV FEB 1.10.99	0:01:36.0	0:01:45.0	E5 spit 9
429	Beacon Is	DV FEB 1.10.99	0:01:45.0	0:02:04.0	E5 spit 9
429	Beacon Is	DV FEB 1.10.99	0:02:04.0	0:02:52.0	E6
429	Beacon Is	DV FEB 1.10.99	0:02:52.0	0:03:05.0	D5 spit 9
429	Beacon Is	DV FEB 1.10.99	0:03:10.0	0:03:43.0	D6 spit 9
429	Beacon Is	DV FEB 1.10.99	0:03:43.0	0:04:01.0	E6
429	Beacon Is	DV FEB 1.10.99	0:04:01.0	0:04:19.0	E5
429	Beacon Is	DV FEB 1.10.99	0:04:19.0	0:04:36.0	D5
429	Beacon Is	DV FEB 1.10.99	0:04:36.0	0:04:55.0	E5
429	Beacon Is	DV FEB 1.10.99	0:04:55.0	0:06:21.0	Excavation
429	Beacon Is	DV FEB 1.10.99	0:06:21.0	0:06:31.0	D6
429	Beacon Is	DV FEB 1.10.99	0:06:31.0	0:06:56.0	E6
429	Beacon Is	DV FEB 1.10.99	0:06:56.0	0:07:06.0	D5
429	Beacon Is	DV FEB 1.10.99	0:07:06.0	0:07:33.0	E5
429	Beacon Is	DV FEB 1.10.99	0:07:33.0	0:07:49.0	D5
429	Beacon Is	DV FEB 1.10.99	0:07:49.0	0:08:09.0	E5
429	Beacon Is	DV FEB 1.10.99	0:08:09.0	0:09:08.0	E6. Skull excavation
429	Beacon Is	DV FEB 1.10.99	0:09:08.0	0:10:12.0	E5
429	Beacon Is	DV FEB 1.10.99	0:10:12.0	0:10:58.0	Covered up excavation
429	Beacon Is	DV FEB 1.10.99	0:10:58.0	0:13:37.0	Excavation area
429	Beacon Is	DV FEB 1.10.99	0:13:37.0	0:14:26.0	
429	Beacon Is	DV FEB 1.10.99	0:14:26.0	0:19:10.0	Excavation recording
429	Beacon Is	DV FEB 1.10.99	0:19:10.0	0:19:21.0	Detail/body "contents" and buttons
429	Beacon Is	DV FEB 1.10.99	0:19:21.0	0:19:57.0	Ribs excavation
429	Beacon Is	DV FEB 1.10.99	0:19:57.0	0:21:35.0	Site recording-bagging, staff, theodolite
429	Beacon Is	DV FEB 1.10.99	0:21:35.0	0:21:38.0	Fabric
429	Beacon Is	DV FEB 1.10.99	0:21:38.0	0:22:25.0	Site photo recording, D5,E6





429	Beacon Is	DV	CF	9.10.99	0:22:25.0	0:25:00.0	
429	Beacon Is	DA	CF	9.10.99	0:25:00.0	0:25:21.0	Site measurement
429	Beacon Is	DV	CF	9.10.99	0:25:21.0	0:27:01.0	Panning across skeletal material
429	Beacon Is	DV	CF	9.10.99	0:27:01.0	0:28:04.0	Overall view of skeletons
429	Beacon Is	DV	CF	9.10.99	0:28:04.0	0:28:45.0	Office work, JNG, Corioli
429	Beacon Is	DV	CF	9.10.99	0:28:45.0	0:29:22.0	Myra, cataloguing
429	Beacon Is	DV	CF	9.10.99	0:29:22.0	0:31:36.0	Excavation details
429	Beacon Is	DV	CF	9.10.99	0:31:36.0	0:32:15.0	Excavating
429	Beacon Is	DV	CF	9.10.99	0:32:15.0	0:32:34.0	Chris Fleming-self portrait
429	Beacon Is	DV	CF	9.10.99	0:32:34.0	0:34:07.0	Excavating skull-details
429	Beacon Is	DV	CF	9.10.99	0:34:07.0	0:34:23.0	Lifting skull
429	Beacon Is	DV	CF	9.10.99	0:34:23.0	0:34:52.0	"Space" left by skull
429	Beacon Is	DV	CF	9.10.99	0:34:52.0	0:36:04.0	Unidentified mass
429	Beacon Is	DV	CF	9.10.99	0:36:04.0	0:36:34.0	Spine details
429	Beacon Is	DV	CF	9.10.99	0:36:34.0	0:38:12.0	Mandible excavation, removal
429	Beacon Is	DV	CF	9.10.99	0:38:12.0	0:38:24.0	Juliette, Chris, coffee break
429	Beacon Is	DV	CF	9.10.99	0:38:24.0	0:39:19.0	
429	Beacon Is	DV	CF	9.10.99	0:39:19.0	0:41:34.0	Office work, incl. computing, drawing
429	Beacon Is	DV	CF	9.10.99	0:41:34.0	0:43:12.0	Outside track, view from house to excavation
429	Beacon Is	DV	CF	9.10.99	0:43:12.0	0:44:53.0	Excavation pit
429	Beacon Is	DV	CF	9.10.99	0:44:53.0	0:45:24.0	Zoom to small bones
429	Beacon Is	DV	CF	9.10.99	0:45:24.0	0:47:21.0	Excavation area D5, D6, E5, E6
429	Beacon Is	DV	CF	10.10.99	0:47:21.0	0:48:35.0	Skull, excavation and details
429	Beacon Is	DV	CF	10.10.99	0:48:35.0	0:48:46.0	Juliette Pasveer
429	Beacon Is	DV	CF	10.10.99	0:48:46.0	0:53:25.0	Skull excavation
429	Beacon Is	DV	CF	10.10.99	0:53:25.0	0:53:41.0	Skull lifting
429	Beacon Is	DV	CF	10.10.99	0:53:41.0	0:54:32.0	Jetty & nude
429	Beacon Is	DV	CF	10.10.99	0:54:32.0	0:56:53.0	Camp fire
429	Beacon Is	DV	CF	11.10.99	0:56:53.0	0:57:04.0	Excavation area E6
429	Beacon Is	DV	CF	11.10.99	0:57:03.0		END
430	Beacon Is	DA	CF	11.10.99	0:00:00.0	0:00:50.0	Colon bars
430	Beacon Is	DV	CF	11.10.99	0:00:50.0	0:03:38.0	BLANK
430	Beacon Is	DV	CF	11.10.99	0:03:38.0	0:03:54.0	E6, Excavating
430	Beacon Is	DV	CF	11.10.99	0:03:54.0	0:03:38.0	Nikki resting
430	Beacon Is	DV	CF	11.10.99	0:03:38.0	0:03:54.0	Excavation (new area?)
430	Beacon Is	DV	CF	11.10.99	0:03:54.0	0:06:48.0	
430	Beacon Is	DV	CF	11.10.99	0:06:48.0	0:06:46.0	Fingers excavation
430	Beacon Is	DV	CF	11.10.99	0:06:46.0	0:08:59.0	Put around yard & down to "mass"
430	Beacon Is	DV	CF	11.10.99	0:08:59.0	0:11:23.0	Sunset from Beacon Is
430	Beacon Is	DA	CF	11.10.99	0:11:23.0	0:12:25.0	Oyster catcher, sunset, track along island
430	Beacon Is	DV	CF	11.10.99	0:12:25.0	0:16:05.0	Closing down excavation
430	Beacon Is	DV	CF	11.10.99	0:16:05.0	0:16:34.0	Corioli & socks
430	Beacon Is	DV	CF	11.10.99	0:16:34.0	0:17:24.0	Goss Passage view, white caps
430	Beacon Is	DV	CF	11.10.99	0:17:24.0	0:17:46.0	Bridled Tern
430	Beacon Is	DV	CF	11.10.99	0:17:46.0	0:20:02.0	Sorting material
430	Beacon Is	DV	CF	11.10.99	0:20:02.0	0:20:59.0	Card game
430	Tranor's Is	DV	CF	11.10.99	0:20:59.0	0:23:04.0	Surveyors
430	Seal Is	DV	CF	11.10.99	0:23:04.0	0:29:34.0	Seal, surveyors
430	Beacon Is	DV	CF	11.10.99	0:29:34.0	0:30:26.0	Packing for departure
430	Beacon Is	DV	CF	11.10.99	0:30:26.0	0:32:28.0	Island Leader, return trip
430	Beacon Is	DV			0:32:28.0	1:00:33.0	COPY FROM HIS TAPE #
430	Beacon Is	DV	JNG	6.10.99	0:32:28.0	0:42:46.0	Batavia' site
430	Beacon Is	DV	CF	10.10.99	0:42:46.0	0:48:00.0	Beacon Is, photo of Morning
430	Beacon Is	DV	PEB	29.9.99	0:48:00.0	0:54:17.0	Reel, Long Is. F. Wallabi
430	Beacon Is	DV	PEB	29.9.99	0:54:17.0	1:00:33.0	Goss Passage marine life
430	Beacon Is	DV					END
294	Long Island, uw	HS	PEB	27.9.99	0:00:00.0	0:07:22.0	Marine life, Hells
294	Beacon Is	HS	PEB	29.9.99	0:07:30.0	0:10:52.0	Tele Views
294	Beacon Is, uw	HS	PEB	29.9.99	0:10:52.0	0:25:17.0	Goss Passage marine life
294	Batavia site, uw	HS	JNG	6.10.99	0:25:17.0	0:34:53.0	Site, Corioli
294	Beacon Is, uw	HS	CF	10.10.99	0:34:53.0	0:40:06.0	Jetty, marine life

## Appendix 4: Post-recovery care and on-site storage of artefacts

### Carmela Corvaia

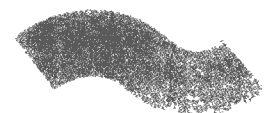
*Department of Materials Conservation and Restoration, Western Australian Museum, Cliff Street, Fremantle WA 6160*

Points to consider when recovering artefacts from a land site:

- During and after excavation the artefact is vulnerable to physical damage. It should always be handled with extreme care.
- Following excavation, an artefact is exposed to a set of conditions quite different from those of its former environment. There are changes in **temperature, relative humidity and light levels** to consider.
- It is important to provide stabilising conditions as soon as possible following excavation and to be prompt when recording information about recovered objects.
- Porous materials, such as bone, are very sensitive to changes in RH and the **rate of change** should be **very slow**. Ideally, upon removal of the object from its burial environment and immediately following labeling, the artefact/fragments should be individually wrapped in neutral pH tissue paper and placed inside an **unsealed** polyethylene bag. It should be stored away from direct sunlight. The tissue paper and polyethylene will act as a buffer zone and allow the artefact to acclimatise slowly to its new environmental conditions.
- Digital Temperature and Relative Humidity monitoring devices can be used inside the polyethylene bags to monitor changes during storage.
- Further examination and recording of the artefact can be undertaken in more favorable and stable environmental conditions.
- To avoid physical damage to artefacts during storage and transport, wrap/fold objects carefully in neutral pH tissue paper and place inside polyethylene bags. Label the outside of the bags (to avoid unnecessary handling of the objects) and store them in a lined, rigid container. Pad around individual bags, place them in a single layer (or multiple layers with additional padding) and label all storage containers. During transport, also aim to maintain stable environmental conditions for the artefacts. Avoid sunlight and monitor temperature and relative humidity.

**Note:** For guidelines to Post-Recovery Conservation of Wet Material, see appropriate chapter in Gilroy, D. & Godfrey, I. (eds.), 1998, *Conservation and care of collections*. Western Australian Museum, Perth.

6 September 1999



## Appendix 5: Media and publicity

### Newspaper articles

- Amalfi, C., 1999, *Batavia* bones. Mutiny victims found in mass grave. *The West Australian*, Thursday, October 7 1999: 1 Exclusive. Pictures by John Mokrzycki.
- Amalfi, C., 1999, Excavation unearths 17th century ghosts. *The West Australian*, Thursday, 7 October 1999: 4-5. Pictures by John Mokrzycki.
- Amalfi, C., 1999, Mutiny on the *Batavia*: why they died. *The West Australian*, Thursday, 7 October 1999: 4. Pictures by John Mokrzycki.
- Amalfi, C., 1999, Another skeleton found. Row develops over material from *Batavia* excavation. *The West Australian*, Friday, 8 October 1999: 5 a-c.
- Amalfi, C., 1999, *Batavia* dig winds down. *The West Australian*, Monday, 11 October 1999.
- Amalfi, C., 1999, Fleshing out the *Batavia* horror. *The West Australian Big Weekend*, 20 November 1999: 1-2. Pictures by John Mokrzycki.
- Amalfi, C., 1999, Face to face with a ghost. *The West Australian Big Weekend*, 20 November 1999: 2 c-e. Pictures by John Mokrzycki.
- Amalfi, C., 1999, Infamy on murder island. *The West Australian Big Weekend*, 20 November 1999: 2 c-e. Pictures by John Mokrzycki.
- Edwards, H., 1999, WA's own killing field. *The West Australian Big Weekend*, 20 November 1999: 2a-b.
- Marren, M., 1999, MPs in lobby for skeletons return. *The Geraldton Guardian*, Wednesday, 13 October 1999: 1 a-c.
- Marren, M., 1999, Islanders pan skeleton show. *The Geraldton Guardian*, Friday, 5 November.
- Paganoni, L., 1999, *Batavia* shipwreck explored. *Curtin Independent*, 21 October 1999.
- Petchell, L., 1999, Disturbance to graves raises local concerns. *The Geraldton Guardian*, Friday, 8 October 1999: 3 a-c.
- Petchell, L., 1999, Mass grave find excites diggers. *The Geraldton Guardian*, Monday, 18 October 1999: 1 a-b.
- Petchell, L., 1999, *Batavia* dig volunteer describes skeleton finds. *The Geraldton Guardian*, Friday, 22 October 1999: 10 a-d.
- The Independent* (London)
- Nieuwsblad van het Noorden* (The Netherlands)

### TV News

Channel 7 News, 14/15 October 1999.

### Public lectures

Coastcare Week Geraldton. 30 November 1999. Talk by Chris Fleming, Project Volunteer at the Geraldton Region Museum.

### Media inquiries

1. Andrew Parkin, Development Researcher, Diverse Production, Gorleston Street, London W14 8XS. Possible documentary for 'Secrets of the Dead'.
2. Gillian Mosely, Cicada Films Ltd, 1 Marylands Road, Maida Vale, London W9 2DU.
3. Julia Redwood and Ed Punchard, Prospero Productions, WA. Possible documentary film.

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